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How positive is their future? Assessing the role of social support and optimism in patients with cardiovascular disease

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Abstract
Someone with coronary heart disease is someone who has a heart defect that makes the heart experience narrowing or inhibition of arteries that drain blood to the heart muscle. This situation may affect the optimism of life that exists in coronary heart patients. However, if coronary heart patients get social support from their partners, it can have a good impact on the level of life optimism. This study aims to determine whether there is a relationship between spousal social support and life optimism in coronary heart disease patients in Pekanbaru City, Riau. This study uses correlational quantitative research methods. The population in this study amounted to 213 people and the sample amounted to 139 people. The sample was determined using non-probability sampling technique. Then, the data were analyzed using Pearson Product Moment correlation analysis. The results of this study indicate that the level of Partner social support is in the high category and life optimism is in the moderate category. Then, the results of the correlation test between partner social support and life optimism obtained a p value = 0.044 and a correlation coefficient value of 0.141. This shows that the proposed research hypothesis is accepted, namely that there is a positive relationship between partner social support and life optimism in patients with cardiovascular disease.
Keywords: ***p****artner social support, life optimism, coronary heart disease*

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Introduction

World Health Organization (WHO) experts estimated in 2016 that 17.6 million people worldwide die each year. This heart disease is the leading cause of death in the world. Not everyone is fortunate enough to have good health in their old age; most have experienced illness, some even serious ones, such as major accidents or heart defects. In developed countries, coronary heart disease is the leading cause of death each year. Death is also a source of fear for heart disease, as there is currently no treatment or action that can prevent it. In developed countries, various prevention measures are implemented to reduce fear of this leading killer. Coronary heart disease is the leading cause of first-time death, followed by cancer in developed countries such as Europe and America. (Schwingshackl et, al., 2017).

In Indonesia, the increase and equalization of public health efforts accompanying development progress have caused the mortality rate to decrease and life expectancy to increase. Bappenas projected Indonesia's life expectancy in 2020 to be 71.49 for men and 75.27 for women, which averages to 73.4 years (Fatma, 2020). Along with the increase in life expectancy worldwide, including in Indonesia as a developing country, the mortality rate of coronary heart disease (CHD) is also increasing, especially in the middle-aged and elderly population (Hall et al., 2020). About one-third of all adults over 35 years old are at risk of coronary heart disease (Zhang et al., 2021), and in Indonesia, CHD is the leading cause of death in people over 40 years old (Ghani et al., 2016).

Indonesia is experiencing a transition in health issues, where previously the leading causes of death were dominated by infectious diseases, but now degenerative diseases, including cardiovascular disease such as heart disease and vascular disease, are the leading causes of death (Setyaji, 2018). Coronary heart disease often causes sudden death and affects a very productive age group, making it a disease that is highly feared. Based on records in Indonesia - according to the 1990 Household Health Survey conducted by the Ministry of Health of the Republic of Indonesia, cardiovascular disease or circulatory system diseases (including coronary heart disease) ranked second as the cause of death. At that time, it was predicted that only in the year 2000 would coronary heart disease become the main cause of death or rank first in Indonesia. However, the Household Health Survey in 1992 already showed that cardiovascular disease ranked first as the cause of death, increasing fear of coronary heart disease. If this is the case, Indonesia is on par with the international community in terms of the cause of death due to coronary heart disease (Purnama, 2020). The Household Health Survey is consistent with the Household Health Census Survey (SKRT), which states that the cause of death due to cardiovascular disease (PJPD) continues to increase from ranking eleventh in 1957 (1-3%), to ranking fourth in 1980 (5.2%), ranking second in 1986 (9.77%), and ranking first in 1992 (16.4%) (Nuraeni, 2017). In 2020, it still ranked first (18.9%) (Lidwina, 2020).

According to data from the Central Statistics Agency (BPS), the life expectancy of the population of Pekanbaru City in 2020 was 72.34 years. However, with the social and economic developments in society, there has been a tendency towards an increase in cardiovascular disease (PJPD) cases. A preliminary study conducted at Arifin Achmad Riau Hospital showed an increase in the number of coronary heart disease patients who underwent hospitalization in 1 year, with 59 patients in 2019 and 51 patients in 2020. The number of coronary heart disease patients receiving outpatient treatment in 2019 was 2,858, while in 2020 it was 4,334. At the Pekanbaru City Hospital, the number of visits by heart patients receiving outpatient treatment in 2018 was 1,046, in 2019 it was 2,372 patients, and in 2020 it was 2,873 patients (Medical Records Installation of Arifin Achmad Pekanbaru Regional Hospital, 2021). This data shows that the number of heart disease patients has been increasing year by year and has been widely suffered by the population, with a significant number of patients.

The definition of coronary heart disease (CHD) is actually the same as ischemic heart disease (Wihastuti, et al., 2016), and both terms are often used interchangeably. According to

WHO, CHD is the inability of the heart, both acute or chronic, which arises due to a lack of blood supply to the myocardium associated with the disease process in the coronary artery system. The medical term acute means sudden and chronic means long-standing. The myocardium is the name of all the muscles that make up the heart, and the coronary blood supply is the vascular tissue that causes blood to flow to the heart muscle (Wihastuti, et al., 2016). Coronary heart disease is mainly caused by atherosclerosis, which is the narrowing of the coronary arteries. This narrowing is caused by atherosclerotic plaques consisting of a build-up of fatty connective tissue in the vessel intima (Wihastuti, et al., 2016). CHD is influenced by many factors; according to Wihastuti, et al., (2016), there are two major risk factors that affect CHD. The first factor is diet-related risk factors, such as an increase in blood lipids, carbohydrates, overweight, and mineral-protein factors. The second factor is non-diet-related risk factors, such as family history (possible genetic associations, related diseases such as diabetes and hypertension), lack of physical activity, smoking, and psychological stressors such as feelings of helplessness, depression, lack of family support, low income, and lack of a partner, which can increase mortality due to heart disease.

The fear of heart disease stems from the fear of death that affects everyone who has experienced a heart attack. For the patient, it can lead to prolonged stress or depression (Cosselman et al., 2015; Townsend et al., 2015). Research has found that after a period of heart attack, the psychological impact of coronary heart disease is 20-40% anxiety and 30-50% depression (Pedersen et al., 2017). These findings are consistent with the research presented by DuBois et al. (2015) that almost 50% of patients who experience heart muscle disorders show signs of depression, and 16-20% of them subsequently experience severe depression. Patients who experience severe depression within six months will have a five times greater risk of death compared to the group of patients who do not experience depression. From these research results, it appears that the biggest psychological impact after a heart attack is stress.

The impact of a heart attack on mental health includes depression, as shown by the research mentioned above. Certain factors from personal health history can affect the risk of developing coronary heart disease (CHD). For example, those who have had a heart attack are more likely to have another one compared to those who have not experienced one. Similarly, if they have undergone coronary artery bypass graft surgery or balloon angioplasty, it indicates that they have had heart disease or possibly deposition in other arteries in their body. Therefore, they should be aware that coronary heart disease also increases the risk factors for stroke, sudden death, and others. With various risks after a heart attack, patients may become increasingly stressed and even depressed.

The psychological impact following a heart attack or coronary artery bypass grafting is mainly in the form of depression, as evidenced by the research findings mentioned above. Certain factors from personal health history can affect the risk of developing coronary heart disease (CHD). For example, those who have had a heart attack are more likely to have another one than those who have not. Similarly, if they have undergone coronary bypass surgery or balloon angioplasty, this is an indication that they have had heart disease or perhaps there has been plaque build-up in other arteries in their body. Therefore, they must be aware that CHD also increases the risk factors for stroke, sudden death, and other diseases. These various risks after a heart attack will cause the patient to become more stressed and even depressed. Regarding the relationship between the psychological impact after a heart attack or after coronary artery bypass grafting, Kowalski in his book 8 Steps to A Healthy Heart stated that the organ most affected by CHD is not the heart, not the arteries, or other parts of the cardiovascular system. The organ that is most likely to have an impact on life in the future and determine the success of healing is located in the brain, which is manifested as a mental attitude or psyche (Putri et al., 2018). This is in line with Gill's statement in his book on coronary heart disease that many CHD patients who undergo coronary artery bypass grafting experience significant trauma, which sometimes lasts for months or even years, resulting in various psychological symptoms such as depression and feeling helpless (Iswahyudi et al., 2020).

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Many of those who have had a heart attack or coronary bypass surgery feel helpless, and the psychological impact should not be underestimated. Even patients who appear healthy and confident from the outside may have various mental issues. A large number of male and female patients have trouble sleeping, depression, limited movement, chest pain, and fear of another attack. These are all new and unpleasant things for individuals who were once strong. Most patients (80%) are able to resume their activities as before if there are no severe complications. The success of total healing depends on how much effort is made to address the mental issues above. Currently, the medical community has the same opinion that most patients can achieve improvement through systematic and regular efforts. This effort is known as a rehabilitation program.

Rehabilitation programs for coronary heart disease patients are mostly done with a medical approach, such as increasing exercise frequency, regulating food intake to avoid diabetes and obesity, avoiding smoking, undergoing regular health check-ups, and monitoring blood pressure (Susanti et al., 2019; Halewijn et al., 2017). To achieve maximum results from the above medical program and to ensure the success of the rehabilitation program, the approach taken should not only be medical but also psychological. First and foremost, in a psychological approach, it is necessary to address the pressing mental issues, such as depression. As is known, when someone experiences severe mental stress, they begin to feel powerless, even though life after experiencing coronary heart disease can still be bright and enjoyable, as long as the patient and their family take the necessary steps to encourage healing, both physically and mentally. Mental healing is more of a family issue than an individual one. The family's attitude towards the patient's physical condition and their ability to help or accelerate the healing process are crucial (Suardana et al., 2015).

For married couples, marriage is an involvement in a relationship that requires the couple to understand what their partner needs more than their own needs. Married couples will feel complete if they can carry out all their tasks well. However, a spouse who suffers from coronary heart disease must be acknowledged to have difficulties in performing their duties as a husband or wife. For coronary heart disease patients who have suffered a heart attack, they will experience physical and psychological changes. These changes will disrupt their daily activities, especially in work, sexual relationships, and there are things that need to be done to maintain health such as reducing smoking, monitoring blood pressure and cholesterol, exercising, and changing eating behavior. Therefore, understanding and support from the spouse of a coronary heart disease patient is needed so that all these changes can be accepted and implemented without disturbing their daily relationship (Sudarji, 2011). If a coronary heart disease patient views and evaluates their partner as someone who can provide support and attention to them, then this will affect their feelings that they are still accepted, loved, needed, and appreciated by their partner. This way, they will not experience depression because it turns out that the people around them, especially their spouse, did not leave them when they had to face a threat to their existence as a husband or wife.

The statements above are in line with the results of research by Violanti et al. (2018) that social support, especially when others provide instrumental, advice, and emotional support, is better for people experiencing a lot of stress in their lives. The study by Uchino et al. (2020) found that physical weakness in a person is associated with less family contact, contact with friends, and a decreased sense of belonging and lack of material support from others. This study also found that emotional support is more important than instrumental support in reducing depressive symptoms (Tan & Wang, 2019). Research by Ebrahimi et al. (2019) found that social support, especially from family, is related to adjustment, both directly and indirectly, as a form of adaptive coping strategy. This is in line with Petrova et al.'s (2015) research, which found that conditions for patients to recover and work successfully depend not only on external support but also on their own opinions. A person's tendency to think, whether optimistically or pessimistically, will affect their psychological adjustment to life (Bennett, 2015). A positive attitude is essential for total recovery because patients with a positive attitude recover faster and lead a normal life compared to pessimistic patients. This is in line with Craig et al.'s (2021) findings that optimistic people are

more resistant to illness, have healthier habits than pessimistic people, and have a better functioning immune system. A realistic and optimistic person takes the problem at hand seriously. They pay attention to their doctor's advice and make changes to their lifestyle that involve diet, smoking, and exercise. They make changes to deal with the stress that is part of their life and work.

Segerstrom et al. (2017) stated that positive thinking, such as thinking about past events that were successfully overcome, can reduce the tension caused by demanding tasks, while negative thinking can increase tensions and worsen an individual's performance in carrying out tasks. This is consistent with the findings of SaraPuig-Perez et al. (2015) from their research, which found evidence that in dealing with stressful situations, an individual's success in overcoming them depends greatly on their cognitive assessment. Individuals who have a positive assessment will be able to handle the situation well, while individuals who have a negative assessment will have difficulty in solving their problems.

Method

The research conducted is a correlational study, using a quantitative research method that emphasizes analysis on numerical data processed using statistical methods. The population in this study is coronary heart disease patients who have been clinically diagnosed by doctors and are currently undergoing outpatient treatment at Arifin Achmad Hospital in Pekanbaru, with a total of 213 people, and the sample size in this study is 139 people. The sampling technique used in this study is non-probability sampling, which means that the sampling technique is not selected randomly. In this study, the sampling technique used is purposive sampling, which is the selection of subjects based on characteristics or traits that are considered suitable with the predetermined criteria (Azwar, 2017). The data collection technique in this study is using a Likert scale model with a number of answer choices containing the level of conformity of the respondent's actual condition to the statements presented. The scales used in this study are the partner social support scale using dimensions proposed by Taylor (2011) which include emotional attention, instrumental assistance, information assistance, and research assistance. The life optimism scale using dimensions proposed by Seligman (1995) which include permanence, pervasiveness, and personalization. The analysis technique used in this study is the Pearson correlation technique.

Result and Discussion

Result

The study was conducted at Arifin Achmad Hospital in Pekanbaru, Riau. The subjects of this study were 139 individuals with coronary heart disease who met the following criteria: male or female, had been diagnosed with coronary heart disease for more than 6 months, aged 35 years or older, married and still had a living partner, and resided in Pekanbaru.

Based on the table 1, it can be seen that the hypothetical mean of partner social support is 90 and the empirical mean of partner social support variable is 117.07, while the hypothetical mean of life optimism is 81 and the empirical mean of life optimism variable is 96.66. The empirical standard deviation of partner social support is 9.345 and the empirical standard deviation of life optimism is 5.502, while the hypothetical standard deviation of partner social support is 20 and the hypothetical standard deviation of life optimism is 18. The hypothetical minimum score for partner social support is 30 and the hypothetical maximum score is 150, while the minimum score for life optimism is 27 and the hypothetical maximum score is 135. The empirical minimum score for partner social support is 100 and the empirical maximum score is 142, while the empirical minimum score for life optimism is 82 and the empirical maximum score is 114. The hypothetical range of partner social support is 120 and the hypothetical range of life optimism is 108, while the empirical range of partner social support is 42 and the empirical range of life optimism is 32.

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Table 1. Statistical Description of Research Data

Statistical Description	Variable	
	Partner Social Support	**Optimism**
Hypothetical Mean	90	81
Empirical Mean	117,07	96,66
Hypothetical Standard Deviation	20	18
Empirical Standard Deviation	9,345	5,502
Hypothetical Min Score	30	27
Hypothetical Max Score	150	135
Empirical Min Score	100	82
Empirical Max Score	142	114
Hypothetical Range	120	108
Empirical Range	42	32

Next is the categorization of the partner social support and life optimism variables. The following shown in Table 2 are the categorizations of the partner social support and life optimism variables:

Tabel 2. Categorization of Partner Social Support Variable

No	Score	Frequency	Categorization	Percent
1.	X<70	0	-	0
2.	70 ≤ X < 110	30	Moderate	21,6%
3.	110 ≤ X	109	High	78,4%
	Total	139		100%

Out of 139 coronary heart disease patients in Pekanbaru, there are 30 subjects included in the moderate category of partner social support with a percentage of 21.6%, and 109 subjects included in the high partner social support category with a percentage of 78.4%. It can be concluded that the level of partner social support in coronary heart disease patients in Pekanbaru, Riau is in the high category.

Table 3. Categorization of Optimism Variable

No	Score	Frequency	Categorization	Percent
1.	X<63	0	-	0
2.	63 ≤ X < 99	92	Moderate	66,2%
3.	99 ≤ X	47	High	33,8%
	Total	139		100%

Based on Table 3, it can be seen that out of 139 coronary heart disease patients in the city of Pekanbaru, 92 subjects were categorized as having moderate levels of life optimism with a percentage of 66.2%, and 47 subjects were categorized as having high levels of life optimism with a percentage of 33.8%. Thus, it can be concluded that the level of life optimism among coronary heart disease patients in Pekanbaru, Riau is in the moderate category.

The next step is to conduct a normality test to determine whether the population data is normally distributed or not. In this study, the One Sample Kolmogorov-Smirnov test will be used.

Tabel 4. Descriptive Statistics of Normality Test Results

Variable	Z	P	Explanation
Partner Social Support	0,679	0,746	Normal
Optimism	0,776	0,584	Normal

For the variable of partner social support, the Z-value is 0.679 and P-value is 0.746, while for the variable of life optimism, the Z-value is 0.776 and P-value is 0.584. Based on the test criteria, if the significance value is >0.05, it means the data is normally distributed, so it can be said that the score distribution of both variables is normal.

The next test is the linearity test, which is a prerequisite test usually performed when conducting a correlation analysis. This test aims to determine whether two variables have a significant linear relationship or not. Test For Linearity in SPSS with a significance level of 0.05 is used for the linearity test.

Tabel 5. Descriptive Statistics of Linearity Test Results

Variable	F	P	Explanation
Optimism* Partner Social Support	4, 083	0,046	Linear

The next step is to test the hypothesis proposed in this study, which is that there is a positive correlation between spousal social support and optimism among coronary heart disease patients in the city of Pekanbaru. Pearson correlation technique will be used to calculate the correlation in this study.

Tabel 6. Description of Hypothesis Test Results

Variable	N	Pearson-Correlation	Explanation
Partner Social Support	139	0,141	Significant
Optimism	139	0,141	Significant

The data analysis resulted in a Pearson correlation coefficient value of 0.171 for the variables of partner social support and optimism in patients with coronary heart disease in Pekanbaru City, indicating a positive relationship between the two variables. If the significance value is greater than 0.05 (Sig>0.05), the hypothesis is rejected, while if the significance value is less than 0.05, the hypothesis is accepted. The significance value of the partner social support and optimism variables is 0.044, indicating that the significance value is less than 0.05, thus showing that there is a relationship between partner social support and optimism in patients with coronary heart disease in Pekanbaru City.

Discussion

The results of this study indicate that social support from partners and optimism have a significant relationship among patients with coronary heart disease. The study also found that although the level of social support from partners was high, optimism was only in the moderate category. The significant relationship between social support from partners and optimism can be explained using the theories of learning, interaction, and cognition (Wilkinson, 1992). The theory of learning emphasizes that stress occurs when an individual's behavior fails to receive reinforcement from the environment. Too little reinforcement can cause an individual to be unmotivated to seek positive reinforcement, leading to laziness and then feelings of frustration

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(Lewinsohn in Rathus and Nevid, 1991). In this study, patients with coronary heart disease showed moderate levels of optimism and high social support from their partners. Social support in the form of information, appreciation, positive evaluations, warmth, and material assistance is a positive reinforcement for patients with coronary heart disease. The high level of social support from their life partners, who are the closest and most selfless individuals, in this study will make patients with coronary heart disease feel loved, cared for, valued, and stronger in facing their illness, encouraging them to overcome the problems they face.

The results of this study indicate that partner social support and optimism have a significant relationship with coronary heart disease patients. The study also found that the level of partner social support was high, but optimism was in the moderate category. The significant relationship between partner social support and optimism in coronary heart disease patients is explained using the learning theory, interactional theory, and cognitive theory (Wilkinson, 1992). The learning theory emphasizes that stress due to an individual's behavior not receiving reinforcement from the environment. Too little reinforcement can cause an individual to be unmotivated to strive for positive reinforcement, leading to laziness and then feelings of frustration (Lewinsohn in Rathus and Nevid, 1991). Coronary heart disease patients in this study showed moderate levels of optimism and high levels of partner social support. The social support, such as providing information, appreciation, positive evaluations, warmth, and material assistance, are positive reinforcement for coronary heart disease patients. The high social support from a spouse, who is the closest and selfless person in this study, will make coronary heart disease patients feel loved, cared for, valued, and strong in facing the illness, so they fight to overcome the problems they face.

The interactional theory emphasizes that low social integration and low levels of participation in social activities can affect the onset of depression (Barret and Gotlib in Rathus and Nevid, 1991). This interactional theory can explain that high partner social support can reduce stress in coronary heart disease patients because of the high social support integration in the daily lives of coronary heart disease patients with their long-married partners ranging from 10 to 54 years. Therefore, social activities in the form of emotional, material, and information support have long been felt by coronary heart disease patients from their partners. The subjects in this study had a moderate level of optimism. Based on cognitive theory, the presence of positive expectations, it can be said that intensive positive thinking always accompanies a coronary heart disease patient's episode. The thinking process that strives to be positive will produce positive behavior, while negative thinking processes will produce negative behavior. Regarding optimism, Shapiro (1997) stated that it is a habit of positive thinking, a positive and realistic way of looking at a problem. Optimistic coronary heart disease patients will feel confident that every problem has a solution, and they will not easily give up due to their illness, so the accompanying stress can be overcome.

The level of spousal social support overall is high, and the level of life optimism is generally in the moderate category. Spousal social support showed an empirical mean of 117.07, and life optimism showed an empirical mean of 96.66. The results of the categorization in this study indicate that high spousal social support, which includes emotional support, information, appraisal, and instrumental support (Johnson and Johnson, 1991; and Smet, 1994) and moderate optimism, which uses three explanatory styles related to time, scope, and causes of problems (Seligman, 1995), will result in low stress in coronary heart disease patients, such as low specific mood changes like sadness, loneliness, and apathy, negative self-concept related to self-assessment and self-blame, self-punishing tendencies and regression, vegetative changes, and changes in activity level (Beck, 1985).

This study also shows that optimism is in the moderate category. As mentioned earlier, for subjects who are elderly, the illness they experience is considered normal and acceptable because of their old age and weakened physical condition, so the optimism to recover is no longer strongly felt by the subjects. Theoretically, individuals who have a positive mindset can always see the

positive side of everything that happens to them. According to Shapiro (1997), optimism is a habit of thinking positively. A positive and realistic way of looking at a problem, and thinking positively is a form of thinking that strives to achieve the best possible outcome from the worst situation.

Shepperd et al. (2013) explained that optimism affects an individual's personal adjustment, health, motivation, academic achievement, and mastery of new skills. Seligman's research showed that positive thinking can positively contribute to increasing self-confidence, self-esteem, physical health, the immune system, healthy lifestyle habits, longer lifespan, reducing pessimistic attitudes, depression, and infections in the body. Optimism ultimately makes people more successful in school, work, social life, and sports. Kim et al. (2014) reported that optimism has a positive effect on health, adjustment after cancer surgery, coronary heart surgery, adjustment in school, and can reduce depression and dependence on alcohol. Almost in line with this, Segerstrom et al. (2011) also stated that optimism can improve health quality by enhancing the immune system. Related to these various factors, Goodin & Bulls (2013) also show evidence that optimism provides many benefits such as living longer, better health, being more enthusiastic in utilizing time and energy, working hard to achieve goals, achieving more in areas such as social relationships, education, work, and sports. In the long term, optimism is beneficial for physical and mental health, well-being, because optimistic individuals are better able to adjust to social, work, and marital life, reduce depression, and enjoy life satisfaction, as well as feeling happy.

Conclusion

High levels of spousal social support and moderate levels of optimism can help reduce stress in coronary heart disease patients, including lowering specific emotional changes such as sadness, loneliness, and apathy, as well as negative self-concepts related to self-assessment and self-blame. In addition, optimism can also provide positive contributions to increasing self-confidence, self-esteem, physical health, immune system, healthy living habits, making life longer, reducing pessimistic attitudes, depression, and infections in the body. Therefore, it can be concluded that family social support and life optimism have a positive relationship with the health and quality of life of coronary heart disease patients.

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