



## THE RELATIONSHIP OF PSYCHOLOGICAL WELL-BEING WITH A CARDIAC DIET SELF EFFICACY IN ACUTE CORONARY SYNDROME PATIENTS

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### ABSTRACT

Acute Coronary Syndrome (ACS) is a cardiovascular disease that causes significant deaths in most countries. No study assessed the directly how this psychological well-being is related to Cardiac Diet Self-Efficacy (CDSE). This study aimed to identify the relationship between psychological well-being and cardiac diet self-efficacy in ACS patients after treatment. This cross-sectional study involved 150 patients at two hospitals in Jambi Province that treated heart disease, especially ACS. We used Cardiac Diet Self-Efficacy (CDSE) Scale and Psychological Well-Being questionnaire. The associations between psychological well-being a cardiac diet self-efficacy were confirmed by the Pearson Correlation test using SPSS 26.0. The correlation test showed a p-value of 0.018, indicating a relationship between psychological well-being and cardiac diet self-efficacy. Furthermore, the value of  $r$  obtained at 0.41 shows a reasonably strong relationship between psychological well-being and cardiac diet self-efficacy. Therefore, it is necessary to prepare for improving psychological well-being in ACS patients both from the discharge planning stage and post-hospital intervention so that ACS patients can have good cardiac diet self-efficacy after treatment.

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## 1. INTRODUCTION

Acute Coronary Syndrome (ACS) is a cardiovascular disease that causes significant deaths in most countries worldwide (Li et al., 2012; Liu et al., 2016). In an incidental, ACS is a disease that occurs with a high incidence, morbidity, and death, causing physical and functional limitations that impact the decline in the quality of life (Maria et al., 2014). American Heart Association (AHA) 2016 reported that 15.5 million people aged  $\geq 20$  years in the United States experienced ACS (Sanchis-Gomar et al., 2016). In 2008, ACS caused 17.3 million and contributed to 10% of the global disease burden, with events estimated to increase by 25% in 2030 (Claes et al., 2016).

The high incidence has an impact on the global population. One challenge cardiovascular patients face in achieving a better prognosis is following a healthy diet (Castillo-Mayén et al., 2020). The diet is studied as part of lifestyle changes through excessive calorie reduction and improvement of food compositions in preventing cardiovascular diseases, including ACS (Hirahatake et al., 2019; Yu et al., 2018). In practice, diet compliance in ACS patients is influenced by self-efficacy (Salari et al., 2016). There is a central role played by self-efficacy in the involvement of individuals in the performance of health-related behaviors, including in the cerebrovascular disease population. For example, studies have described the positive influence of self-efficacy on making dietary changes (Castillo-Mayén et al., 2020). Also, anxiety and self-efficacy could affect disease development through psychological pressure and patient behavior (Barham et al., 2019).

Self-efficacy is said to significantly increase the perseverance, willingness, and compliance of a person's diet in preventing heart disease, including ACS (Chauvet-Gelinier & Bonin, 2017). However, previous research has examined self-efficacy for healthy dietary intake, although self-efficacy has been reported as a good predictor of health behavior of ACS patients after discharge (Fahmi et al., 2022; Sharp & Salyer, 2012). This is a challenge in the rehabilitation process of patients with ACS (Chauvet-Gelinier & Bonin, 2017). In addition, the positive aspect of psychological well-being, such as optimism, can result in good outcomes for patients with ACS (Kubzansky et al., 2018). A study by Krok et al. in 2020 tried to see the relationship between self-efficacy with psychological well-being in patients. The study's results explained an indirect relationship between the two variables (Krok & Zarzycka, 2020). However, the study needs to judge directly how this psychological well-being relates to Cardiac Diet Self-Efficacy (CDSE).

Handling the relationship between these two components is essential to identify to develop developmental interventions that can increase self-efficacy in ACS patients to improve the psychological well-being of patients in achieving maximum treatment outcomes. Based on the description and literatures above, this study aimed to identify the relationship between Psychological Well-Being and CDSE in ACS patients after treatment.

## 2. METHOD

### Research Design

This research is a descriptive correlative research with a cross-sectional approach. Cross-sectional studies are very well used for research studied at one time. This study involved two hospitals in Jambi Province that served the treatment of heart disease, especially ACS disease,

where the population of this study was all ACS patients after treatment at Raden Mattaher Hospital Jambi, Abdul Manap Hospital, Jambi City at June-August, 2022.

### **Population and Sample**

Determination of sampling in this study used a non-probability sampling approach, with a type of purposive sampling with patient inclusion criteria with a diagnosis of ACS post-treatment; Able to communicate, read, write and speak Indonesian well; and willingness to be involved in research. The exclusion criteria in this study are all ACS patients who experience NYHA Class IV heart failure, chest pain, shortness of breath, COPD using oxygen, chronic liver disease, chronic kidney disease, mental disease, and dementia.

The sample size in this study used the calculation of the number of samples using the proportion estimation formula. The proportion value in this study was 0.5%, which was taken based on previous studies where the proportion of ACS patients in Jambi Province. Therefore, based on the calculation, the amount of sampling in this study was 150 respondents.

### **Instrument**

The instrument used in this study was a Cardiac Diet Self-Efficacy (CDSE) Scale developed by Hicke et al. (Hickey et al., 1992). Before the researcher was used asking permission to use questionnaires via email to researchers, then translated into Indonesian through translator Surpassed, Valid and Reliable CDSE is used to measure Self-Efficacy Diet Cardiac in ACS patients (Chen & Shao, 2009). CDSE has 16 question items with a Likert measuring scale. The CSE scale consists of two dimensions: the first represents a person's belief that he can control the symptoms (eight items), and the second represents a person's confidence that he can maintain function (five items). The results showed that the CSE scale showed high internal consistency as measured by Cronbach's alpha 0.90, which means that the CSE scale is a valid and reliable measurement tool when evaluating self-efficacy in patients with ACS. (Fors et al., 2015).

In addition, psychological Well-Being (PWB) is measured using a questionnaire developed by Kadiyono, A.L., & Harding (2017). This questionnaire consists of 35 items with six dimensions: Self Acceptance, Positive Relations with Others, Autonomy, Environment, Life Purpose, Personal Development, and Personal Development. This questionnaire is valid and reliable and used to measure psychological well-being. The results showed that the PWB scale showed high internal consistency as measured by Cronbach's alpha 0.75-0.91, which means that the PWB scale is a valid and reliable measurement tool (Kadiyono, A.L., & Harding, 2017).

### **Data Analysis**

Data was analysed using SPSS version 26.0. All data was summarised as means and standard deviations (SD) for continuous variables, and as frequencies and percentages for categorical variables. The associations between psychological well-being with a cardiac diet self efficacy were confirmed by the Pearson Correlation test. The level of statistical significance was set at  $p\text{-value} < 0.05$  (Polit & Beck, 2013).

### **Ethical Clearance**

This study was approved by the Ethics Committees of Raden Mattaher (Reference No.S.72/SPE/IX/2022).

### 3. RESULT

This study involved 150 ACS patients in two hospitals in Jambi, Indonesia. Characteristics of respondents consist of age, gender, and diagnosis. The numerical data of age, Psychological Well-Being, and Cardiac Diet Self-Efficacy are presented in the mean and standard deviation. While the sex and diagnosis, categorical data are presented in number of respondents and percentages. The following are the patient characteristics in this study.

**Table 1. Distribution of patients according to sex and diagnose (N=150)**

Characteristic	Number of respondents	Percentages
Gender		
Male	108	72%
Female	42	28%
Total	150	100%
Diagnose Diagnosis		
Unstable Angina Pectoris	35	23.3%
STEMI	76	50.7%
NSTEMI	39	26%
Total	150	100%

Based on table 1, seventy-two percent were male and most of them were diagnosed with STEMI accounted for 50.7%. For age characteristics, Psychological Well-Being and Cardiac Diet Self-Efficacy will be presented in table 2 below.

**Table 2. Distribution of patients according to age, Psychological Well-Being and Cardiac Diet Self-Efficacy (N=150)**

Characteristic	Mean/Median	SD	Min-Max
Age	57.3	9.19	36-82
Psychological Well-Being	91.45	3.416	80-97
Cardiac Diet Self-Efficacy	47	4.972	28-64

Based on table 2, the mean age of the patients in this study was 57.3 years, with a standard deviation of 9.19 years. The youngest age is 36 years, and the oldest age is 82 years. The average psychological well-being of the patients in this study was 91.45, with a standard deviation of 3.416. In comparison, the average value of cardiac diet self-efficacy is 47, with a standard deviation of 4.972.

The results of the correlation analysis between psychological well-being and cardiac diet self-efficacy are presented in table 3.

**Table 3. Correlation between psychological well-being and cardiac diet self-efficacy (N=150)**

Correlation	p-value	r
Psychological Well-Being- Cardiac Diet Self-Efficacy	0.018	0.41

\* $\alpha = 0.05$

The correlation test using the Pearson correlation test between psychological well-being and cardiac diet self-efficacy showed a p-value of 0.018, indicating a statistically significant relationship between psychological well-being and cardiac diet self-efficacy. Furthermore, the value of r obtained at 0.41 shows a medium correlation between psychological well-being and cardiac diet self-efficacy (Prion, S., & Haerling, K. A, 2014).

#### 4. DISCUSSION

The results of this study indicate that the majority 72% of respondents, are male. The results of previous study showed that the incidence of the male sex was higher than that of women (Virani et al., 2021). In addition, the AHA mentions that many factors influence this condition, where men tend to have more negative behaviors than women, such as smoking, lack of physical activity, and alcohol consumption (Neil & Scovelle, 2018). Smoking is considered a significant risk factor in cases of myocardial infarction, where smoking is hazardous to cause hardening of the arteries and sudden cardiac death. Smoking within seven years will increase the risk of having a myocardial infarction two times greater than people who do not smoke (Zhang et al., 2015).

The majority of diagnosing was STEMI. In the diagnosis of ACS, ST-elevation myocardial infarction (STEMI) is the most severe form, with poor patient survival outcomes if early treatment is not instituted (Soo Hoo et al., 2016). Therefore, the incidence of AMI is considered relatively high. Worldwide, more than 7 million people experience AMI (Piepoli et al., 2016). Data obtained based on Badan Litbang Kesehatan, 2013 the incidence of STEMI showed a figure of 0.5% or an estimated 883,447 people in 2013 and 1.5% or an estimated 2,650,340 based on symptoms.

The mean age of the patients in this study was 57.3 years. This result follows the literature describing the incidence of coronary heart disease in Indonesia, where coronary heart disease occurs at the age of > 40 (Badan Litbang Kesehatan, 2013). Age is associated with risk factors for coronary heart disease. For example, men aged 45 years are at risk of developing coronary heart disease, and women aged 55 are at risk for myocardial ischemia or infarction (Mack & Gopal, 2016). In addition, a study explained that the prevalence and severity of coronary heart disease are influenced by age, and changes in coronary blood vessels due to intima thickening are the primary pathology, causing a decrease in capillary membrane permeability (Carro & Kaski, 2011). Decreased coronary permeability affects coronary blood flow, reducing the O<sub>2</sub> concentration in myocytes and increasing the need for ATP, which is dependent on the anaerobic metabolism synthesis. This process causes cells to experience a lack of energy, causing myocyte cell death (Frangogiannis, 2015).

The correlation test showed a p-value of 0.018, indicating a statistically significant relationship between psychological well-being and cardiac diet self-efficacy. Psychological well-being has been defined in various ways and encompasses the positive thoughts and feelings that individuals use to evaluate their lives favorably (Boehm & Kubzansky, 2012). One review explains that there is increasing evidence that positive psychological well-being is associated with superior cardiac outcomes, traditional risk factors and negative psychological syndromes such as depression. Furthermore, positive psychological interventions consistently improve well-being and have been well-received in patients with heart disease (Huffman et al., 2017). Other studies suggest that improving symptoms of depression and anxiety after ACS as an effort to improve psychological well-being has the potential to reduce adverse cardiovascular outcomes (Liblik et al., 2022). Also, another study mentioned that PWB predicts better physical and emotional health

after ACS. Measuring optimism may help identify individuals at risk. Pessimistic outlooks can be modified, potentially leading to improved recovery after major cardiac events (Ronaldson et al., 2015).

In this study, psychological well-being is associated with cardiac dietary self-efficacy. Diet self-efficacy in ACS patients includes how patients can determine eating patterns and types of food that are included in the list of healthy and unhealthy because diet can be a method of CVD prevention (Castillo-Mayén et al., 2020). For example, the findings supported the influence of the Mediterranean diet supplemented with extra virgin olive oil or with nuts to reduce the risk of future cardiac events. Diet is one of the main changes ACS patients must make to achieve good health (Estruch et al., 2018). Therefore, good self-efficacy regarding diet in ACS patients can support the need for changes and maintenance of healthy behavior (Castillo-Mayén et al., 2020). In a cohort study that assessed the effect of self-efficacy on cardiac lifestyle in 125 cardiac patients who had received self-management interventions and measured cardiac lifestyle after one year, the results of the study concluded that increased self-efficacy was accompanied by increased cardiac lifestyle, in the form of increased recommended physical activity and the choice of food consumed (Kashani et al., 2016). Psychosocial factors such as self-efficacy and barriers to health-promotional behavior can remarkably influence the adoption of healthy lifestyle behaviors, including dietary regulation, and thus impact the ability to stabilize, slow down, or even reverse the progression of cardiovascular disease and, in turn, reduce the risk of cardiovascular disease, another event or death (Sharp & Salyer, 2012).

ACS not only impacts physical function, but also psychological well-being (Levine et al., 2021). This research showed that by improving psychological well-being in ACS patients, it has the potential to improve cardiac self-efficacy and improve post-treatment outcomes. This relationship is supported by previous research where ACS patients with high self-efficacy tend to be more involved in the process of making meaning which in turn is associated with higher levels of psychological well-being. More specifically, cognitive activity directed at understanding challenging situations in different ways and linked to restructuring one's beliefs and goals to achieve consistency between them is beneficial to the patient's happiness, self-fulfillment, and ability to pursue meaningful goals and values (Krok & Zarzycka, 2020). However, our study has limitations involving a small sample and only two hospitals. A multicenter study with larger sample size is needed to generalize the results to the worldwide population of ACS patients.

## 5. CONCLUSION

Psychological well-being is associated with cardiac dietary self-efficacy. Therefore, it is necessary to prepare for improving psychological well-being in ACS patients both from the discharge planning stage and post-hospital intervention so that ACS patients can have good cardiac diet self-efficacy after treatment.

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