



# Relationship between Depression and Physical Activity of Myocardial Infarction Patients after Treatment

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## Abstract

Physical activity is a secondary prevention that can reduce mortality and re-admission in patients with myocardial infarction. The objective of this study was to identify the relationship with physical activity of myocardial infarction patients after treatment. This study used a cross sectional method. A total of 150 myocardial infarction patients were selected using a purposive sampling technique. The results showed that the majority of STEMI post-treatment patients have mild physical activity (82%). There is also a significant relationship between depression and the level of physical activity of myocardial infarction patients after treatment ( $p = 0.003$ ), OR = 0.144 (95% CI; 0.032-0.635). Depression in myocardial infarction patients at the time of the attack, if not intervened properly, it will persist and affect physical activity after treatment. A recommendation is directed to the nursing department to assess depression in patients with newly diagnosed of myocardial infarction.

**Keywords:** Physical activity; myocardial infarction; depression in myocardial infarction patients

## Background

Physical activity is recommended by the European Society of Cardiology (ESC) as a long-term therapy in prevention for myocardial infarction patients Ibanez et al. [1]; Amsterdam et al. [2]. Physical activity can reduce mortality, re-admission and improve the quality of life of patients with myocardial infarction Andersen & Laustsen, [3]; Dalal, et al. [4]; Ek et al. [5]. Although physical activity is recommended as a long-term therapy in STEMI patients, only 37% of patients actively engage in physical activity after treatment Mckee et al. [6]. Several factors are known to have an association with physical activity in myocardial infarction patients, one of which is depression Mckee et al. [6]. Depression in myocardial infarction patients occurs 48-72 hours after a heart attack Kala, et al. [7]. Depression has a negative effect on post-treatment recovery in myocardial infarction patients, and causes lower compliance to treatment programs Homma et al. [8]; Kumar et al. [9]. The objective of this study was to identify the relationship between depression and physical activity of patients with myocardial infarction after treatment.

## Method

This design of the study was a cross sectional study. Sampling was carried out using non-probability sampling techniques with a sample of 150 people. The inclusion criteria in this study were

patients aged  $\geq 18$  years who were diagnosed with myocardial infarction. The study was conducted at the regional hospital of Jambi province, Indonesia in February - March 2018. Data collection was done using PHQ-9 Patient Depression Questionnaire Kroenke et al. [10] and International Physical Activity Questionnaire (IPAQ) Strath et al. [11].

## Findings

### Characteristics of Respondents

Of the 150 post-treatment STEMI patients, the majority of patients were aged 18-60 years (73.3%), were male (78.7%), and 75.3% of whom had passed 7 to 30 days post-treatment. The majority of respondents were in the category of mild depression 69.3%, whereas the rest experienced moderate-severe depression, and 82% of respondents were at the level of physical activity with mild categories. Relationship between depression and physical activity of post-treatment myocardial infarction patients. The results of the analysis of the relationship between depression and physical activity showed that 95.7% of post-treatment myocardial infarction patients experienced moderate-severe depression with mild physical activity. Meanwhile, among post-treatment myocardial infarction patients who experience mild depression, 24% had moderate-heavy physical activity. Fisher exact test results

obtained  $p = 0.003$ , so it can be concluded that there is a relationship between depression and physical activity. From the results of the analysis also demonstrated that the value of OR is 0.144 (95% CI; 0.032-0.635). By looking at the OR values it can be concluded that post-treatment myocardial infarction patients who experience mild depression would have a 0.144 times greater chance of having moderate-heavy physical activity compared to patients who have moderate-severe depression category

## Discussion

Physical activity is a key component in heart disease patients that is beneficial in reducing the risk of relapse Thompson et al. [12]. In this study, the results of the analysis showed that 82% of respondents are at the level of mild physical activity. The results of this study are similar to studies conducted by Matthias, 2017 in Sri Lanka, where 56, 7% of respondents had low physical activity Matthias et al. [9]. Low physical activity is a trigger for the occurrence of myocardial infarction. Physical activity increases the process of arteriosclerosis formation, decreases inflammation, and triggers the formation of thrombosis Cheng et al. [13]. Many factors can affect physical activity. The study of Mckee et al. [6]. concluded that depression was one of the dominant factors causing low physical activity. This is the same as the results of this study. The results of bivariate testing found a relationship between depression and physical activity. Patients with myocardial infarction who experience depression tend to smoke, have low physical activity, and consume a lot of alcohol Qing Wu et al. [14]. In addition, experience during an attack is a cause of depression, and this continues for up to two months after the attack. This state of depression results in the patient becoming silent and limiting their physical activity.

## Conclusion

Post-treatment myocardial infarction patients have a mild level of physical activity, and depression during the attack still occurs in myocardial infarction patients after undergoing treatment in the hospital. Depression, if not properly intervened, will cause changes in physical activity of myocardial infarction patients after treatment.

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