

# THE EFFECT OF FOOT MASSAGE ON ANXIETY IN AMI PATIENTS AT RSUD DR. MOEWARDI

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## Abstract

*Cardiovascular disease is the number one cause of death in the world. In Indonesia the incidence of heart disease by 1.5% of the total population of Indonesia and heart disease often encountered is AMI. Patients with AMI experience anxiety can be a contributing factor of complications such as recurrent heart attack and heart failure. Anxiety can be overcome by anxiety management both pharmacology and non-pharmacology, one of the non-pharmacological techniques is relaxation techniques such as foot massage. This study aims to determine the effect of foot massages on anxiety in AMI patients at RSUD Dr. Moewardi. This research design uses quasi experimental design with one group pretest and posttest design without control group approaches. The number of samples is 30 respondents with purposive sampling technique. The results of the study showed that there was an influence of foot massages on anxiety reduction in AMI patients with a p-value <0.05. Anxiety in AMI patients after a foot massage immersed in a decrease from anxiety score of 38,13 to 59,83. Foot massage can stimulate the central nervous system and thalamus in the release of endorphins, causing relaxation.*

**Keywords:** Foot Massages; Massage; AMI; Anxiety; Relaxation

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## 1. Introduction

Cardiovascular disease is the number one cause of death in the world. According to World Health Organization data, more than 17.9 million or 31% of people died due to cardiovascular disease. Indonesia ranks 32nd with the highest death rate from cardiovascular disease, which is 371 per 100,000 population per year (WHO, 2016). The incidence of heart disease in Indonesia is 1.5% (Ministry of Health Republic of Indonesia, 2018). According to Risesdas 2018, the province of Central Java is included in the top 15 rates of heart disease in Indonesia. The heart disease encountered in Central Java is myocardial infarction.

According to the 2017 Report of Noncommunicable Diseases the number of heart and blood vessel diseases was 3.61% of the 1,593,931 PTM cases, namely 57,541 cases (Dinkes Jawa Tengah, 2017). According to Dr. ICD hospital data Moewardi Surakarta, the total number of AMI (Acute myocardial infarction) patients in the inpatient rooms in 2018 was 521 patients.

Acute myocardial infarction is a clinical manifestation of acute coronary syndrome (PERKI, 2015). The situation where the myocardium is permanently damaged due to grafting of the arteries, which then causes an imbalance of oxygen supply and

oxygen demand or ischemia (Brunner & Suddarth, 2013). Acute myocardial infarction is influenced by several factors, namely irreversible risk factors such as age (over 40 years), gender and family history (Iskandar, et al., 2017). In myocardial infarction patients refractory changes occur, conductivity and sensitivity and sensitivity to stimulation so that in AMI patients often experience symptoms such as chest pain suddenly and continuously (Wijaya & Putri, 2013). Myocardial infarction patients also experience symptoms of shortness of breath, nausea, vomiting and anxiety (Brunner & Suddarth, 2013). Psychological reactions also occur in myocardial infarction patients such as depression and anxiety (Maendra, 2014).

From research Karima K. & Setyorini Y. (2017) found that AMI patients experience moderate anxiety by 43.3%. The prevalence in AMI patients peak in the first 12 hours to 18 hours (Setiawan, et al., 2016). According to Corwin 2009 anxiety can be overcome by managing anxiety both pharmacological and non-pharmacological. Nonpharmacological techniques, namely interventions with other than drugs, where one of them is with relaxation techniques (Arianto, 2018). Based Nursing Intervention Classification (NIC) interventions to overcome anxiety one of them with relaxation techniques such as a foot massage.

Foot massage is performed on the lower leg for 10 minutes with 12 steps using massage, rubbing and rotation of the feet (Afianty, 2017). Massage movements cause lymphatic drainage effects and the mechanism of blood flow undergoes vasodilation and reduces sympathetic nerve activity (Maliya and Andria, 2018). Foot massage has great benefits for AMI patients and other cardiovascular disorders so based on this background researchers are interested in examining the effect of foot massage on anxiety in AMI patients.

## 2. Method

This research is an Experimental Quassy type using one group pre-post test design without control group design. The population in this study was all AMI (Acute Myocardial Infarction) patients who were hospitalized in ICVCU room Dr. Moewardi Surakarta. The number of samples for the study was 30 respondents with the sampling technique used in this study was purposive sampling. Data collection used an S-AI anxiety questionnaire administered 30 minutes before and after the intervention.

To analyze the data the researchers used the Paired T-test, the purpose of using paired t-tests was to compare the differences between anxiety levels before and after being given foot massage. If the P value >  $\alpha$  (0.05), then  $H_0$  is accepted and  $H_a$  is rejected, if P value <  $\alpha$  (0.05), then  $H_0$  is rejected and  $H_a$  is accepted.

To analyze the data the researcher conducted a normality test and a homogeneity test, based on the results of the normality test using Saphiro Wilk showed that the average anxiety before foot massage had a significant value (p) of 0.998 ( $p > 0.05$ ), the average anxiety after performed foot massage has a significance value (p) of 0.910 ( $p > 0.05$ ) which means the average anxiety between before and after foot massage has a normal data distribution. In addition to conducting a normality test the researchers. conducted a homogeneity test with a significance value of 0.635 ( $p > 0.05$ ) which meant that anxiety before and after foot massage was the same or homogeneous.

## 3. Results And Discussion

Based on Diagram 1. shows that out of 30 respondents who were male were 21 respondents (70 %) and those who were female were 9 respondents (30 %). From Diagram 2. shows of 30 respondents 15 of them aged 50-59 years (50 %), 5 respondents aged 40-49 years (16,6 %), 5 respondents aged 60-59 years (10 %), 3 respondents 70-79 years old (10 %), and 2 respondent aged 30-39 years (6,6 %). From Diagram 3. education of 30 respondents 12 of them were Senior High school (40 %), respondents who had a junior high school education were 5 people (16.6%), 5 respondent was elementary school education (16,6 %), and 5 respondents with an educational background in university education (16,6%), reserving those not attending school was 3 respondents (10 %).

Diagram 1. Distribution of Gender Characteristics of Respondents in ICVCU Room Dr. Moewardi.

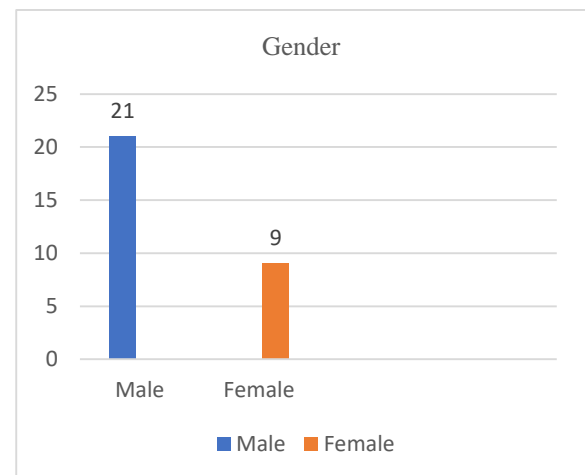


Diagram 2 Distribution of Respondent Age Characteristics in ICVCU Room Dr. Moewardi.

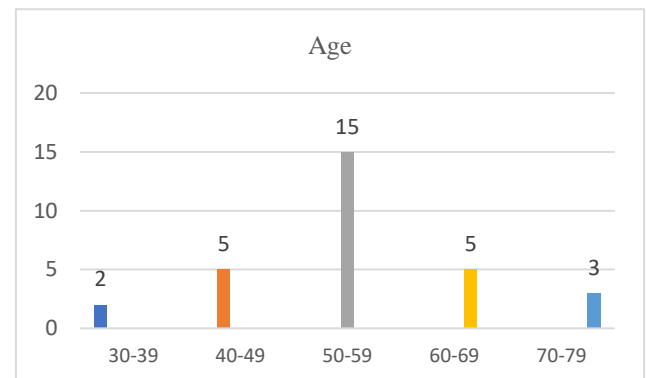
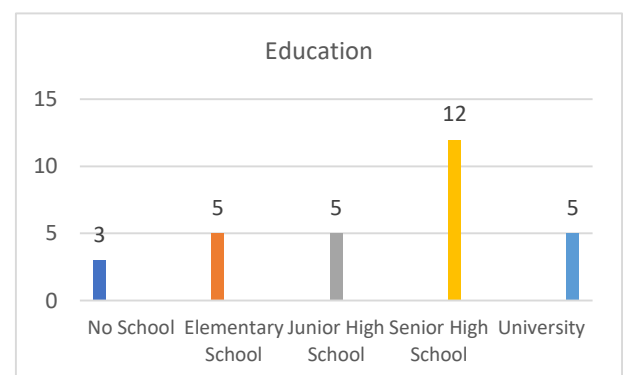


Diagram 3 Distribution of Educational Characteristics of Respondents in ICVCU Room Dr. Moewardi.



Based on Diagram 4. the results are obtained that before foot massage the average anxiety score of AMI patients is 38.13. The lower the anxiety score, the more AMI patients feel anxiety. Whereas in Diagram 5. anxiety in AMI Patients in RSUD Dr. Moewardi Surakarta after an average foot massage on the anxiety score of AMI patients was 59,83. The more I do not feel anxiety, the greater the score.

Diagram 4. Distribution of Anxiety Mean Before Foot Massage

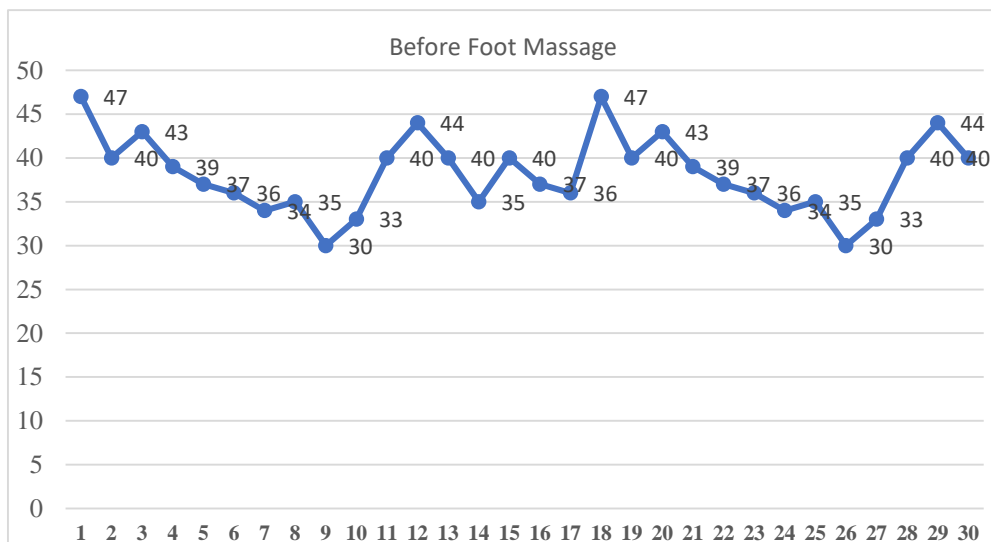
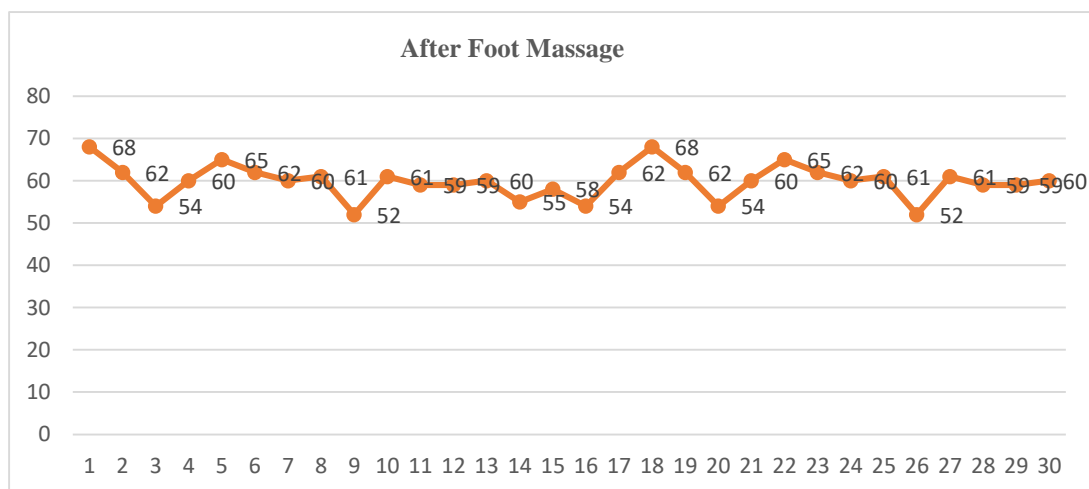


Diagram 5. Distribution of Anxiety Mean After Foot Massage.



In Table 1. Based on the results obtained, overall there is a significant difference in anxiety in AMI patients between before and after getting foot massage intervention with a significant value ( $p = 0,000$ ).

Table 1. Distribution of the Effects of Foot Massage on Average Anxiety Patients Before and After Getting a Foot Massage at RSUD Dr. Moewar in Surakarta

Variable	Mean	Mean Difference	Min-Max	(p) Value
Anxiety Before	38.13	21.70	30-47	0.000
After	59.83		52-68	

The results showed that there were significant differences in anxiety in AMI patients between before and after receiving foot massage intervention with a significant value ( $p = 0,000$ ). Foot

massage can reduce anxiety by 21.70, before doing foot massage, the average anxiety of AMI patients is 38.13 and after foot massage the average anxiety of AMI patients is 59.83. The lower the anxiety score, the more AMI patients feel the anxiety, the more they don't feel the anxiety, the greater the score. In this study, there was a decrease in anxiety levels in AMI patients measured 30 minutes before foot massage and 30 minutes after foot massage with intervention on both feet for 20 minutes.

Foot Massage has many benefits, especially in AMI patients, such as improving blood circulation, increasing comfort, relaxation and so forth. In accordance with research Nugraha et al (2018) that anxiety scores in patients before and after massage interventions have a significant difference ( $p = 0.001$ ) Physiologically relaxation provides a relaxed response and can be identified by decreasing blood pressure and heart rate, besides relaxation is useful for regulating emotional and physical, anxiety and stress (Sari, 2015). In this study, the result of hemodynamic

reduction in blood pressure of sistole was 13.47 mmHg, where before foot massage the average blood pressure of sistole was 151.35 mmHg and after foot massage for 20 minutes the mean dropped to 137.88 mmHg.

This is in line with research by Malinti & Hutagalung (2018) Response of Cardiovascular Parameters to Foot Massage in Prehypertensive Clients. The average systolic blood pressure before foot massage was 131.50 mmHg, and the average diastolic blood pressure before foot massage was 83.65 mmHg. Both of these blood pressures are included in the category of prehypertension. On the other hand the average pulse before foot massage is 71.60 times / minute, this is a normal pulse at rest. After 30 minutes of foot massage, the average systolic blood pressure becomes 121.55 mmHg and diastolic blood pressure becomes 72.85 mmHg. This figure shows a decrease in systolic and diastolic blood pressure values. The average pulse after foot massage becomes 64.80 beats / minute, this shows a decrease, but still within the normal pulse rate.

Relaxation with massage can overcome anxiety by providing a relaxing effect, can reduce blood pressure, and affect hormonal aspects and relieve heart work. The study of Yunitasari et al (2018) states that touch and pressure on the skin and skin tissue in the feet stimulate the nervous system and provide comfort, relax and reduce pain. Massage affects the autonomic nerve perceiving relaxation by touch to activate the thalamus in the release of efacalin endorphins (Hariyanto et al., 2015).

Relaxation has a calming effect on the limbs, lightness and feel warmth that spreads throughout the body. When relaxation occurs changes in autonomic nerves with emotional responses and calming effects that change the dominant sympathetic physiology into the dominant parasympathetic system. This results in a decrease in catecholamine and cortisol hypersecretion and increases parasympathetic hormones and neurotransmitters such as DHEA (Dehydroepiandrosteron) and dopamine or endorphins that give pleasure (Sukmawati et al., 2018). The mechanism of the massage causes relaxation of the nerve muscles where the body is in a homeostatic state, the body is calm, but not sleeping and in a comfortable position, a situation that copes with stress and anxiety, (Sunaryo & Lestari, 2014). In foot massage techniques rubbing, massage, and scour. Rubbing movements on the feet cause an increase in temperature and activate the activities of the sympathetic who provide neurotransmitter signals to the brain that can provide comfort and relaxation (Afianty, 2017). Massage sends a signal that will balance the nervous system or release endorphins that cause or encourage relaxation and blood circulation (Ardiansyah, 2019).

From several studies, relaxation techniques with foot massage can accelerate blood circulation, provide vasodilation effect, reduce pain, anxiety and

improve sleep quality, in this study obtained anxiety results in AMI patients between before and after getting foot massage intervention with a significant value ( $p = 0,000$ ) with a decrease in anxiety from moderate to mild anxiety, which means that with foot massage for 10 minutes on each foot in AMI patients has an influence on anxiety where there is a decrease in anxiety with an average score difference of 21.70 in AMI patients treated at ICVCU Hospital Dr. Moewardi Surakarta.

#### 4. Conclusion

Average anxiety score in AMI patients in Dr. Moewardi before foot massage was 38.13. Average anxiety scores in AMI patients at RSUD Dr. Moewardi after a foot massage was 59.83. There is an influence of foot massage therapy on anxiety in AMI patients in Dr. Moewardi with a P value = 0,000 ( $p$  value <0.05).

#### 5. Recommendations

It is hoped that this research will serve as material to add insight and knowledge to Critical Nursing in the management of anxiety by using non-pharmacological techniques such as relaxation with foot massage. It is expected that the results of this study can become supporting literature for nursing actions for nurses, especially nurses working at RSUD Dr. Moewardi Surakarta. It is hoped that the results of this study can be applied as consideration for AMI patients in anxiety management. It is expected that further research can add a control group as a comparison in the research conducted so that it can compare the results / differences between the control group and the intervention group in providing foot massage.

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