

## ORIGINAL ARTICLE

# The Effect of Supportive Educative Cardiac Rehabilitation Phase 3 on Male Sexual Dysfunction among Patient with Coronary Heart Disease

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## ABSTRACT

**Introduction:** Heart disease in the world has increased every year. Compensation for the work of the heart on the body causes a decrease in the patient's activity which has an impact on sexual function. The purpose of this study was to analyse the effect of supportive educative cardiac rehabilitation phase 3 (SE-CRP3) on male sexual dysfunction (SD) among patients with Chronic Heart Disease (CHD). **Methods:** A quasi-experiment study was undertaken on August 2019. Sixty respondents was recruited by purposive sampling technique and divided into intervention and control groups. International Index of Erectile Function Questionnaire (IIEF) was used to obtained the data about sexual function. Then, we analysed the data using independent samples t-test and paired samples t-test. **Results:** We found a significant difference between pre and post intervention in the intervention group ( $p=0.039$ ) with mean of sexual dysfunction (18.97 to 19.93). In addition, there was no significant difference between pre and post in the control group ( $p=0.152$ ) and no differences in the both groups after the intervention of SE-CRP3 ( $p=0.568$ ). **Conclusion:** SE-CRP3 therapy has an impact on sexual function among patients with CHD. This may be considered by nurses as an additional intervention in patients with CHD. Observations on the related variables can be considered.

**Keywords:** CHD, Cardiac rehabilitation, Sexual dysfunction, Cardiovascular

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## INTRODUCTION

The prevalence of heart disease sufferers in the world every year continues to increase (1). Heart disease is a major problem in the health sector in Indonesia because it occupies the first position as the most common disease in Indonesia in the category of Non-Communicable Disease (2). Knowledge, lifestyle, and the respondents' lack of desire to live a good life are the factors causing coronary heart disease (CHD) in the population in Indonesia (3). Patients with CHD may experience decreased activity due to compensation for the work of the heart on the body (4). Decreased self-care abilities and decreased quality of life can cause patients to become anxious due to illness, depression, and disturbed activity patterns (5) which can impact sexual function.

World Health Organization data states that cardiovascular

disease causes the death of 17, 9 million people each year from the total global death. The cause of death in cardiovascular disease as much as 85% caused by heart attacks and strokes (6). The World Health Organization in its Non-Communicable Disease (NCD) Country Profiles data in Indonesia states that cardiovascular disease is the most common disease with a prevalence of 35% and an estimated 73% as the cause of total deaths due to non-communicable disease (7). The incidence of Sexual Dysfunction (SD) in heart failure patients ranges from 74% - 84% (8). Male experienced higher SD compared to women (9,10).

The decrease in activity experienced by the patient can be caused by impaired cardiac contractility so that the oxygen supply in the body decreases. This causes an increase in lactic acid as a side effect of compensating the body for the amount of oxygen that is lacking (4,11). Patients with CHD can result in a decrease in the quality of life which is caused by a decrease in the quality of activities (12) and decreased sexual activity (8,9,13). SD is characterized by decreased libido, decreased frequency of intercourse and sexual satisfaction. 48% of heart failure patients reported difficulties in sexual

activity. In men, SD problems include decreased libido, sexual frequency, difficulty orgasm, and dissatisfaction with sexual activity (9). Sexual problems in heart failure patients are caused by intolerance to the activity of Rastogi et al (2005) which has an impact on quality of life (8,9) Age, education level, unemployed respondents, functional capacity and depression affect the sexual function of patients with systolic heart failure (8). The symptoms of heart failure such as shortness of breath, fatigue and activity intolerance are assumed to affect the sexuality of the respondents (9).

Cardiac Rehabilitation is carried out to support and achieve and maintain optimal physical and psychosocial health (14). Cardiac Rehabilitation Phase 3 (CRP3) aims to promote habits that lead to a healthy and satisfying lifestyle. Most of the patients participated in CRP3 equivalent exercises in community training facilities (15). With a stable physical and psychological condition, it is hoped that the problem of SD can be resolved.

In Indonesia, research on SD in CHD patients is rarely conducted because of their physical, social and cultural conditions. There are no data on sexual dysfunction. This can be due to the assumption that individuals who experience chronic pain such as heart failure, sexual problems are often considered unimportant. Therefore, this study aims to determine the effect of SE-CRP3 on male SD in patients with CHD.

## **MATERIALS AND METHODS**

### **Study design**

This study used a quasi-experimental pre-test - post-tests design with control group design.

### **Setting and sample**

This study was given to patients with CHD. The study was conducted at a hospital in the city of Palembang, Indonesia in June – August 2019. The study was conducted on hearth poly of hospital in the city of Palembang, Indonesia. The total sample in this study were 60 patients who were divided into two groups (30 respondents in intervention groups and 30 respondents in control groups). The sample was obtained through purposive sampling technique. The inclusion criteria in this study were 1) patients with a medical diagnosis of CHD, 2) having complaints of sexual disorders, 3) patient age > 40 years (vulnerable group at risk of sexual dysfunction), 4) male, and 5) capable communicate well. Meanwhile, patients with unstable conditions who could not participate in this study until it was completed were excluded from this study.

### **Instruments**

In this study, researchers used a demographic questionnaire such as the age of the respondent, education, length of CHD, distance from the house to health facilities, health education, and body mass index

(BMI).

SD is measured using the International Index of Erectile Function Questionnaire (IIEF) (16). The questionnaire to assess sexual function in men consisted of the domains of erectile function, sexual function, sexual relationship satisfaction and general satisfaction. IIEF consists of 15 questions. Erectile function (1-5 & 15), orgasmic function (9-10), sexual desire (11-12), intercourse satisfaction (6-8), and overall satisfaction (13-14). The questionnaire uses a Likert scale of 0-5. Scoring is 1-10: severe erectile dysfunction, 11-16: moderate dysfunction, 17-21: mild to moderate dysfunction, 22-25: mild dysfunction and 26-30: no dysfunction. Cronbach's alpha showed consistency resulted in 0.89 (17). We have reached permission to use questionnaire by email.

### **Study procedure**

In the intervention group, patients were given SE-CRP3 in the hearth poly (outpatient department) of hospital in the city of Palembang. The patient received SE-CRP3 intervention three times a week for six weeks. Respondents in this study were patients who routinely visited cardiac rehabilitation clinic. The interventions given were types of exercise such as health education in the first five minutes, walking (ten minutes), cycling (ten minutes) and jogging (ten minutes). Each session lasts 35 minutes. Patients hearth rate was strictly observed. The intervention is stopped when the participant exhausted. Research observations were carried out by nurses who had been given an explanation of the research with the qualification of cardiac rehabilitation training and worked minimal 2 years in the hearth poly. The pre-test data was carried out before the respondent intervened and data was collected at the last session in the last week. Respondents who were unable to participate in all activities were excluded from this study.

In the control group, participants were given intervention according to doctor's recommendations, namely by doing activities such as walking, cycling and jogging. Doctor's instructions are carried out once a week. The pre-test data were taken at the beginning of the study, and the post-test data were taken at the fourth week.

### **Analysis**

The research data was assisted by IBM SPSS 25 software (18). Univariate analysis was used to find the percentage, mean, and standard deviation of demographic data. Next, we used paired sample t-test and independent sample t-test to analyse the effectiveness of the pre-post intervention and in both groups. The level of significance used 0.05.

### **Ethical consideration**

This research has been declared ethical by the Health Research Ethics Commission of the Health Polytechnic of the Ministry of Health of Makassar with number 1134/KEPK-PTKMKS/X/2019. The ethical principle is carried

out by giving informed consent to the respondent and implementing research procedures. This research is not coercive, so the respondent can resign at any time from this research.

**RESULTS**

The mean age of the respondents was 60.37 for the intervention group and 60.7 for the control group. For the duration of illness, most (40%) between 1 year for the intervention group and the control group (36.7%) experienced illness for 1-5 years. The distance between the house and the hospital for the intervention group was almost the same, while the control group was mostly (76.7%) with a distance of 6-10 km. Most of the intervention group (56.7%) received health education about CHD before, while the control group did not (60%). The percentage of BMI in the intervention group was obese and normal (46.7%), while more than half of the control group (53.3%) was obese (Table I).

**Table I: Respondent characteristics (n=60)**

Characteristics	Intervention (n=30)		Control (n=30)	
	n	%	n	%
Age (year old)	60.37 ± 3.347		60.7 ± 3.984	
Lates education				
High education	14	46.7	10	33.3
Secondary education	10	33.3	14	46.7
Primary education	6	20	6	20
Duration of illness				
< 1 year	12	40	9	30
1 – 5 years	11	36.7	11	36.7
> 5 years	7	23.3	10	33.3
Distance house to hospital				
1 – 5 kilometers	14	46.7	2	23.3
6 – 10 kilometers	16	53.3	23	76.7
Health education				
Received	17	56.7	12	40
Not received	13	43.3	18	60
Body Mass Index :				
Underweight	2	6.7	3	10
Normal weight	14	46.7	11	36.7
Obese	14	46.7	16	53.3

The data in table II shows that in the intervention group there were significant differences in the pre-test and post-test data. While not in the control group. The data in the two groups did not show a significant difference. From the results of this analysis, it is known that CRP3 intervention affects sexual discussion in patients with CHD.

**Table II: The intervention of supportive education CRP3 on SD among patients with CHD**

Group	Sexual Dysfunction				p <sup>a</sup>	p <sup>b</sup>
	Pre-test		Post-test			
	Mean	SD	Mean	SD		
Control	19.63	4.123	19.33	4.291	0.152	0.568
Intervention	18.97	4.846	19.93	4.922	0.039 <sup>c</sup>	

<sup>a</sup>paired sample t-test

<sup>b</sup>Independent sample t-test

<sup>c</sup>p<0.05

**DISCUSSION**

Many patients with coronary heart disease experience sexual dysfunction. This needs to be a concern for nurses because sexual needs are among the basic needs that must be met by the patient. Sexual dysfunction is common in patients aged 40 years and over (19). It can worsen in patients with CHD (20,21). Psychological factors experienced by CHD patients have a very large effect on sexual life such as mood instability and disturbances during the ability to have sexual intercourse. In addition, many CHD patients fear death during sexual intercourse due to increased cardio-respiration, blood pressure and activity (22–24).

SE-CRP3 has a positive effect on increased sexual activity in CHD patients. Several previous studies have shown that cardiac rehabilitation has a positive effect on sexual activity (25), and increased sexual satisfaction after interventional coronary artery bypass graft (CABG) surgery (26). SE-CRP3 interventions include health education about appropriate management, control, and activity management in CHD patients. Good knowledge forms the basis for CHD patients to undergo treatments that have an impact on quality of life (27). In addition, the SE-CRP3 intervention focuses on limited and monitored activity therapy. Activity therapy such as walking, cycling, and jogging can provide good benefits for heart health (28). Exercise activity can improve mitochondrial function, restoration, increase vasculature and release myokines from muscles to improve cardiovascular function (29). Physical activity that is carried out regularly can provide good benefits for the heart health of CHD patients. However, activity restriction should be exercised in patients with severe CHD.

Furthermore, with physical activity, cortisol hormone which plays a role in reducing stress can be released properly, thus making the patient’s psychological condition more comfortable and calm (30). In addition, physical activity can activate the sympathetic nervous system, which can increase sexual arousal and orgasm (31). Nurses as health workers can recommend SE-CRP3 intervention in CHD patients to be carried out regularly for better physical and psychological health.

This study provides information on the effectiveness of SE-CRP3 against SE in CHD patients. However, the limitation of this study lies in the intervention time that should have been done longer to obtain optimal results. Female respondents need to be involved in further research to obtain information on sexual disorders in female patients with CHD.

**CONCLUSION**

SE-CRP3 has a positive impact on SD in patients with CHD. Interventions carried out regularly, can provide physical and psychological improvements that have an impact on the quality of life of patients with CHD. The results of this study can be used as an intervention for

nurses to consider sexual needs in patients with CHD. In addition, the hospital may consider CRP3 interventions as additional interventions that could provide benefits. The multi-variable development of this research is more likely to be considered.

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