Review

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Phase 1 Cardiac Rehabilitation in Acute Coronary Syndrome Patients: A Literature Review

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ABSTRACT
The provision of phase I cardiac rehabilitation intervention in patients with cardiovascular disease needs to be given because it can accelerate recovery and determine the needs of the next phase of cardiac rehabilitation, namely phases II, III and IV. The aim of this study was to find out the impact of phase 1 cardiac rehabilitation on acute coronary syndrome patients. This literature study examined scientific articles published from 2011 to 2021 and in Indonesian and English. Data was obtained from the database includes PubMed, Cinahl Ebscohost and Google Scholar search engine using keywords developed based on population, concept and context namely Cardiac Patients, Phase 1 of Cardiac Rehabilitation, Outcomes, Benefits and Effects. A total of 275,000 articles were obtained and after being selected based on duplication, title, abstract and inclusion criteria were obtained 9 articles that are eligible for analysis. The results of the study found that phase 1 cardiac rehabilitation in SKA patients was shown to have good impact and outcomes, such as improving quality of life and self-efficacy, reducing the need for the second phase of rehabilitation, and reducing the level of anxiety and depression experienced by SKA patients. Therefore, the results of this literature review can be the basis of the next research in the implementation of phase 1 cardiac rehabilitation in Indonesia.

Introduction

Cardiovascular disease is the main disease that causes death among other non-communicable diseases. Cardiovascular disease causes 17.5 million deaths or as much as 46% of deaths caused by other non-communicable diseases (WHO, 2021). According to these data, it is estimated that 7.4 million deaths in the world are caused by heart disease, most of which are caused by coronary heart disease (CHD) (Mendis & Chestnov, 2014).

Coronary Heart Disease (CHD) is one type of cardiovascular disease which means a disease of the coronary arteries of the heart caused by narrowing, blockage or abnormalities in other blood vessels. According to the AHA, (2017), CHD known as CHD (Coronary Heart Disease) is a condition in which there is a narrowing of the coronary arteries due to atherosclerosis or spasm or a combination of the two which can cause a heart attack. Coronary heart disease is divided into Unstable Angina Pectoris (UAP), ST Elevation Myocardial Infarct (STEMI), and Non ST Elevation Myocardial Infarct (NSTEMI).

Promotive, preventive, and rehabilitative efforts are ideal for cardiovascular diseases such as CHD because the disease process is long-term (PERKI, 2019). Chaeriah,(2015)mentions that one form of management for cardiovascular disease is rehabilitative efforts carried out after the acute condition is resolved and the patient's hemodynamic status is stable. Cardiovascular rehabilitation is recommended for patients with acute coronary syndrome (ACS) and patients receiving coronary revascularization. PERKI, (2019)states that cardiovascular rehabilitation is a secondary prevention program for comprehensive cardiovascular disease accompanied by physical exercise programs either in the hospital or home-based or in the community.

Cardiovascular rehabilitation carried out in cardiac patients consists of several phases, namely phase I, phase II, phase III, and phase IV (PERKI, 2019). Phase I cardiovascular rehabilitation begins while the patient is still under treatment. Phase I cardiac rehabilitation will determine phase II, phase III, and phase IV cardiac rehabilitation. The main goals of phase I rehabilitation are to reduce or eliminate the adverse effects of deconditioning due to prolonged bed rest, provide early education, and enable patients to carried out their daily activities independently and safely (Radi et al., 2009). In general, the phase I cardiac rehabilitation program is a simple exercise test with 6-minute walking, ergocycle test, or a treadmill test that are adjusted to the patient's condition (PERKI, 2019).

However, until now the rehabilitation of patients with ACS is still rarely carried out in hospitals. The percentage of patients who follow the rehabilitation program phase I and II is still very small, for example in post-PTCA patients only 2% who follow the rehabilitation program at the hospital. In addition, only 58% of post-CABG patients participated in this rehabilitation program. Like in several other countries, the implementation of this cardiac rehabilitation program is still considered underutilized in Indonesia (PERKI, 2019).

Although phase I rehabilitation is still rarely carried out, phase I rehabilitation has an impact or change on patients who experienced ACS. One of the studies conducted by Idris, Dewi, & Sari, (2018) found that there was a significant difference in comfort levels after phase I rehabilitation in ACS patients. Related to this, this literature review wanted to explore what are the impacts of doing phase I cardiac rehabilitation in ACS patients in the ICU.

Method

The research method must explain the research design, location, population and sample, instruments, types of interventions (if any), data analysis, and ethical consideration (mandatory in original research) briefly and clearly.

Results

a. Literature characteristics

There are nine articles reviewed in this literature study. Four articles with Randomized Control Trial design, one article with Clinical

Randomized Trial design, three articles with Quasi Experimental design and one article with Quantitative design. The year of publication of the article ranges from 2011 to 2020. The articles used come from various countries in the world including Portugal (n=1), Indonesia (n=4), India (n=1), Iran (n=2) and Brazil (n=1). The highest number of respondents was 121 people and the least number of respondents was 12 people. The article analysis was carried out by nine group members and results of the analysis of the nine articles used can be seen in Table 4.

Tabel 1. Data Extraction

Article (Researcher name, year and nation)	Research purpose	Methode	Population and sample	Rehabilitation time	Type of rehabilitation	People who doing rehabilitation	Impact of rehabilitation
Brief psychological intervention in phase I of cardiac rehabilitation after acute coronary syndrome Portugal 2017 (Fernandes, McIntyre, Coelho, Prata, & Maciel, 2017)	Knowing the efficacy of giving a brief psychological intervention to improve cognition and emotional adaptation after patients experiencing acute coronary syndrome.	RCT	Populasi: Acute Coronary Syndrome patient at coronary care unit of a central hospital Portugal Sample: N= 121 Random sampling	First session: 75 minutes Second sessione: 75 minutes Third session: 2x20 minutest	The intervention modality was in group format (mean of six participants per group) and included: (a) health education about ACS and cardiac rehabilitation (session 1) and (b) promotion of psychosocial adjustment in post-ACS rehabilitation (session 2). During the first session information regarding ACS and CR was presented, and patients produced individual contracts regarding the CR program and were encouraged to share information with family members. They were also referred to a specialist in changing risk behaviors. The second session, which took place before hospital discharge, focused on the emotional response to ACS and the importance of illness cognitions in adjustment and adaptive coping. Patients were taught cognitive-behavioral strategies to reduce stress and anxiety, how to identify erroneous beliefs and change them into adaptive ones, and self-monitoring; family involvement was once more encouraged. Session 3 was a follow-up session one month post-discharge and focused on reviewing previous commitments, identifying successes and challenges, promoting goal reformulation and discussing future implementation strategies.	Psychologist Cardiologist	The intervention had significant effects on anxiety, depression and illness cognitions. Anxiety and depression were significantly reduced and illness cognitions improved significantly in the EG compared to the control group. For the EG, these changes were maintained or enhanced at 1- and 2-month follow-up, whereas for the CG there was a deterioration in psychosocial adjustment.

Application Phase 1 cardiac rehabilitation in patients with acute coronary syndrome (ACS) at Harapan Kita Heart and Blood Vessel Hospital, Jakarta, Indonesia 2019 (Prabowo, 2019)	This study aims to identify the application of phase 1 cardiac rehabilitation in ACS patients	Quantitative	Population: Acute coronary syndrome patients Sample: N= 12 Purposive sampling	In the implementation of phase 1 cardiac rehabilitation, this study consisted of level 1 (day 1), level 2 (day 2), level 3 (day 3 to 5).	The type of rehabilitation provided is movement training. The researcher documented on a flowsheet which included: chest pain, dyspnea, ECG images, heart rate, and blood pressure before, during, and after exercise.	Researchers and rooms involved in research at the Hospital Harapan Kita's Heart and Blood Vessels Jakarta are CVCU, Intermediate Medical Ward (IWM), and Nursing Building 2	After being given phase 1 cardiac rehabilitation in the intervention group, data obtained from Chest Pain, Dyspnea and ECG images whose values were constant or the same for all respondents at the beginning, exercise and end, but there were also differences in the values of heart rate and blood pressure in the intervention group and the control group. statistically significant, but clinically not significant and during the exercise process, the patient also did not show symptoms such as the appearance of uncontrolled chest pain, dyspnea, and life-threatening arrhythmias.
Effect of Phase I Cardiac Rehabilitation on Quality of Life of Coronary Heart Disease Patients Indonesia 2020 (Iswahyudi, 2020)	To determine the effect of phase I cardiac rehabilitation on the quality of life of coronary heart patients	Quasi-experiment type intact group comparison	Population: All patients with coronary heart disease who were hospitalized in December 2018 and had been out of the hospital for more than 1 week Sample : N= 61 purposive sampling	1 month	Types of phase I cardiac rehabilitation provided include: physical exercise activities, education and counseling	Cardiologists, nurses who are certified in cardiac rehabilitation training, nurses and nutritionists	After being given phase 1 cardiac rehabilitation in the intervention group, it was found that the average of all domains of quality of life of coronary heart disease patients who underwent cardiac rehabilitation phase I increased compared to the average value of quality of life of patients who did not undergo phase I cardiac rehabilitation, patients who had undergone cardiac rehabilitation Phase 1 can understand the disease, the process of treatment and care, activities that may/should not be done and the lifestyle that must be done so as to reduce fear, anxiety and more easily adapt to their condition and can apply a good lifestyle so as to prevent heart attacks

							recurrence/recurrence, and can significantly improve quality of life.
The effect of phase 1 cardiac rehabilitation toward respiratory status to patient with acute myocardial infarction Indonesia 2021 (Idris, Dewi, & Sari, 2018)	To analyze the effect of phase 1 cardiac rehabilitation on respiratory status in acute myocardial infarction patients	Quasi experiment	Population: Acute Myocardial Infarction Patient in ICCU room at Baptist Hospital Kediri Sample: N : 35 Quota sampling	April 15, 2020 to September 16 2020	The interventions carried out are cardiac rehabilitation phase 1 including clinical evaluation of components, optimization of pharmacotherapy, physical exercise, psychosocial rehabilitation, evaluation and reduction of risk factors, lifestyle modification, providing health education to patients and families using modules	The nurse in the ICCU room at the Kediri Baptis Hospital	Phase 1 cardiac rehabilitation had no effect on respiratory status. This is based on the theory that increasing the frequency and depth of breathing keeps the Acute Myocardial Infarction patient in a stable condition
Effect of supervised moderate intensity exercise program in phase one cardiac rehabilitation of postoperative CABG patients. India 2014 (Akhter, Bhise, & Patel, 2014)	The objective is to study the effectiveness of supervised moderate intensity exercise on distance walked and Quality of Life at hospital discharge following CABG.	RCT	The patient population is between the age group 40-65 years who are getting CABG for the first time. Sample: 46	Phase I cardiac rehabilitation exercise lasted 8-10 days (Group A and Group B).	Six minutes' walk distance (6MWT) and quality of life with SF-36 were taken as outcome measures. Group A: all patients had a pulse oximeter attached during exercise. The nurse supports the patients while doing the exercises and monitors whether they are doing the exercises or not. Day 1 after surgery the patient was made to sit with a support. Day 2 asked to walk 10 m twice a day. Day 3 Walk 30m. Day 4 the same intensity of exercise is given along with going up and down stairs. Then the patients in group A were asked to walk in the rooms and wards. All exercises for group A are designed with a comfortable level of exertion. Group B: In group B along with conventional phase-1 rehabilitation, moderate activity exercises were also	Qualified physiotherapist	This increase in 6MWT can be attributed to the physical exercise performed by the subjects. A structured inpatient physiotherapy program is considered beneficial in increasing walking capacity. Moderate intensity exercise helps in secondary prevention of heart problems which is done under the supervision of a physiotherapist. Regular endurance physical activity in patients with acute coronary syndrome helps in reducing mortality, and also serves in improving the patient's overall physical function..

					combined. Day 1 walk in place for 1 minute for 3 repetitions. Day 2 walked 3 sessions of circuit training and covered a minimum distance of 100m in the morning and evening sessions of 5 minutes on foot. Day 3 additional 2.5 distances are included and up to exit a total of 10 minutes walking program is given.		
Effects of the First Phase of Cardiac Rehabilitation Training on Self-Efficacy among Patients Undergoing Coronary Artery Bypass Graft Surgery Iran 2018 (Borzou, Amiri, Salavati, Soltanian, & Safarpoor, 2018)	The purpose of the study was to determine the impact of the implementation of a phase 1 cardiac rehabilitation program on the self-efficacy of acute coronary syndrome patients after coronary artery bypass graft surgery (CABG).	Clinical Randomized Trial	Patients aged 30 - 75 years who have acute coronary syndrome and have done CABG, have no movement disorders, and the ejection fraction is greater than 30%. N = 30 random sampling	The rehabilitation program is carried out in 3 sessions. Session 1 is conducted 72 hours after surgery, then session 2 continues the next day and session 3 the day before the patient discharges. The intervention is carried out as much as 2x a day for 10-15 minutes.	Interventions include education, physical exercise, deep breathing exercises, active ROM, bed and in chair exercises, standing, walking, turning the body in the opposite direction.	Nurses and health workers on duty in the ICU room of Farshchian Heart Hospital, Iran.	The implementation of phase 1 cardiac rehabilitation carried out to patients with acute coronary syndrome post CABG proved effective in improving the patient's self-efficacy to carry out independent daily activities and also this phase 1 rehabilitation phase can reduce the need for patients to carry out phase 2 cardiac rehabilitation.
The effect of cardiac	Evaluating the impact	RCT	Population: 223 patients	Phase 1 cardiac	The intervention group received rehabilitation phases 1 and 2 while	Nurse and cardiologist	The average value in all quality of life (QOL) domains, namely the

rehabilitation on quality of life in patients with acute coronary syndrome Iran 2015 (Khalife-Zadeh, Dorri, & Shafiee, 2015)	of cardiac rehabilitation on the quality of life of patients with acute coronary syndromes		with Acute Coronary Syndrome in coronary care units of several hospitals in Isfahan in 2013-2014 Sample: N=50 Random sampling	rehabilitation was carried out in the hospital for 5 days. Phase 2 rehabilitation was carried out at home for 4 weeks with follow-up by telephone and control to the hospital	the control group only received phase 1 rehabilitation. Rehabilitation was carried out by measuring the amount of energy allowed using MET. On day 1 a maximum of 1 MET then the patient is on bed rest for 12 hours. Patients are given education about rehabilitation that can be done by experts and if there are no abnormal signs, activity can be increased in the following week		domain of physical function, physical role, pain, general health, vitality, social function, emotional role, and mental health increased significantly after treatment in the intervention group undergoing the I and II (P<0.05). In the control group who only underwent phase I, the mean quality of life was not significantly different between before and after treatment (P>0.05). Significant differences were seen between the intervention group and the control group in all QOL domains except general health and social functioning (P<0.05).
Effects of progressive exercise during phase I cardiac rehabilitation on the heart rate variability of patients with acute myocardial infarction Brazil 2011 (Santos-Hiss et al., 2011)	To evaluate the effects of a progressive exercise protocol used in phase I cardiac rehabilitation on the HRV of patients with post-AMI.	Quasi Experiment	Population: 162 patients admitted to CCU with AMI and who included the inclusion criteria 59 patients on the day of hospitalization, but only 40 patients were examined until the last day of hospitalization. 3 out of 40 patients were found during the ECG examination so they were excluded	Phase 1 cardiac rehabilitation is carried out in the hospital for 5 days and is always carried out in the afternoon. The patient was given this phase 1 cardiac rehabilitation approximately 5 hours after entering the CCU and it took 10 minutes including resting in the supine position and 4 minutes	The intervention in this study was carried out for 5 days and was carried out in the afternoon. Patients were divided into 2 groups, namely the treatment group and the control group. The intervention carried out was a "5-step exercise programme". The intensity of walking as much as 20 steps per minute and interspersed with rest. During the rest period, the patient is always instructed to relax, calm down, breathe spontaneously and stay awake.	Therapist	The results of the study for 5 days showed that in the treatment group there was an increase in HRV (Heart Rate Variability) (p<0.05). Meanwhile, there was no change during the observation in the control group that was not given the intervention. The impact of this rehabilitation exercise can increase vagal modulation, decrease sympathetic modulation and sympathovagal balance at rest in the supine position.

			before data analysis Sample : 37 (Purposive Sampling)	for breathing exercises.			
Increased Activity Tolerance based on Hemodynamic Status in Patients Coronary Heart Disease After Physical Rehabilitation of Phase I (Inpatient) Indonesia 2020 (Andriani & Purwaningsih, 2020)	To analyze activity tolerance based on hemodynamic status (respiratory, blood pressure, pulse rate, oxygen saturation) in CHD patients post physical rehabilitation phase 1 (inpatient)	Quasi Experiment	Populasi: Coronary Heart Disease patient at RSUD Dr, Harjono Ponorogo Sample : 30 responden	For 3 consecutive days, with 2 training sessions/day (morning and evening). Each training session with a duration of 10-20 minutes	The physical rehabilitation program intervention was carried out for 3 consecutive days, with 2 training sessions/day (morning and evening). Each training session has a duration of 10-20 minutes. Assessment of activity tolerance was carried out pre-test (before the intervention), and post-test every day after the afternoon intervention.	Researchers and conducted at RSUD Dr, Harjono Ponorogo	This intervention group had significant results on the effect of an inpatient physical rehabilitation program for 3 days with a frequency of exercise 2 times/day (morning, afternoon) on hemodynamic status (respiratory, systolic and diastolic blood pressure, SaO2, heart rate) in NSTEMI CHD patients, except that the diastolic blood pressure indicator did not change significantly

Discussion

This study identified 9 research articles that discussed the impact of phase 1 cardiac rehabilitation in patients with acute coronary syndrome (ACS) who had undergone surgery. Each article was identified as having different interventions, but still included in phase 1 cardiac rehabilitation in patients with acute coronary syndrome (ACS). Cardiac rehabilitation applied to ACS patients is all actions taken to optimally improve physical, mental, and social function in order to restore functional capacity in patients with life-threatening acute coronary or post-invasive procedures. Comprehensive cardiac rehabilitation consists of phases 1, 2, and 3. Cardiac rehabilitation phase I (early in-hospital rehabilitation) is the immediate initiation of cardiac rehabilitation in the acute phase (life-threatening period of heart disease) which aims to prevent sequelae from immobilization. , improvement of exercise capacity, as well as evaluation of the patient's psychological condition, reduction of anxiety, and mental support (Prabowo, 2019).

The implementation of phase 1 cardiac rehabilitation interventions who have undergone surgery include physical exercise, education, and counseling which have different impacts

b. Physical training

Physical exercise is one of the interventions given in phase 1 cardiac rehabilitation after the patient undergoes surgery. According to research Iswahyudi, (2020) said that by providing gradual physical exercise interventions in CHD patients had a significant influence on the quality of life of coronary heart disease patients, because phase I cardiac rehabilitation was carried out in their research with the results of the average score of the quality of life domain which included: physical function , physical role, pain, general health, vitality, social function, emotional role, and mental health are high which indicates that their quality of life is higher than the quality of life of patients who have not undergone phase I cardiac rehabilitation. Patients who have undergone cardiac rehabilitation Phase 1, they

understand about their disease, the process of treatment and care for themselves, what activities can be done, and the lifestyle they must do. So that patients who have undergone phase 1 cardiac rehabilitation can carry out activities without feeling afraid, reduce anxiety and are easier to adapt to their conditions, and can apply a good lifestyle so as to prevent recurrent heart attacks/relapses, and can improve all domains of quality of life. significantly. This shows the effect of phase I cardiac rehabilitation on the quality of life of patients with coronary heart disease.

Similarly, research by Akhter, Bhise, & Patel, (2014) which states that with physical exercise using a six-minute walk test (6MWT) the difference in quality of life scores in the group shows very significant results but not no difference was found between the two groups. This increase in 6MWT can be attributed to the physical exercise performed by the subjects. A structured inpatient physiotherapy program was considered beneficial in increasing walking capacity, in addition to other parameters in subjects undergoing CABG. Moderate intensity exercises help in the secondary prevention of heart problems in addition to managing them when they are practiced under the supervision of a physiotherapist. Regular endurance physical activity in patients with acute coronary syndrome helps in reducing mortality, and also serves in improving the patient's overall physical function.

According to research Prabowo, (2019) also said that with phase 1 cardiac rehabilitation, which carried out activity exercises gradually, they were able to improve endothelial function, resulting in an increase in maximum aerobic capacity, and an increase in antioxidant activity. In research Prabowo, (2019) also said that by giving phase 1 cardiac rehabilitation to ACS patients, chest pain, dyspnea and EKG data were obtained which were constant or the same in all respondents at the beginning, exercise and end, besides that there were differences in heart rate and blood pressure values. statistically significant, because by doing exercise activities can reduce blood pressure and pulse rate through the process of modulating angiotensinogen II,

resulting in a decrease in systemic vasoconstriction function and a decrease in aldosterone production. This aldosterone-lowering effect can decrease sympathetic activity so that parasympathetic activity will increase. Another mechanism is the activation of plasma adremodulin and atrio/brain-natriuretic peptide, thereby suppressing noradrenaline and endothelin-1. Activity training is also able to protect against oxidative stress which leads to low oxidative nitrate which has an antihypertensive effect. According to research, during the process of giving phase 1 cardiac rehabilitation during the exercise process, he did not show symptoms such as the appearance of uncontrolled chest pain, dyspnea, and life-threatening arrhythmias.

This is different from the research by Andriani & Purwaningsih, (2020)which said that the provision of phase 1 cardiac rehabilitation had no impact on diastolic blood pressure indicators because it did not experience significant changes but had an impact on hemodynamic status (respiratory, systolic and diastolic blood pressure, SaO2, heart rate) which has a change after physical exercise is given in phase 1 cardiac rehabilitation because an increase in heart rate will increase stroke volume so that the volume of blood produced per minute by the right-left ventricle will also increase. Along with this increase, vascular vasodilation occurs to transport oxygen to the contracting (active) heart muscle. Physical rehabilitation is concerned with sympathetic and parasympathetic nervous activity. The inpatient rehabilitation program causes reactivation of parasympathetic nerves and deactivation of sympathetic nerves causing a gradual decrease in heart rate to initial values. This is consistent with the results of the study where the mean heart rate at the pretest was 97.33 x/minute and the post-test mean heart rate decreased to 84.67 x/minute.

According to research by Andriani & Purwaningsih, (2020) after 5 days of physical exercise intervention, the results showed that the impact on the treatment group was an increase in HRV (Heart Rate Variability), an increase in vagal modulation and a decrease in sympathovagal balance at rest in the supine position. (p<0.05). Meanwhile, there was no change during the observation in the control group that was not given the intervention. Given that if HRV (Heart Rate Variability) weakens, it will become an early risk factor for morbidity and mortality in CHD patients. Vascular stiffness and baroreflex dysfunction caused by AMI will tend to amplify sympathetic hyperactivity and potentially reduce HRV (Santos-Hiss et al., 2011). This study proves that this phase 1 cardiac rehabilitation exercise can support clinical care for patients as protection during the initial rehabilitation of AMI patients. Phase 1 cardiac rehabilitation exercise can increase HRV because of both increased vascular distensibility and increased signal transduction in barosensitive areas. Phase 1 cardiac rehabilitation with physical exercise involves reactions in the central and autonomic nervous pathways because they can have a facilitation effect on afferent mediation of baroreflex activity in the central vagal nervous system and increase central vagal nerve and peripheral nerve activity (Santos-Hiss et al., 2011).

According to research by Borzou, Amiri, Salavati, Soltanian, & Safarpoor, (2018), phase 1 cardiac rehabilitation was given to the intervention group, namely post-CABG acute coronary syndrome patients after 72 hours the patient was transferred to the ICU. The characteristics of the intervention group were patients aged 30 - 75 years who had acute coronary syndrome and had CABG performed, were able to read and write, had no movement disorders, and had an ejection fraction greater than 30%. Patients with uncontrolled arrhythmias, severe and persistent chest pain were excluded from this intervention. The rehabilitation program is carried out in 3 sessions. Session 1 was carried out 72 hours after surgery, then session 2 was continued the next day and session 3 was the day before the patient's discharge. The interventions included education, physical exercise, deep breathing exercises, active ROM, exercises sitting in bed and in a chair, standing, walking, turning the body in the opposite direction. The intervention was carried

out twice a day for 10-15 minutes. Approximately 80% of patients with coronary artery disease undergo CABG, and each of them will need to undertake the first phase of a cardiac rehabilitation program. Self-efficacy makes a lot of difference and changes in a person, both in feelings, thought patterns and actions. A person's self-efficacy can increase an individual's motivation to take action in his life. Those who have higher self-efficacy are able to take on and fulfill more challenging tasks (Borzou, Amiri, Salavati, Soltanian, & Safarpoor, 2018). The results of this study indicate that the first stage of the cardiac rehabilitation program, which increases self-efficacy in daily activities days among post-CABG patients. At discharge and 1 month later, self-efficacy scores across all self-efficacy dimensions were significantly different between the intervention and control groups. The results of this study are in line with our research on the effects of phase I cardiac rehabilitation on anxiety, where the results show that the group given phase 1 rehabilitation has less anxiety than the control group (Borzou, Amiri, Salavati, Soltanian, & Safarpoor, 2018).

The implications that can be applied to nurses in this physical exercise by being a caregiver in accompanying physical exercise are starting from conducting a preliminary assessment according to the patient's ability to start training and the appropriate duration, to the evaluation stage of what kind of response from the patient after the exercise is done. followed by exercise planning at the next stage, and still based on the patient's ability supported by the results of the evaluation of activities (Jyothi, Madhavi, Charan, & Thabita, 2012).

Education

According to research Iswahyudi, (2020) by providing clear health education to patients and families in the phase 1 cardiac rehabilitation phase regarding the illness, how to handle it, and recommendations for complying with the treatment program can reduce the psychological problems that patients experience, such as anxiety so that the pain experienced by the

patient is reduced. , can also increase the patient's self-confidence in carrying out activities so as to improve the quality of life in patients who have been given phase 1 cardiac rehabilitation. Acute coronary and cardiac rehabilitation which can reduce anxiety and depression in patients and improve disease cognition significantly compared to the control group who were not given phase 1 rehabilitation. reduce stress and anxiety experienced by ACS heart patients. because the cardiac rehabilitation program shows a positive effect in reducing mortality and increasing the patient's functional capacity. However, adherence to rehabilitation is still low. The compliance rate is influenced by psychosocial factors, the patient's cognition of the disease and the patient's emotional condition. The study was conducted to determine the efficacy of providing psychological interventions in phase 1 of cardiac rehabilitation to improve patient cognition and emotional adaptation of post-acute coronary syndrome patients. As a result, the intervention had a significant effect in reducing anxiety and depression, improving patient cognition about the disease and improving psychosocial skills. In the intervention group this change was maintained or increased for 2 months, but in the control group there was a decrease in psychosocial adjustment. This study suggests that the patient's emotional state (anxiety and depression) and disease cognition need to be assessed early to optimize compliance so that cardiac rehabilitation can be beneficial and improve the patient's psychosocial adaptation. In addition to having benefits, this intervention does not require a lot of money, does not take a long time, can be implemented easily in health care centers. These interventions can be useful in countries that lack health and economic resources.

Research by Khalife-Zadeh, Dorri, & Shafiee, (2015) stated that there were significant differences in the control group undergoing phase I cardiac rehabilitation in several domains of quality of life, namely the domain of physical function, pain, and the average score of general health. Meanwhile, in the intervention group that underwent phases I and II, there were significant differences in the mean scores in all quality of

life domains. Patient education about the principles of rehabilitation and follow-up activities can improve the patient's quality of life and prevent complications caused by lack of knowledge and non-compliance in carrying out appropriate activities during the recovery period. In addition, in the study of Khalife-Zadeh, Dorri, & Shafiee, (2015) mention cardiac rehabilitation can improve quality of life through mental and psychological effects. Rehabilitation can reduce signs of depression and anxiety as found in the dimensions of joy, vitality, and mental health. Cardiac rehabilitation results in reduced mortality, increased oxygen consumption and quality of life. However, the results of research by Khalife-Zadeh, Dorri, & Shafiee, (2015) is also influenced by the limitations of the study, namely differences in individual patient factors that may have affected their quality of life.

According to research by Idris, Dewi, & Sari, (2018) that Cardiac Rehabilitation Exercises that are carried out regularly can lead to better lung function due to increased use of oxygen in the blood, regular and regular physical exercise can increase muscle strength, especially respiratory muscles that are weaker. produce sufficient intensity during inspiration so that there is an increase in the function of the respiratory muscles, lung physiology and has a good impact on physical exercise activities. This is in accordance with the theory that cardiac rehabilitation has benefits on the system increasing the frequency and depth of breathing, increasing alveolar ventilation, decreasing the work of breathing, increasing the development of the diaphragm. Proving that there is no effect of cardiac rehabilitation (early mobilization) on changes in respiration Idris, Dewi, & Sari, (2018). RR values before and immediately after exercise. Which states that based on research that has been conducted on 90 stable AMI respondents undergoing cardiac rehabilitation (early mobilization), changes in respiration remain stable or normal even though there are differences between pre-test and post. The test affects changes in vital signs. These results prove that cardiac rehabilitation (early mobilization) does not affect respiratory changes in patients with acute myocardial infarction (Idris, Dewi, & Sari, 2018).

The implications in nursing according to Khalife-Zadeh, Dorri, & Shafiee, (2015) mention the role of educators in providing material appropriately to be done to make patients understand and understand what to do in phase 1 rehabilitation of patients with ACS.

Conclusions

Based on the results of a review of 9 articles that have been carried out, the implementation of phase 1 cardiac rehabilitation interventions in acute coronary syndrome patients is proven to have a good impact and outcome and can improve the quality of life of ACS patients. Phase 1 cardiac rehabilitation has been shown to increase the patient's self-efficacy to perform independent daily activities, reduce the level of anxiety and depression experienced by ACS patients and reduce the need for the second phase of the cardiac rehabilitation program. When the intervention is carried out in collaboration with various activities such as physical exercise, education and counseling in the form of phase I cardiac rehabilitation activities, it will maximize and increase the positive impact on the patient l. Therefore, the results of this literature review can be the basis for further research in the implementation of phase 1 cardiac rehabilitation in Indonesia.

References

AHA. (2017). Cardiovascular Disease: A Costly Burden For America Projections Through 2035. *In The American Heart Association (AHA) Office of Federal Advocacy*.

Akhter, M., Bhise, A., & Patel, F. (2014). Effect of Supervised Moderate Intensity Exercise Program in Phase one Cardiac Rehabilitation of Post Operative Cabg Patients - A Randomized Controlled Trail. *International Journal of Physiotherapy*, *1*(4), 215. https://doi.org/https://doi.org/10.15621/ijphy/2014/v1i4/54561

Andriani, W. R., & Purwaningsih, E. (2020). Increased Activity Tolerance based on Hemodynamic Status in Patients Coronary Heart Disease After Physical Rehabilitation of Phase I (Inpatient). *Media Keperawatan Indonesia*, *3*(1), 1–9.

Basuni, B., Joesoef, A. H., & Kusmana, D. (2009).

Rehabilitasi Kardiovaskular di Indonesia. *Indonesian Journal of Cardiology*, 43–45. Retrieved from http://www.ijconline.id/index.php/ijc/article/view/162

Borzou, S. R., Amiri, S., Salavati, M., Soltanian, A. R., & Safarpoor, G. (2018). Effects of the First Phase of Cardiac Rehabilitation Training on Self-Efficacy among Patients Undergoing Coronary Artery Bypass Graft Surgery. *The Journal of Tehran Heart Center*, *13*(3), 126–131. Retrieved from https://pubmed.ncbi.nlm.nih.gov/30745925/

Chaeriah, N. (2015). Intervensi Keperawatan pada Pasien Penyakit Kardiovaskular yang Melaksanakan Latihan Aktivitas Fisik Rehabilitasi Jantung Fase 1. *BIMIKI (Berkala Ilmiah Mahasiswa Ilmu Keperawatan Indonesia)*, *3*(2), 49–56. Retrieved from https://bimiki.e-journal.id/bimiki/article/view/82

Fernandes, A. C., McIntyre, T., Coelho, R., Prata, J., & Maciel, M. J. (2017). Brief Psychological Intervention In Phase I Of Cardiac Rehabilitation After Acute Coronary Syndrome. *Revista Portuguesa de Cardiologia : Orgao Oficial Da Sociedade Portuguesa de Cardiologia = Portuguese Journal of Cardiology : An Official Journal of the Portuguese Society of Cardiology*, *36*(9), 641–649. https://doi.org/10.1016/j.repc.2017.01.005

Idris, D. N. T., Dewi, A., & Sari, N. K. (2018). Tingkat Kenyamanan Pasien Acute Myocardial Infarction Dengan Rehabilitasi Jantung Fase 1 Di IPI Rumah Sakit Bapris Kediri. *Jurnal Penelitian Keperawatan*, *4*(1). Retrieved from http://jurnal.stikesbaptis.ac.id/index.php/keperawatan/article/download/343/316

Iswahyudi, R. (2020). Pengaruh Rehabilitasi Jantung Fase I Terhadap Kualitas Hidup Pasien Penyakit Jantung Koroner. *Jurnal Ners LENTERA*, *8*(1), 1–16. Retrieved from http://journal.wima.ac.id/index.php/NERS/article/view/2305

Jyothi, K. A., Madhavi, K., Charan, K., & Thabita, P. (2012). Study on Physiological Outcomes after Phase 1 Cardiac Rehabilitation in Mitral Valve Replacement Individuals- An observational study. *Hardik Trambadia / Indian Journal of Physiotherapy and Occupational Therapy*, *6*(1).

Khalife-Zadeh, A., Dorri, S., & Shafiee, S. (2015). The Effect Of Cardiac Rehabilitation On Quality Of Life In Patients With Acute Coronary Syndrome. *Iranian Journal of Nursing and Midwifery Research*, *20*(5), 588–593. https://doi.org/10.4103/1735-9066.164504

Mendis, S., & Chestnov, O. (2014). The Global Burden Of Cardiovascular Diseases: A Challenge To Improve. *Current Cardiology Reports*, *16*(5), 486.

PERKI. (2019). Panduan Rehabilitasi Kardiovaskular. In B. Radi, B. B. Tiksnadi, B. Dwiputra, D. Sarvasti, & A. M. Ambari (Eds.), *Panduan Rehabilitasi Kardiovaskular* (1st ed., pp. 3–4). Perhimpunan Dokter Spesialis Kardiovaskuler Indonesia (PERKI). Retrieved from https://inaheart.org/wp-content/uploads/2021/07/buku_panduan_rehabilitasi_kardiovaskular.pdf

Pham, M. T., Rajić, A., Greig, J. D., Sargeant, J. M., Papadopoulos, A., & McEwen, S. A. (2014). A Scoping Review Of Scoping Reviews: Advancing The Approach And Enhancing The Consistency. *Research Synthesis Methods*, *5*(4), 371–385. https://doi.org/10.1002/jrsm.1123

Prabowo, R. K. (2019). Penerapan Rehabilitasi Jantung Fase 1 Pada Pasien Sindroma Koroner Akut (SKA) Di Rumah Sakit Jantung Dan Pembuluh Darah Harapan Kita Jakarta. *JURNAL KESEHATAN INDRA HUSADA*, *7*(2), 81–92. Retrieved from https://ojs.stikesindramayu.ac.id/index.php/JKIH/article/view/168

Rahim, H. F. A., Sibai, A., Khader, Y., Hwalla, N., Fadhil, I., Alsiyabi, H., … Husseini, A. (2014). Non-Communicable Diseases In The Arab World. *The Lancet*, *383*(9914), 356–367. Retrieved from https://www.sciencedirect.com/science/article/pii/S0140673613623831

Santos-Hiss, M. D. B., Melo, R. C., Neves, V. R., Hiss, F. C., Verzola, R. M. M., Silva, E., … Catai, A. M. (2011). Effects Of Progressive Exercise During Phase I Cardiac Rehabilitation On The Heart Rate Variability Of Patients With Acute Myocardial Infarction. *Disability and Rehabilitation*, *33*(10), 835–842. https://doi.org/10.3109/09638288.2010.514016

WHO. (2021). Cardiovascular Diseases (CVDs). Retrieved from https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds)