The Concept Analysis of Self-Management in Coronary Heart Disease Patients After Coronary Intervention

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Abstract. The 2017 Global Burden of Diseases, Injuries, and Risk Factors Study identifies a notable rise in cardiovascular disease-related deaths, particularly in coronary heart disease (CHD). Despite advancements in surgical interventions reducing mortality, effective self-management strategies are essential to mitigate CHD risks. This article explores self-management concepts in post-percutaneous coronary intervention (PCI) CHD patients. The study discloses a global mortality increase from 7.30 million to 8.93 million (2007-2017) due to CHD, necessitating comprehensive post-PCI care. Dual Anti Platelet Therapy (DAPT) is proposed to reduce stent thrombosis, complementing a multifaceted approach involving anticoagulants, ACE inhibitors, beta-blockers, and statins. A healthy lifestyle, including smoking cessation, structured rehabilitation, exercise, and dietary modifications, significantly reduces coronary death risks. The study underscores self-management complexity, considering socio-economic factors, risk awareness, age, occupation, and potential misinformation. Poor self-management may heighten mortality and long-term disability. Employing Walker and Avant's concept analysis method, the study emphasizes the importance of a clear definition for clinical and research purposes in implementing self-management interventions for CHD patients post-PCI.

Keywords: Self-Management, Coronary Heart Disease, Percutaneous Coronary Intervention, Risk Factor, PCI Complication.

1. Introduction

Globally, the estimated number of deaths from cardiovascular disease increased from about 12.1 million in 1990 (evenly distributed between men and women) to 18.6 million (9.6 million men and 8.9 million women) in 2019. This report confirms the serious threat posed by cardiovascular disease worldwide, particularly in low- and middle-income countries [1]. Of the 17 million premature deaths (under the age of 70) from non-communicable diseases in 2019, 38% were due to cardiovascular diseases. Most cardiovascular diseases can be prevented by addressing behavioral risk factors such as tobacco use, unhealthy diet and obesity, lack of physical activity, and harmful alcohol use [2]. Among the G20+, the top 10

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countries with the highest Cardio Vascular Disease mortality rates are Russia Federation, European Union, Indonesia, Saudi Arabia, China, India, South Africa, Turk i, Argentina, and Brazil. Worldwide, the number of CVD deaths has increased since 2010, reaching 81.6 million deaths in China, 14.8 million in the United States (US) and 8.1 million in Indonesia [3] While the highest incidence of CVD disease due to

ischemic heart disease is Saudi Arabia with a rate of 5,229 per 100,000. For hypertensive heart disease and stroke, the highest is Indonesia with the incidence of hypertensive heart disease reaching 452 per 100.00 and the incidence of stroke reaching 2,097 out of 100,000 [3].

Stent thrombosis (ST) is a medical emergency that may be related to death, myocardial infarction (MI), or the need for urgent recurrent revascularization. Most cases of stent thrombosis occur within the first 30 days after implantation. Over 30 days, its incidence is 0.2% to 0.6% per year. Stent thrombosis is a potentially catastrophic event and often appears as a STEMI, requiring emergency revascularization. Stent thrombosis carries a mortality rate of 20% to 45%. Stent thrombosis is defined as acute (<24 hours), subacute (within 30 days), late (between 1 month and 1 year), or very late (>1 year) [4].

Coronary heart disease cannot be cured but treatment can help manage symptoms and reduce the chances of developing problems such as heart attacks. Treatment may include: lifestyle changes, risk factors and attention

from health agencies and personnel. Coronary heart disease either before the IKP action or after the IKP action can be handled effectively together by patients, health workers, and supporting systems from symptoms, treatment to lifestyle modification. Health workers are needed both during prevention, healing and secondary prevention by providing education about diseases and patient conditions and self-management by modifying the patient's lifestyle is one of the effective interventions in patients with coronary heart disease to be able to live longer, reduce pain, anxiety, depression and fatigue, have a better quality of life, and become more active and independent [5].

Self-management of an individual's ability to manage symptoms, treatment protocols, physical and psychosocial consequences, and lifestyle changes inherent in living with a chronic condition. Self-management is inevitable: individuals make their daily health behavioral choice. Effective self- management is an important factor in making good decisions about behavioral health and therefore determines health outcomes [6]. Self-management includes actions that patients take for themselves every day to stay fit and maintain physical and mental health. It also helps in preventing illness or accidents and treating minor illnesses and long-term conditions more effectively [5]. Self-management of

the responsibility that individuals with chronic health conditions have towards their own daily/hourly care requires them to continue to make decisions regarding their condition while away from health care facilities [7]. Self-management of an individual's ability to manage symptoms, medication, physical, and psychosocial, consequences, and lifestyle changes inherent in his or her life with chronic illness [8]. Self-management is a process where clients self-direct their behaviour changes with therapeutic strategies [9].

Previous research entitled self-management of coronary heart disease patients after cardiac catheterization with descriptive methods by identifying self-management through self-integration, self-regulation, interaction with health professionals and significant others, self-monitoring, Adherence to Recommended Regimen. However, this study only focuses on the results of the study obtained without discussing self-management in patients after the PCI action in depth [10]. However, the discussion is still general and does not focus on self- management of patients with CHD in detail and the explanation above is closer to self-monitoring.

Self-integration in modifying changes in the patient's lifestyle but then developing to invite patients to find out more information about their own disease so as to increase confidence in their own ability to improve their health status by changing their habit patterns [6]. Self-regulation is not enough to simply recognize the disease, signs and symptoms treat reactions and symptoms make decisions based on experience and recognize situations that can trigger a recurrence of the disease in more detail than that is the regulation or management of emotions (emotional regulation). Emotional regulation strategies are closely related to emotional well-being and are felt globally health. However, among women, there are significant differences in the use of emotion regulation strategies to cope with stressful and adverse situations that occur on a daily basis, while men use more physical strategies and women use more passive strategies. This difference still requires the design of short intervention interventions based on emotional regulation training in reducing stress levels in cardiac rehabilitation programs. Interventions include psychosocial risk factors and disease and stress management programs, taking into account age, education level, social support, and specific psychosocial aspects of sex and gender, without underestimating psychosocial burdens and concerns [11].

Interaction with health professionals and significant others, the relationship between health workers and patients is an interpersonal relationship, so communication or better known as treatment interviews is very important because patients are not passive beings, nor are they powerful hosts where microorganisms grow, nor machines that one part fails to function or wears out but patients are active creatures where doctors and other health workers work to overcome the disease. Communication between health workers and patients should be based on mutual trust both during the examination and treatment process as well as during the patient's healing process, which will affect the patient's level of compliance. This self-

monitoring includes the things discussed above, which include 4 main components that make up the self-monitoring intervention described in the trial: education, self-measurement, adjustment (or adherence to) treatment and/or behavior, contact with health professionals [11].

So that in the end self-management in CHD patients has been described a lot, but the concept of self-management in CHD patients after CHD actions is still general and complex, and each individual health worker has their own opinions and understandings in terms of self-management in CHD patients after PCI actions. This can raise doubts about the meaning of patient self-management with OJK after the PCI action which will have an impact on the vagueness and misunderstanding between health workers regarding the purpose and application of self- management in CHD patients after the PCI action in the clinical environment.

This concept analysis aims to clarify the theory of the definition of self- management in CHD patients after PCI action and provide clarity on this concept including antecedent, attributes, and consequences.

2. Method

Concept analysis is used to clarify the meaning of concepts based on Walker and Avant [12]. After the research objectives were determined, a search for literature related to the concept in databases such as PubMed, health literature, and Google Scholar, Google Books was carried out. The keywords used were self- management, cardio vascular disease or coronary heart disease, risk factor control, and explanations were searched in the literature. All articles were reviewed by team members independently, and selected articles were related to self-management of coronary heart disease. The search focused on the terms coronary heart disease, percutaneous coronary intervention and self-management used in 2013-2023. Literature synthesis exists to identify attributes. The use of attributes can be seen in the cases of model, borderline, related, and opposite. An antecedent and consequent explanation regarding the concept of self-management is proposed. Empirical references are considered further theoretical and operational definitions are stated. Explanation of this concept can provide a fundamental basis for clarifying the theoretical definition of self- management in patients with coronary heart disease after percutaneous coronary intervention.

2.1 Identification of Self-Management in coronary heart disease patients after PCI action

Self-according to the old English dictionary comes from the Dutch word Zelf and also from the German Selbe where the initial usage is emphatic that it expresses the meaning of (I) suspense. Management or management comes from the Italian word Maneggiare which

more or less means to handle or to handle. In Latin there is a word that has almost the same definition as Manus which means hand or handle [13]. Cardiac Vascular Disease or heart and blood vessel disease, one of which is coronary heart disease, which is a disease caused by plaque accumulation in the coronary blood vessels so that the coronary arteries are narrowed or blocked and cause a heart attack. Coronary artery is a blood vessel that supplies oxygen- carrying blood from the lungs to the heart muscle [14].

Percutaneous Coronary Intervention or percutaneous coronary intervention is a percutaneous action by inserting a very small and flexible tube (catheter) by a cardiology specialist doctor to the porch or heart chambers. This action is invasive. This method gives a clear picture of how clogged coronary blood vessels are, even clearer than CT. Scan. Cardiac catheterization not only knows the pressure of the four chambers of the heart but also the oxygen levels of the heart chambers, the size and location of plaques, and the function of the heart muscle. Narrowing is followed up with angioplasty which is the placement of a balloon or stent to dilate the narrowed or blocked blood vessel. In addition, coronary heart disease also needs to control risk factors, drug use, and lifestyle changes because these events can recur and there are complications of restenosis if not followed by lifestyle changes that can result in sudden cardiac arrest [15].

So that self-management in coronary heart disease is the activity of someone who actively participates in the management of coronary heart disease suffered by involving active behavior and self-behavioral supervision, disease development which includes adherence to taking medication, physical activity and diet [16].

2.2 Determinant and Definition of Attribute

This literature provides the basic idea for the analysis of this concept Based on these ideas, the author reviews other literature to identify and support ideas for achieving predecessors, consequences, substitute terms, and related concepts as well as the context of further application of data collection and cited references. In self-management of patients with coronary heart disease after undergoing PCI, there are three self-management measures that need to be remembered, namely, first, management of daily life. Management of daily life includes management of daily habits and emotional management. Management of daily habits such as smoking, drinking, diet or eating patterns, and other general management such as rest and activity patterns. Emotion management. it contains relaxation methods or tips [17]. The second is self-control to detect early health problems that can cause coronary heart disease, including in this second management is problem solving and decision making where the patient makes decisions that he feels are right in overcoming and carrying out secondary prevention of CHD with PCI such as taking the decision to stop smoking, avoid unhealthy foods and stop physical activity as well as rest and take aspirin when symptoms of chest pain appear. The third is looking for necessary health actions, including disease management, which includes understanding and recognition or education about the signs and symptoms of disease and their treatment, first aid management if you experience signs and symptoms, management of acquiring disease knowledge, and management of

compliance with treatment programs, looking for independent reference through appropriate and credible sources of information to health workers, health institutions and medical teams. The first management is daily life management, avoiding or stopping bad habits such as smoking, drinking alcoholic beverages, replacing eating patterns with healthy eating patterns and a balanced diet. A low-fat, high-fiber diet is highly recommended for patients with coronary heart disease. Fat is divided into 2, namely saturated fat and unsaturated fat. People with coronary heart disease are strongly discouraged from consuming foods high in saturated fat. This can increase levels of bad cholesterol in the blood. Examples of saturated fat foods are meat, butter, lard, cream, cheese, cakes and biscuits and foods that contain coconut milk or coconut fat. or palm oil. Eat more unsaturated fats such as fish, fish oil, avocado, nuts, sunflower oil, olive oil, rapeseed and vegetable oil. Apart from that, avoid foods that contain high levels of sugar and salt, as these foods will cause the risk of diabetes and hypertension which can cause coronary heart disease [5]. Lack of physical activity can cause heart disease. It can also increase the likelihood of other medical conditions that are risk factors, including obesity, high blood pressure, high cholesterol, and diabetes [18]. This includes air pollution which can be reduced by using a mask when doing activities outside the home. Air pollution can also cause narrowing of the arteries and don't forget family genetic factors which can also cause inherited heart disease. Emotional management includes handling oneself when angry, stressed, afraid, depressed, frustrated. It is highly recommended to learn to handle these things, one of which is by using relaxation techniques such as meditation, listening to music [19], another relaxation therapy is dzikir therapy. where these dhikr readings can help restore the consciousness of individuals who are experiencing depression and can help increase the individual's mental strength[20] and there are many other relaxation therapies, this is really needed considering that a person's emotional and mental health status has an influence on individual decision making. Self-control is the second attribute for patients with coronary heart disease. Self- monitoring is carried out by means of self- observation and self-recording. Patients should observe and record their self- management, their eating behavior, preferred diet, including monitoring weight, blood sugar levels if they have diabetic disease, monitoring blood pressure and heart rate in coronary heart disease patients with high blood pressure, also monitoring cholesterol levels regularly and periodically, so as to compare the condition of cholesterol levels at the time of PCI and after PCI action by modifying risk factors and lifestyle, including monitoring the schedule of taking medications that have been given [21].

Monitor the type of activity and rest hours. The advantages of self-monitoring include keeping coronary heart disease patients in the nursing plan, preparing evidence of the effectiveness of nursing actions, assisting in discussions between patients and health workers through data listed in the self-monitoring draft that can be used as encouragement and whether there is improvement during the program [22].

Third, problem solving and decision makers at this stage need to increase the knowledge of CHD patients with IKP, some people recommend the use of decision-making tools. Decision-making aids are multimedia tools designed to convey health information, help

patients clarify their values, choose health options that are consistent with their values and resources, and communicate their treatment priorities to providers. Examples of some decision-making behaviors can be quitting smoking, taking aspirin if symptoms of chest pain arise, taking drugs that can reduce risk factors such as taking blood sugar level drugs if blood sugar is high, taking blood pressure-lowering drugs if blood pressure is high, taking cholesterol-lowering drugs. Health literacy and numeracy often influence decision-making. Effective communication is fundamental in the decision-making process which is essentially rooted in a two-way exchange of information helping patients and their families understand the risks and benefits of continued treatment [23].

The four attributes in self-management health seeking include the patient's knowledge of the signs and symptoms of coronary heart disease such as chest pain, difficulty breathing, weight gain, increased use of nitroglycerin drugs, what the patient will do if they experience chest pain, number It is important to be contacted when signs and symptoms arise, as well as first aid when experiencing symptoms of chest pain which of course begins with the action of making a decision by applying information supported by the skills to adapt to the disease which can be obtained through personal experience and transmission of available information sources. related to the disease [24]. Health seeking - the patient and family's curiosity about seeking trends as additional information related to the disease they are suffering from or other health problems which will help in decision making when experiencing signs and symptoms of the disease, because the family as a support system also influences the results of the patient's decision making. and in this case the patient is able to decide the best solution for himself [25] .

Cardiac Rehabilitation Program One of the factors that reduces the mortality and morbidity rates for CHD patients is the existence of a Cardiac Rehabilitation department or unit, where this unit is directly involved in patient education for patients at risk of CHD, patients with CHD who receive either PCI or surgery. Apart from that, cardiac rehabilitation is also useful in setting goals to target for patients with CHD. In the educational program, the cardiac rehabilitation unit will usually meet the patient face to face for several minutes to explain the disease, risk factors, healthy lifestyle and target goals for each CHD patient who is in the hospital. After carrying out gradual education and setting targets, the rehabilitation program will continue with monitoring interventions after the patient is discharged from the hospital by helping the patient to independently monitor risk factors such as BMI, blood cholesterol levels, blood sugar levels, blood pressure and heart rate. Cardiac rehabilitation also monitors and motivates patient compliance with the patient's consumption of heart medication, teaches emotional modification, teaches relaxation methods, counseling and reminds patients of numbers they can call if they experience symptoms of CHD. CHD patients, whether with PCI or not, if they follow the prescribed cardiac rehabilitation program, have been shown to have very low rates of repeat treatment and repeat revascularization. So, it is very important for CHDs, especially those with PCI, to comply with the cardiac rehabilitation program [26].

2.3 Identification of Antecedents and Consequences

Antecedents

Self-management defines coronary heart disease as a personal action to manage disease, treatment, and to prevent disease progression and complications as well as supporting and recommending a number of programs for chronic disease management. health and regular access to health services. So, it can be handled by making behavioral changes to manage chronic conditions effectively and can make changes to health and well-being as well as reducing the cost of providing health care to some coronary heart disease sufferers [27]. Some reasons for the lack of effectiveness of clinical efforts to influence the risk of coronary heart disease and restenosis include limited provider training on patient education and the use of effective behavior change strategies [28]. It is important to educate CHD patients so that they have positive thoughts and suggestions regarding their health condition so that the patient's quality of life is good and the expected results are also optimal. Education is an intervention with a process to develop skills and has the main aim of improving the health level of patients by being able to carry out certain exercises so that they are able to make the right decisions. There are several factors that are key to the success of self-management, namely.

Demographics

Age and sex and race, genetics, type of occupation and level of education as well as area of residence greatly affect internal self-management in patients with coronary heart disease with PCI. When compared to women, men have a much higher proportion of smoking, while women have a higher prevalence of stress and obesity with a BMI of > 35, in women the rate of people with high blood pressure is higher than men. Men are more likely to have lower levels of high- density lipoprotein cholesterol compared to women.

In younger age groups more often consume unhealthy foods than the elderly group. The older age group has a lower prevalence of physical activity than the younger age group. Blood pressure awareness and treatment were higher among older participants compared to middle- aged. A greater proportion of middle-aged participants had more controlled blood pressure compared to younger people. However, the middle-aged group has a higher prevalence of obesity than the younger age group, while the rates of diabetes, high blood pressure and dyslipidemia tend to be higher in the elderly age group [29].

Educate the patient about the disease or Level of knowledge

Increased patient knowledge can be provided through education or health education about diseases, signs and symptoms, the process of disease, the risk of coronary heart disease and recurrent ischemic arteries and the risk of complications of restenosis, including lifestyle modifications, stopping bad habits such as smoking and alcohol for patients with coronary heart disease, treatment benefits and consequences of indiscipline in drug consumption, The

first treatment if you experience signs and symptoms and include a telephone number that can be contacted if signs and symptoms are felt more severe. The main emphasis in this education is changes in lifestyle modifications, rest and activity patterns, dietary patterns and risk factors for recurrent attacks of coronary heart disease, which include regulating blood pressure and blood sugar levels within limits and also normal BMI for people with coronary heart disease with diabetes and hypertension and obesity [18]. The higher the level of knowledge and understanding of the patient, the greater the self- management program will be effective and can reduce the number of indirect depressions in CHD patients after the PCI action.

Lifestyle (Life Style)

In general, the main causes of CHD apart from genetic factors and age are due to risk factors such as obesity or obesity, high levels of blood sugar and blood pressure, and cholesterol levels. Lifestyle modifications such as unhealthy diet, lack of exercise users or gunshot or smokers, psychological and social unhealthy, alcohol users. A secondary prevention strategy in CHD patients is to control risk factors so that quality of life improves. One effective strategy is the intervention of lifestyle changes by patients independently by changing risky behaviors in the lifestyle of CHD patients including monitoring weight, blood sugar levels, blood pressure, heart rate, regular checks of blood cholesterol levels regularly, and changes in healthy diet, rest and exercise patterns, stopping smoking and alcohol habits. Lifestyle changes in CHD patients have proven effective in the possible survival of CHD patients [30]. Emotional and psychosocial modification is also included in lifestyle changes, one of which is by adopting relaxation techniques that can reduce depression and stress levels in patients with CHD after PCI actions. In addition, regular exercise activities are proven to reduce bad LDL cholesterol levels in the blood and is one intervention that can reduce the body if done regularly followed by a healthy diet and adherence to drug consumption and commitment or self-discipline in achieving the targets that have been made.

Psychological

People or patients involved in the maintenance of self-care in increasing the level of adherence need to maintain physical and emotional stability. In patients with coronary heart disease and have undergone PCI actions who lack education, have social functions and have mood disorders. Giving positive suggestions to CHD patients is proven to reduce the risk of recurrence of PCI [31]. Emotional regulation greatly affects cardiovascular health, this can also trigger an increase in blood sugar levels and blood pressure which will indirectly trigger recurrent coronary heart disease attacks. Negative feelings such as anxiety and depression can worsen the body's sympathetic nerve activity, causing increased catecholamine secretion, impaired lipid metabolism, and angiotensin II release, resulting in increased heart rate and blood pressure and decreased myocardial blood supply and oxygen supply so that stress counseling and support including relaxation methods are needed [32].

Support or social support

Social support plays an important role in self-management behavior and improving behavior in CHD patients with PCI with medication adherence and self- motivation. Social support is usually obtained from the closest people, family, loved ones, medical personnel, health workers in the community. Social support provided can be in the form of motivation, encouragement, care, trust, financial assistance, physical assistance in helping treatment, including providing information that includes self-assessment, and feedback from providing information about CHD with PCI. Social support is needed in CHD patients with PCI in lifestyle modification and lifelong risk factors in CHD patients with PCI in terms of diet or preparing healthy food, emotional support, assistance in daily life such as sports activities, transportation and relaxation, problem management and level of medication adherence or taking medication [33] [33].

Financial/Health Insurance

The financial aspect has a great influence on the treatment compliance of CHD patients with PCI. This is because patients with CHD are required to comply with drug consumption, periodic health checks and the provision of healthy food. In one study showed patients with cardiovascular disease experienced financial problems due to medical bills or health bills due to the high price of treatment in patients with cardiovascular disease including the high price of insurance that must be paid and the number of bills that must be paid jointly between health insurance and patients with cardiovascular. This causes cardiovascular patients, including CHD patients with PCI, to reduce healthy food standards and results in patient non-adherence to treatment. This condition causes financial stress in patients with cardiovascular which affects the patient's health status is not qualified, this occurs in CHD patients with PCI [34].

Spiritual and Cultural

Studies prove that spirituality affects lifestyle modification and risk factors in patients with cardiovascular disease, one of which is CHD patients with PCI. High spiritual levels also affect better health in cardiovascular patients such as affecting lower calorie intake patterns, alcohol use and cigarettes Spiritual (fasting activity) affects cardio metabolic patients with cardiovascular disease. Religious activities such as meditation, prayer have a very significant influence on the patient's pattern in stress management and difficult conditions in self- management interventions in cardiovascular patients where CHD with PCI is included. Spirituality and culture have a strong influence on strengthening lifestyle interventions and can reduce cardio metabolic risk in cardiovascular disease where CHD with PCI is included [35]

Communication

Good communication is the most important part of self-management. This is because communication influences decision- making, setting goals or targets, positive aspects and practicality of patient-centered secondary prevention based on evidence taking into account the patient's needs and the references the patient needs. Good communication will generate confidence in CHD patients with PCI getting the right and reliable information and sources of information, including health teams and medical teams, and credible health organizations. Good communication for secondary prevention of CHD patients with PCI should be done regularly and continuously.

With good communication education to CHD patients with PCI will be conveyed easily, important information that they must know about their disease from risk factor and how to manage it, signs and symptoms, treatment, and other important information where this communication can be conveyed face-to- face, written, visually and with the help of technology [36]. With good communication, including therapeutic communication, it is proven to reduce anxiety levels in CHD patients with IKP and in cardiovascular patients in general [37].

Clinical Conditions or History of Disease

The severity of CHD with PCI, decreased cognitive ability and assumption regarding the side effects of drugs consumed have an influence on self-management in CHD patients with PCI. The limitation of physical activity due to CHD disease with PCI affects self-management in decision making and carrying out activity modification and daily rest, many CHD sufferers with IKP avoid physical activity for weeks of time, this is based on the assumption that the increase in blood. pressure caused by exercise in the short term, and consequently the pressure on the wall, may carry the risk of wall rupture undergoing infarction or causing cardiac decompensation or life-threatening arrhythmias. Self-management in the modification of activity patterns, especially sports activities or physical activity in CHD patients with PCI is very much needed physical activity carried out regularly has been shown to blunt symptoms, increase myocardial perfusion, and, most importantly, reduce recurrent hospitalizations, reduce mortality in CHD patients / myocardial infarction, potential vascularity and restenosis [38].

Coronary heart disease patients with a history of PCI have a risk of complications of stenosis and Intent Restenosis (ISR) such as heart failure and stroke. Some factors that can cause complications of stent thrombosis and in stent restenosis include stent factors used at the time of PCI (e.g. material, design, type of DES vs BMS stent, delaying/incomplete PCI action), patient factors or extent of lesions that occur (vessel size, short length of lesion, plaque characteristics, coagulation activity, presentation of left ventricular ejection fraction of the heart, chronic diseases and risk factors such as diabetic, hypertension, chronic kidney disease, non-adherence to DAPT drugs or early discontinuation of drugs as well as clopidogrel resistance), the last factor is action factors (Morphometric Abnormalities: under

and over expansion and sizing, dissection, ISA, thrombus, plaque prolapse), stent overlap / stent length used, stent bifurcation, per procedural antithrombotic therapy [39].

Consequences

The consequences of CHD patients' self-management interventions with PCI have almost similarities with those in other chronic diseases. In CHD patients with PCI, the consequences are divided into (1) Change behavior (2). Self-efficacy, (3). Better clinical trial results, (4). Improved quality of life, (5). Decreased mortality and morbidity. Improving clinical trial results is one of the benchmarks or standards that can be used in evaluating the success rate of self- management interventions in CHD patients with PCI as well as those used in patients with other chronic diseases. The presence of decreased levels of LDL, TC, HDL, and glucose, control of blood pressure within normal limits, weight loss, and decreased levels of anxiety, depression, increased awareness about the disease and modification of factors and lifestyle changes, are the effectiveness of long-term self-management in CHD patients with PCI [17].

The results of studies conducted in China are very relevant by showing self-management and self-efficacy have a very good and positive relationship. Increasing self-efficacy will also improve self-management will directly affect the improvement of quality of life and changes in the habit pattern or lifestyle of CHD patients with PCI, this makes self-efficacy a consequence of self- management [17].

The results of other studies say the success of self-management is a change in habit or lifestyle patterns by modifying risk factors. Changes in lifestyle or habits with dietary changes, stopping smoking, limiting excessive physical activity, controlling emotional and anxiety levels, adherence to cardiac treatment and rehabilitation programs can improve quality of life, reduce recurrent pain, and reduce mortality [27] [26]. The consequences of independently maintaining good health, well-being, adherence to health and emotional regulation are included in the category of improving the quality of lifestyle [26]. Changes in physical activity patterns also affect the quality of life of CHD patients with PCI [38].

2.4 Operational Definition of Self- Management in CHD with PCI

CHD self-management with PCI is the patient's ability to manage symptoms, handle and control the disease independently through an educational process that can be shown by behavior or actions both internal and external actions. Modifying lifestyle and risk factors through changing unhealthy eating patterns into healthy eating patterns with the selection of low-cholesterol foods and in accordance with accompanying risk factors if there are risk factors for diabetes and hypertension then the diet becomes low in sugar, salt and cholesterol or fat, followed by limiting the number of calories, stopping cigarettes and alcohol and taking drugs regularly and exercise activities with a duration of 15 to 30 minutes each day, emotional processing through effective education in reducing emotions and anxiety and depression with relaxation methods and self-control/monitor recognizing symptoms of

heart disease and symptoms of risk factors such as blood sugar levels and blood pressure as well as heart rate and blood cholesterol levels regularly and periodically both independently and health care seeking through available media both telephone, oral and written messages and actively involved directly in mutually agreed nursing actions.

2.5 Case Study and Model Case

Mr. A, a 49-year-old Bangladeshi national, was taken by a friend to the hospital complaining of severe left chest pain accompanied by vomiting and shortness of breath. From the results of the examination and assessment, the patient's friend said the patient smoked heavily and often complained of chest pain during heavy activities and disappeared when taken to rest. Patients prefer meat and soda food menus and rarely consume fruits and vegetables because patients prefer to buy ready-made foods because they are more practical. The patient is a hard worker in a day the patient rests for 2 to 4 hours because the patient works in 2 places of work. Patients never exercise and free time is only used to play cellphones. Found a family history of patients suffering from heart disease. From the results of measuring BMI patients classified as fat with the patient's BMI reaching 30. The results showed troponin levels of 638.7 pg/ml, and found ST segment elevation on ECG: there was hyperacute (peak) T wave in leads II, III and aVF, early ST elevation and Q wave formation in lead III, there was retrocecal ST depression and T wave inversion in AVL, ST elevation in lead III and lead II indicated occlusion in the arteries of the heart.

The patient requires percutaneous cardio intervention/PCI and requires hospitalization afterwards. When the patient is hospitalized, the patient's cholesterol levels are checked and the results of HDL levels are 35mg / dl, LDL 230 mg / dl and total cholesterol 250 mg/dl After the PCI action and during hospitalization the patient is educated about the disease by nurses and medical teams and collaborates with cardiac rehabilitation about further education and preparation of targets that must be achieved by patients and education about drugs that must be consumed regularly and Lifestyle modification and risk factor modification, regular exercise.

When returning from the hospital, Mr. A carried out a cardiac rehabilitation program that had been arranged together by trying to meet the targets that had been set. Mr. A quit smoking completely, modifying his lifestyle and risk factors. Mr. A began to avoid unhealthy foods and carried out all the things recommended by the medical team and the health team as well as discipline in taking medicines and diligently exercising every day and resting for 6-8 hours per day and routinely checking cholesterol every month in a clinic that is close to his home. After 3 months Mr. A did a cholesterol check and did a control at the hospital and found Mr. A's BMI within normal limits, HDL cholesterol levels 50 mg / dl, LDL 126 mg / dl and total cholesterol levels 170 mg/dl. Mr. A accommodates all attributes of the CHD concept with the PCI. The patient has reached the target as set. The patient undergoes processes and activities as well as controls the reduction of BMI, and cholesterol levels, modifies food, exercises and takes medications as well as conducts regular checks and actively seeks information about his disease and does not hesitate to ask

health workers at the clinic near his home, Mr. A exercises self-control by conducting regular cholesterol checks every month and participating in problem solving and decision making by avoid unhealthy foods and stop smoking.

2.6 Borderline Case

Mr. A, a 49-year-old Bangladeshi national, was taken by a friend to the hospital complaining of severe left chest pain accompanied by vomiting and shortness of breath. From the results of the examination and assessment, the patient's friend said the patient smoked heavily and often complained of chest pain during heavy activities and disappeared when taken to rest. Patients prefer meat and soda food menus and rarely consume fruits and vegetables because patients prefer to buy ready-made foods because they are more practical. The patient is a hard worker in a day the patient rests for 2 to 4 hours because the patient works in 2 places of work. Patients never exercise and free time is only used to play cellphones. Found a family history of patients suffering from heart disease. From the results of measuring BMI patients classified as fat with the patient's BMI reaching 30. The results showed troponin levels of 638.7 pg/ml, and found ST segment elevation on ECG: there was hyperacute (peak) T wafe in leads II, III and aVF, early ST elevation and Q wafe formation in lead III, there was recropical ST depression and T wafe inversion in AVL, ST elevation in lead III and lead II indicated occlusion in the arteries of the heart. The patient requires percutaneous cardio intervention/PCI and requires hospitalization afterwards. When the patient is hospitalized, the patient's cholesterol levels are checked and the results of HDL levels are 35mg / dl, LDL 230 mg / dl and total cholesterol 250 mg/dl After the PCI action and during hospitalization the patient is educated about the disease by nurses and medical teams and collaborates with cardiac rehabilitation about further education and preparation of targets that must be achieved by patients and education about drugs that must be consumed regularly and Lifestyle modification and risk factor modification, regular exercise.

When returning from the hospital, Mr. A carried out a cardiac rehabilitation program that had been arranged together by trying to meet the targets that had been set. Mr. A quit smoking completely, modifying his lifestyle and risk factors. Mr. A consumed unhealthy food, namely fast food 2 times a week and carried out all the things recommended by the medical team and health team as well as discipline in drug consumption and diligently exercised every day and rested for 6-8 hours per day and routinely checked cholesterol every month at the clinic that was close to his home. After 3 months Mr. A did a cholesterol check and did a control at the hospital and found Mr. A's BMI within normal limits, HDL cholesterol levels 50 mg / dl, LDL 126 mg / dl and total cholesterol levels 170 mg / dl.

Mr. A has not accommodated all attributes of the CHD concept with the PCI. The patient has reached the target as set. The patient undergoes processes and activities as well as controls the reduction of BMI, and cholesterol levels, modifies food, exercises and takes medications as well as conducts regular checks and actively seeks information about his disease and does not hesitate to ask health workers at the clinic near his home, Mr. A exercises self-control by conducting regular cholesterol checks every month and

participating in problem solving and decision making by consume fast food 2 times a week and quit smoking.

2.7 Related Case

Mr. A, a 49-year-old Bangladeshi national, was taken by a friend to the hospital complaining of severe left chest pain accompanied by vomiting and shortness of breath. From the results of the examination and assessment, the patient's friend said the patient smoked heavily and often complained of chest pain during heavy activities and disappeared when taken to rest. Patients prefer meat and soda food menus and rarely consume fruits and vegetables because patients prefer to buy ready-made foods because they are more practical. The patient is a hard worker in a day the patient rests for 2 to 4 hours because the patient works in 2 places of work. Patients never exercise and free time is only used to play cellphones. Found a family history of patients suffering from heart disease. From the results of measuring BMI patients classified as fat with the patient's BMI reaching 30. The results showed troponin levels of 638.7 pg/ml, and found ST segment elevation on ECG: there was hyperacute (peak) T wave in leads II, III and aVF, early ST elevation and Q wave formation in lead III, there was retrocecal ST depression and T wave inversion in AVL, ST elevation in lead III and lead II indicated occlusion in the arteries of the heart. The patient requires percutaneous cardio intervention/IKP and requires hospitalization afterwards. When the patient is hospitalized, the patient's cholesterol levels are checked and the results of HDL levels are 35mg / dl, LDL 230 mg / dl and total cholesterol 250 mg/dl After the PCI action and during hospitalization the patient is educated about the disease by nurses and medical teams and collaborates with cardiac rehabilitation about further education and preparation of targets that must be achieved by patients and education about drugs that must be consumed regularly and Lifestyle modification and risk factor modification, regular exercise.

When returning from the hospital, Mr. A carried out a cardiac rehabilitation program that had been arranged together by trying to meet the targets that had been set. Mr. A quit smoking completely, modifying his lifestyle and risk factors. Mr. A began to avoid unhealthy foods and carried out all the things recommended by the medical team and the health team as well as discipline in taking medicines and diligently exercising every day and resting for 6-8 hours per day and routinely checking cholesterol every month in a clinic that is close to his home. After 2 months Mr. A checked cholesterol levels at a clinic near his home and found Mr. A's BMI within normal limits, HDL cholesterol levels 50 mg/dl, LDL 126 mg / dl and total cholesterol levels 170 mg / dl. After returning from the clinic, Mr. A regularly took drugs but returned to the lifestyle before being diagnosed with CHD by always consuming fast food and returning to work in 2 places because Mr. A considered himself fully recovered.

In this case Mr. A has succeeded in lowering blood cholesterol levels and the form of action taken by Mr. A is limited to adherence to medication not a form of self-management, this is because Mr. A. A does not meet the attributes of self-management, problem solving, and decision maker and knowledge resources.

2.8 Contrary Case

Mr. A, a 49-year-old Bangladeshi national, was taken by a friend to the hospital complaining of severe left chest pain accompanied by vomiting and shortness of breath. From the results of the examination and assessment, the patient's friend said the patient smoked heavily and often complained of chest pain during heavy activities and disappeared when taken to rest. Patients prefer meat and soda food menus and rarely consume fruits and vegetables because patients prefer to buy ready-made foods because they are more practical. The patient is a hard worker in a day the patient rests for 2 to 4 hours because the patient works in 2 places of work. Patients never exercise and free time is only used to play cellphones. Found a family history of patients suffering from heart disease. From the results of measuring BMI patients classified as fat with the patient's BMI reaching 30. The results showed troponin levels of 638.7 pg/ml, and found ST segment elevation on ECG: there was hyperacute (peak) T wave in leads II, III and aVF, early ST elevation and Q wave formation in lead III, there was retrocecal ST depression and T wave inversion in AVL, ST elevation in lead III and lead II indicated occlusion in the arteries of the heart. The patient requires percutaneous cardio intervention/PCI and requires hospitalization afterwards. When the patient is hospitalized, the patient's cholesterol levels are checked and the results of HDL levels are 35mg / dl, LDL 230 mg / dl and total cholesterol 250 mg/dl After the PCI action and during hospitalization the patient is educated about the disease by nurses and medical teams and collaborates with cardiac rehabilitation about further education and preparation of targets that must be achieved by patients and education about drugs that must be consumed regularly and Lifestyle modification and risk factor modification, regular exercise.

When he returned from the hospital, Mr. A refused to carry out the cardiac rehabilitation program that had been arranged with Mr. A. A continued to smoke, Mr. A refused to modify his lifestyle and risk factors. Mr. A still consumes unhealthy food that is fast food every day 2 times and refuses to carry out all the things recommended by the medical team and health team and Mr. A refuse to take medicines and exercise every day because Mr. A feel confident that he does not suffer from CHD and considers PCI intervention is just a routine action that needs to be done by the hospital.

This case shows that Mr. A decided not to be involved in achieving the goals that had been set to lower cholesterol levels and modify lifestyle fiber risk factors and Mr. A refused to collude with the medical team and health team and refused to exercise self- management.

2.9 Empirical References

The achievement of targets that have been determined can be measured by direct patient records and reporting and success in the application of a concept can be seen from the ability of individual patients in carrying out self-management attributes of lifestyle modification, risk factors, adherence to drug consumption and conducting regular check- ups and being actively involved in finding sources of information about the disease suffered and the

existence of self-control from positive changes in patient behavior that can be measured by the success rate of reducing cholesterol levels in the blood and physical changes in patients that can be measured by the results of patient BMI that is within normal or healthy limits. Problem solving and decision makers can be measured by looking at the changes in patients quitting smoking completely. Health seeking can be measured by evaluating the patient's level of knowledge about CHD with IKP and complications of IKP if not followed by lifestyle modifications and risk factors in general. Consequences can be measured by changes in habits, physical and laboratory examinations and the achievement of self-efficacy criteria from self-management for CHD patients with IKP accompanied by improved quality of life and reduced pain.

3. Conclusion

In this study, provisional understanding of the definitions, antecedents, attributes and consequences of self- management in CHD patients with PCI has been found, but analysis of the concept of self-management analysis in CHD patients with PCI is still needed and the development of this concept in the future. This study can be a temporary foundation in clarifying the theoretical definition of self-management in CHD patients with PCI.

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