



THE EFFECTIVENES IMPLEMENTATION OF LIMA MODEL ON DISCHARGE READINESS AMONG PATIENT POST PRIMARY PERCUTANEOUS CORONARY INTERVENTION

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Abstract

The use of the Percutaneous Coronary Intervention method as a revascularization method is increasing rapidly. Short hospitalizations and rapid recovery lead to reduced patient and family understanding of risk factors and prevention efforts of recurrent attacks, which are challenges to patient adherence to medication and self-care. Discharge Planning is the process of preparing the patient for continuity of care until the patient feels ready to return home. This study aims to determine the effect of the LIMA model on the discharge readiness of post Primary Percutaneous Coronary Intervention (post-PPCI) patients. This research uses a quantitative approach with a quasi-experimental design. Research design with post test only non equivalent control group approach. The number of samples used was 60 people divided into 30 intervention groups and 30 control groups. Data analysis using the Mann Whitney test. The results of this study showed that there was a significant difference between the intervention group and the control group on the implementation of the LIMA model with p value = 0.032 ($p < 0.05$). This study proves that the implementation of the LIMA model is effective on the discharge readiness of patients post-PPCI at the hospital. This can improve the quality of respondents so that it can prevent the recurrence of coronary heart attacks.

Keywords: Model LIMA, Discharge Readiness.

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INTRODUCTION

The use of the Percutaneous Coranary Intervention (PCI) method as a revascularization method has increased rapidly due to short hospitalizations and rapid patient recovery (Herawati et al., 2019). Short hospitalizations and rapid recovery lead to reduced patient and family understanding of risk factors and recurrent attack prevention efforts, which are challenges to patient adherence to medication and self-care (Mustikasari, 2014).

The LIMA discharge planning model is a discharge process that is carried out in an integrated interdisciplinary manner and coordinated by nurses in order to facilitate discharge for patients and families from the time the patient is treated until the patient returns home from the hospital. Discharge Planning for patients post Primary Percutaneous Coronary Intervention (PPCI) with the LIMA model consists of several processes, namely: (1) *Libatkan pasien dan keluarga dalam proses perencanaan pulang* (Involve patients and families in the discharge planning process); (2) *Identifikasi kebutuhan perencanaan pulang pasien dan keluarga* (Identify patient and family discharge planning needs); (3) *Metode 3 waktu dalam perencanaan pulang: ketika pertama pasien masuk rumah sakit, satu hari sebelum kepulangan pasien, dan hari saat pasien pulang* (the use of a 3-step method in discharge planning (when the first patient is treated, one day before discharge and on the day of discharge); and (4) *Analisis dan evaluasi kesiapan pasien dan keluarga* (analysis and evaluation of patient and family readiness) (Fitri, 2020).

The Management of Providing Discharge Planning LIMA Model for home care as initial capital to patients who will face discharge after receiving treatment while in hospital is a determinant in the success of the treatment and care. Patient of Post-PPCI will be successful if the patient stops smoking, exercising and adheres to medication (Meihanda & Darliana, 2016). Based on data from Rumah Sakit Pusat Jantung dan Pembuluh Darah Harapan Kita, 80% of patients who do not lead a healthy

lifestyle will experience recurrent PCI (Sulastri et al., 2020).

So it is expected that patients can apply self-care after the PCI procedure. Self-care adherence in post-PCI patients includes adherence to medication and adherence to self-care, namely healthy behaviors that include diet, physical exercise, no smoking and no alcohol consumption. One study in a general hospital West Sumatera found that almost half of CHD patients did not implement lifestyle changes after PCI and 38%- 67% form 132 participants believed that after PCI, they no longer suffered from CHD (Nova & Chen, 2019). There are several barriers to patients in doing post-PCI self-care such as perceived physical barriers, perceived psychological barriers; low adherence, the adverse side effects of medications.

The discharge planning process covers the patient's physical, psychological, socio-cultural, and economic needs. The discharge planning process consists of three phases: acute, transitional, and continuous service. The main medical concern in the acute period focuses on discharge planning efforts. The need for transitional phase care in acute is always visible, but the importance is diminishing and patients begin to be prepared to go home and plan for continuous, future care needs. In contrast to the service phase, patients are able to participate in the planning and implementation of ongoing activities needed after discharge (Wahyuni et al., 2012). Step method of discharge planning (when the first patient is hospitalized, one day before the patient is discharged, and on the day of the patient's discharge), analysis and evaluation of patient and family readiness (Fitri et al., 2020).

The success of discharge planning is influenced by various factors such as the nurse's personality and the patient's personal self. According to Rofi'i (2019) stated that things that affect *discharge planning* are personnel factors of return planning, involvement and participation, communication, agreement and consensus (Rofi'i, 2019). Discharge planning can reduce patient care days, prevent recurrence, improve the development of patient health conditions and reduce the burden of family care. Personnel

factors in discharge planning are the people who contribute to the discharge planning, namely nurses, doctors, health workers in the community, patients and family members. Nurses as part of discharge planning personnel play an important role in successful discharge planning. The nurse is responsible for coordinating and maintaining the relationship with care, professional facilities, and resources necessary for the patient's recovery (Rofi'i, 2019).

Previous research found that the LIMA model was effective in preparing diabetic mellitus patients to go home (Fitri et al., 2020). Meanwhile, the effectiveness of the LIMA model has not been studied for heart disease patients. The purpose of this study is to determine the effectiveness of the implementation of the LIMA model on the readiness of post-PPCI patients to go home

METHOD

This research design is a quantitative design with a quasi-experimental design using an experimental design with non-equivalent control group design. There were two groups, one group acting as the intervention group (which was given the discharge planning model LIMA treatment) and the other group was the control group (which was not treated). Description of ethical approval from Dr. M Djamil Padang Hospital: LB.02.02/5.7/481/2023.

The population of this study was all STEMI Post PPCI patients in the Instalasi Pelayanan Jantung Terpadu (IPJT) inpatient room of Dr. M Djamil Padang Hospital. The study was conducted from September to November 2023. The sample calculation for this research uses a hypothesis test of the difference between the means of two independent groups with a degree of significance of 5 % and power of 80 %. The sample of this study was 60 respondents divided into 30 respondents in the intervention group and 30 respondents in the control group. The number of respondents was taken based on the average number of patients treated post PPCI at M Djamil Hospital and entered into the appropriate

formula. All samples taken have met the inclusion criteria that have been set: post-PPCI patients treated at IPJT with stable hemodynamic conditions and willing to be research respondents.

Discharge readiness among Post PPCI patients using the Readiness for Hospital Discharge Scale (RHDS) questionnaire. This RHDS questionnaire includes 23 question items that measure patients' perceptions of discharge readiness from the hospital. A higher score indicates better readiness to be discharge from the hospital. The bivariate analysis test used in determining the effect of discharge planning model LIMA on discharge readiness in STEMI Post PPCI patients were the Mann Whitney test, it was used because the data distribution was not normally distributed

RESULT AND DISCUSSION

This study obtained results on the characteristics of respondents, differences in mean readiness to be discharge in the control group and intervention, and the influence of confounding variables on readiness to be discharge. Based on table 1, the results of the distribution of respondents show that the majority of patients (93,3 %) are male in both the control and intervention groups with an age category of adults. About 30 % the education level of respondents for the control group was at high school level and for the intervention group at junior high school level. The type of work that respondents dominate (33,3 %) is in self-employed work with comorbid diseases of more than one or more risk factors. For disease history, both groups predominantly had never had experience with the same disease.

Table 2 explains that the average value (mean) of readiness to be discharge after being given treatment in the intervention group was 181.70 and the control group was 159.70, meaning that the average value (mean) of the intervention group was higher than the control with a p value of 0.03, meaning there was an influence on the implementation of the discharge planning Model LIMA towards the readiness to be discharge for STEMI Post PPCI patients.

Table 1. Distribution of respondents' frequency based on gender, age, education, occupation, risk factors, having been treated with CHD at IPJT in 2023

Variabel	Control		Intervention	
	Σ	%	Σ	%
Gender				
Female	1	3,3	2	6,7
Male	29	96,7	28	93,3
Total	30	100	30	100
Age				
Adult (25- 59 Years)	20	66,7	28	93,3
Elderly (> 60 Years)	10	33,3	2	6,7
Total	30	100	30	100
Education				
Elementary School	7	23,3	4	13,3
Junior High School	5	16,7	9	30
High School	12	40	6	20
Diploma	3	10	4	13,3
Bachelor	3	10	7	23,3
Total	30	100	30	100
Work				
Civil Servant	5	16,7	7	23,3
State Company Employes	3	10	8	26,7
Private	18	60	10	33,3
Does Not Work	0	0	1	3,3
Housewives	2	6,7	1	3,3
And Others	2	6,7	3	10
Total	30	100	30	100
Risk Factors				
1 Diseases	9	30	6	20
>1 Diseases	21	70	24	80
Total	30	100	30	100
History Of Coroner Patient				
Ever	3	10	3	10
Not Yet	27	90	27	90
Total	30	100	30	100

Table 2. Mean Readiness to be Discharge in the Control and Intervention Groups of Post-PPCI STEMI Patients at IPJT Dr M Djamil Hospital Padang in 2023

Variable	n	Mean	SD	Min	Max	P Value
Intervention	30	181.70	16.461	152	206	0.032
Control	30	159.70	41.530	52	03	

Table 3. The Effect of Confounding Variables in the Implementation of LIMA Model on Post PPCI Patients on Discharge Readiness at IPJT Hospital Dr M Djamil Padang Hospital in 2023

Variabel	p-Value	UnadjustedOR(95%C I)	Pvalue	AdjustedOR(95%CI)
Age	1,00	1,00(0,372-2,687)	0,286	0,357(0,054-2,363)
Gendre	0,561	0,483(0,41-5,628)	0,413	0,576(0,154-2,157)
Education	0,283	0,806(0,544-1,194)	0,034	24,460(1,279-467,726)
Work	0,630	1,098(0,750-1,608)	0,659	0,509(0,026-10,136)
Married	0,656	0,666(0,111-3,996)	0,968	1,089(0,018-65,280)
Risk Factor	0,374	1,714(0,523-5,621)	0,977	1,026(0,191-5,521)
Admission	1.00	1,00(0,185-5,403)0,816	0,656	0,540(0,036-8,160)

From table 3 it shows that education influences the implementation of change planning in Post PPC STEMI patients using the Logistic Regression test with a value of Unadjusted OR= 0.81 (95% CI 0.54 – 1.19), whereas after adjusting QR = 24.46 (95%CI 1.23 – 467.73).

Discussion

This study showed that the intervention group using the LIMA discharge planning model had good score compared to the group that was only given hospital discharge planning. Scores in this intervention group were almost evenly distributed in each respondent. In contrast to the control group had a variety of scores, ranging from the lowest score to the highest score.

In this study, it was found that there was a significant influence on the provision of discharge planning with the Lima method in STEMI patients who had received PPCI therapy for readiness to return home from treatment at the hospital. This return readiness aims to improve a person's ability both from cognitive, psychological, physiological abilities and access to health services so that they are ready to change adverse behavior. The ultimate goal of discharge planning with the LIMA method is to prepare a person to improve his quality of life so that this can prevent the risk of recurrence of coronary heart disease attacks again

From the results of the study obtained the age range of coronary heart in adult patient 45-59 years (Sitorus et al., 2021). The score average in the study groups is categorized as entering adulthood. The Indonesian Ministry of Health (2013) showed the older age of 45 years reducing in the risk higher Coronary Heart Disease (CHD). Increasing age in men is one of the risk factors for CHD. The Indonesian Ministry of Health (2013) explained “prevalence of CHD cause of death in the age group of 60-64 years. The teaching process given to patients during treatment is known as discharge planning, where this teaching can involve families. The implementation of discharge planning using the LIMA model given in the age range of 40-55 years can be given right on target because at that age patients and families are still productive and have not shown intellectual deterioration.

From the table 1, it show the study above also state that coronary heart disease (CHD) is more suffered by men than women (93 % vs 6,7 %). The cause of more men suffering from CHD is a bad lifestyle such as, smoking, unhealthy food and suffering from hypertension. This is in accordance with research related to men's lifestyles' such as consuming alcohol, smoking which can damage the lining of blood vessels, can thicken and fragile blood vessel walls thereby reducing the elasticity of coronary blood vessels so as to facilitate damage to blood vessels which results in reduced oxygen supply given to the heart. In addition, the risk of coronary heart disease is rare in women because women have the hormone estrogen that can prevent damage to blood vessels, only after the age of menopause is at risk for CHD (El Khoudary et al., 2020).

In this study, the education level of respondents was dominated by respondents who graduated from high school. The higher a person's education level, the easier it is to receive information (Wijayanti & Ernawati, 2022). The

lower one's education, the lower one's knowledge, and vice versa, the higher one's knowledge will make it easier to receive the information provided. The level of education can affect the ability to listen, absorb information, solve problems, behavior and daily lifestyle. A person's cognitive abilities will form the ability to understand the factors associated with illness and the information received both orally, in writing, directly and indirectly.

In statistical tests, the level of education of respondents towards discharge planning has the results that for bivariate analysis on confounding variables, using further tests with odds ratio (OR) shows that the variable level of education affects the implementation of discharge planning with the LIMA method in STEMI patients. Table 3 shows the adjusted OR result of 0.034 (p value <0.05). In relation to the level of education with the occurrence of STEMi states there is no relationship, but the level of education can affect a person's knowledge in receiving information in the form of discharge planning.

Risk factors are also a trigger for coronary heart attacks and if not overcome can even cause recurrent heart attacks. The more risk facilitators a person suffers, the more it will increase the occurrence of coronary fetal disease. In this study show that more than two the risk factors that occur a lot are smoking, high cholesterol and hypertension by the intervention group (80%). This risk factor is suffered by many male respondents where the unhealthy lifestyle often occurs in male respondents. Thus, the LIMA model discharge planning information given repeatedly during the treatment of respondents will be able to change the unhealthy lifestyle not to be done again. As for risk factors such as the presence of other secondary diseases such as hypertension, cholesterol and diabetes so that they can be controlled with a healthy diet and lifestyle as well. It was also revealed in study (Meihanda & Darliana, 2016)there was a significant relationship between risk factors, knowledge and habits on the incidence of coronary heart attacks.

These findings of this study indicated that the majority of respondents had never received treatment for coronary heart disease. This means that information on heart health education has not been received by these respondents so that coronary heart attacks can occur due to factors of ignorance of respondents about the disease and how to prevent the recurrence of attacks and modify lifestyles that increase heart attacks. In respondents who have been treated and exposed to information on heart health education can reduce the occurrence of heart attacks because it can modify a healthy lifestyle and maintain the stability of comorbidity risk factors so that they no longer trigger coronary heart attacks.

The LIMA discharge planning method is an educational effort to prepare or independent patient care in the form of a combination of abilities and desires prepared for patients undergoing treatment in the hospital to prepare themselves both physically,

psychologically and socially. In this RHDS, questions will be opened by asking CHD patients about their readiness to be discharge (Fitri et al., 2020). Readiness to be discharge is measured in the patient's personal in the form of physical readiness, energy, feeling capable, ready for emotional declaration, and absence of stress. The second preparedness, how to take care of yourself, medications, complications of the disease and preventive measures if you feel the symptoms of a heart attack. Then proceed with coping in the face of life's worries and demands. And finally is the readiness of emotional support to the readiness of the family to be discharged from the hospital (Asnani et al., 2022).

Respondents' confidence in readiness to be discharge is believed that if there are no symptoms felt well, the patient feels ready to go home. Both readiness to be discharge in the form of physical, mental, psychological, emotional, knowledge of self-care and overcoming problems and readiness of needed medicines. This knowledge readiness is given discharge planning during patient treatment is given up to 3 times to 1 respondent so as to increase respondents' readiness in self-care independently at home.

Based on the assumptions of researchers, education is one of the most important factors in understanding the course of the disease, the process of coronary heart attack (STEMI) and how to manage the disease well. Education can contribute to behavior change after getting the information provided. The level of education will also be able to improve a person's coping mechanism in dealing with stressors, this is due to a good understanding of information, so that individuals will be able to respond positively.

Structured and programmed discharge planning is very effective and efficient to be used to improve patient discharge readiness independently in meeting self-care needs. Discharge planning is more effective if given a focus on one disease problem and not different diseases so that it is easy to evaluate readiness to be discharge. This is useful to reduce the number of repeated patient treatments and reduce the occurrence of recurrence in coronary heart disease and guard against risk factors that can accompany coronary heart disease.

A limitation of this study is that it has not divided in detail the discharge planning in the patient's discharge readiness group with personal status, knowledge, coping skills, and support. The patients are heterogeneous where the patient's age is divided into a long range, namely adults and the elderly. The advantages of this study already have more samples and have conducted statistical tests on things that can affect this research.

CONCLUSION

Based on the results of the study on the effect of the implementation of *the LIMA model* discharge planning (involvement, identification, methods,

and analysis) on post-PPCI patients on the readiness of patients to go home in IPJT RSUP dr. M. Djamil Padang. The readiness to be discharge of CHD patients treated at RSUP dr m djamil who were given the LIMA Discharge Planning Model was higher in the intervention group compared to the control group, There is a significant difference between the discharge readiness of STEMI patients who are given only hospital discharge planning (control group) and the provision of LIMA model discharge planning (intervention group), The level of education of respondents significantly affects the implementation of the acceptance of the LIMA Model Discharge Planning in these STEMI patients. Given the importance of implementing the LIMA Model discharge planning as an effort to improve the quality of nursing care, prevent readmission and provide patient and family satisfaction and improve the quality of life of patients on an ongoing basis in patients, it is therefore expected socialize the LIMA discharge planning model through training or dissemination of knowledge, Making this LIMA model discharge planning a nursing intervention, as early as possible education is given to CHD patients, Prepare SOPs on the provision of discharge planning model LIMA to be used as a reference or guideline for nurses in implementing discharge planning.

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