The Effect Of Education Using Workbook On Self-Efficacy Of The Coronary Heart Disease Management In Acute Phase And Two Weeks Post Heart Attack

Adinda Utami, Aan Nur'aeni, Imas Rafiyah
Faculty of Nursing Universitas Padjadjaran
Email: adinda14005@mail.unpad.ac.id

Abstract

Background. Self-efficacy needed by Coronary Heart Disease (CHD) patients as a first step in managing the disease. Education is given as an effort to increase patients' self-efficacy, but the media for education is limited. The workbook is an educational media that would encourage patients' roles, overcome obstacles and increase the self-efficacy of CHD patients. Purpose. This study aimed to determine the differences in self-efficacy of CHD patients before and after the health education using a workbook. Method. This study was a quasi-experimental study with a pre-test post-test control group design. The samples were 19 patients in the CICU room at a hospital in the city of Bandung that chosen using a purposive sampling technique. The intervention group received health education using media workbooks (n=9) and then another group was the control group (n=10). Self-efficacy was measured using a questionnaire Self-efficacy CHD Management. Data were analyzed using frequency distribution and bivariate using Wilcoxon and Mann Whitney tests. Results. The study found p-value from the Wilcoxon test in the intervention group was 0.008 ($p < 0.05$) while the control group was 0.102 ($p > 0.05$). The results of the Mann Whitney test showed that before the intervention, the p-value between the intervention group and the control group was 1,000 ($p > 0.05$), whereas after the intervention the p-value between the two groups was 0.040 ($p < 0.05$). Conclusion. Based on the results of the study, there are significant differences in self-efficacy between the two groups. The health education method using a workbook can be used to improve the self-efficacy of CHD patients.

Keywords: Coronary Heart Disease, health education method, Self-efficacy, workbook.

Introduction

Coronary Heart Disease (CHD) is one of the leading causes of death globally. According to the World Health Organization (WHO, 2012), CHD caused around 7.4 million deaths in 2012. In Indonesia, the incidence of CHD is high. Based on the report of the basic health research in 2018, the prevalence of CHD reached 1.5% or it can be interpreted that 15 out of 1,000 Indonesians suffer from CHD. The highest estimated number of CHD sufferers is West Java province with 160,812 patients (Ministry of Health of the Republic of Indonesia, 2018).

CHD patients need to have disease management to optimize heart function, overcome psychological problems, and improve quality of life to prevent complications or recurrence (Arovah, 2010). To achieve these goals, CHD patients need to adopt a healthy lifestyle, including stopping smoking, a low-fat diet, regular exercise, controlling blood pressure, reducing body weight, and adhering to medication (Harun, Ibrahim, & Rafiyah, 2016; Smeltzer & Bare, 2013).

Good disease management has been shown to improve quality of life and reduce morbidity and mortality in patients with heart problems (Gardiner et al., 2017; McMahon, Ades, & Thompson, 2017). However, based on the results of a study conducted by Kwok, et al (2017), it is known that early re-hospitalization is common in patients after being diagnosed with Acute Myocardial Infarction. In Indonesia, the number of recurrence rates in CHD patients reaches 40% of the total sufferers (Indrawati, 2012; Nur'aeni & Mirwanti, 2017). This can be caused by failures in management, especially those carried out at home independently. These failures include disobedience to treatment, disobedience in running a healthy lifestyle, behavior to hide the disease so that it lacks social support, and psychological problems such as depression and anxiety experienced by CHD patients (Harun et al., 2016; Mufarokhah, Putra, & Dewi, 2016; Nur'aeni & Mirwanti, 2017).

Failure in managing this disease would be minimized by providing effective information by health workers (Mufarokhah et al., 2016). However, the implementation of health education is considered to be inadequate because the information provided has not been assessed based on the patients' needs, the material is superficial and not comprehensive, the delivery method is generally lecture, and the patient is not provided with an appropriate media to take home (Nur'aeni, Anna, & Mirwanti, 2017). Barriers in providing optimal health education included limited time, and the media need to improve such as complete information, communicative and taken home by patients (Haryono, Effendy, & Aulawi, 2008; Lin, Cheng, Shih, Chu, & Tjung, 2012; Nur'aeni et al., 2017).

Based on those study results, a good health education method to overcome problems and obstacles of patient health is needed. This study used health education methods for individuals using visual media which is a workbook. This educational method was chosen because of the approach form is guidance and counseling, in the process was two-way communication between nurses and patients. In addition, the visual media workbook was chosen because the sense of sight is the most channeling information into the brain with a percentage of about 75% to 87% (Notoatmodjo, 2012; Yusyaf, 2013). In the workbook, there is material about the management of CHD and a filling sheet that provides documentation for patients. The material in the workbook compiled based on the learning needs of CHD patients. The information includes the anatomy and physiology of the heart, psychological factors that influence the patient's health condition, lifestyle modification, information about medications, information about proper diet, information on physical activity, ways of managing symptoms, and other information such as Pulmonary Resuscitation (RJP) and spiritual needs (Nur'aeni et al., 2017; Sari, 2017).

The expected outcome of this health education is health behavior, including behavior to maintain and improve health (Notoatmodjo, 2012). One important element that determines a person's behavior is self-efficacy. Self-efficacy is defined as one's confidence or belief in the ability to carry out a task. Bandura (1977) states that someone with high self-efficacy will be able to achieve

better performance because someone has strong motivation, clear goals, more stable emotions, and the ability to perform tasks successfully. The self-efficacy would affect someone's perseverance in carrying out a task, which is the health management at home after hospitalization. Self-efficacy is an important factor in behavior change and self-management, and it also a significant predictor of health behavior (Schoenthaler et al., 2009). Self-efficacy be the most significant factor in influencing the behavior of people rather than the knowledge (Kang, Yang, & Kim, 2010).

Health education using a workbook is provided as an effort to improve the self-efficacy of CHD patients. A previous study conducted by Alavi et al. (2015) found, that self-efficacy is influenced by several factors such as experience, motivation, and an efficient education system and knowledge. Providing a Workbook would provide CHD patients with experience in managing their disease by documenting their activities on the form sheets. In the workbook, there are also positive quotes that are expected to increase motivation in CHD patients to manage the disease. The method of providing information education using workbooks is also expected to facilitate patients in receiving information about CHD management. In addition, by increasing the knowledge of CHD patients through health education, it is expected that the self-efficacy of CHD patients will increase so that they can carry out disease management independently at home optimally.

Education using media workbooks had previously been investigated by Peterson et al. (2014), but the study was conducted in the United States which is a developed country where reading a book is a habit, this is different from developing countries like Indonesia. Based on UNESCO data reading culture in Indonesia is the lowest compared to other ASEAN countries (Triatma, 2016). In addition, Indonesia and the United States also have different educational and cultural backgrounds which can affect a person's ability to understand information and influence individual health behavior (Notoatmodjo, 2012; Pradono & Sulistyowati, 2013). This study aimed to determine the differences in self-efficacy of CHD patients before and after the health education using a workbook

Methods

Study design

This study applied an experimental research method with a quasi-experimental design. The design was Pre-test Post-test Control Group Design with two groups; the intervention group and the control group. The observations were made before the intervention (pre-test) and 2 weeks after the administration of the intervention (post-test) by measuring the level of patient's self-efficacy using a questionnaire.

The population in this study was all CHD patients who were hospitalized in the Cardiac Intensive Care Unit (CICU) in one hospital in Bandung city. The sampling technique was purposive sampling with inclusion and exclusion criteria. Inclusion criteria include; CHD patients who are hospitalized in the CICU Cardiac Center room, compos mentis, the client can see, hear, and read well. Whereas, the exclusion criteria were that the client experienced a decrease in conditions marked by a decrease in hemodynamic status. The number of samples is determined using the calculation formula of numerical samples unpaired. The total number of respondents in this study were 19 people with a response rate of 86.3%.

Instruments

The instrument in this study was a questionnaire self-efficacy in the management of CHD before (pre-test) and after (post-test) the health education using media workbooks. The construct test was conducted to see the validity of the questionnaire. The result, from a total of 27 questions in the questionnaire, 15 items were declared valid, while the rest were declared invalid. However, invalid question items are retained after the sentence structure has been improved because the item is considered important. The reliability test was carried out on the questionnaire Self-efficacy CHD Management. The results obtained Cronbach's Alpha value of 0.887 which is greater than 0.6 so it can be stated

that the questionnaire self-efficacy of CHD management is reliable. The questionnaire consisted of 27 statements using a Likert scale. The self-efficacy score of CHD management includes score 27 to 56 means not sure, while 57 to 112 means sure category.

Data analysis

The data were analyzed using univariate analysis techniques which aim to describe the characteristics of each variable (Hastono, 2007). The univariate analysis includes: age, sex, ethnicity, level of education, duration of illness, medical action, history of previous health education, health-seeking information, management of CHD, forms of management CHD, as well as respondents' participation in reading, filling in, and practicing information from workbooks. Furthermore, the data were analyzed using bivariate analysis techniques, two tests applied including the test Wilcoxon and the Mann Whitney test due to the results of the normality test. The data were not normally distributed. The test was Wilcoxon performed to determine differences in pre-test and post-test in the same group. While the Mann Whitney test performed to determine differences in pre-test and post-test as well as post-test differences between the two different groups.

Ethical consideration

Ethics Approval number was LB.04.01 / A05 / EC / 123 / IV / 2018

RESULTS

The following table describes the characteristics of respondentsAn overview

Table 1 Respondent characteristics (n1 = 9; n2 = 10)

Variables	Interventions (n1=9)		Control (n2=10)		Total (nT=19)		Homogeinity Test
	n	%	n	%	n	%	sig.
Age							**0.361**
Late Adults (36-45 years)	1	11.1			1	5.2	
Early Elderly (46-55 years)	2	22.2	4	40	6	31.5	
Late Elderly (55-65 years)	6	66.6	6	60	12	63.1	
Gender							**0.001**
Male	9	99.9	8	80	17	89.4	
Female			2	20	2	10.5	
Tribe							**0.540**
Sundanese	6	66.6	5	50	11	67.8	
Javanese	2	22.2	4	40	6	31.5	
Minang							
Batak	1	11.1	1	10	1	5.2	
Education Level							**0.905**
Elementary	4	44.4	1	10	5	26.3	
Junior	1	11.1	3	30	4	21	
High School	2	22.2	3	30	5	26.3	
Diploma							
S1	1	11.1			1	5.2	
S2	1	11.1	3	30	4	21	
Duration							**0.203**
Acute (0-6 months)	6	66.6	4	40	10	52.6	
Chronic (> 6 months)	3	33.3	6	60	9	47.3	
Medical							**0.773**
PCI and Medication	6	66.6	7	70	13	68.4	
CABG and Medication							
Medication	3	33.3	3	30	6	31.5	
Previous Health Education							**0.002**
Never	8	88.8	5	50	13	68.4	
Yes/ever	1	11.1	5	50	6	31.5	

Information Sources							**0.460**
None	**4**	**44.4**	**2**	**20**	**6**	**31.5**	
Print	**2**	**22.2**	**2**	**20**	**4**	**21**	
Audio							
Visual projection							
Media Audiovisual	**1**	**11.1**			**1**	**5.2**	
Others	**1**	**11.1**	**5**	**50**	**6**	**31.5**	
Health workers	**1**	**11.1**	**1**	**10**	**2**	**10.5**	
Other							
Attempts to Perform Management							**0.728**
Never	**5**	**55.5**	**4**	**40**	**9**	**47.3**	
Yes / never	**4**	**44.4**	**6**	**60**	**10**	**52.6**	
Form of Management							**0.099**
None	**5**	**55.5**	**4**	**40**	**9**	**47.3**	
Stop smoking	**1**	**11.1**	**4**	**40**	**5**	**26.3**	
Comply with medication consumption	**2**	**22.2**	**2**	**20**	**4**	**21**	
Exercise on a healthy diet							
Stress management	**1**	**11.1**			**1**	**5.2**	
Participation							
Reading the workbook	**7**	**77.7**			**7**	**77.7**	
Filling the workbook							
Performing CHD management	**7**	**77.7**			**7**	**77.7**	

An overview of differences in self-efficacy of CHD management and differences in self-efficacy in each domain are presented in the following

Table 2: Overview of Self-efficacy of CHD Management in the Intervention Group

Variables	Intervention(n = 9)								Difference in Median	p-value
	Pre-test				Post-test					
	Median	Min-Max	Sure		Median	Min-Max	Sure			
			Yes	No			Yes	No		
Self-efficacy	**79.00**	**73-87**	**9 (100%)**	**-**	**83.00**	**79-97**	**9 (100%)**	**-**	**-5.00**	**0.008**
Sign of Symptoms	**3.00**	**2.00-3.00**			**3.00**	**3.00-4.00**			**0**	**0.046**
Overcoming Heart Attacks	**3.00**	**2.50-3.00**			**3.00**	**3.00-4.00**			**0**	**0.180**
Activities	**3.00**	**2.00-3.67**			**3.00**	**2.33-4.00**			**0**	**0.026**
Sexual Relationship	**3.00**	**3.00-3.00**			**3.00**	**3.00-4.00**			**0**	**1.000**
Choosing Food	**3.00**	**2.50-4.00**			**3.00**	**3.00-4.00**			**0**	**0.748**
Setting the Diet	**3.00**	**2.25-3.50**			**3.00**	**3.00-4.00**			**0**	**0.461**
Smoking	**4.00**	**3.00-4.00**			**4.00**	**3.00-4.00**			**0**	**0.655**
Recognizing and Avoiding Stress	**3.00**	**3.00-3.00**			**3.00**	**3.00-4.00**			**0**	**0.317**

Overcoming Stress	**3.00**	**2.67-3.67**	**3.00**	**3.00-4.00**	**0**	**0.257**
Spiritual	**3.00**	**3.00-4.00**	**3.00**	**3.00-4.00**	**0**	**0.317**
Drug Consumption	**3.00**	**2.33-4.00**	**3.00**	**3.00-4.00**	**0**	**0.039**
RJP	**2.00**	**1.00-3.00**	**3.00**	**2.00-3.00**	**1**	**0.014**

Table 3: Description of Self-efficacy of CHD Management in Control Group Control

Variables	Intervention(n = 9)								Difference in Median	p-value
	Pre-test				Post-test					
	Median	Min-Max	Sure		Median	Min-Max	Sure			
			Yes	No			Yes	No		
Self-efficacy	**78.00**	**74-89**	**10 (100%)**	**-**	**78.00**	**74-89**	**9 (100%)**	**-**	**0**	**0.102**
Sign of Symptoms	**3.00**	**2.00-3.00**			**3.00**	**2.00-3.00**			**0**	**1.000**
Overcoming Heart Attacks	**3.00**	**2.50-3.00**			**3.00**	**2.50-3.50**			**0**	**1.000**
Activities	**3.00**	**2.00-3.33**			**3.00**	**2.67-3.33**			**0**	**0.180**
Sexual Relationship	**3.00**	**3.00-3.00**			**3.00**	**3.00-3.00**			**0**	**1.000**
Choosing Food	**3.00**	**2.00-4.00**			**3.00**	**2.50-4.00**			**0**	**0.317**
Setting the Diet	**2.75**	**2.25-4.00**			**2.75**	**2.25-4.00**			**0**	**0.317**
Smoking	**4.00**	**3.00-4.00**			**3.00**	**3.00-4.00**			**0**	**1.000**
Identifying and Avoiding Stress	**3.00**	**3.00-3.00**			**3.00**	**3.00-3.00**			**0**	**1.000**
Coping Stress	**3.00**	**2.67-3.00**			**3.00**	**2.67-3.00**			**0**	**1.000**
Spiritual	**3.00**	**3.00-3.50**			**3.00**	**3.00-3.50**			**0**	**1.000**
Drug Consumption	**3.00**	**2.33-3.00**			**3.00**	**2.33-3.00**			**0**	**1.000**
RJP	**3.00**	**2.00-4.00**			**3.00**	**2.00-4.00**			**0**	**1.000**

The difference in self-efficiency management of CHD present in Table 4

Table 4 Differences in self-efficacy of CHD management in the intervention group and control group (n = 19)

Self-efficacy of CHD Management	N	Mean Rank	Standard Deviation	p-value
Pre-test				
Intervention	**19**	**10.00**	**4.312**	**1.000**
Control		**10.00**		
Post-test				
Intervention	**19**	**12.78**	**5.786**	**0.040**
Control		**7.50**		
Difference				
Intervention	**19**	**15.00**	**4.081**	**0.000**
Control		**5.50**		

Discussion

The data show that there were no significant differences in self-efficacy between the intervention and control groups before health education using the workbook (p = 1,000; p> 0.05). The measurement of self-efficacy in the intervention group was a minimum score (73) and a maximum score (87). While in the control group, the minimum score of self-efficacy was 74 and a maximum score (89). The score illustrates that self-efficacy in all respondents is in the sure category.

The self-efficacy can be formed from four sources including experience, other people experience, verbal persuasion, psychological, and affective circumstances (Bandura,1997). The fourth source, namely psychological and affective circumstances that is how a person assesses his abilities, strengths, and vulnerabilities. The psychological and affective would influence a person's beliefs and behavior in responding to certain situations (Haas & Northam, 2010). Respondents in this study were post- CHD patients who in recovering from life-threatening experiences. Surviving from the life-threatening experience affects the respondents' psychological, decreasing in the threaten affects a stable and good psychological condition (Greyson, 2015; Haas & Northam, 2010). This good psychological condition has a good influence on respondents' self-efficacy, as a result, the measurement in both groups are in the sure category.

The results of post-tests showed differences in self-efficacy. In the intervention group, there was an increase in self-efficacy of CHD management (p=0.008; p <0.05). The domain of self-efficacy increases including signs and symptoms, physical activity, drug consumption, and CPR. The increase of self-efficacy in four domains may be caused by a lack of respondents' knowledge in the four aspects before interventions. Previous research states that information about anatomy and physiology and drug consumption are at the top of the learning needs of CHD patients, while information on physical activity is one of the information that CHD patients feel after the need of information about symptoms management (Sari, 2017; Svavarsdóttir, Sigurardóttir, & Steinsbekk, 2016; Uysal & Enc, 2012). After the intervention, respondents felt their learning needs had been met so that they felt more confident in managing CHD related to these four aspects.

The increase in self-efficacy only in four domains may be caused by respondents who do not take notes on the workbook. In the intervention group, no respondents wrote management activities in the workbook, so the respondents did not get the experience of self-monitoring related to CHD management. The absence of the active roles of respondents would impact of no increase in self-efficacy in each domain of CHD management. In contrast to the intervention group, the results of the post-test in the control group showed

that statistically, there was no significant increase in self-efficacy of CHD management with p = 0.102 (p> 0.05) and there was no a significant increase in self-efficacy in all domains (p> 0.05).

It can be seen that there are differences in post-test results from the intervention group and the control group. The results of the Mann Whitney analysis concluded that there were significant differences between the self-efficacy of CHD management in the intervention group and the control group after intervention using a workbook. This is indicated by p = 0.040 (p <0.05). This might be caused by the treatment given to the intervention group, namely the health education using a workbook media.

The results of the data processing presented in table 4 show that the data analysis of intergroup differences, a value of p = 0,000 (p <0.05) which indicates that there are significant differences in the increase in self-efficacy between the two groups. This illustrates that self-efficacy in the intervention groups increases much greater than self-efficacy than the control group. Education is an important element in the management of CHD because patients need the knowledge to maintain and improve their health status (Svavarsdóttir et al., 2016). Respondents in the intervention group also reported that information obtained through workbooks was very useful. Workbooks given to patients compiled the learning needs of CHD patients (Sari, 2017; Timmins & Kaliszer, 2003). This makes the workbook an appropriate source for CHD patients to find information about the disease and how to manage it.

The results of this study found education using a workbook helps in improving the self-efficacy of CHD management. Bandura (1997) states that the stronger the self-efficacy a person feels, the more a person decide a task that is challenging for him, the longer it lasts, and the more of success opportunity. A good self-efficacy would make patients' lifestyle changes to be healthier. Education is a health promotion and illness prevention of nurses to improve patients' health. The nurse has a role as an educator, nurses have the responsibility to provide information to the patient as their need, and they can able to manage the disease independently. However, in its implementation, nurses still find obstacles (Haryono et al., 2008; Lin et al., 2012; Nur'aeni et al., 2017). By utilizing the educational method using this workbook, nurses work as their responsibilities without experiencing additional workloads.

Conclusions

The results showed that in general, all respondents' self-efficacy was in the sure category. The change of self-efficacy of CHD management was greater in the intervention group compared to the control group. This shows that education using a workbook can improve self-efficacy in CHD patients. However, if you see changes in each domain self-efficacy of CHD management, there are only four domains that have increased based on score. This may be caused by new knowledge gained by respondents related to the four domains. From the results of the study, researchers provided recommendations to health workers that education using a workbook could be the choice method in providing health education about CHD management. This method can be a solution to the educational obstacles that are felt by health workers, especially nurses The use of workbooks as an educational media is a way that guides patients' independence in managing their illness independently at home.

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