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ORIGINAL RESEARCH

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CORONARY HEART DISEASE PATIENTS' LEARNING NEEDS

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Abstract

Background: Patients with coronary heart disease (CHD) should have good self-management capabilities. This is determined by the effective of health education which is based on the assessment of patients' learning needs and consideration of health personnel. On the other hand, the study of perceptions of CHD patients' learning needs in Indonesia is little known.

Objective: This study aimed to identify the CHD patients' learning needs.

Methods: This study was a descriptive quantitative with cross-sectional approach. Population was CHD patients in one of the referral hospitals in West Java Indonesia. Samples were recruited using consecutive sampling technique for a 2-month period (n=106). Data were collected using TR-CPLNI instrument and analyzed using descriptive quantitative and *Kruskal Wallis test*.

Results: The order of learning needs based on the highest to the lowest mean was anatomy and physiology of heart (4.42); medication information (4.33); cardiopulmonary information (4.32); life style (4.28); dietary information (4.19); symptom management (4.08); psychology (4.07); and physical activity (3.64). The significant differences ($p < 0.05$) based on ward categories were learning needs of dietary information ($p = 0.002$); physical activity ($p = 0.009$) and symptom management ($p = 0.037$), with the highest needs respectively were in High Care Unit (HCU); HCU; and non-intensive care unit.

Conclusions: These eight learning needs were important for CHD patients. However, the priority of the patients' learning needs were seen by category of ward or recovery phase and illness duration different from each other. Therefore, this can be a consideration in providing education to CHD patients.

Keywords: coronary heart disease; learning need; patient

INTRODUCTION

The prevalence of Coronary Heart Disease (CHD) is increase every year, and so is its death rate. This condition leads CHD to be a health problem currently. In 2012 heart disease was one of the most health cases in Indonesia (MOH, 2014). Moreover the recurrences reached 40% of the total CHD cases (Indrawati, 2014). These conditions need to be overcome by health personnel through preventive and rehabilitative efforts.

CHD is an acute illness that requires continuous prevention effort from its patients. The management after acute attack should be done systematically and continuously in order to restore optimal body condition and prevents recurrence. It can be done through cardiac rehabilitation program and life style management. But in the other hand, the adherence for undertaking cardiac rehabilitation in CHD patients is low. It can

be seen from data on cardiac rehabilitation attendance in one of the referral hospitals in West Java in 2016, based on the data, cardiac rehabilitation only performed by 134 out of a total 910 outpatients. Other than that, the obedience at life style management in CHD patients in terms of activity and diet was still being a problem ([Harun, Ibrahim, & Rafiyah, 2016](#)).

Previous studies had shown various problems occurred in CHD patients after acute attack. According to previous study that physical limitations made up by 42% of CHD patients, frequent angina and low patients satisfaction in medication respectively accounted for 56% and 58% ([Nuraeni, Mirwanti, Anna, & Prawesti, 2016](#)). Other study showed the low spiritual well-being of a fifth CHD patients (15%) ([Nuraeni, Mirwanti, & Anna, 2018](#)). Furthermore anxiety and depression in outpatient CHD patients was high, and generally, their quality of life as much as 58% was also low ([Nuraeni et al., 2016](#)). Those problems might occur caused by poor management of CHD. This indicates the low adherence of CHD patients to management after acute attack. As stated by Indrawati that the predictor of CHD recurrences because of failure in preventing risk factors after acute attacks ([Indrawati, 2014](#)). According to Miller and DiMatteo, disobedience to disease management caused by lack of health information, poor health behaviors, side effects of treatment, financial problems and depression ([Miller & DiMatteo, 2016](#)). Latimer AE, Katulak NA, and Mowad L stated that information has an important role to shape health behavior and help in determining actions in health management ([Latimer, Katulak, Mowad, & Salovey, 2005](#)). Furthermore previous study had indicated that there was a significant relationship between knowledge with the ability to perform secondary prevention in CHD patients ([Indrawati, 2014](#)).

A good of health education, should be given based on the individual needs and patients' characteristic. Assessment based on data from or about individuals related to health

problems is important to determine, in order to give appropriate information or strategy in addressing individual learning needs ([Rimer & Kreuter, 2006](#)). Moreover, Timmins explained, health education would be more effective if based on perception of patients' learning needs. One of the problems of health education program consist of the lack of patients' learning needs assessment, thus it was given only based on health personnel perception ([Timmins & Kaliszer, 2003](#)).

This study was conducted to analyze the learning needs of CHD patients based on patient perception, as a recommendation for subsequent education especially educational programs for CHD patients in western Java Indonesia.

METHODS

Study design

This study was a descriptive quantitative with cross sectional approach. The aimed was to analyze CHD patients' learning needs based on patients' perceptions. The population was CHD patients who underwent care after acute attack in high care unit (HCU); non intensive care ward; outpatient unit; and cardiac rehabilitation unit at one of referral hospital in West Java Indonesia. The sample selected using consecutive technique sampling in a-2 months period with the respondents' criteria were patients had diagnosed CHD (UAP, STEMI and NSTEMI); patients had passed acute phase or had no chest pain at least in 24 hours.

Instruments

The data collected using *A Turkish Version of the Cardiac Patients' Learning Needs Inventory; Patient Questionnaire (TR-CPLNI)* ([Uysal & Enç, 2012](#)). This instrument had passed the validity and reliability test with the value of content validity index was 0.96, and alpha Cronbach's was at the interval 0.65 and 0.85 ($p < 0.01$) for all of subscales. The Instrument had been translated into Indonesian through back translation method.

Data analysis

The respondents' characteristics and the patients' cardiac learning needs were analyzed using univariate analysis, consists of mean and distribution frequency. The patients' learning needs was analyzed using mean which the value is in the range of 1 – 5, the higher the mean score (close to 5) then the learning needs of CHD patients is higher (important). While comparison of learning needs was analyzed using nonparametric test with Kruskal Wallis. This test compared the difference of learning needs among patients who underwent care in different wards category. Its difference significant when $p < 0.05$.

Ethical consideration

Ethical clearance for data collection had been obtained from the Research Ethics Committee of the General Hospital of Dr. Hasan Sadikin No. LB.04.01/A05/EC/206/VII/2017. All respondents had informed consent and agreed to participate in the research.

RESULTS

The study carried out on 106 respondents. Data about respondents' characteristic involved age, sex, level of education, and duration of illness. The respondents age was 57.86 year in average, and a very large majority was male (76.4%) and more than two-third (68.9%) respondents had been ill for more than 6 months. The level of education varies among respondents, but mostly respondents were primary school graduates (43.4%), and more than just a quarter were high school or university graduates (25.5%), respondents whose level of education were middle school was 31.1%. Other than that, the respondents who underwent care in HCU; non intensive care ward; outpatient unit; and cardiac rehabilitation unit respectively was 9.4%; 28.3%; 38.7%; and 23.6%.

Furthermore, the result of CHD patients' learning needs was shown in **Table 1** and **2**. A mean score close to 5 indicates an increasingly important learning need according to the respondent's perception.

Table 1 CHD patients' learning needs

Learning needs	Min	Max	Mean	Standard deviation
Anatomy and physiology of heart (the working of heart)	1.00	5.00	4.42	0.59
Medication information	2.00	5.00	4.33	0.70
Life style	2.00	5.00	4.28	0.68
Dietary information	1.40	5.00	4.19	0.69
Symptom management	1.33	5.00	4.08	0.75
Psychology	2.00	5.00	4.07	0.64
Miscellaneous	2.00	5.00	4.00	0.72
Physical activity	1.50	5.00	3.64	0.79

Table 2 CHD patients' learning needs on miscellaneous needs

Other CHD patients' Learning Needs (Miscellaneous)	Min	Max	Mean	Standard deviation
Support services after leaving the hospital	1.00	5.00	3.81	0.88
Support for family	1.00	5.00	3.89	0.90
The test will be done after been discharge from hospital	1.00	5.00	4.00	0.88
Information about CPR for family	1.00	5.00	4.32	0.84

The CHD patients' learning needs was also seen based on the duration of illness. According to the study, the most important learning needs perceived by patients who had

been diagnosed for less or more than 6 months was anatomy and physiology of heart. It is shown in **chart 1**.

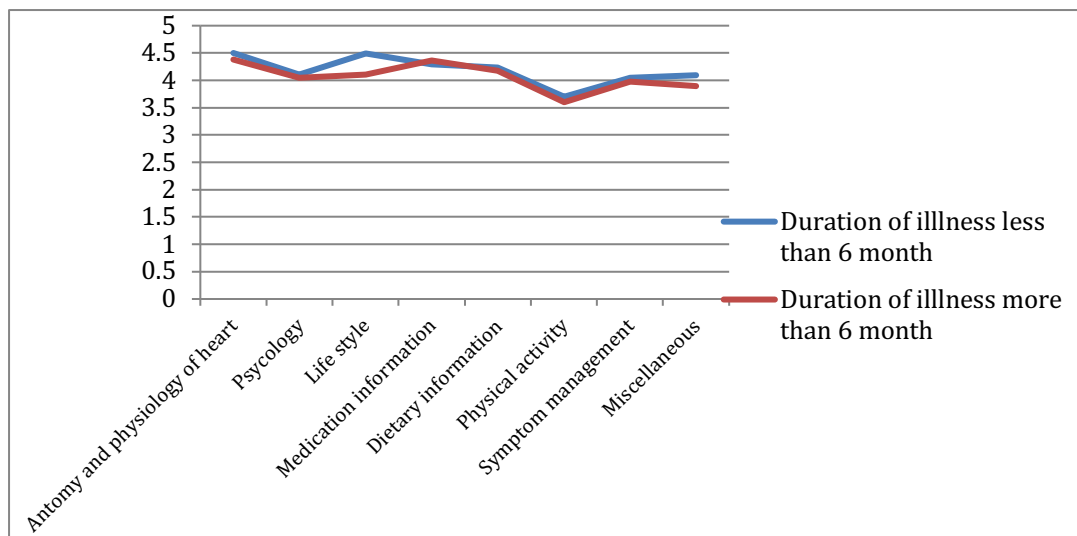


Chart 1 CHD patients' learning needs based on duration of illness

Chart 2 gives information about CHD patients' learning needs viewed based on ward categories. The highest score of patients' learning needs in the HCU; non intensive care ward; outpatient unit; and cardiac

rehabilitation unit respectively were anatomy and physiology of heart; information about life styles; anatomy and physiology of heart; medication information and anatomy and physiology of heart.

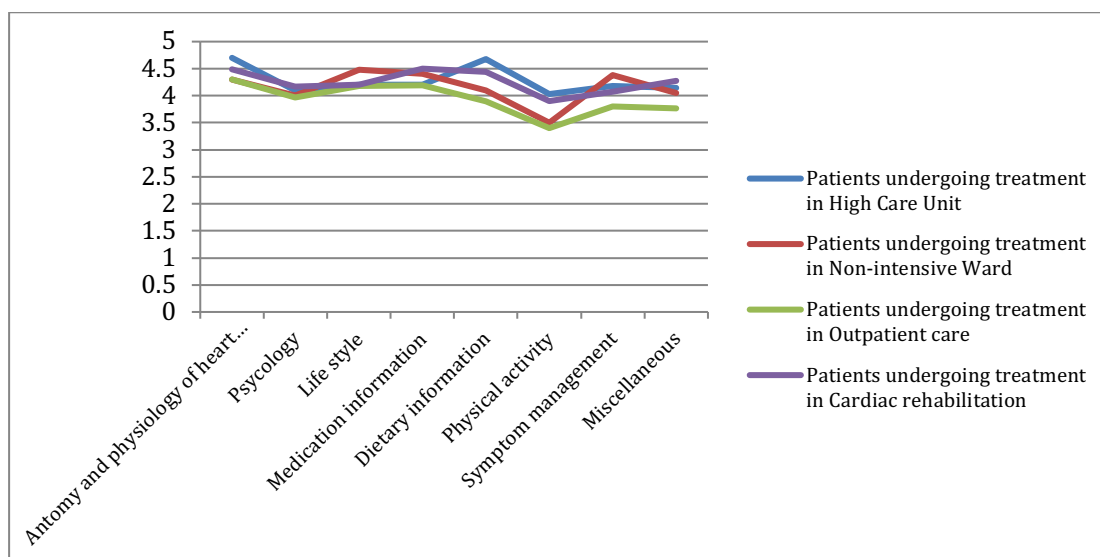


Chart 2 CHD patients' learning needs based on ward Categories

Table 3 shows the significant CHD patients' learning needs difference based on ward categories and duration of illness. Patients' learning needs in the dietary information and physical activity different significantly at $p < 0.01$ in the different ward category and also

significantly different at $p < 0.05$ for information needs of symptom management. Furthermore, the significant different is also shown for life styles information ($p < 0.05$) in the duration of illness category.

Table 3 Comparison of patients' learning needs based on ward categories and duration of illness

Category	Patients Learning Needs							
	Anatomy- Physiology of Heart	Psychology	Life Style	Medication information	Dietary Information	Physical Activity	Symptom Management	Miscellaneous
	P	P	P	290	P	P	P	P
High Care Unit Wards Outpatient care Cardiac rehabilitation	0.143	0.42	0.228	---	0.002**	0.009**	0.037*	0.095
Duration of Illness ≤ 6 months	0.321	0.69	0.048*	0.415	0.806	0.686	0.12	0.507
Duration of Illness ≥ 6 months								

* $p < 0.05$; ** $p < 0.01$

DISCUSSION

Health education gives benefit for increasing a good self-management particularly for chronically ill patients (Peterson et al., 2014). CHD is one of the chronic illness which require a good self-management to prevent recurrences. Self-management in CHD patients according to Indrawati is related with the knowledges about secondary prevention. Indrawati stated that the higher the knowledge about the secondary prevention of CHD, the higher the ability of the patient in doing the prevention. It is confirmed the importance of health education for CHD patients (Indrawati, 2014).

Health education can be effective if it is given based on the assessment of patients' learning needs and its characteristic (Rimer & Kreuter, 2006). It was strengthen the Timmins' statement in his previous study that the education program which was developed based on the health personnel's learning needs perceptions had the lower effectiveness than the education which was given based on patients' learning needs perceptions (Timmins & Kaliszer, 2003). Therefore, it is important for the educator to look for the patients' learning needs before giving health education,

thus the aims of effective education can be fulfilled.

The cardiac patients' learning needs based on this study, described all the needs which consists of anatomy and physiology of heart; medication information; life style; dietary information; symptom management; psychology; physical activity; and miscellaneous were important. Perception of the importance of all these learning needs by the respondents can be correlated with the common-sense theory. Based on the common-sense theory, representation of threats or illness or treatment procedures that should be performed by patients can influence patients' perceptions to their illnesses (Leventhal, Diefenbach, & Leventhal, 1992). The more severe the threat of a disease will reinforce the patient's perception of the importance of treatment. CHD can be a very threatening disease for the sufferers, death threats are very close to patients with the disease, so that it will encourage the patients to do all treatment their need. This condition can be related with the patients' perception about the importance of all learning needs.

The patients' learning needs about the anatomy and physiology of heart was the highest learning needs based on patients'

perception in this study. It can be explained using the common-sense theory. CHD cause severe pain to the patients, even often the patients feel his death is imminent when they are experiencing an acute attack. When he can pass through the acute phase, the patients curious to know why it happened, what is the cause, how hearts working and etc. Chest pain is the most obvious and often perceived as CHD representation by its patients. This symptom often reported by the patients as an experience which difficult to forget because they felt death was very close ([Monahan, Sands, Neighbors, Green-nigro, & Marek, 2006](#)). This condition will affect the patients emotionally, so they consider CHD as a very high threat disease. It will increase the patient's curiosity about his heart condition, and place the learning needs of anatomy and physiology as the most important learning needs.

The systematic review conducted by Scott and Thompson mentioned that, from 14 studies on the learning needs of CHD patients, none of these studies put the anatomy and physiology of the heart as the highest learning requirements ([Scott & Thompson, 2003](#)). The same result was given by Timmins, based on his study the most prioritized learning needs based on patients perception was symptom management, and anatomy and physiology need was the most prioritized by nurses' perception ([Timmins & Kaliszer, 2003](#)). The different results occurred based on this study.

The difference result in anatomy and physiology learning need with the previous studies may occur due to differences in patients' characteristics and health services. Based on the results of interviews and observations on the education program in the research setting, discovered that education provided for patients include the PCI treatment and medication, whereas anatomy and physiology education was rarely given. The information of anatomy and physiology information on cardiac anatomy and physiology was limited to the underlying causes and risk factors of CHD. These conditions may cause patient dissatisfaction

with the given information. The respondents especially for patients treated at HCU, they had just passed the acute period of CHD, so the sense of curiosity about the condition that occurred to the heart became very important to know. Based on the study has been known that nearly three quarter respondents (74.5%) had the education background at the primary and middle school, this can be related with their literacy level, Hadisiwi and Suminar stated that the literature and literacy awareness of the people in Indonesia is not as good as the people in developed countries, it is also related to the low level of education ([Hadisiwi, 2016](#)). Many CHD patients doesn't know how CHD happened, this may be one of the reasons why information about the anatomy and physiology of the heart became the highest learning need in this study, it was illustrated by many patients' questions correlated with how chest pain occurs.

Experience during an acute attack, often felt difficult to forget. Severe chest pain which is sometimes accompanied by shortness of breath and information about the high risk of death in CHD patients, increase the patient's curiosity about CPR. It was showed by the high of mean score in cardiac patients' learning need on CPR information for family. The mean was 4.32 which imply this information was very needed by respondents.

Another fourth cardiac patients' learning needs which also important according to the patients' perceptions from the highest to the lowest respectively were medicine information; life styles; dietary information; and symptoms management. In the rehabilitative period following the acute attack, patients will choose the information which can be used to assist them of how they be able to survive ([Timmins & Kaliszer, 2003](#)). It generated these four learning needs were important after the need of physiological and anatomy information. The results of this study are in line with previous studies mentioned that the need for drug information and symptom management was a requirement with the highest mean score compared to other needs ([Timmins & Kaliszer, 2003](#)).

The lowest learning need which found from this research was information about physical activity. The representation of CHD to the patients' physical activity is obvious but not perceived as a higher learning need than any other learning needs by the respondents. The same result was explained by Uysal on his study ([Uysal & Enç, 2012](#)).

The other findings were differences in priority needs of patient learning in each ward category. This findings strengthen prior studies, which explained that the patients' learning needs at each stage of recovery have different priorities, meaning that learning needs change over time ([Mirka, 1994](#); [Scott & Thompson, 2003](#)). Based on ward categories the significant differences on patients' learning needs emerge on the need of dietary information and physical activity ($p < 0.01$), these needs were highest needed by patients who underwent treatment in HCU. In general, patients undergoing ICU treatment had a higher mean score of learning requirement than patients in other wards for all cardiac patients' learning need aspects. This can be due to they had just experienced of an acute attack; this can lead to increase of perceptions about the importance of those learning needs. So as with the illness duration categories, the higher learning need on life style information found on CHD patients whose diagnosed less than 6 months, it is indicated that in early period after a heart attack patients still need adjustments to their health conditions, and in the process of adjustment, they need a lot of precise information regarding the healthy lifestyle to prevent recurrences. It is implying that the best time to provide health education to CHD patients is in the early period after an acute attack. In that period patients have more awareness to learn about disease and its treatment as Timmins conveyed that the education would be effective when patient realized that they need it ([Timmins & Kaliszer, 2003](#)).

The cardiac patients' learning needs which consists of anatomy and physiology of heart (the working of heart); medication infor-

mation; life style; dietary information; symptom management; psychology; miscellaneous (particularly CPR information); and physical activity were perceived important by CHD patients. The higher of learning needs was perceived by patients who were in the early period after the acute attack and the priority emphasis of the learning needs in each recovery phase is different and change over time. To achieve goals of health education effectively, nurses or health personnel must provide education based on the results of the learning assessment, and the education program should be held at the beginning of the period after a heart attack.

Declaration of Conflicting Interest

None declared.

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Author Contribution

All authors contributed equally in this study.

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