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Patient Education Strategies among Patients with Acute Myocardial Infarction: A Systematic Review

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Abstract

BACKGROUND: There is a need to summarize the effect of existing research-based education strategy on patients' physical condition, health behavior change, as well as psychosocial well-being in patients with acute myocardial infarction.

AIM: The aim of this study was to review and synthesis relevant studies on patient educational strategy and its effect on patients' physical condition, health behavior change, as well as psychosocial well-being in patients with acute myocardial infarction.

METHODS: A literature search was conducted on MEDLINE, Academic Search Ultimate, CINAHL-EBSCO, and PubMed. Articles were selected by predefined inclusion and exclusion criteria. Assessment of methodological quality of each study was executed using the Downs and Black scale.

RESULTS: Nineteen studies (3588 patients with myocardial infarction) were included in the study. Educational intervention methods ranged from face-to-face method only, face-to-face method in combination with telephone call(s), the combination of both face-to-face method, and telephone call(s) with one other method. Outcome measured on each study varied and the effectiveness of the intervention in at least one of their outcome measures demonstrated in 17 studies.

CONCLUSIONS: Findings support the pivotal role of patient education on the management of myocardial infarction patient.

Introduction

Cardiovascular diseases (CVDs) caused a great number of death globally [1], although there has been a decrease in the prevalence and mortality compared to the previous decade [2]. In Indonesia, the three leading causes of disability-adjusted life-years (DALYs) in 2016 were ischemic heart disease, cerebrovascular disease, and diabetes [3]. A study showed an incredible prevalence of CVD risk factors with the prevalence of smoking, physical activity, obesity, and hypertension which posed the top of the list [4].

Myocardial infarction is a terminology that to be used when there are clinical evidence of acute myocardial ischemia, detection of a rise and/or fall of Cardiac troponin (cTn) values, and supported with at least one item stated by ESC/ACC/AHA/WHF [5]. For those who survive the initial event of myocardial infarction, the incidence of a subsequent heart attack increased [6], [7]. Therefore, the implementation of heart healthy behaviors such as physical exercise, dietary management, smoking cessation, and adherence to treatment program is vigorous to decrease the risk of recurrence [2]. For those reasons, the provision of education is essential to promote patient understanding of the disease management as well as to assist adaptation to a new life.

The education process, which is composed of factual information, effective delivery, and motivational impact, is the core of education in the context of health area [8]. Research testing various patient educational interventions have been employed and evaluated for myocardial infarction. However, findings on the adoption and maintenance of disease management and risk-reducing behaviors on cardiac patients showed positive effects, but in diverted levels [9], [10], [11], [12], [13] As a matter of fact, several studies found no effect on outcomes measured [9], [10], [11], [12]. Although these reviews have been carried out following a high standard for a systematic review process, they included a large number of trials and measured various outcomes, they did not describe the interventions in depth especially

on distributing the education materials within each education session and on explaining the impact of such the theoretical or principal basis for development of the intervention on outcomes. The emphasis on using of theory or middle-range theory as a basis for intervention development is important, but the focus of developing interventions that prioritize meeting the patient's learning needs is the pinnacle. As far as the authors could establish, no literature review has been conducted that summarized the effect of existing research-based education strategy on patients' physical condition, health behavior change, as well as psychosocial well-being in patients with acute myocardial infarction.

The aim of this systematic review was to review and synthesis relevant studies on patient educational strategy and its effect on patients' physical condition, health behavior change, as well as psychosocial well-being in patients with acute myocardial infarction.

Methods

A systematic literature review following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [14] was conducted by the first author under the supervision of the third and fourth authors for studies published between July 2011 and June 2021 in the English Language.

The steps applied to conduct the review are explained in the following sections. The review question was formulated as follows: "What are the effects of patient educational strategy on patients' physical condition, health behavior, as well as psychosocial well-being in patients with acute myocardial infarction?"

Search strategy

A comprehensive literature search was performed on four electronic databases MEDLINE (EBSCO), Academic Search Ultimate (EBSCO), Cumulative Index to Nursing and Allied Health Literature complete (CINAHL-EBSCO), and PubMed. In addition, manual search of grey literature and citations of relevant articles was also conducted. We used a combination of key words of condition (such as "hospitalization" and "hospitalized"), the population (such as "myocardial infarction" and "acute coronary syndrome"), and the intervention (such as "education," "education intervention," and "patient education").

Inclusion and exclusion criteria

Studies were eligible for inclusion if they met the following inclusion criteria: (i) Design: Randomized-controlled trials (RCTs), clinical controlled trials, and pre-post intervention studies; (ii) population: adult patients with acute myocardial infarction or other form of ACS; (iii) intervention: Contain individual patient education or consultation that started during hospital stay; and (iv) outcome: Any physical, psychological, and behavioral outcomes of AMI. Studies are excluded based on following criteria: (i) Preliminary study, pilot study, and community-based education, (ii) education started after hospital discharge, and (iii) group-based education.

Selection of studies

Second and third authors were involved in the screening process, where they either had experience in the domain of coronary care or had practical experience with respect to conducting systematic reviews due to previous research work. Duplicates were removed after the titles and abstracts were screened according to the inclusion criteria. Studies that may meet the inclusion criteria were then downloaded in full and checked for the second time to ensure that they met the inclusion criteria.

Then, the assessment of methodological quality of each study was executed. The downs and black scale [15] used to assess the methodological quality of included studies. The 27 items in this scale address four methodological components: Reporting, external validity, internal validity (bias and confounding), and power. Options for 26 items were either as yes (=1) or no/unable to determine (=0), whereas one item was rated on a 3-point scale (yes = 2, partial = 1, and no = 0). The total scores range from 0 to 28, which means the higher scores, the better methodological quality of the study. The study was categorized based on following cutoff points: Excellent (26–28), good (20–25), fair (15–19), and poor (≤14) based on the United States Preventive Services Task Force approach [16].

Data extraction

Data were extracted from the articles for synthesis using a predefined standardized data extraction tool on the following information: (i) Citation details (e.g., publication year); (ii) study characteristics (e.g., methodology, setting, educational methods, quality assessment classification, and baseline characteristics); and (iii) intervention (e.g., theoretical background for the development, type, duration, and dose, medium); and (iv) outcome (e.g., primary outcome and research instruments, frequency, and length of follow-up and results).

Ethical considerations

This study was approved by the ethics committee of the M Djamil Hospital Padang, Indonesia (No. 342/KEPK/202). In this systematic review, the

collected data were only used for scientific purposes, and intellectual property of the authors in the use of the content has been observed.

Results

The systematic review of 1037 articles resulted in 32 possible eligible full-text publications, of which 19 article were finally included. The included article consists of 10 RCTs, four random clinical trials, and five pre-post studies. Figure 1 shows the PRISMA flow chart of the study selection process, depicting the search results, reasons for exclusion, and study selection.

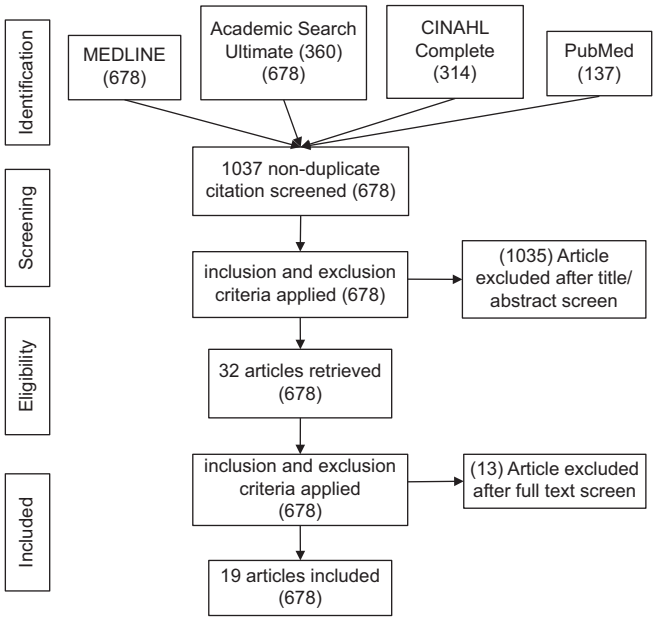

Figure 1: Flow diagram of study selection process

Characteristics of included studies

Nineteen studies were conducted across 11 countries, they were 13 in Asia (Iran: 6, Saudi Arabia: 1, Thailand: 1, Hong Kong: 1, China: 2, Korea: 1, and Jordan: 1), 5 in Europe (Ireland: 1, Czech Republic: 1, and Turkey: 3) and Australia (1). Among them, 12 studies were conducted as randomized controlled trial [17], [18], [19], [20], [21], [22], [23], [24], [25], [26], [27], [28]. The patient populations included adults hospitalized for first-time myocardial infarction, either with ST-segment elevation or with no ST-segment elevation and either had or not had percutaneous coronary intervention. In total, 3588 MI patients were included in this analysis and the number of patients per studies ranged from 60 to 1136 (Table 1).

Table 1 also shows the quality assessment classification of included studies. There were thirteen (68,42%) studies considered “good” and there were six (31.58%) studies considered “fair” quality.

Primary outcomes measured

Primary outcomes measured in reviewed studies included sexual quality of life [17], need for rehospitalizations [29], quality of life [18], [20], [30], [31], [32], self-care [18], adherence to medication [19], [25], [33], control of cardiac risk factors [29], [30], [31], [34], self-efficacy [20], [27], coping [20], anxiety [21], eating behavior [22], lifestyle behaviors [23], [28], [31], [35], knowledge [24], [25], [26], [29], [35], attitudes [24], beliefs [24], [26], physical activity [33], angina level [33], functional status [27], and illness perception [28]. All of the studies, except two studies [20], [29] employed validated and reliable research tool(s) for measurement of the outcome(s) in their studies (Table 1).

Four of the patient educational intervention used face-to-face method only [17], [18], [21], [35] with four studies used face-to-face method in combination with telephone call(s), [24], [27], [28], [31] five studies [20], [22], [30], [32], [34] used combination of both face-to-face method and telephone call(s) with one other method such as the use of either consultation, workbook, or group meeting. Four studies used face-to-face method followed by the provision of written materials as medium for education such as either leaflet, book, or brochure [19], [26], [29], [33]. Another study used combination of face-to-face method, consultation, and provision of educational compact disk and book [23]. Finally, there was one study used booklet and three educational resources in its educational session [25] (Table 1).

The characteristic of the educational intervention

Table 2 summarizes the characteristics of the patient educational interventions. Nurse was the most frequent provider of patient education (n = 13, 68.42%), whilst in three out of 19 (15.79%) studies, trained peers were the provider of education, [17], [18], [21] in one (5.26%) study, physician was the provider of education [19], in one (5.26%) study, nurse educator was the provider [31], and in the other one (5.26%) study, cardiac nurse specialist was the provider of education [30].

All (100%) of the studies started patient education during hospitalization, however, only 12 (63.16%) trials had some aspects of education delivered after discharge, whereas six (31.58%) studies did not execute follow-up intervention [17], [18], [19], [25], [26], [35] and one study did not indicate follow-up intervention [21]. The duration of education intervention ranged from 1 day to 12 months. Educational medium included visual material [33], leaflet [19], [25], brochures [3], booklet [20], [23], [26], [27], [32], [34], workbook [22], compact disk [23], digital video disk [27], wallet card [24], refrigerator magnet [25], printed materials [30], and handbook [28]. Somehow,

Table 1: Study characteristics (n = 19)

Author (year) Country	Sample size	Methods	Methods for educational intervention	Quality assessment classification	Primary outcomes	Age ± SD (years)	Female (%)
Abbasi (2020)[17] Iran	90 patients (I: 45, C: 45)	RCT	Face-to-face peer education	Fair	Sexual QoL	I: 54.04 ± 7.51 C: 52.08 ± 6.48	I: 48.9 C: 51.1
Dolezel (2019)[29] Czech Republic	165 patients (I: 68, C: 97).	A clinical, interventional, explanatory study.	Face-to-face education supported with educational materials	Fair	Adherence to lifestyle changes, prevalence of risk factors, knowledge of the condition and need for rehospitalizations.	58 ± 11.4	I: 46 C: 48
Ebrahimi (2021)[18] Iran	70 patients (I: 35, C: 35)	RCT	A two 1-h face-to-face training session performed by peers	Good	QoL, Self-care	I: 55.66 ± 10.25 C: 54.38 ± 12.47	I: 28.57 C: 60
El-Toukhy (2017)[19] Saudi Arabia	900 patients (I: 450, C: 450).	RCT	Face-to-face education and the provision of standardized leaflet	Good	Adherence with medication	I: 54.68 ± 8.58 C: 53.31 ± 8.32	I: 22.2 C: 15.5
Jiang (2020)[30] China	102 patients (I: 52, C: 50)	Quasi-experimental design	Face-to-face individualized education and consultation, and seven telephone follow-ups	Fair	Health behavior, Control of cardiac risk factors, Health-related QoL	I: 54.75 ± 10.29 C: 55.18 ± 8.20	I: 15.4 C: 16.0
Kavradim (2020)[20] Turkey	66 patients (I: 33, C: 33)	Prospective, parallel, RCT	Face-to-face education with an education booklet and three telephone call follow-up	Good	QoL, Self-efficacy, Coping	57.79 ± 11.17	17.74
Mohammadpourhodki (2019)[21] Iran	60 patients (I: 30, C: 30).	Randomized clinical trial	Two sessions of face-to-face peer-based education	Fair	Anxiety	Not stated	I: 52.4 C: 47.6
Mok (2013)[22] Hong Kong	82 patients (I: 41, C: 41)	RCT	Face-to-face consultation session, a self-management workbook, and four telephone follow-ups	Good	Eating behaviour	I: 62.07 ± 10.37 C: 61.39 ± 10.05	I: 39 C: 29,3
Molazem (2013)[23] Iran	70 patients (I: 35; C: 35).	Randomized clinical trial	Face-to-face education and consultation, and provision of training compact disk and training booklets	Good	Lifestyle behaviors	Not stated	I: 34.3 C: 40.0
O'Brien (2014)[24] Ireland	1136 patients (I: 585, C: 551).	RCT	Face-to-face education followed by two telephone calls	Good	Knowledge, attitudes and beliefs about ACS	I: 62.88 ± 11.13 C: 64.31 ± 11.22	I: 27.0 C: 28.7
Park, Song (2017)[31] Korea	64 patients (I: 32, C: 32)	A randomized experimental study	Face-to-face education followed by six telephone calls	Good	Cardiovascular risks, Health behaviors, QoL	I: 56.87 ± 12.35 C: 55.37 ± 10.40	I: 9.37 C: 15.62
Saravi (2017)[32] Iran	60 patients, (I: 30, C: 30).	Semi-experimental study	Face-to-face education and consultation, and four telephone follow-ups	Good	QoL	Not stated	I: 60 C: 53.3
Stolic (2019)[25] Australia	169 patients (I: 84, C: 85)	RCT	Provision of education booklet and education resources: leaflet, refrigerator magnet, and digital video disk	Good	Knowledge of sublingual nitroglycerin and its use	I: 58.86 C: 63.75	I: 35.3 C: 46.4
Tawalbeh (2014)[35] Jordan	84 patients	One group pre-test–post-test study design	Face-to-face education	Fair	Knowledge, Adherence to healthy lifestyle	53.30 ± 9.90	44.05
Tuna (2021)[26] Turkey	100 patients (I: 50, C: 50)	Double-blind RCT	Face-to-face education and provision of information booklet	Good	Beliefs on medication, diet, and individual, Knowledge of CVD risk factors	I: 59.10 ± 9.38 C: 58.86 ± 9.19	I: 24.0 C: 28
Uysal (2015)[33] Turkey	90 patients (I: 45; C: 45).	Quasi-experimental study	Face-to-face education and the provision of nine educational brochures	Good	Physical activity level, physical activity capacity, Medication adherence, Angina level	Not stated	I: 20.0 C: 24.4
Vardanjani (2013)[34] Iran	112 patients, (I: 50, C: 62)	RCT	Face-to-face individual and small group education and telephone or face-to-face visit follow-up	Fair	Health-related indexes	Not stated	19.6
Vibulchai (2016)[27] Thailand	66 patients (I: 33, C: 33).	RCT	Face-to-face and three telephone calls	Good	Self-efficacy, Functional status	I: 64.79 ± 9.14 C: 63.36 ± 10.36	I: 36.36 C: 48.48
Yan (2014)[28] China	102 patients (I: 51; C: 51).	RCT	Face-to-face and three telephone calls	Good	Illness perception, Lifestyle	I: 64.25 ± 11.72 C: 64.29 ± 12.77	I: 11 C: 14

SD: Standard deviations, I: Intervention, C: Control, RCT: Randomized controlled trial, QoL: Quality of life, ACS: Acute coronary syndrome, CVD: Cardiovascular diseases.

six (31.58%) studies [17], [18], [21], [29], [31], [35] did not state the use of medium in education.

Of the studies reviewed, only nine studies reported the presence of the theoretical or principal basis that guided the intervention development. Guiding framework comprised standard nursing care and the dynamic standard setting system [29], the UK Medical Research Council [30], Roy Adaptation Model [20], recommendation from American Heart Association [22], Leventhal's self-regulatory model if illness behavior [24], [28], King's goal attainment theory [31], the continuous care model [23], [32], and Bandura's social cognitive theory [27].

Almost all of the studies reported significant differences on outcomes measured after educational session. However, some of them whose outcomes measured more than one variable found that there was no significant difference on quite a few outcomes observed. Only one study examined medication adherence reported no significant differences on outcome measured 12 months after educational intervention [19].

Discussion

Nineteen randomized controlled trials or non-randomized trials that investigated an educational intervention provided for myocardial infarction patients were included in this review. Almost all of the studies in this review used multimodal approaches such as face-to-face training session, peer education, counseling, telephone follow-up, written material, and electronic

Table 2: Characteristics of the educational intervention (n = 19)

Author (year)	Intervention	Medium	Theoretical basis for development of the intervention	Educational material	Results
Abbasi (2020)[17] Iran	Peer education lasted for 90 to 120 min was provided on the 3rd day after MI.	Not stated	Not stated	Not stated	Sexual QoL increased significantly.
Dolezel (2019)[29] Czech Republic	The education of post-MI patients provided by nurse, lasted for 30–60 min, on day 3, 1, 6, and 12 months after hospitalization.	Not stated	The nursing standard based on Standard nursing care: an asset (Danasu, 2007) and the Dynamic Standard Setting System (Kitson, 1990).	Heart anatomy and physiology, MI management.	Higher rates of rehospitalization for coronary artery disease, better knowledge about their condition, regular medication used, lower systolic blood pressure, lower body mass index values, higher reduction on total cholesterol levels, higher increase of physical activity, regular eating, and shifting to a healthier diet.
Ebrahimi (2021)[18] Iran	Two 1-h peer education sessions (at intervals of 1 h) performed by peers on the 3rd day after MI.	Not stated	Not stated	The concepts and benefits of the peer education, the educational needs of the patients with MI.	The QoL and self-care behaviors increased significantly.
El-Toukhy (2017)[19] Saudi Arabia	A face-to-face education provided by physician, consisted of several aspects of CAD disease and lifestyle changes.	Leaflet	Not stated	Atherothrombosis, thrombus formation, and thrombus formation prevention.	Increased adherence to prescribed DAPT.
Jiang (2020)[30] China	Nurse-led individualized self-management program, provided by cardiac nurse specialist on the day before discharge, and telephone follow-up for 12 months thereafter.	Printed education materials	The UK Medical Research Council framework for the development of complex interventions.	Healthy living with acute MI and PCI.	health behavior, control of cardiac risk factors, general health, role physical, role emotional, and social function increased significantly.
Kavradim (2020)[20] Turkey	Two sessions of face-to-face education provided by nurse with an education booklet, and follow-up telephone calls.	Educational booklet	An evidence-based treatment guidelines and Roy Adaptation Model	Cardiovascular risk factors and management.	Self-efficacy, QoL, coping adaptation process, adaptation lifestyle changes concerning patient's nutrition, and physical activity improved significantly.
Mohammadpourhodki (2019)[21] Iran	Two sessions of peer-based education based on Parent and Fortin research, started 72 h after the MI.	Not stated	Not stated	Not stated	Anxiety decreased significantly.
Mok (2013)[22] Hong Kong	A structured 8-week nurse follow-up dietary intervention: (consultation session, provision of a take-home self-management workbook, and telephone follow-ups).	Workbook	Diet and lifestyle recommendations revision 2006 (AHA, 2006)	Dietary guidelines	Intake of saturated fat and salted/preserved food decreased significantly and intake of heart-healthy food increased significantly.
Molazem (2013)[23] Iran	The continuous care model, provided by nurse, followed by consultation, as needed	Compact disk and booklets	The continuous care model	The Benson's relaxation training	Lifestyle improved significantly
O'Brien (2014)[24] Ireland	A one-to-one individualized educational session, provided by nurse within 24 days of hospital admission, followed by telephone calls.	Action plan and wallet card	Leventhal's self-regulatory model of illness behavior	Information on ACS.	Knowledge, attitude, and belief scores increased significantly over time.
Park, Song (2017)[31] Korea	The goal-attainment-theory-based education program by nurse educator, and provision of telephone calls counseling.	Not stated	King's goal attainment theory	Cardiovascular risk factors and the behavioral modification strategies	Cardiovascular risks, health behaviors, and QoL changed positively and significantly.
Saravi (2017)[32] Iran	The four stages continuous care model, provided by nurse.	Educational booklet	The continuous care model	Self-care, knowledge about the disease, and management.	Changes in the QoL score were more pronounced in the intervention group, relative to the control group.
Stolic (2019)[25] Australia	Education provided by nurse on the symptom management patient, using visual, auditory, and kinesthetic resources.	Leaflet, refrigerator magnet, and digital video disk	Not stated	Administration of sublingual nitroglycerine.	Knowledge of sublingual nitroglycerine improved significantly.
Tawalbeh (2014)[35] Jordan	A 2 h cardiac educational session using open discussion between nurse and the participants.	Not stated	Not stated	Information on CAD: pathophysiology and management.	Knowledge and adherence improved statistically.
Tuna (2021)[26] Turkey	One session of the planned discharge education program provided by nurse.	Informational booklet	Not stated	Information on heart attack symptoms and the importance of exercise and nutrition	Beliefs about medication, beliefs about dietary, and cardiovascular disease risk factors knowledge level improved significantly.
Uysal (2015)[33] Turkey	An individual, nurse provided, education between the fifth and 7th days before discharge for an hour and telephone counseling programs.	Visual materials, brochures	Not stated	Information on MI management.	Compliance with drug treatment improved significantly.
Vardanjani (2013)[34] Iran	A 20 min individual education and group education provided by nurse followed by giving educational aid tools to patients.	Educational booklet	Not stated	Information on myocardial infarction symptoms, causes, and management.	Anxiety, systolic blood pressure, and cholesterol level decreased significantly.
Vibulchai (2016)[27] Thailand	Three in-hospital nurse education sessions, followed by CR monitoring using an exercise and daily activity diary and telephone counseling sessions.	Digital video disk, and a booklet	Bandura's social cognitive theory	Motivation-building activities to increase the practices of CR, skill training: Walking exercise, heart rate checks, and energy conservation.	Self-efficacy and functional status increased significantly.
Yan (2014)[28] China	A pre-discharge education provided by nurse, focused on introduction to a handbook, and telephone follow-up instructions.	Handbook	The Leventhal's self-regulation theory	Perception of the symptoms and causes of MI, dimensions of illness perception	perceptions about symptoms of MI, beliefs about the controllability, and beliefs about the causes of MI changed positively and significantly. Nutrition and physical activity improved significantly.

MI: Myocardial infarction, QoL: Quality of life, CAD: Coronary artery disease, DAPT: Dual anti-platelet therapy, UK: Uniter Kingdom, PCI: Percutaneous coronary intervention, AHA: American Heart Association, ACS: Acute coronary syndromes, CR: Cardiac rehabilitation.

material. Educational interventions comprised either brief single session or multiple sessions up to nine sessions and importantly are the fact that more than half studies had more than one educational session. Medium used for patient educational ranged from single printed material to multiple resources and notably is the fact that 12 studies provided printed and non-printed educational materials to the patients. Multisession education, incorporate scheduled follow-up sessions, and supported with multiple resources as a core component are generally more effective in achieving desired outcomes compared to a single session without provision of educational resources [36].

Nurse was the most widely used personnel to deliver out patient education in studies reviewed. Interestingly, there were three studies that deployed a trained person who has already passed myocardial infarction to deliver education to hospitalized patients due to myocardial infarction. The mobilization of peers as educator could bring beneficial impacts, such as reduction on nurses' workload, generating an experience-based education, and facilitating social communication to support patients to cope with their illness [18], [21], [37]. Nevertheless, the use of peers as educator could bring a potential of inappropriate learning materials due to various experiences and also additional cost related to peers' expenses.

Most of the studies tested the effectiveness of education that had a follow-up session after hospitalization, either by face-to-face meeting and/or by telephone call. Follow-up session after in hospital education ensures continuation of intervention and supports sustainability. Structured telephone follow-up session delivers education, and motivational and emotional processes that are thought to be an important intervention. It contributed to information exchange and the provision of solutions on symptoms and problems faced by patients after discharge from hospital [20], [38]. It would be even better, for the purpose of effectiveness and efficiency, if follow-up education session to be incorporated during regular visits to the clinic or established service. If the provision of education is outside of regular services, it means that additional officers and additional funding are needed. And, both additions are not included in the health insurance coverage.

In terms of materials given during education, there were variations across studies. Some studies provided materials on the wide range of educational needs of the patients with myocardial infarction such as definition, pathophysiology, symptoms, and risk factors of myocardial infarction, treatment, and management [18], [20], [28], [29], [30], [32], [33], [34], [35]. Moreover, there were also studies provide materials focusing on several aspects of management of myocardial infarction, such as atherothrombosis and its clinical features and the use of antiplatelet therapy [19], diet habit and management [22], relaxation techniques [23], risk factors and behavioral modifications [31], symptom management and behavioral responses including the administration of sublingual nitroglycerin [25], and skill training including exercise practice and energy conservation [27]. Among those studies, there were two studies regulate the placement of the materials in each education session based on theoretical principle basis for the development of the intervention [23], [32]. There is no doubt that patient education should be targeted to address patient needs. However, the study showed that effective management and rehabilitation after a cardiac event reinforced by suitable provision of information helped to enforce patients to adopt necessary behavior [39]. In addition, patients who were hospitalized had different priority of learning needs from patients who were at outpatient unit and nurses could have different perception of priority of learning needs to patients have [40], [41]. Hence, it is important to provide patient education based on their learning assessment. A patient-centered assessment of learning needs is one key elements of effective educational session [42].

In general, studies showed that patient education for patients hospitalized with myocardial infarction had significant effects on knowledge, beliefs, physical, psychosocial, behavioral, clinical, and quality of life outcomes, but at various levels. Studies also showed that education had significant effect on self-efficacy, functional status, and illness perception. Due to the wide variety of educational strategies and outcome parameters, it was impossible to compare the effect of intervention on specific outcomes.

Conclusions

Findings support the pivotal role of patient education on the management of myocardial infarction patient. It has been clearly stated from resources that patient education is vital for the management of myocardial infarction patient, both during hospitalization and after hospitalization. However, research is needed to clearly identify the patient education strategies that integrated to established service and contributed to the achievement the best outcomes for acute myocardial infarction patients.

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