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REVIEW ARTICLE

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SELF MANAGEMENT PROGRAM AMONG TYPE 2 DIABETES MELLITUS PATIENTS: A LITERATURE REVIEW

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ABSTRACT

Background: Diabetes mellitus is a crucial problem that leads to serious multiple complication. Self-management program is an essential foundation for the empowerment approach, and necessary for patients to effectively manage their behaviors.

Purpose: The purpose of this study is to describe, compare and critique six existing self-management programs that are commonly used to guide self-management for type 2 Diabetes Mellitus (DM) patients.

Method: An integrative review was conducted. Relevant studies published in English language and retrieved from CINAHL, PubMed, Science Direct, and Google search were included.

Results: Five Randomized Control Trials (RCTs) and one quasi-experimental study were reviewed. Goal setting and action planning combined with other strategies (brief counseling, problem solving, and follow-up strategy) showed more effective to improve behavioral change and several clinical outcomes. Continuing follow-up through telephone-call and face to face follow-up becomes the essential element for successful behavior change.

Conclusion: Diabetes self-management program is effective to improve behavioral change and clinical outcomes among patients with type 2 DM. Further research is needed to test the effectiveness of self-management combine with other strategies which are goal setting strategy and follow-up strategy in patients with type 2 DM.

Keywords: self-management, type 2 diabetes mellitus, program

INTRODUCTION

Diabetes mellitus is an endocrine system disorder, which is characterized by abnormal fluctuations of blood glucose levels. It is usually related with a defect of insulin production and glucose

metabolism.¹ Diabetes mellitus also leads to multiple long-term complications, such as constriction of blood vessels, thrombotic micro angiopathy (nephropathy and retinopathy), neuropathy (peripheral and autonomous), peripheral angiopathy,

and problems of the cardiovascular system.²

Prevention of diabetes complication is very important for improving quality of life of the population. Self-management program is an essential foundation for the empowerment approach and necessary for patients to effectively manage their behaviors including monitoring blood glucose, managing the hyperglycemia and hypoglycemia symptoms, and controlling dietary and exercise management.^{1,4} However, mostly diabetes patients have difficulty to manage their behaviors because they are required changes in long term behaviors.³

Self-management program is advocated due to positive outcomes especially in managing the behavior and increasing the quality of life among patients with type 2 DM.⁵ Several studies related with self-management program have been conducted for patients with diabetes mellitus. However, previous researchers created the program in different strategies, outcomes and duration of interventions. Therefore, this study aimed to review the appropriate intervention for the patients with type 2 diabetes mellitus.

PURPOSE

The objective of this study was to describe, compare, and critique the six existing self-management programs that are commonly used to guide self-management for type 2 DM patients.

METHODS

Several databases were used to search the relevant article of this study including PubMed, CINAHL, Science Direct, and Google search. The selection of relevant articles and critical appraisal were based on Joanna Briggs Institute (JBI), (2012). The inclusion criteria of

articles included articles published through the year 2010-2015, full article and using English language, articles used RCT or quasi experimental study.

RESULTS

There were six experimental studies were found and reviewed to determine the existing studies related to self-management program for patients with type 2 DM. Five of six studies were randomized controlled trials (RCTs),^{6,7,8,9,10} and one study used a quasi-experimental study.¹ From these six studies, three studies were conducted in western country and three studies conducted in Asian country. The results were grouped into: self-management outcomes, self-management strategies, and duration of interventions.

Self-management outcomes

Most of studies were generally conducted in individual-based education with follow-up^{1,8,9} and group-based education or combination-based program.^{6,8,10} Commonly, outcomes of the program could be classified into physiological outcomes, psychological outcomes, and behavioral change outcomes. The physiological outcomes entail the laboratory results including blood glucose, blood pressure, HbA1c, weight, serum triglyceride (TG), and total cholesterol (T-cho), and body mass index (BMI). Psychological outcomes include health-related quality of life, mental health, the level of depression, self-efficacy, illness perception and emotional distress. While behavioral change outcomes comprise of achievement of goal setting, action planning and problem-solving skill, dietary behavior, exercise behavior, smoking status, and blood glucose monitoring. Most of outcomes of this literature review have been showed the effectiveness of self-management program.

Table 1 The Research Evidences on Self-Management Program

Authors	Framework	Teaching Strategies	Media	Duration of Intervention & Follow-up
Moriyama et al., 2009	DSME model	Personalized education for patients and caregiver, set the goals, dialogue, providing Support	Telephone follow-up	<ul style="list-style-type: none"> - 12 months conducted the research - The programs consisted 12 session - The intervention group received <30 minutes of monthly interview - Biweekly telephone call throughout the 12 months - Evaluate first 6 months at 7th session
Bastiaens et al., 2009	Chronic care model	Reflection behavior, set goals and make action plan, provide education, identify barriers and set problem solving, discuss and advise to maintain behaviors, feedback and follow up		<ul style="list-style-type: none"> - 3 months conducted the research - The programs consisted 5 sessions - The duration of programs 2 hours each session - Follow up each session - Follow up at 3 months
Wu et al., 2011	Self-efficacy theory	Personalized diabetic education, viewing DVD, receiving booklet, counseling session, follow up	DVD, receiving booklet	<ul style="list-style-type: none"> - 4 months conducted research - 15 – 20 minutes for standard education program - Week 1 for DVD viewing and receive booklet - Week 1-4 counseling session - Week 16 and 16 follow up
Rosal et al., 2011	Social-cognitive theory	Personalized counseling, group meeting counseling, and follow up	Soap opera, Bingo games	<ul style="list-style-type: none"> - 12 months conducted research - 12 weekly session for Intensive phase, 8 monthly session for follow up session - 1 hour for individual meeting and 2.5 for group meeting
Khunti et al., 2012	DESMOND model	Personalized education, promoting a non-didactic, Follow up	Telephone follow-up	<ul style="list-style-type: none"> - 3 years conducted research - 6 hours provided program - Follow up at 4, 8, 12 months and 3 years
Sun et al., 2012	Chronic care model (CCM), Theory of reason action (TRA) Social cognitive theory (SCT)	Meeting support group session, Feedback and follow up	Tai-chi and Chinese poetry, Bilingual booklet	<ul style="list-style-type: none"> - 6 months conducted the research - 12 weeks on 90 minutes for support group session and education, biweekly - Follow up/remain call every week

Self-management strategy

In several studies, there are combination of several methods in self-

management program. Two studies employed combinations of brief counseling, goal setting, action planning,

and problem solving.^{6,7} One study used a meeting support group session, and feedback and follow-up as strategy in self-management.¹⁰ Three of existing studies employed combinations of personalized counseling, group meeting counseling, and follow up.^{1,8,9} In conclusion, the content of the self-management strategy could also vary widely, including reviewing the patient's health condition and behavior, provision of feedback to the patient, identification of barriers, benefits of behavior change, and setting goals specific to the patient's needs and preferences (tailored goal-setting).

Teaching methods

The teaching methods are divided into two methods, namely the didactic teaching method and interactive teaching method. The didactic teaching method is used to provide information by using some medias including booklet, watching a video/DVD, attending formal individual or group meeting session. While interactive teaching method is used to involve the participants in actively learning process, such as establishing in group discussion session, and encouraging the participants to participate in problem solving and goal setting.

In this review, there is one of article used didactic teaching method to provide knowledge,¹ which the researcher developed the program based on self-efficacy theory. Three studies used interactive teaching method, which were created based on Diabetes education and self-management program (DESMOND),⁹ DSME model,⁶ and chronic care model.⁷ Two of review studies used a combination of didactic teaching method and interactive teaching method developed by using social-cognitive theory,⁸ and Chronic Care Model (CCM), Theory of Reason Action (TRA) Social Cognitive Theory (SCT).¹⁰

Duration of intervention

The length of period of intervention is used to measure the duration of the intervention from the baseline assessment until the completion of the program. The duration of intervention could be classified into three categories: short-term (less than 6 months or 24 weeks), medium (6 months until 12 months or 24-48 weeks), and long-term (more than 12 months or more than 48 weeks). From total six studies, three studies were conducted in short-term duration,^{1,7,10} and two studies were conducted in medium duration,^{6,8} and only one study was conducted in long-term duration.⁹

Follow-up Strategies

Generally, strategies of follow-up are different among studies. It shows that two of studies used telephone calls for follow-up strategy.^{6,10} Four of other studies used combination of telephone call and meeting follow-up as their follow-up strategy.^{1,7,8,9} While another study reported the effectiveness of phone-call strategy to involve interactions between healthcare providers and participants,¹³ which showed the highest effect size (0.95) compared with face-to-face and web-based strategy.

DISCUSSION

This review aims to describe, compare and critique of self-management programs that are commonly used to guide self-management for type 2 DM patients. The review reported that self-management program has positive impact to improve patient's behaviors and several clinical outcomes in patients with type 2 diabetes mellitus.

In this review, the most of self-management strategy used from existing studies are the combination of personalized counseling and group meeting counseling with a goal setting,

action planning, and problem solving. Goal setting and action planning strategy assist patients to intentionally take responsibility and engage in influencing behaviors with their own achievable goals and feasible action plans. The measurable, specific, clear, and short period of goals and action plan also can provide clear guidance to the patients in regard what activities should be done, and anticipate the possibility barriers which potentially violate the goals achievement.¹⁴ In addition, specific goal setting and action planning leads people to achieve higher performance in self-management than no goal, general, or unspecific goal.¹¹

In regards to follow-up strategy, face-to-face contact is still favorable although some of studies combined with telephone contact. The growing of communication technology makes the telephone contact, computer, and internet for follow-up strategy can be alternative approach.¹³ A previous study reported that telephone contact as one of the follow-up strategies in self-management program among patients with diabetes beside of face-to-face approach.¹²

CONCLUSION

Six of reviewed studies showed the effectiveness of self-management program on behavioral change and several clinical outcomes in patients with type 2 diabetes mellitus. Although some of studies have difference self-management strategies, teaching methods, materials, durations, and follow-up strategies, however, teaching method becomes a major concern in this review. Goal setting, action planning, and problem-solving strategies are also recommended to improve behavioral change and several clinical outcomes. In addition, telephone follow-up is the most common follow-up strategy.

In summary, self-management approach is recommended to be

implemented among patients with type 2 DM. Effective teaching method is also needed with goal setting and action planning to achieve better behavioral change and improve clinical outcomes. Furthermore, in implementing self-management program, patients should receive adequate follow-up, either using face-to-face as the most common follow-up strategy or telephone call based on patients' condition and supported facilities to evaluate the goal achievement.

Declaration of Conflicting Interest

None declared.

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Authorship Contribution

RAP contributed in all steps of the study, and the other authors contributed in analyzing and reviewing the article. All agreed with the final version of the article.

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