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Health Education Programs to Improve Foot Care Behavior and Reduce Stress Levels among People with Type 2 Diabetes: A Systematic Review

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Abstract--- *The complications of diabetes among people are a major health concern. Foot problems such as neuropathy, ulcer and ultimately amputation are a great burden on people with diabetes. Diabetes foot education programs can influence the behavior of people in practicing foot care behavior and controlling their stress levels. However, the educational approaches used by educators are varied. Therefore, it is important to assess the education programs from various evidence-based practices. This systematic review aims to assess the health education programs to improve foot care behavior and reduce stress levels among people with type 2 diabetes. We searched six databases: EBSCOhost medical collections (MEDLINE, CINAHL, Psychology and Behavioral Sciences Collection), SAGE, Wiley Online Library, ScienceDirect, SpringerLink and Web of Science, for articles published from January 2013 to December 2018. The search was based on the inclusion criteria and keywords including 'health', 'education', 'foot', 'care', 'stress', and 'diabetes'. Fourteen studies were assessed and reviewed in the final stage. The findings of this study support the claim that a health education programs increase foot care behavior scores and reduces stress levels. However, there were certain methodological concerns in the reviewed articles, indicating the need for further evaluation. In the future, researchers and practitioners must implement a vigorous education program focusing on diabetes foot care among the population.*

Keywords--- *Health Education; Foot-Care Behavior; Stress Level; Diabetes*

I. INTRODUCTION

Diabetes mellitus (DM) is a non-communicable disease that occurs in many developing countries. DM that is not quickly handled properly will cause various complications and even death. DM complications that often occur according to the World Health Organization (WHO) report (2016) are retinopathy, kidney failure, cardiac arrest, stroke and neuropathy. Neuropathy that occurs in peripheral body parts is an important factor at high risk of causing diabetic foot ulcers (DFU) resulting in leg amputation [2]. The results of the 2013 study by Riskesdas said that 54% of DM patients in Indonesia had neuropathy and 15-20% of them needed radical amputations within five years of being diagnosed with DFU due to neuropathy. This condition makes patients experience stress due to a decrease in quality of life.

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Foot care is part of the standard practice guidelines for diabetic self-care. Continuous foot care can prevent ulcers and amputations [3]. Compliance with DM patients in performing foot care will reduce the risk of ulcers and amputations. Efforts to change a continuous health-care behavior requires health education. Several organizations such as the WHO, IDF and American Diabetes Association (ADA) have emphasized the importance of foot care education for DM patients to reduce the level of DFU problems [4]. Education and efforts to increase motivation are needed to achieve successful behavior change [2].

In the millennial era today, the delivery of education is closely related to the use of technology. Technology is an important means of conveying information because it is more interactive and easily accessible to the public. One technology that is now developing very rapidly is mobile information and communication technology using smart phones [5]. Other method also developed to increase the foot care behavior and reduce stress levels among people with type 2 diabetes to following the update in this era. This review was performed to assess the health education programs to improve foot care behavior and reduce stress levels among people with type 2 diabetes.

AI. METHODS

A review was conducted with the following search engines and databases: EBSCOhost medical collections (MEDLINE, CINAHL, Psychology and Behavioral Sciences Collection), SAGE, Wiley Online Library, ScienceDirect, SpringerLink and Web of Science. Keywords included ‘health education’, ‘foot-care behavior’, ‘stress level’, and ‘diabetes’. The references and citations from the articles were searched for other potentially eligible studies and to obtain related information (see Figure 1). The search was limited to full-text research articles in the English language. Initially, the search was limited to the past five years; however, due to the scarcity of good articles, the date range was expanded from January 2013 to December 2018.

Criteria for inclusion in this review were journals that discusses the use of any media and method for people with diabetes of an average age of 40 years or more, intervention studies, e.g. randomized control trials (RCTs) and non-randomized control studies, that studied diabetes foot care, measured foot care behavior and stress levels as the outcome.

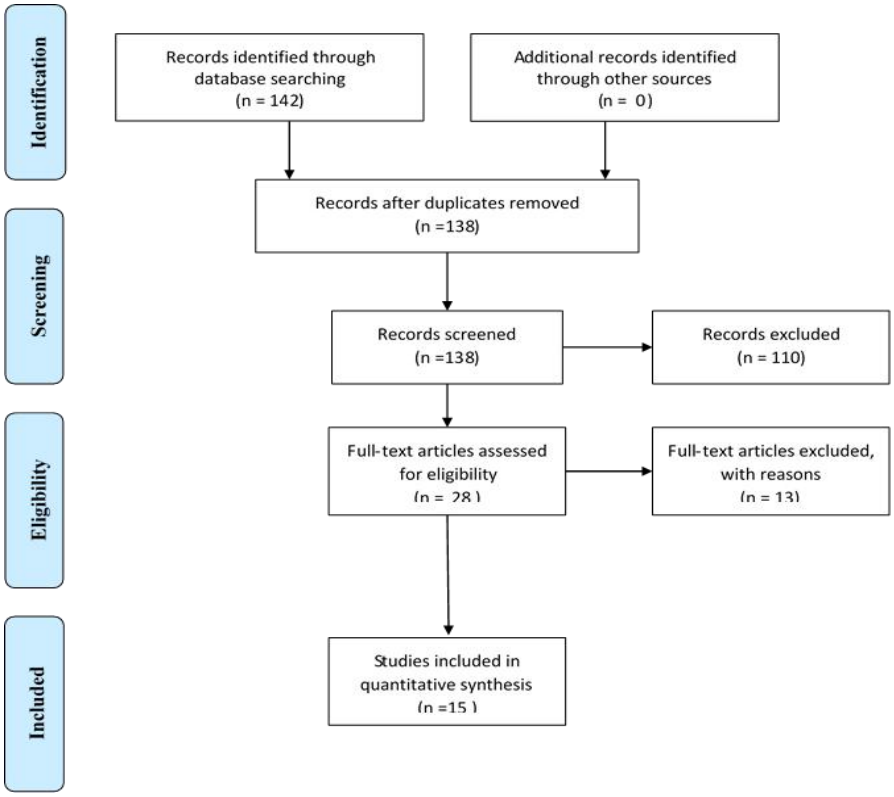

Figure 1. PRISMA 2009 flow diagram for the process of study selection

BI. RESULTS

A total of 15 articles were included in the final stage. Many media and methods were developed to increase foot care behavior and reduce stress levels among people with type 2 diabetes and truly effective based the evidence. Some methods used to improve self care behavior and reduce stress levels included the following: Orem Self Care Education Model, educational course with class discussion media, family-oriented education, face-to-face, telemedicine by call or text, and mobile android aplication.

Hemmati Maslakpak, Shahbaz, Parizad, & Ghafourifard (2018), in their research, found that education can help to manage diabetic foot ulcers and can change the lives of patients by lowering the risk of amputation and medical costs [6]. This research also analyzed how a good education can relieve uncertainty by increasing knowledge. However, patients who know how to manage their problem will have lower anxiety and stress levels. A good method can increase the confidence of patients and families to care for themselves bravely and independently.

IV. DISCUSSION

Interactive education such as demonstrasi and mobile applications represent an easy tool which has been widely investigated regarding its effectiveness in terms of one's knowledge and motivation. This method gives audio and visual stimulation. Knowledge is the result of remembering after someone observes an object [7]. Submission of audio-visual material followed by a demonstration will provide an active learning experience to clients so that clients have a memory that is longer remembered and it can be concluded that client knowledge is increasing.

According to D'Souza et al. (2016), the process of forming attitudes takes place gradually and through the learning process. The learning process can occur because of personal experience with certain objects (people, objects or events) by connecting these objects with other experiences or through a combination of several methods [8]. Baba, Duff, Foley, Davis, & Davis (2015) suggest that attitudes can be positioned as a result of evaluating attitudinal objects that are expressed in cognitive, affective, and behavioral processes [10].

These results indicate that providing education through interactive media can improve patients' knowledge and skills in efforts to improve health. Patients can establish care and not worry about the condition and treatment so that they avoid stress and excessive fear. Health education has an element of input (behavior using health facilities and health workers) which, after being processed with certain educational techniques, will produce outputs (changes in the behavior of the target community health) that are in accordance with the objectives of the activity. According to Nursalam and Effendy (2008; 2016), the aim of health education is a change in knowledge, attitudes and behavior of individuals, families, groups, special communities, and communities in fostering and maintaining healthy living behaviors and playing an active role in realizing optimal levels of health [11], [12].

V. CONCLUSION

The findings of this study support the claim that health education programs increase foot care behavior scores and reduces the stress level. However, there were certain methodological concerns in the reviewed articles, indicating the need for further evaluation. In the future, researchers and practitioners must implement a vigorous education program focusing on diabetes foot care among the population.

CONFLIC OF INTEREST

The authors declare no conflict of interest.

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