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| RESEARCH ARTICLE

Use of Mobile Applications in Increasing Knowledge of Diabetes Mellitus Foot Care

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| ABSTRACT

Prevention of complications of ulcers on the feet of DM patients is by proper foot care. Foot care education is needed to increase DM patient knowledge about foot care to reduce the risk of complications of foot ulcers. A descriptive study that uses an assessment of a Mobile app's usability was used to collect data. This research is a systematic review of the approach PRISM, an overview systematic using PICO. The Search database is Science Direct, Pubmed, Ebsco, and Google Scholar, with keywords "mobile application" AND "knowledge" AND "foot care" AND" diabetes mellitus". Therefore, the authors are interested in discussing more deeply and evaluating further the usability of a mobile application in increasing knowledge of diabetes mellitus foot Care. From the article, the search found 1,674 articles and only 8 articles were analyzed from 2012-2022; it was found that the Mobile application proved effective in increasing knowledge about Diabetes Mellitus Foot Care. Interventions are provided using mobile applications in various forms of smartphone applications, WhatsApp, and short messages. These interventions can increase knowledge about diabetes mellitus foot care. The use of mobile applications is very useful and very helpful in increasing the knowledge of foot care in patients with diabetes mellitus.

| KEYWORDS

Mobile Application, Knowledge, Foot care, Diabetes Mellitus

| ARTICLE INFORMATION

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1. Introduction

The use of mobile applications in healthcare is increasing worldwide. According to the 2019 Global Digital report, there are 5.11 billion mobile application users worldwide, two out of three of whom have cell phones, and users spend half their time on the internet using mobile applications (Kemp et al. 2019). Mobile health technology is used in diabetes as well as the management of other chronic diseases. Diabetes mellitus, or what is often known as diabetes, is a problem characterized by high blood sugar levels in the blood caused by impaired insulin secretion. Diabetes mellitus is a complex disease that requires prolonged treatment with multifactorial risk reduction strategies beyond glycemic control (Standards of medical care in diabetes-2010.). Patients with diabetes have not received sufficient education to be able to carry out independent foot care, while limited service time at the hospital or health service center/Puskesmas also does not allow patients to obtain comprehensive health education. This condition causes patients to be reluctant to come to health services before complications arise; moreover, patients experience decreased adherence to long-term adherence (Pankhurst et al. 2018).

Foot care is an independent nursing intervention that is useful in preventing diabetic foot complications because both can effectively improve vascular status and reduce the number of patients with neuropathy (Embuai et al. n.d). But, nurses still find some obstacles in doing foot care. The willingness of patients to come to seek health facilities for patient care, financing, care organization, infection and education are some of the factors that become obstacles in the implementation of foot care in patients with diabetes mellitus.

The obstacles found by nurses in doing foot care today can be bridged by the existence of cellular-based health applications; along with the development of the era and the advancement of information technology, health services and monitoring can be done remotely for time and cost efficiency. In this context, various mobile applications for diabetes mellitus have great potential to contribute to the management and monitoring of diabetes mellitus patients. The development of information technology today has reached all aspects of people's lives. Currently, the form of information technology applications that are in great demand by the public is mobile applications. Mobile applications can implement various forms of multimedia just like computers; it's just that the advantage is that mobile applications have high mobility and can be operated more effectively. Knowledge of foot care in patients with diabetes mellitus can be improved by the application of an intervention containing foot care. One intervention that can be applied is the use of mobile applications. Based on the results of previous reviews and articles that the author got related to mobile applications on foot care in diabetes mellitus patients, the author plans to review articles about the use of mobile applications in increasing knowledge about foot care in diabetes mellitus patients so that the author knows whether the use of mobile applications can increase knowledge about foot care in diabetes mellitus patients so that they can use the results This literature review is a reference in research related to foot care in diabetes mellitus using a mobile application that the author will do.

2. Method

2.1 Study Selection

The search process begins by formulating PICO, which is used to direct the Author in the clinical search of articles. PICO is an acronym for P (Patient, Population, Problem), I (Intervention, prognostic factor, exposure), C (Comparison, Control), and O (Outcome). The PICO formulation in this systematic review is P = Diabetes Mellitus Patients; I = Use of Mobile Application; C = The existence of a control group compared to the intervention group; O = Increased knowledge of foot care.

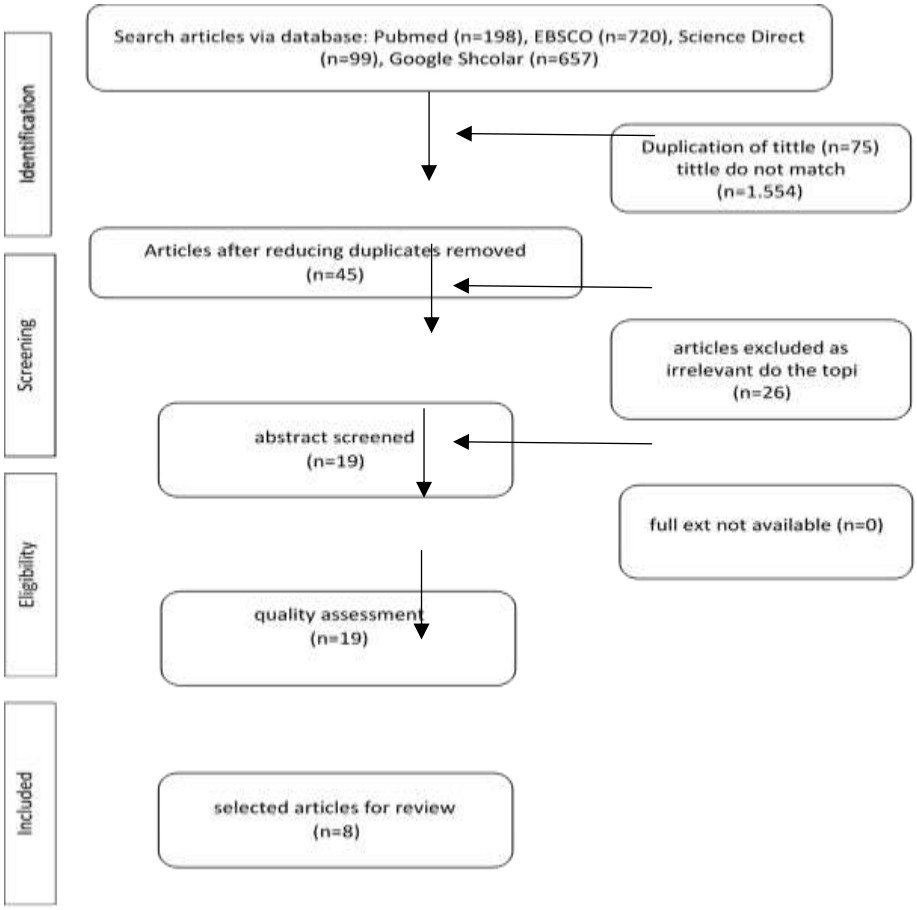
The inclusion criteria in this systematic review are international articles, national articles, articles published or published from 2012-2022 and given easy access, the articles used are original full text Research articles with interventions to increase foot care knowledge in diabetes mellitus. While the exclusion criteria in this literature review are national articles and research articles that cannot be accessed and are not available in full text.

2.2 Article Search

The search for literature was carried out using several databases, including Google Scholar, Science Direct, Ebsco, and PubMed, using the keys Mobile Application, Knowledge, Foot Care, and Diabetes Mellitus. The results of the search obtained articles with details from Google Scholar (n = 657), Ebsco (n = 720), PUBMED (n = 198), and Science Direct (n = 99). A total of 8 articles have met the inclusion and exclusion criteria.

3. Result

In the eight articles reviewed, an assessment of article quality was carried out according to the method used in the article, namely the Randomized Control Trial. The instrument used is the CASP JBI 2020 (Critical Appraisal Skills Program 2020) questionnaire, which consists of 13 questions. The article search flow is presented in Figure 1.



4. Discussion

Based on the analysis, it was found that there are several educational interventions that can be applied, including through methods, smartphones, whatsapp, and short messages that dei use and have differences in methods in terms of material, follow-up, and results. Broadly speaking, the interventions carried out can increase knowledge in foot care of diabetes mellitus patients.

Mobile application / mobile application is a technology-based nursing care delivery method that is useful for improving health care remotely. This method is a method of communication that depends on human factors, finance and technology itself. Mobile applications can take the form of social media, Mobile Home, or interactive videos in the process of remote nursing care.

The types of mobile applications used in the eight articles are Whatsapp Group, Mobile phone text messaging, Application Smartphone-based "FoCED", Mobile application on foot care, PEDCARE: validation of a mobile application, short message service (SMS), mobile application on diabetic foot self-care and Mobile application for evaluation of feet.

Mobile Applications are innovations in the digital health sector by providing healthcare support and interventions through technologies such as gadgets, tablets, and electronic devices to support medical care. The Mobile Application is used as initial information and second opinion to determine the cause of pain and the medical treatment needed to relieve symptoms (symptoms) felt by a person (Jannah, Husain, Iswari, and Asri, 2021). Mobile applications are innovations in the field of health that are useful for making behavior changes and promoting related health management outside of hospital care. Varied educational methods by combining several methods can increase patient knowledge of foot care, which can have a long-term effect in increasing knowledge about foot care in order to prevent complications of foot ulcers.

5. Conclusion

Based on the analysis, it can be concluded that there are various kinds of educational methods that can be applied to increasing knowledge about foot care, including using Smartphones, WhatsApp, and Short messages.

Articles in this study show that foot care education in DM patients using mobile-based applications has a positive effect on

knowledge in doing foot care. The use of this application shows a positive effect on the outcome of foot care knowledge. However, the use of applications in education and application development in Indonesia has not been widely studied.

Every intervention has advantages and disadvantages. Any one of these interventions, or a combination of several interventions, can be applied to any healthcare situation, condition, and facility.

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