Protocol Study

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Developing a program to enhance health professionals' readiness to evidence utilization in diabetes care: A mixed-methods protocol study

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Abstract:

INTRODUCTION: Diabetes is one of the most common metabolic disorders in the world and because of high prevalence and incidence rate, it is a serious challenge posed to the health system in Iran. Despite extensive knowledge of the desirable care for these patients, evidence suggests that the quality of care provided to these patients is not desirable.

OBJECTIVE: The aim is to develop a training program to enhance the preparation of health professionals for evidence utilization in providing comprehensive health cares to patients with diabetes.

MATERIALS AND METHODS: This is an exploratory mixed-method study using consecutive qualitative–quantitative methods that will be conducted in three phases using the approach proposed by Werner and DeSimone to design the program. In the first phase, a qualitative study will be conducted for context assessment and identification of the requirements to enhance evidence utilization taking into account the overall knowledge translation process using semi-structured interviews with policymakers and health professionals. In the second phase, a training program will be designed based on the data extracted from the first phase, experts' opinions, and review of the literature. In the third phase, the training program will be implemented, and its effectiveness on the readiness of multidisciplinary health professionals for evidence utilization will be evaluated.

CONCLUSION: The results of this study will provide a better understanding of how to identify and incorporate contextual factors and the real needs of health-care professionals and develop a program tailored to improving their readiness to use evidence. It can subsequently lead to providing quality care to patients with diabetes.

Keywords:

Diabetes mellitus, evidence utilization, knowledge translation

Introduction

Diabetes mellitus is one of the most common metabolic disorders in the world.[1] According to the International Diabetes Federation statistics, 462 million people worldwide are affected by diabetes and 242 million people have undiagnosed diabetes.[2] Annually, approximately 1.5 million deaths and 20 million disability cases are caused by diabetes and 10% of global health costs are spent on it.[2] According to the World Health Organization (WHO) report, most people with diabetes live in low-income countries and the prevalence of diabetes is increasing rapidly in these countries.[3] The Middle East is expected to face the increasing burden of diabetes in the coming decades.[4] The prevalence of diabetes in Iran has been reported by 10.3% in 2016.[4,5] Due to high and increasing prevalence, diabetes is one of the most significant challenges of public health in Iran as a developing country.[6-8]

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In Iran, special care programs for people with diabetes began in the 1990s, but the first consolidated national program of diabetes control and prevention was implemented in 2004. The goals of diabetes control in Iran include reducing blood sugar to the recommended level through lifestyle modification and using drug, evaluation, and reduction of cardiac risk factors and regular screening of micro-and macro-vascular complications and rapid treatment of existing cases.[9] Despite numerous studies on diabetes and its complications, the prevalence of diabetes complications in the population of Iran is high, and diabetes control status in Iran is not desirable. The majority of Iranian diabetic patients have not reached the recommended therapeutic targets.[10,11] About half of the Iranian diabetic patients have poor blood sugar control, which leads to more prevalence of long-term complications of diabetes.[9,12-14] According to the results of some studies, the prevalence of diabetic foot ulcer in Iran is 6.4%, which is higher than the global prevalence rate (6.3%) and prevalence in Asia (5.5%),[15,16] prevalence of retinopathy among Iranian diabetic patients is about 30% to 40%[17] and the prevalence of diabetic peripheral neuropathy is 53%.[18] In a study conducted in Tehran the results showed that a common method of most physicians (78.7%) to control the patient's blood sugar rate was measuring fasting blood sugar, and measuring HbA1c were reported only in 37.1% of individuals. Furthermore, blood sugar control status was reported undesirable and 33% of patients had HbA1c >9.[19] Findings of some research indicate that in Iran, there are significant scientific gaps related to key indicators of diabetes control.[20] Valinejadi *et al*. considered the knowledge-practice gap as one of the main causes of failure in diabetes treatment and expressed that Iran is facing a knowledge-practice gap leading to poor diabetes care services.[20] The findings by Goderis *et al*. also showed that physicians' scepticism about evidence-based treatment and inter-professional care is a barrier to the success of diabetes care.[21] Rubin *et al*. reported insufficient commitment of physicians to apply clinical guidelines for the treatment of diabetic patients is the barrier for correct self-management behaviours of patients.[22] In this regard, the high prevalence of chronic illnesses suggests that opportunities of applying knowledge and evidence have been lost which could have achieved a healthy and desirable life.[23] According to the literature, there is a gap between existing knowledge and evidence of diabetes and common performance in clinical settings.[24] Worldwide health-care systems are confronted with challenges to improve the quality of care and reduce the side-effects. The failure of health systems in optimal use of evidence (too little use, overuse, misuse) has led to inefficiency and reduction in the quality and quantity of patients' life.

The process of knowledge translation has been recommended to respond to these challenges and optimize research and increase the efficiency of health services. There is a growing emphasis on knowledge translation as a method to remove the knowledge-to-practice gap and improve health services.[25] Until now, many terms have been used to describe the process of putting knowledge into action, and various terms will be used up now such as "implementation science," "research utilization," "dissemination" and "implementation," "research use," "knowledge translation," "exchange," "knowledge translation."[25] In this study, the term evidence utilization has been used. Canadian Institutes of Health Research defines knowledge translation as the "exchange, synthesis and ethical application of knowledge in a complex system and through the interaction between researchers and knowledge users to promote health and provide more effective services and strengthen the health-care system."[26-28] On usage, end-users of knowledge must be included in this process to ensure the relevance of knowledge and its implementation with their needs.[25] To promote evidence utilization and perform the activities related to it correctly, decision-makers at all levels of the health system (clinician, managers, and senior policymakers) must be aware of this matter and can use research findings to make health-related decisions.[27,29]

Inadequate use of evidence for conscious decision-making in health care is evident in all groups involved in the decision-making, including health-care providers, patients, managers, and policymakers.[25,27] These deficiencies are seen in both developed and developing countries, in both primary care and specialized care. Barriers of changing performance can occur at different levels of the health care system, i.e., at the patient level, health care providers, and treatment and health organization, which shows the necessity of a comprehensive and multilateral review of the evidence utilization status at different levels and the identification of barriers. On the other hand, interventions of evidence utilization can be performed for different levels, including service providers.[30]

Iran's health system consists of the Ministry of Health and Medical Education (MHME), the provincial centers of Medical Science Universities, and their sub-sets, including public hospitals and clinics, as well as urban and rural health centers that provide health services at the three levels. In 2015, the first national document on the prevention and control of non-communicable diseases and related risk factors was approved to keep diabetes and obesity rates in check. However, it seems that the health-care system infrastructures are not fully prepared for the rising trend of diabetes and the prevalence of complications in Iran.[9] Despite increasing attention to research in the context of applying evidence in practice and improving healthcare, conducting further researches in different contexts has

been recommended.[31] According to Baradaran-Seyed *et al*., the lack of evidence-based health-care system and macro-political support had been cited as a major barrier to applying evidence in clinical practice in Iran as a developing country.[32]

Objective

The purpose of this study is to develop a training program to enhance the preparation of health providers for evidence utilization in providing comprehensive health cares to patients with diabetes.

Materials and Methods

This is an exploratory mixed-method study conducted in three phases [Figure 1 and Table 1] using the Werner and DeSimone approach to design the training program.[33]

Phase I Context assessment and need identification

A qualitative study will be conducted for context assessment and identification of the requirements to enhance evidence utilization taking into account the overall knowledge translation process using semi-structured interviews with policymakers and health professionals.

Study participants

Qualitative phase participants will include three groups of experienced and specialized members of the health team in the field of policymaking, research, and care provided to diabetic patients. The purposive sampling method will be used at this stage. The first group of participants will include policymakers and senior managers who have experiences in policy-making for diabetes health care in the treatment and health deputies of MHME and Isfahan University of Medical Sciences (IUMS), Iran at the macro level, The second group will include middle managers (heads and deputies of hospitals and heads of wards and research centers in IUMS), and the third group, of all members of the health team who are somehow involved in providing a variety of care to diabetic patients will be invited to participate in the study (i.e., physicians, nurses, nutritionists, and psychiatrists).

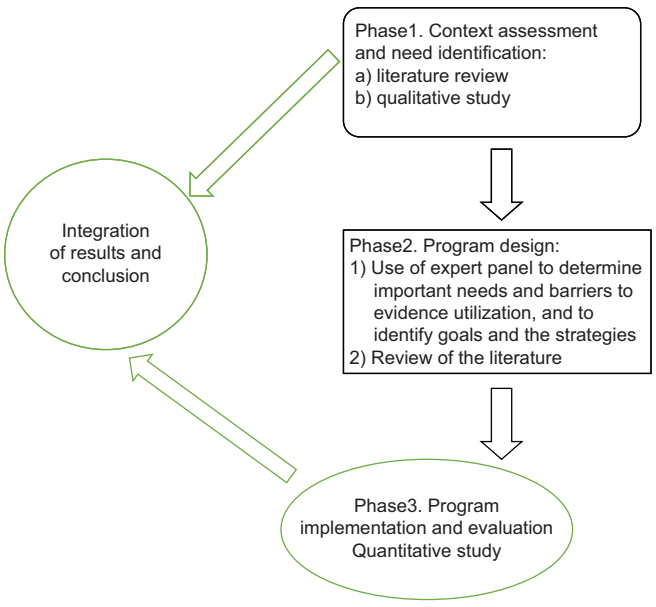

Figure 1: The phases of a mixed-method study

Inclusion criteria

- Having at least 1 year of experience in providing care to patients with diabetes
- Having experience in diabetes policy-making, researching in the diabetes
- Desiring to participate in the study.

Exclusion criteria

- Unwillingness to continue cooperation at any stage of the research
- Failure to attend in at least two sessions.

Procedure

Study setting will be including IUMS and its sub-set centers providing health care to diabetic patients, including outpatient centers such as urban health centers and professional clinics and inpatient centers such as hospitals and related institutions and centers. The data will be collected through semi-structured interviews and using an interview guide. Informed consent will be obtained from the participants for recording the interviews, and the time, length, and location of the interview will be chosen based on the participants' preferences. Initial questions will be provided in 3 sections by considering the related stakeholders in the evidence utilization process.[34-37] The first section will be comprised of the questions related to nurses, physicians, and other service providers to analyze the existing status and identify barriers to use the evidence. These questions also identify health providers' needs for evidence utilization to provide diabetes health care. The data obtained from this section will provide useful information on the use of evidence in practice and its barriers and the interaction of potential users of evidence with evidence producers. The second part of the questions is related to diabetes researchers. The purpose of these questions is to explore how researchers formulate their research and finally, how the results are disseminated. The third part of the questions will be related to diabetes policy-makers and managers to explore experiences of utilizing the evidence in policy-making in diabetes services at the macro-level (i.e. MHME and IUMS). The questions will be modified based on the information obtained from the interview. Individual interviews will be continued to reach data saturation. Data analysis will

Table 1: Summary of phases of the protocol study, goals, outputs and methods used in each phase

Study phase	Goals	Output	Method
1. Context assessment	Context assessment of knowledge translation at the health system's macro, meso and micro levels	Identifying barriers of knowledge translation at different levels of the health system Identifying the needs of the health team for diabetes knowledge transfer at different levels of the health system	Qualitative Study
2. Designing a training program for enhancing evidence utilization in comprehensive Diabetes care	Identify the most important health provider needs for evidence utilization Develop content proportion to the identified needs Deciding about implementation and training program evaluation strategy	Training program for enhancing the health provider preparation to use evidence in Providing comprehensive health services to diabetic patients	An expert panel, review texts
3. Implementation PEEU and evaluation its effectiveness on preparation health provider for evidence utilization	Implementation of the designed training program at a micro-level (direct providers of health services to diabetic patients)	Determining the effectiveness of a designed training program on health providers' preparation to evidence utilization	A quasi-experimental study with nonequivalent group design

PEEU=Program to enhance of evidence utilization

be performed using the qualitative content analysis based on Graneheim and Lundman approach[38] and to ensure of trustworthiness, we will use the criteria proposed by Guba and Lincoln, include credibility, dependability, confirmability, and transferability.[39] The researcher will practice long-term engagement in collecting and analyzing data and conducting semi-structured interviews to ensure credibility and to enhance dependability, the research process will be presented in detail consisting of data gathering and data analysis. To address transferability will be reported the research process and population characteristics precisely. An independent researcher (i.e., someone who not involved in the research process) will examine both the process and product of the research study to ensure confirmability.

Phase II: Program design

To determine the most important and priority requirements to enhance health professionals' readiness to evidence utilization and to identify goals and the strategies of implementation and evaluation of the training program.

Study participants

The members of the panel will include nurses, physicians, psychologists, social workers, nutritionists, faculty members, and other experts who provide comprehensive care to patients with diabetes.

Inclusion criteria

- Having experience in providing care to patients with diabetes
- Having experience in diabetes policy-making, researching the diabetes
- Desiring to participate in the study.

Exclusion criteria

- Unwillingness to cooperate at any stage of the research
- Failure to attend in at least two sessions.

Procedure

Before the meeting, the goals of the panel will be outlined and provided to specialists along with the written invitation and drafting of the needs obtained from the first phase. At the beginning of the meeting, the researcher will brief the methodology of the qualitative phase and obtained results while stating the goals and agenda of the meeting. Then, the attendees will make their comments and suggestions about the most important needs and goals and the strategies of implementation and evaluation of the training program. The goals of the panel will include identifying the most important and essential needs of the health professionals for evidence utilization, compiling content proportional to each need as well as clarifying implementation and evaluation strategies. The researcher will record and take notes of the expressed titles, in order used to design the training program. Furthermore, to compiling content proportional with each need, we will literature review using the narrative review method, including searching the library resources (e.g., reference books and theses), and searching electronic databases to obtain the existing knowledge related to the topic will be performed using related keywords. Then, based on the experts' comments and literature review, the training program will be designed.

Phase III: Program implementation and evaluation

To determine the effectiveness of the training program on the preparation of multidisciplinary health professionals for evidence utilization, a quasi-experimental using a pretest–posttest with nonequivalent group design will be implemented.

Study participants

It will be included all health professionals who participate to provide services to diabetic patients, including physicians, nurses, nutritionists.

Inclusion criteria

- Having at least 1 year of experience in providing care to diabetic patients
- willingness to participate in the study.

Procedure

After receiving an ethical code from the ethics committee affiliated with IUMS, convenient sampling will be used at this stage based on the inclusion criteria. Participants will be allocated to the intervention or the control group. The research environment in this phase will comprise the centers and institutions engaged in providing care to diabetic patients.

In the intervention group, the designed training program will be implemented, and the control group will not receive any intervention. After completing the training sessions for the intervention group, a similar program will be provided for the participants in the control group. After the implementation of the training program, its efficacy will be evaluated using the standard evidence-based practice preparation tool two times immediately after the end of the course and 2 months thereafter. This questionnaire was designed and evaluated reliability and validity by Parrish and Rubin, and had 34 items in 3 sub-scales of knowledge (10 items), attitude (14 items), and intention (10 items). Scoring in this questionnaire was based on a 5-point Likert scale.[40] It was translated to Persian for the first time in Iran in the research by Ashktorab *et al*. with the permission of the questionnaire designer and using the WHO protocols. Face validity and content validity were confirmed using the comments by at Content Validity Index = 0.98. Cronbach's alpha and Interclass Correlation Coefficient were used for acceptable reliability.[41]

Statistical analysis

Data analysis will be performed using SPSS 22 software. Descriptive statistics will be used to determine the demographic characteristics of participants and the Analysis of Variances will be employed to compare participants' preparation in both intervention and control groups.

Discussion

The context in which health services are provided plays a decisive role in the process of research utilization in presenting services. This training program will shed insight into processes, opportunities, and barriers to utilizing evidence in providing comprehensive diabetes care based on real data from context. Designing the training program using the comments of all stakeholders at different levels (i.e., macro, middle, and micro) will strengthen the transferability of the study results. The qualitative approach will lead to the identification of the real needs of the health professionals, and designing training programs based on these needs leads to enhance the capability of health professionals to utilize up-to-date evidence in providing health services to diabetic patients. Moreover, the results of this study may be useful in the fields of education, policy-making, and diabetes research. The results of this study will provide a better understanding of how to identify and incorporate contextual factors and the real needs of health care professionals and develop a program tailored to improving their readiness to use evidence. It can subsequently lead to providing quality care to patients with diabetes.

Conclusion

The results of this study will provide a better understanding of how to identify and incorporate contextual factors and the real needs of health-care professionals and develop a program tailored to improving their readiness to use evidence. It can subsequently lead to providing quality care to patients with diabetes.

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Conflicts of interest

There are no conflicts of interest.

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