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Review Article

Iran Diabetes Research Roadmap (IDRR) Study; Patient Education in Diabetes: A Review Article

Maryam PEIMANI[1, 2], Fatemeh BANDARIAN[3], Maryam AALAA[4], Marjan KOUHNAVARD[5], *Ensieh NASLI-ESFAHANI[6], Bagher LARIJANI[4]

1. *Diabetes Research Center, Endocrinology and Metabolism Clinical Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran*
2. *Dept. of Health Education & Promotion, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran*
3. *Obesity and Eating Habits Research Center, Endocrinology and Metabolism Molecular -Cellular Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran*
4. *Endocrinology and Metabolism Research Center, Endocrinology and Metabolism Clinical Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran*
5. *Metabolic Disorders Research Center, Endocrinology and Metabolism Molecular-Cellular Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran*
6. *Elderly Health Research Center, Endocrinology and Metabolism Population Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran*

***Corresponding Author:** Email: n.nasli@yahoo.com

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Abstract

Background: Despite the benefits of diabetes patient education, it is imperative **to** analyze the status of researches in this field and identify research gaps and priorities if our limited health resources are to be used wisely and effectively. This study is a part of Iran Diabetes Research Roadmap study to find the knowledge gap in the field of diabetes patient education in Iran.

Methods: All publications of Iranian authors about diabetes patient education in national (SID, IranMedex, and Magiran) and international journals (PubMed, Web of Science and Scopus) up to 2015 were reviewed. Overall, 306 studies were categorized by subject category, methodology, WHO classification and NHMRC criteria.

Results: Most numbers of samples in the subject category were about the effect of self-care training (28%) and then model-based educational interventions (13%). Moreover, trend in publication rate of papers related to the patient education topic is relatively increasing with time, despite some difficulties points. Half of the papers were cross-sectional and 46% of them were interventional studies.

Conclusion: Although trend of papers subjects was relatively scattered, most of patient education studies in Iran were about assessing the positive effects of self-care education similar to other countries. However, quality assessment for all studies should be carried out in future research.

Keywords: Patient education, Diabetes, Research roadmap, Iran

Introduction

Diabetes mellitus (DM) is a chronic illness increased in prevalence and incidence rates in recent years (1). It is one of the leading causes of premature morbidity and mortality as well as increase in healthcare costs (2). According to the World Health Organization, in Eastern Mediterranean region in which Iran is located, the average prevalence of diabetes is estimated to be 14.5% in the adult population above 20 yr (3, 4).

Chronic nature of diabetes and the complexity of its management often necessitate lifestyle and behavior changes by individuals (5). Furthermore, there is strong evidence that eradicating risk factors such as obesity, type of diet and physical inactivity can prevent diabetes complications (6). Patient education has become an integral component of diabetes care and can be described as planned learning activities designed to empower patients to become knowledgeable and hopefully active participant in their care and to modify behavioral risk factors for diabetes (7). Therefore, effective and innovative patient education practices that provide adequate information, support and monitoring can improve adherence, which in turn, can reduce the burden of diabetes chronic complications as well as providing a better quality of life for diabetes patients (8, 9).

On the other hand, the emphasis on patient education methods and materials has changed in recent years. There is a growing demand for diabetes education that is both high quality and cost-effective (10-12). Therefore, despite the benefits of diabetes patient education being supported by literature (13-15), it is imperative to analyze the status of researches in this field and to identify research gaps in order to ensure that limited health resources are being spent effectively.

However, there is no comprehensive analysis of patient education studies in DM neither in Iran nor in the world and present studies in our country are scattered and have not built a systematical research framework .

The aim of our study is to do a review of performed studies and identify research gaps in the field of diabetes patient education in Iran. This study was a part of Iran Diabetes Research Roadmap study to find the knowledge gap in the field of diabetes.

Methods

All publications of Iranian authors about diabetes patient education in national and international journals up to 2015 were reviewed. Search process of the present study is part of search strategy of Iran Diabetes Research Roadmap (IDRR) study. Comprehensive search was performed in international databases including PubMed, Web of Science and Scopus as well as national databases including SID, IranMedex, and Magiran as described in the study protocol (16). The keywords used for English database search were "Diabetes mellitus" and "Iran*" in the author affiliations according to each database instructions. For search in national databases, equivalent Farsi keywords were used. However, the search strategy has been described in detail in the protocol study.

A total number of obtained papers were categorized into eleven groups according to the study topic (protocol study). In each group, all papers (after adjusting for duplicates) were classified based on the study design, subject category, WHO classification (17), Australian National Health, and Medical Research Council (NHMRC) criteria (18). WHO criteria for research classify the studies to know whether research meets health needs and improve health outcomes or not. NHMRC criteria are applied for definition of research area.

In this study, however, unrelated topics, letter to the editors, meeting abstracts, news, as well as studies on foreign population and studies of Iranian authors with foreign affiliation were excluded.

After screening, 306 studies were remained and categorized as described above by subject category, methodology, WHO classification and NHMRC criteria.

Statistical Analysis

The data was analyzed by descriptive statistic and results were depicted by appropriate graphs. SPSS software version 17 (Chicago, IL, USA) for Windows was used for data analysis.

Results

Overall, 306 studies were published up to 2015. They were classified into 10 groups: 1) assessing

the status of diabetes self-management; 2) identifying self-care determinants; 3) assessing the effect of self-care training; 4) barriers to self-care activities; 5) assessing patients knowledge, attitude, and practice; 6) identifying barriers to diabetes regimen adherence; 7) improving patient empowerment; 8) determining the effect of model-based educational programs; 9) using technology-based educational interventions; and 10) comparing different teaching methods. Most numbers of them in the subject category were about the effect of self-care training (28%, n=86), model-based educational interventions (13%, n=41), self-care determinants (13%, n=40), assessment of patients' knowledge, attitude and practice (11%, n=34).

More than 20% of all papers published in 2013. The overall trend in publication rate of papers related to the patient education topic is relatively increasing with time, despite some difficulties points. In addition, trend analysis of papers based on subject category suggests that there is an increasing trend in the number of effectiveness self-care training articles, and then, self-care determinants articles since 2011 (Fig. 1).

Half of the papers were cross-sectional studies (50%, n=154) and 46% of them were interventional studies.

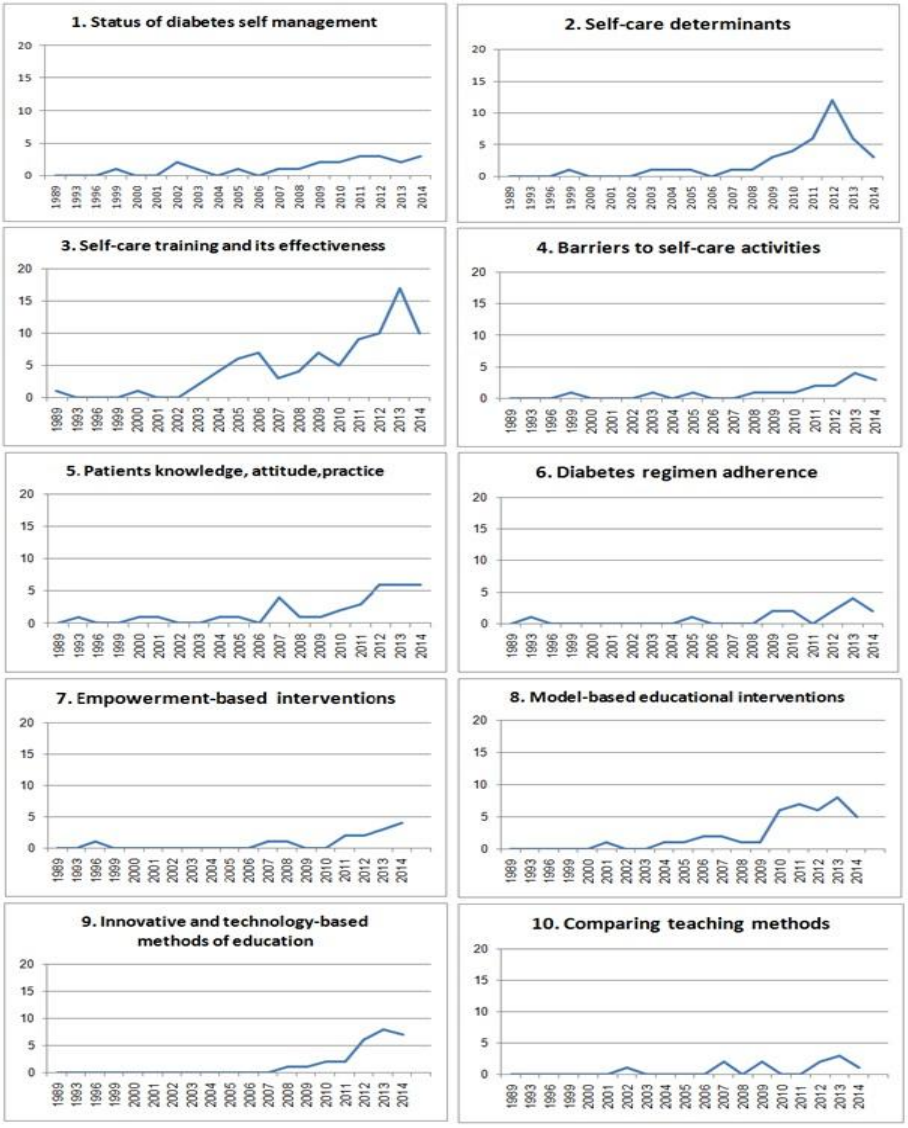

Fig. 1: Trend of papers based on the subject category

According to health research methodology of WHO, most of articles (54%) were related to descriptive studies including prevalence, causes, and determinants of health-related outcomes. Besides, according to Australian National Health and Medical Research Council criteria, all obtained articles in patient education field were clinical research.

Discussion

Patient education has been accepted widely over the past years as the basis for diabetes care in clinical practice and research (19). Up to 2015, there is a growing trend towards diabetes patient education research and that studies about effectiveness of self-care training are the most common patient education studies performed on diabetes in Iran. This increase in trend can be related to the theme selected by the International Diabetes Federation and the WHO for world diabetes day 2009-2013 that focused on diabetes education and prevention. This focus reveals that how important is to raise patients' knowledge and awareness of diabetes and its complications and empower them through education. Especially because of an alarmingly high prevalence and incidence rate of diabetes in Iran, the significance of patient education is becoming more and more obvious.

The prevalence of diabetes has steadily increased in Iran from the time of the first published nationally representative survey in 1999 and despite all efforts and strategies to reduce disease burden (20). The findings of that study suggest some solutions for improving diabetes care in Iran such as; enhancing diabetes knowledge and promoting self-care behavior through funding necessary materials and modalities, also supporting and funding nongovernmental organizations that offer education to patients with diabetes (20).

Despite the importance of patient education in diabetes care, it has been somehow neglected by health care system in Iran. On the other hand, there is no comprehensive analysis of patient education studies on diabetes performed in Iran and our study is the first one. However, although our study showed a relatively increasing trend of patient education research in diabetes in Iran during the study period, this increase has occurred only in recent years and in limited subject categories. Moreover, trend of papers subjects was too scatteredand no clear data could be taken from them. Current diabetes education research landscape in Iran is unclear and many studies are designed and performed without respect to our current priorities and needs (21).

Due to growth rate of diabetes publications, there is an urgent need to undertake a wide assessment of the current Iranian diabetes research status, and thus we can identify knowledge gaps and guide a roadmap strategy (22), for diabetes research in Iran. Therefore, Iran Diabetes Roadmap study was designed and done to achieve this goal. The current study (as a part of IDR study) demonstrated a need to undertake more targeted and more focused studies to prevent unnecessary duplication of research studies and reworking until ensure that limited health resources are being spent effectively.

These results indicated there is a drop in the trend of diabetes education publications between 2013 and 2014. The result is consistent with a study evaluated Iran publications in the field of diabetes until the end of 2014. Although citation of Iran diabetes articles increased during the study period and reached the highest rank in 2014, Iran annual growth rate was reported -14.6% between 2013 and 2014 in this study(23). Moreover, similar drops also were seen in the publications trend in our country in all fields of science in the same years (24). This may be explained by changes in the research budget due to changes in the strategy of policy makers.

In the present study, more papers were about self-care education and its effectiveness similar to a systematic review study that showed 70% of the

patient education studies in diabetes still assess the positive effects of self-care education (25).
However, with the advent of new technologies like internet-connected smartphones and tablet computers and considering that these devices have become very popular in our society, future studies focus on assessing the effects of technology-basedself-careeducation in diabetes. In our study, the number of papers related to technology-based educational interventions was low and most of them were only about text-messaging service. However, for examples, mobile apps for diabetes self-management (26) can be localized and used in our educational interventions. In addition, a review study conducted on web-assisted educational interventions for management of type 2 diabetes from 2000-2012, reported that the web-based interventions have shown some level of favorable effects if they are enhanced with highly accurate e-research strategies(27). Therefore, future studies should be focused more on web-based interventions along with patients' registration system.
There is an increasing trend in the number of theory–based educational programs articles since 2010. In this context, studies are moving in the right direction. In conducting patient education interventions, using behavioral theories such as health belief model, BASNEF model, rational act theory, social support, and innovation publicity theory could bring new potentials for diabetic patients to become more familiarized with their disease and complications (28, 29).
Finally, no patient-educator communication study was found among the obtained publications. However, one critical dimension of the communication process is the diabetes-specific content that considered under broad rubric of patient education (30). Effective communication is independently associated with patients' frequency of self-care (31,32). More in detail, good communication provides better patient inclination towards diabetes self-management, emotional support, opportunities for shared decision-making, agreement on the nature of their medical problems and the need for follow-up (33). Therefore, the reciprocal nature of the patient-educator relationship is a critical factor analyzed in future research.

Conclusion

Although trend of papers subjects was relatively scattered, most of patient education studies in Iran were about assessing the positive effects of self-care education similar to other countries. However, it has not assessed the methodological quality of included studies, so it cannot be ensured whether our patient education research in diabetes pursue frontiers of world knowledge or not. In future research, studies should be weighted equally and quality assessment for all studies should be carried out.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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