Investigation of diabetes prevention behaviors among teachers of different level of education based on Pender model in selected educational centers in southwestern Iran, 2019

Investigación de conductas de prevención de la diabetes entre docentes de diferentes niveles de educación según el modelo Pender en centros educativos seleccionados en el suroeste de Irán, 2019

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Abstract

Introduction: Diabetes is a metabolic disorder group referred as a "silent epidemic". Teachers' justification at training courses and explaining health promoting behaviors to students can develop these behaviors to the community and improve the health status of the general public in the long term. Therefore, by examining the health-promoting behaviors in this community playing the most important role in promoting knowledge, we can take steps to enhance the level of public health in diabetic people.

Methodology: This research is a retrospective cross-sectional study in which 200 teachers of different levels of education in southwestern of Iran participated. The Pender Health Promotion Model Questionnaire was used to collect information.

Results: 108 (54%) of participants were male and 92 (46%) of them were female. Their mean age was 39.95±7.25. The highest score of the questionnaire among these behaviors belonged to spiritual growth (24.81) and the lowest score (13.13) belonged to interpersonal relationship.

Conclusion: Based on the results of this study, the necessity of interventions, especially with an emphasis on physical activity and interpersonal relationships among teachers is necessary. Appropriate planning and application of them in eliminating the barriers, development and expansion of facilities, encouragement of people through health education can be the appropriate interventions in this regard.

Keywords: Diabetes, Health Promotion Model, Behavior, Pender Model.

Resumen

Introducción: la diabetes es un grupo de trastorno metabólico denominado "epidemia silenciosa". La inclusión de los maestros en los cursos de capacitación y la explicación de los comportamientos de promoción de la salud a los estudiantes puede desarrollar estos comportamientos a la comunidad y mejorar el estado de salud del público en general a largo plazo. Por lo tanto, al examinar los comportamientos de promoción de la salud en esta comunidad que desempeñan el papel más importante en la promoción del conocimiento, podemos tomar medidas para mejorar el nivel de salud pública en las personas diabéticas.

Metodología: esta investigación es un estudio transversal retrospectivo en el que participaron 200 maestros de diferentes niveles de educación en el suroeste de Irán. El Cuestionario Modelo de Promoción de la Salud de Pender se utilizó para recopilar información.

Resultados: 108 (54%) de los participantes eran hombres y 92 (46%) de ellos eran mujeres. Su edad media fue de 39,95±7,25. La puntuación más alta del cuestionario entre estos comportamientos perteneció al crecimiento espiritual (24.81) y la puntuación más baja (13.13) perteneció a la relación interpersonal.

Conclusión: Sobre la base de los resultados de este estudio, la necesidad de intervenciones, especialmente con un énfasis en la actividad física y las relaciones interpersonales entre los maestros, es necesaria. La planificación adecuada y su aplicación para eliminar las barreras, el desarrollo y la expansión de las instalaciones, el fomento de las personas a través de la educación para la salud pueden ser las intervenciones apropiadas a este respecto.

Palabras clave: Diabetes, Modelo de Promoción de la Salud, Comportamiento, Modelo Pender.

Introduction

Diabetes is a metabolic disorder and the most common endocrine disorder that affects the general metabolism of body and endocrine glands by affecting metabolic disorders. In the United States, the most common cause of irreversible kidney failure has been reported to be amputation of lower limbs and adult blindness in diabetic people. Many cardiovascular complications have also been observed in this disease[1]. Diabetes is called as a "silent epidemic" and is considered as a major public health problem, accounting for 9% of all deaths in the world[2]. The disease is one of the major health issues around the world. According to the World Health Organization, its rate is estimated to increase by two times in 2030 in the case of lack of intervention and control[3]. Diabetes is currently the fifth cause of death in the western communities and the fourth most common cause for referring to physician[4]. Nowadays, diabetes is one of the major global health problems, and according to the World Health Organization (WHO), the number of people with diabetes in the year 2030 will reach around 366 million[5]. Its rate in Iran in 2025 is estimated to be more than six million people with an increase of about 10.3% [6]. Its rate in the world is estimated to increase from 4% in 1995 to around 4.5% in 2025. During this period, the population of affected people will increase by 122%. The number of patients will increase from 51 million to 72 million by an increase of 42% in developed countries, but the number of patients is estimated to increase from 84 million to 228 million by an increase of 170% in developing countries[7]. The prevalence of diabetes in Iran in the tears 1995, 2000, and 2025 was estimated to be 5.5, 5.7, and 6.8%, respectively. According to a study conducted in Iran in 2001, the prevalence of type 2 diabetes in a population over the age of 20 years was 67.6%[8].

Nowadays, the main focus is developing and promoting by planning and educating the public throughout the world rather than therapeutic strategies. Studies have shown that the causes of many of these problems is lifestyle and health behaviors of people and promoting health behaviors is one of the best ways trough which people can maintain and control their health[9]. Health promotion behaviors are one of the key determinants of health and these behaviors are effective in enhancing the quality of life[10]. Due to problems in creating, maintaining and improving health promoting behaviors as well as the complexity of these behaviors, it is necessary to use behavior change models and theories in this regard, because theories identify the main factors that affect the behavior, determine the relationships among these factors and introduce the conditions and the way and time of occurrence of these events. Therefore, theories are useful in identifying the elements that should be considered as the core of interventions[11]. Health Promotion Model (HPM) is one of the comprehensive and predictive models used to study the health promotion behaviors and provide a theoretical framework for discovering the factors affecting these behaviors[12]. Owing to sensitivity of their job and their influence on students at different levels, teachers have a significant role in transferring their information and learning to students. Hence, by educating the prevention required for this group of people, it is possible to prevent the disease as well as its complications to a large extent. Thus, we aim to investigate the level of information of teachers in this area by examining diabetes prevention behaviors among teachers at different levels of education based on the Pender model.

Materials and methods

In order to determine the sample size, the formula of n=Z2 .SD2 / d2 was used. In this formula, n is the sample size, Z is the 95% confidence level, SD or standard deviation is considered 2.83 based on the previous studies and d is the acceptable level of error considered 0.05[13]. The number of participants was 123 people, which was increased to 200 people to increase the research power. After calculating sample size, 200 teachers from 10 schools (combination of elementary, secondary 1, and secondary 2) were selected by cluster sampling. After the selection of teachers, a questionnaire on diabetes prevention behaviors derived from the Pender model was distributed among the teachers of each level of education with the aim of correcting the preventive behaviors of diabetes in teachers of different levels of education. Then, the information was collected. Lifestyle questionnaire based on the Pender Health Promotion Model was presented to determine how much the subjects adhere to the health promoting behaviors. The questionnaire consisted of 52 questions in two main sections and six subsets. The two main sections included health promotion behaviors, including psychosocial behaviors. The health promoting behaviors section included the following subsets: feeling individual health, physical activity, and food habits. The psychosocial health section included spiritual growth, interpersonal relationship, and stress management. This questionnaire is set on a 4-point Likert scale (always with a score of 4, often with a score of 3, sometimes with a score of 2, and never with a score of one)[14]. In the area of scores of diabetes prevention behaviors, score less than 19 is considered weak, score between 19 and 27 is considered moderate, and score more than 27 is considered good. In the area of health promotion behaviors, score less than 100 is considered weak, score between 100 and 150 is considered moderate and score more than 150 is considered good. To collect the data, the researchers referred to the subjects in person and distributed the questionnaire among them after introducing himself to them and describing the objectives of research and to ensure that their information will

remain confidential and the results of the research will be used in a general. Thus, the research subjects participated in the study with their personal consent. People, who were not willing to participate in the study or were not physically and mentally at the good status during the distribution of the questionnaire, were excluded. The time required to complete each questionnaire was 15 minutes in average. Teachers were asked to answer the questions honestly. The questionnaires were reviewed and examined after completion. Finally, due to the unwillingness of some teachers to participate in the study and lack of the possibility of using some questionnaires, 200 questionnaires were examined. Data were analyzed by SPSS 22 software. Descriptive statistics were used to determine the mean and frequency. Relationships between variables were also examined by the regression and correlation tests.

Results

In this research, 108 (54%) of participants were male and 92 (46%) were female. Their mean age was 39.95±7.25 years. Moreover, 70 (35%) of them had a diploma and 62 (31%) had a bachelor degree. With regard to the preventive behaviors of diabetic people and health-promoting behaviors based on Pender model, the highest score among these behaviors belonged to spiritual growth (24.81) and the lowest of them belonged to the interpersonal relationship (13.13) (Table 1).

Table 1. Diabetes prevention behaviors and health promoting behaviors in Teachers

subscale	N	Minimum score	Maximum score	mean	SD
Feeling responsibility to heath	199	14	34	22.75	4.06
Physical activity	199	12	31	19.78	3.30
Food diet	200	14	34	23.88	4.51
Spiritual growth	198	13	35	24.81	4.37
Interpersonal relationship	198	9	26	13.13	3.55
Health promotion	194	76	154	109.62	15.07

No significant difference was found among the scales of this questionnaire in terms of gender and teachers' level of education. This means that there is no difference between male and female teachers in terms of diabetes prevention and health promotion behaviors and teachers who teach at different levels of education perform the behaviors almost at the same level (Table 2).

Table 2. Scores related to sub-scales of diabetes preventive behaviors and health promotion behaviors separately in terms of gender and teaching level

Variable		Feeling responsibility to heath (mean±SD)	Physical activity (mean±SD)	Food diet (mean±SD)	Spiritual growth (mean±SD)	Interpersonal relationship (mean±SD)	Health promotion (mean±SD)
gender	male	24.61±4.22	19.79±3.69	23.50±4.66	24.65±4.57	17.82±3.75	108.77±15.83
	female	22.92± 3.88	19.77±3.72	24.32±4.32	25/01±4/14	18/50±3.3±	110.68±14.18
	significance	0.87	0.74	0.95	0.68	0.37	0.49
Teaching level	Elementary	23.53±4.01	19.36±3.18	23.81±4.46	24.66±3.95	18.07±3.65	108.98±14.29
	Secondary 1	22.66±4.2	19.87±4.03	23.75±5.23	24.93±4.87	18.69±3.59	109.91±16.62
	Secondary 2	23.05±4. 0	20.13±3.61	24.07±4.14	24.86±4.35	17.68±3.40	109.91±14.92
	significance	0.74	0.46	0.96	0.88	0.33	0.93

Discussion

In the present study, the lowest score of diabetes prevention behaviors belonged to the interpersonal relationship and the highest scores belonged to the spiritual growth of teachers. Moreover, the score for health promotion behaviors was moderate. The scores of these behaviors were not significantly different between the two genders. Only in the area of physical activity questions, males gained higher scores than females. In other areas, females gained scores higher than males. The results of the current research are in line with those of research conducted by Hossein Nejad et al[15] about the lifestyle of students of Islamic Azad University of Kerman based on the Pender Health Promotion model and showed that students gained a good score (above 27) in the spiritual growth and interpersonal relationship areas and gained moderate score (19-27) in other subscales. Among the subscales, spiritual growth (as in the present study) had the highest mean score and physical activity had the lowest mean score, which were consistent with the study conducted by Motlag et al[16]. Baghyani, Moghadam et al[17] and Aubi et al[18].

As noted, the highest score in the diabetes prevention behaviors of teacher belonged to the spiritual growth. The domination of Islamic values and paying attention to the spiritual issues might justify the higher score of spiritual growth in our population studied. Spirituality allows people find a single meaning and concept and believe in a superior power in life. Spiritual health can have a positive effect on the mental and physical health[19]. For these reasons, spiritual health has been included in the educational programs of many countries in the world. Educational programs are developed based on it and around the concepts of spirituality. In Iran, some steps[20] have been taken to develop Ph.D. and master nursing educational programs based on this concept. The results of this study, in line with those of other studies, show that teachers follow a sedentary lifestyle[21,22], while physical activity is one of the most important health-promoting factors since it reduces the risk of cardiovascular disease, type 2 diabetes, depression, and some cancers[23]. Lack of paying attention to the physical activity of teachers has many causes and barriers. Identifying these barriers and eliminating them can be highly helpful in solving this problem.

In general, the mean score of health promoting lifestyle in teachers of present study was 109.62±15.07, which is considered as moderate score according to the rating (score between 100 and 150), indicating the need for the interventions to promote health. In a study conducted by Norouzinia et al in 2013, the mean score of the studied students was obtained 140.07[24]. This result is similar to the result of the present study, in which the mean score of students was reported at moderate level. In line with other studies[25,26] the present study showed that gender affects physical activity and food habits, so that physical activity of males was better than that of females and food habits of females were better than those of males. However, with an increase in age, the physical activity of students decreased, which was consistent with the results of the study conducted by Ulla[27], but they had healthier food habits. It should be noted that gender differences were not significant in our study.

Another important point is the teachers' stress management score. Different methods such as relaxation, meditation, problem-solving and concentration on positive thoughts can be used for reducing stress. It seems that inclusion of stress management training in teachers' counseling program at different sessions increases the psychological, social and emotional well-being and, as a result, the health of most teachers and students, leading to the increased productivity in the educational environment of schools. In the study conducted by Mazlumi et al[28]. Perceived self-efficacy had the highest correlation with type 2 diabetes preventive behaviors (P=0.001, r=0.522). The role of self-efficacy in starting and maintaining health behaviors has been shown in several studies[29,30]. The results of the research conducted by Mazlumi et al showed no correlation between knowledge and preventive behaviors. This finding suggests that increasing the knowledge of people at the risk of diabetes will not necessarily lead to the promotion of preventive behaviors[29]. In the past, diabetes training focused on gaining knowledge to improve patient self-management, while increasing knowledge alone neither improves blood glucose control nor changes the behavior[30]. To achieve a long-term self-management, changing attitudes and motivation of people is more important than increasing knowledge alone[31-35]. However, the results of the study conducted by Mazlumi showed that there is a significant correlation between knowledge and perceived barrier and perceived self-efficacy. It can be stated that by increasing the level of knowledge, along with changing the attitudes of people, it is possible to improve the type 2 diabetes preventive behaviors in people who are at the risk for it. Past studies[33-35]. Suggest a positive correlation between the level of education and adherence to therapeutic and preventive regimes since people with a higher level of education could better understand or adhere to the therapeutic or preventive regimens.

Conclusions

The results of this research suggest that the teachers' lifestyles is at a desirable level in terms of mental growth but it is at the undesirable level in terms of physical activity and interpersonal relationships. Based on the results of this study, providing interventions, especially with an emphasis on the physical activity and interpersonal relationships among teachers seems to be essential. A range of measures such as proper planning and their application in the area of eliminating the barriers, the expansion of facilities, encouragement of people through health education can be appropriate interventions in this regard.

Conflict of Interest Disclosures: The authors declare that they have no conflicts of interest.

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