Self-Management Capacity in Adults with Type 2 Diabetes Using Educational Interventions: A Pilot Study

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Abstract. Type 2 Diabetes (T2D) has been increasing in prevalence over the last decade in Mexico. The glycemic control actions can help to prevent complications. The aimed is to pilot an educational intervention in self- management of adults with T2D through using text messages. Findings show the respondents reported a low level of self-care skills of T2D and there was an increase in the self-care skills after it.

Keywords. Self-management, diabetes type 2

1. Introduction

Type 2 Diabetes (T2D) is a disease that compromises the metabolism and consequently the progressive deterioration of beta cells in the pancreas [1,2]. T2D has increased in Mexico; from 9.2% in 2012 to 10.3% in 2018 [3]. The American Diabetes Association (ADA) indicates that patients do not perform frequent actions to prevent complications such as: diet control, physical activity, and adherence to pharmacological treatment [1]. Actions like checking the glycemic control regularly have significant impact to reduce complications at the microvascular level. If the glycemic control is achieved immediately upon diagnosis, there is a high probability that macrovascular complications will also decrease [1].

Several studies have implemented different interventions with the aim of improving self-management of T2D. For example, educational interventions have focused on treatment with exercise, management of food plans, and adherence to pharmacological treatment [4]. In recent years, technologies have also been introduced to support people living with T2D [5].

Health care professionals and nurses informaticians provide interventions to promote self-management, by providing knowledge and strategies for behavioral changes using technology. Cellphones and social media have helped easy access and

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information to promote self-management skills [5]. In diabetes care, educational text messages have shown to have positive effects on self-management by achieving glycemic control [4,5]. The study aim is to pilot an educational intervention to support self-management in adults with T2D through text messages.

2. Methods

In the first stage; a descriptive study was done. The sample population was adults with a diagnosis of T2D confirmed by HbA1c > 6.5%. Twenty participants were recruited from a Community Health Center in the state of Puebla, Mexico. The intervention consisted of implementing three educational sessions over three months related to diabetes and strategies to promote the self-care of T2D. The educational sessions were conducted in the following sequence: Session 1: definition of diabetes, types of diabetes, risk factors, symptoms, complications and treatment of T2D; Session 2: benefits of physical activity, making a T2D eating plan, healthy feet and eye care; and Session 3: stress management, uncertainty about T2D, decision making to improve my health and glucose level monitoring. Between each session, text messages were used to reinforce the educational content addressed by using the text messages trying to reinforce the information given. The self-care actions questionnaire (CACD) of Toobert and Glasgow (1996) [6] was used to evaluate the participant activities. This questionnaire consisted of eleven items distributed in four dimensions (diet, exercise, blood glucose monitoring, and medication administration). The instrument was used to measure self-care of diabetes, biochemical (capillary glycemia) results, and anthropometric measurements (weight, height and BMI). For the processing and analysis of the data, SPSS version 21 for Windows was used. Data were collected from November 2019 to February 2020.

3. Results

The participants were mostly women (70% n=14) with a mean age of 38 years old (range 20-59). They were mostly overweight BMI (60%, n=12) and had completed an elementary-school level of education (60%, n=12). Twelve were diagnosed with T2D for more than seven years and rest of the sample was diagnosed for less than 6 years.

Results from the CACD questionnaire self-care skills at the beginning of the educational intervention were *Low* (N= 20, B = .180), the self-care skills at the end were *Moderate* (N=15 B= .220). The final findings of self- management were that most of the participants (66.6%, n=10) had a moderate level. As the educational intervention progressed, five participants (25%) were not able to continue. They mentioned they could not continue due to "unfinished chores at home" having to take care of other members of their families at home.

4. Conclusions

Most of the participants had a low level of self-care skills of T2D in the beginning, and there was a slight increase after the educational intervention. However, further research is needed to validate the effectiveness of this intervention with a greater number of

patients. In terms of sustainability of the educational intervention, it is recommended to explore means to better support implementation of interventions. In order to target adherence to self-management, in a long-term perspective patients that have time-consuming responsibilities related to family and work: It is suggested to involve family support, cultural background, work-life, decision-making and acceptance of the disease related issues.

References

[1] American Diabetes Association [ADA]. (2020). Standards of medical care in diabetes. [Estandares de atención medica en diabetes] Diabetes care, 40 (1). Recuperado de https://care.diabetesjournals.org/content/43/Supplement_1

[2] Federación Internacional de Diabetes (2019). Atlas de la Diabetes de la FID. Novena edición. Recuperado de: https://www.diabetesatlas.org/upload/resources/material/20200302_133352_2406-IDF-ATLAS-SPAN-BOOK.pdf

[3] Encuesta Nacional de Salud y Nutrición de Medio Camino. (2018). Informe final de resultados de la encuesta nacional de salud y nutrición de medio camino (informe No. 2018). Recuperado de https://ensanut.insp.mx/encuestas/ensanut2018/doctos/informes/ensanut_2018_presentacion_resultados.pdf

[4] Carpenter R, DiChiacchio T, Barker K. Interventions for self-management of type 2 Diabetes: An integrative review. Int J Nurs Sci. 2018;6(1):70-91. Published 2018 Dec 14. doi: 10.1016/j.ijnss.2018.12.002

[5] García-Viola, Alba. Influencia del envío de mensajes de texto al teléfono móvil en el control glucémico de la diabetes tipo 2 = Influence of sending messages to the mobile phone in the glycemic control of Diabetes type 2. REVISTA ESPAÑOLA DE COMUNICACIÓN EN SALUD, [S.l.], p. 171-178, dic. 2019. ISSN 1989- 9882. Disponible en: <https://e-revistas.uc3m.es/index.php/RECS/article/view/4804>. Fecha de acceso: 01 mayo 2021 doi: http://dx.doi.org/10.20318/recs.2019.4804

[6] Toobert DJ, Glasgoww RE. (1996). Assessing diabetes self-management: The summary of diabetes self-care activities questionnaire. Recuperado de: https://care.diabetesjournals.org/content/diacare/23/7/943.full.pdf