Impact of health education program on self-care activity in poorly controlled Type 2 Diabetic patients

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Abstract

Background: Self-care is the responsibility of the patient that requires a lifelong of the health education. The purpose of this study was to improve self-care activity of diabetic patients by health education.

Methods: A quasi-experimental interventional study conducted among poorly controlled type 2 diabetics in Rizgary Teaching Hospital in Erbil City, from 11th March 2016 to 20th March 2018, 200 diabetic patients randomly assigned to two groups of control and intervention. The education program was performed for the intervention group; diabetes self-care scale (DSCS) was measured for each patient before attending the program and three months later after ending the program.

Result: Self-care of diabetic patients had improved significantly after received education pogrom; diet p=0.00 (3.75±2.07 to 6.81±2.12), p=0.00 exercise 3.63±1.76 to 7.33±2.16), medication p=0.00 (3.81±1.79 to 6.84±2.47), self-monitoring blood glucose p=0.02 (4.62±1.94 to 5.59±2.53), foot care p=0.03 (4.63±2.29 to (5.92±3.24).

Conclusion: Diabetic self-care significantly improved by health education.

Keywords: Self-care, Type 2 diabetes, Health education

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Impacto del programa de educación sobre la salud en la actividad de autocuidado en pacientes diabéticos tipo 2 mal controlados

RESUMEN

Antecedentes: el cuidado personal es responsabilidad del paciente que requiere una educación de salud de por vida. El objetivo de este estudio fue mejorar la actividad de autocuidado de pacientes diabéticos mediante la educación para la salud.

Métodos: un estudio intervencionista cuasi experimental realizado entre la diabetes tipo 2 mal controlada en el Hospital Universitario de Rizgary en Erbil City, del 11 de marzo de 2016 al 20 de marzo de 2018, 200 pacientes diabéticos asignados aleatoriamente a dos grupos de control e intervención. El programa de educación se realizó para el grupo de intervención; Se midió la escala de autocuidado de la diabetes (DSCS) para cada paciente antes de asistir al programa y tres meses más tarde después de finalizar el programa.

Resultado: el autocuidado de pacientes diabéticos había mejorado significativamente después de un programa educativo; dieta p = 0.00 (3.75 ± 2.07 a 6.81 ± 2.12), p = 0.00 ejercicio 3.63 ± 1.76 a 7.33 ± 2.16), medicación p = 0.00 (3.81 ± 1.79 a 6.84 ± 2.47), autocontrol de glucosa en sangre p = 0.02 (4.62 ± 1.94 a 5.59 ± 2.53), cuidado de los pies p = 0.03 (4.63 ± 2.29 a (5.92 ± 3.24).

Conclusión: el autocuidado diabético mejoró significativamente con la educación para la salud.

Palabras clave: autocuidado, diabetes tipo 2, educación sobre la salud

1-Introducción

Diabetes education is the main component of diabetes management. Diabetes mellitus globally has placed it at the forefront of public health challenges currently facing the world; World Health Organization was estimated 422 million people worldwide have diabetes mellitus (1). In Iraq, the prevalence of diabetes is considered as epidemic proportions which significantly increase to 10.2%, 2 million people of Iraqi population have diabetes (2). Health education as not limited to the dissemination of health-related information but also fostering the motivation, skills and self-efficacy necessary to take action to improve health, as well as the communication of information concerning the underlying social, economic and environmental conditions impacting on health, as well as individual risk factors and risk behaviors, and use of the health care system (3). Diabetes self-care is a set of activities, which patients perform daily to become optimum glucose control, these activities include adherence healthy diet, exercising, and taking medication, checking blood glucose and foot-care (4). In fact, 98% of diabetes management is self-care. Self-care education was the gold standard for diabetes care and has been proved to be an integral component of the diabetes care, Health education is an important part of the health system, it is a continuation of facilitating knowledge,
skills, and ability has required the component of successful diabetes care (5, 6). Highlight the necessity for effective educational programs for patients to meet this demand adequately; this is main challenges for public health nowadays. Patient education programs can contribute to change behavior and improve metabolic control and self-monitoring of skills for the diabetic patients to make the decision and change treatment (7). This study would assist in filling the gap of health disparities in the self-care education of Type 2 diabetes and to empower and involve patients in their own self-care. Researcher recognizes the significance of education program on diabetes self-care and its implications for positive social change for patients, families, and communities in terms improve quality care outcomes.

2-Patients and Methods
A quasi-experimental study was used to evaluate impact of an educational program on diabetes self-care including diet, exercise, medication, self-monitoring blood glucose and foot care in Rizgary Teaching Hospital in Erbil City from 11th March 2016 to 20th March 2018, purposive sample was used to selected 200 diabetic patients randomly distributed into two groups of control and intervention according to the following criteria: diagnosis of type 2 diabetes, aged more than 18 years old, poor metabolic control (HbA1c more than 7%), exclusion criteria were patients who participated in previous diabetes education program, communication problems and physical disabilities. Data were collected through the use of questionnaire; it was filled through interview to collect demographic data and clinical characteristics of patients including age, gender, educational status, and monthly income and disease-related information such as duration of disease and the method of treatment of diabetes, diabetes self-care scale (DSCS) one of the most well-known tools for assessing self-care of patients with Type 2 diabetes, it comprise 5 subscales of diet, exercise, medication, blood glucose monitoring and foot care (8), each subscale compose 5 items, patients responded to each item rated three options (Always = 2 score, Sometime = 1 score, Never = 0 score). Permission was taken from the patient; the content of education was repeated entirely or partly by the researcher according to each patient's needs, different education techniques such as narrative, question and answer techniques and demonstration of procedure were used as an educational method, before starting patient education; pretest of self-care questionnaire was filled to each patient in intervention and control groups. Whereas for the intervention group was given the printed papers of education material and asked to attend educational sessions, at first researcher explained common information about diabetes (definition, signs and symptoms, risk factors and complications) and also discuss the healthy diet. Patients who attended to second session content of education was repeated shortly, in this session, they got information about the importance of exercise program and teaching the patients about main important points should follow about taking medications and demonstration procedure of self-administration of insulin. In the third sessions remembers important points of previous sessions. In the third session teach
patients about the value of blood glucose test as well as the demonstration of how to measure it. Explain points should be careful in low blood sugar level and finally given foot care education include foot cleaning, skin and nail care and footwear and self-examination of the foot, the aim of education was to enable patients to recognize their self-care activities independently. After the education sessions was completed, they were taken again after three months in the last given education and self-care questionnaire was refilled. Data analysis by using statistical package social sciences (SPSS) version 22.0 descriptive statistics such as mean and standard deviation and t-test was applied for comparison of means between pretest and posttest in control and intervention groups. One way analysis of variance (ANOVA) was performed for the determination of the significant difference between self-care and selected variable in the study.

3-Result
Table 1 shows one-way analysis of variance of self-care and characteristics of diabetic patients. The results found that there was no significant observed between self-care and age group in pretest (p=0.66) in intervention group where as significant found with posttest (p=0.03), diabetic patient who aged between 30-39 years had higher mean of self-care (34±7.53) than those patients age between 60-69 (25.29±4.23). Concerning gender, after received education male patients got the significantly higher mean of self-care (35.76±8.24) compared with female patients (30.48±7.46), Moreover, result of the study indicates that there was no significant observed between self-care and level of education at pretest (P= 0.25) in the intervention group, after given education patients who finished secondary school had the significantly higher mean of self-care (36.81±6.) than patient was able to read and write (31.05±8.38). Monthly income significantly association with self-care in posttest of the intervention group (P=0.09), patients sufficient income had better self-care (35.09±8.71) than those had insufficient income (31.76±7.88). Furthermore; finding of study shows patients had the longer duration of disease (more than ten years) had significantly better self-care (35.07±9.06) than patients who had the shorter duration of disease (less than five years) (29.91±7.67) in posttest of the intervention group (P=0.04) whereas there was no significant observed between self-care and duration of disease at pretest (P= 0.10).
Table 2 shows comparison means between control and intervention, concerning the mean scores of self-care of diet for intervention group increased significantly from (3.75±2.07) to (6.81±2.12). After given education self-care of exercise, there was significantly raised from (3.63±1.76) to (7.33±2.16). Moreover; it was shown that the mean values of mediation in the pre-education group significantly increased from (3.81±1.79) to (6.84±2.47) compared to post-education group, self-monitoring blood glucose raised significantly from (4.62±1.94) to (5.59±2.53). Regarding foot care after given education significantly increased from (4.63±2.29) to (5.92±3.24). Overall result remarked that self-care was significantly raised from (20.66±5.68) to (32.49±8.14) in intervention group while, there was no significant change in pretest (19.45±5.45) and posttest (20±6.27) of control group

Table 2: Comparison of self-care in control and intervention groups

<table>
<thead>
<tr>
<th>Items</th>
<th>Control</th>
<th>P value</th>
<th>Intervention</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet</td>
<td>4.06±1.71</td>
<td>0.00</td>
<td>5.58±2.35</td>
<td>0.00</td>
</tr>
<tr>
<td>Exercise</td>
<td>3.56±1.09</td>
<td>0.97</td>
<td>7.32±2.16</td>
<td>0.00</td>
</tr>
<tr>
<td>Medication</td>
<td>3.99±1.70</td>
<td>0.90</td>
<td>7.31±1.79</td>
<td>0.00</td>
</tr>
<tr>
<td>Self-Monitoring</td>
<td>3.85±2.14</td>
<td>0.21</td>
<td>5.69±2.80</td>
<td>0.02</td>
</tr>
<tr>
<td>Blood glucose</td>
<td>4.10±2.27</td>
<td>0.10</td>
<td>5.61±2.29</td>
<td>0.03</td>
</tr>
<tr>
<td>Foot Care</td>
<td>5.9±1.95</td>
<td>0.00</td>
<td>20±6.27</td>
<td>0.00</td>
</tr>
</tbody>
</table>

*Mean and standard deviation of pretest-posttest of control and intervention groups

4-Discussion

Education is a process fills the gap between health information and chronic disease, diabetes education that can be effective for improving patient's self-care. In this study after received education program younger patients significantly got higher self-care than older patients, it is supported by study shows significant association observed between age and self-care (9). Age is one of the barriers to adherence of self-care; consider that the aging process reduces cognitive and motor abilities, increasing the degree of dependency to do self-care (10). Moreover; in present study found that male patients had higher self-care than female, it was consistent with study show that most of the female patients were less knowledgeable and had poor practices of diabetes self-care than the male patients (11), this may be related to the higher proportion of females had low education compared to the male participants. In current study self-care increased significantly with advanced level of education, it was supported by the study which shows statistically significant associations between level of education and self-care (12) also, support the idea in India (13) Saudi Arabia (14) and Germany (15) emphasize the fact that high prevalence of diabetes was associated with low education.

Financial burden increased healthcare expenditure, diabetic patients consume a greater proportion of income lead to limit the access to the resources that are needed to manage their conditions such as healthy nutritious food and cost of medications and glucose test in addition; diabetes can decrease an individual's productivity at work or limit educational attainment. In this study patient had sufficient income got significantly more self-care than those had insufficient income. This is confirming by the study shows that limited family income was one of the factors that affected self-care practices (16). It was in line with the
previous study revealed that more than half of patients with low-incomes were the significant association with poor self-care (12). In this study patients had the longer duration of the disease had better self-care than patients the shorter duration of disease after given education program; it was agreed with the study found that the patients with shorter duration of diabetes were associated with poor self-care. As they might have less opportunity to learn and master the specific knowledge and practices that is fundamental self-care (17, 18). Dietary education is a basic treatment of diabetes; this study has shown that diet of self-care increased significantly after giving education to patients, it was corroborated by prospective cohort studies and randomized clinical trials have demonstrated that Type 2 diabetes complications can be prevented largely through change lifestyle (19). Moreover; further previous two systematic reviews with 58 trials that show the dietary interventions with positive outcomes usually involved intensive longer duration, group work and included exercise program (20, 21). Exercise is beneficial for all individuals with or without diabetes. Even persons with long-standing diabetes or diabetes complications can benefit from exercise; current study shows that self-care of exercise raised significantly after giving education. it was supported by the study include fourteen randomized trials comparing exercise against no exercise in Type 2 diabetes, show glycemic control was significantly improved by exercise (22). However, it was contrary to the Spanish trial reported no statistical significant observed between the control and intervention groups (23). In the present study a significantly increased self-care of medication after giving education program, it was supported by a randomized controlled trial, show that the most favorable glycemic outcomes achieved by drug counseling and diabetes education (24). Blood glucose test is a required in the component of diabetes self-care in obtaining glycemic control (25). The results obtained shows that significantly increased self-monitoring blood glucose after receiving education program. It helps diabetic patients to see how foods, exercise, and diabetes medication affect their blood sugar, so they can consult with their healthcare worker to modify their treatment. In the diabetic foot-care includes adequate monitoring foot and provides the opportunity to learn to do self-care. Many patients with diabetes are unable to perform this monitoring because of poor eyesight and reduced mobility, making it difficult to observe their feet (26). Result of the study had shown a significantly increased foot-care after receiving education program, this result seems to be consistent with studies show that more creative efforts should be used to increase the awareness of chronic disease by early screening, education, and treatment to decreases the rate of amputation (27, 28). The most interesting finding in the study was self-care significantly improved by health education; it is supported by study showed that self-care was significantly higher in the intervention group compared to the control group (29).

5-References

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