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Effect of Self-Care Education Program Based On "Orem Self Care Model" On Quality of Life in Women with Gestational Diabetes Mellitus

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ABSTRACT

Background: Diabetes Mellitus (DM) is the most common metabolic disease and creates dangerous complications such as blindness, amputation, kidney failure and cardiovascular disease. For the first time, gestational diabetes during pregnancy is diagnosed as impaired glucose tolerance. On the other hand, there is a mutual relationship between diabetes and quality of life. One of the important patterns which is based on individuals' abilities and their needs for self-care is Orem Self Care Model. Therefore, this study aimed to determine effect of self-care education program based on Orem Self Care Model on quality of life in women with gestational diabetes.

Materials and Methods: This before and after quasi-experimental study was conducted on 42 patients with gestational diabetes. Data collection instruments are included demographic questionnaire and Short-form 36-item health survey in order to determine quality of life. Before the intervention, questionnaires were distributed between the samples and immediately after the completion they were collected. Then self-care educational program based on "Orem Self Care Model" was implemented during 8 weeks. After the last training session, again the quality of life questionnaire was completed by patients. Data were analyzed using SPSS 22 software and paired t-test.

Findings: Before the intervention, mean score of quality of life was 20.04 ± 5.13 , but it reached to 14.47 ± 16.43 after intervention. It can be said after participating in training sessions, the samples experienced high level of

quality of life. Comparison of mean score of quality of life before and after the educational intervention showed statistically significant difference ($P = 0.01$).

Discussion and Conclusion: Results showed that using self-care training based on Orem Self Care Model for patients with gestational diabetes increases mean functioning in all aspects of life in these people. If self-care program based on self-care needs of patients continues and it is designed appropriate to their perception level, it can lead to achievement of positive outcomes in health functioning of these individuals and help promoting their health.

Keywords: Orem Self- Care Model, quality of life, gestational diabetes

INTRODUCTION

Today, diabetes is referred to as silent epidemics that are a major health problem in the world and Iran. Diabetes Mellitus (DM) is the most common metabolic disease with increasing incidence which reduces life expectancy to one-third [1]. According to the World Health Organization (WHO), in 2011, the prevalence of diabetes was 8 percent and forecast for 2030 is an increase of 10 percent [2]. In Iran, more than three million people with diabetes were diagnosed by 2011, and according to the WHO, if effective action is not taken place, this number by 2030 would be nearly 7 million [3]. This disease brings about debilitating and dangerous complications on any vital organs of the body such as blindness, amputation, kidney failure and cardiovascular disease (CVD) [4].

Gestational diabetes is defined as impaired glucose tolerance which is diagnosed for the first time during pregnancy [5]. The disease is a growing health problem in the world and one of the most common complications of pregnancy. The prevalence of gestational diabetes in the world is between 1 and 14% [6]. Lowest prevalence of gestational diabetes has been reported as 0.7% in Kermanshah and highest rate of prevalence has been reported in a study in Karaj with 18.6% [7]. Gestational diabetes leads to disastrous results for both mother and baby. Some of these complications include: polyhydramnios, preeclampsia, need for induction of labor and cesarean delivery, large fetus, bone fractures and nerve paralysis [8,9]. Infants born from mothers with this disease are vulnerable to obesity and diabetes in their future life [10]. Since women with gestational diabetes have 25 to 45% higher risk of recurrence in subsequent pregnancies [11] and there is 20 to 50 % probability to be at risk for type 2 diabetes within the next 5 to 10 years, this phenomenon cannot be considered temporary and transient [12].

There is a reciprocal relationship between the disease and quality of life and physical disorders and physical symptoms have a direct effect on all aspects of quality of life (QOL). According to the America Diabetes Association, DM is one of the chronic diseases that cause physical - mental problems. Today, diabetes is one of the most common metabolic disorders, which in addition to debilitating and dangerous effects on vital organs of the body, also affects quality of life indices. Thus, aim of any education, is controlling disease by clients and trying to improve QOL [6].

It seems that education can influence outcomes by informing diabetic mothers. Among educational interventions conducted in the world and Iran for patients with DM followings can be mentioned: training via the Internet, computer, holding training camps, membership in educational clubs, training and follow-up care by phone, training in the form of home visits by community health nurses, individual training and group training [13].

Improving QOL not only is useful for diabetic patients, but also reduces health and medical care costs. On the other hand improved knowledge and performance of patients means improvement and controlling metabolic situation and performing correct self-care behaviors. In other words, diabetic patient should receive necessary training so that he can have well self-care and he should increase his knowledge and skill regarding his disease. Thus, enabling patient and supporting self-care through education is the key for controlling DM [14].

One of the important patterns which is based on individuals' abilities and their needs for self-care is "Orem Self Care Model" [15]. Nursing patterns are valuable instructions for expressing professional nursing care structure and can opens the door to the nurses in studying and evaluation of nursing care and measures [16]. Orem is the first authority which provided self-care nursing pattern. In this model, three types of care system have been designed based on patients' general condition and needs when deviation of health and the role of nurse: complete compensation system, partial compensation system, support-education system. In complete compensation system, the nurse performs all care programs of patient so that the inability of patient for self-care is compensated. In partial compensation system, both nurse and patient are involved in meeting self-care needs. In support-education system, it is used when the patient is ready to learn doing something, but he cannot do it without the help of learning. Under this system, patients are able to self-care with the help. The system helps decision-making, behavior control and to gain knowledge and skills. In this case, the nursing mostly has role of education and counseling [17].

Steuten et al. in their study entitled as Diabetes management program with care quality improvement reported that implementation of empowerment programs can promote self-efficacy and enhance quality of life [18]. Saeid Pour et al. in their study entitled "The Impact of Self-care Education on Life Quality of Diabetic Patients" reported that providing necessary education on prevention, improvement, and treatment of diabetes through increasing awareness level can lead to promotion of general health level and increase quality of life in diabetic patients [19]. Omat et al. in their work entitled "Effect of educational program based on "Orem Self Care Model" on quality of life in patients with migraine" reported that self-care program based on "Orem Self Care Model" based on self-care needs of patients leads to improved quality of life in patients with migraine [20].

Considering that diabetes disease influences quality of life of diabetic pregnant mothers and no study has been conducted in the country in order to investigate quality of life using "Orem Self Care Model" in this group of patients, thus current research was conducted aiming at determining impact of self-care program education based on "Orem Self Care Model" on quality of life in women with gestational diabetes.

MATERIALS AND METHODS

It is a before- after quasi-experimental study which was conducted on 42 patients with gestational diabetes who referred to Zabol health centers. Inclusion criteria included pregnancy, gestational diabetes diagnosis, age above 18, and absence of brain disorders such as delirium, dementia, learning disorders, lack of speech and hearing problems and lack of effective psychiatric drugs usage.

Data collection tools included demographic questionnaire and Short-form 36-item health survey to determine quality of life. In its items, different aspects, and factors of quality of life are considered and scored in various ways. This questionnaire contains 36 items in 8 dimensions including physical functioning (10 items), physical role playing (4 items), emotional role playing (3 items), vitality (4 items), mental health (5 items), social status (4 items), bodily pain (2 items) and general health (4 items). In this study, total calculable scores for each patient was 100 scores. Quality of life is divided into three levels, so that quality of life in individuals with scores below 34 was considered as low, scores between 34 – 67 was regarded as average, and scores above 67

was considered as high. Since this questionnaire was already translated and validated by Afkhami et al. there was no need for re-measuring reliability and validity [21]. Chronbach alpha correlation value was obtained as 0.86 in this work. After obtaining permission from Research Council of Nursing and Midwifery faculty of Zabol and then coordination, the researcher referred to the research environment and introduced research goals for research units and gained aware consent of patients for participation in this research. In the beginning, before the intervention, the questionnaire was distributed among samples by two co-researchers and was of collected immediately after completion. Then self-care training program based on "Orem Self Care Model" was implemented within four 2-hour sessions using lecturing method. Considering step for investigation and identifying Orem framework-based self-care needs [22, 23], it was designed and formulated at three aspects of nutrition, exercise, and relaxation (to control stress and improve sleep) a program including familiarity with the nature of disease (causes, symptoms, treatment of diabetes, etc.) in the form of supportive – training nursing care plan. In training sessions, training was presented as simple and understandable as possible and without use of medical jargon. The educational material covered in class was finally formulated formally in the form of booklet and CD and were given to samples. 8 weeks after the last session, again quality of life questionnaire for patients with diabetes was completed by the trained patients. After data collection, data analysis was done using SPSS version 16 and paired t-test was used at a significance level of 0.05.

FINDINGS

The average age of participants in this study was 49 years. In terms of employment status, 76.9% of the study population was housewives and 23.1% were employees. In terms of education and literacy level, 19.2% were illiterate, and others were primary school, secondary school, high school, and pre-university graduate as 43.6%, 5.1%, 7.7% and 24.4 %, respectively. None of them had university education. Also 65% of respondents already had a family history of diabetes.

Data in Table 1 indicates that average score of quality of life was 40.02 ± 5.13 before intervention, which denotes average level of quality of life in these patients. But after the intervention, average score was 74.41 ± 16.43 . Therefore, it can be concluded that the samples after participating in training sessions were experiencing a high level of quality of life.

Table-1: Comparison of average scores of quality of life in research samples before and after intervention

Variable		Before intervention	After intervention	P - Value
		Mean $\pm$ SD	Mean $\pm$ SD	
Quality of life	physical functioning	40.14 $\pm$ 2.15	88.12 $\pm$ 14.12	<0.001
	physical role playing	44.42 $\pm$ 15.30	61.22 $\pm$ 42.18	<0.001
	emotional role playing	12.03 $\pm$ 4.14	82.95 $\pm$ 20.18	<0.001
	Vitality	10.05 $\pm$ 7.12	81.22 $\pm$ 8.71	<0.001
	mental health	62.41 $\pm$ 3.14	67.70 $\pm$ 12.21	<0.001
	social status	61.60 $\pm$ 5.13	92.32 $\pm$ 6.72	<0.001
	bodily pain	59.51 $\pm$ 7.20	66.24 $\pm$ 9.62	<0.001
	general health	42.53 $\pm$ 3.13	79.19 $\pm$ 9.73	<0.001
	Quality of life total score	40.02 $\pm$ 5.13	74.41 $\pm$ 16.43	0.01

Comparison of average scores of qualities of life in these patients, before and after the educational intervention also shows statistically significant differences indicating effectiveness of implemented educational practices ($P = 0.01$). Also all aspects of the quality of life showed were statistically significant differences before and after intervention ($P > 0.001$). (Table 1).

DISCUSSION AND CONCLUSION

Results obtained from this study showed that mean score of all aspects of life quality increased after intervention compared to before intervention, and the difference was significant statistically using pair-wise t-test. Also, mean score of overall quality of life from perspective of the participants in the research after the training showed was statistically significant difference compared to before it. The results of this study showed that diabetic patients had an average quality of life that is consistent with the study of Glasgow *et al.* They also evaluated quality of life in diabetic patients as average [24]. Increased quality of life can be because of participation of patients in the held training classes. In this respect, this study is consistent with research by Moghadam Tabrizi *et al.* [25]. In line with the results, findings by Burs *et al.* showed that participating in training programs for self-care behaviors is associated with a higher rating in the performance of patients [26]. Findings by Heydari *et al.* in Zahendan, similar to findings in the current work, showed that training for 6 months as two sessions per week increased and improved performance of patients with diabetes type II [27]. Findings by Sharifirad *et al.* in Isfahan [28] and Rezaee *et al.* in Aligudarz showed similar results [29]. Findings by Dunn *et al.* in Australia showed that implementing two-day diabetes education program caused to improve performance of patients [30]. No similar study was found regarding effect of self-care education based on "Orem self-care model" on quality of life in patients with gestational diabetes. But numerous studies have been conducted concerning the effect of Orem self-care model application on quality of life of different patients [31, 32, 33]. Naji *et al.* measured impact of "Orem Self Care Model" on quality of life in patients undergoing hemodialysis, which showed that "Orem self-care model" will significantly increase quality of life in all its aspects [32]. This is consistent with current study. A study by Baraz *et al.* on the effect of "Orem self-care model" application on quality of life in elderly people showed that training "Orem self-care model" led to improve the quality of life in all aspects [33].

As observed, results of previous studies on quality of life promotion after implementing the education programs are consistent with findings in the current study. The results show that using a training program in patients with gestational diabetes can have a favorable impact on their quality of life. On the other hand, self-care education using "Orem self-care model" in patients with gestational diabetes increased the average performance of all aspects of life in these individuals. Also considering increased average quality of life after training compared to before it, if self-care program based on self-care needs of patients continues and it is designed appropriate to their perception level, it can lead to achievement of positive outcomes in health functioning of these individuals and help promoting their health. Therefore, it is suggested that "Orem self-care model" is used to improve the quality of life in patients with gestational diabetes.

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