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Comparing the Effect of Group and Phone Consultations on the Lifestyle of Women with Gestational Diabetes

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Abstract

Background: Diabetes is the most common complication during pregnancy. Health consultation and lifestyle modification are considered as the basis for management of diabetes and confronting its risks. Therefore, the present study was conducted to compare the effect of group and phone consultations on the lifestyle of women with gestational diabetes.Methods: The present clinical trial was conducted on 66 pregnant women with gestational age of 24-28 week, who had gestational diabetes in Yazd in 2018. Participants were divided into three groups of 22; control group and phone consultation. Group consultation was conducted during eight 2-hour sessions and phone consultation was performed through eight 30-45-minute sessions, weekly. Data gathering tools included demographic characteristics and health improvement lifestyle questionnaires. Data were analyzed using descriptive statistics, parametric tests and SPSS software version 16. The level of significance was set at $p < 0.05$.Result: In the beginning of the study no significant difference was observed between the three groups regarding their demographic characteristics and the score of lifestyle ($p > 0.05$). The score of lifestyle was increased in both the groups of group and phone consultation immediately and one month after the intervention and the increase was statistically significant ($p < 0.001$). But the difference in the control group was not significant ($p = 0.126$).Conclusions: Considering the results of the study, it is better to use group consultation and if necessary, phone consultation, for educating and empowering risky pregnant mothers for preventing and controlling the complications of diseases.

Key words: Gestational Diabetes, Lifestyle, Group Consultation, Phone Consultation

Introduction

A progressive increase in the global prevalence of diabetes has been observed during the past decades and it is expected that the number of diabetes patients would be doubled by 2030. This “diabetes epidemic” also includes pregnant women (Mohaddesi et al., 2016).

Pregnancy is a diabetes-causing situation and diabetes is the most common medical complication during pregnancy. Gestational diabetes is the intolerance of carbohydrates with different intensities which starts and firstly diagnosed during pregnancy. The prevalence of gestational diabetes varies from 1% to 14% depending on the studied region and type of population, data gathering methods, non-randomized selection of the mothers and various diagnostic methods. The prevalence of gestational diabetes varies in Iran; for example it has been estimated as18.6% in Karaj, 6.3 in Bandar Abbas, 7.1% in Bushehr, 6.7% in Isfahan and11.9% in Orumieh (Goli andFirouzeh, 2013). The undesirable maternal, fetal and neonatal effects of gestational diabetes include increased prevalence of hypertension and preeclampsia, hydramenius, pyelonephritis, caesarian section, preterm delivery and lingered hospitalization period, cardiovascular

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complications, relapse during pregnancy, macrosomia, restricted fetal growth, delayed lung development, unjustified fetal death, damage during birth, neonatal hypoglycemia, hyperbilirubinemia, and obesity (Mohaddesi et al., 2016; Goli and Firouzeh, 2013). Chronic diseases, such as diabetes, are usually the result of an unhealthy lifestyle (Mohaddesi et al., 2016). The effective factors on health are 51% lifestyle and health-related habits of the individual,21% the environment, 16% genetics, and 10% healthcare (Taghizadeh, Beygoli and Mohtashami, 2012). Therefore, attentions have been drawn toward individual's lifestyle and habits as the main non-genetic reason for diabetes (Mohaddesi et al., 2016). Advocating for health lifestyle of the community's population is one of the goals of the World Health Organization (Taghizadeh, Beygoli and Mohtashami, 2012).

Lifestyle is a manner that the individual selects during their lifetime and is affected by the culture, race, religion, and socioeconomic status (Esmaili et al., 2013). Health improving lifestyle is a combination six dimensions of stress management, responsibility toward health, interpersonal communications, spiritual growth, nutrition and physical activities (Mohaddesi et al., 2016). According to the studies, changing the lifestyle is associated with controlling and preventing diabetes. The most effective lifestyle interventional program for diabetes is a combination of health educations and corrective and behavioral methods including dietaryrestrictions and physical activity (Taghizadeh, Beygoli and Mohtashami, 2012; Bayat et al., 2013). These educations mostly emphasis on increasing the awareness level, and enhancing the motivation and skills of the patients to increase their cooperation in execution of the therapeutic and care programs for themselves (Taghizadeh, Beygoli and Mohtashami, 2012). However, paying attention to lifestyle modification as a whole educational package (including the elements of nutritional principles, sleep, exercise, communicational skills, stress management and spiritual coping methods) has been less considered in diabetes patients (Alijani, Akrami andFaghih-Imani, 2015). Considering that patients with gestational diabetes are facing many challenges and obstacles such as mental stress, lack of sufficient information about the disease and the fear of confronting the disease (Khadivzadeh et al., 2015), educating appropriate behaviors and lifestyle could be an effective strategy for improving the health of these patients (Taghizadeh, Beygoli and Mohtashami, 2012).

One of the common educational methods is consultations. Consultation is a mutual relationship between two individuals in which one of them helps the other to solve adaptive and compliance issues (Safi, 2002). Consultation is considered as the basis for management of diabetes (Firooz et al., 2016). Various methods of consultation such as face-to-face (group and individually), using phone, video and internet are commonly used around the world (Shoushtari, Afshari andAbedi, 2014). Group consultation is a dynamic inter-personal process which focuses on the conscious behaviors and thoughts of the individual and contains therapeutic, caring, perception, acceptance and supporting functions (Rabeipour et al., 2016). A group situation would make people share in each other's abilities, feel more safe and relaxed and use each other's skills to find a solution for their problems (Kheyrkhah, Vahedi and Ganani, 2014). Phone consultation is one of the methods of remote consultation (RaisiDehkordi et al., 2012) and means to establish a contracted phone relationship with respect to the principles of consultation between the counselor and the caller, despite their physical distance and being in separate places; in a way that it is called "presence in distance" (Ghasemzadeh, 2008). Using the phone is considered the most important public communicational channel for accessing supportive services (Peighambardoust et al., 2013). This method of consultation is useful, affordable and accessible (RaisiDehkordi et al., 2012) and could cover a large number of people at different geological places (Peighambardoust et al., 2013). It would lead to decreased costs and the number of unnecessary visits, economic savings, increased quality of the care services and efficiency of the medical centers (RaisiDehkordi et al., 2012;Haghighat et al., 2008).

Although adherence to the health-improving behaviors could enhance the outcomes of pregnancy and decreased the complications of gestational diabetes, few studies have been conducted in this field on pregnant mothers with gestational diabetes (Mohaddesi et al., 2015). So, considering the differences in providing consultation and the differences in their effectiveness, the present study was conducted to evaluate the improvement of lifestyle through modification of behaviorsin patients with gestational diabetes by comparing two methods of phone and group consultation.

Methods

The present clinical trial with the registry code of IRCT20171106037289N2 was conducted in 2017 on 66 eligible women with gestational diabetes who were referred to the Baghaeipour Clinic of Yazd. Sample size was calculated as 66, 22 participants in each group, with reference to the study of Taghizadeh et al (2013) and considering that $\alpha = 0.05$, $\beta = 80\%$ and a sample drop of 20%. The inclusion criteria were being 20 to 40 years old, having Iranian nationality, having gestational diabetes according to the diagnosis of the expert physician of the diabetes center in accordance with the instruction by the Ministry of Health, providing informed consent, having an educational degree of at least middle school, having a gestational age of 24 to 28 weeks, being a local residence of Yazd, having access to land line or cellphone, not having participated in educational classes about diabetes before the pregnancy and not having a history of diabetes. The non-inclusion criteria were having severe or disabling physical or mental diseases, using psychotropic substances or abusing drugs, having pregnancy complications, andoccurrence of significant stressors and critical and unexpected incidences at any stage of the study. The exclusion criteria were missing more than three sessions of the group consultation, not answering three phone calls, and unwillingness to continue the participation in consultation sessions. Data were gathered using the demographic characteristics questionnaire and the Health-Promoting Lifestyle Profile II by Walker et al which its content and face validity has been approved. This

questionnaire contains 52 questions in 6 fields of nutrition, physical activity, sleep and emotions, social communications, educational issues and the importance of paying attention to one's self and is scored using a 4-point Likert scale (never, sometimes, mostly, always). Its total score ranges from 52 to 208 and higher scores indicate a better lifestyle. Validity and reliability of the Farsi version of this questionnaire has been approved by MohammadiZeidi et al (2011) with a Cronbach's α of 0.82 for the whole questionnaire and 0.64 to 0.91 for its six dimensions.

After approving the study by the ethics committee of the university, gaining necessary recommendations and considering the ethical codes of the study, sampling was started. First, based on the recorded documents in the computer system, the list of eligible women was prepared and after contacting the mothers by phone and explaining the goals of the study and gaining their consent, women who were willing to participate in the study were invited. At the first in-person session, demographic characteristics questionnaire and informed consent form were completed. Sampling was conducted using availability method and eventually, 66 women were enrolled in the study. Then, participants were randomly allocated into three groups of control, hone consultation and group consultation.

Group consultation was conducted in the form of 4 groups of 5-6 during eight 2-hour weekly sessions, by the researcher in the mornings at the mentioned center. In the first session, after introducing the researcher, participants and the goals of the study, lifestyle questionnaire was completed as self-report. Next sessions were conducted based on the provided content (physical-mental aspects of lifestyle, nutrition, exercise, sleep disorders, self-awareness and satisfaction, social communications and inter-personal relationships, responsibility, self-care, stress management) along with questions and answers, rest and break and giving the pamphlets. Phone consultation was also conducted with the same number of sessions and content to the group consultation during 30-45 phone calls. The first session of this group was conducted in-person to introduce the participants, explain the goals of the study and complete the questionnaires. If it was necessary, another phone call was conducted at the same day to complete the scheduled content. At the final session, the lifestyle questionnaire was completed again by the participants. The follow-up period for this study was one month after the intervention and during this month, no intervention was conducted for any of the three groups; at the end of the follow-up period, the lifestyle questionnaire was again completed by the participants, in-person. To respect the ethical considerations, lifestyle educational sessions were compactly (in 4 sessions) conducted for the participants of the control group after the end of the follow-up period and gathering the data. Data were analyzed using SPSS software version 16 and descriptive statistics, one-way ANOVA, Chi-square, repeated measures and post hoc LSD test. To evaluate the normality of the qualitative variables, Kolmogorov-Smirnov test was conducted. For all the statistical tests, confidence interval was set at 95% and the level of significance was $p < 0.05$.

Results

The present study was conducted on 66 20-40 years old pregnant women suffering from gestational diabetes with a mean age of 32.58 ± 5.28, gestational age of 26.25 ± 2.225 weeks, and number of pregnancies of 2.45 ± 1.171. Considering the drop-out of 6 participant during the study (2 from each group, missing more than 3 sessions, missing more than 3 phone calls and unwillingness to continue participation in the study), data analysis was conducted on 60 participant. At the beginning of the study, three groups had no significant difference regarding their demographic characteristics ($p > 0.05$). (Table 1)

Table 1. Comparing the frequency distribution of the demographic characteristics of the three groups at the beginning of the study

Variable \ Group		Group consultation		Phone consultation		Control		P value
Age (years) (mean ± SD)		33.7 ± 4.092		33.30 ± 5.172		30.75 ± 6.138		0.160*
Number of pregnancies (mean ± SD)		2.35 ± 0.988		2.80 ± 1.240		2.20 ± 1.240		0.244*
Gestational age (weeks) (mean ± SD)		25.80 ± 1.642		26.70 ± 3.246		26.15 ± 1.309		0.243*
Occupation (n%)	Employed	16	80%	19	95%	15	75%	0.210**
	Housewife	4	20%	1	5%	5	25%	
Educational level (n%)	Diploma or less	11	55%	14	70%	12	60%	0.983**
	College degree	9	45%	6	30%	8	40%	
Type of treatment (n%)	Insulin	10	50%	12	60%	5	25%	0.142**
	Oral	4	20%	3	15%	9	45%	
	Both	6	30%	5	25%	6	30%	
History of diabetes (n%)	Yes	14	70%	16	80%	11	55%	0.231**
	No	6	30%	4	20%	9	45%	

According to the results of the Kolmogorov-Smirnov test, the related data to the score of lifestyle at different stages of the study had normal distribution ($p > 0.05$). One-way variance analysis showed that the mean score of quality of life in the three groups before the intervention had no significant statistical difference($p = 0.074$); but immediately and one month after the intervention, the difference was statistically significant ($p < 0.001$). (Table 2)

According to the Tukey's test, the mean score of lifestyle immediately after the intervention in the group consultation group ($p< 0.001$) and phone consultations group ($p = 0.005$) was higher than the control group but the difference between the group consultation and phone consultation groups was not statistically significant ($p = 0.116$). The mean score of lifestyle one month after the intervention in the group consultation group ($p < 0.001$) was higher than the control group but the difference between the control and the phone consultation groups was not statistically significant ($p = 0.298$). Also the mean score of lifestyle one month after the intervention was higher in the group consultation group ($p < 0.001$) than the phone consultation group.

Post hoc LSD test showed that the mean score of lifestyle immediately and one month after the intervention was increased in both the group consultation and phone consultation groups in comparison to before the intervention and the difference was statistically significant ($p < 0.001$). The score of lifestyle one month after the intervention was decreased in the phone consultation group in comparison to immediately after the intervention and the difference was statistically significant; so it could be concluded that the occurred changes in the group consultation group was still remained at the time of follow-up.

The achieved results in the control group indicated that the score of lifestyle would decrease with the increase in gestational age and changes in the conditions of pregnant women with gestational diabetes. So the need for an intervention in this group would be raised (Table 2, Diagram 1).

Table 2. Comparing the mean score of lifestyle and its changes before, immediately after and one month after the intervention in the three groups

Situation	Before the intervention	Immediately after the intervention	One month after the intervention	Difference between the mean before and immediately after the intervention	P value	Difference between the mean before and one month after the intervention	P value	Difference between the mean immediately and one month after the intervention	P value
Indices / Groups	Mean ± SD	Mean ± SD	Mean ± SD						
Group consultation	133.25 ± 23.55	159.15 ± 19.34	155.75 ± 15.89	25.9	0.000	22.5	0.000	-3.4	0.126
Phone consultation	120.7 ± 7.54	148.65 ± 8.46	134.3 ± 7.85	27.95	0.000	13.6	0.000	-14.35	0.000
Control	131.05 ± 19.44	131.75 ± 19.07	127.1 ± 19.37	0.7	0.031	3.95	0.031	-4.65	0.000
F	2.723	14.172	19.331	-	-	-	-	-	-
P value	0.074	0.000	0.000	-	-	-	-	-	-

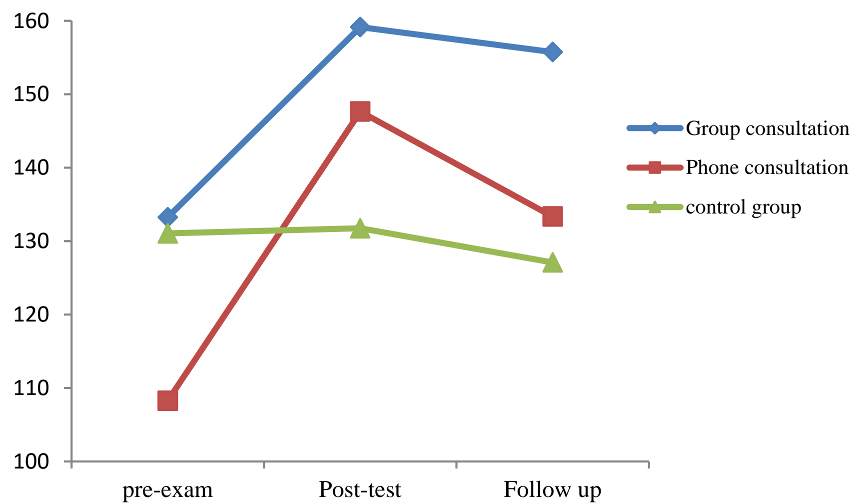

Diagram 1. Comparing the difference between the means of the three groups at the three stages of the study

Discussion

Results of the present study showed group consultation and phone consultation have been effective on improving the lifestyle of pregnant women with gestational diabetes. In a way that the mean score of lifestyle was significantly increased in both groups immediately and one month after the intervention in comparison to before the intervention. Considering that there was no significant difference between the intervention groups and the control group before the intervention, this increasing trend in both of the intervention groups is the result of consultation on the lifestyle of pregnant women with gestational diabetes. Also, the difference between the score of lifestyle immediately and one month after the intervention in the group consultation group was not statistically significant which indicated the durability of the occurred changes caused by group consultation at the time of follow-up.

Results of the study by Khadivzadeh et al sowed that education could be helpful in improving self-care in patients with gestational diabetes (Khadivzadeh et al., 2015). In the study of Rono et al, consultation about different aspects of lifestyle was effective in preventing gestational diabetes (Koivusalo et al., 2016). In the study of Mohadesi et al, group consultation significantly improved the score of health-promoting lifestyle in mothers with gestational diabetes (Mohaddesi et al., 2016). The study of Ebrahimi et al showed that education through phone calls has been effective on all the aspects of health-promoting behaviors and healthy lifestyle (Ebrahimi et al., 2017).

Results of the present study could be explained in the way that, all around the world, with changes in the lifestyle and nutritional diet, occurrence of diabetes and gestational diabetes is increasing (Hashemi-Beni et al., 2015). So, increased costs of healthcare and indirect costs such as pain, anxiety, disability, stress, depression and nutritional problems and decrease in different aspects of quality of life in patients with diabetes and their families could be observed (Akbari et al., 2016). Health-promoting behaviors are an international approach and is considered as one of the main challenges of the researcher healthcare providers. Health-promoting lifestyle includes behaviors that would empower people for controlling their health, decreasing stressors and eventually improve the health of the individual and the society and decrease the costs of healthcare (Mirghafourvand et al., 2016).

Since pregnancy is a critical period of life and the health of the mother has a vital role in the health of the neonate, lack of in-time diagnosis and treatment of gestational diabetes could increase the maternal and fetal complications (Rahimikian et al., 2014). Conducted studies have indicated insufficient awareness, attitude and performance of the mothers regarding diabetes and consequently, not accurately following the therapeutic measures. The International Diabetes Federation believes that, through appropriate education for the patients, the complications of diabetes could be decreased by 80%. Choosing the model and method of health education is the firsteffective step toward developing an educational program (Akbari et al., 2016). In the present era, consultation with the approach of providing information, as one of the main educational methods, has an effective role in improving the lifestyle of pregnant mothers and enhancing the outcomes of pregnancy. So, it is recommended that health-promoting lifestyle consultation would be conducted for all the pregnant mothers with gestational diabetes; because, besides having no complications, being affordable and easily accessible, it would provide the opportunity of having a having a healthier generation in the future.

In the present study, the lingered duration of consultation, insufficient amount of time for performing the exercises, evaluating the aspects of lifestyle in others with gestational diabetes and not being able to compare the results with other studies from other Iranian cultures were the limitations of the study. Results of the present study could be used in clinical and educational services for increasing the awareness of the personnel and the mothers. It is recommended that in future studies, the effect and durability of counseling methods on the lifestyle of women with gestational diabetes and also other mothers with risky pregnancy would be evaluated. Some of the strength points of the present study were evaluation of three groups at three time intervals, patients' satisfaction and significant decrease of daily stress and anxiety caused by this disease after group and phone consultation and the willingness of the participants for conducting similar sessions for the members of their families.

Conclusions

Considering the results of the present study, it is necessary for the personnel of healthcare and medicine to evaluate the condition of the patients, diagnose their problems and find the best solutions for them using group and phone consultation programs and so, help their patients to prevent or control the complications of their disease.

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