EFFECT OF NUTRITIONAL PROGRAM ON NUTRITIONAL BEHAVIOR IN PREGNANT WOMEN AT HAMADAN, IRAN

Fatemeh Shobeiri[1], Khadigeh Dehghan Afshari[2], Sasan Nazari[3], Saman Nazari[4], Maryam Farhadian[5]

[1] Mother and Child Care Research Center, Hamadan University of Medical Sciences, Hamadan - Iran.
[2-4] Students Research Center, Hamadan University of Medical Sciences, Hamadan - Iran.
[5] Department of Biostatistics, School of Public Health, Hamadan University of Medical Sciences, Hamadan, Iran.
Address for correspondence:
Saman Nazari
Student Research Center, Hamadan University of Medical Sciences, Hamadan - Iran.
Email: nsaman@yahoo.com
Date Received:
November 24, 2017
Date Revised:
October 10, 2018
Date Accepted:
October 17, 2018

ABSTRACT

Objective: To examine the effect of nutritional program based on Pender's Health Promotion Model on nutritional behaviors of pregnant women referred to health centers in Hamadan city, Iran.

Methodology: This was a quasi-experimental study. Hundred pregnant women (primigravidae) referred to health centers in Hamadan city, Iran, from October 2015 to March 2016 were randomly assigned to two groups (study and control). Nutritional program was presented within 04 sessions in two weeks. Data were gathered using three-part (demographics, program and nutritional behavior) questionnaire. Four nutritional program sessions were carried out in the study group. Assessment was done in three steps (before, immediately, and six weeks later to interposition). Processing of the data was carried out by SPSS version16 and ANOVA was used to compare the groups.

Results: The mean scores of the two groups were matched based on Pender's Health Promotion Model (HPM). The scores after the intervention in both nutritional behaviors and Pender's HPM components improved as compared to control group (p <0.001).

Conclusion: There was significant difference between the scores on various components after the Pender's HPM based nutritional education on nutritional behavior of pregnant women in the study group as compared to control group.

Key Words: Program, Pregnant women, Nutritional habits

INTRODUCTION

The health behavior of a pregnant woman, consists of sufficient nutritional behaviors and intake of all the essential nutrients. It influence health of the women, growth of the fetus and decrease the incidence of diseases in the fetus at the period of maturity[1,2]. In the urban settings, pregnant women more often use vegetables, milk and dairy products, take plenty of liquids and fruits and more frequently consume folic acid supplementation. There were no considerable discrepancies in the usage of fruits, sweets or other supplies (like pulses) which are the origin of complete proteins, pertaining to the place of residence[3,4].

Involvement in health-promoting behaviors is one of the best ways to preserve health. It consists of activities that provide women to control their health. The effectiveness of education and nutritional intervention lies in the fact that how the behavior instead of just knowledge is emphasized[4]. Pender's health promotion model (HPM) is one of the extensively used models for planning and changing inappropriate behaviors and health promotion. Different researchers have emphasized the efficiency of this model to monitor inappropriate health behaviors[5]. The HPM consist of factors (perceived benefits, barriers and self-efficacy) which influence engagement in health-promoting behaviors[6]. The Pender's HPM include principal components which provide a rich source of interventional content and strategies[4]. The objective of this study was to determine the effect of nutritional program based on Pender's HPM on nutritional behaviors of pregnant women referred to health centers in Hamadan city, Iran. The findings of this study may help in devising programs by health policy makers.

METHODOLOGY

This quasi-experimental study was conducted on pregnant women who were experiencing their first pregnancy and were referred to health centers in Hamadan city, Iran, from October 2015 to March 2016. Sample size was determined according to a former investigation by Sharifirad et al[7]. The sample size in each study group was calculated based on the values as: confidence level at 95%, effect size 0.58 and test pow-

er 80%. The calculated sample size was 100, which was divided into 02 groups by assigning 50 participants to each group. This reserch was accomplished based on the Helsinki declaration protocol. The survey was confirmed by the Ethical Committee of Hamadan University of Medical Sciences, Hamadan, Iran.

Inclusion criteria included age range of 15-45 years, primigravidae with normal pregnancy. Exclusion criteria included the occurrence of any pregnancy related problem during the study, development of important mental-psychological change and unwillingness to continue cooperation. Also, in order to prevent the information exchange between the two groups, only a study group or a control group was selected from each health centre. Finally, four health centers were considered as experimental study group and the other 4 centers were considered as control group.

A standard questionnaire was used to collect data according to the Pender's Health Belief Model. The first part of the questionnaire was associated with demographic questions such as age, employment status, education level, family income, type of housing and exercise. The second part of the questionnaire was a list of components of the Pender's HPM, consisting of perceived benefits, perceived barriers, perceived self-efficacy, behavior-related affect, interpersonal influences and situational influences with five-option Likert scale; and commitment to action with four-option Likert scale. The third part of the questionnaire was nutritional behavior list including 20 items with four-option Likert scale. To make certain the content validity, the inventories were developed using reliable scientific resources and 10 experts authenticated their content validity. The reliability of the inventories was assessed using test retest.

The educational content was designed in accordance with the structures of the Pender's HPM. Educational content was prepared tailored to the research objectives and participant's educational needs (based on the pre–test). The intervention included four education sessions, each lasting 45-60 minutes about nutritional behaviors. The educational sittings were held every week in the form of 8 player groups. Each meeting consisted of a combination of lectures, group discussion and power point presentation. In addition, educational booklets were given to the women at the end of the last meeting. Both groups were evaluated instantly after the counseling meetings (second stage of intervention). The two groups were then evaluated after 6 weeks (the third stage of intervention). The control group did not get any instruction and was only asked to the particular meetings to complete the questionnaires. However, due to ethical considerations, a training session on nutritional education was held for this group after the completion of the study. At the end we compared the results obtained in these three steps and analyzed the collected data using SPSS version16. Descriptive statistics included percentages, mean and standard deviation. The Kolmogorov–Smirnov test was used to confirm the normalization of data and repeated measurement test was applied. $P < 0.05$ was considered as significant.

RESULTS

Hundred participants were enrolled in this research. The two groups were identical at the beginning of the study. Kolmogorov-Smirnov test demonstrated that the two groups have no considerable difference in terms of age, education, job, type of housing and family income ($p > 0.05$). Baseline characteristics of the research participants are shown in Table 1.

There were no important differences between the two groups in terms of the mean scores on the different components of this model before the interpolation ($p > 0.05$). The outcomes indicated considerable differences among the scores of perceived benefits, perceived barriers, behavior-related affect, perceived self-efficacy, situational influences, commitment to action and nutritional conducts of subjects in the study group before and after intervention according to repeated measurement ($p < 0.001$), whereas there was no considerable difference in perceived benefits, behavior-related affect, perceived self-efficacy, interpersonal influences, situational influences and nutritional behaviors of subjects in the control group (Table 2). However in performance, nutritional behaviors increased significantly two months

Table 1: Characteristics of women in study and control groups

	Characteristics	Control Group (n=50)	Study Group (n=50)	P value
Age (years) (n, %)	≤30	38 (76)	41 (82)	0.60
	>30	12 (24)	9 (18)	
Education (n, %)	Undergraduate	26 (52)	24 (48)	0.787
	Postgraduate	24 (48)	26 (52)	
Job (n, %)	House Wife	41 (82)	39 (78)	0.617
	Employed	9 (18)	11 (22)	

Table 2: Mean scores of Pender's components before and after interference in the study and control groups

Pender's components	Group	Pre-Test	Post-Test	6 weeks Later	F	Repeated Measures P Value	ANOVA P Value
Perceived Benefits	Study	43.23 ± 4.59	44.67 ± 3.65	45.05 ± 4.31	7.99	0.002	0.006
	Control	43.20 ± 4.60	43.48 ± 5.09	43.48 ± 4.60	2.52	0.10	
Perceived Barriers	Study	26.22 ± 7.80	28.16 ± 7.31	29.44 ± 7.10	15.22	0.001	<0.001
	Control	24.47 ± 7.29	24.45 ± 7.35	25.09 ± 6.96	15.33	0.001	
Behavior-Related Affect	Study	25.48 ± 5.33	26.54 ± 4.98	26.76 ± 5.14	3.46	0.04	0.013
	Control	24.82 ± 5.80	24.84 ± 5.87	24.84±5.71	1.76	0.18	
Perceived Self-Efficacy	Study	42.31 ± 7.83	41.86 ± 6.32	42.52 ± 6.56	3.09	0.04	0.154
	Control	41.59 ± 6.70	41.83 ± 6.61	41.46 ± 6.46	0.02	0.94	
Interpersonal Influences	Study	42.31 ± 7.83	41.86 ± 6.32	42.52 ± 6.56	0.97	0.34	0.985
	Control	41.95 ± 6.70	41.83 ± 6.61	41.46 ± 6.46	4.22	0.03	
Situational Influences	Study	18 ± 3.98	18.95 ± 3.50	19.25 ± 4.03	3.62	0.04	0.330
	Control	17.37 ± 5.26	17.75 ± 5.17	17.81 ± 5.17	1.21	0.28	
Commitment to Action	Study	27.07 ± 4.20	27.63 ± 4.23	28.02 ± 4.67	6.44	0.003	<0.001
	Control	25.83 ± 4.62	25.76 ± 4.62	22.62 ± 4.18	393.13	0.001	
Nutritional Behaviors	Study	31.90 ± 4.37	32.24 ± 4.78	32.76 ± 4.43	3.29	0.04	0.009
	Control	29.81 ± 4.82	29.83 ± 4.85	29.96 ± 4.62	1.34	0.26	

after intervention in the study group (p =0.04). This change was not observed in control group (Table 2). According to analysis of variance with repeated measures, the changes in mean score of nutritional behaviors before, immediately and 6 weeks after interposition were significant (p =0.009).

DISCUSSION

This study showed that one of the main ways to improve nutritional behaviors during pregnancy is using community based interventional strategies. This study showed the effect of nutritional education based on Pender's Health Promotion Model on nutritional behavior of pregnant women. In this study, the outcomes indicated considerable difference between the scores of perceived benefits, perceived barriers, behavior-related affect, perceived self-efficacy, situational influences, commitment to action and nutritional behaviors of subjects in immediately and 6 weeks after the intervention in the study group as compared to control group. These findings are supported by other studies[4,5]. In the study by Sharifirad et al[7] and Karimy et al[8], the mean scores of perceived benefits and barriers in intervention group significantly improved in comparison with control group which are consistent with our study.

Shakeri[9] and Salihu et al[10] conducted similar studies in Iran and reported that nutritional education programs in pregnant women improved nutritional behaviors in intervention group compared to the control group.

Mirmolaei et al[11] and Akbarzadeh et al[12] showed the positive effect of educational program on nutritional behaviors in pregnant women. They reported significant increase in mean scores in the study group as compared to control group. The above studies confirmed our research findings.

LIMITATIONS

The limitation of our study was small sample size which may not be generalizable to other groups and communities. Therefore, we proposed that studies using larger samples need to be conducted.

CONCLUSION

There was significant difference between the scores on various components after the Pender's HPM based nutritional education on nutritional behavior of pregnant women in the study group as compared to control group.

RECOMMENDATIONS

According to the results of this study, women during pregnancy need to be counselled and trained regarding nutrition behaviors in health treatment centers by holding didactic classes. In addition, it is suggested that programs should be made on social media, especially television, to enhance the awareness about socio-cultural factors and the effects of nutritional behaviors, during pregnancy.

REFERENCES

1. Wojtyla A, Bojar I, Boyle P, Zatonski W, Marcinkowski JT, Bilinski P. Nutritional behaviours among pregnant women from rural and urban environments in Poland. Ann Agric Environ Med 2011; 18:169-74.

2. Shobeiri F, Ebrahimi R, Ezzati F, Nazari S. Frequency of premenstrual syndrome and effectiveness of group counseling in reducing the severity of symptoms in female students. J Postgrad Med Inst 2018; 32:80-6.

3. Suliga E. Nutritional behaviours of pregnant women in rural and urban environments. Ann Agric Environ Med 2015; 22:513-7.

4. Khodaveisi M, Omidi A, Farokhi S, Soltanian AR. The Effect of Pender's Health Promotion Model in improving the nutritional behavior of overweight and obese women. Int J Community Based Nurs Midwifery 2017; 5:165-74.

5. Eren Fidanci B, Akbayrak N, Arslan F. Assessment of a health promotion model on obese Turkish children. J Nurs Res 2017; 25:436-46.

6. Shobeiri F, Hesami E, Khodakarami B, Soltanian A. Effect of nutritional counseling based on health belief model for osteoporosis prevention in women: a quasi-experimental research. J Postgrad Med Inst 2016; 30:345-51.

7. Sharifirad GR, Tol A, Mohebi S, Matlabi M, Shahnazi H, Shahsiah M. The effectiveness of nutrition education program based on health belief model compared with traditional training. J Educ Health Promot 2013; 2:15-9.

8. Karimy M, Taher M, Azarpira H. Measurement of health belief model construct in relation with nutritional practices of pregnant women in Saveh university of medical sciences. Sci J Hamedan Nurs Midwifery Facul 2016; 2:167-73.

9. Shakeri M. The Effect of Educational Program based on BASNEF Model on the Nutritional behavior of Pregnant Women. Int Res J Applied Basic Sci 2013; 5:1606-11.

10. Salihu HM, Adegoke KK, Das R, Wison RE, Mazza J, Okoh JO et al. Community-based fortified dietary intervention improved health outcomes among low-income African-American women. Nutr Res 2016; 36:771–9.

11. Mirmolaei ST, Moshrefi M, Kazemnejad A, Farivar F, Morteza H. The effect of nutrition education on nutritional behaviors in pregnant women. J Hayat 2010; 15:35-42.

12. Akbarzadeh M, Shobeiri F, Mahjub H, Ebrahimi R. Investigating the factors influencing the duration of beginning delivery to hospital discharge using cox regression model. Iran J Obstet Gynecol Infer 2014; 17:1-9.

CONTRIBUTORS

FS conceived the idea, planned the study and drafted the manuscript. KDA, SN, SN and MF helped acquisition of data, did statistical analysis and critically revised the manuscript. All authors contributed significantly to the submitted manuscript.