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The Impact of Training on Women's Capabilities in Modifying Their Obesity-Related Dietary Behaviors: Applying Family-Centered Empowerment Model

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ABSTRACT

Background: Dietary behaviors affect obesity; therefore, it seems necessary to conduct interventions to modify behavioral patterns leading to weight-gain in the family. Our goal was to determine the impact of training on women's capabilities in modifying their obesity-related dietary behaviors in Urmia, West Azerbaijan Province, Iran: applying family-centered empowerment model.

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Methods: A quasi-experimental study with Pretest-Posttest design was conducted on 90 overweight/obese women in 2012 in two Health Centers of Urmia. Convenience sampling was done and the participants were randomly assigned to two 'test' and 'control' groups. Data collection was done by completing the demographic data questionnaire, the empowerment tool and dietary behavior checklist. The intervention was conducted in the form of 6 educational classes held for the 'test' group. After two months, posttest was performed by completing the forms once again. Data were analyzed with descriptive tests, *t*-tests, Chi² and Fisher's test.

Results: The dietary behavior scores of the intervention group had risen from 7.4 \pm 2.11 to 9.95 \pm 2.41 (*P*<0.001), and the good dietary behaviors had risen from 21.4% to 61.9% (*P*=0.002). The 'good' capability level of this group had risen from 23.8% to 97.61% (*P*<0.001), and their mean capability score had risen from 54.61 \pm 7.34 to 70.26 \pm 6.04 (*P*<0.001). However, the changes were not significant in the control group.

Conclusions: The educational intervention performed whit applying family-centered empowerment model in this study was proven effective in women. Hence it is advised to consider it in behavior changing interventions to promote the health of the family and community.

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Introduction

Nowadays life standards are on the rise, but weight gain and obesity are growing threats against health all around the world¹. World Health Organization has predicted that 1.3 billion people worldwide will be developed to overweight and 537 million to obesity by 2020².

The studies conducted in Iran also show the rise of obesity in recent years³. The highest prevalence of weight gain and obesity has been observed above the age of thirty and 44-72% of the rural plus 82% of the urban population have been affected⁴. Dietary behaviors play a special role in weight reduction⁵. Changes in lifestyle are the most important reason behind the significant rise in weight gain in the past two decades⁶. Dietary behaviors of families are associated with obesity⁷. Hence performance of interventions to correct behavioral patterns leading to weight gain in the family seem necessary to reduce the prevalence of weight gain and obesity⁶⁻⁷. Helping individuals and families to attain active roles in taking care of their health

should be more focused on empowerment than on offering help 8 .

The family empowerment can be an appropriate model for health promotion and improvement of quality of life ⁹. This model is a pattern resulting from a qualitative study based on grounded theory¹⁰.

The main objective of this model is to empower the family system in promoting its health. It lays emphasis on the effectiveness of the individual and other family members' roles in three dimensions: motivational, cognitive and personal traits (Figure 1)⁹. Four executive phases for implementing this model have been designed that are continuous and cohesive: perception of threat, problem-solving, educational participation and evaluation(Figure 2)¹¹.

Several studies have highlighted the significant role of educational programs in empowering individuals by providing the necessary knowledge and awareness¹². To

promote health and improve the quality of life, it seems necessary to conduct an empowerment program with the following goals: raising awareness, knowledge, self-efficacy and participation.



Figure 1: Family-centered empowerment model structures

Many studies have been conducted on the application of the family empowerment model in educational interventions. Studies conducted on the prevention of anemia in young girls ⁹, and also on the impact of the aforementioned model on the knowledge, attitude and performance of multiple sclerosis caregivers ¹¹ are such examples. These studies pointed to the positive and significant results of the application of this model in educational interventions.

Family health requires women's empowerment. Several studies declare the high prevalence of obesity in Iran (especially in women)¹³. We therefore conducted a study on the impact of family empowerment training on empowering women to modify their obesity-related dietary behaviors in the city of Urmia. Our ultimate goal was to raise women's awareness and to change their attitude toward obesity and its side effects, in addition, to empower them to modify incorrect dietary behaviors in the family.



Figure 2: Family-centered empowerment model executive phases ¹¹

Methods

A quasi-experimental interventional study was conducted on 90 over-weight/obese women in the winter and spring of 2012. Forty five persons were assigned to each group (test and control). After receiving permission from the Tehran University of Medical Sciences Ethics Committee with code 16975, two health centers (Number 13 and Shaheed Nikkhah) from Urmia's middle-class residential zones, West Azerbaijan Province, Iran were randomly selected. The participants were chosen through convenience sampling and randomly assigned to two 'test' and 'control' groups. The inclusion criteria were: being married, age 18-60 years, BMI>25, not being pregnant at the time of the study and follow up period, able to read and write, and ability to participate in the empowerment program. The exclusion criteria were as follows: inability to continue to take part in the study, reluctance to complete the data collection tools, absence in problem-solving sessions and educational participation programs and spouse's inhibition.

The research tools used in the study were as follows: demographic data questionnaire (13 questions), dietary behavior checklist (14 questions), and the empowerment evaluation questionnaire (37 questions) that included questions on awareness (example: Do you think that speed of eating effective in weight gain?), attitude (example: I'm worried about increasing my weight), Rosenberg's self-esteem (example: I take a positive attitude toward myself)¹⁴ and selfefficacy (example: Can I choose healthy food even if it is not good taste) in dietary behaviors. A panel of 10 experts on health education and nutrition examined the questionnaires to determine their validities. Reliability of the research tools was determined by having 15 overweight/obese women complete the questionnaires. After extracting the data, the reliability was examined by calculating Cronbach's alpha. The alpha coefficient calculated for the dietary behavior checklist was 0.701 and for empowerment questionnaire and

its structure was 0.78, 0.708, 0.71, 0.81 and 0.788 respectively, which were acceptable.

Dietary behavior and empowerment status scores were considered separately, and a scale of 100 was used. If participants scored 0-33 it would be considered 'weak' dietary behavior or weak empowerment; a score of 33.1-66 was considered 'average' and a score of 66.1-100 was considered 'good'.

At the baseline, research tools were completed in both test and control groups. Then, upon analyzing the data in the first phase, and by taking into consideration the resources, limitations, strengths and weaknesses, the type, content, educational method and number and timings of classes were designed on the basis of family empowerment model steps (raising awareness and perceived threat, problem-solving, educational participation and evaluation in the form of process and final evaluation). The second (intervention) phase was conducted in the form of six 45-minute-long educational sessions for groups of 15 individuals. The third step was an educational participation in which the discussed contents of previous meetings were used for educational booklet and pamphlet transmitted to family active member (husband in this study), in order to their participation in modifying food behaviors associated with obesity in the family.

The meetings were only held for the intervention group and the control group did not receive any intervention. In the post test phase the food behavior checklist and empowerment tool were completed again by both groups, two months after the intervention. The results were then compared to evaluate the impact of the intervention.

Data analysis was done with SPSS 18 software. Descriptive analysis (mean and standard deviation) and inferential analysis (independent and paired *t*-tests, chi square and Fischer's test) was performed at a significance level of 0.05.

Results

Ninety questionnaires were completed by the samples in the pretest phase, 13% of which were lost. So the study results were calculated on the basis of 87% of samples, 42 individuals in the test and 36 individuals in the control group. Their age ranged from 19-57 ye, and their average age was 33.63 ± 8.75 years. Their average weight and body mass index (BMI) were 76.32 ± 10.6 and 29.28 ± 3.6 kg.m² respectively. Around 92.3% were housewives and 7.7% were employed. All the participants were literate and 43.6% had primary and intermediate school education. Among the participants' spouses, 39.7% had primary and intermediate school education, and 46.2% had non-civil service jobs. A comparison of the groups with *t*-test did not show a significant difference between the two groups background quantitative variables: age P=0.239; weight P=0.476; BMI P=0.78. Chi square results did not show any significant differences between the two groups background qualitative variables either: women's level of education P=0.5; women's employment status P=0.847; spouses' level of education P=0.141; spouses' employment status P=0.968; and level of income P=0.517.

Table 1 shows the results of Fischer's test on the significance of before-after changes of the educational intervention in weak, average and good dietary behaviors in the two groups. Accordingly, good dietary behaviors in the intervention group improved from 21.4% to 52.4%. This changes were statistically significant (P=0.002). However the change was not significant in the control group (P=0.99).

Table 1: Distribution of dietary behaviors in the two groups before and after the educational intervention using Fisher exact test

		Inte	ervention grou	սթ		Control group				
	Before intervention		After intervention		-	Before intervention		After intervention		-
Groups	Number	Percent	Number	Percent	P value	Number	Percent	Number	Percent	P value
Dietary behavior					0.002					0.990
Weak	2	4.8	1	2.4		5	13.9	5	13.9	
Average	31	73.8	15	35.7		23	63.9	22	61.1	
Good	9	21.4	26	61.9		8	22.2	9	25.0	
Total	42	100.0	42	100.0		36	100.0	36	100.0	

Table 2 shows the results of the independent and paired *t*-tests performed to compare the mean and 'mean difference' scores of dietary behaviors in the two groups. The independent *t*-test showed a significant difference (P<0.001) in the mean dietary behaviors scores of the two groups after the intervention. Moreover, the paired *t*-test showed a significant difference in the aforementioned score before and

after the intervention in the intervention group (P<0.001). Table 3 illustrates the status of capability constructs before and after the educational intervention in both groups. The mean of awareness, attitude, self-esteem and self-efficacy had risen as compared to before in the intervention group; a finding confirmed by the paired *t*-test (P<0.001). However, the changes were not significant in the control group.

Table 2: Comparison of the mean and 'mean difference' scores of dietary behaviors in the two groups

Variable	Group	Before intervention	After intervention	Difference	Paired t-test
Dietary behavior (mean ±SD)	Control	7.08 ±2.61	7.33 ±2.64	0.25 ± 1.05	0.163
	Test	7.40 ± 2.11	9.95 ±2.41	2.54 ± 2.78	0.001
Independent <i>t</i> -test		0.550	0.001	-	-

Table 3: The status of capability constructs mean and 'mean difference' scores before and after the educational intervention in the two groups

Variable	Group	Before intervention	After intervention	Difference	Paired t-test
Awareness	Control	19.56 ±3.90	20.42 ± 3.90	0.86 ± 1.64	0.003
	Test	19.31 ±3.70	24.95 ±2.60	5.64 ± 3.48	0.001
Attitude	Control	16.64 ±4.93	16.28 ± 4.76	0.36 ± 2.11	0.312
	Test	16.07 ±3.41	20.24 ± 3.88	4.16 ±3.20	0.001
Self-esteem	Control	7.41 ± 2.14	7.27 ±1.79	0.14 ± 1.15	0.474
	Test	7.71 ±1.61	9.16 ±1.12	1.45 ± 1.27	0.001
Self-efficacy	Control	11.50 ± 5.35	11.72 ± 5.27	0.22 ± 1.75	0.453
	Test	11.52 ±4.03	15.90 ± 3.85	4.38 ± 3.86	0.001

Table 4 shows the women's capability status, based on the classification given earlier. Results of the Fischer test showed that the good capability level improved significantly (P<0.001) from 23.85 to 97.61% in the intervention group. However, the changes in the control group were not significant (P=0.182).

Table 4: Distribution of capability status in the two groups before and after the educational intervention using Fisher exact test

		In	tervention gro	սթ		Control group				
	Before intervention		After intervention			Before intervention		After intervention		
Group	Number	Percent	Number	Percent	P value	Number	Percent	Number	Percent	P value
Capability					0.001					0.182
Weak	0	0	0	0		0	0	0	0	
Average	32	76.19	1	2.38		22	61.11	19	52.78	
Good	10	23.80	41	97.61		14	38.89	17	47.22	
Total	42	100.00	42	100.00		36	100.00	36	100.00	

Table 5 shows the comparison of mean and 'mean difference' scores in capability in the two groups using independent and paired *t*-tests. Independent *t*-test showed the

difference in the aforementioned scores between the two groups to be significant after the intervention (P < 0.001). The paired *t*-test confirmed these findings too.

Table 5: Comparison of the mean and 'mean difference' scores of 'capability' in the two groups

Variable	Group	Before intervention	After intervention	Difference	Paired <i>t</i> -test
Distant habarian	Control	55.11 ±9.07	55.69 ±9.04	0.58 ± 3.62	0.340
Dietary benavior	Test	54.61 ±7.34	70.26 ± 6.04	15.64 ± 800	0.001
Independent t-test		0.790	0.001	-	-

Discussion

The current study aimed at modifying incorrect obesityrelated dietary behaviors in overweight/obese women through an educational intervention based on the familycentered empowerment model.

Pretest-posttest data analysis of dietary behaviors showed changes in both groups. The changes in the control group was not significant though the changes in the intervention group was significant, implying that the educational intervention was effective in women. The targeted dietary behaviors in the study included items such as: breakfast intake, water consumption, dairy intake, speed of food ingestion, use of sweets, fried and fast foods, omission of main meals and simultaneously doing other chores while eating. The aforementioned dietary behaviors were chosen based on several references, such as in a study which had recognized the following dietary behaviors as influential factors on obesity: skipping breakfast, high intake of fast foods, soft drinks, fried food and low intake of dairy products and fruits ¹⁵ considered to modify and reduce such behaviors in women in this study, owing to their active role in shaping dietary habits and behaviors in the family.

Increased prevalence of obesity could be rectified through public education and changes in eating and drinking habits. These methods in turn were effective in weight reduction as well ¹⁶.

Cowen and Devine showed that the educational and environmental interventions could encourage in promotion of positive nutritional behaviors. For example 42% of the intervention group had increased their intake of fruits and vegetables, and decreased intake sweets and desserts ¹⁷. Besides, educational intervention on women's behavior in the field of consumption oils and fat showed that percentage of families when cleaning meat, removed the meat visible fat had increased from 52% to 62.5% ¹⁸. The current study also showed that women's eating habits in consumption of sweet foods 28% and fatty foods 15% had decreased after the intervention.

Moreover the promotion of healthy eating behaviors in Washington's minority groups was studied by holding an educational intervention in intermediate urban schools. According to the results the changes created after the intervention were significant in promoting healthy eating behaviors in the students¹⁹.

This study state the positive impact of education on nutritional behavior changes. Our study results also confirm these findings.

Accordingly, in the present study, constructs of knowledge, attitudes, self-esteem and self-efficacy were as family-centered empowerment model structures, the results of the study confirmed promotion in women's capabilities in healthy eating behaviors based on these structures. It was illustrated that adopting an empowerment program was beneficial to improve the nutrition and food environment of food insecure adults. It also increased the adult capability to adapt of changes in food and food environment ²⁰. Educational intervention with the aim of empowering young people led to amount of participants awareness increased to 89% of the beneficial effects of dairy food. In the pretest 59% had reported to have used of dairy foods on a daily, but in the posttest it reached to 94% ²¹. In the present study, the consumption of dairy products in the intervention group was promoted from 52% before the educational intervention to 81% after the education. Furthermore, their awareness in the field of dairy consumption effectiveness, increased from 40% to 90% after intervention. Low consumption of dairy products made higher body mass index ²².

In Malaysia appropriate eating behaviors were typically created followed by good eating attitudes ²³. Furthermore it was observed that eating attitudes scores in overweight and obese Americans girls was lower than normal-weight girls ²⁴. Food taste was the most important predictor nutritional attitudes and most food choices ²⁵. In the current study food taste as a barrier in healthy food choice, was reduced from 38% to10% after educational intervention.

Self-esteem and self-efficacy were both essential for learning and there was a reciprocal relationship between them ²⁶. In the Netherlands lower weight loss was associated with lower self-efficacy ²⁷. Besides, the important role of self-efficacy in treatment of obesity was confirmed in behavioral weight control ²⁸. Furthermore low self-esteem had been associated with unhealthy food behavior ²⁹. In the present study, good self-esteem and self-efficacy scores were improved in order to correct poor eating behaviors, respectively 17% and 40% after the intervention.

After the intervention the mean scores of the capability constructs (awareness, attitude, self-esteem and self-efficacy) and health promoting behaviors had significantly increased in the intervention group, as opposed to the control group ³⁰. The results are in line with our findings in that the mean scores of empowerment constructs and overall capability had improved after the intervention.

Among the limitations of the study is the time limit in its execution. Therefore the educational intervention was held an intensive course and the time gap considered for the posttest was 2 months, and recurrent follow-ups were not done to confirm the sustainability of results. On the other hand, the constraints of space and educational facilities in health centers led to the exclusion of some centers in sampling. Due to the shortage of financial facilities, assistance and time this study was only conducted on the women under coverage of two health centers. Therefore, generalization of the findings must be done with caution. Future studies in this field should take these limitations into account and allocate greater time and increase the population under study to increase the possibility of generalizing the findings to the community under study.

Conclusions

The current study took advantage of empowerment in increasing women's capabilities in modifying their incorrect nutritional behaviors. Therefore, in the light of these findings and those of previous studies, we recommend the application of this educational method as an appropriate model- in family and community health promotion; in this way, for effective and sustainable interventions require the empowerment of families in attaining health.

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Conflict of interest statement

The authors have no conflict of interest to report.

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References

- 1. World Health Organization. *Obesity: Preventing and managing the global epidemic*. Geneva: WHO; 2000.
- World Health Organization. Chronic Diseases and their Common Risk Factors: Chronic diseases are the major causes of death and disability worldwide. WHO Website; 2005 [cited 27 March 2009]; Available from: http://www.who.int/chp/chronic_disease_report/media/Factshee

t1.pdf.

- **3.** Pishdad GR. Overweight and Obesity in adults aged 20-74 in southern Iran. *Int J Obes*. 1996;20(10):963-965.
- 4. Mirmiran P, Azizi F. Obesity and overweight: chief problem healthy-therapeutic, present and futures. *Shahid Beheshti University of Medical Sciences*. 1998;22(3):69-81. [Persian]
- 5. Yeomans M. The 36th annual meeting of the British feeding and drinking group March 29th and 30 th 2012, Brighton, UK. Appetite.2012;59(2):201-638.
- **6.** Crowford D, Jeffery R. *Obesity prevention and public health*. Oxford: Oxford University Press; 2005.
- 7. Mirmiran P, Mirbolooki M, Azizi F. Familial clustering of obesity and the role of nutrition: Tehran Lipid and Glucose study. *Int J Obes Relat Metab Disord*. 2002;26(12):1617-1622.
- 8. Stanhope M, Lancaster J. *Community and public health nursing*. St Louis: Mosby; 2004.
- **9.** Alhani F, Niknami S, Kimiyagar SM, Kazem Nejad A, Heidarnia AR. Family-centered empowerment model and assess its impact on the prevention of iron deficiency anemia in adolescent girls. Shahid Beheshti University of Medical Sciences. 2003;8(4):9-15. [Persian]
- Allahyari A, Alhany F, Kazemnejad A, Izadyar MD. The effect of family-centered empowerment model on the quality of life in school-age B-thalassemic children. *Iran J Pediatr.* 2006;16(4):455-461. [Persian]

- **11.** Masoodi R, Alhani F, Moghadassi J, Ghorbani M. The effect of family center empowerment model on skill, attitude and knowledge of multiple sclerosis care givers. *Journal of Birjand University of Medical Sciences*. 2010;17(2):87-97. [Persian]
- 12. Taghdisi MH, Abolkheirian S, Hosseini F. Effectiveness of education and its influential factors on empowerment of the health volunteers in the west of Tehran Health Center. *Iran Occupational Health.* 2011;8(2):24-30. [Persian]
- Akhavan Tabib A, Kelishadie R, Sadri GH, Sabet B, Toluei H.R, Baghaei A. Healthy Heart Program: Obesity in center of Iran. *Journal of Qazvin University of Medical Science*. 2003;7(2):27-35. [Persian]
- 14. Zahiri Nav B, Rajabi S. Evaluation of a group of students with lower academic motivation variables Persian language and literature. *Daneshvar (Raftar) Shahed University*. 2009;16(36):69-80.[Persian]
- **15.** Faghih A, Anooshe M. Some of feeding behavior in obese patients admitted to the medical center wing section. *Hormozgan Medical Journal*. 2008;12 (1):53-60. [Persian]
- **16.** Booth DA, Booth P. Targeting cultural changes supportive of the healthiest lifestyle patterns. A biosocial evidence base for prevention of obesity. *Appetite*. 2011;56(1):210-221.
- Cowan JA, Devine CM. Diet and body composition outcomes of an environmental and educational intervention among men in treatment for substance addiction. *J Nutr Educ Behav.* 2013;45(2):1-5.
- **18.** Karimi B, Ghorbani R, Haghighi S, Irajian GH, Habibian H, Sadeghjo S, et al. Effects of educational intervention on women's behaviors in utilization of oils and fats. *Journal of Semnan University of Medical Sciences*. 2010;11(4):200-262.[Persian]
- **19.** Spolidoro AJ, Pflugh MC. Rethinking Pastelitos and Quarter Waters: a school-based approach to promote healthy eating behaviors in the minority communities of Washington Heights and Harlem. *J Am Diet Assoc.* 2009;109(9):A48-A48.
- **20.** Sisson LG, Couzens SA. Community empowerment program improves the food environment for food insecure. *J Am Diet Assoc.* 2010;110(9):A10-A10.
- **21.** Michelman MM, Pamplona B, Kruskall LJ. Cooking classes with nutrition education and physical activity components empowered young participants to improve their knowledge, behavior, and intention with regard to healthy food choices. *J Am Diet Assoc.* 2005;105(8):58-58.
- 22. Mirmiran P, Esmaillzadeh A, Azizi F. Dairy consumption and body mass index: an inverse relationship. Int J Obes Relat Metab Disord. 2005;29(1):115-121.
- **23.** Taylor T, Serrano E, Anderson J, Kendall P. Knowledge, skills and behavior improvement on peer educator and low-income Hispanic participant after a stage of change-based bilingual nutrition education program. *J Community Health*. 2000;25(3):241-262.
- **24.** Lynch W, Eppers K, Sherrodd J. Eating attitudes of native American and white female adolescents ; a comparison of BMIand age – matched groups. *Ethn Health*. 2004;9(3):253-266.
- **25.** Aikman SN, Min KE. Graham D. Food attitudes, eating behavior, and the information underlying food attitudes. *Appetite*. 2006;47(1):111-114.
- 26. Tol A, Alhani A, Shojaeazadeh D, Sharifirad Gh. Empowerment approach to promote quality of life and self-management among type 2 diabetic patients. *Health System Research*. 2011;7(2):157-168. [Persian]
- 27. Wamsteker EW, Geenen R, Iestra J, Larsen JK, Zelissen PM, van Staveren WA. Obesity-related beliefs predict weight loss

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after an 8-week low-calorie diet. J Am Diet Assoc. 2005;105(3):441-444.

- **28.** Bas M, Donmez S. Self-efficacy and restrained eating in relation to weight loss among overweight men and women in Turkey. *Appetite*. 2009;52(1):209-216.
- **29.** Martyn-Nemeth P, Penckofer S, Gulanick M, Velsor-Friedrich B, Bryant FB. The relationships among self-esteem, stress, cop-

ing, eating behavior, and depressive mood in adolescents. *Res Nurs Health*. 2009;32(1):96-109.

30. Karimi M. Educational of intervention based on individual empowerment model of health promoting behaviors during menopause. *Daneshvar*. 2011;18(94):63-72. [Persian]