

**Research Article**

**The effect of education based on social cognitive theory to reduce the consumption of sweets in the mothers of Yazd city**

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**ABSTRACT :**

More than 1.5 million people suffer from diabetes in Iran.Yazd city has the highest prevalence of diabetes in the country (14.52 percent).Sugar is the most common and abundant materials that is used in the world to prepare sweets and confectionery products. Several studies have shown that parents feeding behavior, particularly mothers can affect eating behaviors of children in child. One of the most successful theories used in the creation of healthy eating behaviors is social cognitive theory.

**Materials and methods:** This study is a randomized controlled trial that the samples were 100 (50 intervention group and 50 control groups) mothers with at least one child under 8 years and referring to health centers in Yazd city. Data were gathered by using a researcher making questionnaire based on social cognitive theory, by interviewing mothers. Intervention were held for 5 sessions in groups of 10 to 12 people. The data were encoded and analyzed with using spss software version 20. To analyze were used the Chi-square test. Paired and independent T.

**Results:** Two months after the intervention, sweets and confectionery consumption 14 percent had fallen whereas in the control group, the rate had fallen was 4%. The results revealed there was no significant difference between structures of social cognitive theory in intervention and control groups before intervention, but there was significant difference between all of structures of social cognitive theory in two groups after intervention

**Keywords:** reduce the consumption of sweets, confectionery, mother, education, social cognitive theory

**INTRODUCTION**

Today, non-communicable diseases such as diabetes are as one of the first concerns the lives and human progress. According to the World Health Organization, in the next decades, non-communicable diseases, will form almost 80 percent of deaths in developing countries. In developing countries, approximately 8 to 15 million people die every year as a result of non-communicable diseases that are preventable (1,2). The most common non-communicable diseases are cardiovascular

disease, diabetes and cancer. Diabetes is the sixth leading cause of death in the world (3). It is estimated that the prevalence of diabetes among adults (20-79 years) from 285 million in 2010 (6/4 percent) will reach to 439 million in 2030 (7/7 percent) (4). The cost of treatment and rest taken care of diabetic patients is annually about 130 billion dollars in the world (3). More than 1.5 million people suffer from diabetes in Iran. Yazd city has the highest prevalence of diabetes in the country (14/52 percent) (5). Vision loss and

blindness of eye, kidney failure, cardiovascular disease, stroke, leg pain, numbness and wear the ankle of are Complications of diabetes(4).It is likely that sugary foods, especially sugar causes diabetes.Several studies show that there is a significant relationship between sugar consumption and diabetes outbreak.Sugar is the most common and abundant in the world to used for prepare sweets and confectionery products. Carbohydrates Have a high glycemic index, especially glucose and if eaten in large quantities,It is likely that insulin secretion by the pancreas is low and cause diabetes.Studies have shown that changes in lifestyle including proper nutrition strategies, can prevent diabetes or delay its onset.Some of these studies have focused on reducing the consumption of carbohydrates in diabetes prevention. Several studies have shown that parents feeding behavior, particularly mothers can affect eating behaviors of children in child and these behaviors can persist into adulthood.So with the mother's education about healthy eating behaviors (such as reducing the consumption of sweets) can be helped forming healthy eating behaviors (such as reducing the consumption of sweets) in children (7).One of the most successful theories used in the creation of healthy eating behaviors is social cognitive theory.In this theory,there is a simultaneous interaction between the 3 factors of environment, personal factors and behavior (8-10).On the base of this theory,change in each of these factors can cause changes in the other factors.Key structures of this theory are self-efficacy, outcome expectations, the value of outcome, self-regulation and social protection (7). The results of study of Saadatia that examined dietary patterns of food consumption showed one of patterns in Iran is consumption of sweets(11). According to the above, there is need for interventions to reduce maternal consumption of sweets,So in this study we used social cognitive theory to reduce the consumption of sweets in women in Iran for the first time.

## **MATERIALS AND METHODS**

This study is a randomized controlled trial that the samples were mothers with at least one child

under 8 years and referring to health centers in Yazd city. These individuals were selected by cluster sampling from four health centers in Yazd.The number of samples was 100 people by taking into account the 95% confidence level and 80% statistical power.The samples were Randomized divided,50 patients in the intervention group and 50 in the control group.Data were gathered by using a researcher making questionnaire based on social cognitive theory, by interviewing mothers. Validity questionnaire was approved by a panel of experts Structures and internal consistency of structures was approved through Cronbach's alpha of structures with ranging between 0.70 to 0.87.The questionnaire consisted of two parts. The first part included questions about demographic characteristics (occupation, education, income, etc.)and the second part contains questions related to the structure of social cognitive theory.In second section self-efficacy was measured with four questions.The questions were scored with four likert range so the attainable score range for this episode was between 4 and 16. The outcome expectation was measured with 5 questions.The questions were scored with four likert range so the attainable score range for this episode was between 4 and 20.Self-regulation was measured with nine questions with the attainable score range between 4 and 36.Observational learning was measured with five questions, with the attainable score range between 4 and 20.Skills were measured by two questions with the attainable score range between 4 and 8.Awareness was measured with nine questions that answered were yes or no.The questionnaires were completed before intervention and two months after it by the two groups.Based on the results of the analysis during the first stage, suitable training program based on social cognitive theory structures was designed for mothers in the intervention group. The intervention group were divided in 10-12 samples in one groups and five training sessions were held for each group. In the first session, which was about 60 minutes and held lecture, topic of the meeting was overview the food

pyramid, daily consumption of each food, Complications of excessive use of sweets and diseases that are associated with the consumption of sweets and How to Create diabetes by excessive in taking of sweet sand at the end of there was about 30minutes question and answer. In the second session, which was held by Projection method for 120 minutes, topic of the meeting was set goals and reward their consumption to reduce the consumption of confectionery products. In the third session, which was held by Projection method for 120 minutes, topic of the meeting was Set goals and reward their consumption to reduce the consumption of confectionery products. Fourth session was held by projection method and topic of the meeting was barrier of reducing the consumption of products and solutions to overcome them. Fifth session was held by the lecture 45 minutes. Remind the entries before meetings and given them training manual about few healthy snack instead of sweets recipes. The data were Encoded and analyzed with using spss software version 20.To analyze were used the Chi-square test. Paired and independent T.

**RESULTS:**

Our results showed the education of 45.8 percent of the intervention group and 54.2percent of control group was diploma. Chi-square test showed there was no significant difference between terms of mother's education level in two group about 49.4 percent of the intervention group and 50.6 percent of the control group were

housewives. Chi-square test showed there was no significant difference between the job in two group. Before the intervention, in the intervention group, 14% of mothers 1 to 3 times per week, 22 percent 4 to 6 times a week and 14 percent from 7 to 9 times per week ate sweets of confectionery. After the intervention, in the intervention group ,43 percent 1 to 3 times a week and 7%, 4 to 6 times a week ate sweets. If, after the intervention, the number of control group that ate sweets were almost like before the intervention. The majority of mothers (68 percent) said they would buy food home by their wives and 27 percent said they buy their own home. After the intervention of the influence of educational intervention on structures of social cognitive theory, paired t test showed there was significant difference between mean scores of self-efficacy, outcome expectations, values and outcomes, self-regulation, observational learning, knowledge and skills before and after the intervention. while these differences were not significant in the control group (table1).Two months after the intervention, sweets and confectionery consumption14 percent had fallen whereas in the control group, the rate had fallen was 4%. The results revealed there was no significant difference between structures of social cognitive theory in intervention and control groups before intervention, but there was significant difference between all of structures of social cognitive theory in two groups after intervention(table 1).

**Table1-**Comparing the mean scores of the structures of model in two groups before and after intervention

structures	groups	Before intervention M±SD	After intervention M±SD	P
self- efficacy	intervention	11.2±2.94	15.72±0.99	0.0001
	control	9.84±3.13	15.12±2.55	0.053
	p	0.829	0.0001	
outcome expectation	intervention	11.62±2.47	15.12±2.55	0.0001
	control	10.64±2.71	10.58±2.79	0.733
	p	0.62	0.0001	
outcome of values	intervention	14.64±3.86	20.1±5.55	0.0001
	control	13.24±4.32	13.34±4.03	0.417
	p	0.196	0.0001	
Self -regulation	intervention	21.78±5.50	28.42±4.29	0.0001
	control	19.76±5.41	18.20±6.55	0.735
	p	0.829	0.0001	
Observational learning	intervention	13.74±3.59	16.6±3.360	0.0001

	control	13.82±3.10	14.28±2.77	0.078
	p	0.698	0.0001	
knowledge	intervention	14.83±2.28	17.95±0.19	0.0001
	control	13.96±2.32	14.20±2.07	0.116
	p	0.738	0.0001	
skills	intervention	5.78±1.26	7.74±0.66	0.0001
	control	6.10±1.31	6.1±1.26	0.473
	p	0.781	0.0001	

## DISCUSSION:

In this study, based educational intervention focusing on social cognitive theory, consumption of sweets and confectionery fell 14% in intervention group weekly. The results of study of Bill and et al as well as intervention within the framework of social cognitive theory showed fat intake fell in the intervention group. Baranowski and Tvelde in their studies of educational interventions within the framework of this theory could be forgiven promote healthy eating behaviors(12-14).

In this study, the mean grade scores of self - efficacy in the intervention group had significantly increased after intervention. Other studies have reported similar results (3,15,16). Leszczynska et al study showed that self-efficacy intervention alone can improve the nutritional behavior (17). The results of study Bill et al about reduce fat intake in the intervention group showed that could reduce fat intake in the study group and self - efficacy was increased in the intervention group (18).In this study of Naughton et al self - efficacy as one of the factors was affecting the consumption of sweets and confectionery (19).Thus, according to these studies, we can say that nutritional interventions targeting self - efficacy are more likely to be successful for healthy eating behaviors (20). In this study, we could after intervention promote the consequence value of that person on the possible consequences resulting from the behavior (reducing the consumption of sweets).In similar studies in the context of social cognitive theory; this structure has not been studied. But Bandura considers important due to this structure in educational interventions (21).

Also in this study, the mean grade score of outcome expectations was significantly increased in the intervention group after the intervention, Previous studies on educational interventions within the framework of social cognitive theory for healthy eating behaviors also have reported this increases (22).Bill to reduce fat in their study, prompted outcome expectations. Also in our study, the mean grade score of knowledge of intervention group after intervention had a significant increase. The results of other similar studies showed significantly increased maternal knowledge after the intervention (8 , 20).But in the study of Pierson et al there was not found an increase in awareness after the intervention (23).Although increased awareness not means, behavior change, but previous studies have shown it is a useful factor for behavior change (15 ,18,19).There was a significant increase in the mean grade score of self-regulation after the intervention compared to the control group. To promote self-regulation of mothers we instructed them to plan reducing the consumption of sweets and writing stick on the fridge to remind them that decrease the consumption of sweets. The positive impact of educational interventions on self-regulation of feeding behavior have also been confirmed in other studies(24-27). The results of Bill et al by training program within the framework of social cognitive theory for reduce fat intake could improve self-regulation after the intervention(18).Behavioral capabilities, defined as the knowledge and skills that are necessary to perform the behavior. Therefore, improving the knowledge and skills can be provided to improve behavior. In this study, the mothers were taught to prepare a healthy snack instead of sweets and

confectionery and as well as they were taught healthy alternatives to replace sweets and confectionery. The mean grade score of skill after intervention in the intervention group was significantly increased. Also in the study of Newell the educational intervention resulted in significant improvement in the skills of feeding behavior (28). Bandura also mentioned pay attention to the instrument as the crucial factor for the success of health promotion programs (21). The limitations of this study, like most similar studies, were measuring the behavior of using questionnaire and self - reported.

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