

Effectiveness of a group nutrition education program as a strategy for overweight and obesity control

Eficácia de um programa de educação nutricional em grupo como estratégia para controle do sobrepeso e obesidade

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Abstract

This study was aimed at verifying the effectiveness of a group nutrition education program in improving the nutritional status of overweight/obese individuals who were assessed as participants in a multidisciplinary university extension project entitled “Interdisciplinary Treatment of Eating Disorders and Obesity - TITAO”. The project is linked to a community university in the State of Santa Catarina, Brazil, who participated in the meetings. To check the effectiveness of the intervention, anthropometric variables (weight, height and waist circumference) were collected before and after the intervention. The sample consisted of 25 participants, predominantly females (92%), with a mean age of 49 years. After three months of participation in the project, it was found that 88% of the sample lost weight: 2 kg on average, and 96% of the sample had an average reduction of 3.5 cm in waist circumference. Health education and group nutritional counseling are effective strategies for weight loss, thus improving the participants’ quality of life.

Keywords: Overweight. Obesity. Weight Loss. Food and Nutrition Education.

Resumo

O estudo teve como objetivo verificar a eficácia de um programa de educação nutricional em grupo na melhora do estado nutricional de indivíduos portadores de sobrepeso/obesidade. Foram avaliados participantes do projeto de extensão

multidisciplinar denominado “Tratamento Interdisciplinar de Transtornos Alimentares e Obesidade - TITAO”, vinculado a uma universidade comunitária do estado de Santa Catarina, que participaram efetivamente dos encontros. Para verificar a eficácia da intervenção, foram coletadas variáveis antropométricas (peso, altura e circunferência da cintura) antes e depois. A amostra foi constituída por 25 participantes, predominantemente mulheres (92%), com média de idade de 49 anos. Após os três meses de participação no projeto, observou-se que 88% da amostra perdeu peso, em média -2 kg. E 96% da amostra obteve redução de 3,5 cm de cintura em média. A educação em saúde e o aconselhamento nutricional grupal são uma estratégia eficaz para a perda de peso, o que possibilita melhora na qualidade de vida dos participantes.

Palavras-chave: Sobrepeso. Obesidade. Perda de Peso. Educação Alimentar e Nutricional.

Introduction

Obesity is a health problem that affects societies in different parts of the world and is currently characterized as an epidemic.¹ It is a chronic, multifactorial disease, defined as excess body fat. Its etiology may be related to excessive and unhealthy food intake, sedentary lifestyle, as well as genetic and metabolic, sociocultural and psychosocial factors.²

Between 1974 and 2009, there was a continuous increase in cases of overweight and obesity in the population above 20 years of age. It was found that the amount of overweight males nearly tripled (from 18.5% to 50.1%) while such increase was lower for females (28.7% to 48%).³

Obesity is a risk factor for the development of chronic non-communicable diseases (NCD), e.g., cardiovascular diseases, diabetes mellitus (DM) and hypertension. As a result, people's quality of life may be reduced and there may also be increased risk of premature death.^{4,5} Therefore, prevention is extremely important, and it is effective at any level, even in later stages of life.

However, there are high failure rates in the treatment of obesity because of patients' low adherence to diet programs, weight loss difficulty and poor maintenance of results. Major factors that may hinder adherence to treatment include personal problems, lack of family support, lack of motivation and negative results in the attempt to lose weight during the treatment, which has shown dropout rates of up to 80%.⁶

Teixeira et al.⁷ stated that nutrition education initiatives in the realm of public health are more effective when they related to a practical context, with a focus on small and comfortable, but major changes for a long period of time.

In this context, new nutritional care strategies should be developed to promote weight loss. Group care is a strategy for the exchange of experiences among the participants of a particular group which can help them deal with the challenges posed by anxiety and obesity by offering support.⁸

Thus, the aim of the present study was to determine whether or not group nutritional counseling as a health education strategy can improve the nutritional status of overweight and obese patients.

Material and Methods

This is a cross-sectional intervention study, conducted with the participants of a group under treatment for overweight and obesity in a multidisciplinary university extension project, called “Interdisciplinary Treatment of Eating Disorders and Obesity” (TITAO). The project has the participation of academics and professors of the Nutrition, Psychology and Medicine undergraduate programs of a community university in the state of Santa Catarina. One-hour meetings were held on a weekly basis, and consisted of lectures whose topics were relative to the fields of nutrition and psychology. Individuals participating in the project were referred by community health workers or doctors from the city of Itajaí, state of Santa Catarina (SC).

The participants were previously contacted and informed about the objectives, methods and procedures that were going to be used during the development of the research. Participation was voluntary and authorized upon signing an informed consent form. Data collection occurred after the study was approved by the Research Ethics Committee of the Universidade do Vale do Itajaí (UNIVALI), under technical report No. 554/2011, in accordance with the recommendations of Resolution No. 466/2012 of Brazil’s National Health Council.

Sample selection was based on the following inclusion criteria: having joined TITAO previously, being overweight or obese, and having attended at least 50% of the meetings during the three months of intervention.

To characterize the sample, a semi-structured questionnaire was applied on the first day of the project to collect the participants’ personal data (name, age, sex, occupation, education, place of residence) and lifestyle information (alcohol consumption, smoking, physical activity).

To evaluate nutritional status, anthropometric measurements were performed on a weekly basis through the body mass index (BMI), using height (m) and weight (kg) as variables, as well as the cutoff points recommended by the World Health Organization⁹ for nutritional status of adults; for the elderly participants (> 60 years), the measurements were performed with the classification based on the parameters of the *Nutrition Screening Initiative*.¹⁰

In order to associate the risk for developing cardiovascular diseases and obesity-related metabolic disorders, waist circumference (WC) was measured on a monthly basis. The classification of WC was based on the cutoff points proposed by Hanet al.¹¹ The participants were informed of the results after each measurement, so that they could keep track of their evolution.

Nutritional counseling, as an intervention, occurred for three months during the weekly meetings in order to educate the participants about the importance of healthy eating and its benefits for the treatment of overweight/obesity. In the meetings, there were lectures about various themes, e.g., low-calorie recipes, importance of fibers, DM, hypertension, food allergy and food intolerance, sodium, types of fat, glycemic index, vitamins C and D, thermogenic foods, use of fruits, leafy vegetables, soups, seasonings, food labels, water intake, healthy tips for celebration dates and tips for the holidays. Importantly, the participants did not receive a personalized dietary prescription.

With the support of a psychologist, the participants could discuss about how they felt and how easy or difficult it was for them to continue in the group; they were encouraged to stay motivated and celebrate changes and positive results.

To analyze the results, the quantitative variables were calculated by using the mean and the standard deviation. Categorical variables were described for their absolute (N) and relative frequencies. The correlation between continuous variables was determined with Pearson's test. Differences were considered significant when $p < 0.05$. The analyses were performed through the software programs *Microsoft Excel* and *Epilnfo* 6.04.

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Results

This study included 25 participants of the TITAO group. The sample was predominantly composed of females (92%, $n = 23$), with mean age of 49 years (minimum 28 - maximum 70 years); 96% of them were nonsmokers, 100% self-reported as non-alcoholics and 56% did not use to do physical activity (Table 1).

Table 1. Characteristics of the participants of the project “Interdisciplinary Treatment of Eating Disorders and Obesity”. Itajaí-SC, 2012.

Variable	N	%
Sex		
Males	2	8.00
Females	23	92.00
Smoker		
Yes	1	4.00
No	24	96.00
Alcoholic		
Yes	0	0.00
No	25	100.00
Does physical activity?		
Yes	11	44.00
No	14	56.00

Caption: Descriptive analysis of absolute (n) and relative (%) frequencies.

The classification of nutritional status of the study sample showed that 76% of the participants were obese and 24% were overweight. After the intervention, it was found that 88% of the sample had weight loss during the three months of participation, with an average of 2 kg (minimum 1 kg - maximum 8kg of weight loss), and 84% had reduction of BMI (Table 2) ($p < 0.001$).

The results for measurement of waist circumference (WC) of the study participants showed that 96% of the sample had increased risk for cardiovascular diseases, with initial mean of 101 cm and 97.5 cm, yielding, thus, reduction of 3.5 cm on average.

Table 2. Means for initial and final weight, Body Mass Index (BMI) and waist circumference (WC) values of the participants in the research. Itajaí-SC, 2012.

	Mean		p-value
	Before	After	
Weight (Kg)	86.64	84.68	< 0.001
BMI (kg/m ²)	34.25	33.43	< 0.001
WC (cm)	102.40	100.60	< 0.009

Caption: Pearson's test

As shown in Table 3, there was a very strong correlation between final and initial weight; BMI1 and initial weight; BMI 2 and initial weight; BMI2 and BMI1; WC1 and BMI1 and BMI2; WC2 and BMI2 and WC1; and a strong correlation between BMI1 and final weight; BMI2 and final weight; WC1 and initial and final weight; WC2 and initial weight, final weight and BMI.

Table 3. Correlations between anthropometric variables and age. Itajaí-SC, 2012.

	Age	Weight Initial	Weight Final	BMI1	BMI2	WC1	WC2
Age							
Initial Weight	-0.2538						
Final Weight	-0.2819	0.9937					
BMI1*	-0.0843	0.9011	0.8761				
BMI2**	-0.1142	0.9104	0.8977	0.9937			
WC1***	0.0235	0.8625	0.8387	0.9149	0.9074		
WC2****	0.0163	0.8565	0.8539	0.8959	0.9099	0.9698	

Caption: *BMI 1 = Initial Body Mass Index; **BMI 2 = Final Body Mass Index; ***WC1 = Initial Waist Circumference; ****WC2 = Final Waist Circumference.

Discussion

It was found that the group nutritional and psychological counseling, as a health education tool, was effective in improving the anthropometric profile of overweight individuals.

For Boog,¹³ Cervato et al.¹⁴ and Teixeira et al.,⁷ nutrition education is characterized as a stimulus for people's transformation. It draws on a perspective of reflection and participation; individuals experience a situation of change: their eating behavior was previously determined by conditioning and by mechanically repeated habits, but when they understand their own body and learn to care for it, they start to make their own decisions as regards their eating behavior.

With the intervention of nutritional counseling and psychological support, it was found that a great deal of the sample (88%) achieved weight loss within three months of participation, with an average of 2kg. Most participants (96%) had a remarkable reduction in WC: 3.5 cm on average.

Among the 96% of participants with increased WC, only 76% were obese. Therefore, it is noteworthy that excess weight and body fat distribution are strongly associated with higher risk for NCD. Thus, abdominal obesity may pose higher risk than overweight itself.²

As for the anthropometric results, similar data were found by Moreira et al.,¹⁵ when offering nutrition education with group activities to 16 obese women aged between 30 and 57 years. Interventions consisted of five fortnightly meetings for two months; eight habit-changing goals were proposed to the participants. After two months, it was found that 50% of the participants had weight loss, with an average of 2.04kg, ranging between 0.300 kg and 5.250 kg.

In a previous study, Duarte¹⁶ had individual group nutrition education interventions, on a weekly basis, and compared their effects on the health of 39 overweight women with average age of 42.9 years. There were 16 participants in the control group (individual interventions) and 23 in the experimental group (intervention group). As a result, after 13 weeks, the author noted that the experimental group had significant mean weight loss (2.03 kg) and reduction of BMI. However, when compared to the control group, there was no statistically significant difference. There was also a significant decrease in waist circumference (3.48 cm) in the experimental group.

Duarte¹⁶ reported the major factors that led to weight loss, found in the cognitive intervention which was conducted: non-restrictive and sustainable diets, flexibility of dichotomous cognitions, varied diets, realistic goals, social support, experience sharing and nutrition education.

The study of Christensen et al.¹⁷ assessed the effects of the first three months of a controlled randomized intervention and change of lifestyle among health workers. The participants were 98 overweight women: they were randomly divided into two groups: Intervention (IG) and Control (CG). The IG was prescribed a weekly personalized low-calorie diet plan, muscle strengthening

exercises and cognitive behavioral training (issues relative to the social context and situations of inadequate food intake). The CG only attended monthly oral presentations. Average weight loss in the IG was 3.6 kg and reduction of WC was 4.2 cm. It should be noted that the IG had significantly better results when compared to the control group.

Unlike the present study, the randomized and controlled study of Appelet al.¹⁸ assessed the effects of different behavioral interventions for weight loss in 415 adult male and female obese patients with an average age of 54 years, in the long run. After 24 months, the authors noted that the intervention in which support was offered on-site in individual and group sessions, with complementary remote support, led to an average reduction of 5.1 kg of body weight. The percentage of participants who lost 5% or more of their initial weight was 41.4% in the group receiving support in on-site sessions. The authors concluded that, in these interventions, obese patients had a clinically significant and consistent weight loss within two years.

Bennett et al.¹⁹ conducted a study whose results were not as good as those of the present research and the above-mentioned studies. It was a 24-month randomized study, conducted with 365 obese patients who were being treated for hypertension in a public primary health care provider in Boston (USA). The participants were randomized to a regular care group (RCG) and an intervention group (GI). They received behavioral intervention for the purpose of weight loss and self-management of hypertension. The intervention included personalized goals of behavior change, self-monitoring and skills training, available on a website or through interactive voice response; 18 counseling phone calls; 12 optional group support sessions; and links to community resources. After the intervention, there was little change in weight in the IG, compared to the RCG (reduction of 1.03kg). Also, mean systolic blood pressure was not significantly lower in the IG, compared with the HCG. According to the authors, the intervention had modest but significant results that can benefit the underprivileged population.

There was a strong correlation between the anthropometric variables, as shown by the correlation test before and after the intervention. It highlights the strong correlation between the WC variables after the intervention, initial and final weight and initial and final BMI, which demonstrated that the loss of abdominal fat integrated total weight loss and BMI reduction. This is important for weight loss, since abdominal fat is directly related to coronary events such as stroke and myocardial infarction.²⁰

Considering the above-mentioned results, it can be seen that group health education programs are important to obese patients, because there were positive anthropometric results, arising from a change in habits as the participants broadened their knowledge of health as they received nutritional and psychological support.

Conclusion

The intervention of the “Interdisciplinary Treatment of Eating Disorders and Obesity – TITAO” was effective in reducing weight, waist circumference and body mass index of overweight individuals. It showed similar and even better results than those found in the corresponding scientific literature.

It can be stated that group support can play a critical role because it helps participants not to abandon their goals and not to quit their treatment. Therefore, the proposal of interdisciplinary work – Nutrition counseling for healthy eating, and psychological guidance to identify emotional issues - is of paramount importance for the control of overweight and obesity and their corresponding comorbidities.

Group nutrition intervention is a growth strategy and an innovative proposal for Public Health which has been rarely used by health workers. For this reason, it is suggested that there should be further research in this field.

In the present study, it is concluded that group nutrition counseling is a strategy for weight loss, in the realm of public health, which would allow an improvement in participants’ quality of life.

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Collaborators

Abravanel F participated in all stages of the present study: research design, collection and analysis of data, final draft of the manuscript; Socha TC participated in all stages as well: research design, collection and analysis of data and final draft of the manuscript; Sell IM participated in research design, analysis of results, revision and final draft of the manuscript; Nesello LAN participated in research design, analysis of results, revision and final draft of the manuscript.

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