Group cognitive-behavioral therapy for obesity

Terapia cognitivo-comportamental em grupo para obesidade

Terapia cognitivo-conductual grupal para la obesidad

Roberta Bilibio Westphalen [1]
Cristina Pilla Della Méa [2]
Vinícius Renato Thomé Ferreira [3]

Resumo

A terapia cognitivo-comportamental (TCC) é uma das modalidades de tratamento psicoterápico indicadas nos casos de obesidade. Nesse contexto, o objetivo deste artigo foi avaliar sintomas de compulsão alimentar, depressivos, de ansiedade e de estresse antes e depois de uma intervenção em grupo a partir da abordagem cognitivo-comportamental para pacientes com diagnóstico de obesidade. Participaram da intervenção 13 indivíduos com diagnóstico prévio de obesidade, atendidos numa Unidade Básica de Saúde localizada em uma cidade do norte do Rio Grande do Sul. A TCC em grupo teve duração de 8 semanas e os participantes foram avaliados antes e depois da intervenção. Utilizaram-se como instrumentos: questionário sociodemográfico e de história clínica; Escala de Compulsão Alimentar Periódica; e Escala de Depressão, Ansiedade e Estresse. Os resultados apontaram que houve diminuição da média do IMC (Índice de Massa Corporal), dos sintomas de compulsão alimentar, depressivos, de ansiedade e de estresse quando comparados pré e pós-intervenção. Conclui-se que a intervenção proposta apresentou resultados favoráveis na diminuição de sintomas psicológicos nessa população.

Palavras-chave: obesidade; compulsão alimentar; comportamento alimentar; terapia cognitivo-comportamental; psicoterapia de grupo.

[1] Psicóloga Clínica; Especialista em Terapia Cognitivo-Comportamental pela Atitus Educação. Passo Fundo, RS, Brasil. email: robertawe@hotmail.com

[2] Mestre em Envelhecimento Humano pela Universidade de Passo Fundo (UPF); Docente do Curso de Psicologia da Atitus Educação. Passo Fundo, RS, Brasil. email: cristina.mea@atitus.edu.br

[3] Doutor pela Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS); Docente da Graduação e do Mestrado em Psicologia da Atitus Educação. Passo Fundo, RS, Brasil. email: vinicius.ferreira@atitus.edu.br

Abstract

Cognitive-behavioral therapy (CBT) is one of the types of psychotherapeutic treatment indicated in cases of obesity. In this context, the objective of this article was to evaluate symptoms of binge eating, depression, anxiety and stress before and after a group intervention based on the cognitive-behavioral approach for patients diagnosed with obesity. Thirteen individuals took part in the intervention who had a previous diagnosis of obesity, treated in a health care center located in a city in the north of Rio Grande do Sul. The group CBT lasted 8 weeks, and the participants were evaluated before and after the intervention. The following instruments were used: sociodemographic and clinical history questionnaire; Binge Eating Scale; and Depression, Anxiety, and Stress Scale. The results pointed to a decrease in the mean BMI (Body Mass Index), binge eating, depressive, anxiety, and stress symptoms when compared before and after the intervention. It is concluded that the proposed intervention presented favorable results for the reduction of psychological symptoms in this population.

Keywords: obesity; binge eating; eating behavior; cognitive-behavioral therapy; group psychotherapy.

Resumen

La terapia cognitivo-conductual (TCC) es uno de los tipos de tratamiento psicoterapéutico indicado en casos de obesidad. En este contexto, el objetivo de este artículo fue evaluar los síntomas de atracones, depresión, ansiedad y estrés antes y después de una intervención grupal utilizando el enfoque cognitivo-conductual en pacientes diagnosticados de obesidad. Participaron de la intervención 13 individuos con diagnóstico previo de obesidad, atendidos en una unidad básica de salud ubicada en una ciudad del norte de Rio Grande do Sul. La TCC grupal duró 8 semanas, y los participantes fueron evaluados antes y después de la intervención. Se utilizaron los siguientes instrumentos: cuestionario sociodemográfico y de historia clínica; Escala de Atracón Alimentario; y Escala de Depresión, Ansiedad y Estrés. Los resultados mostraron que hubo una disminución en el IMC (Índice de Masa Corporal) medio, los atracones, los síntomas de depresión, ansiedad y estrés en comparación antes y después de la intervención. Se concluye que la intervención propuesta presentó resultados favorables en la reducción de síntomas psicológicos en esta población.

Palabras clave: obesidad; atracones; comportamiento alimentario; terapia de conducta cognitiva; psicoterapia de grupo.

Introduction

Obesity can be understood as a clinical condition characterized by an excessive mass of body fat, which damages the individual's health. Obesity happens due to an energetic imbalance between calories spent and consumed (WHO, 2021). The most used method for the diagnosis of obesity is the body mass index (BMI), which is computed as weight (in kilograms) divided by height (in meters) squared (Melo et al., 2014). The degree of obesity is classified as follows: obese individuals have a BMI over 30, within which BMI between 30-34.9 indicates Moderate Obesity (level I); BMI between 35-39.9 characterizes Severe Obesity (level II), and Very Severe Obesity (level III) is diagnosed as BMI over 40 (WHO, 2021).

Evidence shows that obesity is one of the biggest public health problems (WHO, 2021). By 2016, more than 1.9 billion adults aged 18 and over were overweight worldwide, and among them, more than 650 million were obese (WHO, 2021). In the last decade, obesity grew by 60% in Brazil (WHO, 2021). Also, more than half of the population is overweight, and the prevalence of obesity in adults is 17%. Obesity increased by 110% among young people in the period from 2007 to 2017 and is higher among individuals with lower education (Ministry of Health, 2018).

There is a consensus in the literature that the etiology of obesity is multifactorial (Oliveira & Guimarães, 2018). The main causes are genetic, socioeconomic, endocrine, psychiatric, and psychological factors, as well as cultural and environmental aspects (Melo et al., 2014). Among the causes, food compulsion stands out, characterized by the ingestion of a large amount of food in a well-defined period (up to two hours), followed by a feeling of loss of control over the eating act. Food compulsion episodes are associated with at least three of the following characteristics: eating faster than normal; eating until one feels uncomfortably full; eating large amounts of food in the absence of physical sensation of hunger; eating alone or in hiding, and feeling ashamed to be eating too much, and/or feeling repulsion for oneself, depression, or guilt right after eating (APA, 2023; Oliveira & Guimarães, 2018).

The Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR) includes obesity as a condition that should be a focus of clinical attention (APA, 2023). In a study carried out in a Basic Health Unit and in an outpatient clinic in the interior of Minas Gerais, it was identified that 47.8% of patients diagnosed with obesity were associated with mental disorders (Vidal et al., 2022). Individuals diagnosed with obesity often experience mental suffering, with high levels

of depression, anxiety, and stress symptoms, and a higher incidence of eating disorders (Lima & Oliveira, 2016; Nascimento et al., 2013). Social and cultural issues show that individuals who are not slim and do not have an ideal body suffer prejudice, are judged and discriminated against, causing problems of socialization and self-esteem for them (Medeiro et al., 2021).

Among the treatment options for obesity is psychotherapy. The cognitive-behavioral approach is the most effective (Oliveira & Guimarães, 2018) and is widely used for weight adjustment and changes in inappropriate habits (Luz, 2013). The basis of the treatment is the premise that, by modifying the patient's thoughts, there will be, consequently, behavioral changes (Beck, 2011). Thus, these changes should follow the body transformation, building a system of beliefs and appropriate behaviors, improving the individual's quality of life (Melo et al., 2014).

Therapy can be done individually or in group. The efficacy of group cognitive-behavioral therapy (CGTS) is comparable to individual therapy (Neufeld et al., 2017), and depending on demand, it may be superior (Renjilian et al., 2001). The group format can bring several benefits: sharing experiences, easing the sensation of isolation; support for the members; teaching of techniques for confronting problems; practicing communication skills, and also have a lower cost when compared to individual therapy (Duchesne et al., 2017). CBT groups demand some specific technical aspects, one of which is the homogeneity of their composition (Neufeld et al., 2017). Therefore, it is important to verify if the goals are common to a certain configuration, so that the members can develop a sense of belonging to the group (Neufeld et al., 2017). Furthermore, the group should be closed; i.e., once the group has been established, no new members may join. The therapeutic contract must reinforce the importance of privacy for group progress (Neufeld et al., 2017).

The group session in CBT is not very different from the individual session, and is structured and based on a predefined protocol (Neufeld, 2011). The weight loss group should be small, not exceeding 15 participants (Neufeld, 2011; Toledo, 2014). Initially, it is important to assess individually each patient to check if their weight loss goals are compatible with the group's configuration and to investigate any potential psychopathology that needs to be treated in parallel (Neufeld, 2011).

In the initial group sessions, a rapport should be established between the participants and the therapist, as well as the group contract, which makes it possible to start psychoeducation (Neufeld, 2011). It is also indicated to check and adjust expectations about the group therapy. Subsequent meetings

will follow the basic structure of CBT, with a weekly humor check, review of homework, the purpose of the session and the task, and final feedback (Neufeld & Rangé, 2017). Besides, treatment should happen in up to 12 sessions and include self-monitoring and self-control strategies, weekly weighing, weight and feeding psychoeducation, problem-solving skills training, cognitive restructuring, behavioral strategies, and relapse prevention (Neufeld et al., 2014; Randomile, 2003).

The increase in the rate of overweight and obese people indicates the necessity of studying interventions that contribute to the reduction of weight in the population. Thus, this study aimed to evaluate symptoms of food compulsion, depression, anxiety, and stress before and after a group intervention with a cognitive-behavioral approach of patients diagnosed with obesity, as well as checking the weight and BMI of participants at the beginning and end of the intervention.

Method

Design and Participants

This study is a quasi-experimental quantitative study that aims to investigate closed groups that received some intervention, enabling a pre- and post-intervention comparison (Dancey & Reidy, 2019; Shaughnessy et al., 2012).

Initially, 15 patients who underwent medical treatment for obesity in a Health Care Center (UBS), located in a city in the north of Rio Grande do Sul, were indicated to join the weight loss CBT group. The inclusion criteria for intervention were: men and women, over 18 years old, literate, and who were not under another weight loss intervention at the moment. Patients who did not attend the first session were excluded from the study. In the end, 13 patients diagnosed with obesity participated in the weight loss group.

Most of the sample was composed of women (84.6%; n=11); 60% (n=6) of them were housewives. The age of the participants ranged from 24 to 54 years old, with an average of 43.2 (SD=9.6); 86.6% (n=11) were married. Most men worked with sales (7.7%; n=1), were retired (7.7%; n=1) or were not working (7.7%; n=1).

Most patients (53.8%; n=7) had the diagnosis of obesity since childhood, with a family history of obesity (92.3%; n=12). The most prevalent health problems reported were hypertension (69.2%; n=9), gastroesophageal reflux (38.4%; n=5), followed by sleep apnea (30.7%; n=4), high cholesterol and triglycerides

(30.7%; n=4), and hepatic steatosis (30.7%; n=4). Besides, 69.2% (n=9) used psychotropics, 53.8% (n=7) did not attend psychotherapy, and 84.6% (n=11) did not practice physical activity.

Instruments

The instruments used were a sociodemographic and clinical history questionnaire, Binge Eating Scale (BES) and Depression, Anxiety, and Stress Scale (DASS-21).

Sociodemographic and clinical history questionnaire – instrument elaborated by the principal investigator to identify participants' sociodemographic characteristics, such as gender, age, education level, profession, besides clinical factors, such as chronic diseases, use of medications, obesity history, etc.

Binge Eating Scale (BES) – a self-administered scale that is used for identifying obese people with or without binge eating disorder (BED). The instrument consists of 16 items and 62 statements. The participants must pick, in each item, the option that best represents their answer, using a Likert scale. Each affirmative corresponds to a number of points, ranging from 0 to 3 (0 = absence; 3 = maximum severity). The final score is the sum of the points of each item. Individuals with scores less than or equal to 17 are considered without BED; with scores between 18 and 26, with moderate BED; and those with scores higher than or equal to 27, with severe BED. PFCS presented a moderately high internal consistency, with a Cronbach's alpha of 0.85 (Freitas et al., 2001).

Depression, Anxiety, and Stress Scale (DASS-21) – a self-assessment instrument used to identify the intensity of symptoms of depression, anxiety, and stress. It consists of 21 questions on a Likert scale, ranging from 0 (not applicable at all) to 3 (applied a lot, or most of the time). The results classify the symptoms into normal/light, minimal, moderate, severe, and very severe. The scale validation process obtained Cronbach's alpha values of 0.90 for depression, 0.86 for anxiety, and 0.88 for stress (Vignola & Tucci, 2014).

Data Collection Procedures

After authorization from the head of the Health Care Center (UBS), the project was sent to the Ethical Research Committee, under de CAAE number 90966818.0.0000.5319, and was subsequently approved. After that, the UBS physician referred patients diagnosed with obesity to the group. To set up the group, the researcher contacted each of the patients referred by the physician and conducted an individual interview in a medical office available in the UBS. On that occasion, the researcher clarified the study goals, the workings of pre- and post-CBT group evaluation, and the weight loss program. Besides, the researcher verified whether the subjects met the study inclusion criteria and informed intervention's date and time.

The group intervention in CBT was arranged in 8 weekly meetings of 90 minutes each, carried out in a UBS room. The sessions were planned based on other studies with similar focus (Duchesne et al., 2017; Neufeld et al., 2017; Randomile, 2003) and on the book "Think Thin" (Beck, 2011). For every meeting, the session was structured as follows: humor check, a summary of the last session, the definition of the purposes of the activity developed on the day, homework, and request for feedback (Neufeld et al., 2014, 2017). There were no follow-up sessions after group intervention.

Summary of the contents worked in each of the sessions of the CBT group

Session 1 – Researcher introduction. Establishment of the report (Neufeld et al., 2017). Explanation of the activity goals (Neufeld et al., 2017). Orientation and filling out the sociodemographic and clinical questionnaire, BES and DASS-21. Participants' introduction and verification of goals and expectations (Neufeld et al., 2017). Creation of a WhatsApp group. Individual weighing of each participant (Neufeld et al., 2014; Randomile, 2003). Feedback (Neufeld et al., 2017).

Session 2 – Subject: Food Planning (Beck, 2011). Participation of a nutritionist.

Session 3 – Subject: Motivation (Beck, 2011). Formulating the list of advantages and disadvantages of the weight loss process and answer cards (Beck, 2011).

Session 4 – Weighing (Neufeld et al., 2014; Randomile, 2003). Subject: Psychoeducation regarding obesity (Beck, 2011). Participation of a doctor specialized in bariatric surgery.

Session 5 – Subject: Plans, goals, and planning (Beck, 2011). Participation of a physical educator.

Session 6 – Subject: Cognitive restructuring and problem-solving (Neufeld et al., 2014). Learning how to deal with hunger, willingness to eat, and uncontrollable desires to eat; muscle resistance; how to manage emotions without taking it out on your diet (Beck, 2011).

Session 7 – Subject: Social skills (Neufeld et al., 2017).

Session 8 – Individual weighing of each participant (Neufeld et al., 2014; Randomile, 2003). ECAP and DASS-21 filling. Subject: Keeping and relapse prevention (Neufeld et al., 2014). Participation of an ex-obese. Feedbacks regarding the group functioning.

In the first session, the group was informed about the nature and purposes of the study, as well as the researcher's responsibility for the confidentiality of the participants' identity. On the occasion, questions were answered and the Free and Informed Consent was read and signed by the participants. A WhatsApp group was created by the investigator to make content available daily to support and encourage participants. This group was managed by the researcher, but the participants could also share their advances and difficulties regarding treatment. They usually used to post photos of their meals and exchange recipes.

Data Analysis Procedures

The results were coded and registered into a database for further statistical analysis using the Statistical Package for the Social Sciences (SPSS), version 17.0. Descriptive analyses were performed to characterize the study variables in terms of means and standard deviation. The inferential statistical analysis of the scores was performed using the Student t-test, Wilcoxon test, considering a significance level lower than 0.05 (Dancey & Reidy, 2019).

Results

The results from the assessment of pre-intervention BMI showed that most patients (77%; n=10) were labeled with Very Severe Obesity (level III), followed by Severe Obesity (level II) (15.3%; n=2) and Moderate Obesity (level I; 7.7%; n=1). At the end of the intervention, a change in classification was noted, with

69.2% (n=9) fitting into Very Severe Obesity, 15.3% (n=2) into Severe Obesity, and 15.3% (n=2) into Moderate Obesity.

Besides, the results of the BMI averages showed a decrease in the post-intervention scores, both for general BMI and for men and women, separately, as shown in Table 1. The t-test revealed that there was a significant difference between the means of BMI in pre- and post-intervention assessments (X=5.3; p<0.01).

Table 1 — BMI mean and standard deviation pre- and post-intervention

	General		Female		Male	
	M	*SD*	*M*	*SD*	*M*	*SD*
BMI pre-assessment	46.6	7.8	46.2	8.9	48.0	2.6
BMI post-assessment	45.0	7.5	44.7	8.5	46.2	2.3

The findings regarding the symptoms of food compulsion (PFCS) showed a decrease in the mean scores, comparing pre- and post-intervention, although the symptoms were considered severe (Freitas et al., 2001). Pre-intervention symptoms of depression (DASS-D) and anxiety (DASS-A) were found to be minimal, and after the CBT group sessions, they were considered normal/light. Stress symptoms were considered moderate in the first assessment and normal/light in the second one (Vignola & Tucci, 2014). The Wilcoxon test indicated a significant difference between the means of symptoms of food compulsion, depression, anxiety, and stress when compared to the pre- and post-intervention, as shown in Table 2.

Table 2 — Mean, standard deviation of food compulsion, symptoms of depression, anxiety and stress and inferential statistics by Wilcoxon test

	Pre		Post		Effect size	Statistical Difference	
	M	*SD*	*M*	*SD*	*d*		*p*
DASS-D	12.9	8.1	4.2	5.3	1.3	-2.8	<0.01
PFCS	36.5	8.3	30.5	9.1	0.7	-2.3	0.02
DASS-A	10.9	9.0	5.9	4.8	0.7	-2.5	0.01
DASS-S	19.9	8.3	9.1	4.4	1.7	-3	<0.01
DASS total	43.7	20.8	19.1	11.1	1.5	-3	<0.01

Discussion

The results for BMI revealed that the scores of all measurements decreased after the intervention, with a statistically significant difference and considerable effect size. Previous studies have indicated that the CBT group reduces weight, changing the BMI range of patients (Ferrari et al., 2017; Neufeld et al., 2012), including in cases of groups with obese adolescents (Lüdtke et al., 2018). Modification of the food choice pattern through nutritional information and the new behavioral management of food were some of the intervention targets. The food diary, the understanding, and self-knowledge about eating behavior by observing previous and consequential events (Beck, 2011) may have contributed to the decline of BMI scores.

The findings also showed a reduction in PFCS averages (improvement in food compulsion) when comparing scores before and after the intervention, with a statistically significant difference. This result was also confirmed by other studies, which found a decrease in the severity of food compulsion after 12 weeks of CBT group (Abdelatif et al., 2017), a drop in the frequency of compulsion episodes, and remission of food compulsion after 22 sessions (Duchesne et al., 2007).

Despite the strong association between BED and obesity, it is important to consider that people with obesity do not necessarily suffer from the disorder (Finger & Guedes, 2016). The prevalence of the disorder varies from 20% to 50% among obese women who participate in weight reduction programs (Lima & Oliveira, 2016). A study with participants diagnosed with obesity, applicants for bariatric surgery, found that 50% showed BED, 31.6% showed moderate periodic food compulsion (PFC), and 18.4% severe PFC (Silveira et al., 2009).

Aiming to decrease compulsive eating episodes, professionals usually work with psychoeducation on BED, clues, and consequences of compulsive episodes, restructuring of negative thought patterns, identification of clues and behavioral chains, self-control strategies and mood improvements, body image problems, stress management techniques, assertiveness training, cost-benefit weight analysis, strategies of loss in the week, and relapse prevention (Wolff & Clark, 2001). In this study, besides the strategies already mentioned, other aspects may have contributed to the significant difference in pre- and post-intervention PFCS scores: problem-solving techniques; approaches to learning how to deal with hunger, willingness to eat and uncontrollable desires to eat; the study of resistance muscle; guidelines on how to manage emotions without taking it out on food (Beck, 2011), and assertiveness training (Neufeld et al., 2017).

The literature describes that, besides physical illness, obese individuals frequently present emotional suffering, with high levels of symptoms of depression, anxiety, and stress (Franques & Levy, 2019; Nascimento et al., 2013). Individuals with BED usually present these symptoms at a higher intensity than those without this diagnosis (Bernardi et al., 2005). Moreover, anxiety and stress symptoms show greater variation in food compulsion symptoms than in depression symptoms (Rosenbaum & White, 2015).

The findings of this study showed a decrease in depressive symptoms in post-intervention assessment, corroborating the results of one research with older adults who also showed a reduction in depression symptoms after a CBT group, from moderate to mild (Ferreira et al., 2012). Similarly, the intensity of depressive symptoms decreased in a group of teenagers (Lüdtke et al., 2018) and in chronic renal patients who took part in a CBT group program (Duarte, 2008).

Some authors highlight that depressive disorder can cause obesity (Blaine, 2008), while others affirm that the disorder is a consequence of obesity (Oliveira et al., 2004), indicating a circularity between the two pathologies (Milaneschi et al., 2017). The changes in body image, resulting from weight gain, may cause a depreciation of self-esteem and self-concept, increasing the chances of depressive symptoms, a higher sense of inadequacy and decreased well-being (Lima & Oliveira, 2016). During CBT group sessions, patients were stimulated to talk about their thoughts and guided to identify and reorganize those who might be interfering in their mood and daily behavior (Duarte, 2008), seeking to contribute to the reduction of these symptoms.

The results regarding anxiety symptoms showed a significant difference before and after the CBT group program. The findings are in line with studies which conducted a CBT weight loss group (Neufeld et al., 2012) in patients diagnosed with social anxiety disorder (D'El Rey et al., 2007; Dittz et al., 2015) and in women with anxiety symptoms (Pedrosa et al., 2017).

Obesity has a strong association with anxiety symptoms (Lykouras & Michopoulos, 2011). There is evidence that obesity increases the chance of developing anxiety disorder by 25% (Luz, 2013). Many people find in eating a way to relieve anxiety, make up for emotional difficulties, satisfy emotional needs, release anger, or run away from unpleasant feelings such as boredom, worry, guilt, shame, and hopelessness that result from psychological conflicts (Coletty, 2005).

Food is pleasurable and has the potential to reduce anxiety levels, strengthening the anxiety-food-anxiety reduction relationship. Therefore, food works as a compensatory resource (Lima & Oliveira, 2016). The elaboration of coping

cards – developed in the third session – and the techniques that establish how to manage emotions without taking it out on food (Beck, 2011), taught in this intervention, may have helped to decrease these symptoms.

Stress symptoms were the most prevalent in this study sample, presenting a statistically significant difference between pre- and post-intervention. The results corroborate the findings of other studies that developed an open group for weight loss (Lima & Oliveira, 2016) and employed CBT for stress management (Borges et al., 2009). Stress can contribute to increased calorie consumption, food compulsion, inactivity, and difficulty in controlling appetite, associated with weight gain and obesity (Franques & Levy, 2019). Emotional exhaustion can also lead to weight gain, through a reward and feedback system, which reveals an association between stress symptoms and the feeling of relief after eating foods rich in sugar and fat (Lima & Oliveira, 2016).

One of the interventions for stress management is the Stress Control Training (SCT), which aims to change life habits and behaviors. The SCT is based on four different areas that build the following pillars: anti-stress nutrition, relaxation of mental and physical tension, physical exercise, and cognitive-behavioral changes. The sessions also address problem-solving techniques, time management, assertiveness training, anxiety control, and cognitive restructuring (Borges et al., 2009). Although SCT was not the focus of this intervention, many of these techniques were practiced in this program, which may explain the significant decrease in stress symptoms score.

One of the differentials of this intervention program was the WhatsApp group, which showed that using the internet can make easier access to treatment (Munsch et al., 2019). The opportunity for participants to contact and interact with each other and with the researcher – besides the CBT group meetings – increased group cohesion and therapeutic alliance (Freitas & Rech, 2010). In this regard, a therapist's guidance seems to improve the positive effects of internet-based treatments (Aardoom et al., 2013). So, contemporary technology has opened new possibilities for treatment delivery (Munsch et al., 2019).

Final considerations

The results revealed that the mean BMI, food compulsion symptoms, depression, anxiety, and stress decreased when comparing pre- and post-intervention. Thus, the authors concluded that the CBT Group reached positive results in decreasing psychological symptoms in the population investigated, highlighting

the need for construction and validation of protocols for individuals diagnosed with obesity.

This study has limitations. The intervention was performed in a specific health care center, and there were no comparisons with other places, which does not allow the generalization of the results on the intervention effectiveness. The authors suggest, for future research, the development of a control group, and an increase in the number of sessions, to verify if there is a greater decrease in food compulsion symptoms.

References

Aardoom, J. J.; Dingemans, A. E.; Spinhoven, P.; Van Furth, E. F. (2013). Treating eating disorders over the internet: A systematic review and future research directions. *International Journal of Eating Disorders, 46*(6), 539-552. https://doi.org/10.1002/eat.22135

Abdelatif, A.; Sabry, N. A.; El Shinnawy, H. A.; Hassan, S. A.; Fakher, W. (2017). Cognitive behavioral group therapy on a sample of obese female patients with binge-eating disorder: Egyptian study. *Middle East Current Psychiatry, 24*(4), 187-190. https://doi.org/10.1097/01.xme.0000522263.83217

APA – American Psychiatric Association (2023). *DSM-5-TR: Manual diagnóstico e estatístico de transtornos mentais* (5ª ed., revisada). Artmed.

Beck, J. S. (2011). *Pense magro por toda a vida* (trad. M. Veronese). Artmed.

Bernardi, F.; Cichelero, C.; Vitolo, M. R. (2005). Comportamento de restrição alimentar e obesidade. *Revista de Nutrição, 18*(1), 85-93. https://doi.org/10.1590/s1415-52732005000100008

Blaine, B. (2008). Does depression cause obesity? A meta-analysis of longitudinal studies of depression and weight control. *Journal of Health Psychology, 13*(8), 1190-1197. https://doi.org/10.1177/1359105308095977

Borges, C. S.; Luiz, A. M. A. G.; Domingos, N. A. M. (2009). Intervenção cognitivo-comportamental em estresse e dor crônica. *Arquivos de Ciências da Saúde, 16*(4), 181-186. https://pesquisa.bvsalud.org/portal/resource/pt/lil-607688

Coletty, I. M. S. (2005). *Transtorno de compulsão alimentar periódica (TCAP) e ansiedade em adolescentes obesos* (master's dissertation). Faculdade de Ciências Médicas, Universidade Federal de Campinas (Unicamp). https://repositorio.unicamp.br/acervo/detalhe/358162

Dancey, C. P.; Reidy, J. (2019). *Estatística sem matemática para psicologia* (7ª ed.) (trad. L. Viali). Penso.

D'El Rey, G. J. F.; Greenberg, P. N.; Husni, M. A.; Cejkinski, A. (2007). Terapia cognitivo-comportamental de grupo no tratamento da fobia social generalizada. *Psicologia Argumento, 25*(50), 305-311. https://doi.org/10.7213/rpa.v25i50.20551

Dittz, C. P.; Stephan, F.; Gomes, D. A. G.; Badaró, A. C.; Lourenço, L. M. (2015). A terapia cognitivo-comportamental em grupo no transtorno de ansiedade social. *Estudos e Pesquisas em Psicologia, 15*(3), 1061-1080. https://doi.org/10.12957/epp.2015.19428

Duarte, P. S. (2008). *Efetividade de uma intervenção cognitivo-comportamental em grupo para pacientes renais crônicos em tratamento dialítico e com depressão* (doctoral thesis). Escola Paulista de Medicina, Universidade Federal de São Paulo (UNIFESP). https://repositorio.unifesp.br/handle/11600/24454

Duchesne, M.; Almeida, N.; Vieira, T. A. L.; Neufeld, C. B. (2017). Terapia cognitivo-comportamental em grupo para transtornos alimentares e obesidade. In: C. B. Neufeld; B. P. Rangé (Eds.). *Terapia cognitivo-comportamental em grupos: Das evidências à prática*, p. 153-174. Artmed. https://www.adventista.edu.br/source2019/psicologia/TCC-em-Grupos.pdf (accessed 04/11/2023)

Duchesne, M.; Appolinário, J. C.; Rangé, B. P.; Freitas, S.; Papelbaum, M.; Coutinho, W. (2007). Evidências sobre a terapia cognitivo-comportamental no tratamento de obesos com transtorno da compulsão alimentar periódica. *Revista de Psiquiatria do Rio Grande do Sul, 29*(1), 80-92. https://doi.org/10.1590/S0101-81082007000100015

Ferrari, G. D.; Azevedo, M.; Medeiros, L.; Neufeld, C. B.; Ribeiro, R. P. P.; Rangé, B. P.; Bueno, C. R. (2017). A multidisciplinary weight-loss program: The importance of psychological group therapy. *Motriz: Revista de Educação Física, 23*(1), 47-52. https://doi.org/10.1590/s1980-6574201700010007

Ferreira, H. G.; Souza e Lima, D. M. X.; Zerbinatti, R. (2012). Atendimento psicoterapêutico cognitivo-comportamental em grupo para idosos depressivos: Um relato de experiência. *Revista da SPAGESP, 13*(2), 86-101. http://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S1677-29702012000200010

Finger, I. R.; Guedes, P. A. (2016). Diagnóstico e curso dos transtornos alimentares. In: I. R. Finger; M. S. Oliveira (Orgs.). *A prática da terapia cognitivo-comportamental nos transtornos alimentares e obesidade*, p. 24-36. Sinopsys. https://www.sinopsyseditora.com.br/upload/produtos_pdf/402.pdf (accessed 04/11/2023)

Franques, A. R. M.; Levy, A. (2019). Aspectos psicológicos do paciente obeso. In: A. Pereira, C. C. Freire, E. P. Godoy, F. Viegas, J. C. D Marchesini; M. T. Zanella (Eds.). *Cirurgia bariátrica e metabólica: Abordagem multiprofissional*, p. 41-45. Rubio.

Freitas, P. B.; Rech, T. (2010). O uso da terapia cognitivo-comportamental no tratamento do transtorno depressivo: Uma abordagem em grupo. *Barbaroi*, (32), 98-113. http://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S0104-65782010000100007

Freitas, S.; Lopes, C. S.; Coutinho, W.; Appolinario, J. C. (2001). Tradução e adaptação para o português da Escala de Compulsão Alimentar Periódica. *Brazilian Journal of Psychiatry, 23*(4), 215-220. https://doi.org/10.1590/S1516-44462001000400008

Lima, A. C. R.; Oliveira, A. B. (2016). Fatores psicológicos da obesidade e alguns apontamentos sobre a terapia cognitivo-comportamental. *Mudanças – Psicologia da Saúde, 24*(1), 1-14. https://www.metodista.br/revistas/revistas-metodista/index.php/MUD/article/view/6465/

Lüdtke, L.; Silva, B. M. B.; Peuker, A. C. W. B.; Garcia, E. L. (2018). Obesidade, depressão e estresse: Relato de uma intervenção multidisciplinar em grupo com adolescentes. *Revista Interdisciplinar de Promoção da Saúde, 1*(4), 256-266. https://doi.org/10.17058/rips.v1i4.13078

Luz, F. Q. (2013). *Distorções cognitivas, esquemas iniciais desadaptativos, depressão, ansiedade e estresse em obesos mórbidos e pessoas com peso normal* (master's dissertation). Faculdade de Psicologia, Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS). https://tede2.pucrs.br/tede2/handle/tede/852/

Lykouras, L.; Michopoulos, J. (2011). Anxiety disorders and obesity. *Psychiatriki, 22*(4), 307-313. https://www.psychiatriki-journal.gr/documents/psychiatry/22.4-EN-2011-307.pdf

Medeiro, S. A.; França, L. H. F. P.; Menezes, I. V. (2021). Motivos psicossociais para cirurgia bariátrica em adultos jovens e mais velhos. *Psicologia: Ciência e Profissão, 41*, e222218. https://doi.org/10.1590/1982-3703003222218

Melo, W. V.; Bergmann, C.; Neufeld, C. B.; Machado, P. P. P.; Conceição, E. (2014). A terapia cognitivo-comportamental e a cirurgia bariátrica como tratamentos para a obesidade. *Revista Brasileira de Terapias Cognitivas, 10*(2), 84-92. http://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S1808-56872014000200004

Milaneschi, Y.; Lamers, F.; Peyrot, W. J.; Baune, B. T.; Breen, G.; Dehghan, A.; Forstner, A. J.; Grabe, H. J.; Homuth, G.; Kan, C.; Lewis, C.; Mullins, N.; Nauck, M.; Pistis, G.; Preisig, M.; Rivera, M.; Rietschel, M.; Streit, F.; Strohmaier, J.; ... for the CHARGE Inflammation Working Group and the Major Depressive Disorder Working Group of the Psychiatric Genomics Consortium (2017). Genetic association of major depression with atypical features and obesity-related immunometabolic dysregulations. *JAMA Psychiatry, 74*(12), 1214-1225. https://doi.org/10.1001/jamapsychiatry.2017.3016

Ministério da Saúde [Ministry of Health] (2018). *Vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico: Estimativas sobre frequência e distribuição sociodemográfica de fatores de risco e proteção para doenças crônicas nas capitais dos 26 estados brasileiros e no distrito federal em 2017*. Ministério da Saúde. https://bvsms.saude.gov.br/bvs/publicacoes/vigitel_brasil_2017_vigilancia_fatores_riscos.pdf

Munsch, S.; Wyssen, A.; Vanhulst, P.; Lalanne, D.; Steinemann, S. T.; Tuch, A. (2019). Binge-eating disorder treatment goes online: Feasibility, usability, and treatment outcome of an internet-based treatment for binge-eating disorder: Study protocol for a three-arm randomized controlled trial including an immediate treatment, a waitlist, and a placebo control group. *Trials, 20*(1), 128. https://doi.org/10.1186/s13063-019-3192-z

Nascimento, C. A. D.; Bezerra, S. M. M. S.; Angelim, E. M. S. (2013). Vivência da obesidade e do emagrecimento em mulheres submetidas à cirurgia bariátrica. *Estudos de Psicologia (Natal), 18*(2), 193-201. https://doi.org/10.1590/s1413-294x2013000200004

Neufeld, C. B. (2011). Intervenções em grupos na abordagem cognitivo-comportamental. In: B. P. Rangé (Ed.). *Psicoterapias cognitivo-comportamentais: Um diálogo com a psiquiatria* (2ª ed.), p. 737-750. Artmed.

Neufeld, C. B.; Affonso, G.; Moreno, A. L. (2014). PRO-META: Programa cognitivo-comportamental de educação alimentar em grupo. In: C. B. Neufeld (Ed.). *Intervenções e pesquisas em terapia cognitivo-comportamental com indivíduos e grupos*, p. 44-79. Sinopsys.

Neufeld, C. B.; Maltoni, J.; Ivatiuk, A. L.; Rangé, B. P. (2017). Aspectos técnicos e o processo em TCCG. In: C. B. Neufeld; B. P. Rangé (Eds.). *Terapia cognitivo-comportamental em grupos: Das evidências à prática*, p. 33-53. Artmed. https://www.adventista.edu.br/source2019/psicologia/TCC-em-Grupos.pdf (accessed 04/11/2023)

Neufeld, C. B.; Moreira, C. A. M.; Xavier, G. S. (2012). Terapia cognitivo-comportamental em grupos de emagrecimento: O relato de uma experiência. *Psico, 43*(1), 93-100. https://revistaseletronicas.pucrs.br/ojs/index.php/revistapsico/article/view/11103/

Neufeld, C. B.; Rangé, B. P. (2017). *Terapia cognitivo-comportamental em grupos: Das evidências à prática*. Artmed. https://www.adventista.edu.br/source2019/psicologia/TCC-em-Grupos.pdf (accessed 04/11/2023)

Oliveira, M. I. S.; Guimarães, T. B. L. (2018). A TCC no manejo clínico com pacientes que apresentam obesidade ou dificuldade para emagrecer. In: N. G. Araújo, J. P. Rubino; M. I. S. Oliveira (Eds.). *Avaliação e intervenção na clínica em terapia cognitiva-comportamental*, p. 421-443. Sinopsys.

Oliveira, V. M.; Linardi, R. C.; Azevedo, A. P. (2004). Cirurgia bariátrica: Aspectos psicológicos e psiquiátricos. *Archives of Clinical Psychiatry (São Paulo), 31*(4), 199-201. https://doi.org/10.1590/s0101-60832004000400014

Pedrosa, K. M.; Couto, G.; Luchesse, R. (2017). Intervenção cognitivo-comportamental em grupo para ansiedade: Avaliação de resultados na atenção primária. *Psicologia: Teoria e Prática, 19*(3), 43-56. http://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S1516-36872017000300003

Randomile, R. R. (2003). Obesidade. In: J. R. White; A. S. Freeman (Eds.). *Terapia cognitivo-comportamental em grupo para a populações e problemas específicos*, p. 109-136. Roca.

Renjilian, D. A.; Perri, M. G.; Nezu, A. M.; McKelvey, W. F.; Shermer, R. L.; Anton, S. D. (2001). Individual versus group therapy for obesity: Effects of matching participants to their treatment preferences. *Journal of Consulting and Clinical Psychology, 69*(4), 717-721. https://doi.org/10.1037/0022-006X.69.4.717

Rosenbaum, D. L.; White, K. S. (2015). The relation of anxiety, depression, and stress to binge eating behavior. *Journal of Health Psychology, 20*(6), 887-898. https://doi.org/10.1177/1359105315580212

Shaughnessy, J. J.; Zechmeister, E. B.; Zechmeister, J. S. (2012). *Metodologia de pesquisa em psicologia* (9ª ed.) (trad. R. C. Costa). Penso.

Silveira, É. A.; Cunha, J.; Faria, J. F.; Mendonça, V. S. (2009). *Prevalência de compulsão alimentar periódica em pacientes obesos candidatos à cirurgia bariátrica* (undergraduation final paper). Faculdade de Nutrição, Universidade Federal de Goiás (UFG). https://files.cercomp.ufg.br/weby/up/754/o/nut_clinica.pdf (accessed 04/11/2023)

Toledo, E. L. (2014). *Avaliação do tratamento cognitivo-comportamental estruturado para grupo de pacientes com tricotilomania* (master's dissertation). Faculdade de Medicina, Universidade de São Paulo (USP). https://doi.org/10.11606/D.5.2014.tde-09062014-095528

Vidal, C. E. L.; Araújo, N. J. M.; Queiroz, B. M. P.; Bertolin, M. E. B.; Ferreira, M. E. D.; Morais, V. C. S. (2022). Prevalência e associação entre obesidade e transtornos mentais. *Revista Médica de Minas Gerais, 32*(Supl.6), S34-S43. https://rmmg.org/artigo/detalhes/3942/

Vignola, R. C. B.; Tucci, A. M. (2014). Adaptation and validation of the depression, anxiety and stress scale (DASS) to Brazilian Portuguese. *Journal of Affective Disorders, 155*, 104-109. https://doi.org/10.1016/j.jad.2013.10.031

WHO – World Health Organization (2021). *Obesity and overweight*. https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight (accessed 04/11/2023)

Wolff, G. E.; Clark, M. M. (2001). Changes in eating self-efficacy and body image following cognitive-behavioral group therapy for binge eating disorder: A clinical study. *Eating Behaviors, 2*(2), 97-104. https://doi.org/10.1016/s1471-0153(01)00021-6