JoCASS
Çukurova Anestezi ve Cerrahi Bilimler Dergisi
2018 Adana

MITIGATING THE SEVERITY OF BINGE EATING EPISODES IN OBESE INDIVIDUALS

OBEZ KİŞİLERDE TIKINIRCASINA YEME ATAKLARININ ŞİDDETİNİN AZALTILMASI

Mehmet Cenk Belibağlı [1]

1 *Adana City Training and Research Hospital, Adana, Türkiye*

Sorumlu Yazar/Corresponding Author: Mehmet Cenk Belibağlı E-mail: mcbelibagli@gmail.com

Geliş Tarihi/Received: 01.08.2022 Kabul Tarihi-Accepted: 27.08.2022 Available Online Date/Çevrimiçi Yayın Tarihi: 31.08.2022

Cite this article as: Belibağlı MC. Mitigating the severity of binge eating episodes in obese individuals. J Cukurova Anesth Surg. 2022;5(2):259-266.

Doi: 10.36516/jocass.1152333

Abstract

Aim: The study aimed to analyze the change in the severity of binge eating disorder in obese individuals registered to the Adana City Training and Research Hospital Obesity Center training program.

Methods: The study was a single-arm, prospective, quasi-experimental study with an interrupted time-series design. Inclusion criteria were having registered to the center for training, age between 18 to 65 years, a body mass index (BMI) equal to or over 30 and having binge eating disorder. Binge eating disorder evaluation (BEDE) was a structured form exclusively using DSM-5 binge eating disorder (BED) diagnosis and the severity criteria. The progress record included a weekly curriculum that a physician, dietitian, psychologist administered, and the physiotherapist and the monthly individual meetings data.

Results: The BEDE reports showed a significant improvement, with 65 of the patients scoring below the BED diagnosis at the final evaluation. There was no difference between the genders regarding improvement in episodes. The current study showed that after twenty weeks of training that lasted for approximately 80 hours, the patients reported fewer episodes.

Conclusions The training could be considered efficacious for reducing the severity of binge eating episodes in obese patients seeking treatment.

Keywords: Obesity, binge eating disorder, weight loss

Öz

Amaç: Çalışma, Adana Şehir Eğitim ve Araştırma Hastanesi Obezite Merkezi Eğitim Programına kayıtlı Obez kişilerde tıkınırcasına yeme bozukluğunun şiddetindeki değişimi analiz etmeyi amaçlamıştır.

Yöntemler: Çalışma, kesintili bir zaman serisi tasarımına sahip, tek kollu, prospektif, yarı deneysel bir çalışmaydı. Dahil edilme kriterleri, eğitim için merkeze kayıtlı olmak, 18-65 yaş arasında olmak, vücut kitle indeksi (VKİ) 30'a eşit veya üzerinde olmak ve tıkınırcasına yeme bozukluğuna sahip olmaktı. Tıkınırcasına yeme bozukluğu değerlendirme (BEDE) formu, yalnızca DSM-5 Tıkınırcasına yeme bozukluğu (BED) tanısı ve şiddet kriterleri kullanılarak yapılandırılmış bir formdu. İlerleme kaydı, bir doktor, diyetisyen, psikolog ve fizyoterapistin uyguladığı haftalık bir müfredatı ve aylık bireysel toplantı verilerini içeriyordu.

Bulgular: BEDE raporları, son değerlendirmede 65 hastanın BED tanısının altında puan almasıyla önemli bir gelişme gösterdi. Epizotlardaki iyileşme açısından cinsiyetler arasında fark yoktu. Mevcut çalışma, yaklaşık 80 saat süren yirmi haftalık eğitimden sonra hastaların daha az atak bildirdiğini gösterdi.

Sonuç: Tedavi arayan obez hastalarda tıkınırcasına yeme ataklarının şiddetini azaltmak için eğitimin etkili olduğu düşünülebilir.

Anahtar Kelimeler: Obezite, tıkınırcasına yeme bozukluğu, kilo verme

Introduction

In the recent Diagnostic and Statistical Manual of Mental Disorders (DSM-5), binge eating disorder (BED) is classified as a specific disorder with recurrent episodes of binge eating in a discrete period, an amount of food that is larger than most people would eat in a similar period under similar circumstances with the sense of lack of control overeating during the episode. Individuals with BED have impulsive, recurrent binge eating episodes in the absence of inappropriate compensatory weight control methods[1]. BED has been reported to have the highest lifetime and 12-month prevalence among eating disorders with 2.22% and 0.87%, respectively[2]. It is also considered as a heritable condition that is influenced by both genetic and environmental factors[3]. The disorder has significant medical complications related to excess body weight and impaired psychosocial functioning[4].

In the Diagnostic and Statistical Manual of Mental Disorders 5th edition (DSM-5), a new severity indicator was added based on the episodes' frequency. Four severity groups were defined for BED based on the weekly episodes: mild, moderate, severe, and extreme with episode frequencies 1-3, 4-7, 8-13, and over 14 per week, respectively[1].

Outcomes of treatments for binge eating spectrum disorders are yet to yield desirable results, reporting up to 60–70% of patients remaining symptomatic at post-treatment[5].

- *Obesity Center Training Program*

Adana City Training and Research Hospital Obesity Center is designed to provide multidisciplinary health care services and training for groups of obese patients seeking professional help. The center includes a physician, dietitian, physiotherapist, psychologist, public relations officer, and a nurse acting as a life coach. The program is planned to carry out initial assessments, health screening, necessary medical attention related to obesity, cognitive change, behavioral change, and sustainability activities. The assessment part consists of one-on-one interviews with the physician, psychologist, dietitian, physiotherapist, and nurse. (Table 1) Patients with severe or mismanaged medical conditions, including chronic diseases, neurological diseases, significant affective and psychotic disorders, and substance abuse or addiction disorders are directed to relevant clinics before registration. The patients who complete the assessment are arranged into groups. In two group meetings, basic medical knowledge and frequently asked questions are discussed. The center staff and the patients get acquainted. In the following twenty weeks, the physician, dietitian, psychologist, and physiotherapist conducted group training sets. The subjects of the meetings are as follows; medical information about obesity, using the technology to aid weight loss, self-questioning what, when, how, and why to eat, nutrition groups, ration management, water consumption, self-awareness, stress management, obesity and the association between the psychological processes, warming up and mobilization, correct stance and posture, and adequate physical activity. In addition to group meetings, in monthly individual sessions, the progress is evaluated.

The study aimed to analyze the change in the severity of binge eating disorder in patients registered to the program. The study expected to show a decrease in the frequency of the BED episodes.

Materials and Methods

The study was a single-arm, prospective, quasi-experimental study with an interrupted time-series design. There were no sampling methods; all patients registered to the program with binge eating disorder were asked to be included. Inclusion criteria were having registered to the center for training, passed the first three steps, age between 18 to 65 years, a body mass index (BMI) equal to or over 30, and having binge eating disorder.

Table 1. Trainers and the topics discussed in weekly group meetings

Sets	Week	*Physician*	*Dietitian*	*Psychologist*	*Physiotherapist*
1	1	What is obesity	Water Consumption	Communication skills	How to warm-up
	2	Obesity and the musculoskeletal system	Portion control	Imagination	Knee exercises
	3	Obesity, chronic diseases, and cancer	Food types	Role-play	Spine exercises
	4	Parameters used in weight evaluation	Calories of Fats	Personality theories	Upper extremity
2	5	Daily requirements and expenditure of the body	The Calories of the Sugars	Role-play	Lower Extremity
	6	Vegetarians and vegans	Calories of meat-rich foods	Stress management	Lower body (lying)
	7	Fitness, weight tracking, and technology	Calories of the dairies	Role-play	Lower body (standing)
	8	Conditions related to overweight	Calories of fruits	Self-perception	Upper body exercises
3	9	Insulin resistance and glycemic index	Calories of vegetables	Role-play	Back exercises
	10	How does my body work?	Calories of grains	Psychological traumas	Abdominal exercises
	11	What do I think about eating?	Healthy nutrition	Role-play	Stretching exercises
	12	What I feel about eating?	Distribution of daily energy intake	Childhood and adolescent traumas	Relaxation exercises
4	13	What exactly do I eat?	Meal-time planning	Role-play	Aerobic exercises
	14	How much do I eat?	Meal enrichment	Anxiety disorders	Routine activity
	15	When do I eat?	Nutrients that complicate weight loss	Role-play	Correct posture
	16	How do I eat?	Label reading	Avoidance behavior and affirmation	Effects of exercises on basal metabolic rate
5	17	Why do I eat?	Consumption of packaged products	Personal motivation	Alternative exercises
	18	5W3H Summary	Healthy meal preparation	Imagination	Yoga and Pilates
	19	Local key opinion leadership (KOL) on health and nutrition	Portion control	Coping with Stress	Summary of exercises
	20	Summary	Healthy Food Cooking and Storage	Role-play applications in social network	Summary of exercises

Table 2. Summary of the demographics and the clinical characteristics

		%	Initial evaluation Weight	BMI	p weight	p bmi
Gender	Female	97(%82,2)	99,34±15,89	38,66±6,10	0,02	0,53
	Male	21(%17,8)	112,77±23,99	37,69±7,75		
	Total	118	101,73±18,23	38,49±6,40		
Marital status	Married	94(%79,7)	100,50±18,13	38,03±6,28	0,14	0,12
	Single	24(20,3)	106,53±18,18	40,28±6,70		
Age	Female	47,15±10,84				
	Male	49,38±11,26				
	Total	47,5±10,90				
Educational	None	2(1,7)	93,00±26,30	39,93±10,94	0,23	0,12
	Elementary	49(41,5)	104,98±22,12	40,12±6,96		
	Middle	40(33,9)	97,52±15,75	37,27±6,14		
	High	27(22,9)	102,72±11,75	38,49±4,97		
Socioeconomic status	Low	41(34,7)	103,89±16,27	39,14±6,22		
	Medium	66(55,9)	100,51±20,05	38,13±6,60	0,64	0,72
	High	11(9,3)	100,97±18,23	38,49±6,40		
Occupation	Employee	5(4,2)	112,44±15,36	38,91±6,46		
	Others	8(6,8)	111,86±16,44	38,96±7,28	0,14	0,99
	Retired	21(17,8)	103,46±24,85	38,39±7,32		
	Unemployed	84(71,2)	99,70±16,23	38,44±6,19		
Beck Score	Beginning of the training	11,96±3,72			0,000	
	The end of the 20th week	10,06±3,98				

Table 3. BEDE severity by variables

	Weight	BMI	Binge Eating Episodes	Severity score			
				Mild	Moderate	Severe	Extreme
Initial evaluation	101,73±18,23	38,49±0,59	5,33±4,17	50(%42,4)	44(%37,3)	18(%15,3)	6(%5,1)
Beginning of the training	100,45±17,90	38,00±0,57	5,17±3,59	50(%42,4)	45(%38,1)	16(%13,6)	7(%5,9)
Fourth week	98,11±17,58	37,12±0,56	3,88±3,66	70(%59,3)	34(%28,8)	11(%9,3)	3(%2,5)
Eighth week	95,68±17,42	36,21±0,57	3,14±3,72	74(%62,7)	33(%28,0)	7(%5,9)	4(%3,4)
Twelfth week	93,64±17,40	35,44±0,57	3,00±3,55	76(%64,4)	32(%27,1)	6(%5,1)	2(%3,4)
Twentieth week	92,21±6,871	34,91±0,56	2,95±3,56	77(%65,3)	29(%24,6)	7(%5,9)	5(%4,2)
p	0,00	0,00	0,00	0,00			

Patients who failed to attend more than four pieces of training and complete a binge eating evaluation were excluded from the study.

The training materials were developed by the trainers and edited by the director of the obesity center (author) for the final version before training.

The data collection was performed via socio-demographic information form, binge eating disorder evaluation (BEDE) form, and progress record forms. The socio-demographic information form included age, gender, marital status, education level, employment, financial self-appraisal, physical activity, smoking, and alcohol consumption. BEDE was a structured form exclusively using DSM-5 BED diagnosis and the severity criteria[1]. The progress record included a weekly curriculum that a physician, dietitian, psychologist administered, and the physiotherapist and the monthly individual meetings data.

The patients were planned to receive 80 hours of training in the group meetings by the physician, dietitian, psychologist, and physiotherapist. The total of 80 hours was divided into five sets, at the end of which BEDE forms were completed. Including the initial evaluation, patients were planned to report six BEDE forms. At the beginning of the training, at the end of the 4^{th}, 8^{th}, $12^{th,}$ and 20^{th} training. The depression scores of the cases were also assessed by using the Beck Depression Inventory in the beginning and at the end of the study.

- *Statistical Analysis*

Statistical Package for the Social Sciences (SPSS 23) software was used in data analysis. In the data obtained by counting, frequency was accepted as descriptive measures, and in variables obtained by measurement, mean, standard deviation, were accepted as descriptive measures. $p<0.05$ was considered statistically significant. Anova test and repeated measure analyzed tests was used for comparison between groups.

Results

The number of subjects participated in the study was 118. In table 2, the demographics and the clinical characteristics of the group, the means, and the standard deviations for

the variables at pre and post-treatment were presented.
During the training lasted for 20 weeks, including the initial evaluation, patients reported six BEDE forms, at the beginning of the training, at the end of the 4th, 8th, 12th, and 20th training.
The BEDE reports showed a significant improvement, with 65 of the patients scoring below the BED diagnosis at the final evaluation.
Scores from the Beck depression scale decreased statistically between the first and last evaluation. (Table 2)
Participants had lower body weights in the later weeks of the training program. (Table 3) Binge eating attacks also decreased statistically significantly. The severity scores formed according to the weekly eating attacks also decreased statistically significantly. (Table 3)

Discussion

The nonattendance rate was low compared to other studies indicating that approximately a third of patients referred to treatments do not use the services [6]. The low adherence rates were related to many reasons since for individuals with an eating disorder recovery expectations fluctuate[7]. A person may be in denial or having negative anticipations of the treatment results. Moreover, patients trapped in this disorder adapt to a condition of using it as a tool in coping with daily challenges. Although the burden of BED is agonizing, the patients perceive the episodes as a vital part of their presence. They often internalize the disorder, forming an unalterable circle, an almost untreatable condition[8].
Reports are indicating that pretreatment BE frequency rates have significant value in prediction and are strongly associated with BED treatment outcome[9]
In this study, 9.3% weight loss and a decrease in binge eating frequency were achieved within a 20-week program. Eldredge et al.[10] in their study, found that prolonging the duration of CBT up to 12 weeks in BED patients who did not respond to the first treatment increased its effectiveness of the treatment. In our study, the program was continued for 20 weeks, which showed increased effects similar to the literature. Brownley et al.[11] in a review of 26 studies found that individual or group behavioral therapies reduced binge eating and improved abstinence rates for up to 4 months following treatment which did not result in weight loss. They also stated that the effectiveness of drug therapy was higher. Fluoxetine, fluvoxamine, sertraline, citalopram, imipramine, topiramate, and sibutramine were used in drug-treated studies, and it was emphasized that binge eating attacks decreased in these drug-treated groups and weight loss was achieved in some groups.
Grilo et al.[12] studied comparing the groups given fluoxetine and behavior change with placebo, they stated that the CBT + fluoxetine group was more effective in weight loss and reducing the frequency of attacks compared to the other groups. Gorin et al.[13] in a study, showed a decrease in BMI, frequency of eating attacks, and depression scores in the Bed group, which received cognitive behavioral therapy and had a 12-week follow-up period. Wilfley et al.[14] comparing BED patients who underwent CBT with the group who received interpersonal psychotherapy (IPT), BMI decreased, while Binge eating increased slightly through follow-up but remained significantly below pretreatment levels.
Tunay et al.[15] conducted a targeted study of group interviews and healthy lifestyle changes in a group of obese women. In this study, successful weight loss was achieved in obese patients in primary care with similar training programs. Emphasis was placed on the continuity of the participants. Our study and similar ones have provided motivating results in terms of conducting similar interventional studies in a multidisciplinary manner by family physicians in our country. Undoubtedly, obesity remains as an important health problem for our country. In the MONICA[16] (monitoring trends and determinants in cardiovascular disease) study

conducted by the World Health Organization, which lasted 12 years, it was reported that there was an increase of 10-30% in the prevalence of obesity in 10 years.
Family physicians have a unique opportunity with their holistic approach and continuity of care in the treatment and prevention of obesity.
There were too many subjects showing no change. Aware of the limitations of the single-arm study, which restricts the possibility of observing a control group, it is not entirely correct to suggest that the training did not help the participants show little or no change. Considering the possibility that their condition would have worsened in time if untreated, there may be an opportunity to detect an additional positive effect of the training[17].

- *Limitations*

The study had several significant limitations. First, since there were no control groups, we could not show the difference between the effect of the treatment, a placebo effect, and the effect of natural history. The social events, regression to the mean, and spontaneous remission in the elapsed time were other significant limitations that should be addressed. Based on regression to the mean, it was known that patients who scored exceptionally on a variable on one evaluation would tend to score less exceptionally on the next one. Moreover, spontaneous remission is closely related and extremely important to psychological research and must be kept in mind in evaluating the outcome of such studies[18]. Besides, the Hawthorne effect should always be kept in mind, as it is generally defined as a change in the behavior of the participants in experimental or observational studies[19]. Finally, only the patients registered to a single center were studied, and therefore the sample size was relatively small. Therefore, the analyses might have been underpowered.

Conclusion

The current study showed that after twenty weeks of training the patients reported fewer episodes. The program could be considered efficacious for reducing the severity of binge eating episodes in obese patients seeking treatment. Additional research with more participants is required to verify our results and evaluate whether similar training programs could be appropriate for other related disorders.

Author contributions

All authors contributed to the study conception and design. All authors read and approved the final manuscript.

Conflict of interest

The authors declare that they have no conflict of interest.

Funding

Authors declared no financial support.

Ethical approval

The study's ethical approval was given by the Adana City Training and Research Hospital Ethical Committee on June 19, 2019, with reference number 483. The study is registered at (ClinicalTrials.gov-Identifier:NCT04127136).
http://www.clinicaltrials.gov
Informed consent was obtained from the parents or legal guardians.

References

1. American Psychiatric Association, American Psychiatric Association, editors. Diagnostic and statistical manual of mental disorders: DSM-5. 5th ed. Washington, D.C: American Psychiatric Association; 2013. 947 p. doi: 10.1176/appi.books.9780890425596
2. Qian J, Hu Q, Wan Y, et al. Prevalence of eating disorders in the general population: a systematic review. Shanghai Arch Psychiatry. 2013;25:212-23.
3. Bulik CM, Kleiman SC, Yilmaz Z. Genetic epidemiology of eating disorders: Curr Opin Psychiatry. 2016;29:383-8. doi: 10.1097/YCO.0000000000000275
4. Dakanalis A, Riva G, Serino S, et al. Classifying Adults with Binge Eating Disorder Based on Se-

verity Levels: Severity of Binge Eating Disorder. Eur Eat Disord Rev. 2017;25:268-74.
doi: 10.1002/erv.2518
5. Linardon J. Meta-analysis of the effects of cognitive-behavioral therapy on the core eating disorder maintaining mechanisms: implications for mechanisms of therapeutic change. Cogn Behav Ther. 2018;47:107-25.
doi: 10.1080/16506073.2018.1427785
6. Waller G, Schmidt U, Treasure J, et al. Problems across care pathways in specialist adult eating disorder services. Psychiatr Bull. 2009;33:26-9.
doi: 10.1192/pb.bp.107.018325
7. Leavey G, Vallianatou C, Johnson-Sabine E, et al. Psychosocial barriers to engagement with an eating disorder service: a qualitative analysis of failure to attend. Eat Disord. 2011;19:425-40.
doi: 10.1080/10640266.2011.609096
8. Eaton CM. Eating Disorder Recovery: A Metaethnography. J Am Psychiatr Nurses Assoc. 2019;107839031984910.
doi: 10.1177/1078390319849106
9. Vall E, Wade TD. Predictors of treatment outcome in individuals with eating disorders: A systematic review and meta-analysis: Erratum. Int J Eat Disord. 2016;49:432-3.
doi: 10.1002/eat.22518
10. Eldredge KL, Agras SW, Arnow B, et al. The effects of extending cognitive-behavioral therapy for binge eating disorder among initial treatment nonresponders. International Journal of Eating Disorders. 1997;21(4):347-52.
doi: 10.1002/(SICI)1098-108X(1997)21:4<-347::AID-EAT7>3.0.CO;2-O
11. Brownley KA, Berkman ND, Sedway JA, et al. Binge eating disorder treatment: a systematic review of randomized controlled trials. International Journal of Eating Disorders. 2007;40(4):337-48.
doi: 10.1002/eat.20370
12. Grilo CM, Masheb RM, Wilson GT. Efficacy of cognitive behavioral therapy and fluoxetine for the treatment of binge eating disorder: A randomized double-blind placebo-controlled comparison. Biol Psychiatry 2005;57:301-309.
doi: 10.1016/j.biopsych.2004.11.002
13. Gorin A, Le Grange D, Stone A. Effectiveness of spouse involvement in cognitive behavioral therapy for binge eating disorder. Int J Eat Disord 2003;33:421-433.
doi: 10.1002/eat.10152
14. Wilfley DE, Welch RR, Stein RI, et al. A randomized comparison of group cognitive-behavioral therapy and group interpersonal psychotherapy for the treatment of overweight individuals with binge-eating disorder. Arch Gen Psychiatry. 2002;59:713-21.
doi: 10.1001/archpsyc.59.8.713
15. Tunay M, Kurdak H, Özcan S, et al. Family physician-led group visits for lifestyle modification in women with weight problems: a pilot intervention and follow-up study. Obesity Facts, 2018;11:1-14.
doi: 10.1159/000486133
16. Silventoinen K, Sans S, Tolonen H,et al. Trends in obesity and energy supply in the WHO MONICA Project. International journal of obesity.2004;28(5):710-8.
doi: 10.1038/sj.ijo.0802614
17. Evans SR. Clinical trial structures. J Exp Stroke Transl Med. 2010;3:8-18.
doi: 10.6030/1939-067X-3.1.8
18. Price P, Jhangiani R, Chiang I. Research Methods in Psychology. 2nd ed. BCCampus; 2015.