# Cognitive behavioral group therapy on a sample of obese female patients with binge-eating disorder: Egyptian study

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**Background**
Binge eating disorder has been found to be more than an eating problem. Treatment of binge eating disorder depends on changing other aspects, and studies have shown the efficacy of cognitive behavioral therapy in reducing binge-eating disorder.
**Aim**
The aim of this study was to determine the effectiveness of cognitive behavioral group therapy on obese patients with binge eating disorder.
**Patients and methods**
This study was a prospective experimental clinical trial. Twenty-six obese female patients with binge eating disorder were enrolled in cognitive behavioral group therapy with prepsychometric and postpsychometric assessment using Symptom Checklist, Eating Disorder Examination Interview, Binge Eating Scale, and Rosenberg Self-esteem Scale.
**Results**
Fifty-seven percent of patients showed improvement in severity of binge eating. There was significant improvement in eating pathology and reduction in the frequency of binge episodes. Significant self-esteem improvement and less psychological distress were observed and BMI showed no significant change.
**Conclusion**
Cognitive behavioral group therapy showed effectiveness in improvement of self-esteem with less concerns about weight, shape, eating, and dietary restraint. Reduced frequency of binge eating episodes and less psychological distress were also areas of efficacy with no change in BMI.

**Keywords:**
binge eating disorder, group therapy, obese

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## Introduction

Binge-eating disorder (BED) has been added to the *Diagnostic and statistical manual of mental disorder*, 5th ed. (DSM-5) as a full-threshold eating disorder diagnosis [1]. Individuals who engage in binge-eating experience significant negative consequences, including numerous physical problems associated with being overweight [2], poor academic performance [3], and even financial problems because of excessive spending on food [4].

Cognitive model is one of the most important models in explaining binge eating. It explains behavior of binge eating as patients show shape and weight overvaluation, which reflects core negative beliefs about self (e.g. low self-esteem) that may manifest itself through automatic negative thoughts or dysfunctional assumptions regarding shape and weight [5].

Therefore, cognitive behavioral therapy (CBT) is a problem-oriented therapy that focuses on binge eating as a problem and theorizes that 'disturbed eating patterns and problematic thoughts about eating, shape and weight contribute to binge eating'. It is effective in either individual or group formats, in reducing binge-eating episodes, and psychological features associated with BED (dietary restraint, negative body image, etc.), but it does not appear to be effective for producing weight loss [6].

### Hypothesis

CBT is effective in reducing binge-eating episodes, eating pathology, and psychological distress, and shows improvement in self-esteem.

## Aim

The aim of this study was to determine the effectiveness of CBT on obese patients with BED.

## Patients and methods

### Design of the study

This study was a prospective experimental clinical trial with preinterventional and postinterventional assessment (baseline and at the end of the therapy).

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### Patients

Twenty-six female patients who had a primary diagnosis of BED according to DSM-IV and assessed using Structured Clinical Interview for DSM-IV [7] were enrolled in the study. Those aged from 18 to 45 years, educated up to at least preparatory stage, and not adherent to any medications were included in this study. Any patients with BMI less than 18, comorbid psychiatric disorder, medical disease affecting weight or any compensatory behaviors such as self-induced vomiting, use of diuretics, and excessive exercising for the aim of weight loss were excluded. They were divided into three groups. The three groups were held parallel to each other on three different days of the week. Each group included 8, 7, and 11 patients, and they were distributed randomly using a sealed envelope.

### Procedure

Screening of obese female patients attending private nutrition clinic for weight reduction during the period from May 2013 to December 2013 was done by eating Attitude Test (EAT-26). Those who reached the cutoff score (20) or had behavioral symptoms on the EAT-26 were interviewed to assess the presence of BED using Structured Clinical Interview. Only those with confirmed diagnosis of BED had a baseline assessment 1 week before the beginning of therapy. It included eating pathology, clinical symptoms, psychological distress, self-esteem, and BMI together with brief explanation of the program and its expected outcome. The endpoint assessment was administered upon completion of cognitive behavioral intervention (12 weeks after baseline).

### Tools

(1) EAT-26 [8]:
It is the most widely used standardized self-report measure of abnormal eating attitudes and concerns.
(2) Structured Clinical Interview for DSM-IV Axis I Disorders [7]:
This is a semistructured interview used to determine DSM-IV Axis I disorders.
(3) Symptom Checklist (SCL-90-R) [9]:
It is a psychometric instrument devoted to the identification of psychopathological distress. The 90 items of the questionnaire are summarized into nine domains (somatization, obsessive compulsive thoughts, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid conceiving, psychotic behavior) and the General Severity Index, indicating the overall psychological distress.
(4) Eating Disorder Examination (12th ed.) [10]:
It is an investigator-based interview to assess eating disorder symptoms. It includes four subscales (diet restraint, eating concern, shape concern, weight concern). It measures the frequency of binge-eating episodes, in which an investigator-rated large amount of food is consumed and accompanied by a sense of loss of control (corresponding with the binge-eating criteria described in the DSM-IV).
(5) Binge-Eating Scale [11]:
It assesses the severity of binge eating, and it also examines both behavioral signs (eating large amount of food) and feelings related to a binge episode (loss of control, guilt, and fear of being unable to stop eating).
(6) The Rosenberg Self-Esteem Scale [12]:
It is a measurement of global self-esteem. It is a 10-item Likert-type scale with items answered on a four-point scale from strongly agree to strongly disagree.
(7) BMI:

It is calculated as weight (kg) divided by the height ($m^2$).

### Intervention

The cognitive behavioral group therapy was conducted on an outpatient basis in the Department of Psychiatry, Kasr Al Ainy Hospital. It consisted of 12 group sessions over a 12-week period. Each session lasted 60 min, once weekly. One therapist trained in CBT conducted all 12 sessions. A comprehensive CBT treatment manual was adopted from Fairburn model for BED [13], which was translated to Arabic and revised by a psychologist certified in CBT. It consisted of three phases. In the first phase (sessions 1–4), the goal was to establish a regular healthy eating pattern and to identify cues of binge eating and how to resist urges to binge eating. In the second phase (sessions 5–9), excessive concerns about body weight and shape were addressed in addition to problem-solving skills and how to elicit automatic thoughts related to binge eating. In the third stage (session 11–12), maintenance plan was given to the patients and they were taught how to deal with times when they sense their eating is becoming a problem

### Ethical consideration

The study was approved by the Scientific and Ethical Committee of Department of Psychiatry, Cairo University. A written consent was taken from patients after discussing with them the aim and the details of the study.

### Statistical analysis

Data were statistically described in terms of mean ± SD. Numerical values was done using paired *t*-test. *P* values less than 0.05 were considered statistically significant. All statistical calculations were carried out using the computer program statistical package for the social science (SPSS, version 15; SPSS Inc., Chicago, Illinois, USA) for Microsoft Windows (Microsoft Corporation, Washington, USA).

## Results

The mean age of the patients was 30.81 ± 4.825 years, and the majority were married (77%) and only 54% of patients were employed. Baseline BMI before cognitive behavioral intervention was 30.32 ± 2.27. Assessing the effectiveness of intervention, diet restraint, eating, weight, and shape concern showed statistically significant differences when comparing preinterventional and postinterventional assessment ($P = 0.000$). However, the frequency of binge-eating episodes dropped

significantly from 8.46±1.029 to 3.50±1.72 ($P=0.000$) when comparing post-CBT with pre-CBT, as shown in Table 1.

Regarding the severity of binge eating, there was significant improvement in the severity of binge eating ($P=0.000$), as 15 patients were of moderate severity and 11 patients were severe before CBT, whereas post-CBT four patients became nonbingers and 22 patients showed moderate severity, as shown in Fig. 1. No significant changes were found in BMI ($P=0.06$). Patients showed less psychological distress ($P=0.005$) and significant improvement of self-esteem post-CBT ($P=0.004$), as shown in Table 2.

## Discussion

There was significant improvement of severity of BED in 57.6% of patients, which is similar to those obtained by other studies for group CBT [14,15]; yet, this percentage is less when compared with another study [16], in which a 79% improvement was obtained. This discrepancy in the outcome could be attributed to the sample selection as patients were recruited from the nutrition clinic and they were on a weight loss program by dieting and food restriction, and this could increase the risk of binge eating as part of the restriction is ignoring one's hunger and satiety cues. Thus, once food is allowed following restriction, there can be overarousal and difficulty following internal cues about being full [17]. Regarding, the significant improvement in core eating psychopathology symptoms namely weight, shape, eating concerns, and restraint diet in addition to significant reduction in binge-eating episodes were in line with other studies [18]. These findings support the evidence that CBT is effective in treating BED, as CBT is designed to erode BED by incorporating both behavioral and cognitive interventions to help patients gain control over eating and establish a pattern of regular eating, thus reducing the frequency of binge-eating episodes. In addition, it also improves core eating pathology through addressing cognitive aspects of binge eating by tackling the problematic ways of thinking that maintain binge eating [13]. The post-CBT significant improvement in self-esteem and less psychological distress were consistent with the results of previous studies [6,19] showing that CBT for BED not only reduces the severity of binge eating but it also improves self-esteem and psychological distress by reducing body dissatisfaction, which is one of the targets of CBT in BED. This highlights the importance of targeting and focusing on self-esteem in CBT as researchers have found that patients with BED define their self-worth by body shape and weight [20].

In this study, sessions focusing on self-esteem elaborated the relation between low self-esteem and overconcern with body weight and shape and how they are intimately related and how patients retain a value system in which shape and weight are given prominence. In addition, patients were taught how episodes of loss of control over eating tend to worsen self-esteem by exaggerating feelings of ineffectiveness [13].

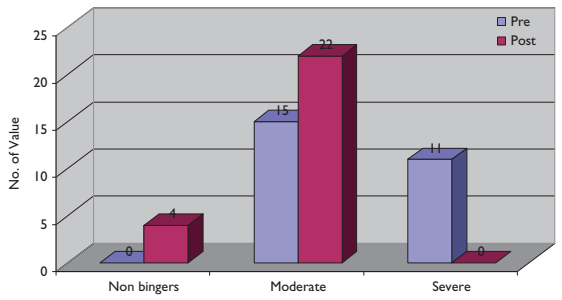
In CBT, patients are helped to identify and modify the main cognitive maintaining processes, including discounting positive qualities and the overgeneralization of apparent failures. Previous views of the self are reappraised, using cognitive restructuring to help patients to reach a more balanced view of their self-worth [21]. The absence of significant difference in BMI post-CBT treatment indicates that there was no reduction in weight but that it remained stable over the course of treatment. This is consistent with the results reported by Schlup *et al.* [22] that CBT supported its efficacy in the core symptoms of BED but not for BMI where weight maintenance can be interpreted as a positive outcome. However, weight loss was a challenging task in this study as patients were recruited from a nutrition clinic and their primary goal was weight reduction where the aim of the

**Table 1 Eating disorder examination results**

| Eating disorder examination | Pre-CBT ($N=26$) | Post-CBT ($N=26$) | *t*-Value | *P*-value |
|---|---|---|---|---|
| Restraint subscale | 4.600±0.34 | 3.846±0.34 | 7.190 | 0.000* |
| Eating subscale | 3.385±0.37 | 2.208±0.26 | 14.262 | 0.000* |
| Weight subscale | 5.415±0.16 | 3.837±0.67 | 30.420 | 0.000* |
| Shape subscale | 5.208±0.24 | 3.296±0.21 | 12.298 | 0.000* |
| Binge-eating episodes | 8.46±1.02 | 3.50±1.72 | 14.809 | 0.000* |

CBT, cognitive behavior therapy.
*$P\geq 0.05$, nonsignificant (paired *t*-test).

**Figure 1**




Severity of binge eating. Paired *t*-test, *P*-value greater than or equal to 0.05 (nonsignificant).

**Table 2 Body mass index, psychological distress, and self-esteem**

| | Pre-CBT ($N=26$) | Post-CBT ($N=26$) | *t*-Value | *P*-value |
|---|---|---|---|---|
| BMI | 30.32±2.27 | 30.17±2.39 | 1.96 | 0.061 |
| SCL-90 GSI | 58.77±5.46 | 55.81±4.36 | 3.06 | 0.005* |
| Rosenberg self-esteem | 12.19±1.32 | 13.23±1.45 | −3.19 | 0.004* |

CBT, cognitive behavior therapy; SCL-90 GSI, Symptoms Checklist General Severity Index.
*$P\geq 0.05$, nonsignificant (paired *t*-test).

study was altering binge-eating pattern and weight loss could happen on the long term after changing eating habits and reduction of binge-eating episodes.

## Conclusion

Cognitive behavioral group therapy showed effectiveness in improvement of self-esteem with less concerns about weight, shape, eating, and dietary restraint. Reduced frequency of binge-eating episodes and less psychological distress were also areas of efficacy with no change in BMI.

### Strength and limitation

To our knowledge, this study represents the first study that used a CBT program in Egypt for Arabic-speaking patients with BED. However, this study has a few limitations. First, the small sample size may limit the results to be generalized. Second, the short length of follow-up may have limited the ability of verification of the hypothesis of the study.

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### Conflicts of interest

There are no conflicts of interest.

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