



Universiteit Utrecht



**Decreased binge eating behaviour, weight and comorbid depressive symptoms
in obese binge eaters during a
Multidisciplinary Cognitive Behavioural Weight Loss Therapy**

Date 31-10-2018

Benjamin Davidson (4183312)
Master Clinical Psychology
Utrecht University

Local supervisor: Drs. N. van der Veer - St. Antonius Hospital
Academic supervisor: Dr. U. Danner

Word count: 6.499

Contact with author:

B_davidson1990@hotmail.com

Abstract

BED is seen as a disorder that is scarcely diagnosed and treated but comes with a diversity of mental and somatic health problems. This study examined changes in binge eating behaviour, weight and comorbid depressive symptoms during a one-year multidisciplinary Cognitive Behavioural Weight Loss Therapy (M-CBWT). It was expected that mood disorder would moderate changes in weight and bingeing when compared between patients with and without mood disorder. 167 clinically severe obese patients with either BED or OSFED, between the age of 18 and 71, were included in this study. Repeated measures analyses of variance showed that binge eating behaviour, weight and depressive symptoms decreased during the M-CBWT treatment. Moderation analyses did not show an interaction between mood disorder and changes in binge eating and weight. The decrease in binge eating, weight and depression are potentially attributable to M-CBWT due to emotion-regulation topics used in the treatment. The presence of a mood disorder does not seem to influence these changes.

Keywords: binge eating behaviour, weight, obesity, depressive symptoms, mood disorder, cognitive behaviour therapy, behavioural weight loss therapy, multidisciplinary treatment.

Introduction

Binge eating disorder (BED) is an eating disorder in which individuals consume abnormal amounts of food in a short period of time, during which they lack control over their consumption and feel no need to purge (American Psychiatric Association [APA], 2013). It is the most prevalent eating disorder worldwide (Kessler et al., 2013) and considered undertreated and underrecognized (Guerdjikova, Mori, Casuto & McElroy, 2017). BED can lead to weight gain caused by overeating, which, when untreated, can lead to overweight and obesity (Kessler et al., 2013; Hudson, Hiripi, Pope & Kessler, 2007). Subsequently, Kopelman (2007) states that overweight and obesity on their own also come with health risks such as cardiac failure, coronary artery disease and stroke. BED has also been associated with other somatic threats such as diabetes and metabolic syndrome (Hudson et al., 2010; Kessler et al., 2013). In addition to somatic comorbidities, BED is also associated with mental health issues such as mood disorders, anxiety disorders and personality disorders (Hudson et al., 2007; Luppino et al., 2010). According to Hudson and colleagues (2007), 46.4% of patients with BED suffer from comorbid mood disorders. The hazardous health and mental problems associated with BED and subsequent obesity show that effective treatment, focused on underlying maintaining factors, is needed for BED in combination with obesity (Guerdjikova et al., 2017; Hudson et al., 2010).

There are several theories that mention factors that lead to, or maintain, binge eating behaviours. First, the restraint model considers binge eating as caused by concerns about weight and shape being out of proportion (Elran-Barak et al., 2015). These weight concerns in BED-patients can lead to low self-esteem and depression (Luppino et al., 2010) and consequently, this leads to a constant change between dietary restraint and binge eating. These weight concerns could explain why in 13-27% of patients that seek help for obesity, BED is prevalent (Montano, Rasgon & Herman, 2016): they seek help to successfully lose weight and sustain a stable weight.

Second, studies researching emotion-regulation theories and BED describe eating as an important factor that contributes to pathological eating behaviour when it turns into coping with perceived negative (and positive) emotions (Aldao, Nolen-Hoeksema & Schweizer, 2010; Dingemans, Danner & Parks, 2017). These emotions often precede binge eating episodes (Haedt-Matt & Keel, 2011). Leehr and colleagues (2015) propose an emotion-regulation model in which a trigger-component (e.g. (un)specific negative emotions) leads to emotion-regulation in the form of overeating/binge eating. During or after overeating/binging there is a relief-component: the decrease of perceived negative emotions (Leehr et al., 2015). However according to Haedt-Matt & Keel (2011), BED-patients might not have an actual decrease of their negative emotions and because BED-patients lack adequate coping strategies, binge eating is maintained (Dingemans et al., 2017; Dingemans, Martijn, Jansen

& van Furth, 2009; Gianini, White & Masheb, 2013). This would mean that excessive eating behaviours are caused by an inability to properly cope with perceived emotions, which then escalate into more bingeing/overeating, more weight gain and more negative self-awareness (Heatherton & Baumeister, 1991). Heatherton and Baumeister (1991) suggest that the emotional strain that this negative self-awareness creates can consequently lead to anxiety and depression.

In line with the emotion-regulation theory, it has been argued that depression increases the risk of eating pathology (Puccio, Fuller-Tyszkiewicz, Ong & Krug, 2016; Stice et al., 2000). Since depression involves negative affect (APA, 2013), it might be that depressive patients that cannot adaptively cope with their feelings, turn to overeating as a way of coping with their negative feelings (Castellini et al., 2012). This suggests that insufficiencies in their emotion-regulation might play a pivotal role in the formation of their binge eating behaviours (Gianini et al., 2013). Patients with both depressive symptoms and BED are then caught in a vicious cycle in which these two factors maintain each other. Furthermore, Jung and colleagues (2017) found that obesity, a common co-occurrence with BED, also increases the risk of depression. This effect behaves in a dosed manner, meaning that individuals with a higher weight have an increased chance of having a comorbid depression (Jung et al., 2017).

Treatment

Treatment focused on relevant topics such as weight concerns, body shape, emotion-regulation and avoidance of self-awareness can result in a decrease in binge eating behaviour (Fairburn et al., 2015; Fairburn et al., 2009). Furthermore, a stop in binge eating behaviour has shown to lead to a decrease in weight (Grilo, Masheb, Wilson, Gueorguieva & White, 2011), which in turn improved quality of life (Brouwers, 2011). Decreases in both binge eating behaviour and weight seem to beneficially result in a decrease in comorbid depressive symptoms (Brownley, Berkman, Sedway, Lohr & Bulik, 2007).

The treatment of choice for BED is cognitive behavioural therapy (CBT), which is commonly shown to be an effective therapy for this disorder (Amianto, Ottone, Daga & Fassino, 2015; Palavras, Hay, Santos Filho & Claudino, 2017). However, CBT does not seem to lead to sufficient weight loss in BED-patients (Brownley et al, 2007; Wilson, Grilo & Vitousek, 2007). For these patients to lose weight, behavioural weight loss therapies (BWL) seem to be more effective and might therefore be important when treating obese BED-patients (Grilo et al., 2011; Vocks et al., 2010). BWL focuses on food intake and physical activity, sometimes combined with meal replacers to induce weight loss (Dombrowski, Knittle, Avenell, Araujo-Soares & Sniehotta, 2014). Even though BWL results in weight loss, this on the other hand does not seem to decrease binge eating sufficiently (Dombrowski et al., 2014; Grilo et al., 2011). A treatment that combines both CBT and BWL might then be

best suited to treat obese individuals with BED because it targets both the eating disorder and their obesity.

Besides the aforementioned therapies, a multidisciplinary form of therapy also seems beneficial in treating obese BED-patients. Guerdjikova and colleagues (2017) argued that women with BED and comorbid depression suffer from a wide range of problems which cannot be treated by a singular intervention. It is suggested that such patients would benefit from a multidisciplinary treatment to optimize outcomes (Guerdjikova et al., 2017). Obese BED- patients do seem to benefit the most from a multidisciplinary treatment in which CBT and BWL are both included. Studies by Lofrano-Prado and colleagues (2009) and Leite and colleagues (2017) found a decrease in binge eating pathology and weight loss after approximately six months of multidisciplinary CBT and BWL. The weight loss effect was replicated by Olthof, van den Berg and Dekker (2010). This multidisciplinary treatment consisted of nutritional programs, physical exercise programs and psychological programs (Leite et al., 2017).

As mentioned above, mood disorders are common among BED (Hudson et al., 2007). Also, mood disorders and obesity share bidirectional pathophysiological mechanisms which might explain why they are often comorbid (Milaneschi, Simmons, van Rossum & Penninx, 2018). Furthermore, the co-occurrence of mood disorders - or symptoms of - have been associated with poorer outcomes in the treatment of BED and obesity. Examples of these symptoms are high negative affect and negative emotions or emotional states (Castellini et al., 2012; Elfhag & Rössner, 2005; Wilson, Wilfley, Agras & Byson, 2010). Also, Pagoto and colleagues (2007) found that, after treatment, only 37% of obese BED-patients with a major depressive disorder (MDD) achieved similar weight loss when compared to patients without MDD. This effect on weight loss was not affected by BED, meaning that MDD on its own can influence weight loss outcomes after treatment.

Current study

This study will research changes in binge eating pathology, weight loss and depressive symptoms in an obese binge eating population during a one-year multidisciplinary treatment that includes CBT and BWL (M-CBWT). Based on the aforementioned literature, it is expected that M-CBWT results in a decrease of binge eating pathology at the end of treatment. It is also expected that M-CBWT leads to weight loss at the end of treatment. Brouwers (2011) reported a significant decrease in eating pathology and weight loss in the Body Mass Index (BMI) >40 group at the end of a similar multidisciplinary treatment. The present study will build upon this finding by using a larger sample and adding a weight measurement after 6 months (halfway through the treatment). Furthermore, it is expected that M-CBWT leads to a decrease in comorbid depressive symptoms at the end of treatment. Finally, it is expected that mood disorder (major depressive disorder or persistent depressive

disorder) will moderate the outcomes on binge eating behaviours and weight. Patients with a mood disorder will benefit less from treatment compared to those without a mood disorder, as determined by a smaller decrease in binge eating pathology and weight loss in the former group compared to the latter.

This study will examine the effects of M-CBWT from pre- to post-treatment using a naturalistic cohort. Additionally, preliminary analyses will be done with the follow-up data, one and three years after treatment. Sample sizes of follow-up data are still small and will therefore be reported descriptively.

Method

Participants

For patients to be included in the treatment, and in this research, they need to have been diagnosed with binge eating disorder (BED) or Other Specified Feeding or Eating Disorder (OSFED; APA, 2013). Diagnosis was done by a psychologist or psychiatrist with ample experience in the treatment and diagnostic process of people with eating disorders, according to DSM-5 criteria. The OSFED group consisted of BED-patients who binged in a lower frequency and/or for a limited duration than patients with a BED diagnosis. BED/OSFED had to involve binge eating behaviours that either lead to, or maintained, obesity. Another inclusion criterion was that patients had a Body Mass Index (BMI) of > 40 , or > 35 with severe somatic comorbidities. Furthermore, the treatment coordinator had to consider participants to fit within the program and participants themselves had to be motivated enough to follow the treatment. Considerations to exclude patients were if severe alcohol or drug abuse was involved. Individuals heavily influenced by either alcohol or drugs were seen as not mentally fit enough to follow the program.

Descriptives of the participants. Between the years 2009-2018, 174 participants were included in the treatment program. Three pregnant patients were excluded from analyses, because their changes in weight could have been attributed to either their pregnancy, or the birth of their child during treatment. One participant was deleted from the sample because she did not actually start the treatment. Lastly, three participants in this study, re-entered the treatment at a later time, after previously leaving or finishing treatment. To maintain the independence of the sample only one of their treatments was included in the study being either one that was fully completed and/or the first treatment they started.

After exclusion, 167 patients with either BED (48.8%) or OSFED (49.2%) between the ages of 18 and 71 ($M_{age} = 39.8$, $SD_{age} = 11.59$; $M_{BMI} = 46.09$, $SD_{BMI} = 6.17$) were included in this study¹. Of these participants, 82% were women and 18% were men. At the start of the

¹ 17 participants were still in treatment during this research, but their data was included for descriptive statistics.

treatment, binge eating behaviour ($M = 25.57$, $SD = 8.63$) was reported to be moderate-severe and depressive symptoms were moderate ($M = 30.78$, $SD = 13.92$). Half of the patients (49.7%) were diagnosed with a comorbid mood disorder and 25.1% of all patients eventually dropped out during treatment. Presence of mood disorder and dropout rate are similar to other studies (Hudson et al., 2010; Wilson et al., 2010). For details concerning comorbidities and drop out, see Table 1 and 2.

Out of the total number of patients, 90 filled in the questionnaires concerning binge eating behaviour; 135 had their weight measured; and 35 filled in questionnaires concerning depressive symptoms on all the necessary measuring moments. The smaller number of patients included to test the hypothesis involving the IDS-SR, concerning depressive symptoms, is caused by this questionnaire being added to the data collection at a later moment in time (since 2013) than the other used variables.

Materials ²

Binge Eating Severity. The Binge Eating Scale (BES) was used to measure the severity of binge eating behaviour. The BES consists of 16 statements that measure behavioural and emotional states as well as cognitive responses which can be answered on a four point-Likert scale (see Appendix A). An example of a statement contained in the BES is: "I don't have any difficulty eating slowly in the proper manner." which gives zero points towards binge eating behaviour. Answering "I have the habit of bolting down my food, without really chewing it. When this happens I usually feel uncomfortably stuffed because I've eaten too much." produces three points on the severity scale. By using the total score, bingeing can be differentiated between non-bingeing (<17), moderate (18-26) and severe bingeing (>27; Gormally et al., 1982). Literature has shown that the BES is a reliable ($\alpha = .85$) and valid screening instrument (Duarte, Pinto-Gouveia & Ferreira, 2015; Gormally et al., 1982; Grupski et al., 2013). However, Ricca and colleagues (2000) mention that sensitivity (60-84%) and specificity (74-95%) seem to fluctuate in accordance with the severity scale when trying to discriminate between obese patients with, and without, BED (Ricca et al., 2000).

Weight change. To measure weight and subsequently possible weight loss, Body mass index (BMI) was calculated with the formula: weight(kg) divided by length (m)². For the calculation of BMI, the weight was measured by a clinician with a Prior or Seca weighing scale. Height was determined by self-report of the participants themselves. Participants were considered obese with a BMI between 30 and 39.9 kg/m² and morbid obese at 40 or higher, conform to the international classifications set by the World Health Organization (2015).

² Due to the way the data was collected, with only total scores of the questionnaires remaining, reliability of the materials used in the current research could not be analysed and assessed. Reliability analyses from other research is however mentioned to validate the questionnaires.

Depressive symptoms. For the measurement of depressive symptoms, the Inventory Depressive Symptomatology - Self Report (IDS-SR) was used (Rush et al., 1986; Rush et al., 1996). This questionnaire, consisting of 30 items, can be answered on a four-point Likert-scale (range 0-3; see Appendix B). Each item exemplifies how participants could have encountered possible depressive symptoms in the last seven days. A response to an item about “feeling sad” can be answered with “I do not feel irritable”, “I feel irritable less than half the time”, “I feel irritable more than half the time”, or “I feel extremely irritable nearly all of the time”. By looking at the total score, depressive symptoms can be differentiated between none (0-13), mild (14-25), moderate (26-38), severe (39-48) and very severe (49-84; Rush et al., 1996). The IDS-SR has been tested as reliable ($\alpha = .85$) and valid, in several studies (Meesters et al., 2016; Rush et al., 1996).

Design, procedure and treatment

This study made use of a within-subjects design in which different aspects are measured within the same group of people. Depending on the variables either two (depressive symptoms and binge eating behaviour) or three (weight) measuring moments were used to analyze the treatment effects. Also, the presence or absence of mood disorder was used as a within participants factor and the, to be mentioned, stabilization group will be taken in as a covariate.

Measuring moments. The BES, IDS-SR and weight were measured at the start of treatment and post-treatment, after a year. Weight was also determined halfway through the treatment, after six months.

Treatment. The St. Antonius Hospital in Utrecht, The Netherlands offers a one-year multidisciplinary group CBT treatment containing BWL elements. This treatment is for severe or morbid obese patients with a diagnosed eating disorder that involves binge eating behaviours (e.g. BED and OSFED). The main goals of the treatment are reducing binge eating pathology and inducing weight loss. (St. Antonius Ziekenhuis, 2018).

The treatment duration consisted of three phases of four months each, in which participants were treated once a week. Optional is also the stabilization group, described below. All phases consist of a mix of cognitive behaviour therapy and behavioural weight loss therapy. Therapy was given by sociotherapists, psychomotor therapists, a dietician, a clinical psychologist and a psychiatrist experienced in the treatment of overeating disorders. The treatment group had a minimum of six and maximum of ten participants. From start to end of treatment, participants were encouraged to keep track of their eating pattern and mood in a diary. Through each phase, the format was the same. The treatment day started with a 75 minutes Tacoyo module, led by the psychomotor therapist. Tacoyo is a physical interval-treatment which aims to improve vitality, physical condition and health (St. Antonius

Ziekenhuis, 2018). Afterwards, a 30-minute joint group lunch follows in which patients brought their own food. After the lunch, a 75-minute group session under guidance of a sociotherapist commenced, in which patients discussed their eating and movement patterns. This was followed by 45 minutes of dietetics with a dietician during which patients were weighed and educated about (un)healthy food. Also, plans and goals were made concerning their daily food consumptions. The food management in the treatment had weight reduction as a primary goal. Forms of diets that could be followed by patients to achieve this weight reduction were meal replacements (e.g. Slimfast, Weight-care and Modifast), a combination of meal replacements and a hot meal, or by using energy restricted food (St. Antonius Ziekenhuis, 2018). Most patients chose the latter option.

Phase one. During this phase the primary goal was self-control in eating behaviour and consequently reducing the risks of obesity by means of weight loss. Participants made a self-control plan to get an overview of their eating and moving patterns (St. Antonius Ziekenhuis, 2018).

Phase two. During this phase participants made a motivation plan which aimed to motivate participants to sustain their newly adapted behaviours. Participants also learned more about body experience and awareness. (St. Antonius Ziekenhuis, 2018).

Phase three. This lasts phase aimed to solidify the aspects that patients learned about themselves and their eating behaviour. In this phase participants made a relapse-prevention plan which they could apply in case of relapse (St. Antonius Ziekenhuis, 2018).

Stabilization group. This group ($n = 86$) was meant for patients that had to wait several months before entering the primary treatment and wanted to start treatment earlier on. This group occurred every two weeks for 75 minutes and focused on strengthening knowledge and insight about overeating disorders and behaviours. Another focus is stabilizing weight and reduce weight gain. Techniques for increasing motivation were learned to tackle their eating disorder. Lastly, it was a way to get used to group therapy and the work mannerisms of the team. On average, patients participated for three months ($SD = 2.8$). See Table 2 for further details.

Data-analyses

Data was collected in IBM SPSS Statistics 24 and subsequently analyzed. To analyze the first three hypotheses on treatment effect, a repeated measures ANOVA was used on the measurements for weight loss, binge eating pathology and depressive symptoms. For the weight loss measurement, this involved three measuring moments and for eating pathology and depressive symptoms two measuring moments. Beforehand the assumptions of normality, homogeneity of variance and sphericity were checked. For these three hypotheses the stabilization group was taken in as a covariate. For the fourth

MULTIDISCIPLINARY CBT AND BWL TREATMENT EFFECTS ON BINGE EATING BEHAVIOUR, WEIGHT AND DEPRESSIVE SYMPTOMS

hypothesis, two moderator analyses were executed, by using the SPSS add-on Process by Hayes (2013), to look for a possible interaction effect in which mood disorder moderated the outcome of binge eating and weight. For these moderation analyses, a linear regression was measured between the BES total score at start and end of treatment. The same was done for BMI. Subsequently, the moderation of mood disorder, measured on a categorical level, was added to the analyses of BES and BMI. An interaction effect on both measures means the hypothesis is confirmed. Before conducting this analysis assumptions of normality, univariate and multivariate outliers, multicollinearity and normality, linearity and homoscedasticity of residuals were checked. In addition, a chi-square analysis was added to see whether the results of the moderation analyses were influenced by drop-out rate. For all analyses a confidentiality interval of 95%, $p = .05$ was used.

Table 1

Percentages of mental and somatic comorbidity at start of treatment.

Somatic comorbidity	%	Mental comorbidity	%
Joint and back complaints	31.7	Mood disorder	49.7
Hypertension	30.5	Anxiety disorder	24.6
Sleep apnea	18.6	Personality disorder	22.2
Diabetes	14.4	Developmental disorder	6.6
Smoking	13.8	Psychotic disorder	5.4
COPD	11.4	Other diseases	29.9
Other rheumatic disorders	4.8		
Heart failure	4.2		
Rheumatism	1.2		
Myocardial infarcture	1.2		
Kidney insufficiency	1.2		
Bariatric surgery	5.4		

Note. Bariatric surgery suggests the percentage of participants that already underwent bariatric surgery prior to treatment. COPD = Chronic Obstructive Pulmonary Disease. Personality disorder also includes traits of a personality disorder. Other diseases include mental and somatic comorbidities such as mental retardation and epilepsy.

MULTIDISCIPLINARY CBT AND BWL TREATMENT EFFECTS ON BINGE EATING BEHAVIOUR, WEIGHT AND DEPRESSIVE SYMPTOMS

Table 2

Group comparison of mean differences in participants with SD and percentages of women at start of treatment and drop-out rate during treatment.

Comparison groups		Age Mean (SD)	Sex % women	BMI Mean (SD)	BES Mean (SD)	IDS-SR Mean (SD)	Drop-out rate %
Stabilization group	No	38.55 (12.10)	80.3%	46.37 (7.28)	25.61 (8.60)	29.86 (15.49)	26.9%
	<i>n</i>	78	78	75	54	35	70
	Yes	40.90 (11.06)	84.3%	45.86, (5.07)	25.54 (8.70)	31.76 (12.20)	23.6%
<i>n</i>	89	89	89	78	33	88	
Mood disorder	No	40.95 (12.48)	84.6%	45.48 (6.45)	23.70 (8.47)	21.56 (10.79)	24.4%
	<i>n</i>	78	78	77	63	25	76
	Yes	38.66 (10.23)	83.1%	45.68 (6.00)	27.28 (8.48)	36.14 (12.75)	27.7%
<i>n</i>	83	83	83	69	43	82	

Note. BMI = Body Mass Index; BES = Binge Eating Scale; IDS-SR = Inventory Depression Scale Self- Report. *N* shows the number of participants on which the statistics were calculated. Stabilization group describes the differences between patients that followed this group and those that did not. Mood disorder describes group differences of patients with and without mood disorder. Differences in *n* are due to missing data.

Results

Assumption check

First, assumptions for the three one-way repeated measures analyses of variance (ANOVA) were checked. Boxplots and Kolmogorov statistics showed normality for BES pretreatment. Boxplots and Kolmogorov statistics showed BES post-treatment, BMI pretreatment, BMI during treatment, and BMI post-treatment to be non-normal. Normality was within moderate range and thus no changes were made. Boxplots and Shapiro-Wilk statistics assumed normality for IDS-SR pretreatment. Non-normality was found for post-treatment, but histograms suggested that changes were not necessary. See Table 3, concerning normality of BES, BMI and IDS-SR at various time measurements. Homogeneity for BES ($F_{\max} = 1.06$), BMI ($F_{\max} = 1.11$) and IDS-SR ($F_{\max} = 1.09$) were supported. Mauchly's

test indicated that the BMI assumption of sphericity had been violated, $X^2(2) = 62.363$, $p < .001$, therefore the Huynh-Feldt correction ($\epsilon = .73$) was applied to correct the degrees of freedom.

Second, the assumptions for the moderation analyses were checked. BES and BMI normality, linearity and homoscedasticity of residuals were assumed. Stem-and-leaf plots and boxplots indicated a normal distribution and no univariate outliers for BES pretreatment. BES post-treatment had a single outlier, upon which no changes were needed. Stem-and-leaf plots and boxplots indicated five extreme univariate outliers at BMI pretreatment and two extreme univariate outliers at BMI post-treatment. The histograms indicated no severe peculiarities, and thus the data was not altered. The Mahalanobis Distance exceeded the critical X^2 for $df = 2$ (at $\alpha = 0.001$) of 13.82 for both BMI and BES. Cook's Distance for BES indicated no severe outliers (>1). Cook's Distance for BMI indicated one severe outlier (>1) which was removed, however the Mahalanobis Distance ($= 14.13$) was still too high but lowered ($= 42.91$). BES tolerances showed that multicollinearity was not assumed. BMI multicollinearity was assumed (tolerances >10), even after removal of the outlier, and might therefore interfere with the interpretation of the results.

Outcome of binge eating behaviour, weight and depressive symptoms after one-year treatment

First off, a one-way repeated measures analysis of variance was used to examine the effect of treatment on binge eating pathology ($n = 90$). The results showed a significant change in binge eating pathology from pre- to post-treatment, $F(1,88) = 54.88$, $p < .001$, $\eta_p^2 = .38$. This shows that binge eating pathology decreased during their one-year of multidisciplinary cognitive behavioural weight loss therapy (M-CBWT). Patients had a 47% mean decrease of their binge eating behaviours, resulting in a decrease of binge eating severity from moderate-severe to non-binging. Almost 40% of the patients had a remission of their binge eating behaviours after treatment. The large effect-size could mean that the treatment affected the decrease in binge eating pathology. Furthermore, the decrease in binge eating behaviours did not differ between the patients that followed the pretreatment stabilization group and patients that did not ($p = .87$).

Second, a repeated measures ANOVA was used to examine the effect of treatment on weight ($n = 135$). The results showed a significant change in weight from pre- to post-treatment, $F(1.467, 268) = 64.40$, $p < .001$, $\eta_p^2 = .33$. This shows that patients with binge eating pathology and obesity had significantly decreased their weight from start to end of treatment, albeit most were still within morbid obese range. Between intake and post-treatment, 43% of all patients achieved a weight reduction (in kilograms) of more than five

percent and 26% reduced their weight by more than ten percent³. When measured from start of treatment to post-treatment these numbers were almost 53% and 27%. Patients had a mean BMI decrease of almost 7%. The large effect size showed a potential effect of M-CBWT on weight loss for obese binge eaters. Participants of the stabilization group, did not differ in weight loss from those who did not follow this pretreatment group ($p = .73$).

Third, a repeated measures ANOVA was used to investigate the effect of treatment on the depressive symptoms ($n = 35$). The results showed a significant change in depressive symptoms from pre- to post-treatment, IDS-SR $F(1,33) = 6.78$, $p < .014$, $\eta_p^2 = .17$. Patients had a mean decrease of almost 32% in their depressive symptoms, resulting in a change from moderate to light depressive symptoms. The medium effect size describes a possible influential effect of M-CBWT on comorbid depressive symptoms. Patients that followed the pretreatment stabilization group did not differ, in changes in their depressive symptoms, compared to patients that did not ($p = .40$).

See Figure 1 for a visualization of the decreases in binge eating behaviours, weight and depressive symptoms.

Moderation of mood disorder on binge eating behaviour and weight during the one-year M-CBWT treatment

Finally, it was tested whether or not the presence or absence of a mood disorder moderated pre- to post-treatment outcome of binge eating pathology and weight. The moderation analysis of mood disorder on binge eating pathology showed no interaction effect, $b = -0.07$, 95% CI [-0.47, 0.32], $t = -0.37$, $p = .71$. Thus, the presence or absence of a mood disorder did not seem to moderate the decrease of binge eating pathology during the one-year treatment.

Also, the moderation analysis of mood disorder on weight found no interaction-effect between mood disorder and weight, $b = -.04$, 95% CI [-.25, .17], $t = -.40$, $p = .69$. The results showed that whether patients had a mood disorder or not, did not moderate weight after one year of M-CBWT. See Table 4 for an overview of the moderation results.

It was speculated that the moderation analyses of mood disorder on binge eating pathology and weight could have been affected by patients dropping out during treatment. Because of this, missing data could have affected the moderation analysis. Therefore, with the use of a chi-square analysis, it was tested if drop-out rates influenced whether enough patients with, and without, mood disorder were present in the moderation analyses. The chi-square test showed no effect, $X^2(1, N = 158) = .19$, $p = .67$: 12% of the patients without a mood disorder dropped out compared to 14.6% of patients with a mood disorder. It is

³ Analyses were measured on weight from intake to post-treatment.

MULTIDISCIPLINARY CBT AND BWL TREATMENT EFFECTS ON BINGE EATING BEHAVIOUR, WEIGHT AND DEPRESSIVE SYMPTOMS

therefore unlikely that the results were influenced by dropouts not being included in the moderation analyses.

Table 3

Assumptions of normality for BES, BMI, IDS-SR time measurements with number of participants, Kolmogorov/ Shapiro-Wilk statistics and *p*-value.

	BES	T0	T2	BMI	T0	T1	T2	IDS-SR	T0	T2
<i>n</i>	90			135				35		
<i>D</i> or <i>W</i>		.082	.14		.086	.087	.078		.35	.90
<i>p</i>		.18	< .001		.015	.014	.045		.35	.004

Note. BES = Binge Eating Scale; BMI = Body Mass Index; IDS-SR = Inventory Depression Scale Self- Report. T0 = pretreatment; T1 = during treatment (6 months); T2 = post-treatment. *Cursive* time measurements (e.g. T2) were non-normal but within moderate range. *D* or *W* shows Kolmogorov statistics (*D*) or Shapiro-Wilk statistics (*W*). A *p*-value >.05 indicates normality.

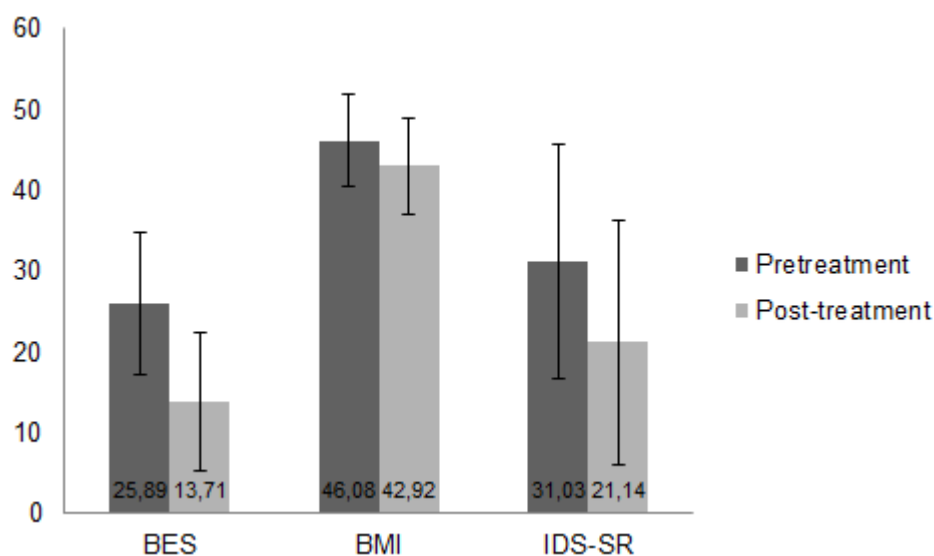


Figure 1. Decrease in binge eating behaviour, weight and depressive symptoms during one year of M-CBWT, shown in pre- to post-treatment differences with mean and error bars.

Preliminary outcome of binge eating behaviour, weight and depressive symptoms after one- and three-year follow-up

Since one- and three-year follow-up data were only being gathered from 2014 and onwards, 21 participants filled in the BES ($M = 17.19$, $SD = 13.09$) after one year and 16 participants reported their weight ($M_{\text{BMI}} = 42.76$, $SD_{\text{BMI}} = 7.01$). At the three-year follow up, 18 participants filled in the BES ($M = 15.72$, $SD = 10.92$) and 12 participants reported their weight ($M_{\text{BMI}} = 44.39$, $SD_{\text{BMI}} = 12.56$). These preliminary results showed that binge eating behaviours

decreased even after treatment and therefore remained in remission. BMI however, did not change one year after treatment however increased three years after treatment.

Table 4

Linear model of predictors of binge eating pathology (BES) and weight (BMI).

		<i>b [CI]</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
BES	BES posttreatment	0.45 [0.25,0.64]	0.10	4.57	<.001
	Mood disorder	3.25 [0.12,6.62]	1.65	1.97	.052
	BES x Mood disorder	-0.07 [-0.47,0.32]	0.20	-0.37	.71
BMI	BMI posttreatment	.73 [.61,.84]	.05	13.92	< .001
	Mood disorder	.32 [-1.00, 1.65]	.67	.48	.63
	BMI x Mood disorder	-.04 [-.25,.17]	.10	- 4.00	.69

Note. BES = Binge Eating Scale; BMI = Body Mass Index. BES/BMI posttreatment is the outcome of BES/BMI pretreatment to post-treatment. Mood disorder is the effect of mood disorder on the BES outcome. BES/BMI x Mood disorder is the interaction-effect of BES/BMI pre-treatment and mood disorder on BES/BMI posttreatment. CI = Confidence Interval. $R^2 = .26$ for BES and $R^2 = .76$ for BMI; $p = <.05$.

Discussion

This study investigated whether obese BED-patients could achieve a decrease in their binge eating behaviours and comorbid depressive symptoms during a one-year multidisciplinary cognitive behavioural weight loss therapy (M-CBWT), while also inducing weight loss. The optional participation in the pretreatment stabilization group was taken into account as potential controlling factor on the aforementioned outcomes. A secondary aim was to test if a comorbid mood disorder would moderate the outcome of binge eating and weight when compared to patients without a mood disorder.

This research found that binge eating behaviour, weight and depressive symptoms decreased during a one-year M-CBWT treatment. Participation of the stabilization group did not seem to influence these outcomes. In contrast to the expectancies no differences were found in the outcome of binge eating behaviour and weight loss when comparing between patients with, and without, a mood disorder. Potentially, mood disorders did not have an effect because of a higher drop-out rate of patients with BED and mood disorders (Wilson et al., 2010). However, results from this study did not support this idea as drop-out rates did not differ between patients with, and without, mood disorder.

The outcomes of this study were potentially attributable to the one-year M-CBWT treatment followed during this time. The decrease in binge eating pathology and depressive symptoms, might be explained by emotion-regulation topics which were applied in the M-CBWT treatment. In line with Leehr and colleagues (2015) proposed BED emotion-regulation model, the M-CBWT treatment aimed to teach BED-patients to adequately cope with their perceived negative emotions. The maladaptive coping strategies that BED-patients apply (e.g. suppressing or ruminating), can lead to emotion-regulation in the form of overeating/binging (Dingemans et al., 2017; Leehr et al., 2015). Talking about their perceived emotions and learning adaptive coping strategies (e.g. acceptance or reappraisal) during treatment are topics that can subsequently be applied in interpersonal situations to endure binging triggers (e.g. depressive symptoms; Gianini et al., 2013). Alleviation of depressive symptoms by learning suitable coping strategies, might consequently decrease the perception of loss of control over eating (Agras & Telch, 1998), the number of triggers that lead to binge eating, and binging itself. The decrease in depressive symptoms might also explain why there was no moderation of mood disorder on binging and weight, as its influence might have been diminished by the treatment.

The current study found an approximate 7% mean BMI decrease, compared to a 1.5% decrease that Grilo and colleagues (2011) found in their CBT and BWL treatment. This difference might be explained by several distinctions. First, the current study included both BED and OSFED-patients whereas Grilo and colleagues (2011) only had BED-patients. Second, the pretreatment mean BMI was 46 in the current study and 39 in the study by Grilo and colleagues (2011). A final explanation might be found in how therapy was implemented: simultaneous CBT and BWL in the current study vs sequential CBT and BWL (Grilo et al., 2011). The achieved weight loss in the current study might be explained by lower caloric intake caused by BED- and OSFED-patients sufficiently decreasing binge eating behaviours through emotion-regulation topics. Research has shown that CBT does not seem to detrimentally affect weight in BED-patients, thus BWL-topics in the treatment (e.g. food education and physical activity) might have resulted in a further decrease in weight (Eliran-Barak et al., 2015; Grilo et al., 2011, Vocks et al., 2010).

Although the follow-up data are preliminary and concern only a handful of patients, the results show that (remission of) binge eating behaviour remains stable after treatment. Weight seemed to remain stable after one year, but with a small increase after three years. The current study found that 67%, compared to 54% found by Linardon (2018), of the total BED-patients remained in remission at one-year follow-up. Even though patients seem to achieve long-term binge eating remission, they do not seem to achieve long-term weight loss. Considering that these follow-up results are self-reported, it is important to consider that the data collected could be biased. For example, patients that reported their follow-up, could

be patients that are doing well, and feel the desire to answer in a socially acceptable way. These preliminary results should thus be interpreted with caution.

A meta-analysis by Linardon (2018) concluded that approximately 58% of all BED-patients who completed a CBT+BWL treatment, achieved remission of binge eating. Uncombined CBT or BWL treatments saw remission-rates of respectively 52% and 36%. In comparison, this study found that 40% of binge eaters achieved remission after treatment. The difference in remission-rates between the current study and the findings by Linardon (2018), could be explained by several distinctions. First, treatments with 16-20 sessions had a 59.8% remission-rate, compared to 36.4% for treatments with 21+ sessions (Linardon, 2018). Second, Linardon (2018) found a difference in remission-rates between studies that assessed via interview (54.9%) and questionnaires (42.2%). The methods of the current study are in line with the results concerning over 21 sessions and assessment via questionnaire. Third, Linardon (2018) researched randomized controlled trials (RCT), whereas this study followed a naturalistic design. Therefore, comparisons between Linardon (2018) and the current study should be interpreted with caution caused by potential differences in the studied groups.

Methodological strengths and weaknesses

Unlike experimental studies, this naturalistic cohort study had a heterogenous group and numerous confounding factors that could have affected the outcomes of this study. For example, comorbid mental and somatic conditions (e.g. thyroidism) were not excluded and could have influenced the researched symptoms (Vaidya & Pearce, 2008). Furthermore, an unknown number of patients in this study had pharmacotherapy or psychological treatment for comorbid issues during the M-CBWT treatment. According to research, medicine (e.g. antidepressants; anti-epileptics) and other psychotherapies have been able to influence binge eating, depressive symptoms and weight (Hoffman et al., 2012; Reas & Grilo, 2008; Vocks et al., 2010). These parallel therapies might have influenced the observed changes in symptoms and/or the efficacy of the M-CBWT treatment. Compared to homogenous groups used in RCTs, this study might give a more realistic representation of the heterogeneity found in the BED-population (Leehr et al., 2015). The results might thus be better applicable to clinical treatment settings than experimental studies.

Materials used in this study might also have influenced the results. Ricca and colleagues (2000) mention that, for clinical purposes, the proposed BES cut-off score for severe bingeing (> 27) might not be sensitive enough to differentiate between obese patients with, and without, BED. Furthermore, the validity of the BES is mostly based on female participants, which can potentially influence results concerning male BED-patients (Duarte et al., 2015; Ricca et al., 2000). To further differentiate between obesity with, and without, BED, other questionnaires (e.g. EDE-Q; Aardoom, Dingemans, Op't Landt & van Furth, 2012) or

interviews could be added to assess (remission of) BED. Also, the results were dependent of self-report which are subjective and can be answered in a socially desired way (Leehr et al., 2015).

By using a repeated measures ANOVA, data from non-completers were lost. Therefore, results could differ when using an analysis that also includes data from non-completers. Future research could use an analysis (e.g. multi-level), which can include all participants (Hox, Moerbeek & Van de Schoot, 2017).

Finally, some of the data was not assumed to be normally distributed and this could have skewed the results. However, it is expected that this had no detrimental effects on the results, considering that differences in normality were small to moderate (Enders, 2001). Also, the assumption of multicollinearity could have affected the interaction-effect between mood disorder and weight and thus possibly giving erroneous results of the data.

Conclusion

This study researched changes in binge eating behaviour, weight and depressive symptoms during a one-year multidisciplinary treatment which combined CBT with BWL for clinically severe obese BED- and OSFED-patients. Decreases were found in binge eating behaviour, weight and comorbid depressive symptoms. Whether patients suffered from a comorbid mood disorder did not moderate outcome of binge eating behaviour and weight after the one-year treatment. The guidelines for bariatric psychology advice that patients undergoing bariatric surgery should be free of overeating disorders preceding bariatric surgery (Hinnen, Daansen & Salet, 2015). In line with this, the potential long-term remission of binge eating behaviours might be important for BED- and OSFED-patients that wish to undergo bariatric surgery. Due to the emotion regulation and weight loss topics implemented in this treatment, M-CBWT seems attributable to the results found in this study. Finally, future studies should investigate the extent in which these results are sustained, and research the patients that do, and do not, follow through with bariatric surgery to further lose weight.

References

- Aardoom, J. J., Dingemans, A. E., Op't Landt, M. C. S., & Van Furth, E. F. (2012). Norms and discriminative validity of the Eating Disorder Examination Questionnaire (EDE-Q). *Eating behaviors*, 13(4), 305-309. DOI:10.1016/j.eatbeh.2012.09.002.
- Agras, W. S., & Telch, C. F. (1998). The effects of caloric deprivation and negative affect on binge eating in obese binge-eating disordered women. *Behavior Therapy*, 29(3), 491-503.
- Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical psychology review*, 30(2), 217-237. DOI:10.1016/j.cpr.2009.11.004
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- Amianto, F., Ottone, L., Daga, G. A., & Fassino, S. (2015). Binge-eating disorder diagnosis and treatment: a recap in front of DSM-5. *BMC psychiatry*, 15(1), 70. DOI:10.1186/s12888-015-0445-6.
- Brouwers, W.B. (2011). *Patiënten met obesitas en een overeetstoornis; een onderzoek naar de effectiviteit van een multidisciplinaire behandeling in de tweede lijn* (Unpublished master's thesis). St. Antonius Ziekenhuis, Utrecht.
- Brownley, K. A., Berkman, N. D., Sedway, J. A., Lohr, K. N., & Bulik, C. M. (2007). Binge eating disorder treatment: a systematic review of randomized controlled trials. *International Journal of Eating Disorders*, 40(4), 337-348. DOI:10.0003/eat/20370.
- Castellini, G., Mannucci, E., Sauro, C. L., Benni, L., Lazzeretti, L., Ravaldi, C., Rotella, C.M. & Ricca, V. (2012). Different moderators of cognitive-behavioral therapy on subjective and objective binge eating in bulimia nervosa and binge eating disorder: a three-year follow-up study. *Psychotherapy and psychosomatics*, 81(1), 11-20. DOI:10.1159/000329358

MULTIDISCIPLINARY CBT AND BWL TREATMENT EFFECTS ON BINGE EATING BEHAVIOUR, WEIGHT AND DEPRESSIVE SYMPTOMS

- Dingemans, A. E., Martijn, C., Jansen, A. T., & van Furth, E. F. (2009). The effect of suppressing negative emotions on eating behavior in binge eating disorder. *Appetite*, 52(1), 51-57. DOI:10.1016/j.appet.2008.08.004.
- Dingemans, A., Danner, U., & Parks, M. (2017). Emotion Regulation in Binge Eating Disorder: A Review. *Nutrients*, 9(11), 1274. DOI:10.3390/nu9111274.
- Dombrowski, S. U., Knittle, K., Avenell, A., Araujo-Soares, V., & Sniehotta, F. F. (2014). Long term maintenance of weight loss with non-surgical interventions in obese adults: systematic review and meta-analyses of randomised controlled trials. *BMJ*, 348, g2646. DOI:10.1136/bmj.g2646.
- Duarte, C., Pinto-Gouveia, J., & Ferreira, C. (2015). Expanding binge eating assessment: Validity and screening value of the Binge Eating Scale in women from the general population. *Eating behaviors*, 18, 41-47. DOI:10.1016/j.eatbeh.2015.03.007.
- Enders, C. K. (2001). The impact of nonnormality on full information maximum-likelihood estimation for structural equation models with missing data. *Psychological methods*, 6(4), 352.
- Elfhag, K., & Rössner, S. (2005). Who succeeds in maintaining weight loss? A conceptual review of factors associated with weight loss maintenance and weight regain. *Obesity reviews*, 6(1), 67-85. DOI:10.1111/j.1467-789X.2005.00170.x.
- Elran-Barak, R., Sztainer, M., Goldschmidt, A. B., Crow, S. J., Peterson, C. B., Hill, L. L., ... & Le Grange, D. (2015). Dietary restriction behaviors and binge eating in anorexia nervosa, bulimia nervosa and binge eating disorder: Trans-diagnostic examination of the restraint model. *Eating Behaviors*, 18, 192-196.
- Fairburn, C. G., Bailey-Straebler, S., Basden, S., Doll, H. A., Jones, R., Murphy, R., ... & Cooper, Z. (2015). A transdiagnostic comparison of enhanced cognitive behaviour therapy (CBT-E) and interpersonal psychotherapy in the treatment of eating disorders. *Behaviour research and therapy*, 70, 64-71. DOI:10.1016/j.brat.2015.04.010.

MULTIDISCIPLINARY CBT AND BWL TREATMENT EFFECTS ON BINGE EATING BEHAVIOUR, WEIGHT AND DEPRESSIVE SYMPTOMS

- Fairburn, C. G., Cooper, Z., Doll, H. A., O'Connor, M. E., Bohn, K., Hawker, D. M., Wales, J.A. & Palmer, R. L. (2009). Transdiagnostic cognitive-behavioral therapy for patients with eating disorders: a two-site trial with 60-week follow-up. *American Journal of Psychiatry*, 166(3), 311-319. DOI:10.1176/appi.ajp.2008.08040608.
- Gianini, L. M., White, M. A., & Masheb, R. M. (2013). Eating pathology, emotion regulation, and emotional overeating in obese adults with binge eating disorder. *Eating behaviors*, 14(3), 309-313. DOI:10.1016/j.eatbeh.2013.05.008.
- Gormally, J., Black, S., Daston, S., & Rardin, D. (1982). The assessment of binge eating severity among obese persons. *Addictive behaviors*, 7(1), 47-55.
- Grilo, C. M., Masheb, R. M., Wilson, G. T., Gueorguieva, R., & White, M. A. (2011). Cognitive-behavioral therapy, behavioral weight loss, and sequential treatment for obese patients with binge-eating disorder: A randomized controlled trial. *Journal of consulting and clinical psychology*, 79(5), 675. DOI:10.1037/a0025049.
- Grupski, A. E., Hood, M. M., Hall, B. J., Azarbad, L., Fitzpatrick, S. L., & Corsica, J. A. (2013). Examining the Binge Eating Scale in screening for binge eating disorder in bariatric surgery candidates. *Obesity surgery*, 23(1), 1-6. DOI:10.1007/s11695-011-0537-4.
- Guerdjikova, A. I., Mori, N., Casuto, L. S., & McElroy, S. L. (2017). Binge eating disorder. *Psychiatric Clinics*, 40(2), 255-266. DOI:10.1016/j.psc.2017.01.003.
- Haedt-Matt, A. A., & Keel, P. K. (2011). Revisiting the affect regulation model of binge eating: a meta-analysis of studies using ecological momentary assessment. *Psychological bulletin*, 137(4), 660. DOI:10.1037/a0023660.
- Haedt-Matt, A. A., Keel, P. K., Racine, S. E., Burt, S. A., Hu, J. Y., Boker, S., ... & Klump, K.L. (2014). Do emotional eating urges regulate affect?. Concurrent and prospective associations and implications for risk models of binge eating. *International Journal of Eating Disorders*, 47(8), 874-877. DOI:10.1002/eat.22247.

MULTIDISCIPLINARY CBT AND BWL TREATMENT EFFECTS ON BINGE EATING BEHAVIOUR, WEIGHT AND DEPRESSIVE SYMPTOMS

- Hayes, A.F. (2013). Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach. New York, NY: The Guilford Press. *Journal of Educational Measurement*, 51(3), 335-337.
- Heatherton, T. F., & Baumeister, R. F. (1991). Binge eating as escape from self-awareness. *Psychological bulletin*, 110(1), 86.
- Hinnen, C., Daansen, P., Salet, S. (2015). Richtlijn bariatrische psychologie. *De Psycholoog*. Retrieved September 12, 2018, from <https://www.lvmp.nl/v03/beheer/wp-content/uploads/Richtlijn-bariatrische-psychologie.pdf>.
- Hofmann, S. G., Asnaani, A., Vonk, I. J., Sawyer, A. T., & Fang, A. (2012). The efficacy of cognitive behavioral therapy: A review of meta-analyses. *Cognitive therapy and research*, 36(5), 427-440. DOI:10.1007/s10608-012-9476-1.
- Hox, J. J., Moerbeek, M., & Van de Schoot, R. (2017). *Multilevel analysis: Techniques and applications*. Routledge.
- Hudson, J. I., Lalonde, J. K., Coit, C. E., Tsuang, M. T., McElroy, S. L., Crow, ... & Pope Jr, H. G. (2010). Longitudinal study of the diagnosis of components of the metabolic syndrome in individuals with binge-eating disorder. *The American Journal of Clinical Nutrition*, 91(6), 1568-1573. DOI:10.3945/ajcn.2010.29203.
- Hudson, J.I., Hiripi, E., Pope, H.G. & Kessler R.C. (2007). The prevalence and correlates of eating disorders in the national comorbidity survey replication. *Biology Psychiatry* 61 (3), 348–358. DOI:10.1016/j.biopsych.2006.03.040.
- Jung, S. J., Woo, H. T., Cho, S., Park, K., Jeong, S., Lee, Y. J., ... & Shin, A. (2017). Association between body size, weight change and depression: systemic review and meta-analysis. *The British Journal of Psychiatry*, 211, 14-21. DOI:10.1192/bjp.bp.116.186726.
- Kessler, R. C., Berglund, P. A., Chiu, W. T., Deitz, A. C., Hudson, J. I., Shahly, V., ... & Bruffaerts, R. (2013). The prevalence and correlates of binge eating disorder in the World Health Organization World Mental Health Surveys. *Biological psychiatry*, 73(9), 904-914. DOI:10.1016/j.biopsych.2012.11.020.

MULTIDISCIPLINARY CBT AND BWL TREATMENT EFFECTS ON BINGE EATING BEHAVIOUR, WEIGHT AND DEPRESSIVE SYMPTOMS

- Kopelman, P. (2007). Health risks associated with overweight and obesity. *Obesity reviews*, 8(s1), 13-17. DOI:10.1111/j.1467-789X.2007.00311.x.
- Leehr, E. J., Krohmer, K., Schag, K., Dresler, T., Zipfel, S., & Giel, K. E. (2015). Emotion regulation model in binge eating disorder and obesity-a systematic review. *Neuroscience & Biobehavioral Reviews*, 49, 125-134. DOI:10.1016/j.neubiorev.2014.12.008.
- Leite, P. B., Dâmaso, A. R., Poli, V. S., Sanches, R. B., Silva, S. G. A., Fidalgo, J. P. N., ... & Caranti, D. A. (2017). Long-term interdisciplinary therapy decreases symptoms of binge eating disorder and prevalence of metabolic syndrome in adults with obesity. *Nutrition Research*, 40, 57-64. DOI:10.1016/j.nutres.2017.03.006.
- Linardon, J. (2018). Rates of abstinence following psychological or behavioral treatments for binge-eating disorder: Meta-analysis. *International Journal of Eating Disorders*. DOI:10.1002/eat.22897.
- Lofrano-Prado, M. C., Antunes, H. K. M., do Prado, W. L., de Piano, A., Caranti, D. A., Tock, L., ... & Dâmaso, A. R. (2009). Quality of life in Brazilian obese adolescents: effects of a long-term multidisciplinary lifestyle therapy. *Health and quality of life outcomes*, 7(1), 61. DOI:10.1186/1477-7525-7-61.
- Luppino, F. S., de Wit, L. M., Bouvy, P. F., Stijnen, T., Cuijpers, P., Penninx, B. W., & Zitman, F. G. (2010). Overweight, obesity, and depression: a systematic review and meta-analysis of longitudinal studies. *Archives of general psychiatry*, 67(3), 220-229. DOI:10.1001/archgenpsychiatry.2010.2.
- Meesters, Y., Duijzer, W.B., Nolen, W.A., Schoevers, R.A. & Ruhé, H.G. (2016). Inventory of Depressive Symptomatology en verkorte versie in routine outcome monitoring van Stichting Benchmark GGZ. *Tijdschrift voor Psychiatrie*, 58, 41-54.
- Milaneschi, Y., Simmons, W.K., van Rossum, E.F.C. & Penninx, B.W.J.H. (2018). Depression and obesity: evidence of shared biological mechanisms. *Molecular Psychiatry*, 1. DOI:10.1038/s41380-018-0017-5.

MULTIDISCIPLINARY CBT AND BWL TREATMENT EFFECTS ON BINGE EATING BEHAVIOUR, WEIGHT AND DEPRESSIVE SYMPTOMS

Montano, C. B., Rasgon, N. L., & Herman, B. K. (2016). Diagnosing binge eating disorder in a primary care setting. *Postgraduate medicine*, 128(1), 115-123.

DOI:10.1080/00325481.2016.1115330.

Olthof, I., van den Berg, E. M., & Dekker, J. (2010). Morbide obesitas: behandelen of bezwijken?. *Psychologie en Gezondheid*, 38(2), 57-65. DOI:10.1007/BF03089352.

Pagoto, S., Bodenlos, J. S., Kantor, L., Gitkind, M., Curtin, C., & Ma, Y. (2007). Association of major depression and binge eating disorder with weight loss in a clinical setting.

Obesity, 15(11), 2557-2559. DOI:10.1038/oby.2007.307.

Palavras, M. A., Hay, P., & Claudino, A. (2017). The efficacy of psychological therapies in reducing weight and binge eating in people with bulimia nervosa and binge eating disorder who are overweight or obese—a critical synthesis and meta-analyses.

Nutrients, 9(3), 299. DOI:10.3390/nu9030299.

Puccio, F., Fuller-Tyszkiewicz, M., Ong, D., & Krug, I. (2016). A systematic review and meta-analysis on the longitudinal relationship between eating pathology and depression.

International Journal of Eating Disorders, 49(5), 439-454. DOI:10.1002/eat.22506.

Reas, D. L., & Grilo, C. M. (2008). Review and meta-analysis of pharmacotherapy for binge-eating disorder. *Obesity*, 16(9), 2024-2038. DOI: 10.1038/oby.2008.333.

Ricca, V., Mannucci, E., Moretti, S., Di Bernardo, M., Zucchi, T., Cabras, P. L., & Rotella, C.M. (2000). Screening for binge eating disorder in obese outpatients.

Comprehensive psychiatry, 41(2), 111-115.

Rush, A. J., Giles, D. E., Schlessner, M. A., Fulton, C. L., Weissenburger, J., & Burns, C. (1986). The inventory for depressive symptomatology (IDS): preliminary findings.

Psychiatry research, 18(1), 65-87.

Rush, A. J., Gullion, C. M., Basco, M. R., Jarrett, R. B., & Trivedi, M. H. (1996). The inventory of depressive symptomatology (IDS): psychometric properties. *Psychological medicine*, 26(3), 477-486.

St. Antonius Ziekenhuis (2018). *Overeetstoornissen, afdeling Psychiatrie & Psychologie* [Brochure]. Utrecht, The Netherlands: Author. Retrieved from:

MULTIDISCIPLINARY CBT AND BWL TREATMENT EFFECTS ON BINGE EATING BEHAVIOUR, WEIGHT AND DEPRESSIVE SYMPTOMS

file:///C:/Users/g_fswgs02/AppData/Local/Google/Chrome/Downloads/behandelprogramma-overeetstoornissen.pdf.

Stice, E., Hayward, C., Cameron, R. P., Killen, J. D., & Taylor, C. B. (2000). Body-image and eating disturbances predict onset of depression among female adolescents: a longitudinal study. *Journal of abnormal psychology*, 109(3), 438.

Vaidya, B., & Pearce, S. H. (2008). Clinical review-management of hypothyroidism in adults. *BMJ (CR)-print*, 337(7664), 284. DOI:10.1136/bmj.a801.

Vocks, S., Tuschen-Caffier, B., Pietrowsky, R., Rustenbach, S. J., Kersting, A., & Herpertz, S. (2010). Meta-analysis of the effectiveness of psychological and pharmacological treatments for binge eating disorder. *International Journal of Eating Disorders*, 43(3), 205-217. DOI:10.1002/eat.20696.

Wilfley, D. E., Welch, R. R., Stein, R. I., Spurrell, E. B., Cohen, L. R., Saelens, B. E., ... & Matt, G. E. (2002). A randomized comparison of group cognitive-behavioral therapy and group interpersonal psychotherapy for the treatment of overweight individuals with binge-eating disorder. *Archives of general psychiatry*, 59(8), 713-721. DOI:10.1001/archpsyc.59.8.713.

Wilson, G. T., Grilo, C. M., & Vitousek, K. M. (2007). Psychological treatment of eating disorders. *American Psychologist*, 62(3), 199. DOI:10.1037/0003-066X.62.3.199.

Wilson, G. T., Wilfley, D. E., Agras, W. S., & Bryson, S. W. (2010). Psychological treatments of binge eating disorder. *Archives of general psychiatry*, 67(1), 94-101. DOI:10.1001/archgenpsychiatry.2009.170.

World Health Organization (n.d.). Obesity and Overweight Fact Sheet. Retrieved August 15, 2018, from <http://www.who.int/mediacentre/factsheets/fs311/en/>.

Appendix A: Binge Eating Scale (Gormally, Black, Daston & Rardin, 1982).

Datum invullen:

Naam:

Geb. Datum:

INSTRUCTIE:

Hieronder staan 16 groepen van genummerde uitspraken. Leest u bij elke groep alle uitspraken goed door. Kies per groep die uitspraak die het beste weergeeft hoe u zich voelt over uw eetgedrag. Omcirkel het cijfer dat voor de door u gekozen uitspraak staat.

1.

1. Ik ben me niet bewust van mijn gewicht of lichaam als ik bij anderen ben.
2. Ik ben me bewust van mijn gewicht of lichaam als ik bij anderen ben, maar voel me hierdoor niet teleurgesteld in mezelf.
3. Ik ben me bewust van mijn gewicht of lichaam en voel me hierdoor teleurgesteld in mezelf.
4. Ik ben me erg bewust van mijn gewicht en vaak walg ik van mezelf en schaam me voor mijn uiterlijk.

2.

1. Ik vind het niet moeilijk om langzaam te eten.
2. Ondanks dat het lijkt of ik mijn eten opslok, voel ik me daarna niet onprettig vol zitten.
3. Soms eet ik erg snel en veel en voel me daarna onprettig vol zitten.
4. Ik heb de gewoonte om mijn eten op te slokken zonder goed te kauwen en voel me dan onprettig vol zitten.

3.

1. Ik kan mijn eetgewoonten controleren.
2. Ik kan mijn eetgewoonten minder goed controleren dan andere mensen.
3. Ik voel me machteloos over de controle die ik over mijn eetgewoonten heb.
4. Ik voel me totaal machteloos over de controle die ik over mijn eetgewoonten heb.

4.

1. Ik eet bijna nooit uit verveling.
2. Ik eet soms uit verveling.
3. Ik eet regelmatig uit verveling.
4. Ik eet vaak uit verveling en niets kan mij dan doen stoppen met eten.

5.

1. Ik heb bijna altijd honger als ik iets eet.
2. Soms eet ik zomaar terwijl ik niet echt honger heb.
3. Ik eet vaak iets terwijl ik lichamelijk gezien het eten niet echt nodig heb.
4. Ondanks dat ik geen honger heb móét ik toch iets eten om mijn mond te vullen.

6.

1. Ik voel me totaal niet schuldig als ik teveel heb gegeten.
2. Ik voel me soms schuldig als ik teveel heb gegeten.
3. Ik voel me vaak schuldig als ik teveel heb gegeten.

7.

1. Ik verlies geen controle over mijn eetgedrag als ik op dieet ben.
2. Als ik de controle over mijn eetgedrag verlies tijdens een dieet heb ik soms het gevoel dat ik het verpest heb. Ik eet dan zelfs nog meer.
3. Als ik de controle over mijn eetgedrag verlies tijdens een dieet heb ik vaak de gewoonte om tegen mezelf te zeggen: "Oké, ik heb het verpest het maakt allemaal toch niets meer uit". Ik eet dan zelfs nog meer.
4. Ik begin vaak met strenge diëten die ik verbreek op het moment dat ik een eetaanval krijg.

8.

1. Ik eet bijna nooit zoveel dat ik onprettig vol zit.
2. Ik eet ongeveer één keer per maand zoveel dat ik onprettig vol zit.
3. Ik heb per maand vaak periodes dat ik grote hoeveelheden voedsel eet.
4. Ik eet zoveel voedsel dat ik vaak onprettig vol zit en soms zelfs een beetje misselijk ben.

9.

1. Ik eet meestal evenveel.
2. Soms probeer ik heel weinig te eten nadat ik teveel heb gegeten.
3. Ik eet 's avonds vaak teveel, terwijl ik 's morgens geen honger heb.
4. Ik heb sinds dat ik volwassen ben periodes gehad waarin ik mezelf bijna uithongerde. Deze periodes werden gevolgd door periodes waarin ik teveel at.

10.

1. Ik ben meestal in staat om te stoppen met eten wanneer ik dat wil.
2. Ik voel soms een drang om te eten die ik niet onder controle heb.
3. Ik voel vaak een drang om te eten die ik niet onder controle heb.
4. Ik ben bang omdat ik mijn drang tot eten niet onder controle heb.

11.

1. Ik kan stoppen met eten als ik voldaan ben.
2. Ik kan meestal stoppen met eten als ik voldaan ben.
3. Ik vind het moeilijk om te stoppen met eten als ik eenmaal ben begonnen.
4. Ik moet soms overgeven na het eten om mijn volle gevoel te laten verdwijnen.

12.

1. Ik eet evenveel wanneer ik met vrienden of kennissen ben als wanneer ik alleen ben.
2. Wanneer ik met vrienden of kennissen ben, eet ik soms niet zoveel als ik zou willen eten.
3. Vaak eet ik weinig wanneer ik met vrienden of kennissen ben, omdat ik me schaam over mijn eetgedrag.
4. Ik schaam me zo voor hoeveel ik eet dat ik alleen veel eet als ik weet dat niemand me kan zien.

13.

1. Ik eet drie maaltijden per dag met heel af en toe een tussendoortje.
2. Ik eet drie maaltijden per dag met vaste tussendoortjes.
3. Wanneer ik veel tussendoortjes heb gehad, ben ik geneigd om vaste maaltijden te laten vervallen.
4. Er zijn regelmatig periodes waarin ik het gevoel heb continu te eten, zonder vaste maaltijden.

14.

1. Ik denk bijna nooit aan hoe ik controle over mijn eetgedrag kan krijgen.
2. Soms denk ik voortdurend aan hoe ik controle over mijn eetgedrag kan krijgen.
3. Ik besteed veel tijd aan gedachten over hoeveel ik heb gegeten of hoe ik controle zou kunnen krijgen over mijn eetgedrag.
4. Ik breng het merendeel van mijn tijd door met gedachten aan eten of gedachten aan hoe ik minder zou kunnen eten. Ik heb het gevoel dat ik voortdurend worstel om niet te eten.

15.

1. Ik denk niet vaak aan eten.
2. Soms heb ik een sterke behoefte aan bepaald eten.
3. Ik heb dagen waarop ik aan niets anders kan denken dan aan eten.
4. De meeste dagen kan ik aan niets anders denken dan aan eten. Ik heb het gevoel dat ik leef om te eten.

16.

1. Ik eet totdat ik een prettig verzadigd gevoel heb.
2. Ik weet soms niet precies hoeveel ik moet eten om een prettig verzadigd gevoel te krijgen.
3. Ik heb geen idee hoeveel ik moet eten om een prettig verzadigd gevoel te krijgen.

Appendix B: Inventory Depression Scale - Self Report (Rush et al., 1986).

ZELFINVULLIJST DEPRESSIEVE SYMPTOMEN (INVENTORY OF DEPRESSIVE SYMPTOMATOLOGY: IDS-SR)⁴ (In te vullen door patiënt)

Naam:

Datum: - -

Kruis bij elke vraag het antwoord aan dat de afgelopen zeven dagen het meest op u van toepassing was

1. In slaap vallen:

- 0. Het duurt nooit langer dan 30 minuten om in slaap te vallen.
- 1. Het duurt tenminste 30 minuten om in slaap te vallen, minder dan de helft van de week.
- 2. Het duurt tenminste 30 minuten om in slaap te vallen, meer dan de helft van de week.
- 3. Het duurt meer dan 60 minuten om in slaap te vallen, meer dan de helft van de week.

2. Slaap gedurende de nacht:

- 0. Ik word 's nachts niet wakker.
- 1. Ik slaap onrustig en licht en word een aantal keren per nacht even wakker.
- 2. Ik ben tenminste één keer per nacht klaar wakker, maar val weer gemakkelijk in slaap.
- 3. Ik word vaker dan één keer per nacht wakker en blijf dan 20 minuten of langer wakker, meer dan de helft van de week.

3. Te vroeg wakker worden:

- 0. Meestal word ik niet eerder dan 30 minuten voordat ik op moet staan, wakker.
- 1. Ik word meer dan 30 minuten voordat ik op moet staan wakker, meer dan de helft van de tijd.
- 2. Ik word tenminste 1 uur voordat ik op moet staan wakker, meer dan de helft van de tijd.
- 3. Ik word tenminste 2 uur voordat ik op moet staan wakker, meer dan de helft van de tijd.

4. Te veel slapen:

- 0. Ik slaap niet langer dan 7-8 uur per nacht, zonder overdag een dutje te doen.
- 1. Ik slaap niet langer dan 10 uur binnen één etmaal (inclusief dutten).

⁴ Nederlandse vertaling: Altrecht GGZ. Copyright © 1995/2005

2. Ik slaap niet langer dan 12 uur binnen één etmaal (inclusief dutten).
3. Ik slaap langer dan 12 uur binnen één etmaal (inclusief dutten).

5. Somber voelen:

0. Ik ben niet somber.
1. Ik ben minder dan de helft van de tijd somber.
2. Ik ben meer dan de helft van de tijd somber.
3. Ik ben bijna altijd somber.

Kruis bij elke vraag het antwoord aan dat de afgelopen zeven dagen het meest op u van toepassing was

6. Prikkelbaar voelen:

0. Ik voel mij niet prikkelbaar.
1. Ik voel mij minder dan de helft van de tijd prikkelbaar.
2. Ik voel mij meer dan de helft van de tijd prikkelbaar.
3. Ik voel mij bijna altijd heel erg prikkelbaar.

7. Angstige of gespannen voelen:

0. Ik voel mij niet angstig of gespannen.
1. Ik voel mij minder dan de helft van de tijd angstig of gespannen.
2. Ik voel mij meer dan de helft van de tijd angstig of gespannen.
3. Ik voel mij bijna altijd uiterst angstig of gespannen.

8. De invloed van prettige gebeurtenissen op uw stemming:

0. Bij prettige gebeurtenissen verbetert de stemming gedurende een aantal uren tot een normaal niveau.
1. Bij prettige gebeurtenissen verbetert de stemming, maar ik voel mij niet zoals gewoonlijk.
2. Mijn stemming klaart slechts op bij een beperkt aantal zeer gewenste en aangename gebeurtenissen.
3. Mijn stemming klaart helemaal niet op, ook al gebeuren er prettige dingen in mijn leven.

9. Stemming in relatie tot de tijd van de dag:

0. Er is geen duidelijk verband tussen mijn stemming en de tijd van de dag.
1. Mijn stemming houdt vaak verband met de tijd van de dag tengevolge van omgevingsfactoren (bv alléén zijn, werken).
2. Over het algemeen is mijn stemming meer gerelateerd aan de tijd van de dag dan aan

gebeurtenissen in mijn leven.

3. Mijn stemming is duidelijk en voorspelbaar beter of slechter op een bepaald tijdstip van de

dag.

9A. Is uw stemming typisch slechter in de (één aankruisen):

0. Ochtend?

1. Middag?

2. Avond?

9B. Zijn uw stemmingswisselingen toe te schrijven aan de omgeving? (één aankruisen)

0. Ja

1. Nee

10. Kwaliteit van uw stemming:

0. De stemming (innerlijke gevoelens) die ik ervaar is vaak een normale stemming.

1. Mijn stemming is somber, maar deze somberheid lijkt sterk op verdriet.

2. Mijn stemming is somber, maar deze somberheid is enigszins anders dan wat ik bij verdriet zou voelen.

3. Mijn stemming is somber, maar deze somberheid voelt geheel anders dan verdriet.

Kruis bij elke vraag het antwoord aan dat de afgelopen zeven dagen het meest op u van toepassing was

Beantwoord nu óf vraag 11 óf vraag 12 (dus niet beide)

11. Verminderde eetlust:

0. Mijn eetlust is niet anders dan gewoonlijk.

1. Ik eet wat minder vaak of kleinere hoeveelheden dan gewoonlijk.

2. Ik eet veel minder dan gewoonlijk en alleen met inspanning.

3. Ik eet nauwelijks binnen een etmaal en alleen met extreme inspanning of op aandringen van anderen.

12. Toegenomen eetlust:

0. Mijn eetlust is niet anders dan gewoonlijk.

1. Ik voel vaker dan gewoonlijk de behoefte om te eten.

2. Ik eet regelmatig vaker en grotere hoeveelheden dan gewoonlijk.

3. Ik voel een sterke neiging om tijdens en tussen de maaltijden door te veel te eten.

Beantwoord nu óf vraag 13 óf vraag 14 (dus niet beide)

13. Gewichtsafname gedurende de afgelopen 2 weken:

0. Geen gewichtsverandering.
1. Ik heb het gevoel dat ik wat ben afgevallen.
2. Ik ben 1 kg of meer afgevallen.
3. Ik ben 2½ kg of meer afgevallen.

14. Gewichtstoename gedurende de afgelopen 2 weken:

0. Geen gewichtsverandering.
1. Ik heb het gevoel dat ik wat ben aangekomen.
2. Ik ben 1 kg of meer aangekomen.
3. Ik ben 2½ g of meer aangekomen.

15. Concentratie/besluitvaardigheid:

0. Er is geen verandering in gebruikelijke concentratievermogen of in besluitvaardigheid.
1. Ik voel mij nu en dan besluiteloos of merk dat ik mijn aandacht er niet bij kan houden.
2. Ik heb bijna altijd grote moeite om mijn aandacht vast te houden en om beslissingen te nemen.
3. Ik kan mij niet goed genoeg concentreren om te lezen of kan zelfs niet de kleinste beslissingen nemen.

16. Zelfbeeld:

0. Ik vind mijzelf even waardevol en nuttig als een ander.
1. Ik maak mijzelf meer verwijten dan gewoonlijk.
2. Ik heb sterk de indruk dat ik anderen in moeilijkheden breng.
3. Ik denk voortdurend aan mijn grotere en kleinere tekortkomingen.

17. Toekomstverwachting:

0. Ik heb een optimistische kijk op de toekomst.
1. Ik ben af en toe pessimistisch over mijn toekomst, maar meestal geloof ik dat het wel weer beter zal gaan.
2. Ik ben er vrij zeker van dat mijn nabije toekomst (1-2 maanden) niet veel goeds te bieden heeft.
3. Ik heb geen hoop dat mij in de toekomst iets goeds zal overkomen.

Kruis bij elke vraag het antwoord aan dat de afgelopen zeven dagen het meest op u van toepassing was

18. Gedachten aan dood en zelfmoord:

0. Ik denk niet aan zelfmoord of aan de dood.

1. Ik heb het gevoel dat mijn leven leeg is en vraag me af of het nog de moeite waard is.
2. Ik denk enkele malen per week wel even aan zelfmoord of aan de dood.
3. Ik denk een aantal keren per dag serieus na over zelfmoord of de dood, óf ik heb zelfmoordplannen gemaakt, óf ik heb al een poging gedaan om mijn leven te beëindigen.

19. Algemene interesse:

0. Geen verandering van mijn normale interesse in andere mensen en activiteiten.
1. Ik merk dat ik minder geïnteresseerd ben in anderen en in activiteiten.
2. Ik heb alleen nog interesse in één of twee dingen die ik voorheen deed.
3. Ik heb vrijwel geen interesse meer in dingen die ik voorheen deed.

20. Energie:

0. Geen verandering in mijn gebruikelijke energie.
1. Ik word sneller moe dan gewoonlijk.
2. Ik heb grote moeite met het beginnen aan of volhouden van gebruikelijke dagelijkse activiteiten (bijvoorbeeld boodschappen doen, huiswerk, koken, of naar het werk gaan).
3. Ik ben niet in staat om mijn normale dagelijkse activiteiten uit te voeren vanwege een gebrek aan energie.

21. Plezier en genieten (seksuele leven buiten beschouwing laten):

0. Ik geniet net zoveel van aangename bezigheden als gewoonlijk.
1. Ik heb minder plezier in aangename bezigheden dan gewoonlijk.
2. Ik heb nauwelijks plezier bij welke activiteit dan ook.
3. Ik kan nergens meer van genieten.

22. Belangstelling voor seks (scoor belangstelling en niet activiteit):

0. Ik heb evenveel belangstelling voor seks als gewoonlijk.
1. Mijn belangstelling voor seks is wat minder dan gewoonlijk, of ik beleef niet meer hetzelfde plezier aan seks als vroeger.
2. Ik heb weinig behoefte aan seks of beleef er zelden plezier aan.
3. Ik heb absoluut geen interesse in seks of beleef er geen plezier aan.

23. Gevoel van traagheid:

0. Ik denk, spreek en beweeg in mijn normale tempo.
1. Mijn denken is vertraagd en mijn stem klinkt vlak en saai.

2. Ik heb enkele seconden nodig om te antwoorden op vragen, en mijn denken is zeker vertraagd.
3. Het kost me zeker veel moeite om te reageren op vragen.

24. Rusteloos gevoel:

0. Ik voel mij niet rusteloos.
1. Ik ben vaak zenuwachtig, ik wring met mijn handen en ik kan niet rustig op een stoel zitten.
2. Ik heb de neiging te bewegen en ben nogal rusteloos.
3. Ik kan vaak niet stilzitten en loop dan te ijsberen.

Kruis bij elke vraag het antwoord aan dat de afgelopen zeven dagen het meest op u van toepassing was

25. Pijnklachten:

0. Ik heb geen zwaar gevoel in mijn armen of benen en geen andere pijnklachten.
1. Soms heb ik hoofd-, buik-, rug- of gewrichtspijn, maar deze pijnen zijn af en toe aanwezig en belemmeren mij niet dingen te doen.
2. Bovenstaande pijnen heb ik vaak.
3. Deze pijnen zijn zo erg dat ik moet stoppen met mijn bezigheden.

26. Andere lichamelijke klachten:

0. Ik heb geen last van versnelde of onregelmatige hartslag, wazig zien, zweten, warme en koude golven, oorsuizingen, pijn in de borst of beven.
1. Ik heb enkele van deze klachten maar ze zijn licht en slechts af en toe aanwezig.
2. Ik heb meerdere van deze klachten en heb daar behoorlijk last van.
3. Deze klachten zijn zo erg dat ik moet stoppen met mijn bezigheden.

27. Paniek/fobische klachten:

0. Ik heb geen paniekaanvallen of specifieke angsten (fobieën) zoals voor dieren of hoogtevrees.
1. Ik heb lichte paniekaanvallen of angsten die gewoonlijk mijn gedrag niet veranderen en mij niet verhinderen te functioneren.
2. Ik heb duidelijke paniekaanvallen of angsten waardoor mijn gedrag moet aanpassen, hoewel ik kan blijven functioneren.
3. Ik heb tenminste één keer per week paniekaanvallen of ernstige angsten waardoor ik mijn dagelijkse activiteiten moet onderbreken.

28. Verstopping/diarree:

0. Er is geen verandering in de normale stoelgang.

1. Ik heb af en toe last van lichte verstopping of diarree.
2. Ik heb vaak last van verstopping of diarree zonder dat dit mijn dagelijks functioneren beïnvloedt.
3. Ik heb last van verstopping of diarree waarvoor ik medicatie neem of waardoor mijn dagelijkse activiteiten worden beïnvloed.

29. Gevoeligheid:

0. Ik voel mij niet snel afgewezen, gekleineerd, bekritiseerd of gekwetst door anderen.
1. Ik voel mij soms afgewezen, gekleineerd, bekritiseerd en gekwetst door anderen.
2. Ik voel mij vaak afgewezen, gekleineerd, bekritiseerd en gekwetst door anderen, maar dit heeft slechts weinig invloed op mijn relaties of werk.
3. Ik voel mij vaak afgewezen, gekleineerd, bekritiseerd en gekwetst door anderen en deze gevoelens verstoren mijn relaties en werk.

30. Zwaar gevoel/lichamelijk energie:

0. Ik ervaar geen zwaar gevoel in mijn lichaam en geen verminderde lichamelijke energie.
1. Ik ervaar af en toe een zwaar gevoel in mijn lichaam en het ontbreken van energie, maar zonder negatieve invloed op werk, school of op mijn activiteiten.
2. Meer dan de helft van de tijd heb ik een zwaar gevoel in mijn lichaam (ontbreken van lichamelijke energie).
3. Ik voel mij een aantal uren per dag, een aantal dagen per week zwaar in mijn lichaam (ontbreken van lichamelijke energie).

Totaal score:

Dank u voor uw medewerking!

Appendix C: Follow-up letter⁵

Beste heer/mevrouw,

Eerder was u in behandeling bij het St. Antonius Ziekenhuis voor het programma Overeetstoornissen.

Aan het begin en eind van de behandeling heb je vragenlijsten ingevuld. Om de effectiviteit van ons programma na te gaan (en te blijven verbeteren), zijn wij benieuwd naar uitkomsten een jaar na behandeling.

Er worden enkele korte vragen gesteld onderaan deze brief. Daarnaast tref je 2 vragenlijsten die je eerder invulde rondom de behandeling.

Wij zouden het zeer op prijs stellen wanneer je de vragenlijsten zou willen invullen en aan ons zou willen terugsturen in bijgevoegde enveloppe.

Met dank en vriendelijke groeten, namens,

Nienke van der Veer
Behandelcoördinator Overeetstoornissen

Algemene vragen:

Naam patiënt:

Datum:

1. Wat is uw gewicht op dit moment (In kg)?
2. Heeft u later evt een maagoperatie (maagband, gastric sleeve of bypass) ondergaan? (Omcirkel het juiste antwoord)

JA / NEE

Zoja, welke?

En was dit reeds advies vanuit de behandeling hier?

3. Voelt het alsof u de eetstoornis voldoende onder controle heeft (het is normaal dat er moeilijke momenten zijn, er soms een terugval als deze niet langer dan 1 hooguit enkele weken duurt)?
4. Wat vond u belangrijk in de behandeling van het St. Antonius Ziekenhuis? En waarom?
5. Heeft u nog suggesties voor het behandelprogramma of andere opmerkingen?
6. Zou u deze behandeling adviseren aan anderen (vrienden, bekenden, familie) als zij dezelfde soort problemen zouden hebben?

⁵ Send together with BES and EDE-Q. This second questionnaire was not included in this thesis due to its recent addition.

MULTIDISCIPLINARY CBT AND BWL TREATMENT EFFECTS ON BINGE EATING
BEHAVIOUR, WEIGHT AND DEPRESSIVE SYMPTOMS