Effectiveness of web-based guided self-help cognitive behavioral therapy-enhanced for binge-eating disorder

Melisse, B.; van den Berg, E.; de Beurs, E.

Published in:
International Journal of Eating Disorders

DOI:
10.1002/eat.24079

Publication date:
2023

Document Version
Publisher's PDF, also known as Version of record

Received: 19 June 2023 | Revised: 6 October 2023 | Accepted: 6 October 2023

DOI: 10.1002/eat.24079

ORIGINAL ARTICLE

International Journal of EATING DISORDERS WILEY

Effectiveness of web-based guided self-help cognitive behavioral therapy-enhanced for binge-eating disorder: An implementation study

Bernou Melisse PhD [1,2,3] | Elske van den Berg PhD [1] | Edwin de Beurs PhD [3,4]

[1]Novarum Center for Eating Disorders & Obesity, Amstelveen, The Netherlands

[2]Section Clinical Psychology, Leiden University, Leiden, The Netherlands

[3]Department of Clinical Psychology, Utrecht University, Utrecht, The Netherlands

[4]Research Department, Arkin Mental Health Institute, Amsterdam, The Netherlands

Correspondence
Bernou Melisse, Novarum Center for Eating Disorders & Obesity, Laan van de Helende Meesters 2, Amstelveen, Amstelveen, The Netherlands.
Email: bernoumelisse@outlook.com

Action Editor: Tracey Wade

Abstract

Introduction: Web-based guided self-help cognitive behavioral therapy-enhanced (CBT-E) is a 12-weeks, 12-sessions, digitalized version of part II of the self-help book *Overcoming Binge Eating*. This intervention is effective when offered under controlled circumstances in a randomized-controlled-trial. It is unknown how patients with binge-eating disorder (BED) respond to this intervention when offered in real-world clinical-settings. The aim of this study is to examine post-intervention effectiveness of guided self-help CBT-E for BED in real-world settings.

Method: The present study used a cohort-design examining the effectiveness of web-based guided self-help CBT-E according to an intention-to-treat (ITT) analysis. BED patients ($n = 278$) were assessed pre- and post-intervention. The primary outcome was reduction in binge-eating episodes. Other outcomes were full-recovery (EDE-Q score <2.77 and abstinence from binge-eating episodes), impaired psychosocial functioning, defined as secondary impairment, and general psychopathology post-intervention.

Results: The number of binge-eating episodes reduced by an average of 16 binge-eating episodes per 4 weeks pre-intervention to five binge-eating episodes during the last 4 weeks of treatment. Abstinence from binge eating was reported by 30%, and 28% reported full recovery. Effect sizes (Cohen's *d*) were large ($d \geq 1.0$) for all outcome measures. There were no differences in outcomes between the ITT and the completers sample.

Discussion: Guided self-help CBT-E is associated with significant improvements. The effects of guided self-help CBT-E offered in a real-world-setting are comparable to self-help CBT-E offered in a randomized-controlled-trial. However, it should be noted that comparisons with randomized-controlled-trials requires caution. Longer-term follow-up data are necessary to measure persistence of treatment benefits.

Public Significance: Offering CBT-E as a web-based guided self-help intervention has several benefits for patients with BED. Guided self-help CBT-E is associated with significant improvements on the short term when offered in real-world clinical settings.

KEYWORDS
binge-eating disorder, cognitive behavioral therapy-enhanced, effectiveness, guided self-help, real-world clinical settings

1 | INTRODUCTION

Binge-eating disorder (BED) has a significant impact on psychosocial functioning (Bohn et al., 2008), and effective treatments are essential (Lynch et al., 2010). However, as BED is only recently included in the DSM-5 (APA, 2013; Mustelin et al., 2016), the disorder remains under-recognized compared to anorexia- and bulimia nervosa (Mitchison & Hay, 2014). Consequently, patients with BED are less likely to present for treatment, and there is a lack of data about the clinical course of BED (Fairburn & Harrison, 2003).

Cognitive behavioral therapy-enhanced (CBT-E) (Fairburn, 2008) is one of the recommended evidence-based treatment for eating disorders (EDs) (NICE, 2017). After in-person CBT-E, 37% of the BED patients reported to be fully recovered (eating disorder examination-questionnaire [EDE-Q] score <2.77 and abstinence from binge eating; Melisse et al., 2022). CBT-E is also effective when offered as a web-based intervention (guided self-help CBT-E). One randomized controlled trial (RCT) showed that after web-based guided self-help CBT-E around 40% of the BED patients were fully recovered, and 50% did not have any binge-eating episodes at the end-of-treatment (van den Berg, et al., 2020; Melisse et al., (2023a, 2023b).

There is a lack of specialized ED therapists (NZA, 2023). Since guided self-help CBT-E requires less specialized therapist involvement, it is associated with lower costs of offering treatment compared to in-person CBT-E (Jenkins, 2021). Guided self-help CBT-E is shorter than in-person CBT-E, and this allows for more efficient use of therapists' time. Therefore, guided self-help interventions have the potential to reduce wait-lists and wait-times for treatment (Carter, 2012). Other advantages of web-based guided self-help interventions for patients are: removal of geographical barriers, reduced travel time and expenses, and potentially increased help seeking, since patients who experience weight stigma due their ED appreciate the greater anonymity of remote treatment (Becker et al., 2010; Bird, 2019; Linardon et al., 2021).

Only a few studies have examined the efficacy of guided self-help (Hilbert et al., 2019), and web-based guided self-help interventions for BED (Carrard et al., 2011; Melisse, Berg, et al., 2023a). However, the generalizability of findings from RCTs to general clinical practice may be compromised due to the strict adherence to protocolized treatment delivery and by stringent inclusion criteria. For instance, compared to RCTs, effectiveness studies tend to include more patients with comorbid disorders (Leichsenring, 2004), and therefore, serve a more heterogeneous patient population (Knott et al., 2015; Waller et al., 2014). Thus, it is yet unknown how patients with BED respond to web-based guided self-help CBT-E, when offered in real-world clinical settings, outside the confines of an RCT.

The aim of the present study was to examine the effectiveness of guided self-help CBT-E for BED in a real-world setting. This study involved a naturalistic pre-post-intervention cohort design, and data were collected as part of routine outcome monitoring (de Beurs et al., 2011). The primary outcome was reduction in binge-eating episodes, and the secondary outcome was full recovery rate at post-intervention. Other outcomes were reduction in clinical impairment and general psychopathology.

2 | METHOD

2.1 | Design and procedure

A single-site within-group consecutive cohort design was used to examine the effectiveness of web-based guided self-help CBT-E for BED ($n = 278$). The number of binge-eating episodes and full recovery rate were measured pre- and post-intervention. Patients with BED referred to the outpatient clinic of Novarum, a Dutch specialized center for EDs, were offered study participation. After an average wait time of 22 weeks patients had a semi-structured routine clinical interview. Their height was measured and a calibrated scale was used to measure their weight. The interviews were held in-person until March 15, 2020, after which, due to the COVID-19 social distancing measures, most interviews were held through videoconferencing; therefore, height and weight were based on the patients self-report. Eligible participants received study information. After patients provided informed consent, they were put on a waiting-list of for an average 9 weeks before they commenced treatment. Demographic characteristics (age, gender, marital status, and highest level of education) were gathered by self-report at the initial assessment. Comorbid psychopathology was assessed by psychiatrists or clinical psychologists using standardized assessment tools, such as the SCID-5-CV (First et al., 2016). When patients were diagnosed with comorbid psychopathology elsewhere, their diagnoses were imported from their psychodiagnostic reports. As part of real-world clinical settings, data were collected by routine outcome monitoring (de Beurs et al., 2011). Self-report measures were completed when they started treatment (pre-intervention) and post-intervention. Recruitment took place between June 2018 and January 2023. However, between September 2019 and October 2020 patients were first offered to participate in an RCT (Melisse, Berg, et al., 2023a), if they declined to take part in the RCT patients were asked if their data could be de-identified and used in the current study.

2.2 | Participants

Eligible patients had a DSM-5 BED diagnosis (APA, 2013), a body mass index (BMI, kg/m^2) between 19.5–40, and were ≥18 years old.

Sufficient proficiency in Dutch or English and internet access were required. If patients had other primary psychopathology that needed immediate attention (e.g., acute psychosis, severe substance abuse, severe depressive disorder with suicidal ideation) or were pregnant they were excluded. Patients with comorbid psychopathology which did not require immediate attention were included.

2.3 | Intervention: Guided self-help CBT-E

Guided self-help CBT-E was offered by therapists with various backgrounds, for example, dieticians and nurse-practitioners with a bachelor's degree, and psychologists with at least a master and sometimes a post-doctoral degree. All therapists successfully completed a web-based CBT-E training provided by the Center for Research on EDs at Oxford. After they first familiarized themselves with the detailed CBT-E manual (Fairburn, 2008) and the book *Overcoming Binge Eating* (Fairburn, 2013), they attended a two-day workshop provided by BM. As part of good clinical practice, all therapists attended weekly supervision sessions with BM.

Guided self-help CBT-E is a 12 weeks, 12 sessions, digitalized version of Part Two of the self-help book *Overcoming Binge Eating* (Fairburn, 2013). Like the regular CBT-E focused version, guided self-help CBT-E consisted of four phases. Table 1 provides a description of the four stages of guided self-help CBT-E and CBT-E. However, in guided self-help CBT-E, the formulation was discussed rather than created, the mood intolerance intervention was omitted, the interventions of events, moods and eating were addressed in stage one, and only one module was addressed in stage three (body image or dietary restraint). Compared to the book *Overcoming Binge Eating* (Fairburn, 2013), discussion of the formulation, binge analysis and creation of a prevention plan were added in guided self-help CBT-E.

The guided self-help CBT-E intervention had an online therapy environment including all interventions (Table 1). Patients visited the therapy environment on a daily basis, read psychoeducation materials, completed and uploaded daily assignments, and uploaded two self-evaluations a week, as described in the book *Overcoming Binge Eating* (Fairburn, 2013). The self-evaluations were in accordance with the assignments for that weeks interventions. When they did not complete their daily assignments, they received automatic reminders. Therapists were able to track all of the patients' activities. Each patient scheduled an individual, weekly videoconferencing session of 20 min with their therapist, during which time they received feedback on their assignments. The sessions were scripted in accordance with the guided self-help CBT-E treatment manual as developed by BM and EvdB (Melisse, Berg, et al., 2023a). Before treatment commenced, the patients were required to read the psycho-educational section of *Overcoming Binge Eating*.

2.4 | Measures

Data from all self-report measures were collected on the web pre- (Week 0), and post-intervention (Week 12).

2.4.1 | Eating disorder examination-questionnaire: EDE-Q 6.0

The EDE-Q is the most widely used self-report questionnaire to assess ED behavior, such as binge eating, as well as general ED pathology over the past 4 weeks. A total of 28 items are measured on a 7-point Likert-scale (0: feature was absent; 6: feature was markedly present or present every day). The global-score is calculated as the average score of all items and can range between 0 and 168. The Dutch version of the EDE-Q, has good psychometric properties (Aardoom et al., 2012; Fairburn & Beglin, 2008). Internal consistency of the EDE-Q global score was good in the current study (Cronbach's $\alpha = .77$, McDonalds $\omega = .78$).

TABLE 1 Description of the four stages of guided self-help cognitive behavioral therapy-enhanced (CBT-E) and CBT-E focused version.

	Guided self-help CBT-E		CBT-E	
Stage	Duration[a]	Interventions	Duration[b]	Interventions
1. Starting well	4 weeks, 4 sessions	Discuss formulation, establish a regular eating pattern, alternatives for binge eating, with real-time self-monitoring as a central intervention, weekly weighing, moods, events and eating interventions: binge-eating analysis and pro-active problem solving	4 weeks, 9 sessions	Create formulation, establish a regular eating pattern, alternatives for binge eating, with real-time self-monitoring as a central intervention, weekly weighing
2. Taking stock	1 week, 1 session	Joint review of progress and designing the rest of treatment	2 weeks, 2 sessions	Joint review of progress and designing the rest of treatment
3. Addressing maintaining factors	6 weeks, 6 sessions	Body image or dietary restraint	8 weeks, 8 sessions	Two modules: body image/dietary restraint/moods, events and eating
4. Ending well	1 week, 1 session	Set back, mindset, prevention plan	6 weeks, 3 sessions	Set back, mindset, prevention plan

[a]Duration per session was 20 min, patients received 13 sessions, a total of 260 min of treatment with a specialist.
[b]Duration per session was 50 min, patients received 22 sessions, a total of 1100 min of treatment with a specialist.

The primary outcome indicator was reduction of binge-eating episodes at post-treatment as measured with the EDE-Q. As a secondary outcome indicator, full recovery was defined as an EDE-Q global-score under the cutoff of >2.77 (based on the community mean plus one SD) combined with abstinence from binge-eating.

2.4.2 | Clinical impairment assessment

The clinical impairment assessment (CIA) measures impaired psychosocial functioning, also called secondary impairment, due to ED pathology during the last 4 weeks. The CIA is a 16-item self-report questionnaire, rated on a 4-point Likert-scale (0: not at all; 3: a lot). The global-score is calculated as the sum-score of all items (range 0–48), and has a cutoff of >16 (Bohn et al., 2008). The CIA has good psychometric properties, and internal consistency of the CIA was good in the current study (Cronbach's $\alpha = .77$, McDonalds $\omega = .79$).

2.4.3 | General psychopathology: Outcome questionnaire 45 and depression anxiety and stress scales

Reduction of general psychopathology was measured by the Outcome Questionnaire 45 (OQ-45) (de Beurs et al., 2005; Lambert et al., 1996) and the Depression Anxiety and Stress Scales (DASS-42) (de Beurs et al., 2001; Lovibond & Lovibond, 1995). The OQ-45 measures psychological and social functioning, over the past week. The 58 items are measured on a 5-point Likert-scale (0: never; 4: almost always). The total score is calculated as the sum-score of all items (range: 0–180), of which some are reverse scored (Lambert et al., 1996). Internal consistency of the OQ-45 was acceptable to good in the current study (Cronbach's $\alpha = .69$, McDonalds $\omega = .88$). The DASS-42 assesses depression, anxiety, and stress. All 42 items are rated on a 4-point Likert-scale (0: did not apply to me at all; 3: applied to me very much or most of the time). The total score is calculated as the sum-score of all items (0–126) (Lovibond & Lovibond, 1995). Internal consistency of the DASS-42 was good (Cronbach's $\alpha = .82$, McDonalds $\omega = .83$) in present study.

2.5 | Statistical analysis

Treatment outcomes: The primary outcome was the within group treatment effects of reduction in binge-eating episodes, as measured with the EDE-Q. The other outcome was full recovery post-intervention as measured by the EDE-Q. Reduction in secondary ED pathology, as measured with the CIA, and general psychopathology, as assessed with the DASS-42 and OQ-45 were also measured. Pre- and post-intervention assessments were compared by one-sided dependent sample *t*-tests.

Effect sizes: Within group effect sizes of the pre-to-post-intervention change were calculated using Cohen's *d* (.2 small, .5 medium, .8 large) (Cohen, 1977).

Predictors for dropout from treatment: Regression analyses were conducted with the pre-intervention scores (number of binge-eating episodes, EDE-Q global-score, BMI, and comorbid psychopathology), and demographics (gender, age, civil status, level of education) as independent variables and dropout from treatment as dependent variables.

Comparison of pre-intervention characteristics of treatment completers and treatment dropouts: The significance of pre-intervention differences (independent variables) between patients who completed or dropped out of treatment (dependent variable) was assessed by chi-square tests for categorical variables and logistic regression analyses for the association between continuous variables and completion versus dropout.

Comparison of pre-intervention characteristics of patients who participated between September 2019 and October 2020 or beyond this time: differences in pre-intervention characteristics were analyzed with an independent sample *t*-test.

Imputation and software: Analyses were performed according to an intention-to-treat (ITT) approach with the multiple imputation by chained equations, using predictive mean matching combining five imputations (imputed dataset with five imputations for each missing observation) (Graham, 2007; Rubin, 2004). Statistical analyses were performed in SPSS version 28.

2.6 | Ethics

According to the Dutch Central Ethical Commission on Medical Research with Human Subjects analysis of anonymized routine outcome monitoring data does not require valuation by a medical-ethical approval board. Data were de-identified, and the participants signed an informed consent form in accordance with the World Medical Association Declaration of Helsinki (World Medical, 2013).

3 | RESULTS

3.1 | Patient flow

Potential participants ($n = 308$) were recruited between June 2018 and January 2023, of which $n = 278$ patients were diagnosed with BED and started guided self-help CBT-E; $n = 8$ met the criteria of bulimia nervosa, and $n = 22$ declined their data of routine outcome monitoring to be analyzed in present study. Of the participants who started treatment, 91.7% ($n = 255/278$) completed treatment and administered the EDE-Q. A total of 8.3% ($n = 23/278$ patients) did not complete treatment. The flow-diagram (Figure 1) shows participant enrollment and flow through the study. No demographic variables were associated with treatment drop-out (gender $p = .160$, age $p = .697$, civil status $p = .169$, level of education $p = .541$) or clinical factors before the intervention (EDE-Q global-score $p = .205$, number of binge-eating episodes $p = .655$, BMI $p = .245$, and comorbid psychopathology $p = .785$). Table 2 summarizes the participant characteristics at baseline.

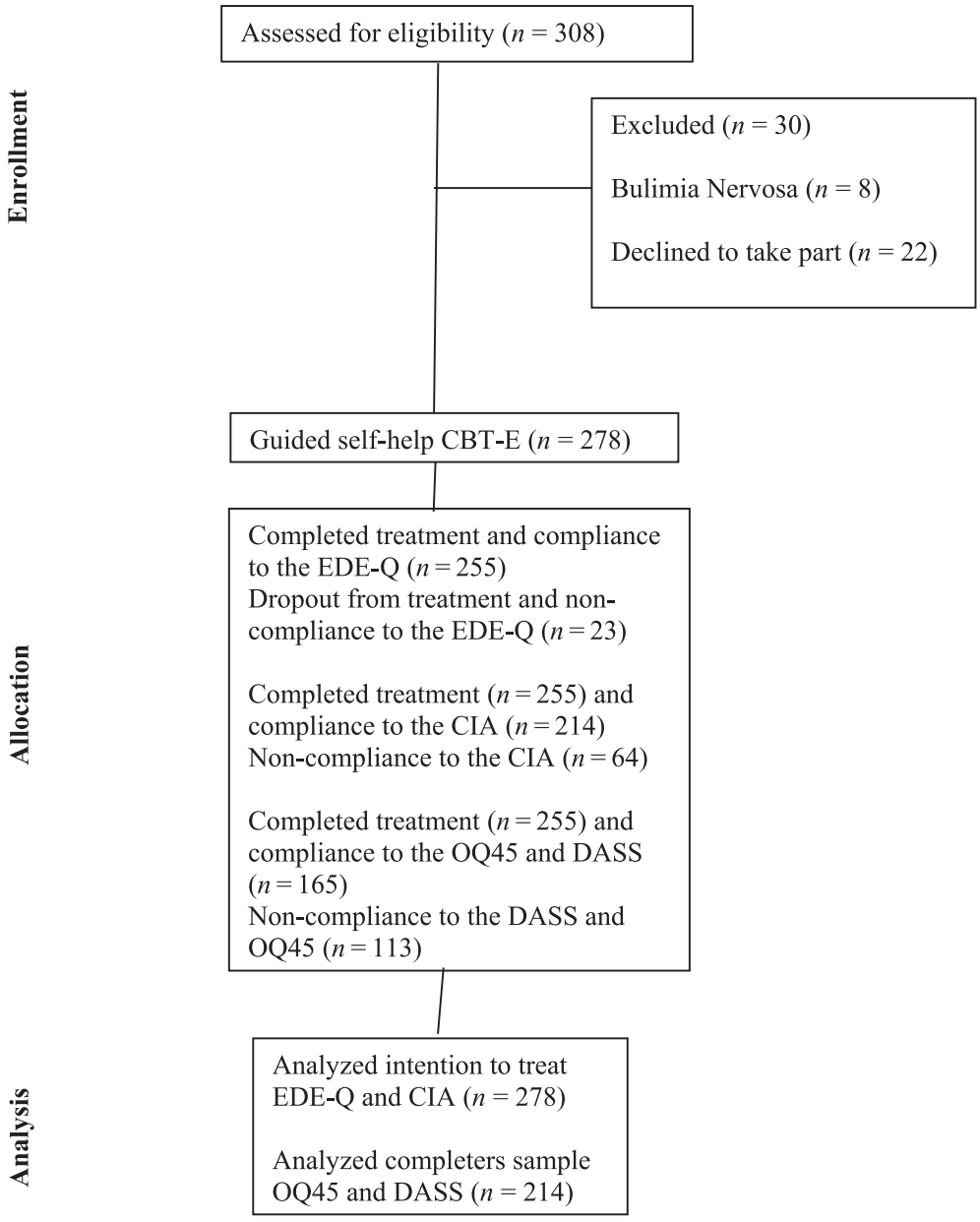

FIGURE 1 Flowchart of patients in study. CBT-E, cognitive behavior therapy-enhanced; CIA, clinical impairment assessment; DASS, Depression Anxiety and Stress Scales; EDE-Q, eating disorder examination-questionnaire.

3.2 | Comparison of pre-intervention characteristics of treatment completers and treatment dropouts

There were no pre-intervention differences between patients who completed treatment or who dropped-out with regard to number of binge-eating episodes ($p = .800$), EDE-Q ($p = .183$) and CIA ($p = .168$) pre-intervention scores, as well as BMI ($p = .473$). No demographic differences were found between both groups (gender $p = .269$), level of education $p = .995$, civil status $p = .537$, and comorbid psychopathology $p = .986$.

Finally, there were no pre-intervention differences in clinical characteristics between patients who participated between September 2019 and October 2020 or beyond this time window: binge-eating episodes $p = .111$, EDE-Q global-score $p = .659$, CIA global-score $p = .180$, BMI $p = .960$, OQ-45 $p = .243$, DASS-42 $p = .140$.

3.3 | Outcomes

3.3.1 | Binge-eating episodes

Table 3 shows that at pre-intervention, patients had on average 16.1 (SD = 14.6) binge-eating episodes during the last 4 weeks, as measured by the EDE-Q. At post-intervention, patients had 4.8 (SD = 6.9) binge-eating episodes during the last 4 weeks. A *t*-test showed that the number of binge-eating episodes significantly reduced t (1,277) = 12.4, $p < .001$. In addition, Table 4 shows that 29.9% ($n = 83/278$) of the patients did not have binge-eating episodes

TABLE 2 Patient characteristics at pre-intervention.

	Total sample
	N = 278
Age, *M* (SD)	37.6 (12.4)
BMI, *M* (SD)	33.6 (8.5)
Gender, *n* (%)	
Women	255 (91.7%)
Men	23 (8.3%)
Highest level of education, *n* (%)	
Lower vocational education	27 (9.7%)
Lower general secondary education	83 (29.9%)
Higher professional education	83 (29.9%)
University	56 (20.1%)
Unknown	29 (10.4%)
Civil status, *n* (%)	
Single	195 (70.1%)
Married	56 (20.1%)
Divorced	27 (9.7%)
Comorbid diagnosis, *n* (%)	
Obsessive compulsive disorder	16 (15.8%)
Depressive disorder	111 (39.9%)
Persistent depressive disorder	48 (17.2%)
Anxiety disorder	16 (5.8%)
Attention deficit/hyperactive disorder	40 (14.4%)
Post-traumatic stress disorder	24 (8.6%)
Personality disorder	8 (2.9%)
Autism spectrum disorder	40 (14.4%)
Substance-related and addictive disorder	24 (8.6%)
Parent–child relationship problem	45 (25.6%)
Relationship distress with spouse or intimate partner	134 (74.4%)

Abbreviations: BMI, body mass index; M, mean; SD, standard deviation.

post-intervention. There were no outcome differences between the ITT and the completers sample.

3.3.2 | Full recovery

As measured by the EDE-Q, full recovery (EDE-Q score <2.77 and absence of binge-eating episodes) was achieved among 28.4% ($n = 79/278$) (Table 4). Again, no outcome differences between the ITT and the completers sample were found.

3.3.3 | Global-scores on the EDE-Q and CIA

Table 3 shows that EDE-Q global-score was 3.5 (SD = 1.0) pre-intervention, and 1.8 (SD = 1.0) post-intervention. A total of 83.8% ($n = 233/278$) of the patients had an EDE-Q global-score <2.77. The EDE-Q global-score significantly decreased t (1,277) = 26.1, $p < .001$. The CIA score was 24.7 (SD = 8.7) pre-intervention, and was 12.9 (SD = 7.9) post-intervention, and 66.2% ($n = 233/278$) reported remission on the CIA. The CIA scores reduced significantly between pre- and post-intervention: t (1,277) = 23.8, $p < .001$. BMI remained stable between pre-intervention (33.7, SD = 8.6) and post-intervention (34.0, SD = 8.7), t (1,277) = −1.3, $p = .189$. These findings were comparable between the ITT and the completers sample.

3.3.4 | General psychopathology

Given only 59.4% ($n = 165/278$) of participants completed the DASS-42 and OQ-45, the data were not imputed (Graham, 2007). The analyses of general psychopathology were only computed on the completers sample. DASS-42 score was 40.8 (SD = 23.5) pre-intervention, and 24.1 (SD = 20.2) post-intervention. OQ-45 total score was 70.7 (SD = 21.2) pre-intervention, and 56.0 (SD = 24.9) post-intervention. DASS-42 scores t (1,164) = 5.6, $p < .001$, as well as OQ-45 scores t (1,164) = 6.7, $p < .001$, reduced between pre- and post-intervention.

3.3.5 | Effect sizes

Table 3 shows large within group effect sizes between pre- and post-intervention with regard to binge-eating episodes ($d = .99$ [.81–1.16]), EDE-Q global-score ($d = 1.70$ [1.50–1.89]), and CIA score ($d = 1.92$ [1.71–2.12]). Effect sizes were also large for the OQ-45 ($d = .98$ [.70–1.52]), and DASS-42 ($d = .76$ [.49–1.03]) scores. BMI had a small effect size ($d = -.08$ [−.19 to −.04]).

4 | DISCUSSION

The aim of this study was to examine the effectiveness of web-based guided self-help CBT-E in a real-world setting for patients with BED with a BMI between 19.5 and 40. The primary outcome indicator was reduction in the number of binge-eating episodes post-intervention. The results showed that, post-intervention, guided self-help CBT-E appeared to be associated with significant improvements when offered in a real-world clinical setting. The number of binge-eating episodes decreased with a large effect size ($d = 1.0$), from 16 (SD = 15) to 5 (SD = 7) episodes during the last 4 weeks prior to the assessment. Abstinence from binge eating was reported by 30% ($n = 83/278$), and full recovery by 28% ($n = 79/278$) of the participants according to the EDE-Q. Secondary impairment due to ED behavior, as well as general psychopathology reduced at post-intervention. BMI did not change over the course of treatment.

Comparisons of effectiveness studies with RCTs requires caution due to the variations across treatments and study executions

TABLE 3 Changes in number of binge eating episodes and eating disorder examination-questionnaire (EDE-Q) scores over the course. of treatment assessed using intention to treat analysis with multiple imputations for the EDE-Q and clinical impairment assessment (CIA).

Guided self-help CBT-E ($n = 278$)[a]				
	Pre-intervention *M* (SD)	**Post-intervention *M* (SD)**	***t* (1,277)**	**Effect size, Cohens *d* [95% CI]**
Number of binge-eating episodes	16.1 (14.6)	4.8 (6.9)	12.4*	.99 [.81–1.16]
EDE-Q global-score	3.5 (1.0)	1.8 (1.0)	26.1*	1.70 [1.50–1.89]
CIA global-score	24.7 (8.7)	12.9 (7.9)	23.8*	1.92 [1.71-2.12]
BMI	33.7 (8.6)	34.0 (8.7)	−1.3	−.08 [−.19 to −.04]
Guided self-help CBT-E ($n = 164$)[b]				
	Pre-intervention *M* (SD)	**Post-intervention *M* (SD)**	***t* (1,164)**	**Effect size, Cohens *d* [95% CI]**
DASS-42	40.8 (23.5)	24.1 (20.2)	5.6*	1.92 [1.71–2.12]
OQ-45	70.7 (21.2)	56.0 (24.9)	6.7*	.98 [.70–1.52]

Note: Pre-intervention = assessment week 0, Post-intervention = assessment week 12. The completers sample was used for the DASS-42 and. OQ-45.
Abbreviations: BMI, body mass index; CBT-E, cognitive behavior therapy-enhanced; CI = confidence interval; DASS-42, depression anxiety and stress scales; M, mean; OQ-45, Outcome Questionnaire 45; SD, standard deviation.
[a]Analyses were performed according to an intention-to-treat approach with the multiple imputation by chained equations, using predictive mean matching combining five imputations (imputed dataset with 5 imputations for each missing observation).
[b]A too small proportion of 59.4% ($n = 165/278$) completed the DASS-42 and OQ-45 to impute the dataset. Therefore, the data of the completers sample are reported.
*$p < .001$.

TABLE 4 Remission rates for the intention to treat sample.

Guided self-help CBT-E ($n = 278$)	**Pre-intervention *N*, (%)**	**Post-intervention *N*, (%)**
EDE-Q		
Abstinence from objective binge-eating episodes	0 (.0%)	83 (29.9%)
EDE-Q < 2.77	64 (23.0%)	233 (83.8%)
Full recovery[a]	0 (.0%)	79 (28.4%)
Unchanged[b]	NA	22 (7.9%)
Deteriorated[b]	NA	1 (.4%)
CIA		
CIA < 16	47 (19.9%)	184 (66.2%)

Note: Pre-intervention = assessment week 0, Post-intervention = assessment week 12.
Abbreviations: CBT-E, cognitive behavior therapy-enhanced; CIA, clinical impairment assessment; NA, not applicable.
[a]Full recovery: eating disorder examination-questionnaire (EDE-Q) < 2.77, body mass index > 18.5 and no binge-eating episodes (Turner et al., 2015).
[b]Reliable change was defined as a reduction of .63 in the EDE-Q global-score (Jacobson & Truax, 1991). Patients with a smaller reduction were considered unchanged. Patients with an increase of >.63 in their EDE-Q global-score were considered deteriorated.

(Benson & Hartz, 2000). However, effectiveness studies could confirm outcomes of RCTs (Berg et al., 2020; Saturni et al., 2014). Compared to web-based guided self-help CBT-E for BED offered within the setting of an RCT, the effectiveness of guided self-help CBT-E for BED offered in a real-world setting was somewhat lower. The effect size of reduction in binge-eating episodes in an RCT was reported as $d = 1.4$ (Melisse, Berg, et al., 2023a) compared to $d = 1.0$ in the current study. In addition, the number of binge-eating episodes post-intervention in the current study ($M = 5$, $SD = 7$) was comparable to treatment-as-usual (in-person CBT-E) for patients with BED ($M = 5.5$, $SD = 5$) (Melisse et al., 2022). Abstinence rates were somewhat lower in the current study (29.9%) compared to various RCTs for BED: guided self-help CBT-E (31% based on self-report, and 48% based on interview-data) (Melisse, Berg, et al., 2023a), self-help CBT-ED (36%–46% based on interview-data) (de Zwaan et al., 2017; Hilbert et al., 2019), or in-person CBT-ED (36%–61% based on interview-data) (de Zwaan et al., 2017; Hilbert et al., 2012). In addition, the abstinence rate in the present study was lower than in an in-person CBT-E effectiveness study for BED (48% based on self-report) (Melisse et al., 2022). In the present study, 83% of the patients had an EDE-Q score <2.77, which seemed higher than the outcomes reported after guided self-help CBT-E was offered in an RCT, in which 80% had ED pathology below the clinical cut-off on the EDE-Q (Melisse, Berg, et al., 2023a), which was between 65.2% after in-person CBT-E for BED (Melisse et al., 2022).

This effectiveness study was performed since RCTs showed a reduced generalizability compared to studies performed in real-world clinical settings (Millen & Yap, 2020; Nahum-Shani, 2012). RCTs generally include less heterogenous populations, and treatment protocols are strictly adhered to compared to in real-world clinical settings (Leichsenring, 2004). However, there were no differences in the number of binge-eating epsisodes and EDE-Q scores pre-intervention for participants in present study compared to an RCT which examined the efficacy of guided self help CBT-E, as reported in Melisse, Berg, et al. (2023a), which had comparable demographic characteristics.

Furthermore, it should be noted that in both this effectiveness study as well as in the RCT, guided self-help CBT-E was offered in a specialized ED center Melisse et al., (2023a, 2023b). Moreover, a larger proportion of patients had comorbid psychopathology in the current study compared to an RCT which examined efficacy of guided self-help CBT-E, which was performed at the same study site (Melisse, Berg, et al., 2023a). For example, in present study 14% of the patients had autism spectrum disorder, yet this was 3% in the RCT, as well for attention deficit/ hyperactive disorder: 14% versus 6% respectively. A total of 39% of the patients had a comorbid depressive disorder, while this was 13.3% in the RCT. With regard to secondary BED pathology, the CIA score pre-intervention was 23.2 in the RCT and 24.7 in present study. In our specialist center, web-based guided self-help CBT-E is suggested to be associated with significant improvements when offered to more heterogenous groups with comorbid psychopathology. However, the fact that guided self-help CBT-E was predominantly offered by highly trained therapists could have impacted the results and generalizability to non-specialized settings is limited.

The present study had a treatment completion rate of 91.7%, which is high in comparison to completion rates of other studies. The completion rate of web-based guided self-help CBT-E was 78.9% when offered in an RCT (Melisse, Berg, et al., 2023a), 33.2%–80% in other web-based guided self-help interventions (Carrard et al., 2011; de Zwaan et al., 2017; Jenkins, 2021), 63.2%–76.4% for non web-based guided self-help CBT (Carter & Fairburn, 1998; Jenkins, 2021; Striegel-Moore et al., 2010), and 80%–82.6% for unguided non web-based self-help interventions (Hilbert et al., 2019; Peterson et al., 1998). Furthermore, in the present study, no pre-intervention differences were found between patients who completed treatment and patients who dropped out of treatment. There was no evidence for selective attrition (attrition rate 8.3%, $n = 23/278$ patients). This low dropout rate could have been due to the additional guidance offered by the therapists, possibly increasing the commitment of patients.

4.1 | Strengths and limitations

A strength of the present study was that this is the first study that examined the effectiveness of guided self-help CBT-E for BED in real-world clinical settings. In addition, the present study was the first to examine the reduction of general psychopathology after guided self-help CBT-E. The sample size was large, and could be considered as representative for patients who seek specialized treatment in real world settings. Another strength was that, the present study used data collection methods that were robust and uninterrupted. Therefore, the COVID-19 pandemic had limited impact on the study's execution. Another strength is that the results can be compared directly to the RCT of Melisse et al., (2023a, 2023b), as the present study took place at the same study site.

A limitation of this study was the lack of an active comparator, such as treatment-as-usual (Hanna, 2003; Nathan et al., 2000). Another limitation was that the outcome data were limited to patients' self-report. In particular, the validity of the assessment of binge-eating behavior can be increased when measured from self-monitoring data (Grilo et al., 2001) or by the use of an investigator based interview, such as the ED examination (Cooper & Fairburn, 1987). Several studies have shown that concordance on the number of binge-eating episodes between self-report and interview data are moderate at best (Berg et al., 2012; Melisse et al., 2021). In addition, the findings from the current study did not reveal whether long-term recovery was attained; this requires (long-term) follow-up data on the outcome measures, which is recommended for future studies.

Prior to COVID-19, the clinical interviews before treatment, were held in-person. During the pandemic, they were held through videoconferencing, and post-pandemic they were either held through videoconferencing or in-person. Therefore, measurements of weight and height were either performed by a staff-member or relied on self-report. It was not recorded whether patients had an in-person or videoconferencing interview. Generalizability of the results was limited to women, since men (8%) were underrepresented in the present study (Shingleton et al., 2015). The underrepresentation of men is common in most ED studies, although BED is more prevalent among men than other ED (Kessler et al., 2013). In addition, ethnicity was not registered as this is not allowed by Dutch law (overheid.nl, 2018). Furthermore, between September 2019 and October 2020, parallel to present study, an RCT was conducted at the study site. The effect appeared to be limited, there were no pre-intervention differences between groups within or beyond this time window. Finally, patients had to wait on average 31 weeks before they commenced treatment, which is unfavorable and associated with poorer treatment outcomes and increased dropout (Carter, 2012). Still, the majority of the patients completed treatment in the present study. However, the effect of waiting for treatment was not measured. In addition, the EDE-Q was only completed when patients commenced treatment and not when they were initially referred so the natural symptom change over time could not be estimated.

4.2 | Clinical implications

The present results indicate that, when offered in real-world clinical settings, guided self-help CBT-E for BED was associated with significant improvements. Further research, comparing guided self-help CBT-E to in-person CBT-E is needed. If such studies indicate that guided self-help CBT-E is non-inferior to in-person CBT-E, it should be a first step in treatment. As less specialist time is needed for guided self-help interventions (Carter, 2012), scarce therapist time can be used more efficiently which may reduce the waiting time for treatment. Furthermore, guided self-help CBT-E reduces geographical and financial barriers to treatment (Linardon et al., 2021) and may also enhance treatment seeking behavior, as patients who experience weight stigma due to their ED prefer the greater anonymity of remote treatment (Bird, 2019; Talumaa et al., 2022; Thapliyal & Hay, 2014).

4.3 | Implications for research

A logical next step for future research is to assess the effectiveness of guided self-help CBT-E beyond post-intervention. For future studies, a design with a treatment-as-usual control group, such as in-person CBT-E (Fairburn, 2008), may yield additional findings. However, for a proper interpretation of study results, a detailed description of the kind of intervention provided in the treatment-as-usual control group is of the outmost importance. In addition, the treatment dose, clinical attention to both groups and outcome expectations should be carefully monitored (Freedland et al., 2011). However, comparisons between treatment outcomes of guided self-help CBT-E with in-person CBT-E, or another treatment-as-usual, should first be made in an RCT, and then in an effectiveness study. Another logical next step is to assess whether symptom change occurs during the wait-time when there is a long waiting-time to commence treatment. Furthermore, future studies should collect investigator based interview data (Berg et al., 2012) or data from self-monitoring (Grilo et al., 2001). Finally, future work should examine outcome predictors of guided self-help (Melisse, van den Berg, et al., 2023), as this will enhance decision making by offering guided self-help or in-person CBT-E, or a different type of treatment (Kraemer, 2016).

5 | CONCLUSIONS

In conclusion, guided self-help CBT-E is associated with significant improvements between pre- and post-intervention when offered in real-world clinical settings with regard to reduction in binge-eating episodes, full recovery, and general psychopathology among BED patients. Guided self-help is briefer, and requires less therapist involvement compared to in-person treatments.

AUTHOR CONTRIBUTIONS

Bernou Melisse: Conceptualization; data curation; formal analysis; investigation; methodology; project administration; resources; software; supervision; validation; writing – original draft. **Elske van den Berg:** Funding acquisition; project administration; writing – review and editing. **Edwin de Beurs:** Writing – review and editing.

ACKNOWLEDGMENTS

BM, Eline Kocken, and EvdB adapted CBT-E to an online guided self-help version of CBT-E. BM was responsible for therapist training and therapist supervision. Marysa Persijn, Claartje van Tooren, Marijke Hamstra, Kirsten Pellemans, Sam Kuperus, Evelien Breems, Rosa Hulshoff, Bente Steentjes, Sanne Tuynman, Astrid Schepers, Anne Ruth van Veen, Marloes Bakker, Nadieh Huijzendveld, Julia Scholte, Nanja Ros, Kim Gianotten and BM provided guided self-help CBT-E. Ella van Beers served as an English proofreader.

FUNDING INFORMATION

Not applicable.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

OPEN RESEARCH BADGES

This article has earned a Preregistered Research Designs badge for having a preregistered research design, available at https://onderzoekmetmensen.nl/en/trial/21268.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

CONSENT TO PARTICIPATE

All patients were informed about the study, assured that their data were de-identified, and all signed an informed consent form.

ORCID

Bernou Melisse https://orcid.org/0000-0003-2636-5262
Elske van den Berg https://orcid.org/0000-0002-3889-9897

REFERENCES

Aardoom, J. J., Dingemans, A. E., Slof Op't Landt, M. C., & Van Furth, E. F. (2012). Norms and discriminative validity of the eating disorder examination questionnaire (EDE-Q). *Eating Behaviors*, *13*(4), 305–309. https://doi.org/10.1016/j.eatbeh.2012.09.002

APA. (2013). *American Psychiatric Association. Diagnostic and statistical manual of mental disorders fifth edition: DSM-5*. American Psychiatric Publishing.

Becker, A. E., Hadley Arrindell, A., Perloe, A., Fay, K., & Striegel-Moore, R. H. (2010). A qualitative study of perceived social barriers to care for eating disorders: Perspectives from ethnically diverse health care consumers. *The International Journal of Eating Disorders*, *43*(7), 633–647. https://doi.org/10.1002/eat.20755

Benson, K., & Hartz, A. J. (2000). A comparison of observational studies and randomized, controlled trials. *The New England Journal of Medicine*, *342*(25), 1878–1886.

Berg, E., Schlochtermeier, D., Koenders, J., Mooij, L., Goudriaan, A., Blankers, M., Peen, J., & Dekker, J. (2020). Implementing cognitive behavioral therapy-enhanced in a routine inpatient and outpatient setting: Comparing effectiveness and treatment costs in two consecutive cohorts. *International Journal of Eating Disorders*, *53*(3), 461–471. https://doi.org/10.1002/eat.23229

Berg, K. C., Stiles-Shields, E. C., Swanson, S. A., Peterson, C. B., Lebow, J., & Le Grange, D. (2012). Diagnostic concordance of the interview and questionnaire versions of the eating disorder examination. *International Journal of Eating Disorders*, *45*(7), 850–855. https://doi.org/10.1002/eat.20948

Bird, M. D. (2019). The influence of stigma on college students' attitudes toward online video counseling and facetoface counseling. *Journal of College Counseling*, *22*(3), 256–269.

Bohn, K., Doll, H. A., Cooper, Z., O'Connor, M., Palmer, R. L., & Fairburn, C. G. J. (2008). The measurement of impairment due to eating disorder psychopathology. *Behaviour Research and Therapy*, *46*(10), 1105–1110. https://doi.org/10.1016/j.brat.2008.06.012

Carrard, I., Crépin, C., Rouget, P., Lam, T., Golay, A., & van der Linden, M. (2011). Randomised controlled trial of a guided self-help treatment on

the internet for binge eating disorder. *Behaviour Research and Therapy*, *49*(8), 482–491. https://doi.org/10.1016/j.brat.2011.05.004

Carter, J. C., & Fairburn, C. G. (1998). Cognitive-behavioral self-help for binge eating disorder: A controlled effectiveness study. *Journal of Consulting and Clinical Psychology*, *66*(4), 616–623. https://doi.org/10.1037//0022-006x.66.4.616

Carter, O. (2012). Increased wait-list time predicts dropout from outpatient enhanced cognitive behaviour therapy (CBT-E) for eating disorders. *Behaviour Research and Therapy*, *50*(7–8), 487–492.

Cohen, J. (1977). *Statistical power analysis for the behavioral sciences* (Rev. ed. ed. Academic Press http://www.gbv.de/dms/bowker/toc/9780121790608.pdf

Cooper, Z., & Fairburn, C. (1987). The eating disorder examination: A semi-structured interview for the assessment of the specific psychopathology of eating disorders. *International Journal of Eating Disorders*, *6*(1), 1–8.

de Beurs, E., den Hollander-Gijsman, M., Buwalda, V., Trijsburg, W., & Zitman, F. (2005). De outcome questionnaire (OQ-45): Een meetinstrument voor meer dan alleen psychische klachten [the outcome questionnaire (OQ-45): A measure for psychiatric symptoms and more]. *De Psycholoog*, *40*(1), 53–63.

de Beurs, E., den Hollander-Gijsman, M. E., van Rood, Y. R., van der Wee, N. J., Giltay, E. J., van Noorden, M. S., van der Lem, R., van Fenema, E., & Zitman, F. G. (2011). Routine outcome monitoring in The Netherlands: Practical experiences with a web-based strategy for the assessment of treatment outcome in clinical practice. *Clinical Psychology & Psychotherapy*, *18*(1), 1–12. https://doi.org/10.1002/cpp.696

de Beurs, E., Van Dyck, R., Marquenie, L. A., Lange, A., & Blonk, R. W. (2001). De DASS: een vragenlijst voor het meten van depressie, angst en stress. *Gedragstherapie*, *34*(1), 35–54.

de Zwaan, M., Herpertz, S., Zipfel, S., Svaldi, J., Friederich, H. C., Schmidt, F., Mayr, A., Lam, T., Schade-Brittinger, C., & Hilbert, A. (2017). Effect of internet-based guided self-help vs individual face-to-face treatment on full or subsyndromal binge eating disorder in overweight or obese patients: The INTERBED randomized clinical trial. *JAMA Psychiatry*, *74*(10), 987–995. https://doi.org/10.1001/jamapsychiatry.2017.2150

Fairburn, C. (2008). *Cognitive behavior therapy and eating disorders*. Guilford Press. https://ebookcentral.proquest.com/lib/londonmet/detail.action?docID=352275

Fairburn, C. G. (2013). *Overcoming binge eating*. Guilford Press.

Fairburn, C. G., & Beglin, S. J. (2008). Eating disorder examination-questionnaire (6.0).

Fairburn, C. G., & Harrison, P. J. (2003). Eating Disorders. *Lancet*, *361*, 407–416. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(03)12378-1/fulltext

First, M. B., Williams, J. B., Karg, R. S., & Spitzer, R. L. (2016). *Structured clinical interview for DSM-5 disorders: SCID-5-CV clinician version*. American Psychiatric Association Publishing.

Freedland, K. E., Mohr, D. C., Davidson, K. W., & Schwartz, J. E. (2011). Usual and unusual care: Existing practice control groups in randomized controlled trials of behavioral interventions. *Psychosomatic Medicine*, *73*(4), 323–335. https://doi.org/10.1097/PSY.0b013e318218e1fb

Graham, J. W. (2007). How many imputations are really needed? Some practical clarifications of multiple imputation theory. *Prevention Science*, *8*, 206–213.

Grilo, C. M., Masheb, R. M., & Wilson, G. T. (2001). Different methods for assessing the features of eating disorders in patients with binge eating disorder: A replication. *Obesity Research*, *9*(7), 418–422. https://doi.org/10.1038/oby.2001.55

Hanna, F. J. (2003). The great psychotherapy debate: Models, methods, and findings by Bruce E. Wampold. *Contemporary Psychology*, *48*(Part 6), 835–836.

Hilbert, A., Bishop, M. E., Stein, R. I., Tanofsky-Kraff, M., Swenson, A. K., Welch, R. R., & Wilfley, D. E. (2012). Long-term efficacy of psychological treatments for binge eating disorder. *British Journal of Psychiatry*, *200*(3), 232–237. https://doi.org/10.1192/bjp.bp.110.089664

Hilbert, A., Petroff, D., Herpertz, S., Pietrowsky, R., Tuschen-Caffier, B., Vocks, S., & Schmidt, R. (2019). Meta-analysis of the efficacy of psychological and medical treatments for binge-eating disorder. *Journal of Consulting and Clinical Psychology*, *87*(1), 91–105. https://doi.org/10.1037/ccp0000358

Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, *59*(1), 12–19.

Jenkins, P. E. (2021). Clinical and cost-effectiveness of two ways of delivering guided self-help for people with an eating disorder: A multi-arm randomized controlled trial. *International Journal of Eating Disorders*, *54*(7), 1224–1237.

Kessler, R. C., Berglund, P. A., Chiu, W. T., Deitz, A. C., Hudson, J. I., Shahly, V., Aguilar-Gaxiola, S., Alonso, J., Angermeyer, M. C., Benjet, C., Bruffaerts, R., de Girolamo, G., de Graaf, R., Maria Haro, J., Kovess-Masfety, V., O'Neill, S., Posada-Villa, J., Sasu, C., Scott, K., … Xavier, M. (2013). The prevalence and correlates of binge eating disorder in the World Health Organization World Mental Health Surveys. *Biological Psychiatry*, *73*(9), 904–914. https://doi.org/10.1016/j.biopsych.2012.11.020

Knott, S., Woodward, D., Hoefkens, A., & Limbert, C. (2015). Cognitive behaviour therapy for bulimia nervosa and eating disorders not otherwise specified: Translation from randomized controlled trial to a clinical setting. *Behavioural and Cognitive Psychotherapy*, *43*(6), 641–654. https://doi.org/10.1017/S1352465814000393

Kraemer, H. C. (2016). Messages for clinicians: Moderators and mediators of treatment outcome in randomized clinical trials. *The American Journal of Psychiatry*, *173*(7), 672–679. https://doi.org/10.1176/appi.ajp.2016.15101333

Lambert, M. J., Burlingame, G. M., Umphress, V., Hansen, N. B., Vermeersch, D. A., Clouse, G. C., & Yanchar, S. C. (1996). The reliability and validity of the outcome questionnaire. *Clinical Psychology & Psychotherapy*, *3*(4), 249–258. https://doi.org/10.1002/(SICI)1099-0879(199612)3:4<249::AID-CPP106>3.0.CO;2-S

Leichsenring, F. (2004). Randomized controlled versus naturalistic studies: A new research agenda. *Bulletin of the Menninger Clinic*, *68*(2), 137–151. https://doi.org/10.1521/bumc.68.2.137.35952

Linardon, J., Messer, M., Lee, S., & Rosato, J. (2021). Perspectives of e-health interventions for treating and preventing eating disorders: Descriptive study of perceived advantages and barriers, help-seeking intentions, and preferred functionality. *Eating and Weight Disorders*, *26*(4), 1097–1109. https://doi.org/10.1007/s40519-020-01005-3

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the Beck depression and anxiety inventories. *Behaviour Research and Therapy*, *33*(3), 335–343.

Lynch, F. L., Striegel-Moore, R. H., Dickerson, J. F., Perrin, N., Debar, L., Wilson, G. T., & Kraemer, H. C. (2010). Cost-effectiveness of guided self-help treatment for recurrent binge eating. *Journal of Consulting and Clinical Psychology*, *78*(3), 322–333. https://doi.org/10.1037/a0018982

Melisse, B., Berg, E. V. D., Jonge, M. D., Blankers, M., Furth, E. V., Dekker, J., & Beurs, E. D. (2023a). Efficacy of web-based guided self-help cognitive behavioral therapy-enhanced for binge-eating disorder: A randomized controlled trial. *Journal of Medical Internet Research*, *25*, e40472. https://doi.org/10.2196/40472

Melisse, B., Blankers, M., van den Berg, E., de Jonge, M., Lommerse, N., van Furth, E., Dekker, J., & de Beurs, E. (2023b). Economic evaluation of web-based guided self-help cognitive behavioral therapy-enhanced for binge-eating disorder compared to a waiting list: A randomized

controlled trial. *The International Journal of Eating Disorders*, *56*(9), 1772–1784. https://doi.org/10.1002/eat.24003

Melisse, B., Dekker, J., Van den Berg, E., De Jonge, M., Van Furth, E., Peen, J., & De Beurs, E. (2022). Comparing the effectiveness and predictors of cognitive behavioural therapy-enhanced between patients with various eating disorder diagnoses: A naturalistic study. *The Cognitive Behaviour Therapist*, *15*, E20. https://doi.org/10.1017/S1754470X22000174

Melisse, B., van den Berg, E., De Jonge, M., Dekker, J., & De Beurs, E. (2023). Predictors of web-based guided self-help cognitive behavioral therapy-enhanced for binge-eating disorder. *International Journal of Eating Disorders*, *56*, 1772–1784.

Melisse, B., van Furth, E., & de Beurs, E. (2021). The eating disorder examination-questionnaire: Norms and validity for Saudi nationals. *Eating and Weight Disorders–Studies on Anorexia, Bulimia and Obesity.*, *27*, 139–150. https://doi.org/10.1007/s40519-021-01150-3

Millen, G. C., & Yap, C. (2020). Adaptive trial designs: What are multiarm, multistage trials? *Archives of Disease in Childhood-Education and Practice*, *105*(6), 376–378.

Mitchison, D., & Hay, P. J. (2014). The epidemiology of eating disorders: Genetic, environmental, and societal factors. *Clinical Epidemiology*, *6*, 89–97. https://doi.org/10.2147/CLEP.S40841

Mustelin, L., Lehtokari, V. L., & Keski-Rahkonen, A. (2016). Other specified and unspecified feeding or eating disorders among women in the community. *International Journal of Eating Disorders*, *49*(11), 1010–1017. https://doi.org/10.1002/eat.22586

Nahum-Shani, I. (2012). Experimental design and primary data analysis methods for comparing adaptive interventions. *Psychological Methods*, *17*(4), 457–477.

Nathan, P. E., Stuart, S. P., & Dolan, S. L. (2000). Research on psychotherapy efficacy and effectiveness: Between Scylla and Charybdis? *Psychological Bulletin*, *126*(6), 964–981.

NICE. (2017). *Eating disorders: Recognition and treatment*. National Institute for Health Care Excellence.

NZA. (2023). *Nederlandse zorg autoriteit*. https://puc.overheid.nl/nza/doc/PUC_623386_22/2/

overheid.nl. (2018). *Wet bescherming persoonsgegevens*. https://wetten.overheid.nl/BWBR0011468/2018-05-01

Peterson, C. B., Mitchell, J. E., Engbloom, S., Nugent, S., Mussell, M. P., & Miller, J. P. (1998). Group cognitive-behavioral treatment of binge eating disorder: A comparison of therapist-led versus self-help formats. *International Journal of Eating Disorders*, *24*(2), 125–136. https://doi.org/10.1002/(SICI)1098-108X(199809)24:2<125::AID-EAT2>3.0.CO;2-G

Rubin, D. B. (2004). *Multiple imputation for nonresponse in surveys* (Vol. 81). John Wiley & Sons.

Saturni, S., Bellini, F., Braido, F., Paggiaro, P., Sanduzzi, A., Scichilone, N., Santus, P. A., Morandi, L., & Papi, A. (2014). Randomized controlled trials and real life studies. Approaches and methodologies: A clinical point of view. *Pulmonary Pharmacology & Therapeutics*, *27*(2), 129–138. https://doi.org/10.1016/j.pupt.2014.01.005

Shingleton, R. M., Thompson-Brenner, H., Thompson, D. R., Pratt, E. M., & Franko, D. L. (2015). Gender differences in clinical trials of binge eating disorder: An analysis of aggregated data. *Journal of Consulting and Clinical Psychology*, *83*(2), 382–386. https://doi.org/10.1037/a0038849

Striegel-Moore, R. H., Wilson, G. T., DeBar, L., Perrin, N., Lynch, F., Rosselli, F., & Kraemer, H. C. (2010). Cognitive behavioral guided self-help for the treatment of recurrent binge eating. *Journal of Consulting and Clinical Psychology*, *78*(3), 312–321. https://doi.org/10.1037/a0018915

Talumaa, B., Brown, A., Batterham, R. L., & Kalea, A. Z. (2022). Effective strategies in ending weight stigma in healthcare. *Obesity Reviews*, *23*(10), e13494. https://doi.org/10.1111/obr.13494

Thapliyal, P., & Hay, P. J. (2014). Treatment experiences of males with an eating disorder: A systematic review of qualitative studies. *Translational Developmental Psychiatry*, *2*(1), 25552. https://doi.org/10.3402/tdp.v2.25552

Turner, H., Marshall, E., Stopa, L., & Waller, G. (2015). Cognitive-behavioral therapy for outpatients with eating disorders: Effectiveness for a transdiagnostic group in a routine clinical setting. *Behaviour Research and Therapy*, *68*, 70–75. https://doi.org/10.1016/j.brat.2015.03.001

van den Berg, E., Melisse, B., Koenders, J., de Jonge, M., Blankers, M., de Beurs, E., & Dekker, J. (2020). Online cognitive behavioral therapy enhanced for binge eating disorder: study protocol for a randomized controlled trial. *BMC Psychiatry*, *20*(1), 190. https://doi.org/10.1186/s12888-020-02604-1

Waller, G., Gray, E., Hinrichsen, H., Mountford, V., Lawson, R., & Patient, E. (2014). Cognitive-behavioral therapy for bulimia nervosa and atypical bulimic nervosa: Effectiveness in clinical settings. *International Journal of Eating Disorders*, *47*(1), 13–17. https://doi.org/10.1002/eat.22181

World Medical Association. (2013). World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. *JAMA*, *310*(20), 2191–2194. https://doi.org/10.1001/jama.2013.281053

How to cite this article: Melisse, B., van den Berg, E., & de Beurs, E. (2023). Effectiveness of web-based guided self-help cognitive behavioral therapy-enhanced for binge-eating disorder: An implementation study. *International Journal of Eating Disorders*, 1–11. https://doi.org/10.1002/eat.24079