Advances in Social Science, Education and Humanities Research, volume 561
Proceedings of the 2021 2nd International Conference on Mental Health and Humanities Education (ICMHHE 2021)

Binge Eating Disorder and Major Depressive Disorder: Potential Overlaps in Mechanisms and Treatment

Kexin Fu[1,*]

[1] *Enter Author Affiliation 1 University of California, Irvine*
[*] *Corresponding author. Email: fuk2@uci.edu*

ABSTRACT
Many patients with Binge Eating Disorder (BED) also suffer from Major Depressive Disorder (MDD). This paper discusses potential relationships and overlaps between binge eating disorders and depression. It is interesting to find that patients with these two kinds of disorders share distorted thoughts, maladaptive behaviors, poor connections with other people, and the inability to effectively regulate their emotions. Because of the multiple overlaps between BED and MDD, and the variety of studies that demonstrate the effectiveness of Cognitive Behavioral Therapy and Interpersonal Psychotherapy in their treatment, the implication of this article is that treating these two disorders together might lead to a better treatment outcome. It is really crucial to understand the underlying associations and overlapping comorbidities between BED and MDD during treatment.

Keywords*: binge eating disorder, major depressive disorder, comorbidity, Cognitive Behavioral treatment, interpersonal therapy*

1. INTRODUCTION

Binge eating disorder (BED) is characterized by binge eating, or eating larger than normal quantities of food in a discrete period of time with a subjective feeling of loss of control [1]. People with BED binge eat once or more a week for at least three months. An important distinguishing factor between BED and other eating disorders, such as Anorexia Nervosa and Bulimia Nervosa, is that BED is not accompanied with extremes of low weight and/or unhealthy compensatory behaviors. In the United States, approximately 1-3% of people are affected by BED and more than half of people who have BED are women [2]. The etiology of BED is thought to be multifactorial and include both biological and environmental factors. These factors include genetic and neurobiological characteristics, body image and self-esteem, social experiences, family health history, and sometimes other mental health illnesses.

Importantly, BED has a high rate of psychiatric comorbidity, such as severe obesity, substance use disorder, anxiety disorder [3]. According to National Comorbidity Replication (NCR) survey, among BED adult patients, 79% had at least 1 additional psychiatric diagnosis and 32% met criteria for co-morbid major depressive disorder [4].

Major depressive disorder (MDD) is a mood disorder that is characterized by persistent low or sad mood, loss of interest in activities/anhedonia, and difficulty with concentration and daily functioning [1]. The hypothesized etiology of MDD includes cognitive, behavioral, and interpersonal factors [5, 6]. Depression is by far the most prevalent psychiatric illness. It affects one in ten adults in any given year and is also the leading cause of disability for ages 15-44 [7]. Depression causes over 41000 people to die by suicide every year in the United States, and it affects over 300 million people worldwide, regardless of age, gender, culture, religion, race or economic status [8, 9].

Given high rates of co-morbidity between BED and MDD, there may be shared etiological or psychopathological processes involved in these conditions. Potential shared risk factors include biological and environmental factors that may precipitate eating-related and mood-related problems [10, 11]. Additionally, the development of BED often can be explained as deficits in the emotional regulation process, which are also known to be involved in the development of MDD [12, 13]. Having co-morbid BED and MDD could represent more severe symptoms and be more difficult to treat. For example, negative emotional states may predict poor treatment outcomes [14]. Many researchers have started to address the relationship

between depression and BED, and investigate the intersection of eating disorder intervention and mood management. Further, existing treatment approaches, including cognitive behavioral therapy (CBT) and interpersonal therapy (IPT) may target shared processes in BED and MDD. Accordingly, these treatments may be adapted to effectively treat individuals with co-morbid BED and MDD.

2. RELATIONSHIP BETWEEN BED AND DEPRESSION

There is consistent overlap and co-morbidity between BED and MDD. In a nationally-representative sample, individuals with reported lifetime binge eating were nearly twice as likely to meet criteria for lifetime MDD than those without binge eating [15]. In a systematic review of 14 studies with clinical samples, there was consistent co-occurrence of BED and MDD [16]. In line with these findings, recent work in clinical samples of patients with BED continue to report a strong association between BED and depressive symptoms or MDD [3].

The co-occurrence of BED and MDD influences clinical presentation and treatment outcome. For example, greater depressive symptoms are associated with higher frequency of binge eating [17]. Further, individuals with BED who have elevated depressive symptoms have greater psychiatric morbidity and severity of eating psychopathology symptoms [18]. These individuals do less well in cognitive behavioral therapy and behavioral weight loss treatment; individuals with greater depressive symptoms had worse treatment outcomes, including more frequency binge eating, than other individuals with BED [18].

What might underlie the co-occurrence of BED and MDD? There may be common familial factors that increase risk for both BED and MDD. For example, a study investigating the factors involved in BED and MDD in both European American and African American families found that there was substantial genetic overlap between these conditions [19]. Alternatively, there may be shared psychological processes that are involved in both conditions. One potential shared psychological process is emotion regulation, which is defined as how effectively a person can manage emotional experiences and control the spontaneous emotional responses [20]. People use emotional regulation strategies to navigate everyday challenges. Those who excel at emotion regulation use this skill to support goal pursuit, such as positive emotional states and healthful eating behaviors [20]. In contrast, problematic emotion and emotional regulation has been observed across psychiatric disorders. Psychiatric disorders are thought to be characterized by problems with emotions (e.g., emotional type, emotion intensity, emotion frequency, or emotion duration) and emotion regulation (e.g., use of ineffective or poorly matched strategies, maladaptive emotional regulation goals; [21]).

Both BED and major depressive disorder involve impaired emotion regulation. Difficulty controlling cognitive and emotional states is thought to both be a risk and maintenance factor for depression [22]. People with depression have shown difficulty with inhibiting their attention to and thoughts about negative materials, which may lead to negative mood and keep mood negative. Specifically, individuals with MDD show frequent use of ineffective strategies and reduced ability to use effective emotion regulation strategies [22]. In parallel, emotional regulation also plays a key role in the onset and maintenance of binge eating disorder. People with BED tend to suppress and reflect on their unwanted emotions, which can lead to an increase in binge eating symptoms as a form of coping. Individuals with BED tend to use emotion regulation strategies less often than those without BED [23]. A recent systematic review found that, compared to individuals with obesity, individuals with BED have more negative emotion and report a greater connection between negative emotion and binge eating [12]. The authors conclude that there is support for the idea that failure to use emotion regulation effectively is a trigger and maintenance mechanism of BED, which is different from individuals with obesity [12].

It is really important to notice that by effectively using emotion regulation strategies, the symptoms of both BED and MDD can be alleviated. For MDD, research has shown that treatments which contain emotional regulation and mindfulness skills, such as DBT, can alleviate depression symptoms and prevent the relapse of depressive mood [24]. Additionally, effective emotional regulation strategies such as reappraisal can affect patients' cognition and neurobiological mechanisms and thus diminish the pathogenesis of depression and other physiological symptoms [25]. For BED, treatments that include emotional regulation strategies such as mindfulness meditation reduce the symptoms of overeating, emotional control, and help to increase awareness of hunger and satiety cues [26]. These findings suggest that treatment approaches for MDD and BED may be adapted to target shared processes, including emotion regulation, which may be especially important for individuals with co-morbid MDD and BED.

3. TREATMENT

Gold standard treatments, including CBT and IPT, have been used to effectively treat BED and MDD. Despite their positive outcomes, these treatments each have a different target and mechanism of action. Because BED and MDD are closely associated with each other, it is important to examine how underlying similarities between BED and MDD can influence treatment outcome in disparate treatment modalities. Because BED and MDD may share underlying emotion-regulation

challenges, these treatments may address this process in different ways. It is precisely because patients with BED and MDD have something in common in their cognition, behavior and interpersonal relationships that both treatments, CBT and IPT, can lead to Improvement in individuals with comorbidity.

3.1 Cognitive Behavioral Therapy (CBT).

Cognitive Behavioral Therapy (CBT) has been widely used to treat a variety of psychological disorders and consists of a combination of cognitive, behavioral and emotion-focused techniques. It focuses on the interactive relationships between an individual's maladaptive cognitions, problematic behaviors, and emotional responses. Importantly, CBT is a treatment that targets emotion regulation directly. Research shows CBT treatment can lead to decrease of dysfunctional attitudes and change in spontaneous thoughts [27]. CBT can alleviate the symptoms of depression by targeting the ability to regulate maladaptive emotions [27]. CBT treatment can also facilitate the emotional regulation process while reducing psychiatric symptoms via modifying maladaptive cognitions [28].

CBT is the gold standard psychological treatment for binge eating disorder. CBT leads to the remission of BED with a rate around 50-60% [29]. The long-term effects of CBT for BED are also significant, which includes improvement of life quality, decreased drop out rate, reduced relapse occurrence, and normalization of dietary patterns [30]. CBT treatment for eating disorders can lead to long term changes in an individual's personality disorder pathology, anxiety and depression [31].

Similarly, CBT treatment is effectively used to treat MDD. CBT for MDD is well-studied and is considered to be an effective treatment. According to a review of meta-analyses which focuses on the effectiveness of CBT treatment, CBT for depression was more effective than control conditions such as waiting list or no treatment, with a medium effect size [32]. CBT treatment can also increase an individual's problem-solving appraisal which plays a crucial role in the reduction of depressive mood [33].

CBT is a treatment that likely leads to improvement in symptoms of BED and MDD in individuals with comorbid conditions. For example, CBT can change an individual's distorted thoughts about eating and mood at the same time. The patients can learn to regulate their emotions, control the urge to overeat and change their perceptions of their body image and weight, and regain confidence. CBT can also help BED patients by increasing the mastery of their body. They will learn to control their body and eating regularly during the sessions and also learn how to replace dysfunctional behaviors that trigger binge eating with more effective coping styles. For individuals with BED and depression, CBT can change people's negative thoughts about themselves and diminish the overvaluation of their weight and shape by developing new hobbies or interests. People can learn to judge or evaluate themselves positively instead of highly focusing on their body image more than other parts of their lives. By improving their eating patterns and physical activity, the patients' depressive mood can be alleviated and further in turn increases motivation and willingness to engage in treatment, thereby impacting binge frequency and global eating pathology over time. Thus, CBT-based treatment of depression and BED may supplement each other.

3.2 Interpersonal Psychotherapy (IPT)

Interpersonal psychotherapy (IPT) focuses on helping patients resolve interpersonal problems and help them to establish supportive interpersonal relationships. IPT was developed to treat depression, and has been effectively applied to other disorders including BED. Importantly, IPT focuses on problem resolution in four domains: grief, interpersonal role disputes, role transitions, and interpersonal deficits. Some have suggested that IPT may operate by enhancing social support, decreasing interpersonal stressors, facilitating emotional processing, and improving interpersonal skills (for review, see [34]). Accordingly, emotional regulation may be indirectly targeted through IPT. For example, emotional processing and social support may reduce the intensity and frequency of negative affect and improve emotion regulation strategies.

IPT is one of the most empirically-validated treatments for depression. According to a meta-analysis, IPT efficiently treats depression, both as an independent treatment and in combination with pharmacotherapy [35]. Across studies, interpersonal therapy is just as effective as cognitive behavioral therapy for treating depression [36]. The rationale for IPT for depression is based in a conceptualization of depression as embedded in an individual's social environment. For example, when people are depressed, they may be responding to social factors and may lose interest or enjoyment of activities, which can further compromise interpersonal functioning. IPT aims to help the patients to feel understood and supported, resolve negative life problems or transitions, and regain social skills.

IPT is also effective for the treatment of BED [37]. Indeed, interpersonal conceptualizations of BED suggest that impoverished or challenging interpersonal experiences may lead to using binge eating as a form of coping, which can lead to further withdrawal from social relationships. The rationale for using IPT is for BED includes emotional processing, improving interpersonal relationships, and teaching effective social skills to navigate interpersonal challenges. In a comparison of three different kinds of treatment for BED-- IPT, guided cognitive–behavior self-help (CBTgsh) and behavior

weight loss treatment (BWL)-- there was no difference in the relief of binge eating symptoms at the end of the initial treatment [38]. A small set of clinical trials have shown that IPT and CBT similarly reduce binge eating, including at 1-year follow-up, 2-year follow-up [41], and 4-year follow-up [39].

IPT treatment may address symptoms of BED and MDD in a similar way, without specifically discussing eating or mood-related problems. The main goal of this treatment is to improve patients' interpersonal relationships. Individuals with either condition may experience grief, interpersonal role disputes, role transitions, and interpersonal deficits that can be resolved through treatment and reduce symptoms of psychopathology. For example, people with depression and BED may insulate themselves from regular social interactions, creating a false state of loneliness and maladaptive thoughts that there is no one to rely on, thereby weakening true social relationships in their life and reinforcing their negative beliefs. However, through IPT treatment, patients can learn communication skills and change their interpersonal relationships with friends and family, and realize that they have someone around them for support and thus reduce their negative thoughts and the incidence of emotional overeating.

4. DISCUSSION

Binge eating disorder (BED) and major depressive disorder (MDD) are highly comorbid psychological conditions. People who suffer from these two disorders have many overlaps between their cognition, behavior, and interpersonal relationships. Additionally, these conditions share potential underlying processes including maladaptive emotional regulation. Due to this consistent overlap, similar treatments might be helpful for both of these conditions. Cognitive Behavioral Therapy can help to improve cognitive and emotional deficits and change impaired behavior directly in each condition differently, while the Interpersonal Therapy (IPT) focuses on helping individuals to improve interpersonal relationships. Given this, it is possible that symptom reduction in individuals with comorbid BED and MDD will be greater if we adapt treatments to target shared underlying processes in both conditions.

This review has interesting clinical implications, including for the treatment of comorbid BED and MDD. This work enhances our understanding of the specific and overlapping features of different psychological conditions, such as MDD and BED. Future work identifying underlying processes, such as emotion regulation, across forms of psychopathology may improve treatment efficacy. Treatment providers would benefit from additional research and comprehensive guidelines to effectively treat patients with multiple conditions. Such guidelines may support effective treatment and reduce expenses associated with finding treatment fit.

Future work should examine these hypotheses directly through clinical trial research. For example, a clinical trial could test whether treating BED and MDD together with CBT vs. IPT produces a better treatment outcome than treating each disorder alone. It will be important to include follow-up periods in clinical trial design. Additionally, testing the timing of reductions in clinically relevant variables (e.g, emotion regulation, binge eating, depression) during treatment could help to identify patients with positive outcomes. Future work should test whether any advantages of CBT and IPT in treating BED and MDD comorbidity are limited by factors such as age, sex and race. We should extend the generalizability of such findings to comorbid diagnoses outside of BED and MDD, such as other eating disorders like anorexia disorder and other kinds of mood and anxiety disorders (e.g., generalized anxiety disorder), and to treatments outside of CBT and IPT (e.g., behavioral weight loss).

5. CONCLUSION

In sum, because BED and MDD frequently co-occur, adapting CBT and IPT to treat comorbidity may improve treatment outcome. Potential mechanisms of this change include changing distorted thoughts, reducing binge eating and depression symptoms, and improving emotional regulation strategies. Future studies may provide important information about these processes. This review paper helps to improve our understanding of the importance of underlying associations and overlapping between comorbidities in clinical treatment.

DECLARATIONS

Ethics approval and consent to participate: Not applicable.

Consent for publication: Not applicable

Availability of data and materials: Not applicable

Competing interests: KF does have any competing interests to disclose.

Funding: This paper is not associated with any funding sources.

Authors' contributions: KF conducted the literature review and wrote this review.

Acknowledgements: This paper was written as part of an educational program sponsored by ViaX.

REFERENCES

[1] American Psychiatric Association. APA (2013). Diagnostic and Statistical Manual of Mental Disorders. 2010;5.

[2] Hudson JI, Hiripi E, Pope Jr HG, Kessler RC. The Prevalence and Correlates of Eating Disorders in the National Comorbidity Survey Replication. Biological Psychiatry. 2007 Feb 1;61(3):348-58.

[3] Becker DF, Grilo CM. Comorbidity of Mood and Substance Use Disorders in Patients With Binge-eating Disorder: Associations With Personality Disorder and Eating Disorder Pathology. Journal of Psychosomatic Research. 2015 Aug 1;79(2):159-64.

[4] Grilo CM, White MA, Masheb RM. DSM‐IV Psychiatric Disorder Comorbidity and Its Correlates in Binge Eating Disorder. International Journal of Eating Disorders. 2009 Apr;42(3):228-34.

[5] Gotlib IH, Joormann J. Cognition and Depression: Current Status and Future Directions. Annual Review of Clinical Psychology. 2010 Apr 27;6:285-312.

[6] Joiner Jr TE, Katz J. Contagion of Depressive Symptoms and Mood: Meta‐analytic Review and Explanations From Cognitive, Behavioral, and Interpersonal Viewpoints. Clinical Psychology: Science and Practice. 1999 Jun;6(2):149-64.

[7] Kessler RC, Chiu WT, Demler O, Walters EE. Prevalence, Severity, and Comorbidity of 12-month DSM-IV Disorders in the National Comorbidity Survey Replication. Archives of general psychiatry. 2005 Jun 1;62(6):617-27.

[8] Preventing Suicide [Internet]. Cdc.gov. 2020 [cited 2020 Dec 7]. Available from: https://www.cdc.gov/violenceprevention/suicide/fastfact.html

[9] Depression [Internet]. Who.int. [cited 2020 Dec 7]. Available from: https://www.who.int/health-topics/depression

[10] Jacobi C, Hayward C, de Zwaan M, Kraemer HC, Agras WS. Coming to Terms With Risk Factors for Eating Disorders: Application of Risk Terminology and Suggestions for A General Taxonomy. Psychological Bulletin. 2004 Jan;130(1):19.

[11] Burcusa SL, Iacono WG. Risk for Recurrence in Depression. Clinical Psychology Review. 2007 Dec 1;27(8):959-85.

[12] Leehr EJ, Krohmer K, Schag K, Dresler T, Zipfel S, Giel KE. Emotion Regulation Model in Binge Eating Disorder and Obesity-A Systematic Review. Neuroscience & Biobehavioral Reviews. 2015 Feb 1;49:125-34.

[13] Visted E, Vøllestad J, Nielsen MB, Schanche E. Emotion Regulation In Current and Remitted Depression: A Systematic Review and Meta-Analysis. Frontiers in Psychology. 2018 May 18;9:756.

[14] Chekroud AM, Zotti RJ, Shehzad Z, Gueorguieva R, Johnson MK, Trivedi MH, Cannon TD, Krystal JH, Corlett PR. Cross-Trial Prediction of Treatment Outcome in Depression: A Machine Learning Approach. The Lancet Psychiatry. 2016 Mar 1;3(3):243-50.

[15] Merikangas KR, He JP, Burstein M, Swanson SA, Avenevoli S, Cui L, Benjet C, Georgiades K, Swendsen J. Lifetime Prevalence of Mental Disorders In US Adolescents: Results From The National Comorbidity Survey Replication–Adolescent Supplement (NCS-A). Journal of the American Academy of Child & Adolescent Psychiatry. 2010 Oct 1;49(10):980-9.

[16] Araujo DM, Santos GF, Nardi AE. Binge Eating Disorder and Depression: A Systematic Review. The World Journal Of Biological Psychiatry. 2010 Mar 1;11(2-2):199-207.

[17] Reichborn‐Kjennerud T, Bulik CM, Sullivan PF, Tambs K, Harris JR. Psychiatric and Medical Symptoms in Binge Eating in the Absence of Compensatory Behaviors. Obesity Research. 2004 Sep;12(9):1445-54.

[18] Masheb RM, Grilo CM. Emotional Overeating and Its Associations With Eating Disorder Psychopathology Among Overweight Patients With Binge Eating Disorder. International Journal Of Eating Disorders. 2006 Mar;39(2):141-6.

[19] Duncan AE, Munn-Chernoff MA, Hudson DL, Eschenbacher MA, Agrawal A, Grant JD, Nelson EC, Waldron M, Glowinski AL, Sartor CE, Bucholz KK. Genetic and Environmental Risk for Major Depression in African-American and European-American Women. Twin Research And Human Genetics. 2014 Aug;17(4):244-53.

[20] Koole SL. The Psychology of Emotion Regulation: An Integrative Review. Cognition And Emotion. 2009 Jan 1;23(1):4-1.

[21] Gross JJ, Jazaieri H. Emotion, Emotion Regulation, and Psychopathology: An Affective Science Perspective. Clinical Psychological Science. 2014 Jul;2(4):387-401.

[22] Joormann J, Stanton CH. Examining Emotion Regulation In Depression: A Review and Future

Directions. Behaviour Research and Therapy. 2016 Nov 1;86:35-49.

[23] Dingemans A, Danner U, Parks M. Emotion Regulation in Binge Eating Disorder: A Review. Nutrients. 2017 Nov;9(11):1274.

[24] Hofmann SG, Sawyer AT, Witt AA, Oh D. The Effect Of Mindfulness-Based Therapy On Anxiety and Depression: A Meta-Analytic Review. Journal of Consulting and Clinical Psychology. 2010 Apr;78(2):169.

[25] Compare A, Zarbo C, Shonin E, Van Gordon W, Marconi C. Emotional Regulation and Depression: A Potential Mediator Between Heart and Mind. Cardiovascular Psychiatry and Neurology. 2014;2014.

[26] Kristeller J, Wolever RQ, Sheets V. Mindfulness-Based Eating Awareness Training (MB-EAT) for Binge Eating: A Randomized Clinical Trial. Mindfulness. 2014 Jun 1;5(3):282-97.

[27] Furlong M, Oei TP. Changes To Automatic Thoughts And Dysfunctional Attitudes In Group CBT for Depression. Behavioural and Cognitive Psychotherapy. 2002 Jul 1;30(3):351.

[28] Baker R, Owens M, Thomas S, Whittlesea A, Abbey G, Gower P, Tosunlar L, Corrigan E, Thomas PW. Does CBT Facilitate Emotional Processing?. Behavioural and Cognitive Psychotherapy. 2012;40(1):19.

[29] Amianto F, Ottone L, Daga GA, Fassino S. Binge-Eating Disorder Diagnosis and Treatment: A Recap In Front of DSM-5. BMC Psychiatry. 2015 Dec 1;15(1):70.

[30] Vocks S, Tuschen‐Caffier B, Pietrowsky R, Rustenbach SJ, Kersting A, Herpertz S. Meta‐Analysis of the Effectiveness of Psychological And Pharmacological Treatments For Binge Eating Disorder. International Journal of Eating Disorders. 2010 Apr;43(3):205-17.

[31] Turner H, Marshall E, Wood F, Stopa L, Waller G. CBT for Eating Disorders: The Impact of Early Changes In Eating Pathology on Later Changes in Personality Pathology, Anxiety And Depression. Behaviour Research And Therapy. 2016 Feb 1;77:1-6.

[32] Hofmann SG, Asnaani A, Vonk IJ, Sawyer AT, Fang A. The Efficacy of Cognitive Behavioral Therapy: A Review of Meta-Analyses. Cognitive Therapy and Research. 2012 Oct 1;36(5):427-40.

[33] Chen SY, Jordan C, Thompson S. The Effect Of Cognitive Behavioral Therapy (CBT) On Depression: The Role of Problem-Solving Appraisal. Research On Social Work Practice. 2006 Sep;16(5):500-10.

[34] Lipsitz JD, Markowitz JC. Mechanisms of Change in Interpersonal Therapy (IPT). Clinical Psychology Review. 2013 Dec 1;33(8):1134-47.

[35] Cuijpers P, Geraedts AS, Van Oppen P, Andersson G, Markowitz JC, Van Straten A. Interpersonal Psychotherapy for Depression: A Meta-Analysis. American Journal of Psychiatry. 2011 Jun;168(6):581-92.

[36] Jakobsen JC, Hansen JL, Simonsen S, Simonsen E, Gluud C. Effects Of Cognitive Therapy Versus Interpersonal Psychotherapy in Patients With Major Depressive Disorder: A Systematic Review of Randomized Clinical Trials With Meta-Analyses And Trial Sequential Analyses. Indatabase Of Abstracts Of Reviews of Effects (DARE): Quality-Assessed Reviews [Internet] 2012. Centre for Reviews and Dissemination (UK).

[37] Fairburn CG, Jones R, Peveler RC, Hope RA, O'Connor M. Psychotherapy and Bulimia Nervosa: Longer-Term Effects of Interpersonal Psychotherapy, Behavior Therapy, and Cognitive Behavior Therapy. Archives of General Psychiatry. 1993 Jun 1;50(6):419-28.

[38] Wilson GT, Wilfley DE, Agras WS, Bryson SW. Psychological Treatments of Binge Eating Disorder. Archives of General Psychiatry. 2010 Jan 1;67(1):94-101.

[39] Hilbert A, Bishop ME, Stein RI, Tanofsky-Kraff M, Swenson AK, Welch RR, Wilfley DE. Long-Term Efficacy of Psychological Treatments for Binge Eating Disorder. The British Journal of Psychiatry. 2012 Mar;200(3):232-7.