

RAPID RESPONSE TO DAY HOSPITAL TREATMENT IN BULIMIA NERVOSA
AND PURGING DISORDER:
A RANDOMIZED CONTROLLED TRIAL OF AN INTERVENTION TO FACILITATE
EARLY BEHAVIOUR CHANGE

by

Danielle Elizabeth MacDonald

Bachelor of Fine Arts (Honours), York University, Toronto, Ontario, 2010

Master of Arts, Ryerson University, Toronto, Ontario, 2012

A dissertation

presented to Ryerson University

in partial fulfillment of the

requirements for the degree of

Doctor of Philosophy

in the Program of

Psychology

Toronto, Ontario, Canada, 2016

© Danielle Elizabeth MacDonald 2016

AUTHOR'S DECLARATION FOR ELECTRONIC SUBMISSION OF A DISSERTATION.

I hereby declare that I am the sole author of this dissertation. This is a true copy of the dissertation, including any required final revisions, as accepted by my examiners.

I authorize Ryerson University to lend this dissertation to other institutions or individuals for the purpose of scholarly research.

I further authorize Ryerson University to reproduce this dissertation by photocopying or by other means, in total or in part, at the request of other institutions or individuals for the purpose of scholarly research.

I understand that my dissertation may be made electronically available to the public.

Rapid Response to Day Hospital Treatment in Bulimia Nervosa and Purging Disorder:
A Randomized Controlled Trial of an Intervention to Facilitate Early Behaviour Change

Doctor of Philosophy

Danielle Elizabeth MacDonald

Psychology

Ryerson University

2016

Abstract

Even the most effective treatments for bulimia nervosa and purging disorder have high rates of nonremission and relapse. As such, improving treatment efficacy is an important research priority in this area. Research has consistently demonstrated that rapid response – defined as substantial improvements in key eating disorder behaviours (e.g., binge eating, vomiting, dietary restriction) during the initial weeks of cognitive behavioural therapy (CBT) – is the strongest and most robust predictor of good outcomes at end-of-treatment and in follow-up (Vall & Wade, 2015). Further, research has failed to identify pre-treatment demographic or clinical variables that account for this relationship, suggesting that rapid response is due to elements of CBT itself. This study aimed to demonstrate that rapid response can be clinically facilitated. A four-session CBT intervention focused on encouraging rapid response was compared to a matched-intensity motivational interviewing intervention, both adjunctive to intensive treatment in a randomized controlled trial. The CBT intervention included psychoeducation about rapid response, a focus on goal-setting, and use of behavioural skills for making concrete changes. Forty-four women with bulimia nervosa or purging disorder participated in the study. There were no baseline

differences between groups on any demographic or clinical variables. Intent-to-treat results showed that compared to those who received motivational interviewing, participants who received CBT were significantly more likely to make a rapid response to day hospital treatment, and had fewer total eating disorder behaviours and more normalized eating during the first 4 weeks of day hospital treatment. Additionally, between baseline and day hospital end-of-treatment, participants who received CBT made significantly greater improvements on overvaluation of weight and shape and difficulties with emotion regulation. These findings indicate that rapid response to intensive treatment can be clinically facilitated using an adjunctive intervention focused on encouraging rapid and substantial change. These findings also suggest that rapid response may be related to improved outcome via improvements in overvaluation of weight and shape or emotion regulation. This study provides support for theoretical contentions that rapid response is due to CBT-related factors, and provides the framework for future research investigating rapid response as a causal mechanism of good outcome for eating disorders.

Acknowledgements

I want to express my sincerest gratitude to my supervisors Dr. Michelle Dionne and Dr. Traci McFarlane. I am forever indebted to you both for all that I have learned, and I could not have asked for better supervisors to go on this journey with! I would also like to thank Dr. Stephanie Cassin for serving on my supervisory committee and Dr. Jennifer Lapum and Dr. David Moscovitch for serving on my examination committee. Thank you to Dr. Kathryn Trottier and Dr. Marion Olmsted, you have both been invaluable mentors to me and I have learned so much from you both over the years. I am truly grateful to Lauren David for working as a co-therapist on this study, I certainly could not have done this without you. Thank you also to Wendi Rockert, Joanne Wong, Natalie Goldman, Michelle Hu, Lisa Lipschitz, and Lisa Hoffman for your help with recruitment, assessment, and data collection. I want to acknowledge my labmates (past and present), Rachel Strimas, Sarah Royal, Rachel Bar, Elizabeth Wong, Sarah Spencer, and Katey Park, it has been such a pleasure to work with such a like-minded group of women throughout graduate school. Thank you to Dr. Josie Geller for use of the RMQ, and to Dr. Ross Crosby, Dr. James Selig, and Dr. Michael Friendly for the expert statistical consultation, training, and advice. I want to acknowledge the Canadian Institutes for Health Research (CIHR) for funding my doctoral studies. I also want to acknowledge the impact of two truly compelling papers written by Dr. Glenn Waller and Dr. Terence Wilson, respectively, both of which captivated my interest early on and in many ways inspired this project and continue to inspire and influence my work. Thank you to my partner and my family who have been interested in and supportive of my work all along. And finally, I want to express my sincerest appreciation to the fifty women who took the time and energy to participate in this study and who made this research possible.

Table of Contents

List of Tables	xii
List of Figures	xiii
List of Appendices	xiv
Introduction.....	1
Literature Review	2
Bulimia Nervosa and Purging Disorder: Classification and Related Characteristics	2
Diagnosis and classification.....	3
Prevalence.....	6
Mortality, medical sequelae, and psychiatric comorbidities.....	7
Evidence-Based Treatment for Bulimia Nervosa and Purging Disorder.....	10
Limitations to CBT-Based Treatments	17
Nonresponse and treatment dropout.	17
Relapse.....	19
Motivation for Treatment in Bulimia Nervosa and Purging Disorder.....	24
Rapid Response to Eating Disorder Treatment.....	28
Rapid response to CBT for depression.	28
Rapid response in bulimia nervosa and purging disorder.....	30
Rapid response in transdiagnostic samples.....	34
Rapid response in binge eating disorder.	37
Comparisons between rapid and nonrapid responders.....	39
Summary.....	43
Is the CBT Process itself Responsible for Rapid Response?	44

Theorized Mechanisms of Action in Rapid Response to CBT	46
The Current Study	47
Hypotheses	48
Hypothesis 1: Rapid response.....	48
Hypothesis 2: Eating disorder-related treatment outcomes.	48
Hypothesis 3: Treatment-related variables.	48
Hypothesis 4: Self-efficacy, hope, and motivation.	49
Hypothesis 5: Other clinically relevant psychological variables.	49
Hypothesis 6: Comparisons between rapid and nonrapid responders.	49
Hypothesis 7: Exploratory analyses.....	50
Hypothesis 8: Post hoc comparison of study participants with DH as usual.....	50
Method	52
Participants.....	52
Design	52
Definitions.....	54
Interventions	55
Development and description of the CBT-RR intervention.	56
Therapists and supervision.....	62
Measures	63
Eating Disorder Examination (EDE).	63
Eating Disorder Examination-Questionnaire (EDE-Q).	64
Weight Influenced Self-Esteem Questionnaire (WISE-Q).	65
Eating Disorder Inventory (EDI).	66

Readiness and Motivation Questionnaire (RMQ).....	66
Eating Disorder Urges and Behaviours Scale (EDUBS).	68
Difficulties in Emotion Regulation Scale (DERS).	68
Beck Depression Inventory II (BDI-II).....	69
Rosenberg Self Esteem Scale (RSES).	70
Working Alliance Inventory (WAI).....	70
Hope Related to Recovery Scale (HRRS).	71
Attitudes about Treatment Questionnaire (ATQ).	71
Beliefs Questionnaire (BQ).....	71
Demographic and clinical information.	72
Feedback form.	72
Self-reported eating disorder behavior information during day hospital.....	72
Procedure	73
Pilot study.	73
Recruitment and consent.....	73
Assessment, randomization, and treatment schedule.....	74
Criteria for early withdrawal.....	77
Data Analysis Plan.....	78
Power analysis.	78
Statistical Analyses.	79
Missing data handling.	82
Results.....	83
Recruitment.....	83

Pilot Study.....	83
Descriptive Statistics.....	85
Treatment Completion and Attrition.....	89
Data Cleaning Strategy	90
Hypothesis 1: Rapid Response.....	92
Rapid response rates.	92
Total binge/purge behaviour frequencies during the first four weeks.	92
Normalized eating behaviours during the first four weeks.	95
Hypothesis 2: Eating Disorder-Related Treatment Outcomes.....	95
Overvaluation of weight and shape.....	95
Drive for thinness, bulimia, and body dissatisfaction.	98
Eating disorder urges.	98
Hypothesis 3: Treatment-Related Variables	103
Attitudes about rate of change during treatment.....	103
Therapeutic alliance.	103
Homework completion.....	104
Hypothesis 4: Self-Efficacy, Hope, and Motivation	104
Self-efficacy.....	104
Hope.....	106
Motivation.....	109
Hypothesis 5: Other Clinically Relevant Psychological Variables.....	110
Depression symptoms.	110
Difficulties with emotion regulation.	110

Self-Esteem	113
Hypothesis 6: Baseline Comparisons between Rapid and Nonrapid Responders	113
Hypothesis 7: Exploratory Analyses.....	117
Baseline depression as a moderator of treatment response.....	117
Baseline difficulties with emotion regulation as a moderator of treatment response.	117
End-of-treatment remission rates.....	121
6-Month Relapse Rates.....	121
Hypothesis 8: Post Hoc Comparison of Study Participants with DH as Usual	123
Discussion.....	124
Rapid Response.....	125
Eating Disorder Psychopathology and Difficulties with Emotion Regulation	126
Treatment Process Variables.....	129
Self-Efficacy, Hope, and Motivation	131
Depression and Self-Esteem	133
Treatment Outcomes	133
Strengths and Limitations	135
Study design.....	135
Assessment methods.....	136
Study sample and generalizability.....	138
Statistical methods.....	140
Implications, Recommendations, and Future Directions	142
Does enhancing rapid response improve outcome?.....	142
Is rapid response a mechanistic factor in good outcome?.....	143

Conclusions.....	147
References.....	219
Glossary of Abbreviations	241

List of Tables

Table 1. Comparison between CBT-RR and MI Conditions.....	57
Table 2. Assessment Timeline	75
Table 3. Demographic and Baseline Clinical Characteristics.....	86
Table 4. Rapid Response, Eating Disorder Behaviours, and Remission and Relapse Rates, by Treatment Condition	94
Table 5. Change in Eating Disorder Psychopathology and Beliefs about change Over Time and by Treatment Condition	100
Table 6. Treatment Variables.....	105
Table 7. Model Statistics for Multilevel Growth Models: Self-Efficacy, Hope and Motivation with Time and Treatment Condition as Predictors	107
Table 8. Change in Other Psychological Variables Over Time and Between Conditions	111
Table 9. Baseline Comparisons between Rapid and Nonrapid Responders Regardless of Group	118
Table 10. Model Statistics for Baseline Difficulties with Emotion Regulation, Clarity Subscale, as a Moderator of Treatment Response	122

List of Figures

Figure 1. CONSORT diagram of the study design	53
Figure 2. Rate of rapid response by treatment condition	93
Figure 3. Frequency of binge/vomit/laxative episodes during the first four weeks of DH, by treatment condition (ITT)	96
Figure 4. Percent meal plan adherence during the first four weeks of DH, by treatment condition (ITT).	97
Figure 5. Change in Eating Disorder Examination, Weight and Shape composite scores over time, by treatment condition (ITT).	99
Figure 6. Change in Weight Influenced Self Esteem Questionnaire total scores over time, by treatment condition (ITT).	102
Figure 7. Change in Difficulties in Emotion Regulation Scale, Goals subscale scores over time, by treatment condition (ITT).	114
Figure 8. Change in Difficulties in Emotion Regulation Scale, Awareness subscale scores over time, by treatment condition (ITT).	115
Figure 9. Change in Difficulties in Emotion Regulation Scale, Clarity subscale scores over time, by treatment condition (ITT).	116
Figure 10. Rate of rapid response between study treatment conditions (ITT) and a cohort of individuals who participated in DH treatment as usual (n = 100).	124

List of Appendices

Appendix A CBT-RR Protocol.....	148
Appendix B MI Protocol.....	185
Appendix C Eating Disorder Urges and Behaviours Scale (EDUBS).....	208
Appendix D Hope Related to Recovery Scale (HRRS).....	209
Appendix E Attitudes about Treatment Questionnaire (ATQ).....	210
Appendix F Beliefs Questionnaire.....	211
Appendix G Demographic Questionnaire.....	212
Appendix H Consent Form	213

Introduction

Although evidence-based treatments for bulimia nervosa (BN) and related eating disorders exist and are relatively well supported (e.g., Byrne, Fursland, Allen, & Watson, 2011; Fairburn et al., 2009; Fairburn et al., 2015; Wonderlich et al., 2014), there is a substantial proportion of patients who do not respond to these treatments initially, or who quickly relapse following treatment (Keel & Mitchell, 1997; Olmsted, Kaplan, & Rockert, 1994; Olmsted, MacDonald, McFarlane, Trottier, & Colton, 2015). As such, there is an imperative to improve existing treatments in order to improve both short- and longer-term outcomes for these disorders. Although motivational interviewing approaches – which aim to increase readiness for change – appear to be a good fit with BN and related disorders in theory, two recent reviews of research indicate that they are not effective for improving treatment outcomes in BN (Knowles, Anokhina, & Serpell, 2013; Macdonald, Hibbs, Corfield, & Treasure, 2012).

Alternatively, it has been proposed that efforts to help patients engage quickly with treatment in order to facilitate early change might be another way to improve treatment outcomes (Byrne, 2015; Tatham, Evans, & Waller, 2012; Waller, 2012). Indeed, rapid response to treatment has been shown to be the most consistent and robust predictor of better end-of-treatment outcomes and lower relapse rates in BN and related disorders (e.g., Vall & Wade, 2015). Although the majority of the research has demonstrated only that rapid response is a prospective predictor or correlate of improved outcome (e.g., Agras et al., 2000; Fairburn, Agras, Walsh, Wilson, & Stice, 2004; MacDonald, Trottier, McFarlane, & Olmsted, 2015; Olmsted, Kaplan, Rockert, & Jacobsen, 1996; Olmsted et al., 2015), one study has shown that rapid response mediated the relationship between treatment and outcome (Wilson, Fairburn, Agras, Walsh, & Kraemer, 2002), and numerous studies have failed to identify consistent pre-existing

clinical or demographic characteristics that can account for rapid response (e.g., Bulik, Sullivan, Carter, McIntosh, & Joyce, 1999; McFarlane, MacDonald, Royal, & Olmsted, 2013; Olmsted et al., 1996). Collectively, these findings suggest that rapid response is likely a mechanistic process in producing good treatment outcomes, and therefore that it may be possible to facilitate rapid response using a targeted clinical intervention. Accordingly, the purpose of the present study was to investigate whether rapid response can be clinically facilitated using a targeted intervention focused explicitly on encouraging early change.

Forty-four participants with BN or purging disorder (PD; a related disorder, described below) were randomly assigned to one of two individual, 4-session interventions, adjunctive to day hospital (DH) treatment as usual: Cognitive behaviour therapy (CBT) focused on rapid response, or motivational interviewing. Compared to motivational interviewing, the CBT intervention resulted in a greater proportion of participants being classified as rapid responders to DH treatment. In addition to exhibiting a lower frequency of binge and/or purge episodes in the first 4 weeks of DH, participants who received CBT also engaged in more normalized eating during this period. They also experienced greater improvements between baseline and end of DH on variables related to overvaluation of weight and shape and emotion regulation. These findings support the hypothesis that a brief intervention explicitly targeting early change may successfully increase rates of rapid response to intensive eating disorder treatment.

Literature Review

Bulimia Nervosa and Purging Disorder: Classification and Related Characteristics

Eating disorders are a class of serious psychological disorders that involve disturbances in eating behaviours as well as in cognitions and emotions related to eating, and body shape and weight. BN is classified in the *Diagnostic and Statistical Manual of Mental Disorders, 5th*

Edition (DSM-5; American Psychiatric Association [APA], 2013), as one of three primary eating disorder categories. Other eating disorders in DSM-5 include anorexia nervosa (AN) and binge eating disorder (BED), as well as “other specified feeding and eating disorder” (OSFED), a residual category that denotes clinically significant eating disorders that do not fit into any of the three main classifications. This includes PD, a disorder similar to BN except that it is characterized by recurrent purging behaviours (e.g., vomiting, laxative use) without regular objective binge eating (APA, 2013; Keel, Haedt, & Edler, 2005). It is noted that OSFED categories were previously termed “eating disorder not otherwise specified” (EDNOS) in earlier versions of the DSM (DSM-IV-TR; APA, 2000), a term that is used in the literature prior to the publication and widespread adoption of DSM-5.

Diagnosis and classification. BN is an eating disorder characterized by recurrent episodes of binge eating and inappropriate compensatory behaviours. Binge eating refers to episodes of eating a quantity of food that is much larger than most individuals would normally consume within a discrete (i.e., less than 2 hours) period under similar circumstances, and during which loss of control over eating is experienced. Loss of control over eating refers to a sense that one is unable to stop eating, is eating at a frenzied pace, or cannot control the types or quantities of foods that are eaten. In BN, binge eating is followed by inappropriate compensatory behaviours to offset the binge episode, which may include purging behaviours (e.g., self-induced vomiting, laxative, diuretic, or enema use) and/or nonpurging compensatory behaviours (e.g., fasting or physical exercise). These binge eating and compensatory episodes must occur on average at least once per week for at least three months in order to meet criteria for a diagnosis of BN. Additionally, individuals with BN experience an undue impact of body weight and shape on their general self-esteem, meaning that their sense of self-worth is disproportionately

impacted by their typically negative feelings about weight and shape. BN and AN cannot be diagnosed simultaneously, meaning that if an individual is exhibiting recurrent binge eating and/or purging behaviours, as well as a significantly low weight sufficient for a diagnosis of AN, the low weight takes diagnostic precedence, resulting in a diagnosis of AN, binge eating/purging subtype (AN-BP; APA, 2013).

Diagnosis of BN also includes severity specifiers, including *mild*, *moderate*, *severe*, and *extreme*. The severity level is based on frequency of compensatory behaviours such as vomiting (i.e., mild: 1-3 episodes per week; moderate: 4-7 episodes per week; severe: 8-13 episodes per week; and extreme: ≥ 14 episodes per week; APA, 2013).

Diagnosis of PD is less clearly defined because it is currently considered an OSFED category, meaning that although it has been recognized as a clinically significant class of eating disorder behaviours, its classification has been less researched to date. Nevertheless, a diagnosis of PD is characterized by recurrent purging behaviours such as self-induced vomiting or compensatory misuse of laxatives, diuretics, or medications, without recurrent objective binge eating (APA, 2013). Although the DSM-5 does not explicitly state a frequency criterion for purging behaviours required for a diagnosis of PD, a review of research has indicated that the majority of published studies have classified PD using a minimum of either twice weekly or once weekly purging episodes for a period ranging from one to six months (Keel & Striegel-Moore, 2009). These frequencies are similar to the criteria for binge eating and compensatory episodes for BN in DSM-IV-TR (twice weekly for 3 months; APA, 2000) and DSM-5 (once weekly for 3 months; APA, 2013). Like BN, individuals with PD do not have low weight sufficient for a diagnosis of AN; as described, a low weight accompanied by purging behaviours is diagnosed as AN-BP.

An emerging body of research on PD has indicated that although it is a clinically similar syndrome to BN in many ways, rather than being simply a variant of BN, it is more likely a clinically valid category of its own (Keel, Haedt, et al., 2005). For example, individuals with BN and PD have been shown to exhibit similar severity of overall eating disorder psychopathology, dietary restraint, frequency of purging episodes, body image disturbance, depression symptoms, and state anxiety symptoms, and both groups were elevated on these variables compared to nonclinical controls (Keel, Wolfe, Liddle, Young, & Jimerson, 2007). However, individuals with BN had greater eating disinhibition and hunger scores, and were less likely to report fullness or satiety following a test meal compared with PD, all of which are sensible findings given the presence of binge eating in the former group but not the latter (Keel et al., 2007). A review of studies investigating the clinical validity of PD indicated that in a majority of studies using latent class analysis or latent profile analysis, PD has emerged as a distinct class from a non-eating disordered class, as well as from both BN and binge eating disorder classes (Keel & Striegel-Moore, 2009). Based on the summative findings of the review, its authors recommended that PD is likely a distinct category of eating disorder, but cautioned that further research is necessary before this conclusion should be necessarily accepted (Keel & Striegel-Moore, 2009).

Therefore, it appears that BN and PD are most likely distinct classifications of eating disorders but share a number of important clinical similarities. For example, although individuals with PD by definition do not engage in the *objective* binge eating that is observed in BN, research suggests that they exhibit loss of control over eating during normal-sized eating episodes, and that these *subjective* binge episodes may in fact be a defining clinical feature of PD (Forney, Haedt-Matt, & Keel, 2014). As well, a recent study showed that purging in PD may function to regulate negative affect (Haedt-Matt & Keel, 2015), which is similar to the well-

established relationship between binge eating and purging behaviours and regulation of negative affect in BN (e.g., Haedt-Matt & Keel, 2011; Smyth et al., 2007). Both BN and PD appear to share similar prospective risk factors (Allen, Byrne, & Crosby, 2015), and treatment responses also appear to be similar between both disorders (Tasca et al., 2012). Therefore, although BN and PD are most likely distinct disorders, the wealth of clinical similarities between them support the inclusion of both disorders together in treatment research. This is consistent with previous studies (e.g., Fairburn et al., 2009; Fairburn et al., 2015; MacDonald et al., 2015; Olmsted et al., 2015) and the transdiagnostic approaches that currently dominate the conceptualization and treatment of eating disorders (i.e., Fairburn, 2008; Fairburn, Cooper & Shafran, 2003).

Prevalence. Eating disorders have a modest prevalence. A replication of the National Comorbidity Survey in 9282 adults in the U.S. reported the lifetime prevalence of DSM-IV-TR (APA, 2000) BN as 1.0% (0.5% for males, 1.5% for females; Hudson, Hiripi, Pope, & Kessler, 2007). Additionally, the lifetime prevalence of experiencing any binge eating behaviour, irrespective of diagnosis, was 4.5% (4.0% for males, 4.5% for females; Hudson et al., 2007). When the sample is restricted to only young women in the general population, the lifetime prevalence of BN ranges from 2.9% and 4.6% (Favaro, Ferrara, & Santonastaso, 2002; Ghaderi & Scott, 1999; Wade, Bergin, Tiggemann, Bulik, & Fairburn, 2006), indicating that BN is particularly common in this demographic group. Moreover, although in the past eating disorders were believed to be primarily restricted to White females, it is now known that in addition to affecting both women and men (at approximately a 3:1 ratio for BN; Hudson et al., 2007), eating disorders also occur frequently across racial and ethnic categories. Lifetime prevalence of BN in Black (i.e., African-American and Caribbean-Black American) adults has been estimated at 1.49% (1.90% for females, 0.97% for males), and 5.08% of the sample reported a lifetime

history of any binge eating behaviours (Taylor, Caldwell, Baser, Faison, & Jackson, 2007). In Latino/a adults living in the United States, lifetime prevalence of BN was 1.61% (1.91% for females, 1.34% for males), and 5.61% of the sample reported a lifetime history of any binge eating behaviours (Alegria et al., 2007). Finally, in Asian-Americans, the estimated lifetime prevalence of BN was 1.09% (1.42% for females, 0.71% for males), and 4.35% of the sample reported a lifetime history of any binge eating behaviours (Nidao, Hong, & Takeuchi, 2007). These rates are relatively similar, and are comparable to the overall national prevalence estimates, suggesting that BN and binge eating behaviours appear to occur at similar rates in White, Black, Latino/a, and Asian racial/ethnic groups in North America.

Prevalence estimates for PD have also been reported. One study of a large community sample of Canadian women over age 20 estimated the point prevalence of PD to be approximately 0.6% (Gauvin, Steiger, & Brodeur, 2009). Similarly, a study of undergraduates reported the point prevalence of PD to be between 0.6% and 0.9% in women, and 0.1% in men (Haedt & Keel, 2010). The lifetime prevalence of PD has been reported as 3.4% for adolescent women up to age 20 (Stice, Marti, & Rohde, 2013), and 5.3% for adult women (Wade et al., 2006). Therefore, it appears that the prevalence rates are relatively similar between BN and PD, with young women being at the highest risk.

Mortality, medical sequelae, and psychiatric comorbidities. The seriousness of BN and PD is underscored by the plethora of medical complications associated with purging behaviours, and the high rate of psychiatric comorbidity present in these individuals. Mortality in eating disorders is typically studied with respect to AN, as death rates are high in this disorder and the majority of deaths in individuals with AN are a direct result of the illness itself (Papadopoulos, Ekbom, Brandt, & Ekselius, 2009). The risk of mortality as a direct result of BN

is less frequently investigated, but it is believed to be much lower than in AN. Nevertheless, one study showed that the all-cause standardized mortality ratio (SMR) in BN was significantly elevated compared to the general population (SMR = 1.57; 95% CI = 1.09 - 2.19; Crow et al., 2009). Although these data do not differentiate between mortality directly due to the eating disorder versus other causes, it nevertheless indicates that individuals with BN are at an increased risk of dying compared to the general population. A recent study replicated these findings, reporting an SMR of 1.50 for individuals with BN, compared to the general population, matched for age and gender (Fichter & Quadflieg, 2016). Mortality rates of PD have not been investigated specifically, although an SMR of 1.70 has been reported for individuals with EDNOS diagnoses (Fichter & Quadflieg, 2016). In terms of suicide, a lifetime history of suicide attempts was significantly higher in individuals with BN (12.9%) and PD (10.8%), compared to individuals without eating disorders (1.7%; Pisetsky, Thornton, Lichtenstein, Pedersen, & Bulik, 2013). Crow and colleagues (2009) reported that individuals with BN were at significantly greater risk of dying by suicide compared to the general population (SMR = 6.51, 95% CI = 2.81 – 12.83). These latter rates suggest that death due to psychiatric causes is an important risk for individuals with BN. Death by suicide rates have not been reported for PD.

Serious medical complications can also occur as a result of BN and PD. Self-induced vomiting can result in a range of cardiac complications, severe disruptions to renal electrolytes, mild to severe damage to the throat and gastrointestinal tract, swelling of the parotid glands, and elevated amylase enzyme levels, in addition to erosion of dental enamel and various complications of the skin, eyes, and nose (Brown & Mehler, 2013). Laxative abuse can seriously disrupt electrolytes, resulting in complications including: loss of fecal electrolytes, creating serious metabolic disturbances; dehydration that increases fecal sodium and which can result in

cardiac complications such as hypotension and tachycardia; loss of potassium, which can result in life-threatening hypokalemia; renal failure; and other metabolic complications (Baker & Sandle, 1996). Thus, the medical sequelae of BN and PD, particularly with respect to purging behaviours such as vomiting and laxative abuse, can be very serious and even fatal.

Psychiatric comorbidity is common for individuals with BN and PD. Hudson and colleagues (2007) reported that 94.5% of individuals with lifetime BN also had a lifetime history of symptoms meeting criteria for at least one other DSM-IV-TR Axis I disorder, including lifetime anxiety disorders (80.6%), mood disorders (70.7%), impulse control disorders (63.8%), and substance use disorders (36.8%). In terms of those with current BN or PD, another study reported lifetime histories of mood disorders (BN: 82%; PD: 54%), anxiety disorders (BN: 48%; PD: 54%), substance use disorders (BN: 57%; PD: 50%), and impulse control disorders (BN: 40%; PD: 25%; Keel, Wolfe, Gravener, & Jimerson, 2008). With the exception of impulse control disorders, all of these were significantly elevated compared to a non-eating disorder control group (Keel et al., 2008). In addition, individuals with BN are very likely to be characterized by complex psychiatric comorbidity compared to the general population: These individuals were 19.2 times more likely to have two, and 33.7 times more likely to have three or more other lifetime Axis I disorders, compared to the general population without eating disorders (Hudson et al., 2007). The psychiatric disorders that are most frequently comorbid with BN include major depressive disorder, substance use disorders, and borderline personality disorder (O'Brien & Vincent, 2003). Additionally, individuals exhibiting symptoms of BN report lower quality of life in a variety of physical and mental health domains, compared to those without eating disorder behaviours (Hay, 2003), and levels of impairment may be similar between BN and PD (Keel et al., 2008).

Thus, BN and PD are serious mental health disorders with severe medical complications, a typically complex psychiatric profile, and poor quality of life. As a result, successful treatment of BN and PD is an important prerogative for improving physical and mental health in this population.

Evidence-Based Treatment for Bulimia Nervosa and Purging Disorder

Treatment for BN has been thoroughly researched. Because of its current status in the DSM, treatment for PD has not been investigated separately from BN. However, dominant current theorizing about the maintenance and treatment for eating disorders is transdiagnostic (i.e., Fairburn et al., 2003; Fairburn, 2008) and a number of well-conducted treatment studies have included OSFED/EDNOS profiles that are similar to BN (e.g., individuals with PD-type profiles who exhibit purging symptoms without objective binge eating; e.g., Fairburn et al., 2009; Fairburn et al., 2015; Wonderlich et al., 2014). As well, treatment trajectories and outcomes appear to be comparable between BN and PD (e.g., Tasca, 2012). Therefore, the treatment literature for BN will be discussed from a transdiagnostic perspective in which its conclusions are assumed to be broadly applicable to PD, and in many cases, in which PD-type cases have been included in the samples.

Evidence-based treatment for BN and related disorders typically focuses on CBT. The National Institute for Health and Care Excellence (formerly National Institute for Clinical Excellence [NICE]; 2004) recommends CBT as the first-line psychological intervention for BN. In fact, CBT is the only intervention for BN (psychological or otherwise) given a grade of “A”, meaning that it is the only intervention with demonstrated efficacy using randomized controlled trial (RCT) methodology. Although interpersonal therapy (IPT) has some demonstrated efficacy

using RCT methodology, its effects take substantially longer to occur than in CBT, and thus it has been given a grade of “B” (NICE, 2004).

CBT generally is premised on a model that targets the factors that maintain the problem in the present (Beck, 2011). Although developmental risk factors and precipitating events may be regarded as important in terms of formulating a holistic conceptualization of an individual’s difficulties, the primary targets for therapeutic change in CBT are current cognitive and behavioural patterns. From a CBT perspective, problems are maintained by the interrelationship between cognitions, behaviours, emotions, and environmental events in the present, and interrupting these ongoing patterns is a means of facilitating meaningful change (Beck, 2011).

This overarching CBT model is consistent with dominant theoretical perspectives on eating disorders. Although evidence indicates that the development of eating disorders is extremely complex, multifactorial, and biopsychosocial (Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004), the maintenance of eating disorders can be understood by examining the relationship between a specific set of problematic cognitive and behavioural patterns in the present. Fairburn and colleagues’ (2003) transdiagnostic model of eating disorders has posited that the overvaluation of weight and shape comprises the core cognitive psychopathology of all eating disorder diagnoses. Cognitive overvaluation of weight and shape results in behavioural efforts to control weight and shape, typically consisting of strict dieting and food restriction behaviours, and physical exercise for weight-control. These behaviours may lead to one or both of low weight (in AN) and/or binge eating behaviours (across diagnostic categories; including subjective binge eating episodes). Clearly, low weight in AN may result from extreme weight-control behaviours. Binge eating may be precipitated by the physiological and/or psychological deprivation associated with strict dieting behaviours. Binge eating subsequently leads to

compensatory behaviours such as vomiting and laxative abuse, and compensatory food restriction. The model posits that both low weight and the binge-purge cycle maintain the overvaluation of weight and shape by reinforcing the individual's preoccupation with weight and shape, and by leading to aversive emotional consequences such as guilt and shame. Furthermore, other factors may interact with this cycle in the present to further maintain the disorder. For example, core low self-esteem and clinical perfectionism (i.e., unhealthy overvaluation of achievement in domains outside of weight and shape) may contribute to the overvaluation of weight and shape. Additionally, difficulties tolerating intense affective states may precipitate binge eating and/or purging episodes. Thus, these related cognitive and affective factors may also serve as maintaining factors of the eating disorder (Fairburn et al., 2003).

CBT enhanced for eating disorders (CBT-E; Fairburn, 2008) targets these maintaining factors by using behavioural and cognitive principles to interrupt eating disorder behaviours and modify the overvaluation of weight and shape (Murphy, Cooper, Hollon, & Fairburn, 2009). Firstly, the therapist and patient collaboratively develop an individualized formulation of the factors maintaining the individual's eating disorder. Next, a series of strategies are used to intervene on these maintaining factors. For example, self-monitoring of food intake, adopting a regular eating pattern of three meals and two to three snacks per day, and incorporating feared foods serves to loosen dietary rules and reduce the frequency of binge eating by reducing hunger and deprivation. The overvaluation of weight and shape is addressed using a variety of techniques, including behavioural strategies aimed at reducing weight and shape checking and avoidance (Murphy et al., 2009).

Individual CBT has demonstrated efficacy for the treatment of BN and related disorders. An early RCT compared CBT for BN (the predecessor to CBT-E) with behaviour therapy (BT)

and interpersonal therapy (IPT). At the end of treatment and early in follow-up (i.e., 4 months), CBT was clearly superior to BT and IPT at producing abstinence from binge/purge symptoms (Fairburn, Jones, Peveler, Hope, & O'Connor, 1993). By the 12-month follow-up, the effects of IPT had matched those of CBT. A recent replication and extension of this study, comparing CBT-E and IPT in a transdiagnostic sample, showed similar results: At end-of-treatment CBT-E outperformed IPT (i.e., 65.5% vs. 33.3% remitted), but the IPT group improved substantially during the 60-week follow-up, narrowing the gap between the treatment outcomes at the 60-week follow-up (i.e., 69.4% vs. 49.0% remitted; Fairburn et al., 2015). These findings indicate that IPT can improve symptoms of BN, though its effects take substantially longer compared to CBT, and that it may not perform as well (Fairburn et al., 1993; Fairburn et al., 2015). Although IPT does not directly target eating patterns or binge eating or compensatory symptoms, it is believed that IPT may be effective for BN because the disorder's maintenance is typically situated within an interpersonal context, because patients with BN may have interpersonal difficulties that are tied to the disorder, and because binge eating and purging episodes themselves may be triggered by interpersonal situations (Fairburn, 1994; Murphy et al., 2009). By improving the patient's interpersonal context and skills, it is believed that IPT can indirectly impact symptoms of bulimia. Thus, IPT and CBT for BN both target elements that may contribute to the maintenance of the disorder, albeit differently (Murphy et al., 2009).

CBT-E was developed by adapting CBT for BN to take a transdiagnostic perspective that is intended to be suitable for all eating disorders, and to focus more than CBT for BN on the individual formulation and maintaining mechanisms of the eating disorder (Fairburn, 2008). CBT-E was first tested in patients with BN and EDNOS, compared to a wait list condition. At post-treatment, participants who received CBT-E experienced significant reductions in their

global eating disorder psychopathology (measured by the Eating Disorder Examination [EDE] global score) compared to the wait list participants (Fairburn et al., 2009). Additionally, at post-treatment and at the 60-week follow-up, approximately 50% of the total (intent to treat [ITT]) sample and 66% of completers had a global EDE score within one standard deviation of the community mean, indicating that overall eating disorder psychopathology had moved into the normal range (Fairburn et al., 2009). Similarly, an open trial examining the effectiveness of CBT-E in a transdiagnostic eating disorder sample showed that by the end of treatment, about two-thirds of the completers achieved full or partial remission from eating disorder symptoms (Byrne et al., 2011). As mentioned, Fairburn and colleagues' (2015) recent trial also showed that about two-thirds of the sample who received CBT-E achieved remission at end-of-treatment and in follow-up, compared to about one-third and half of the IPT sample, respectively.

Another recent RCT compared CBT-E with a new integrative treatment (i.e., “integrative cognitive affective treatment” [ICAT]; Wonderlich et al., 2014), which is premised on a competing (but compatible) maintenance model of eating disorders focused on emotion regulation (Pearson, Wonderlich, & Smith, 2015). ICAT includes many cognitive and behavioural techniques borrowed from CBT (e.g., self-monitoring of food intake), as well as an emphasis on motivation, interpersonal functioning, and regulation of negative emotions (Wonderlich et al., 2014; Wonderlich et al., 2015). The study included individuals with BN as well as those with PD who reported subjective binge eating. The results showed that by the end of treatment, participants in both conditions reduced binge eating and purging behaviours by between 73% and 76% (Wonderlich et al., 2014). These gains were maintained in the ICAT group and maintained with only minor deterioration in the CBT-E group by 4-month follow-up.

As well, the mean EDE Global scores for both groups had moved into a normal range by end-of-treatment, and these were maintained at the 4-month follow-up (Wonderlich et al., 2014).

Many intensive treatments for BN also employ a CBT-based framework. For example, DH programs for eating disorders are often used to treat severe BN and typically use CBT principles to do so. Although the structure of such treatments differs from the manualized individual CBT-E protocol, many of these programs are premised on these same CBT principles. For example, DH programs typically use meal planning and self-monitoring of eating behaviours to normalize eating and interrupt binge eating and compensatory symptoms (Olmsted et al., 2007; Olmsted et al., 2010). CBT-based DH treatment is typically group-based, and is provided in a more structured and contained environment, which is believed necessary for patients with severe, frequent, and/or relatively intractable symptoms in order to make meaningful changes. Additionally, CBT-based DH programs utilize the same behavioural strategies to cope with urges for bingeing and compensatory behaviours, as well as use of cognitive and behavioural strategies to reduce overvaluation of weight and shape, and to modify cognitions associated with the eating disorder mindset (Olmsted et al., 2007; Olmsted et al., 2010). These programs may also address other issues, such as interpersonal relationships and occupational issues, given that patients attending intensive treatment may experience significant impairment in other aspects of their lives as well (Olmsted et al., 2007; Olmsted et al., 2010).

Evidence indicates that CBT-based DH programs are also effective in treating BN and related disorders. For example, one uncontrolled study of a behaviourally-based DH program reported that from pre- to post-treatment, patients with BN ($N = 99$) experienced significant reductions on all Eating Disorder Inventory (EDI; Garner, Olmsted, & Polivy, 1983) subscale scores (including Bulimia, Body Dissatisfaction, and Drive for Thinness), as well as on binge

eating and purging behaviours, and a range of more general psychopathology (Fittig, Jacobi, Backmund, Gerlinghoff, & Wittchen, 2008). Additionally, they reported that 40.4% of patients with BN who completed treatment were in complete remission from their eating disorder at the 18-month follow-up (defined as abstinence from all binge eating and compensatory symptoms, body mass index [BMI] > 20 kg/m², and the three EDI subscales mentioned above falling within a nonclinical range; Fittig et al., 2008).

Similarly, another DH treatment program examined outcomes over three incarnations of their program between 1985 and 2009: An early 5-day/week program, a subsequent 4-day/week program, followed by their current 5-day/week program. All three programs resulted in significant improvements over the course of treatment with respect to binge eating and vomiting frequency, and both of the more intensive (i.e., 5-day/week) programs produced higher rates of abstinence in the last four weeks of treatment (45% and 50%, respectively) compared to the 4-day program (26%; Olmsted, McFarlane, Trottier, & Rockert, 2013).

Finally, another study compared inpatient and DH treatments for BN using an RCT. There were no baseline differences between the groups on any demographic variables or with respect to eating disorder and general psychopathology. Both treatments resulted in significant reductions in EDI Bulimia subscale scores and in binge frequency (but with no between-group differences; Zeeck et al., 2009). In terms of remission from BN, at the end of the DH treatment, 18.2% of the initial sample was fully remitted and another 40.9% were partially remitted. These rates were similar for DH patients at the 3-month follow-up (i.e., 13.7% fully remitted; 45.5% partially remitted). No remitted patients who received DH had relapsed by the 3-month follow-up. Patients who received inpatient treatment experienced greater deterioration and relapse

compared to DH, suggesting that DH treatment may be a more preferable intensive treatment for BN, likely due to its greater generalizability to life outside of the hospital.

Limitations to CBT-Based Treatments

Despite the fact that CBT is the most empirically supported treatment for BN and related disorders at this time, it also has important limitations. Namely, although the improvements observed in CBT are substantial, careful examination of the outcomes of these treatment studies reveals considerable attrition, nonresponse, and relapse rates. As such, although CBT is helpful in the short- and long-term for many individuals, a large proportion of individuals with BN and related disorders who initiate CBT do not achieve sustained remission from their eating disorder.

Nonresponse and treatment dropout. In Fairburn and colleagues' (2009) RCT, 20.4% of CBT-E patients did not complete treatment. In this study, 50% of the total CBT-E sample and 66% of the completers had a global EDE score within the normal range at post-treatment. This therefore means that the other 50% of the total sample assigned to CBT-E (and one third of completers) continued to exhibit elevated eating disorder psychopathology at post-treatment (Fairburn et al., 2009). Similarly, in Wonderlich and colleagues' (2014) study, 27.5% of the CBT-E sample did not complete treatment. Although patients in both conditions made large improvements in binge eating and purging frequencies, only 22.5% of CBT-E patients achieved abstinence from both behaviours using ITT analyses. This means that the remaining 77.5% of the total CBT-E sample continued to engage in bingeing and/or purging episodes at end-of-treatment. Similarly, although the average EDE Global score had moved into a normal range, only 37.5% of CBT-E patients were actually within one standard deviation of the community mean at post-treatment, meaning that 62.5% of the ITT sample continued to have elevated eating disorder psychopathology at post-treatment (Wonderlich et al., 2014).

In Byrne and colleagues' (2011) study, which was administered in a more typical and ecologically valid clinical setting compared to the well-controlled manner of RCTs, 47% of the sample did not complete treatment. One third of the completers, and therefore more than 60% of the total sample did not remit (Byrne et al., 2011). Thus, the results of these studies show that at least one third of individuals who complete CBT-E do not remit from their eating disorder. In addition, high dropout rates mean that when ITT samples are considered, 50-60% of those who enter treatment continue to have their eating disorder after they leave treatment (whether following a full course or prematurely).

Findings are similar for intensive CBT-based treatments. In Fittig and colleagues' (2008) study, although full or partial remission rates following completion of DH treatment were around 60% for patients with BN, when analyses included those who failed to complete treatment, remission dropped to approximately 20%. This means that approximately 80% of patients who originally began DH treatment were unremitted at the 18-month follow-up. Similarly, in Olmsted and colleagues' (2013) study, the cohort attending their current 5-day/week program had a 19.6% dropout rate, which when accounted for decreases their end-of-treatment abstinence rate from 50% (in the 80% of patients who completed treatment) to 40%. Thus, although CBT-based individual and intensive treatments are helpful for many patients with BN and related disorders in remitting from their eating disorder, there is a very substantial proportion that remains symptomatic, particularly when dropouts from treatment are included in nonresponse rates. Failure to include noncompleters in efficacy analyses can result in overestimations of treatment efficacy and increase the possibility of Type I errors (Lachin, 2000). Characteristics of patients who drop out from CBT-based treatments for BN and related disorders include more general psychopathology (including depression and borderline personality disorder), lower self-esteem,

greater body dissatisfaction, and higher BMI (Bell, 2001; Byrne et al., 2011; Fittig et al., 2008; Zeeck et al., 2009). Severity of binge eating and compensatory symptoms does not appear to be consistently related to dropout, although the presence of laxative abuse appears to occur more frequently in patients who generally fail to engage with treatment (Bell, 2001).

Relapse. For those patients who do successfully remit from their eating disorder following treatment, there is a substantial rate of relapse back to BN or another clinically significant eating disorder. An older systematic review of published studies indicated that following successful remission of symptoms with various types of treatment, relapse rates consistently ranged from 26% to 43% between 6 months and 6 years post-treatment, with the most typical rate of relapse being approximately 30% (Keel & Mitchell, 1997). More recent evidence is very similar, with another study reporting the 2.5-year relapse rate in BN to be 37.4% (Richard, Bauer, Kordy, & COST Action B6, 2005). This suggests that of those patients who successfully remit from BN during treatment, approximately one third relapse to binge/purge symptoms within the first two to three years post-treatment. In a survival analysis of relapse in the first two years post-DH, 31.3% relapsed within this period (Olmsted et al., 1994). The riskiest time for relapse was during the first six months, during which 25% of the sample relapsed (Olmsted et al., 1994). An updated study from this same center but using a different sample of patients similarly showed that rapid relapse within the first six months post-DH occurred in 27% of patients with BN and PD (using DSM-IV-TR criteria and applying the BN frequency criteria to diagnoses of PD; Olmsted et al., 2015). Another recent study from this centre found that when DSM-5 criteria were used to define relapse back to BN or PD (similarly using the BN frequency criterion for diagnoses of PD), relapse rates were as high as 38% at 6 months and 51% at 12 months post-treatment (MacDonald et al., 2015). Furthermore,

considering that some relapsed participants may be lost to follow-up and therefore not included in estimated relapse rates, it is possible that actual rates may be even higher than reported.

It is also important to note that evidence suggests that rates of relapse are strongly dependent on the operational definitions of both remission and relapse, which may account for the variability in published relapse rates. Olmsted, Kaplan, and Rockert (2005) examined relapse rates in BN using four definitions of remission and three definitions of relapse. The definition of remission ranged from complete abstinence from bingeing and vomiting in the last month of DH (i.e., a conservative definition), to a maximum of three episodes in the last month of treatment (i.e., a liberal definition). Relapse was defined as bingeing and/or vomiting at least twice per month for a period ranging from one to three months (i.e., liberal to conservative definitions) post-DH. By combining the four definitions of remission with three definitions of relapse, twelve survival rates could be examined. The 19-month relapse rates in this sample of 46 patients with BN ranged from 21% (using the most conservative combination), to 55% (using the most liberal combination; Olmsted et al., 2005). Another study similarly found that rates of remission and relapse were variable depending on the definitions used for both constructs (Crosby et al., 1993). This is consistent with the differential findings from the same centre depending on whether DSM-IV-TR or DSM-5 criteria were used (i.e., MacDonald et al., 2015; Olmsted et al., 2015). Thus, the actual rate of relapse in BN and PD following successful treatment depends on the definition of successful remission, as well as the definition of relapse back to the disorder. Nevertheless, using even the most conservative definition, more than one fifth of the successfully remitted patients relapsed in less than two years; using a more liberal definition, relapse was experienced by more than half of patients (Olmsted et al., 2005). Regardless of how it is defined, these findings clearly demonstrate that relapse is a major problem in BN and PD.

Recently, efforts to improve relapse rates have focused on the development and implementation of relapse prevention treatments to follow CBT or acute intensive treatments for eating disorders. The majority of psychological treatments for relapse prevention have focused on patients with AN, but three studies have reported data on psychological interventions for patients with BN. In the first study, 57 patients who were abstinent from binge eating and compensatory symptoms at the end of CBT were eligible for the study (Mitchell et al., 2004). Patients were randomly assigned to either a “crisis model” relapse prevention treatment in which they were provided the opportunity to contact the clinic for additional therapy sessions if they experienced or were worried about a re-emergence of symptoms, or a no-treatment control group (Mitchell et al., 2004). After 17 weeks, 37% of the sample had relapsed, and in the subsequent year, an additional 16% relapsed, for a total relapse rate of 53% at 70 weeks. There were no differences in rates of relapse between the two groups, and none of the patients in the experimental condition requested to access the additional services (Mitchell et al., 2004). Thus, it appears that the “crisis intervention” model is not sufficient to prevent relapse in BN.

In another recent study, a 10-session individual CBT-based treatment focusing on improvement of weight-based self-esteem was examined for relapse prevention in eating disorders (Royal et al., 2013). Participants with BN, AN, or EDNOS ($N = 46$), who had partially remitted at the end of intensive DH treatment were randomly assigned to either maintenance treatment as usual (MTAU), or to MTAU plus CBT. The individual CBT treatment consisted of 10 individual sessions focusing on behavioural strategies to decrease the importance of weight and shape (i.e., decreasing body checking and avoidance, challenging cognitions around feeling fat), increasing the importance of general self-esteem (i.e., increasing engagement in activities in non-shape/weight related domains), and decreasing weight and shape-related rumination using

mindfulness. MTAU consisted of supported meals and outpatient CBT-based groups 2-5 times per week focused on maintaining symptom control. Preliminary results have shown that compared to MTAU alone, combined MTAU plus CBT led to significant improvements in weight-based self-esteem, and body checking behaviours and cognitions, and increases in general self-esteem. Comparisons of eating disorder symptom frequencies were not reported in this study. Additional analyses and examination of follow-up data are ongoing, but the preliminary findings indicate that individual CBT for relapse prevention may be effective following intensive treatment to improve the cognitive psychopathology of eating disorders and some of its associated behaviours (Royal et al., 2013).

Finally, a recent study examined the effects of an Internet-delivered aftercare treatment for BN or similar EDNOS profiles, following inpatient or outpatient eating disorder treatment (Gulec et al., 2014). Participants ($N = 95$) were randomized to either a wait list group, or to the online program, which consisted of psychoeducation, group chats moderated by a clinician, and the option to chat one-on-one with a counsellor. The groups made similar improvements on Eating Disorder Examination Questionnaire (EDE-Q) scores and other related eating disorder psychopathology over time. There were also no differences in terms of the percentage of the sample reporting binge eating or vomiting episodes at the end of the treatment period (Gulec et al., 2014). Therefore, although participants made some improvements over time, this does not appear to be due to the effects of the intervention specifically. No other known RCTs have been published on psychological interventions specifically designed to improve rates of relapse in BN.

In summary, although individual CBT and intensive CBT-based DH treatments for BN and related disorders have relatively good efficacy and effectiveness rates, and CBT-based treatment is recommended as the front-line psychological treatment for this disorder, there are

substantial limitations to current evidence-based practice. Namely, even the most empirically supported treatments for BN are affected by high rates of dropout, and substantial rates of nonresponse. Additionally, for those patients who do respond to treatment, at least one third and as many as one half relapse within the first two years. As such, although CBT-based treatments are the most empirically supported treatments for BN and related disorders at this time, a large proportion of individuals who enter treatment do not in fact recover from their eating disorder in the months and years following treatment. This presents a crisis for the mental health care of individuals with BN and related disorders such as PD, as well as for the health care system itself. Individuals with BN and related disorders experience substantial emotional distress, suicidality, and functional impairment (Stice et al., 2013). Severity of eating disorder symptoms, levels of functional impairment and general distress, and previous treatment for a weight-related issue all predict future treatment for BN (Mond et al., 2009), suggesting that individuals with chronic, unrelenting BN are likely to receive multiple courses of treatment. In support of this, a recent effectiveness study of DH treatment indicated that of 655 admissions to their centre between 2007 and 2014, only 75% represented unique cases, with 25% of admissions representing patients on their second to fifth admission to the same program within that seven-year period (McFarlane, MacDonald, Trottier, & Olmsted, 2015). The cost of OHIP-covered DH treatment in Ontario is estimated at \$18,250 per patient (Olmsted et al., 2013). The out-of-pocket cost of individual CBT with a clinical psychologist may be as high as \$205 per hour in Ontario (Evans, 2011), meaning that a 20 session course of individual CBT-E may cost as much as \$4,100 (or more, if the course of treatment is longer). Thus, dropout from and failure to respond to treatment, relapse after treatment, and use of multiple courses of treatment can create a substantial financial burden on the publicly funded health care system and on the individuals

themselves, without corresponding remission or recovery for many of these patients. As such, there is also a high economic priority to improve short- and longer-term outcomes – namely, improving both remission and relapse rates.

Motivation for Treatment in Bulimia Nervosa and Purging Disorder

Enhancing motivation for treatment is one area that has been of substantial interest for improving eating disorder treatment outcomes. High levels of ambivalence are typically observed in eating disorders, in that eating disorder behaviours are usually both highly valued and result in substantial impairment (Leavey, Vallianatou, Johnson-Sabine, Rae, & Gunpath, 2011). Additionally, low motivation for treatment is associated with dropout, nonresponse, and relapse in BN (Halmi et al., 2002; Richard et al., 2005), and higher autonomous motivation for change at pre-treatment is associated with greater improvements in binge eating, restrictive eating, and the cognitive and affective symptoms of eating disorders (but not changes in purging behaviours; Clausen, Lubeck, & Jones, 2013). As such, the identified limitations and imperatives to improve treatment for BN and related disorders, and the associations between motivation and treatment outcome, have led to interest in using motivational approaches with this group. Augmenting CBT with motivational interviewing (MI) has therefore been a logical theoretical choice for investigating ways to improve eating disorder treatment.

MI is a clinical strategy designed, and with established efficacy, for substance use disorders (e.g., Burke, Arkowitz, & Menchola, 2003; Smedslund et al., 2011). The premise of MI is that an individual's readiness for change can vary, and that interventions tailored to the patient's level of readiness can move his or her motivation forward towards an action-oriented phase (Miller & Rollnick, 2013). Additionally, MI acknowledges that ambivalence is a natural and expected reaction towards changing a highly valued but potentially problematic behaviour,

given that such behaviours have reinforcing properties in addition to detrimental consequences. MI acknowledges this paradox and works within the patient's ambivalence, while ultimately aiming to foster greater motivation for change (Miller & Rollnick, 2013). MI is typically used as an augmentative rather than standalone treatment, often occurring before and/or during other treatments such as CBT. Strategies that are potentially compatible with MI (e.g., the decisional balance, which evaluates the short and long-term costs and benefits of continuing with versus changing behaviour) appear to be well suited for ambivalent or contemplative patients and can be integrated well into CBT treatments. Following from this, some authors have strongly advocated for the use of motivational strategies in clinical care for eating disorders (e.g., Geller, Williams, & Srikameswaran, 2001; Treasure & Schmidt, 2001), although at the time of these recommendations, little published data on the efficacy of MI for eating disorders were available.

However, a relatively recent systematic review of motivational approaches for eating disorders has yielded mixed evidence without compelling support for the use of MI to augment CBT (Knowles et al., 2013). Eight studies of motivational interventions for eating disorders were examined. Samples included BN, AN, BED, and EDNOS, and studies varied in terms of community-recruited and clinic-recruited samples. Overall the data indicated that although motivational interventions increased motivation and improved psychosocial outcomes in community-recruited samples, these interventions were not robust in clinic-recruited patients. Additionally, MI augmented weaker treatments such as self-help, but did little to augment CBT, an already relatively robust intervention. Evidence was mixed with respect to whether MI increased treatment engagement. In terms of effects on specific symptoms, MI treatments had some efficacy in reducing binge eating behaviours, but again, these effects were strongest for weaker treatments and less robust with CBT, which already has known efficacy for cessation of

binge eating. The data indicated that MI did not result in improvements to compensatory or restrictive behaviours (Knowles et al., 2013). In a similar review of motivational interventions in eating disorders, the authors noted that the review was challenging due to the substantial heterogeneity of the studies (Macdonald et al., 2012). Overall, although some of the studies indicated that motivational interventions might result in greater readiness for change, the data relatively consistently indicated that MI was not efficacious in reducing eating disorder symptoms. Thus, this review also concluded that MI does not appear to be useful for improving outcomes in eating disorders (Macdonald et al., 2012).

Given the theoretical appeal of using MI for eating disorders, its lack of empirical support for this population has been somewhat of an enigma. In a compelling paper, Waller (2012) theorized about potential reasons for MI's failure to improve eating disorder treatment outcomes, and about the ways in which CBT for eating disorders might be more adequately improved. Waller argued that the apparent usefulness of motivational interventions in eating disorders is a "received wisdom" (p. 2), in that it has been so frequently repeated by senior figures in the field that it has become a "known truth". In other words, it has essentially become common knowledge in the eating disorders field that addressing motivation should improve outcomes, despite that careful review of the evidence in fact indicates that MI for eating disorders lacks convincing empirical support.

Why, though, might MI be ineffective with eating disorders? After all, the data do support that patients with eating disorders are ambivalent, and that there is a relationship between low motivation and higher relapse rates. Waller (2012) has argued that there are two ways to interpret patients' verbal expressions of motivation. The first is the way that motivation is often viewed in clinical settings, as an index of intentions to engage in behaviour change,

which is assumed to predict actual subsequent behaviours. In fact, social psychology research has demonstrated that intention only modestly predicts actual behaviour, and that correspondence between intention and behaviour is affected by a multitude of factors including the degree to which an individual perceives a sense of control over the behaviour itself (Sheeran, 2002). Accordingly, intention to change eating disorder behaviours may not predict actual behaviour change, particularly if the individual perceives these behaviours as out of his/her control, which by definition characterizes binge eating. Alternatively, expressions of motivation may be understood as verbal “manifestos” (p. 2) –expressions of one’s intentions to change, but which may not predict actual behaviour change, particularly if the reality of implementing change is overwhelming when the time comes (Waller, 2012). The communicative functions of these “manifestos” likely vary (e.g., “I plan to get well”; “I want care”, “I want to please others”; “I want to get others off my back”; Waller, 2012, p. 3), given that individuals’ reasons for pursuing treatment may differ. Nevertheless, Waller has pointed out that expressed intentions to change appear not to predict actual behaviour change in the eating disorders, which may explain MI’s lack of efficacy in this group.

Following from his theory about the failure to link verbal intention with behavioural action, Waller has proposed ideas for next steps in eating disorder treatment research. Many of these ideas combine an understanding of why in theory MI makes sense for eating disorders, knowledge that MI does not work, and methods that have known efficacy with eating disorders. A simple but striking recommendation is that “The most effective index of motivation is early behavioural change” (Waller, 2012, p. 7). In other words, “motivation” may be less about what the individual *says*, and more about what he or she *does*. More specifically, when it comes to eating disorders, talking about motivation for change may simply not be as powerful as helping

the individual to *actually make changes*, and to *do it early*. His argument is premised on evidence that early behavioural change in CBT is a potent predictor of outcome in BN, suggesting that potentially, the patient's best opportunity for recovery may occur when significant change is demanded and supported early. In order to facilitate this early change, the therapist has the responsibility to provide the skills to make changes, to be empathic but to firmly uphold non-negotiable aspects of treatment that will "make or break" early change, and to conceptualize motivation not in terms of what the patient says, but rather what s/he does (Waller, 2012). In other words, instead of talking about motivation, in order to improve treatment outcomes, eating disorder therapists might instead focus on helping individuals pursue rapid and substantial changes early in treatment.

Rapid Response to Eating Disorder Treatment

Waller's theory that promoting early change in eating disorder treatment might improve engagement and outcomes is consistent with a growing body of literature reliably identifying "rapid response" to treatment as a robust predictor of treatment outcome and relapse. The precise operational definition of rapid response varies by study, but generally *rapid response* to eating disorder treatment refers to a substantial decrease in eating disorder symptoms (e.g., binge eating, vomiting, dietary restriction) achieved in the first few weeks of treatment. In contrast, *slow response* refers to an eventual rather than immediate interruption of symptoms by the end of treatment. *Nonresponse* refers to individuals who complete treatment and remain symptomatic to a clinically significant extent. The term *nonrapid response* comprises both slow response and nonresponse.

Rapid response to CBT for depression. Interest in rapid response to CBT first emerged in the depression literature, where it was observed that significant changes could be made even

during the first weeks of CBT. One of the first studies to report such findings indicated that between weeks 1 and 4, patients receiving CBT made significant improvements on Beck Depression Inventory (BDI) scores, as well as on measures of hopelessness, self-view, motivation, vegetative symptoms, and mood (Rush, Kovacs, Beck, Weissenburger, & Hollon, 1981). In fact, more than 50% of total change on BDI scores occurred during the first 3 weeks of treatment, and over the course of treatment the largest improvements occurred during these early weeks. These and other similar findings were important to understanding mechanisms of CBT because the cognitive model upon which CBT for depression is premised hypothesized that changes in depressive symptoms are mediated by cognitive changes. However, cognitive interventions are not systematically introduced to the patient until several weeks into therapy, and therefore many authors have argued that cognitive change cannot systematically account for these early and dramatic improvements to depressive symptoms (e.g., Ilardi & Craighead, 1994).

In a striking early example of rapid early change in depression, Fennell and Teasdale (1987) examined rapid response to treatment for depression. Patients were randomly assigned to CBT plus treatment as usual (TAU, defined here as any treatment or referral for depression provided by their family physician), or TAU alone. Overall, CBT led to a more rapid reduction in depressive symptoms and patients who received CBT were less depressed than those who received TAU alone at post-treatment, but differences dissipated at the 3-month follow-up as the TAU only patients continued to improve. This suggests that CBT generally leads to a more rapid improvement to depression compared to TAU. The authors then performed a median split on each sample based on percent change in depressive symptoms (measured by the BDI) during the first two weeks. In the CBT group, the median reduction was 46%, whereas in TAU, it was only 17%. They then compared participants who made a 50% or greater reduction on BDI scores

during the first two weeks of CBT for depression, with those in CBT who made more modest reductions. There were no differences in terms of demographic variables or baseline depression duration, severity, or symptom profile between rapid versus nonrapid responders to CBT, but rapid responders to CBT had better post-treatment and 1-year follow-up outcomes. In fact, 100% of the rapid responders to CBT were remitted at end-of-treatment, whereas 91% of the nonrapid responders remained moderately to severely depressed. Rapid responders to TAU improved more than nonrapid responders to TAU, but comparably to the nonrapid CBT group. These findings suggest that in depression, early changes specifically in response to CBT may be strongly predictive of positive outcome. Examination of factors that differentiated CBT response groups indicated that rapid responders had greater early acceptance of the cognitive model of depression, despite the fact that cognitive modification strategies had not yet been implemented. Additionally, rapid responders were more likely to report positive responses to early homework assignments, which were primarily behavioural in nature (e.g., activity scheduling, self-monitoring, behavioural experiments). Thus, the authors concluded that patients who initially accept the cognitive model of depression and then have this validated through positive experiences with early behavioural homework might be more likely to exhibit dramatic early changes in depressive symptoms. These and similar findings elicited interest in treatment trajectories, and led to a body of literature investigating rapid response as an important predictor of treatment outcome.

Rapid response in bulimia nervosa and purging disorder. The eating disorder literature has similarly demonstrated that rapid response predicts more favourable short- and longer-term treatment outcomes. Rapid response has been defined differently across studies, but typically refers to substantial improvements in binge eating, purging, and/or dietary restriction

within the first few weeks of treatment. A recent systematic review of therapy processes in eating disorder treatment showed that in 100% of reviewed studies that examined rate of response on treatment outcome, rapid responders exhibited more favourable end-of-treatment outcomes compared to nonrapid responders (Brauhardt, de Zwaan, & Hilbert, 2014). In fact, rapid response robustly predicted favourable outcomes above and beyond other factors such as treatment length and illness severity. Another recent review and meta-analysis of all known predictors of eating disorder treatment outcomes showed that rapid response to treatment was the single most robust and consistent predictor of favourable treatment outcome, both at end-of-treatment and in follow-up (Vall & Wade, 2015).

With respect to the results of individual studies of rapid response, Wilson and colleagues (2002) examined mechanisms of change in participants who received CBT for BN over 20 weeks ($N = 220$). Reductions in dietary restraint by weeks 4 and 6 significantly mediated post-treatment binge eating and vomiting, as well as binge eating at follow-up. Thus, rapid normalization of eating mediated outcome with respect to remission from binge eating and purging symptoms. Correspondingly, increases in eating self-efficacy at these early time points also mediated later outcomes (Wilson et al., 2002), suggesting that early behavioural changes might increase patients' self-efficacy for eating normally. In another study, Agras and colleagues (2000) compared patients who were remitted versus nonremitted from BN at the end of 18 sessions of CBT ($N = 194$). Those individuals who reduced purging behaviours more than 70% by week 4 were significantly more likely to be remitted at post-treatment, compared to those who reduced purging less than 70% (Agras et al., 2000). These findings were replicated in a more recent study, which found that patients with BN ($N = 43$) who reduced their purging frequency by at

least 65% by week 4 were more likely to be remitted at post-treatment (Thompson-Brenner, Shingleton, Sauer-Zavela, Richards, & Pratt, 2014).

Another study reported comparisons between treatment responders to CBT for BN, defined as those participants who were completely abstinent from binge eating and purging in the last 28 days of treatment, and nonresponders ($N = 220$; Fairburn et al., 2004). Compared to nonresponders, treatment responders made significantly greater reductions in purging and had significantly fewer total purging episodes during the first 4 weeks of treatment. For example, participants who were abstinent from purging in week 4 had a 55% likelihood of being classified as a responder at post-treatment, compared to only 12% for those still purging in week 4. Similarly, those who reduced purging by at least 49% by week 4 had a 25% likelihood of treatment response, compared to only 6% for those who did not make this degree of reduction. Moreover, purging frequency and reduction of purging in the first 4 weeks of treatment emerged as the most significant factor to differentiate symptomatic versus asymptomatic patients at the 8-month follow-up assessment. Those who reduced purging at least 51% by week 4 had a 45% likelihood of being abstinent from binge/purge symptoms at 8-months post-treatment, compared to only 12% for those who reduced their symptoms less (Fairburn et al., 2004).

In an early study of rapid response to DH treatment for patients with BN ($N = 166$), patients were divided into four different response groups: rapid responders, who had ≤ 3 binge and/or vomit episodes in the first 4 weeks; slow responders, who had ≥ 4 episodes in the first 4 weeks, but ≤ 3 in the last 4 weeks; partial responders, who had between 4 and 7 episodes in the last 4 weeks; and nonresponders, who continued to meet DSM-IV-TR diagnostic criteria for BN at the end of treatment (i.e., ≥ 8 episodes; Olmsted et al., 1996). They found that although all four groups reduced their symptom frequencies by the end of treatment, rapid responders had

significantly fewer episodes in the last 4 weeks of treatment compared to all other groups. Additionally, for the subset of participants with two-year follow-up data available, rapid responders were significantly less likely to have relapsed at 24 months (15.8%), compared to slow (57.1%) and partial (66.7%) responders (Olmsted et al., 1996).

Recently, Olmsted and colleagues (2015) examined factors that predicted early relapse in BN. They included PD patients who met the DSM-IV-TR frequency criterion for BN (i.e., 2 episodes per week) in terms of vomiting episodes. Early relapse was defined as an average of 8 or more binge and/or vomit episodes for 3 consecutive months, beginning in the first 6 months post-DH treatment. The sample was comprised of patients who had successfully remitted from their eating disorder ($N = 86$) in that they had fewer than two binge and/or vomit episodes in the last month of treatment and in the first month post-treatment. Using stepwise Cox regression to examine survival rates, they found that 27% of the sample experienced early relapse. Pre- and post-treatment factors and treatment process factors were examined as potential predictors. The only factors that predicted relapse were frequency of pre-treatment bingeing, severity of pre-treatment body avoidance, and slow response to treatment. More specifically, individuals classified as slow responders – those who had ≥ 4 binge and/or vomit episodes during the first 4 weeks of DH – were more likely to relapse within the first 6 months following treatment. Rapid responders, on the other hand, were more likely to have maintained their remission (Olmsted et al., 2015).

Finally, a recent study used receiver operating characteristic (ROC) analysis to empirically determine the optimal definition of rapid response to DH treatment that best predicted outcome in patients with DSM-5 BN or PD who had completed at least 6 weeks of DH treatment ($N = 158$; MacDonald et al., 2015). Several possible definitions of rapid response were

investigated, and based on their findings the authors concluded that defining rapid response to DH treatment as ≤ 3 binge and/or vomit episodes in the first 4 weeks of DH best predicted successful end-of-treatment and sustained outcomes. Classifying rapid and nonrapid responders with this definition significantly differentiated between remission and nonremission at end-of-treatment. Remission was conservatively defined as ≤ 1 binge and/or vomit episode in the last two weeks of DH *and* ≤ 1 episode in the first month of follow-up. Using this definition, rapid responders were significantly more likely to be remitted, exhibited significantly fewer binge and/or vomit episodes in the last 4 weeks of DH, and were significantly less likely to be relapsed at both 6- and 12-month follow-up (MacDonald et al., 2015).

Rapid response in transdiagnostic samples. Rapid response has also been investigated in transdiagnostic eating disorder samples. For example, McFarlane, Olmsted, and Trottier (2008) examined predictors of relapse in a transdiagnostic sample (i.e., BN, AN, and EDNOS) of DH patients. The sample consisted of patients who had partially remitted following DH treatment, and who were followed for 24 months post-discharge ($N = 58$). Risk of relapse was highest in the first 6 months post-discharge: The relapse rate was 38% at 6 months, 41% at 12 months, and 48% at 18 months. Cox regression was used to evaluate survival and to examine a number of pre-treatment, post-treatment, and process-related predictors of relapse. Only three variables emerged as significant predictors: lower pre-treatment caloric intake; higher residual weight-based self-evaluation; and slow response to treatment. Because the sample was transdiagnostic, the authors defined rapid and slow response to normalized eating, measured by degree of meal plan adherence. Rapid responders had $\geq 90\%$ adherence to the prescribed meal plan for at least 2 weeks during the first 3 weeks of treatment, whereas slow responders exhibited poorer adherence to the meal plan in the first weeks of DH. Thus, individuals who rapidly

reduced their dietary restriction and normalized their eating were less likely to relapse, compared to those whose changes to eating followed a slower trajectory (McFarlane et al., 2008).

Another similar study examined the prognostic importance of rapid response in a transdiagnostic eating disorder sample ($N = 105$) receiving individual outpatient CBT in a community clinic (Raykos, Watson, Fursland, Byrne, & Nathan, 2013). Rapid response was defined as reliable change (Jacobson & Truax, 1991) on the EDE-Q global subscale during the early phase of treatment ($M = 4.6$ weeks). The EDE-Q was selected as an outcome measure in order to be applicable to a transdiagnostic sample, as it reflects cognitive eating disorder psychopathology and dietary restraint that characterizes individuals across diagnostic categories. Based on the reliable change index, individuals whose EDE-Q global score reduced at least 1.52 points in the first few weeks of treatment were defined as rapid responders, whereas those who made smaller changes were classified as nonrapid responders. Rapid response significantly predicted treatment outcome, with rapid responders requiring fewer treatment sessions, exhibiting lower post-treatment EDE-Q scores, and being significantly more likely to achieve full remission from their eating disorder at post-treatment, compared to nonrapid responders (Raykos et al., 2013). It should be noted that there are qualitative differences between Raykos and colleagues' choice of the EDE-Q global score to define rapid response, compared to other studies' use of behavioural indicators. The EDE-Q global score includes shape and weight concerns, as well as eating concerns and dietary restraint, but no assessment of key eating disorder behaviours such as binge eating or vomiting. Overvaluation of weight and shape is believed to be more challenging to modify than eating behaviours. This construct is also not explicitly targeted during the first four weeks of treatment, which focus primarily on normalization of eating and reduction of binge eating and purging (Fairburn, 2008). Thus, the

rapid response group in this study represents a specific group of patients who have already made meaningful cognitive changes. The authors compared this definition in their BN sample, to the definition used by Fairburn and colleagues (2004), and found that 42% of their sample were defined as rapid responders, compared to 61% of the sample when traditional behavioural response definitions were employed (Raykos et al., 2013), indicating that their study was indeed more conservative in defining rapid response.

Similarly, a recent study examined predictors of success following CBT-based guided self-help for BN, BED, and BN-type EDNOS in a sample of 42 patients (Vaz, Conceicao, & Machado, 2014). Fifty percent of the participants were defined as early responders, in that they had reduced their bingeing and purging (if applicable) behaviours by at least 51% by session 3. Using both completer and ITT analyses to investigate predictors of post-treatment remission, only early response to binge eating reduction (i.e., at least 51% by session 3) emerged as a significant predictor of remission.

Another study examined response rates to DH treatment for individuals with DSM-IV-TR eating disorders by examining the trajectory of eating disorder and other symptoms on a week-by-week basis (Bégin, Gagnon-Girouard, Aimé, & Ratté, 2013). This way of reporting change provides more descriptive information about the course of symptom change during treatment, compared to the majority of studies, which provide assessment data obtained at discrete time points. Participants ($N = 61$) who completed at least 6 weeks of DH were considered completers, and these patients were classified as “better” or “poorer” responders with respect to their outcome at the end of treatment, based on whether their Eating Attitudes Test (EAT-26; Garner & Garfinkel, 1979) score was above or below a cut-off of 19. Symptom change during each week was compared between groups. The better response group had significantly

lower pre-treatment EAT-26 scores compared to the poorer response group, but nevertheless the group by time interaction for change in eating symptoms between groups was also significant. Contrasts indicated that the better response group made significantly greater decreases in EAT-26 scores during each week between weeks 1 and 5 ($p < .001$ to $p = .03$), indicating a more rapid response in those patients who had better post-treatment outcomes. Indeed, the better response group had declined to the clinical threshold on EAT-26 scores by week 5, whereas the poorer response group remained substantially above the cut-off at this time (Bégin et al., 2013).

Finally, a recent study showed that not only are early changes in eating disorder behaviours associated with eating disorder remission at end-of-treatment, but that rapid response may also be related to other types of improvements. Turner, Marshall, Wood, Stopa, and Waller (2016) examined the relationship between rapid response to outpatient CBT in a transdiagnostic eating disorder sample ($N = 179$), and trajectories of improvements on other variables. Degree of early change on EDE-Q scores predicted greater end-of-treatment improvements in personality psychopathology, depression, and anxiety symptoms. Early change on the EDE-Q Restraint subscale was a better predictor than other subscales, suggesting that it may be rapid response to reducing dietary restraint specifically that is related to such improvements (Turner et al., 2016). Although these findings need to be replicated, the results of this study suggest that not only does rapid response predict good eating disorder outcome, but that it might also be a predictor of later improvement to comorbid symptoms.

Rapid response in binge eating disorder. The prognostic value of rapid response has also been thoroughly investigated in BED. These data are consistent with the literature on BN and PD, demonstrating that patients with BED who exhibit early cessation of binge eating symptoms are similarly more likely to demonstrate good outcomes in the short- and long-term.

Given the many clinical similarities between BN and BED, particularly considering that current theory conceptualizes these disorders as manifestations of the same underlying psychopathology (Fairburn et al., 2003), the rapid response literature for BED has been included for the purpose of a complete review.

Grilo and colleagues have extensively studied rapid response to treatment for BED over the past decade, and their findings consistently support that rapid response is a strong predictor of good outcome. In one study, Grilo, Masheb, and Wilson (2006) examined rapid response in patients with BED randomly assigned to one of four conditions (i.e., fluoxetine alone, placebo alone, CBT plus fluoxetine, or CBT plus placebo; $N = 108$). Regardless of condition, rapid response was defined as at least 65% reduction in frequency of baseline binge eating episodes by the fourth week of treatment. Across treatments, rapid responders were significantly more likely to achieve both full remission from binge eating symptoms, as well as recovery from BED at post-treatment. Rapid response was also associated with lower overall eating disorder psychopathology (i.e., some EDE subscales; Three Factor Eating Questionnaire subscales) at post-treatment (Grilo et al., 2006). A similar RCT comparing Orlistat or placebo, both of which were combined with CBT-based guided self-help for BED ($N = 50$), showed that rapid responders to binge eating reduction were more likely to be remitted from binge eating at post-treatment (Grilo & Masheb, 2007). Another RCT comparing CBT-based guided self-help or behavioural weight loss for BED ($N = 75$) showed that rapid responders to binge eating reduction had fewer binge eating episodes, lower EDE-Q global scores, and lower levels of depression at post-treatment (Masheb & Grilo, 2007). In a similar study of CBT versus behavioural weight loss, rapid response also prospectively predicted good outcome at end-of-treatment and at 12-month follow-up ($N = 90$; Grilo, White, Wilson, Gueorguieva, & Masheb, 2012). Finally, a

recent similar RCT from this team randomized patients with BED ($N = 104$) to either sibutramine or placebo, alone or combined with CBT-based self-help (Grilo, White, Masheb, & Gueorguieva, 2015). Consistent with previous findings, rapid response to treatment was a prospective predictor of remission at end-of-treatment and 6-month and 12-month follow-up (Grilo et al., 2015).

Another study of patients with BED demonstrated that even very early behavioural change may also have prognostic significance. This study used ROC analysis to examine outcomes in patients with BED enrolled in a 20-week treatment trial ($N = 179$; Zunker et al., 2010). Weekly binge eating frequencies were examined for weeks 1 to 10. The findings indicated that individuals who reduced binge eating episodes by at least 15% in the first week of treatment were significantly more likely to achieve binge eating abstinence at post-treatment (Zunker et al., 2010). Thus, it is possible that behavioural change in eating disorder symptoms in even the first week of treatment may be predictive of improved treatment outcomes. This demonstrates the potential importance for promoting very early change from day one in treatment, though no known study has specifically investigated the feasibility or efficacy of strategies intended to specifically promote very early change. Moreover, these findings occurred in a BED sample so it is unclear whether these conclusions can be generalized to reduction in binge eating and compensatory symptoms for patients with BN.

Comparisons between rapid and nonrapid responders. Given the consistent evidence that rapid response to treatment clearly predicts improved treatment outcomes and lower rates of relapse in BN, PD, BED, and transdiagnostic eating disorder samples, a related body of literature has sought to identify the variable(s) that might account for rapid response. That is, a few studies have compared rapid versus nonrapid responders on pre-existing demographic and baseline

psychopathological and motivational factors, to examine whether a subset of individuals are more likely to make a rapid response, with the goal of identifying potential factors that could explain the improved outcomes observed in this group. The results of this body of research show that although differences between response groups were identified in some individual studies, many studies showed no between-groups differences, and that there were no consistent findings across studies. In other words, no pre-existing demographic or clinical variable appears to convincingly explain why some individuals rapidly respond whereas others do not.

In the first of these studies, Olmsted and colleagues (1996) compared their four response groups (i.e., rapid, slow, partial, and nonresponders) to understand whether any pre-existing factors uniquely characterized rapid responders. Planned comparisons indicated that rapid responders had significantly fewer pre-treatment vomiting episodes compared to both slow and partial responders ($p = .009$), and marginally (but not significantly) fewer binge eating episodes compared to partial and nonresponders, but not compared to slow responders. Furthermore, rapid, slow and partial responders collectively had lower EDI Maturity Fears subscale scores compared to nonresponders ($p = .005$) but not each other. There were no significant group differences between the response groups on any of the other EDI subscales, or on self-esteem, depressive symptoms, age, or social adjustment (Olmsted et al., 1996). Thus, the rapid responders may have been less severe on some variables compared to other groups, but most variables indicated relative similarity.

Another study compared those with BN who achieved full abstinence from binge/purge symptoms during the first 8 weeks of CBT and sustained this abstinence through the course of treatment and for the first year post-treatment, to patients whose did not exhibit this type of rapid and sustained response (Bulik et al., 1999). They found that rapid responders had fewer pre-

treatment binge eating ($p = .01$) and vomiting ($p = .03$) episodes. Rapid responders also had lower EDI Bulimia subscale scores ($p = .02$), and higher Temperament and Character Inventory (Cloninger, Svrakic, & Przybeck, 1993) Self-Directedness subscale scores ($p = .002$). The response groups did not differ on other EDI or Temperament and Character Inventory subscale scores, or their endorsement of Cluster A, B, or C personality disorder symptoms, depressive symptoms, global functioning, or BN-specific cognitive distortions (Bulik et al., 1999).

Haslam, Meyer, and Waller (2011) examined correlates of early change continuously, rather than comparing response groups. They examined binge/purge symptom change between weeks 1 and 6 of CBT for patients with BN and subthreshold BN, and baseline eating attitudes. Greater improvements in binge eating were associated with higher baseline EDE-Q scores (global score and Weight Concern, Eating Concern, and Shape Concern subscales). Greater improvements in vomiting were correlated with higher scores on the EDE-Q Eating Concern subscale. Change in laxative use was not related to baseline eating attitudes. Thus, the authors concluded that patients with more pathological cognitions at baseline might make greater early changes in CBT (Haslam et al., 2011). However, they did not compare patients who did and did not have a rapid response or elucidate the mechanism by which this relationship might occur. They also did not report the correlation between baseline EDE-Q scores and baseline behaviours, the change in EDE-Q scores during treatment, or the absolute scope of patients' responses (i.e., whether patients reduced their symptoms to zero or near-zero frequencies). This makes it difficult to evaluate explanations for these findings. For example, it is possible that patients with higher baseline EDE-Q scores also had more frequent behavioural symptoms at baseline, thus providing room for greater absolute reduction than those with less frequent symptoms. Moreover, in the absence of a response threshold it cannot be inferred whether individuals who

made a “full” response during this early period differed on EDE-Q scores compared to those who remained symptomatic.

Another study compared individuals with three patterns of response to DH treatment (McFarlane et al., 2013). Patients were diagnosed with DSM-IV BN, EDNOS, or AN-BP, and all patients were bingeing and/or vomiting at least 8 times in the month prior to treatment. Rapid responders were those who had ≤ 2 binge and/or vomit episodes in the first 4 weeks of treatment. Slow responders had ≥ 3 episodes in the first 4 weeks, but ≤ 2 in the last 4 weeks. Nonresponders had ≥ 3 episodes both in the first 4 and last 4 weeks of treatment. The only factor that significantly differentiated the groups was pre-treatment binge eating frequency: rapid responders had fewer episodes compared to nonresponders, though rapid and slow responders did not differ. Group differences on age and vomiting frequency were not significantly different following corrections for multiple comparisons. The groups also did not differ on duration of their eating disorder, BMI, any EDI subscale, weight-based self-esteem, body checking, body avoidance, depression and anxiety symptoms, perfectionism, maladaptive cognitive schemas, or readiness for treatment (McFarlane et al., 2013).

Raykos and colleagues (2013) also compared rapid and nonrapid responders on a number of baseline variables. Their findings indicated that rapid and nonrapid responders did not differ significantly on illness duration, eating disorder psychopathology (EDE-Q Global and all subscale scores), depression or anxiety symptoms, percentage of patients engaging in binge eating or vomiting at baseline, percent of patients underweight at baseline, or baseline diagnosis. Similarly, Grilo and colleagues (2006) found that rapid and nonrapid responders with BED did not differ significantly on age, gender, ethnicity, educational attainment, Axis I comorbidity (including specific analyses for mood disorders, anxiety disorders, alcohol use disorders, and

drug use disorders), Axis II comorbidity, or duration of illness. There were also no differences in baseline binge eating frequency, eating disorder psychopathology (measured by EDE global and specific subscales, and Three Factor Eating Questionnaire subscales), depressive symptoms, or BMI. Grilo and Masheb (2007) replicated these findings in a subsequent study, with all demographic and baseline comparisons – including binge eating frequency – between rapid and nonrapid responders being nonsignificant, except for lifetime comorbid anxiety disorders, with rapid responders reporting a higher rate. Masheb and Grilo (2007) also reported no baseline differences between rapid and nonrapid responders on most variables, including binge eating frequency and most eating disorder psychopathology variables, though rapid responders reported lower baseline depression symptoms. Zunker and colleagues (2010) similarly reported no significant baseline differences between rapid and nonrapid responders with BED, including with respect to age, BMI, depressive symptoms, the presence of current or lifetime mood disorder or anxiety disorder, or the lifetime presence of alcohol or substance abuse or dependence.

Summary. In summary, rapid response to both outpatient and intensive CBT-based treatment has consistently emerged as a predictor of improved treatment outcomes and lower relapse rates in BN and other disorders characterized by binge eating and/or purging, including BED, EDNOS, and AN-BP. Thus, it appears that individuals who are able to substantially reduce their binge eating and vomiting behaviours and/or normalize their eating within the first 4 to 6 weeks of treatment have better short- and long-term prognoses, compared to those who do not. Additionally, investigations of differences between rapid and nonrapid responders have failed to consistently identify baseline clinical or demographic factors that can convincingly account for rapid response. Some findings indicate that rapid responders might have less severe binge eating and/or vomiting symptoms at baseline compared to other groups, but most studies suggest no

meaningful differences. Additionally, no other studied factors consistently emerged to differentiate rapid and nonrapid responders, including variables related to the cognitive psychopathology of eating disorders, depressive and anxiety symptoms, Axis I and II psychopathology, self-esteem, perfectionism, readiness for change, other cognitive and personality characteristics, or demographic factors. Thus, the current body of evidence does not indicate that any known demographic, personality, or baseline psychopathological characteristics can consistently or robustly account for rapid response to eating disorder treatment.

Is the CBT Process itself Responsible for Rapid Response?

One possible explanation is that there is a not-yet-identified baseline third variable that can account for the robust relationship between rapid response and good outcome. However, another possibility is that rather than being explained by baseline differences, perhaps rapid response is accounted for not by pre-existing factors, but by CBT process-related factors that occur once treatment begins (Wilson, 1999). A number of lines of theory and research on rapid response converge to support this contention.

In an early review and synthesis of rapid change literature in depression, Ilardi and Craighead (1994) concluded that 60-80% of the reduction in depression using CBT occurs by week 4, and that early change robustly predicts treatment outcome. As discussed, at this time, the dominant model of CBT for depression posited that changes to depressive symptoms are mediated by changes in cognition. However, these authors argued that because cognitive modification is not systematically applied during the early phases of CBT for depression, early symptom change cannot be cognitively mediated. Instead, they suggested that nonspecific therapeutic factors are more likely responsible (Ilardi & Craighead, 1994). More specifically, they referred to nonspecific factors such as a strong therapeutic relationship, a healing

environment and the therapy “ritual”, and/or a convincing rationale for treatment. They suggested that these nonspecific factors might catalyze remoralization, increasing hope in an individual who has become demoralized by his or her depression (Ilardi & Craighead, 1994).

Wilson (1999) however disputed that nonspecific factors such as a convincing therapeutic rationale or a strong therapeutic alliance can sufficiently explain early change in CBT. After all, the efficacy of CBT is superior to other psychological treatments for depression, even though most psychological treatments include similar nonspecific factors, convincing rationales, and strong alliances. Alternatively, Wilson hypothesized that early change in CBT broadly – he referred to both depression and BN – is likely behaviourally mediated. Behavioural interventions are unique to CBT, are typically introduced during session 1, and likely increase self-efficacy for making changes. For example, in depression, reduction in symptoms may be mediated by early engagement in behavioural interventions such as activity monitoring and activity scheduling. In BN and related eating disorders, this might be accounted for by self-monitoring and normalization of eating. Activity scheduling and normalization of eating represent the first components of CBT for depression and BN, respectively (Fairburn, 2008; Young, Rygh, Weinberger, & Beck, 2008). Early engagement in behavioural interventions might catalyze early symptom change, perhaps by increasing self-efficacy for controlling once uncontrollable behaviours (Wilson, 1999) or by increasing hope for a better life (Ilardi & Craighead, 1994).

In support of this, research on rapid response to CBT in both depression and anxiety disorders has suggested that rapid and nonrapid responders may be differentiated not by baseline factors, but rather by their early treatment experiences. In CBT for depression, rapid responders were more likely to accept the CBT model for change and to have positive experiences with early homework (Fennell & Teasdale, 1987). Research on CBT for anxiety disorders has shown

that rapid responders had more positive treatment expectancies and were more engaged with treatment (Westra, Dozois, & Marcus, 2007). Additionally, qualitative research with individuals who recovered from bulimia indicated a common belief among participants that the most critical factors in their recovery were engaging in the work of treatment and being able to see their own progress (Lindgren, Enmark, Bohman, & Lundstrom, 2015). Accordingly, expert theory and empirical research suggests that rapid response to CBT and its association with outcome may be explained by appraisals about how CBT works, positive expectancies for change, and positive experiences in the early phase of CBT, particularly with early behavioural interventions. These early beliefs and experiences may serve as a catalyst for lasting change (Wilson, 1999).

Theorized Mechanisms of Action in Rapid Response to CBT

These findings make it plausible that rapid response is a mechanism – not simply a mere predictor – of good treatment outcome in CBT. In other words, it is possible that the process of rapidly (versus slowly) changing eating disorder behaviours may in fact be an important causal factor in catalyzing full and sustained eating disorder recovery. This theory is currently untested, though in partial support of this theory, one study showed that rapid response fully mediated the relationship between CBT (versus IPT) and treatment outcome (Wilson et al., 2002). As well, the summative literature overall provides a compelling avenue for future mechanistic research on this topic. However, research testing whether rapid response is a mechanism of action in the relationship between CBT and eating disorder remission would require study designs that could vary rates of rapid response in an RCT. Specifically, this would involve randomizing individuals to CBT conditions in which differential rates of rapid response were reliably expected (Kazdin, 2007; Kraemer, Wilson, Fairburn, & Agras, 2002; Murphy et al., 2009). Accordingly,

understanding whether early change can be *facilitated* clinically in order to reliably increase rates of rapid response is necessary in order to provide the groundwork for such research.

If indeed rapid response is explained by CBT process factors (e.g., acceptance of the CBT model; positive experiences with behavioural homework) that occur once treatment begins, then it is plausible that these early elements of treatment could be enhanced in order to facilitate rapid response, and potentially, to inform future CBT outcome research and improve the efficacy of CBT. Indeed, a number of expert eating disorder treatment researchers have argued that, based on the rapid response literature, future directions in CBT research should involve focusing specifically on enhancing change during the first few weeks of treatment (Byrne, 2015; Tatham et al., 2012; Waller, 2012; Wilson, 1999). For example, Byrne (2015) has stated that research to improve evidence-based treatment outcomes should focus on developing targeted interventions to be delivered early in treatment with a specific focus on helping patients achieve rapid response. Such research would not only clarify whether encouraging early change effectively increases rates of rapid response, but also help to provide a basis for mechanistic research elucidating the role of rapid response in the relationship between CBT and good outcome.

The Current Study

Following from this, the goal of the current study was to investigate whether rapid response to DH treatment could be facilitated clinically using a short-term, adjunctive CBT-based intervention, in addition to DH treatment as usual. The CBT intervention focused on encouraging rapid response (CBT-RR), and was compared to a matched-intensity MI intervention, also added to DH treatment as usual. Because both treatments are intended to augment other treatments in order to improve outcome, MI provided a clinically plausible active comparison treatment. Given that CBT already has good efficacy for BN and PD, a study

comparing the CBT-RR intervention to a no treatment control group or a wait list control group is of limited utility and would preclude conclusions about the specific effects of the CBT intervention on rapid response, versus simply the added benefit of additional therapy in the initial phase of treatment. Accordingly, using an active comparison treatment provides a more rigorous study design and permits more nuanced conclusions. The use of MI is also theoretically driven, given that the rationale for developing the CBT-RR intervention emerged partly from Waller's (2012) discussion of the shortcomings of MI for eating disorders and possible alternative strategies to augment CBT that focus on encouraging early change.

Hypotheses

Hypothesis 1: Rapid response. Compared to participants who receive MI, participants who receive CBT-RR will:

- a) Be significantly more likely to be classified as rapid responders (versus nonrapid responders) to DH treatment.
- b) Exhibit significantly fewer total binge eating and/or vomiting and/or laxative episodes in the first 4 weeks of DH.
- c) Exhibit significantly greater normalized eating during the first 4 weeks of DH, represented by percent adherence to the prescribed meal plan.

Hypothesis 2: Eating disorder-related treatment outcomes. Compared to participants who receive MI, participants who receive CBT-RR will:

- a) Exhibit greater improvements during DH on various measures of eating disorder psychopathology.

Hypothesis 3: Treatment-related variables. Compared to participants who receive MI, participants who receive CBT-RR will:

- a) Exhibit greater increases during DH in terms of endorsement of the belief that pursuing rapid change is important to eating disorder recovery.
- b) Report greater task-oriented and goal-oriented working alliance with the therapist measured at the end of the study treatment. Bond with therapist was predicted to be similar between groups.
- c) Homework completion rates were also examined but no differences between groups were predicted.

Hypothesis 4: Self-efficacy, hope, and motivation. Treatment condition will predict trajectory of change over time (with CBT-RR predicting greater increases) on:

- a) Self-efficacy for changing eating disorder behaviours.
- b) Hope related to eating disorder recovery.
- c) Trajectory of change on motivation for changing eating disorder behaviours was also examined but given that MI directly targets readiness for change, it was not expected that treatment condition would significantly predict change in motivation.

Hypothesis 5: Other clinically relevant psychological variables. Compared to participants who receive MI, participants who receive CBT-RR will exhibit greater improvements during DH on measures of:

- a) Depression.
- b) Difficulties with emotion regulation.
- c) Self-Esteem.

Hypothesis 6: Comparisons between rapid and nonrapid responders. Regardless of treatment condition, rapid and nonrapid responders will not differ on baseline variables,

including demographic variables, frequency of eating disorder behaviours, severity of associated eating disorder psychopathology, and other clinically relevant psychological variables.

Hypothesis 7: Exploratory analyses. Several other hypotheses were investigated in this study on an exploratory basis.

- a) Possible moderators of treatment effects on rates of rapid response were examined on an exploratory basis. Specifically, baseline depression and baseline difficulties with emotion regulation were examined to determine whether they moderated the effect of treatment condition on early change. However, no specific a priori hypotheses were generated, given that these were exploratory questions.
- b) The effect of the study treatments on DH treatment outcome was also investigated on an exploratory basis. Given that CBT-RR was predicted to increase rapid response, and rapid response has been shown to strongly predict remission, as well as the fact that MI has not been shown to improve treatment outcomes, it was predicted that participants who received CBT-RR would be:

- i. More likely to achieve eating disorder remission at end of DH.
- ii. Less likely to relapse within the first 6 months following DH.

These hypotheses were undertaken in an exploratory manner given that they were contingent upon the primary study hypotheses being supported, and because the study was not powered to detect differences in remission rates.

Hypothesis 8: Post hoc comparison of study participants with DH as usual. In order to evaluate how the study interventions compared to DH treatment as usual with respect to the primary outcome of interest (i.e., rapid response), the study participants were compared with a cohort of patients who participated in the DH as usual prior to the study period, and who

otherwise met eligibility criteria. It was predicted that the CBT-RR group would exhibit a significantly higher rate of rapid response compared to DH as usual, but that MI and DH as usual would not be significantly different from one another.

Method

Participants

Participants were 44 individuals (plus six individuals in a pilot study) diagnosed with DSM-5 BN or PD by a psychologist or psychiatrist in the Toronto General Hospital Eating Disorder Day Hospital Program and offered admission to the program, but who had not yet begun treatment. Inclusion criteria included: age 17 or older; current diagnosis of DSM-5 BN or PD (using a minimum purging frequency of an average of one episode per week for three months); BMI ≥ 19 kg/m²; no admissions to the Toronto General (TGH) Eating Disorder DH in the past 5 years; and available to complete at least one session prior to their DH admission. Individuals who had been admitted to the TGH DH in the past five years were excluded because of the possibility that a recent treatment failure in this program or a recent relapse after completing this program, might negatively bias participants' beliefs about the possibility that they could make changes quickly upon readmission. Admissions more than five years ago were viewed as distal enough that participants might approach the current admission as a "fresh start". Exclusion criteria included: current acute suicidality; current psychosis or manic episode (as assessed by a DH psychologist or psychiatrist); serious medical instability (as assessed by the DH medical team); or admitted to a "symptom interruption bed" in the inpatient unit to spend nights and weekends while in the DH, as this is a controlled environment that would confound the effects of the intervention.

Design

The study used an RCT design. Participants were randomly assigned to one of the two study interventions: CBT-RR or MI. Both interventions were adjunctive to standard DH treatment as usual. See Figure 1 for a CONSORT diagram (Schulz, Altman, & Moher, 2010) of

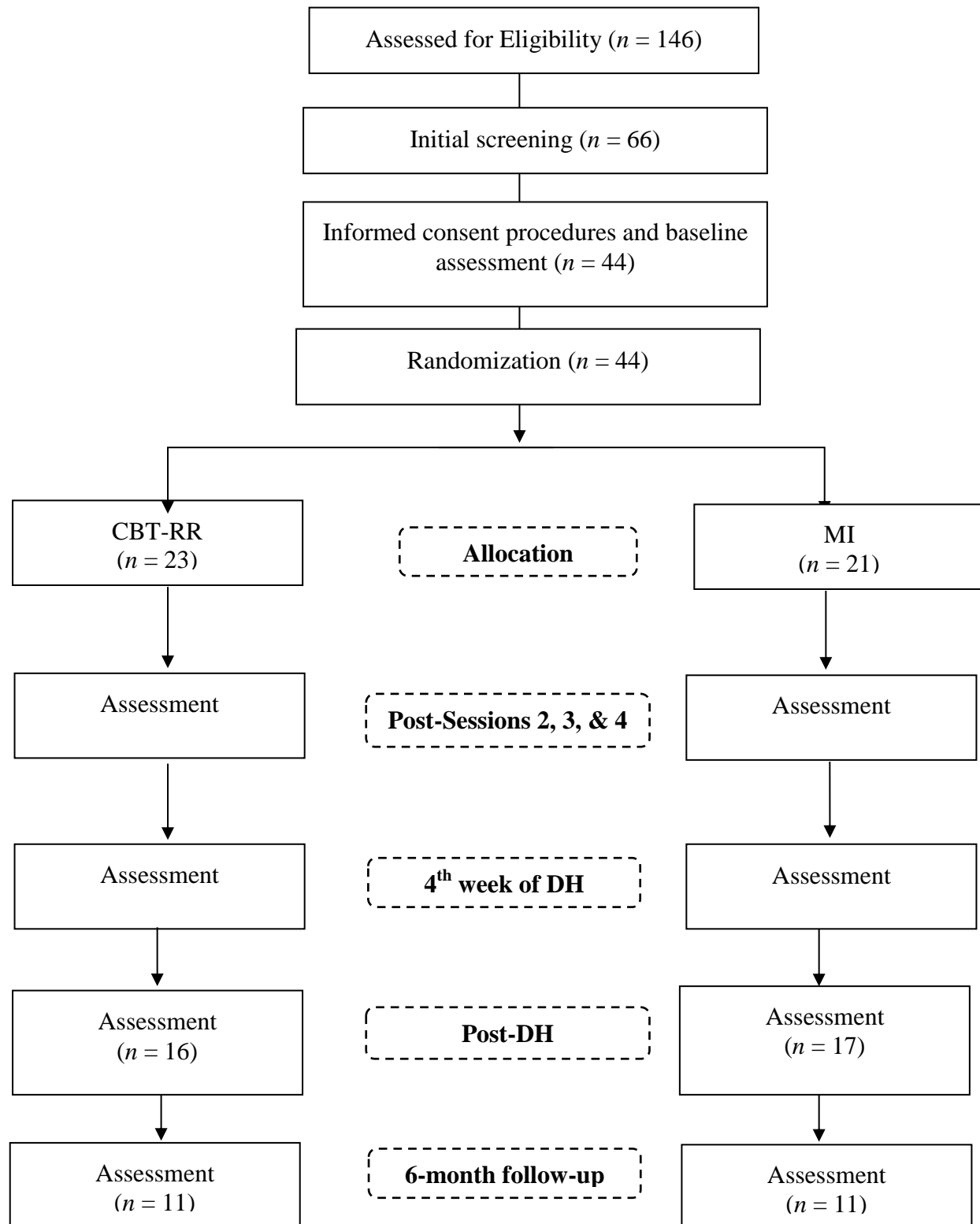


Figure 1. CONSORT diagram of the study design.

the study design and number of participants at key time points. The study was approved by the Research Ethics Boards at both the University Health Network and Ryerson University.

Definitions

In this study, *rapid response* was defined as exhibiting a *total* of three or fewer binge and/or vomit and/or laxative episodes in the first 4 weeks of DH. This definition was empirically derived in the same treatment setting as the current study, using receiver operating characteristic analyses to determine the threshold for defining rapid response that best predicted end-of-treatment remission (MacDonald et al., 2015). Furthermore, this “combined metric” of including binge eating, vomiting, and laxative use within a single behavioural index allows for comparability between individuals with BN and PD. Whichever behaviour had the highest frequency in a given week was taken as an index of the maximum episode frequency for that individual (e.g., if a person reported 3 binges, 4 vomits, and 0 laxative use episodes, their episode frequency was indexed as 4). This strategy recognizes that for individuals with BN, many binge eating and purging behaviours coincide within a single episode, consistent with diagnostic criteria (APA, 2013). Accordingly, use of a combined metric ensures that the frequency of behaviours is not inflated for BN (compared to PD) by counting binge eating and purging behaviours separately, and is consistent with methods used in previous published research on rapid response (e.g., MacDonald et al., 2015; Olmsted et al., 2015).

End-of-treatment remission was defined as a total of one or fewer binge and/or vomit and/or laxative episodes in the last 4 weeks of DH. Remission has been defined in a number of diverse ways in the literature, with no consistent or gold standard definition (Olmsted et al., 2005). The study by MacDonald and colleagues (2015) used a definition of remission that included one or fewer episodes in the last two weeks of DH *and* one or fewer episodes in the first

month of follow-up. The current study definition was selected to be both conservative and relatively similar to this previous study, without the requirement of having follow-up data in order to define remission status.

Six-month relapse was defined as three consecutive months during the 6-month follow-up period during which an individual who was remitted at end-of-DH met DSM-5 criteria for BN or PD (i.e., an average of 4 or more binge and/or compensatory episodes per month, for three consecutive months).

Interventions

Both study conditions (CBT-RR and MI) were individual psychotherapy interventions, and consisted of four weekly, 1-hour individual sessions. One to two sessions occurred in the week or two weeks prior to starting DH. The remaining sessions occurred in the first two to three weeks of DH. The rationale for having one to two sessions prior to the beginning of DH was to educate the participants about the rapid response model so that they were prepared to engage with the treatment strategies immediately upon commencing DH treatment, consistent with research suggesting that early acceptance of the CBT model and early engagement with behavioural interventions may be possible mechanisms of rapid response. We were flexible about the number of sessions to occur prior to DH because although the intervention was conceptualized as starting two weeks before DH, we wanted to account for circumstances in which this might not be possible, and maintain ecological validity of the intervention by not excluding such participants. For example, some participants might be offered a short-notice admission date to the DH and therefore might only be available one week before DH. It was also realistic to expect that some participants might fail to attend or cancel a scheduled session, leading to one instead of two sessions prior to DH. In order to make ecologically valid

conclusions about the applicability of the intervention to actual DH patients in this setting, we wanted the timeline of the interventions to be flexible enough to accommodate for some of these possible issues that we anticipated in advance. This would allow us to include as many potential participants as possible, and to make the administration of this intervention externally valid.

Depending on whether one or two sessions were delivered before the start of DH, the remaining two or three sessions occurred on a weekly basis during the first two or first three weeks of DH, respectively. These sessions were designed to provide support to the patient during the early phase of DH treatment. Overviews of the two interventions are described below. See Appendix A and Appendix B for the full CBT-RR and MI protocols (and subappendices for protocol handouts and technique instructions), respectively. See Table 1 for a comparison of the components of the two interventions.

Development and description of the CBT-RR intervention. The CBT-RR intervention consisted of a CBT-based protocol developed by the author and clinical supervisor (T.M.), based on existing CBT protocols, adapted to focus specifically on encouraging an immediate reduction of eating disorder behaviours (e.g., binge eating, vomiting, laxative use, food restriction). Key elements of the CBT-RR intervention included: psychoeducation and commitment; behavioural and cognitive strategies; and building hope and self-efficacy. Homework was also an essential component of this treatment, consistent with CBT approaches. Although the therapeutic alliance was viewed as important to providing the treatment, the techniques within the protocol were conceptualized as the core of this intervention.

The psychoeducation and commitment component of the protocol involved educating participants about the prognostic significance of rapid response to treatment, as well as about the behavioural strategies that can facilitate rapid change of eating disorder behaviours. As

Table 1

Comparison between CBT-RR and MI Conditions

Factor	CBT for Rapid Response (CBT-RR)	Motivational Interviewing (MI)
Length	-4 sessions	-4 sessions
Format	-Individual, augmenting DH as usual	-Individual, augmenting DH as usual
Primary Goal	-Rapid behaviour change	-Increasing motivation for change
Behavioural Strategies	-Normalized eating -Distress tolerance skills -Stimulus control -Behaviour chain analysis	-Not used
Cognitive Strategies	-Socratic questioning about difficulties making changes -Cognitive rehearsal of coping with difficult situations -Cognitive strategies for letting go of beliefs impeding change	-Not used
Motivational Strategies	-Not used	-Exploration of pros and cons -Exploration of values -Acceptance of ambivalence

Psychoeducation	<ul style="list-style-type: none"> -Rapid response model; importance of meal plan; normal experiences in initial phase of treatment -Used to obtain buy-in to the rapid response model. 	<ul style="list-style-type: none"> -Minimal, only used to contextualize the nondirective stance of therapy
Therapist Stance	<ul style="list-style-type: none"> -Directive 	<ul style="list-style-type: none"> -Nondirective within the MI framework
Communication Style	<ul style="list-style-type: none"> -Firm empathy 	<ul style="list-style-type: none"> -Empathic, collaborative, person-centered
Praise/Encouragement	<ul style="list-style-type: none"> -Reinforcement of adaptive behaviours -Cheerleading to encourage self-efficacy 	<ul style="list-style-type: none"> Not used
Role of Homework	<ul style="list-style-type: none"> -Used to facilitate behaviour change 	<ul style="list-style-type: none"> -Used to facilitate exploration of ambivalence

discussed, findings on rapid response in the depression literature have indicated that individuals who accept the treatment model early in therapy and engage with behavioural homework from session 1 may be more likely to respond rapidly (Fennell & Teasdale, 1987). Accordingly, educating participants about the rationale for this intervention was intended to give them the opportunity to consider the idea of rapid response as important to their recovery, and allow them the opportunity to engage meaningfully with behavioural interventions immediately upon beginning DH treatment. This component of the treatment included orienting patients to the model, fostering treatment engagement through Socratic questioning, setting concrete and specific rapid response goals (e.g., “Eliminate binge eating”), and obtaining a commitment to working towards these goals starting on the first day of DH (Linehan, 1993a; Tatham et al., 2012).

The behavioural interventions used in the CBT-RR intervention included CBT strategies such as normalization of eating and stimulus control, and use of emotion regulation and distress tolerance skills to prevent binge eating and compensatory behaviours. Normalized eating was emphasized as a core strategy, based on theoretical models and research evidence that positions normalized eating as a likely mechanism in interrupting binge eating and promoting eating disorder recovery (e.g., Fairburn et al., 2003; Murphy et al., 2009). Emotion regulation and distress tolerance strategies were borrowed from dialectical behaviour therapy (DBT; Linehan, 1993a), which has demonstrated efficacy for eating disorders (e.g., Chen, Matthews, Allen, Kuo, & Linehan, 2008; Telch, Agras, & Linehan, 2001). Distress tolerance strategies were included because research indicates that distress tolerance can help individuals with eating disorders tolerate intense urges without acting on them (see Anestis, Fink, Smith, Selby, & Joiner, 2011 for a review). Strategies to promote normalized eating, emotion regulation, and distress tolerance

were adapted from the CBT-E manual (Fairburn, 2008), CBT-based self-help workbooks (i.e., Fairburn, 2013; McCabe, McFarlane, & Olmsted, 2003), and the DBT skills training manual (Linehan, 1993b).

Additionally, the CBT-RR intervention included collaborative, in-session behaviour chain analyses (BCA; Linehan, 1993a) of any eating disorder behaviours that occurred after the beginning of DH (e.g., episodes of binge eating, vomiting, laxative use, or food restriction). BCA is the detailed, collaborative analysis of the “chain” of events relating to a specific occurrence of a target behaviour, in order to elucidate the vulnerabilities, antecedents, and consequences in detail. This procedure can help to promote behaviour change by helping individuals: 1) understand controlling variables that maintain ongoing problem behaviours (i.e., vulnerabilities, prompting events, reinforcers); and 2) identify and plan alternative solutions to similar situations that might arise (Linehan, 1993a). This method might also help to reiterate that eating disorder behaviours can be reframed as learning opportunities, and that it is not too late to build self-efficacy and achieve a rapid response.

In addition, the intervention included the use of other CBT strategies (e.g., Socratic questioning) as needed to deal directly with the patient’s cognitions and emotions around any difficulties they are having making changes. Exploring thoughts and emotions around difficulties making changes may catalyze the change process for a patient who otherwise feels and appears stuck (Waller, 2012).

Finally, building self-efficacy and hope was a process-oriented component of the treatment, intended to facilitate the participant’s confidence in her ability to make changes. This was done in several ways. DBT cheerleading strategies were used to encourage the patient and to express the therapist’s faith in the patient’s abilities. Linehan (1993a) has described cheerleading

strategies as a therapeutic communication style designed to validate the abilities of a hopeless and discouraged patient to work towards building a life worth living. Additionally, the metaphor of “going down the rabbit hole” (an analogy that references the strange new world encountered by Alice in Lewis Carroll’s *Alice’s Adventures in Wonderland*) was used throughout the protocol to conceptualize to the patient that the journey of recovery may be sometimes bizarre and confusing but during which the impossible can in fact happen if this new reality is accepted and embraced. Linehan (1993a) has described the use of metaphor as a potent way to encourage the development of new behaviours within the framework of an alternative view of reality. The concept of “grasping a new reality” was identified by individuals who had recovered from BN as an important theme in their recovery (Lindgren et al., 2015). Finally, an anonymous written testimonial from a former patient on how rapid response impacted her experience of recovery was integrated into the treatment to provide a firsthand peer account of the experience of rapid response and recovery.

Description of the MI intervention. The MI intervention was adapted from Carter and Bewell-Weiss’s (2012) unpublished treatment manual of MI for eating disorders, which was used in their study examining the effects of MI on engagement with and completion of inpatient treatment for AN (Weiss, Mills, Westra, & Carter, 2013). Their study found that MI increased completion rates of inpatient treatment, but they did not examine the impact of MI on eating disorder outcomes (Weiss et al., 2013). The treatment manual was designed to be flexible within four to six individual sessions (Carter & Bewell-Weiss, 2012), and was adapted in the present study to be used consistently over four sessions to match the intensity of the CBT-RR intervention. The MI intervention consisted of standard MI-compatible strategies (i.e., Miller & Rollnick, 2013), such as an exploration of the individual’s reasons both for and against change,

discussions of the level of importance the participant assigns to changing specific behaviours and her or his confidence in doing so, and an exploration of the individual's values and how the eating disorder fits into these. Underscoring all of these is a collaborative therapeutic relationship and the “spirit of MI” as a means of delivering these strategies. MI includes protocols, but in essence is not a protocol-driven intervention, as MI specifies that the specific interventions to be used depend on the patient's individual stage of readiness for change. In order to accommodate this, the adapted MI protocol for this study included a selection of MI strategies used in the Carter and Bewell-Weiss (2012) manual to be selected and applied depending on the individual's specific stage of readiness at each session. Guidelines for selecting which intervention to use in each session were also included. Homework is included in the MI intervention in order to match the CBT-RR protocol, but in the spirit of MI, homework noncompletion is treated as a reflection of degree of readiness, and therapists “roll with resistance” rather than problem solve to improve homework adherence. The overall spirit of MI – that is, an empathic, patient-centered therapeutic environment that uses a number of communication strategies (Miller & Rollnick, 2013) – is considered this intervention's most important element.

Therapists and supervision. Therapists for both interventions consisted of the author and another PhD student in Clinical Psychology at Ryerson University. Both therapists were trained in CBT and had previous training and experience treating patients with eating disorder from a CBT framework in the Toronto General Hospital DH, and also had previous training and experience treating patients with eating or weight-related issues using MI. Therapists were trained in each intervention by the study's clinical supervisor (T.M.), and in addition, expert MI consultation was available from the supervisory committee member (S.C.). Each therapist piloted one patient in each intervention as part of a small pilot study prior to beginning the main study,

and both therapists provided both therapies. (Additionally, a third PhD student therapist piloted two patients in this manner, but subsequently elected not to work as a therapist in the main study as a result of competing priorities; the results of the pilot study are summarized below). The content of the sessions is face-valid, and thus it was unfortunately not possible for therapists or participants to be blind to study condition. The study's clinical supervisor (T.M.) is a licensed clinical psychologist and provided clinical supervision to the therapists. The supervisor's primary professional affiliation is Staff Psychologist at the Toronto General Hospital DH. The specific amount of supervision provided depended on weekly client load, but consisted of regular individual consultations in which cases were discussed and therapy recordings were reviewed as needed. The author also provided peer supervision (supervised by T.M.), including audiorecording review, to the other study therapist.

Measures

Eating Disorder Examination (EDE). The EDE is a clinician-administered, structured diagnostic interview that assesses the cognitive and behavioural symptoms of eating disorders over the preceding three months (Fairburn, Cooper, & O'Connor, 2008). It is considered the gold standard for the assessment of eating disorders. The EDE assesses the presence and frequency of behaviours such as dietary restriction, binge eating, self-induced vomiting, and other compensatory behaviours, as well as weight and shape concerns. Although the full-length EDE includes subscales for a variety of features common to eating disorders, an abbreviated EDE including only the diagnostic items was used in the present study for the purpose of a pre-treatment diagnosis of BN or PD, and for ascertaining the frequency/severity of symptoms at each assessment point. A review of the psychometric properties of the EDE indicated that its subscales and primary diagnostic items have good test-retest reliability, interrater reliability, and

internal consistency in women with eating disorders (Berg, Peterson, Frazier, & Crow, 2012). Validity has been demonstrated by the ability of the EDE to differentiate eating disorder cases and non-cases, and with correlations with similar measures (Berg et al., 2012).

Eating Disorder Examination-Questionnaire (EDE-Q). The EDE-Q is a 28-item self-report version of the EDE, which assesses the preceding 28 days (Fairburn & Beglin, 2008). It has a global score, as well as subscales for Dietary Restraint, Eating Concerns, Shape Concerns, and Weight Concerns, in addition to items assessing the presence and frequency of key behavioural symptoms (i.e., binge eating and compensatory behaviours). Non-diagnostic items are rated on a scale of 0-6, ranging from *no days* to *every day*, or from *not at all* to *markedly* (depending on the items). Diagnostic items are rated by the respondent's indication of the number of episodes of each of the behaviours in the preceding 28 days. Subscale scores consist of means and standard deviations of the subscale items, and the global score consists of a mean of the four subscales. Validity of the EDE-Q has been demonstrated by significant agreement between EDE-Q and EDE scores, using both eating disorder and non-clinical samples (Fairburn & Beglin, 1994). Nevertheless, despite agreement, the EDE-Q may result in overestimates of binge eating symptoms, compared to the interview (Fairburn & Beglin, 1994). Evidence also supports the reliability and construct validity of the EDE-Q (Berg et al., 2012). A composite of the EDE-Q Weight and Shape subscales, created by taking their mean, was included in the present study to examine changes in the overvaluation of weight and shape during treatment. Overvaluation of weight and shape is considered to be the core cognitive psychopathology of eating disorders (Fairburn et al., 2003), and residual weight and shape concerns at the end of treatment have been shown to predict relapse up to two years later (e.g., McFarlane et al., 2008).

Cronbach's alpha for the composite Weight and Shape subscale in the present sample at baseline was strong, $\alpha = .91$.

Weight Influenced Self-Esteem Questionnaire (WISE-Q). The WISE-Q is a 22-item self-report questionnaire that assesses the overvaluation of weight and shape (Trottier, McFarlane, Olmsted, & McCabe, 2013). Respondents are primed for this schema by being told to imagine they have gained 5 pounds. They are then asked to indicate the degree to which this weight gain would impact their functioning in various domains of life, on a scale from 0-4, ranging from *not at all* to *extremely*. There are two subscales: Expected (domains related to physical appearance which would be expected to be impacted by weight gain), and Generalized (other domains of life which should not reasonably be expected to be impacted by weight gain, but to which the impact of weight often generalizes in eating disorders). Total and subscale scores are computed by obtaining the mean of the applicable items. Psychometric investigations in an eating disorder sample have shown that the WISE-Q has strong internal consistency (total, $\alpha = .96$; generalized, $\alpha = .96$; and expected, $\alpha = .90$). Two-week test-retest reliability was adequate to strong (total, $r = .88$; generalized, $r = .88$; and expected, $r = .75$; $ps < .001$). Concurrent validity has been demonstrated by significant correlations between the WISE-Q and measures of body dissatisfaction, drive for thinness, overvaluation of weight and shape, and self-esteem, and discriminant validity has been demonstrated by nonsignificant correlations between the WISE-Q and age and BMI. The WISE-Q can also discriminate between patients with eating disorders and undergraduate students. Additionally, previous research has shown that WISE-Q scores significantly improve during DH treatment, and improvements on WISE-Q scores during treatment are positively correlated with improvements on other related variables (Trottier et al., 2013). The WISE-Q was included in the present study to examine changes to overvaluation of

shape and weight over the course of treatment. Cronbach's alpha for the total score in the present sample at baseline was strong, $\alpha = .94$.

Eating Disorder Inventory (EDI). The EDI is a 64-item self-report questionnaire assessing eating disorder psychopathology, on eight subscales: drive for thinness, bulimia, body dissatisfaction, ineffectiveness, interoceptive awareness, maturity fears, perfectionism, and interpersonal distrust (Garner et al., 1983). It is frequently used in eating disorder research to examine eating disorder psychopathology. The EDI is rated on a six-point scale ranging from *never* to *always*. However, the actual scores range only from 0-3, with the three most non-disordered responses all receiving a score of 0, and the three most disordered responses receiving scores of 1-3, respectively. Subscale scores are obtained by summing the subscale item scores. Internal consistency is good, with Cronbach's alphas ranging between $\alpha = .82$ and $\alpha = .90$ in an eating disorder sample. Construct validity has been established using correlations with related constructs such as restrained eating, body dissatisfaction, and eating disorder attitudes. It has also been shown that patient with AN who binge and purge have higher scores on the Bulimia subscale compared to patients with AN restricting subtype, and that individuals with obesity score higher than formerly obese and nonobese individuals on several of the subscales including Body Dissatisfaction, Bulimia, and Drive for Thinness (Garner et al., 1983). Relevant EDI subscales (i.e., Body Dissatisfaction, Bulimia, and Drive for Thinness) were included in the present study to examine changes to relevant eating disorder psychopathology over the course of the study. Cronbach's alphas in the present sample at baseline were adequate to good: Drive for Thinness, $\alpha = .73$; Bulimia, $\alpha = .84$; Body Dissatisfaction, $\alpha = .88$.

Readiness and Motivation Questionnaire (RMQ). The RMQ is a self-report measure based on a similar semi-structured interview, which assesses readiness for change, internality of

change (i.e., the extent to which change is internally versus externally motivated), and self-efficacy for change for various eating disorder symptom domains (Geller, Brown, Srikameswaran, Piper, & Dunn, 2013). The RMQ assesses twelve different symptom domains, across four categories: dietary restriction, binge eating, compensatory behaviours, and cognitive psychopathology. Scores can be generated for each domain separately, or combined across domains (Geller et al., 2013). Only the dietary restriction, binge eating, and self-induced vomiting sections were included in the present study (for brevity and relevance). Depending on the question within each section, respondents are asked to indicate on a 7-point or 11-point Likert scale the extent to which they have been engaging in disordered and recovery-oriented behaviours, and their confidence in their ability to engage in recovery-oriented behaviours. Total scores (across all behaviours) and subscale scores (behaviour-specific) are produced for the following areas: “precontemplation”, “action”, “internality” and “confidence” (which reflects self-efficacy for change). Research on the RMQ showed that internal consistency estimates were only moderate, which the authors explained reflects the fact that motivational constructs are thought to vary across symptom domains. Test-retest reliability for the various domains ranged from $r = .73$ to $r = .81$ in an eating disorder sample. Construct validity has been demonstrated by expected correlations between RMQ subscales and other measures of symptoms and activities related to recovery. Discriminant validity has been demonstrated by nonsignificant correlations between RMQ scores and BMI, socioeconomic status, and social desirability (Geller et al., 2013). The RMQ was included to measure the trajectories of self-efficacy (“Confidence”) and motivation for change (“Action”) for relevant behaviours by treatment condition. Cronbach’s alphas in the present sample at baseline were adequate for Confidence, $\alpha = .82$, and Action, $\alpha = .70$.

Eating Disorder Urges and Behaviours Scale (EDUBS). The EDUBS is a 10-item author-constructed measure that assesses the intensity of eating disorder urges, and the perceived likelihood of engaging in the corresponding behaviour within the next 2-3 days (MacDonald & McFarlane, in preparation). The EDUBS focuses on five key eating disorder domains: dietary restriction, binge eating, vomiting, laxative use, and compensatory exercise. These items are assessed on a 5-point Likert scale ranging from *not at all* to *very strong* for urges in the present moment, and *definitely not* to *definitely will* for anticipated likelihood of engaging in the behaviours. Preliminary psychometric data on the EDUBS are currently being collected in another study and therefore reliability and validity information are not available to be reported at this time. (See Appendix C for the EDUBS items). The EDUBS was administered to examine whether self-reported urges decrease at different rates by condition over the course of treatment. Cronbach's alphas in the present sample at baseline were examined by relevant symptom domain, and were found to be low but approaching acceptability: Bingeing, $\alpha = .66$; Vomiting, $\alpha = .61$; and Restricting, $\alpha = .67$.

Difficulties in Emotion Regulation Scale (DERS). The DERS is a 36-item self-report measure of various difficulties with regulating and managing one's emotions (Gratz & Roemer, 2004). Factor analysis revealed six subscales that reflect various aspects of emotion regulation and its difficulties, including: non-acceptance of emotional responses (Nonacceptance), difficulties in engaging in goal directed behaviours (Goals), difficulties with impulse control (Impulse), lack of emotional awareness (Awareness), limited access to emotion regulation strategies (Strategies), and lack of emotional clarity (Clarity). Items are rated on a 5-point Likert scale ranging from *almost never (0-10%)* to *almost always (90-100%)*. Psychometric investigation of the DERS in an undergraduate sample has shown that the DERS has strong

internal consistency, with $\alpha = .93$ for the total score, and $\alpha > .80$ for all subscales. The DERS also has good test-retest reliability ($r = .88$). Construct validity has been provided with correlations in the expected direction between DERS scores and other measures of emotion regulation and experiential avoidance. The DERS also has predictive validity for behaviours associated with emotion regulation, including correlations with both self-harm and intimate partner violence behaviours (Gratz & Roemer, 2004). The DERS was administered to examine whether emotion regulation improves at different rates by treatment condition, as well as to determine whether treatment response is moderated by baseline difficulties with emotion regulation. Cronbach's alphas in the present sample at baseline were adequate to strong: Nonacceptance, $\alpha = .91$; Goals, $\alpha = .87$; Impulse, $\alpha = .93$; Nonacceptance, $\alpha = .80$; Strategies, $\alpha = .88$; Clarity, $\alpha = .89$.

Beck Depression Inventory II (BDI-II). The BDI-II is a commonly used, 21-item self-report questionnaire that assesses the severity of depressive symptoms (Beck, Steer, & Brown, 1996). Respondents indicate on a 4-point Likert scale ranging from 0-3 the degree to which each symptom has impacted them in the preceding two weeks. The BDI-II has high internal consistency ($\alpha = .90$; Osman et al., 1997). Convergent validity has been demonstrated in a nonclinical sample by significant correlations with other measures of depression, anxiety, and general distress, and discriminant validity has been demonstrated by nonsignificant correlations with measures of social desirability (Osman et al., 1997). Additionally, the BDI-II has been shown to be reliable and valid in individuals with eating disorders (Fuss, Trottier, & Carter, 2015). The BDI-II was administered to examine whether depressive symptoms improve at different rates by treatment condition, as well as whether severity of baseline depression

symptoms moderate treatment response. Cronbach's alpha in the present sample at baseline was strong, $\alpha = .90$.

Rosenberg Self Esteem Scale (RSES). The RSES is a 10-item self-report questionnaire that assesses global self-esteem on a 4-point Likert scale ranging from *strongly disagree* to *strongly agree* (Rosenberg, 1979). The RSES is a frequently administered measure of self-esteem and has shown good convergent and predictive validity in an eating disorder sample (Griffiths et al., 1999). The RSES was included in the present study to examine changes to self-esteem over the course of treatment. Cronbach's alpha in the present sample at baseline was adequate, $\alpha = .78$.

Working Alliance Inventory (WAI). The WAI is a 36-item self-report questionnaire that assesses the quality of the therapeutic alliance on a 5-point Likert scale (Horvath & Greenberg, 1989). There is a client version and a therapist version, which allows both members of a therapeutic dyad to assess the working alliance. Only the client version was utilized in this study to examine the patient's perceptions of the therapeutic alliance. Typically the WAI is administered after a few sessions, in order to provide time for the working alliance to be established. Internal consistency is estimated at $\alpha = .93$ for the client version of the scale. Convergent validity has been demonstrated by significant correlations between the WAI and other related constructs, and discriminant validity has been shown by lack of correlation with unrelated constructs (Horvath & Greenberg, 1989). The WAI was included to establish equivalence between conditions in terms of bond with the therapist, as well as to determine whether CBT-RR resulted in higher task- and goal-oriented alliances, given its change focus. Cronbach's alphas in the present sample at baseline were good: Goal, $\alpha = .87$; Task, $\alpha = .84$; Bond, $\alpha = .82$;

Hope Related to Recovery Scale (HRRS). The HRRS is a 6-item questionnaire assessing how hopeful the respondent is about eating disorder recovery. Items are rated on a 5-point Likert scale ranging from *strongly disagree* to *strongly agree*. Respondents are prompted to respond to the items using the following phrase: “Please indicate in each item how you feel *right now* with respect to recovery from your eating disorder.” Given that this questionnaire was constructed for the current study, psychometric information is not yet available (see Appendix D for the HRRS items). The HRRS was administered to examine trajectories of change in hope over treatment. Cronbach’s alpha in the present sample at baseline was poor, $\alpha = .37$. However, removal of one item (#3) resulted in a much improved internal consistency, $\alpha = .72$. Accordingly, this item was omitted and a revised 5-item scale was used.

Attitudes about Treatment Questionnaire (ATQ). The ATQ is a 9-item questionnaire constructed by Dr. Marion Olmsted at the Toronto General Hospital DH for the purpose of this study and other research on rapid response taking place at the DH. It consists of items assessing the belief that one can engage in rapid engagement with treatment, and rapid symptom change. The items are assessed on a 5-item Likert scale ranging from *strongly disagree* to *strongly agree*. Given that this questionnaire was constructed for the current study, psychometric information is not yet available (see Appendix E for the ATQ items). This measure was included to determine whether treatments differentially impact participants’ belief that rapid change is important to recovery. Cronbach’s alpha in the present sample at baseline was low, $\alpha = .56$. However, removal of one item (#6) resulted in an internal consistency that was closer to adequate, $\alpha = .66$. Accordingly, this item was omitted from the scale and a revised 8-item scale was used.

Beliefs Questionnaire (BQ). The BQ is a 7-item author-constructed questionnaire for the purpose of this study. It was administered after sessions 2-4 to briefly assess patients’ self-

reported homework compliance, beliefs in the rapid response model, and subjective self-efficacy for change in the moment from session to session. Items are rated on a 7-point Likert scale ranging from *strongly disagree* to *strongly agree* (see Appendix F for the BQ items).

Demographic and clinical information. Demographic information was collected using a brief questionnaire, which asks respondents to indicate their age, gender, ethnicity, and sexual orientation (see Appendix G). Additionally, the following clinical information was obtained from participants' clinical charts, with written informed consent: BMI at admission; dietary restriction at baseline, measured by mean calories consumed per day as assessed by a program dietician; age of eating disorder onset; eating disorder treatment history; education level; and psychiatric comorbidities diagnosed by the psychologist or psychiatrist conducting the admitting consultation (for descriptive purposes).

Feedback form. The Feedback Form was a 5-item questionnaire about the overall credibility and helpfulness of the therapy, effectiveness of the therapist, and overall participant satisfaction with the therapy. There were also two spaces for participants to provide written feedback about the most and least helpful aspects of the therapy.

Self-reported eating disorder behavior information during day hospital. As a part of standard DH as usual, patients self-monitor daily food intake and any eating disorder behaviours (i.e., binge eating, vomiting, laxative use, and exercise). These data are collected as part of routine clinical care. These self-reported eating and symptom data were included in the study for the purpose of tracking weekly behaviour changes throughout treatment. Evidence indicates that self-reported eating disorder behaviours are highly correlated with the frequencies obtained from structured clinical interviews (Fairburn & Beglin, 1994). Additionally, these records have been

used in numerous published studies from this centre as a way of assessing rapid response (e.g., MacDonald et al., 2015; McFarlane et al., 2013; McFarlane et al., 2015; Olmsted et al., 2015).

Procedure

Pilot study. A small pilot study consisting of six participants took place. Each study therapist piloted one participant per treatment condition before beginning the study. A third therapist piloted two participants and after which elected not to work on the study because of the time commitment it required and competing priorities. The purpose of the pilot study was therapist training and to examine feasibility, credibility, and acceptability of the study interventions. The pilot study followed the same procedure as described below (with the exception of the randomization procedure) and is reported separately in the results section.

Recruitment and consent. Potential participants were patients on the waiting list for the DH, and were assessed for eligibility by the author, by examining clinical charts. Eligible participants were flagged on the waiting list, and then were informed about the study by a clinic social worker upon being offered a spot for DH treatment in the clinic. The social worker informed eligible participants about the study, which was described as the effects of two different individual treatments on DH treatment outcomes for BN and PD. Interested participants indicated their consent for the author to contact them. The author contacted interested participants by telephone, at which time eligibility and interest in the study were confirmed, and an appointment for consent and pre-study procedures was arranged.

At the initial appointment with the author or the other study therapist, who was trained in the consent procedure, the participant provided verbal and written consent to participate in the study and for audiotaping of sessions (see appendix H for the consent form). The nature of the study was described, including random assignment, the timeline and nature of the interventions

and assessments, the risks and benefits of participating, and the voluntary nature of the study and the right to withdraw at any time. After all of the participant's questions were answered, informed consent was obtained both verbally and in writing, and details of the appointment were documented in the participant's clinical research file. The individual's participation in the study was also documented in their electronic patient record, as is required for clinical intervention research at the University Health Network.

Assessment, randomization, and treatment schedule. Following informed consent, the participant completed the baseline assessment. The assessment consisted of an EDE interview administered by one of three MA level psychometrists who were not involved in the study, as well as a number of questionnaires. See Table 2 for the assessment timeline and specific measures that were administered at each time point.

Following the baseline assessment, participants were randomly assigned to one of the two interventions. An individual not involved in the study completed the randomization procedure in advance of the study using an online randomization tool (www.randomizer.org), and placed the results into opaque, sealed envelopes, which were opened by the study team only after informed consent and baseline assessments were completed. Participants were informed of the name of their therapist (which was determined in advance of the consent and randomization procedures based on therapist availability and client load) and the treatment condition they had been assigned to, and the first session was scheduled.

Session 1 was scheduled two weeks prior to beginning DH treatment (unless the participant was given a short-notice DH admission date, in which case it was scheduled in the week before DH). The sessions were delivered as described in the treatment manuals

Table 2

Assessment Timeline

Measure	Baseline	Session 2	Session 3	Session 4	DH Wk 4	Post-DH	6-m FU
ATQ	X					X	
BDI	X					X	
BQ		X	X	X			
DERS	X				X	X	
DQ	X						
EDE	X					X	X
EDE-Q	X					X	
EDI	X					X	
EDUBS	X				X	X	
FB					X		
HRRS	X	X			X	X	
RMQ	X	X			X	X	
RSES	X					X	
WISE-Q	X					X	
WAI					X		

Note. ATQ = Attitudes towards Treatment Questionnaire; BDI = Beck Depression Inventory; BQ = Beliefs Questionnaire; DERS = Difficulties with Emotion Regulation Questionnaire; DQ = Demographic Questionnaire; EDE = Eating Disorder Examination; EDE-Q = Eating Disorder Examination Questionnaire; EDI = Eating Disorder Inventory; EDUBS = Eating Disorder Urges and Behaviours Questionnaire; FB = Feedback Form; HRRS = Hope Related to Recovery Scale;

RMQ = Readiness and Motivation Questionnaire; RSES = Rosenberg Self-Esteem Scale; WISE-Q = Weight Influenced Self-Esteem Scale; WAI = Working Alliance Inventory.

(Appendices A and B). Session 2 occurred during the week prior to DH (or during the first week of DH, when necessary). After session 2, participants completed a brief questionnaire package.

DH treatment occurred as usual. This program consists of approximately 37 hours per week (7-8 hours per day, Monday to Friday) of CBT-based intensive day hospital treatment, for approximately 8 weeks. Treatment is provided by a multidisciplinary team (i.e., psychology, psychiatry, social work, nursing, dietetics, and occupational therapy), and includes supervised meals and CBT-based group therapy. Participants self-monitored their eating behaviours and binge eating, vomiting, laxative, and exercise behaviours (as well as any other behaviours, as applicable) on a daily basis as part of their clinical care in the DH program. These recordings were used in the study to assess episode frequencies on a weekly basis throughout DH treatment. The remaining study sessions occurred once weekly in the first two to three weeks of DH, as described. The BQ was administered following sessions 3 and 4.

At the end of week 4 of DH, participants completed a brief questionnaire battery and the study feedback form. At post-DH, the same MA-level psychometrists, all of whom were blind to treatment condition, assessed participants using the abbreviated EDE focused on the past 4 weeks and administered the post-DH questionnaire battery. Finally, at 6-months post-treatment, the psychometrists assessed participants with the abbreviated EDE adapted to cover a 6-month period.

Criteria for early withdrawal. Participants were withdrawn from the study intervention if any of the following applied during the intervention period: Chose not to start the DH or prematurely withdrew themselves from the DH; prematurely discharged from the DH by program staff for any reason; became acutely suicidal requiring hospitalization; failed to attend study appointments such that significant timeline deviation occurred (i.e., session 4 would not be

complete by week 4 of DH); or requested to withdraw from the study intervention. Consistent with an ITT model, participants who were withdrawn or dropped out from the study intervention were still contacted for assessment unless they declined participation in further study assessment.

Data Analysis Plan

Power analysis. Power analyses were conducted to determine the necessary sample size to adequately detect the primary outcome – between group differences in frequency of eating disorder behaviours during the first 4 weeks of treatment. Because no study has directly examined the effects of CBT versus MI on rates of rapid response, a priori power analyses were estimated based on the study that most closely approximated this study's goals. Given that Wilson and colleagues (2002) compared CBT with an active but less robust treatment (i.e., IPT) for BN, and given that they compared these groups on a rapid response variable at four weeks into treatment, this is the study that best permitted the computation of power analyses for the present study. Their study reported data on rapid response to reducing dietary restraint at four weeks between CBT and IPT, using change scores from baseline on dietary restraint. Effect size analyses of their data using between groups mean change scores and standard deviations, and a fixed estimate of the correlation between the two time points of $r = .90$ (Hesser, Weise, Rief, & Andersson, 2011) yielded a between groups effect size at four weeks of $d = 0.71$. Given that IPT is an evidence-based treatment with known efficacy for BN, whereas there is little evidence that MI impacts treatment outcomes in BN, it was expected that the difference between CBT and MI might be slightly larger than the difference between CPT and IPT. Accordingly, we modestly increased the effect size by .05, from $d = .71$ to $d = .76$. Using this estimated effect size of $d = 0.76$ for group difference in response at four weeks, an error probability of $\alpha = .05$, and power of $1 - \beta = .80$, the total sample size was estimated at $N = 44$ (using G*Power software).

Thus, with a moderate effect size estimated for the primary outcome variable of early change in eating disorder symptoms, if there were indeed differences between the CBT-RR and MI conditions, a minimum of approximately 44 participants would be required to detect this. Because ITT analyses were conducted using multiple imputation of missing data, sample size accommodations for study attrition were not made. Loss of power and sampling biases are introduced in efficacy analyses in which noncompleters are excluded, leading to inflated Type I errors (Armijo-Olivo, Warren, & Magee, 2009; Lachin, 2000). Accordingly, ITT analyses can have power equal or greater to an efficacy (i.e., completers-only) analysis because the sampling biases and inflated Type I error rates present in the latter analyses are taken into consideration (the power of the efficacy analysis exceeds the ITT analysis under specific conditions in which the former is unbiased; Armijo-Olivo et al., 2009; Lachin, 2000). Recruitment of at least 44 participants within the planned study timeframe (approximately 18 months) was judged as a feasible recruitment goal, as approximately 120 patients start treatment in the DH each year, approximately two thirds of whom have a BN or PD diagnosis.

Statistical Analyses. All statistical analyses were conducted using SPSS software version 22.

Hypothesis 1: Rapid response. Hypothesis 1a (i.e., rapid response status) was examined using a 2x2 chi square analysis to compare dichotomous response classification (i.e., rapid and nonrapid) by treatment condition (i.e., CBT-RR and MI). Because one cell had fewer than 5 participants, Fisher's exact test was reported. Hypotheses 1b and 1c (i.e., total episodes, and normalized eating, respectively) were examined using between groups analysis of variance (ANOVA).

Hypothesis 2: Eating disorder-related treatment outcomes. Hypothesis 2a (i.e., eating disorder psychopathology) was examined using mixed ANOVA and multivariate ANOVA (MANOVA), as applicable for each specific measure, with time as a within subjects factor and treatment condition as a between groups factor.

Hypothesis 3: Treatment related variables. Hypothesis 3a (i.e., belief that rapid change is important) was examined using mixed ANOVA. Hypothesis 3b (i.e., therapeutic alliance) was examined using between groups MANOVA. Hypothesis 3c (i.e., homework completion) was compared using between groups ANOVA, using average homework completion values across sessions as the dependent variable.

Hypothesis 4: Self-efficacy, hope, and motivation. Hypotheses 4a, 4b, and 4c (i.e., trajectories of change in self-efficacy, hope, and motivation) were examined using multilevel growth models. The models included fixed effects of time at level one, condition at level two, and time by condition cross-level interactions, as well as random effects of individual.

Hypothesis 5: Other clinically relevant psychological variables. Hypotheses 5a, 5b, and 5c (i.e., depression, difficulties in emotion regulation, and self-esteem) were examined using mixed ANOVA and mixed MANOVA, as applicable, with time as a within subjects factor and treatment condition as a between groups factor.

Hypothesis 6: Comparisons between rapid and nonrapid responders. Hypothesis 6 (baseline comparison of rapid and nonrapid responders, regardless of condition) was examined using independent groups *t* tests and chi square analyses. Bonferroni corrections for multiple comparisons (i.e., $p = .05/c$, where c is the number of comparisons) were used for measures with multiple subscales.

Hypothesis 7: Exploratory analyses. Hypothesis 7a (i.e., potential moderators of treatment response) was explored using moderated multiple linear regression (Hayes, 2013). In separate models, predictors were treatment condition, depression and a depression by condition interaction term, as well as condition, emotion regulation, and emotion regulation by condition interaction terms. A Bonferroni correction for multiple comparisons was used to evaluate significance of the separate emotion regulation models. Total binge eating/vomiting/ laxative frequency during the first 4 weeks was the criterion variable.

Hypothesis 7bi (i.e., remission status) was examined using a 2x2 chi square analysis to compare dichotomous remission classification by treatment condition. Hypothesis 7bii (i.e., relapse) was examined using Cox regression with treatment condition as a categorical predictor of survival. Only those individuals who were classified as remitted at end-of-treatment were included in the survival analysis.

Hypothesis 8: Post hoc comparison of study participants with DH as usual. A cohort of the first 100 eligible individuals to participate in at least 4 weeks of DH prior to the study period was selected. This cohort had consented to participating in program evaluation and treatment outcome research in the DH program and had provided complete self-reported eating disorder behaviour data from the first four weeks of DH for this purpose. These participants otherwise met study eligibility criteria and were classified as rapid or nonrapid responders for use in the present study. Previously defined ITT values of rapid response classification were used for study participants. Hypothesis 8 was examined using two 2x2 chi square analyses to compare dichotomous response classification (i.e., rapid versus nonrapid) and treatment type (i.e., CBT-RR plus DH, or DH alone; MI plus DH, or DH alone). Fisher's exact test was used where

indicated. A Bonferroni correction for multiple comparisons was employed, such that these results were evaluated against a critical value of $p < .025$.

Missing data handling. Both completer and ITT analyses were performed for the majority of study analyses. Completer analyses used available data and cases missing relevant data were excluded from the models as applicable. For ITT analyses, multiple imputation of missing data was performed in order to estimate predicted values. Multiple imputation generates multiple regression models to estimate missing values from observed values in several repeated iterations (McKnight, McKnight, Sidani, & Figueredo, 2007). The mean estimated value derived from the series of iterations is then used to replace the missing value. As such, multiple imputation is the preferred method for missing data handling, as this strategy uses an iterative process to estimate missing data, rather than using a single imputation process or by simply replacing missing values with group means or last observation carried forward, all of which can artificially bias the model (McKnight et al., 2007). For analyses of categorized continuous data (e.g., rapid versus nonrapid response classification), multiple imputation of missing continuous data was performed, and then the ITT categories were generated. Missing data were not imputed for multilevel growth models because multilevel models are robust to missing data and therefore, such corrections are not required (Bickel, 2007).

Results

Recruitment

One-hundred and forty-six potential participants were placed on the DH wait list and assessed for eligibility. Of these, 66 were eligible to participate. The 79 ineligible individuals were ineligible for the following reasons: 63.3% had a diagnosis of anorexia nervosa or OSFED-atypical anorexia nervosa; 29.1% were diagnostically eligible but had attended the program within the past 5 years; 7.6% were diagnostically eligible but were also admitted to a concurrent symptom interruption bed in the inpatient unit. Of the 66 eligible participants, a total of 50 individuals participated in the study (i.e., six in the pilot study, 44 in the main study). Of the remaining 16 individuals who chose not to participate, 37.5% were not interested in participating, 12.5% disliked the description of the interventions, 37.5% thought DH was too stressful or time consuming to make an additional commitment, 6.3% were not available, and 6.3% decided not to attend DH.

Pilot Study

Three therapists piloted a total of six participants (one per treatment condition) prior to starting the study. Therefore, three participants received CBT-RR and three received MI. Five participants had a diagnosis of BN, and one had a diagnosis of PD. The participants ranged in age from 20 to 45 years ($M = 29.5$, $SD = 8.5$) and all were female. In terms of other demographic characteristics, four participants were White and two were mixed-race, and five identified as heterosexual whereas one identified as lesbian. In the month before the study, the five participants with BN reported pre-treatment binge frequency ranging from 5 to 30 episodes ($M = 14.4$, $SD = 9.44$). In the month before the study, the six pilot participants had a pre-treatment vomit episode frequency ranging from 0 to 90 episodes ($M = 23.7$, $SD = 33.2$) and laxative

episode frequency ranging from 0 to 8 episodes ($M = 2.0$, $SD = 3.2$). BMI ranged from 19.0 to 51.8 kg/m² ($M = 28.1$, $SD = 12.6$). Participants had between 0 and 3 comorbid psychiatric diagnoses at pre-treatment, including major depressive disorder (4 participants), bipolar disorder (1 participant), social anxiety disorder (1 participant), generalized anxiety disorder (1 participant), posttraumatic stress disorder (1 participant), panic disorder (1 participant), anxiety disorder not otherwise specified (1 participant), and alcohol use disorder (1 participant).

All three MI participants and two CBT-RR participants completed the study interventions. One CBT-RR participant withdrew from the study intervention after one session because she reported the DH program was too stressful to continue the study intervention in addition to it. However, she agreed to continue participating in the assessments. All participants completed the DH program ($M = 7.8$ weeks, $SD = 0.4$). The results of the BQ and Feedback Form were also examined descriptively for treatment credibility, compliance, helpfulness, and acceptability. Average ratings (out of 5) showed that both treatments were viewed as credible (CBT: 4.5; MI: 3.7) and effective/helpful (CBT: 5.0; MI: 4.3). Participants reported high levels of homework compliance (out of 7) at session 2 (CBT: 6.5; MI: 6.0), session 3 (CBT: 7.0; MI: 6.0), and session 4 (CBT: 7; MI: 5). Participants gave positive feedback about their therapists (out of 5), including therapist effectiveness (CBT: 5.0; MI: 4.3) and therapist enthusiasm (CBT: 5.0; MI: 4.7). Participants also reported high overall average satisfaction with treatment (CBT: 5.0; MI: 4.3). In terms of the written feedback, both CBT-RR participants who completed the study intervention reported that coping strategies were the most helpful component, and they both reported that there were no unhelpful components of the intervention. In terms of MI, participants reported the most helpful components as “one-on-one sessions”, “having someone recognize and acknowledge the emotions I struggle with”, and “looking at the pros and cons”.

Two MI participants did not write anything in the section for the least helpful component, while the third indicated that the least helpful component was the fact that the intervention was only four sessions.

All six pilot participants were classified as rapid responders. Their total binge and/or vomit and/or laxative episode frequency in the first 4 weeks of DH ranged from 0 to 3 total episodes ($M = 1.0$, $SD = 1.1$). They also all had good treatment outcomes, with their total binge and/or vomit and/or laxative episode frequency in the last 4 weeks of DH ranging from 0 to 1 total episodes ($M = 0.3$, $SD = 0.5$).

The results of the pilot study indicated that both study interventions were feasible to provide, had good retention rates, were experienced as credible and acceptable to participants, and were characterized by good homework compliance, good response to the therapists, and good outcomes.

Descriptive Statistics

Forty-four participants consented and were enrolled in the main study between May 2014 and July 2015. Of these, 23 were randomly assigned to CBT-RR and 21 were randomly assigned to MI. The majority of the participants were diagnosed with BN, and this was an extremely ill sample, with nearly two-thirds having an eating disorder that was classified as severe or extreme (APA, 2013). Participants also reported high mean frequencies of binge eating and self-induced vomiting behaviours in the month before the baseline assessment. Additionally, participants were diagnosed with a range of psychiatric comorbidities, indicating that the sample was relatively complex in addition to having severe eating disorders. See Table 3 for baseline demographic and clinical characteristics.

Table 3

Demographic and Baseline Clinical Characteristics (N = 44)

Variable	% or <i>M</i> (<i>SD</i>)
% Female	100%
Age	27.3 (8.4)
Race/Ethnicity	
White	75.0%
Black	6.3%
Mixed Race	6.3%
Arab/West Asian	2.3%
Latina	2.3%
East Asian	2.3%
South Asian	2.3%
Other	2.3%
Sexual Orientation	
Heterosexual	86.3%
Bisexual	9.1%
Lesbian/Gay	4.5%
Marital Status	
Single	79.5%
Married	11.4%
Common-Law	6.8%
Engaged	2.3%

Highest Level of Education Completed	
High School	45.5%
College Diploma	18.2%
Undergraduate Degree	27.3%
Professional Degree	4.5%
Master's Degree	4.5%
Doctorate Degree	0.0%
Diagnosis	
Bulimia Nervosa	79.5%
Purging Disorder	20.5%
Diagnostic Severity	
Mild	13.6%
Moderate	22.7%
Severe	22.7%
Extreme	40.9%
Body Mass Index (BMI)	24.6 kg/m ² (5.8)
Average Caloric Intake Per Day	680 (396)
Binge Eating Episodes in Month before Study (BN only)	34.5 (28.9)
Vomiting Episodes in Month before Study	42.7 (43.8)
Laxative Use Episodes in Month before Study	2.8 (9.9)
Maximum Total Episodes in Month before Study	46.3 (41.8)
Illness Duration (years)	9.9 (7.6)
Number of Previous Eating Disorder Treatments	2.2 (2.2)

Number of Psychiatric Comorbidities	1.7 (1.4)
Comorbidities Diagnosed at Program Consultation	
Major Depressive Disorder	52.3%
Dysthymic Disorder	2.3%
Bipolar Disorder	6.8%
Social Phobia	2.3%
Generalized Anxiety Disorder	11.4%
Panic Disorder	13.6%
Agoraphobia	4.5%
Other Specified Anxiety Disorder	2.3%
Obsessive Compulsive Disorder	9.1%
Posttraumatic Stress Disorder	13.6%
Borderline Personality Disorder	2.3%
Alcohol Use Disorder	20.5%
Substance Use Disorder	13.7%

The CBT-RR and MI participants were compared on the baseline demographic and clinical characteristics to confirm baseline equivalence of groups, using independent groups *t* tests or chi-square tests, as applicable. The groups did not differ on any variable, including age, ethnicity, sex, sexual orientation, marital status, highest level of education, diagnosis, BMI, dietary restriction (caloric intake, as assessed by the DH dietician), total number of binge and/or purge episodes, illness duration, total number of comorbid psychiatric diagnoses, total number of previous eating disorder treatments (including individual therapy, group therapy, intensive outpatient treatment, DH treatment, and inpatient treatment), or any of the individual psychiatric comorbidities, $ps > .05$. Therefore, groups were equivalent at baseline and random assignment to groups was considered successful.

Treatment Completion and Attrition

Of the total sample, 75.0% completed the study treatment, whereas 15.9% elected to prematurely withdraw from the intervention and 9.1% were discharged prematurely either from the study or from the DH program. Participants who voluntarily withdrew did so for the following reasons: Decided not to start DH (2 participants); decided to withdraw from DH after starting the program (3 participants); or found that the DH program was too stressful or overwhelming and no longer wanted to participate in the study in addition to DH as usual (2 participants). Participants who were withdrawn by the study team or DH staff were due to the following reasons: Discharged from DH by program staff due to program nonadherence (2 participants); and study appointment no-shows led to significant study timeline deviation such that the study sessions would not have been completed by week 4 of the DH (2 participants). Of the 11 participants who did not complete the study treatment, the number of study sessions completed ranged from 1 to 3, with the average number of sessions being 1.5 ($SD = 0.7$). The

CBT-RR and MI groups did not differ with respect to attrition rate, $\chi^2(3) = 2.85, p = .42$, or mean number of sessions each participant completed, $t(42) = 0.03, p = .98$. As discussed, study non-completers were still asked to complete study assessments, consistent with an ITT model.

Data Cleaning Strategy

For each statistical analysis, data cleaning and examination of relevant assumptions was undertaken prior to completing statistical analyses. For 2x2 categorical analyses, if there were fewer than 5 cases in each cell, Fisher's exact test was reported instead of the chi square test (Field, 2009). Assumptions of ANOVA and MANOVA were examined for relevant models as applicable, following the guidelines outlined by Field (2009) and Tabachnick and Fidell (2001). The majority of variables examined using ANOVA and MANOVA models were found to adhere adequately to distributional normality, and no univariate outliers (i.e., z scores $> 3.29, p < .001$) were found. Exceptions were for the independent groups ANOVAs examining eating disorder behaviour frequency in the first 4 weeks of DH, and meal plan adherence during the first 4 weeks of DH. One and three outliers were identified, respectively, which resulted in elevated distributional skewness and/or kurtosis values. Additionally, for the MANOVA for the WAI subscales, one univariate outlier was identified for each of the Goals and Bond subscales, though univariate skewness and kurtosis values were acceptable. In each case replacing univariate outliers with the next highest value (Tabachnick & Fidell, 2001) corrected outliers and any associated distributional problems. No multivariate outliers (i.e., leverage values exceeding $(2(k + 1)/n)$), influential cases (i.e., Cook's distance > 1) or problems with linearity were identified in any of the MANOVA models.

As well, for ANOVA and MANOVA models, most variables satisfied the assumption of univariate homogeneity of variance. In a few cases Levene's test was statistically significant (ps

< .05). However, in all cases, sample sizes were nearly equal, and variance ratios were acceptable (< 10:1), circumstances under which analysis of variance models are robust to violations of this assumption (Field, 2009; Tabachnick & Fidell, 2001). Therefore, this assumption was deemed to be adequately satisfied in all models (Tabachnick & Fidell, 2001). In terms of the assumption of homogeneity of variance-covariance for the multivariate models, Box's test was significant for two models (i.e., DERS, completers model; WAI, ITT model), $ps < .05$. However, Tabachnick and Fidell (2001) have advised that that Box's M is highly sensitive and is only concerning if significant using a highly conservative critical value, and that unless sample sizes are highly discrepant, repeated measures MANOVA models are highly robust to violations of this assumption. Accordingly, the assumption of homogeneity of variance-covariance was deemed to be satisfied.

Assumptions for multilevel growth models were also examined (Bickel, 2007; Selig & Coulombe, 2015). A diagonal rather than uniform residual covariance structure was specified for all models, which permits heteroscedasticity of level-one residuals, which is a common practice for multilevel growth models, as residual variance is expected to differ between different time points in repeated measures models (Bickel, 2007; Selig, 2015). For most models, distributional normality of residuals was satisfied at both level 1 and level 2. For the self-efficacy over dietary restriction model, there was one univariate outlier at level 1. This was replaced with the next observed value at that time point (Tabachnick & Fidell, 2001), which corrected the outlier. As well, no problems with heteroscedasticity of residuals at level 2, or problems with dependence or correlated residuals were identified (Bickel, 2007; Selig, 2015). For each model, the observed data were examined in order to ensure that the time trajectory appeared linear, and therefore that a linear model was likely appropriate. Additionally, for the purpose of comparison with the linear

models, models were also fitted that included quadratic and cubic terms, respectively, for time and the cross-level interactions. In all cases, the software was unable to adequately fit models to the data that included the polynomial terms, and the last available iteration of each model fit the data more poorly or no better than linear models, represented by -2 log likelihood statistics that were higher or not significantly different from those of the linear models. Accordingly, linear models were judged to be most appropriate for the data.

Hypothesis 1: Rapid Response

Rapid response rates. Rates of rapid response to DH were compared between treatment conditions. ITT rapid response values were constructed using multiple imputation of continuous episode frequencies in the first four weeks of DH and then categorizing these data. Using completer analyses, the CBT-RR condition resulted in a marginally higher rate of rapid response compared to the MI condition, $p = .05$, one-tailed Fisher's exact test, $V = .34$. ITT analyses showed that the CBT-RR condition resulted in a significantly higher rate of rapid response compared to MI, $p = .04$, one-tailed Fisher's exact test, $V = .33$ (See Figure 2). Percentages and means and standard deviations (as applicable) for each set of analyses within the Rapid Response section, as well as the remission and relapse rates from the later section are included in Table 4.

Total binge/purge behaviour frequencies during the first four weeks. The total frequency of binge eating, vomiting, and laxative use was compared between treatment conditions. One outlier was replaced with the next highest value (Tabachnick & Fidell, 2001), which corrected distributional skewness and kurtosis. Independent groups ANOVA was used to compare treatment groups on total eating disorder behaviour frequency in the first four weeks of DH. There were significant differences between groups for both completers, $F(1, 35) = 5.11$, $p = .03$, partial $\eta^2 = .13$, and ITT analyses, $F(1, 42) = 6.18$, $p = .02$, partial $\eta^2 = .13$, with the CBT-RR

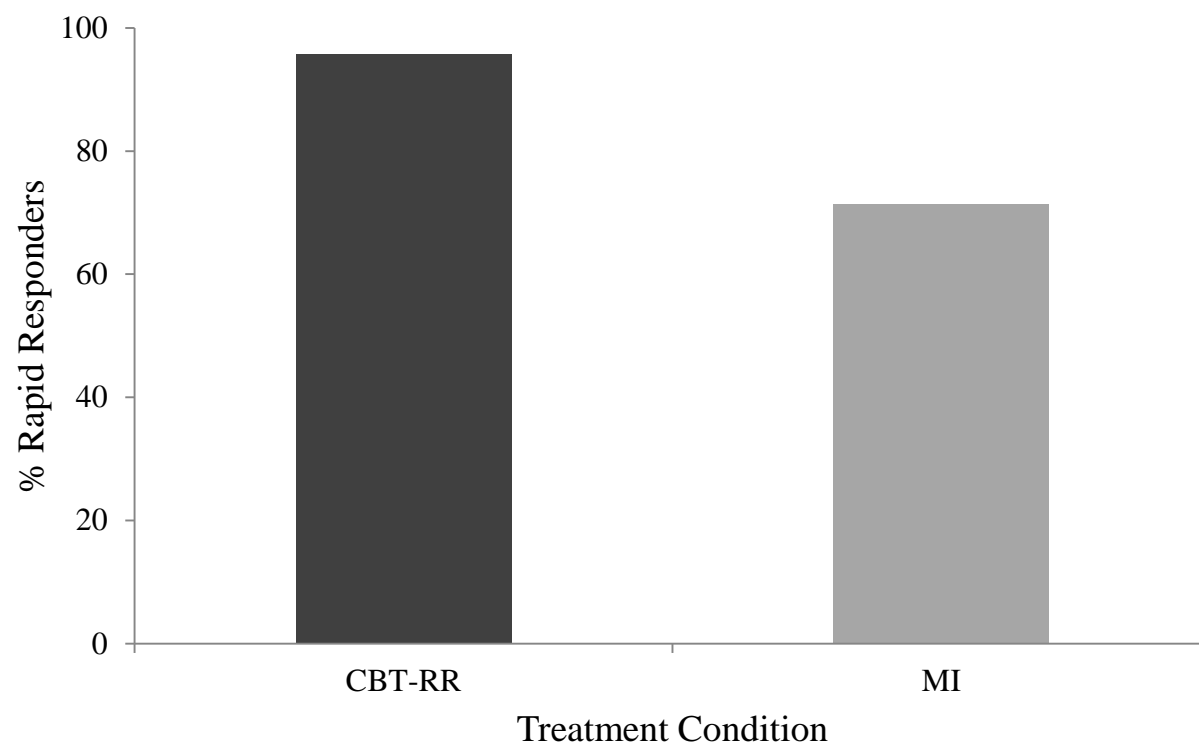


Figure 2. Rate of rapid response by treatment condition (ITT).

Table 4

Rapid Response, Eating Disorder Behaviours, and Remission and Relapse Rates, by Treatment

Condition (Completers, N = 35; ITT, N = 44)

Model	% or <i>M</i> (<i>SD</i>)		<i>p</i>
	CBT-RR	MI	
Rapid Response Rates			
Completer	94.1%	66.7%	.05
ITT	95.7%	71.4%	.04
Total # of BVL Episodes (First 4 Weeks)			
Completer	0.6 (1.3)	2.6 (3.4)	.03
ITT	0.6 (1.1)	2.4 (3.2)	.02
% Meal Plan Adherence (First 4 Weeks)			
Completer (<i>n</i> = 33)	95.83 (6.81)	90.73 (10.55)	.11
ITT	95.65 (6.29)	90.96 (9.49)	.058
Post-DH Remission Rates			
Completer	88.2%	72.2%	.23
ITT	65.2%	71.4%	.45
6-Month Relapse Rates			
Completer (<i>n</i> = 22)	9.1%	18.2%	.55
ITT (<i>n</i> = 30)	33.3%	40.0%	.69

Note. BVL = Total frequency of binge, vomit, and laxative use episodes; CBT-RR = Cognitive behaviour therapy for rapid response; DH = Day hospital; ITT = Intent-to-treat; MI = Motivational interviewing.

condition exhibiting significantly fewer eating disorder behaviours during the first 4 weeks of DH (See Figure 3).

Normalized eating behaviours during the first four weeks. Degree of normalized eating, represented by total percent adherence to the prescribed meal plan during the first four weeks of DH, was compared between treatment conditions using independent groups ANOVA. For completers, there was a kurtotic distribution and one outlier was identified in the MI group. This was replaced with the next value, which corrected distributional problems. There was no effect of condition in this model, $F(1, 31) = 2.69, p = .11$, indicating that the groups did not differ on meal plan adherence. However, ITT analyses using multiple imputation indicated a marginal effect of group, $F(1, 42) = 3.79, p = .058$, partial $\eta^2 = .08$. Examination of the means showed that the CBT-RR group was marginally more adherent to the meal plan in this period (See Figure 4).

Hypothesis 2: Eating Disorder-Related Treatment Outcomes

Overvaluation of weight and shape. Overvaluation of weight and shape, represented by the composite of the EDE-Q Weight and Shape Concerns subscales, was compared between treatment groups from baseline to post-DH as a secondary measure of eating disorder outcomes, using mixed ANOVA. For completers, the main effect of time was significant, $F(1, 31) = 15.06, p = .001$, partial $\eta^2 = .33$, with both groups making significant improvements in overvaluation of weight and shape during treatment. The time by condition interaction was also significant for completers, $F(1, 31) = 4.84, p = .04$, partial $\eta^2 = .14$. Using multiple imputation, there was a significant main effect of time, $F(1, 42) = 31.18, p < .001$, partial $\eta^2 = .43$, and a significant time by condition interaction, $F(1, 42) = 7.72, p = .008$, partial $\eta^2 = .16$. Examination of the means showed that the CBT-RR group made significantly greater improvements on overvaluation of weight and shape during the course of treatment, whereas the MI group made more modest

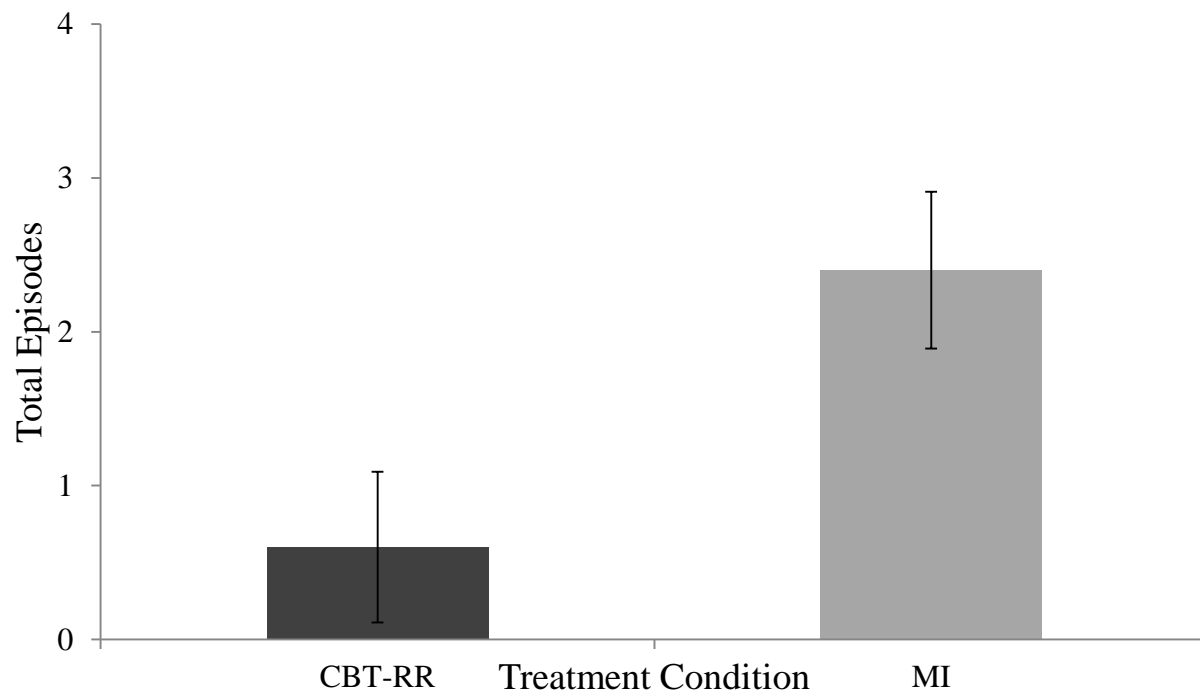


Figure 3. Frequency of binge/vomit/laxative episodes during the first four weeks of DH, by treatment condition (ITT).

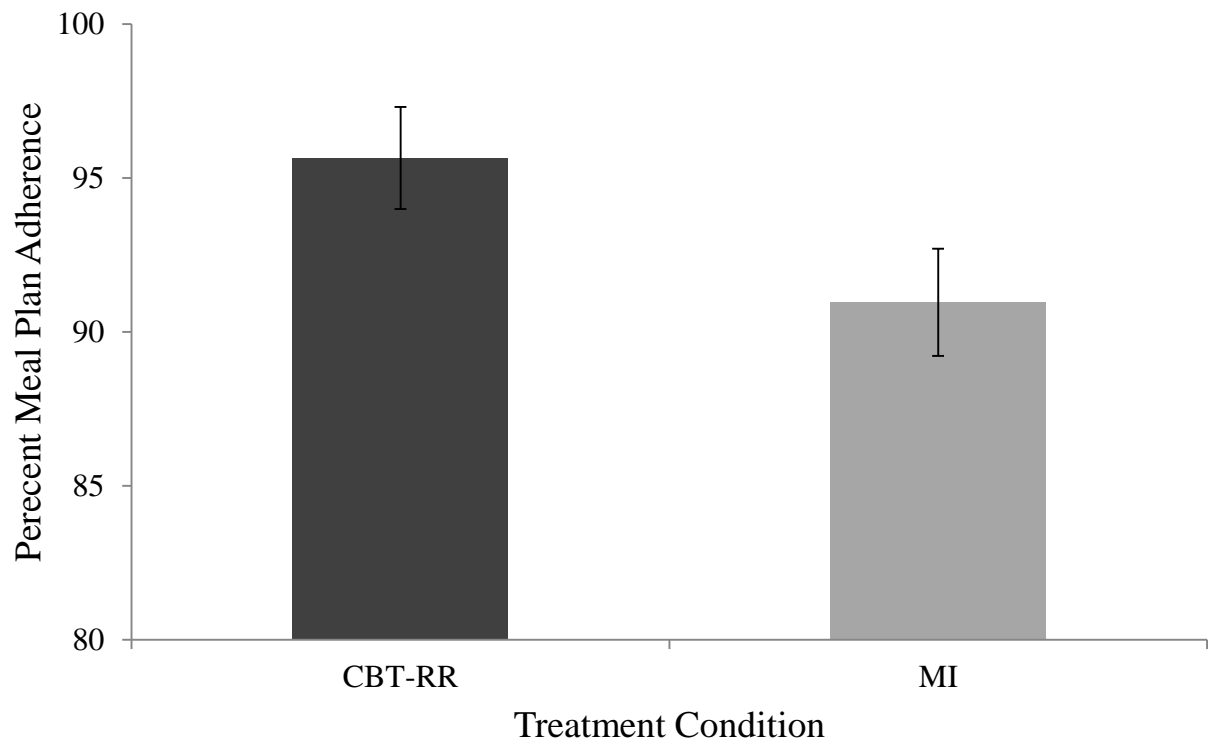


Figure 4. Percent meal plan adherence during the first four weeks of DH, by treatment condition (ITT).

changes. See Figure 5 for a plot of the means, and Table 5 for means and standard deviations of the repeated measures variables within this and the subsequent section.

The WISE-Q total score was also compared between groups from baseline to post-DH using mixed ANOVA, as a second measure of overvaluation of weight and shape. Using completer analyses, there was no significant main effect of time, $F(1, 31) = 0.90, p = .35$, but a nonsignificant trend for the group by time interaction effect, $F(1, 31) = 2.92, p = .098$, partial $\eta^2 = .09$. ITT analyses using multiple imputation also showed no main effect of time, $F(1, 42) = 2.51, p = .21$. However, using this method there was a significant time by condition interaction, $F(1, 42) = 7.36, p = .01$, partial $\eta^2 = .15$. Examination of a plot of the means showed a full crossover interaction, with the CBT-RR group making improvements in their weight-based self-evaluation during treatment, whereas the MI group showed some deterioration (see Figure 6).

Drive for thinness, bulimia, and body dissatisfaction. In addition, relevant subscales of the EDI, namely the Drive for Thinness, Bulimia, and Body Dissatisfaction subscales were also compared between treatment groups from baseline to post-DH, using mixed MANOVA. The overall multivariate effect of time was significant for both completers, Wilks' $\lambda = .23, F(3, 29) = 33.20, p < .001$, partial $\eta^2 = .46$, and ITT analyses, Wilks' $\lambda = .24, F(3, 40) = 43.03, p < .001$, partial $\eta^2 = .76$. This indicated that both groups made significant overall changes on EDI scores from baseline to post-DH. The multivariate time by condition interaction was not significant for completers, Wilks' $\lambda = .87, F(3, 29) = 1.46, p = .25$, or ITT analyses, Wilks' $\lambda = .91, F(3, 40) = 1.29, p = .29$. Therefore, the groups did not vary with respect to overall changes over time on these three variables.

Eating disorder urges. Self-reported urges for eating disorder behaviours were also compared between treatment groups from baseline to week 4 of DH, using mixed MANOVA.

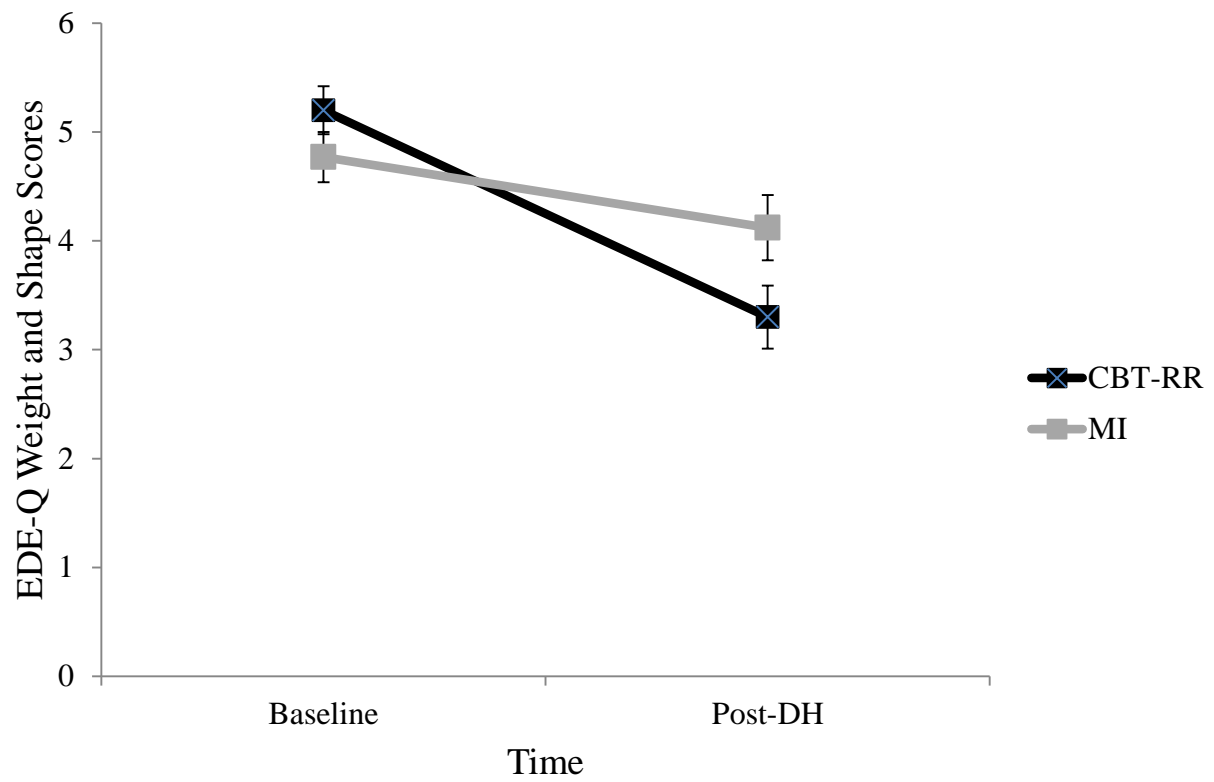


Figure 5. Change in Eating Disorder Examination, Weight and Shape Concerns composite scores over time, by treatment condition (ITT).

Table 5

Change in Eating Disorder Psychopathology and Beliefs about Change Over Time and by Treatment Condition (Completers, N = 33; ITT, N = 44)

Model	CBT-RR		MI		Time	Int
	Pre-DH	Post-DH	Pre-DH	Post-DH	(p)	(p)
EDE-Q W&S						
Completer	5.24 (0.77)	3.44 (1.68)	4.60 (1.42)	4.10 (1.51)	.001	.04
ITT	5.20 (0.69)	3.30 (1.41)	4.77 (1.33)	4.14 (1.36)	< .001	.008
WISE-Q Total						
Completer	2.94 (0.68)	2.47 (1.05)	2.73 (1.12)	2.86 (1.07)	.35	.10
ITT	2.96 (0.66)	2.37 (0.92)	2.68 (1.06)	2.84 (0.98)	.12	.01
EDI Multivar.					< .001	.25
Completer						
Drive for Thin.	16.13 (3.70)	11.08 (6.43)	15.35 (4.78)	12.47 (6.63)	.001	
Bulimia	10.44 (5.39)	3.44 (4.08)	11.35 (5.71)	3.76 (3.60)	< .001	
Body Dissatisf.	18.81 (5.38)	16.46 (7.04)	18.12 (9.05)	20.53 (7.32)	.98	
EDI Multivar. ITT					< .001	.29
Drive for Thin.	16.24 (3.25)	11.35 (6.20)	15.65 (4.64)	12.23 (6.03)	< .001	
Bulimia	10.48 (5.01)	3.70 (3.46)	10.14 (5.88)	3.19 (3.46)	< .001	
Body Dissatisf.	18.57 (4.84)	16.70 (6.61)	19.19 (8.57)	20.94 (6.71)	.95	

EDUBS Multivar.						.03	.46
Completer (<i>N</i> = 32)							
BV	2.44 (1.26)	1.50 (0.61)	2.84 (1.41)	2.34 (1.42)	.02		
Restrict	3.75 (1.18)	3.00 (1.15)	3.68 (1.58)	3.56 (1.21)	.14		
EDUBS Multivar.						.001	.72
ITT							
BV	2.46 (1.24)	1.66 (0.63)	2.88 (1.36)	2.31 (1.28)	.005		
Restrict	3.65 (1.30)	2.71 (1.10)	3.71 (1.55)	3.13 (1.33)	.007		
ATQ							
Completer	23.94 (2.52)	26.06 (3.62)	24.00 (4.61)	24.35 (3.98)	.05		.15
ITT	23.43 (2.71)	25.78 (3.16)	23.48 (4.34)	24.34 (3.63)	.002		.13

Note. ATQ = Attitudes about Treatment Questionnaire; CBT-RR = Cognitive behaviour therapy for rapid response; DH = Day hospital; EDE-Q W&S = Eating Disorder Examination Questionnaire, Weight and Shape Concerns composite score; EDI = Eating Disorder Inventory; EDUBS = Eating Disorder Urges and Behaviours Questionnaire; Int = Time by Condition Interaction Effect; ITT = Intent-to-treat; MI = Motivational interviewing; Multivar. = Multivariate; Time = Main Effect of Time; WISE-Q = Weight Influenced Self-Esteem Questionnaire.

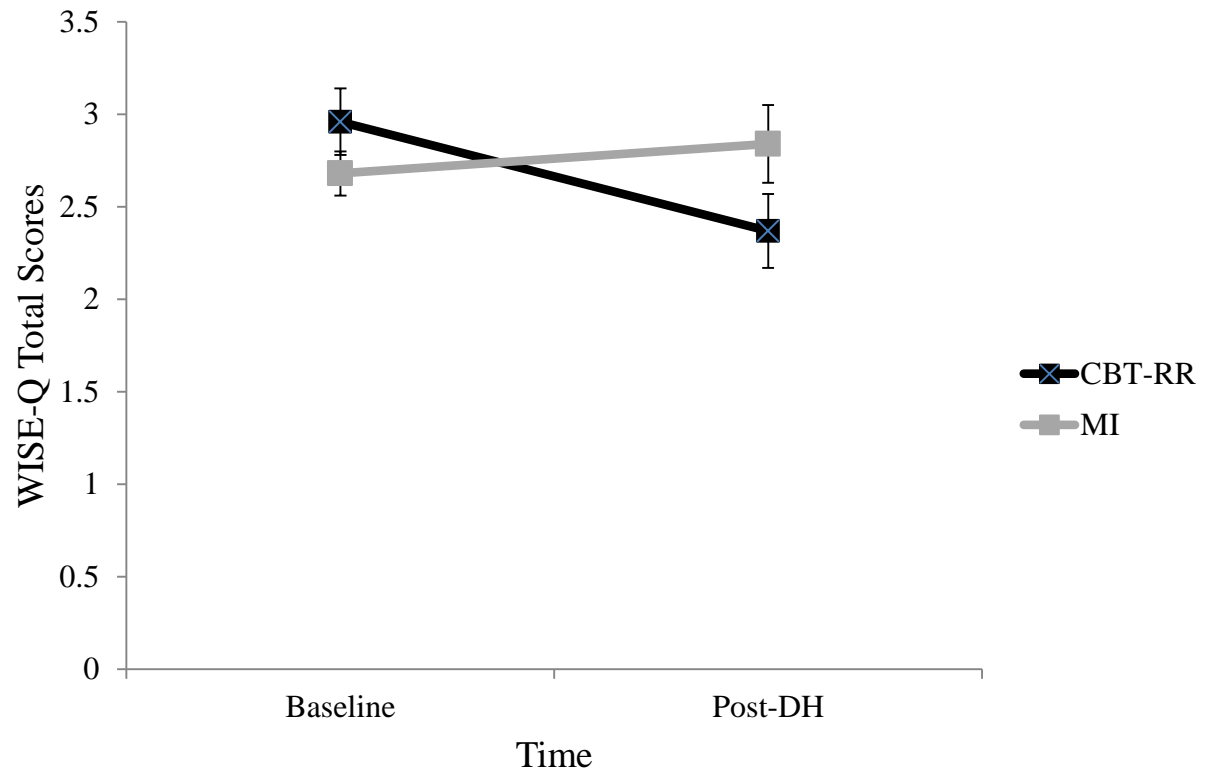


Figure 6. Change in Weight Influenced Self Esteem Questionnaire total scores over time, by treatment condition (ITT).

Dependent variables were urges for food restriction, and a mean score for urges to binge and urges to vomit, in keeping with the combined binge/purge metric. Urges to use laxatives were not included given that only a small minority of the sample reported laxative use. The overall multivariate effect of time was significant for both completers, Wilks' $\lambda = .79$, $F(2, 29) = 3.97$, $p = .03$, partial $\eta^2 = .21$, and ITT analyses, Wilks' $\lambda = .72$, $F(2, 41) = 8.19$, $p = .001$, partial $\eta^2 = .29$. Thus, both groups experienced a significant reduction in eating disorder urges from baseline to week 4 of DH. The multivariate time by condition interaction was not significant for completers, Wilks' $\lambda = .95$, $F(2, 29) = 0.80$, $p = .46$, or ITT analyses, Wilks' $\lambda = .98$, $F(2, 41) = 0.34$, $p = .71$. Therefore, the groups did not vary on rate of change on urges over time.

Hypothesis 3: Treatment-Related Variables

Attitudes about rate of change during treatment. ATQ scores were compared between groups from baseline to post-DH using mixed ANOVA. The main effect of time was marginally significant for completers, $F(1, 31) = 4.18$, $p = .05$, partial $\eta^2 = .12$, and significant using multiple imputation analyses, $F(1, 42) = 11.33$, $p = .002$, partial $\eta^2 = .21$. The results indicated that both groups made significant improvements to their attitudes about change during treatment. In terms of the group by time interaction, there was no significant interaction using completer analyses, $F(1, 31) = 2.14$, $p = .15$, and ITT analyses, $F(1, 42) = 2.43$, $p = .13$. See Table 5 (shown previously) for means and standard deviations.

Therapeutic alliance. The three subscales of the WAI were compared between treatment groups using independent groups MANOVA. For the completer analyses, there was no significant multivariate effect, Wilks' $\lambda = .97$, $F(3, 25) = 0.30$, $p = .83$, indicating no differences between groups. For the ITT analyses, there was a nonsignificant trend for the overall multivariate effect, Wilks' $\lambda = .85$, $F(3, 40) = 2.35$, $p = .087$, partial $\eta^2 = .15$. Because it was

hypothesized that the Task and Goals subscales would differ between conditions but the Bond subscale would not, the univariate effects were further examined even though the overall effect was not statistically significant. To account for the fact that the multivariate model was nonsignificant, the univariate models were evaluated against a Bonferroni corrected critical value of $p < .017$. There was a significant univariate effect for the Goals subscale, $F(1, 42) = 6.58, p = .01$, partial $\eta^2 = .14$, with CBT-RR participants reporting higher goal-oriented alliance with their therapist compared to MI participants. The Task and Bond subscales did not differ between groups, $ps > .05$. See Table 6 for means and standard deviations for this and the next section.

Homework completion. Average rates of homework completion were generated from the BQ homework completion item from sessions 2, 3 and 4. These values were compared between treatment groups using independent groups ANOVA. There were no differences between groups for completers, $F(1, 31) = 0.78, p = .31$, or ITT, $F(1, 42) = 2.19, p = .15$.

Hypothesis 4: Self-Efficacy, Hope, and Motivation

Self-efficacy. Self-efficacy to control binge eating and vomiting, measured by a mean of the RMQ Confidence subscales for binge eating and vomiting, was modelled across four time points (i.e., baseline, session 2, DH week 4, and post-DH), using a multilevel growth model. The model included fixed effects of time at level one, condition at level two, and a time by condition cross-level interaction, as well as random effects of individual (Bickel, 2007). A diagonal residual covariance structure was specified to permit heteroscedasticity of level-one residuals, given that unequal variances are expected between time points (Bickel, 2007). This model fit the data significantly better than the null (intercept only) model, indicated by a significantly smaller -2 Log Likelihood (-2LL) statistic, $p < .001$. Tests of fixed effects showed that time was a significant linear predictor of self-efficacy to control binge eating and vomiting, indicating that

Table 6

Treatment Variables (Completers, N = 29 [WAI], N = 33 [Hwk] ; ITT, N = 44)

Model	Completer		<i>p</i>	ITT		<i>p</i>
	CBT-RR	MI		CBT-RR	MI	
WAI			.83			.087
Goal	17.00 (2.85)	15.79 (3.93)		17.37 (2.53)	15.12 (3.27)	.01
Task	15.33 (2.79)	14.50 (3.61)		15.38 (2.49)	13.88 (3.37)	.10
Bond	17.07 (2.94)	16.86 (3.61)		17.28 (2.28)	16.88 (2.58)	.60
Homework	5.91 (0.82)	5.58 (1.30)	.38	5.97 (0.75)	5.55 (1.14)	.15

Note. CBT-RR = Cognitive behaviour therapy for rapid response; Hwk = Homework; ITT =

Intent-to-treat; MI = Motivational interviewing; WAI = Working Alliance Inventory.

Note. To account for the nonsignificant multivariate effect, the ITT univariate effects were evaluated against a Bonferroni corrected critical value of $p < .017$.

overall, participants' self-efficacy improved over time. Condition was not a significant predictor, indicating that irrespective of time, CBT-RR versus MI classification did not predict self-efficacy. The time by condition cross level interaction was also nonsignificant, indicating that the trajectories of change over time in self-efficacy to control binge eating and vomiting did not vary by treatment condition. See Table 7 for beta weights and model statistics for this and the subsequent multilevel models.

Self-efficacy to control dietary restriction, measured by the RMQ Confidence subscale for Dietary Restriction, was also modelled across the same four time points, using an identical analytic strategy to the self-efficacy for bingeing and vomiting model. As mentioned, one outlier at level 1 was replaced with the next value prior to the analysis. This model fit the data significantly better than the null model, indicated by a significantly smaller -2LL statistic, $p < .001$. Tests of fixed effects showed that time was a significant linear predictor of self-efficacy to control dietary restriction, indicating that participants' self-efficacy improved over time. Condition was not a significant predictor, indicating that irrespective of time, CBT-RR versus MI classification did not predict self-efficacy to control dietary restriction. The time by condition cross level interaction was also nonsignificant, indicating that the trajectories of change over time in self-efficacy to control dietary restriction did not vary by treatment condition.

Hope. Hope for a life without an eating disorder, measured by the HRRS, was modelled across four time points (i.e., baseline, session 2, DH week 4, and post-DH), using the same multilevel growth modelling strategy as the self-efficacy models. This model fit the data significantly better than the null model, indicated by a significantly smaller -2LL statistic, $p < .001$. Tests of fixed effects indicated that time was not a significant linear predictor of hope,

Table 7

Model Statistics for Multilevel Growth Models: Self-Efficacy, Hope and Motivation with Time and Treatment Condition as Predictors (N = 44)

Model	β	SE	df	t	p
RMQ Confidence – Bingeing/Vomiting					
Intercept	41.65	5.27	37.27	7.91	< .001
Time	13.24	1.86	28.51	7.14	< .001
Treatment	10.77	7.31	37.40	1.47	.15
Time*Treatment	-1.39	2.61	29.52	-0.53	.60
RMQ Confidence - Restriction					
Intercept	48.56	5.62	36.66	8.64	< .001
Time	9.91	2.36	31.20	4.21	< .001
Treatment	4.19	7.66	37.14	0.55	0.59
Time*Treatment	1.51	3.24	30.82	0.47	0.65
HRRS					
Intercept	20.11	0.80	40.95	25.23	< .001
Time	-0.34	0.27	33.80	-1.27	.21
Treatment	0.71	1.11	41.12	0.64	.53
Time*Treatment	0.25	0.38	34.15	0.66	.51
RMQ Action - Bingeing					
Intercept	70.47	7.22	38.05	9.77	< .001
Time	4.97	3.68	38.16	1.35	.19
Treatment	13.23	9.87	39.15	1.34	.19

Time*Treatment	-6.15	4.98	37.19	-1.23	.23
RMQ Action - Vomiting ^a					
Intercept	70.84	7.61	40.32	9.31	< .001
Time	1.40	3.68	38.59	.38	.71
Treatment	2.63	10.30	39.35	.26	.80
Time*Treatment	0.12	4.80	35.53	0.03	.98

Note. HRRS = Hope Related to Recovery Scale; RMQ = Readiness and Motivation

Questionnaire. Positive beta values for treatment and time*treatment effects indicate higher slopes for the CBT-RR group.

^aThe software was unable to converge a model that adequately fit these data, so these statistics are for the last available iteration, which was still significantly better than the null (intercept only) model, $p < .001$.

indicating that participants' hope for recovery did not change over time. Condition was not a significant predictor, indicating that irrespective of time, CBT-RR versus MI classification did not predict hope. The time by condition cross level interaction was also nonsignificant, indicating that the trajectories of change over time in hope did not vary by treatment condition.

Motivation. Motivation for changing both binge eating and vomiting, measured by the mean of the RMQ Action subscales for Binge Eating and Vomiting, were also modelled across the four time points using multilevel growth modelling. However, the software was unable to fit an adequate multilevel growth model to the data. Therefore, models for the Binge Eating and Vomiting Action subscales were fitted separately. The software was able to fit a model to the binge eating data, and this model fit the data significantly better than the null model, indicated by a significantly smaller -2LL statistic, $p < .001$. However, all of the fixed effects (i.e., time, condition, and the time by condition cross level interaction) were not statistically significant. This indicates that time did not predict increases in readiness for making changes to binge eating overall, and that the groups did not vary from one another, both overall and in terms of trajectories over time.

In terms of motivation for changing vomiting, the software was unable to fit an adequate multilevel growth model to the data. Although the model did not converge, the results of the last available iteration were significantly better than the null model, indicated by a significantly lower -2LL statistic, $p < .001$. The results of the final iteration agreed with the binge eating data – all three predictors (i.e., time, condition, and the time by condition interaction) did not significantly predict action oriented readiness for changing vomiting. However, because final convergence of this model was not adequately achieved, these results should be interpreted cautiously.

Hypothesis 5: Other Clinically Relevant Psychological Variables

A number of other psychological variables relevant to eating disorder treatment were compared between groups from baseline to post-DH to examine whether the intervention had any effects on other important areas of psychological functioning.

Depression symptoms. BDI scores were compared between groups from baseline to post-DH using mixed ANOVA. The main effect of time was significant for: completers, $F(1, 31) = 25.98, p < .001$, partial $\eta^2 = .46$, and using multiple imputation, $F(1, 42) = 45.31, p < .001$, partial $\eta^2 = .52$, indicating that both groups made significant improvements to depression symptoms during treatment. The group by time interaction term was not significant for completers, $F(1, 31) = 1.98, p = .17$, and ITT, $F(1, 42) = 2.88, p = .10$. See Table 8 for means and standard deviations for models in this section.

Difficulties with emotion regulation. DERS subscale scores were compared between groups from baseline to post-DH using repeated measures MANOVA. The overall multivariate effect of time was significant for completers, Wilks' $\lambda = .46, F(6, 26) = 5.07, p = .001$, partial $\eta^2 = .54$, and using multiple imputation, Wilks' $\lambda = .48, F(6, 37) = 6.76, p < .001$, partial $\eta^2 = .52$. Thus, both groups made significant overall changes in emotion regulation from baseline to post-DH. The multivariate time by condition interaction was not significant for completers, Wilks' $\lambda = .71, F(6, 26) = 1.79, p = .14$. However, using multiple imputation, there was a marginally significant multivariate interaction of time by condition, Wilks' $\lambda = .72, F(6, 37) = 2.30, p = .055$, partial $\eta^2 = .27$, indicating that the CBT-RR and MI groups differed on overall changes in DERS scores over time. Because the effect closely approached statistical significance, univariate effects were further examined. Examination of the univariate effects showed that there were significant time by condition interactions on the following DERS subscales: Difficulties Engaging in Goal

Table 8

Change in Other Psychological Variables Over Time and Between Conditions (Completers, N = 33; ITT, N = 44)

Model	CBT-RR		MI		Time	Int (p)
	Pre-DH	Post-DH	Pre-DH	Post-DH	(p)	
BDI						
Completer	33.31 (9.26)	18.69 (11.78)	31.00 (13.55)	22.71 (9.20)	< .001	.17
ITT	33.22 (7.81)	18.41 (9.89)	21.86 (13.88)	23.01 (8.58)	< .001	.10
DERS Complet.					.001	.14
Nonaccept.	20.68 (6.17)	15.38 (5.28)	19.82 (7.44)	19.12 (7.54)	.02	
Goals	20.38 (4.40)	14.88 (4.16)	21.06 (3.54)	18.88 (5.32)	< .001	
Impulse	21.00 (6.02)	13.75 (4.84)	19.18 (7.33)	15.23 (6.73)	< .001	
Awareness	20.88 (4.70)	15.25 (4.97)	18.94 (5.03)	18.76 (4.53)	.003	
Strategies	27.69 (6.25)	20.00 (6.03)	27.71 (8.00)	24.18 (9.16)	< .001	
Clarity	15.94 (4.33)	11.81 (3.10)	14.76 (4.32)	14.35 (4.43)	.001	
DERS ITT ^a					< .001	.055
Nonaccept.	20.87 (6.50)	14.56 (4.93)	20.10 (7.17)	15.41 (6.34)	.009	.16
Goals	20.52 (5.00)	15.90 (4.30)	19.33 (4.76)	19.15 (4.31)	< .001	.02
Impulse	27.57 (6.21)	20.55 (5.43)	27.48 (7.80)	24.01 (8.74)	< .001	.38
Awareness	16.52 (4.57)	13.02 (3.99)	15.24 (4.23)	15.23 (4.39)	.004	.007
Strategies	19.74 (6.05)	15.11 (4.77)	20.04 (7.68)	18.62 (6.98)	< .001	.14
Clarity	20.65 (3.93)	15.74 (3.89)	20.71 (3.66)	18.88 (5.10)	< .001	.003

RSES						
Completer (<i>n</i> = 32)	19.75 (3.75)	24.38 (6.97)	20.13 (5.43)	22.25 (4.85)	< .001	.14
ITT	19.69 (3.41)	23.95 (6.18)	20.28 (5.11)	23.04 (4.71)	< .001	.24

Note. ATQ = Attitudes about Treatment Questionnaire; BDI = Beck Depression Inventory; CBT-RR = Cognitive behaviour therapy for rapid response; Complet. = Completer analyses; DERS = Difficulties in Emotion Regulation Scale; DH = Day hospital; Int = Time by Condition Interaction Effect; ITT = Intent-to-treat analyses; MI = Motivational interviewing; RSES = Rosenberg Self-Esteem Scale; Time = Main Effect of Time.

^aUnivariate effects were reported for the DERS ITT model because the overall multivariate effect approached significance so closely. Significance of the univariate effects was evaluated against a Bonferroni corrected critical value of $p < .008$.

Directed Behaviour, $F(1, 42) = 5.76, p = .02$, partial $\eta^2 = .12$; Lack of Emotional Awareness, $F(1, 42) = 7.94, p = .007$, partial $\eta^2 = .16$; and Lack of Emotional Clarity, $F(1, 42) = 10.00, p = .003$, partial $\eta^2 = .19$. Examination of the means for these three subscales indicated that the CBT-RR group made substantial improvements over the course of treatment, whereas the MI group made more modest or no improvements (See Figures 7-9). There were no significant univariate interactions for the remaining three subscales, $ps > .10$.

Self-Esteem. RSES scores were compared between groups from baseline to post-DH using mixed ANOVA. The main effect of time was significant for completers, $F(1, 30) = 16.48, p < .001$, partial $\eta^2 = .36$, and using multiple imputation, $F(1, 42) = 31.05, p < .001$, partial $\eta^2 = .43$. The results indicated that both groups made significant improvements to self-esteem during treatment. However, the group by time interaction term was not significant for either completers, $F(1, 30) = 2.26, p = .14$, or using multiple imputation, $F(1, 42) = 1.40, p = .24$. Thus, the groups did not differ in terms of rate of change to self-esteem during treatment.

Hypothesis 6: Baseline Comparisons between Rapid and Nonrapid Responders

Rapid and nonrapid responders (regardless of condition, ITT analyses) were compared on baseline demographic and clinical variables using a series of independent groups t tests, with Bonferroni corrections applied to variables with more than one subscale. Included in the comparisons were BMI, age, dietary restriction, binge/vomit/laxative episode frequency, number of comorbidities, number of previous eating disorder treatments, EDE-Q Weight and Shape composite, EDI subscales, WISE-Q, EDUBS, ATQ, RMQ subscales, HRRS, BDI, DERS subscales, and RSES. Additionally, percentage of the sample with each class of comorbid diagnosis was compared using chi square analyses, reporting Fisher's exact test. There were no statistically significant differences between groups on any of the baseline variables, indicating

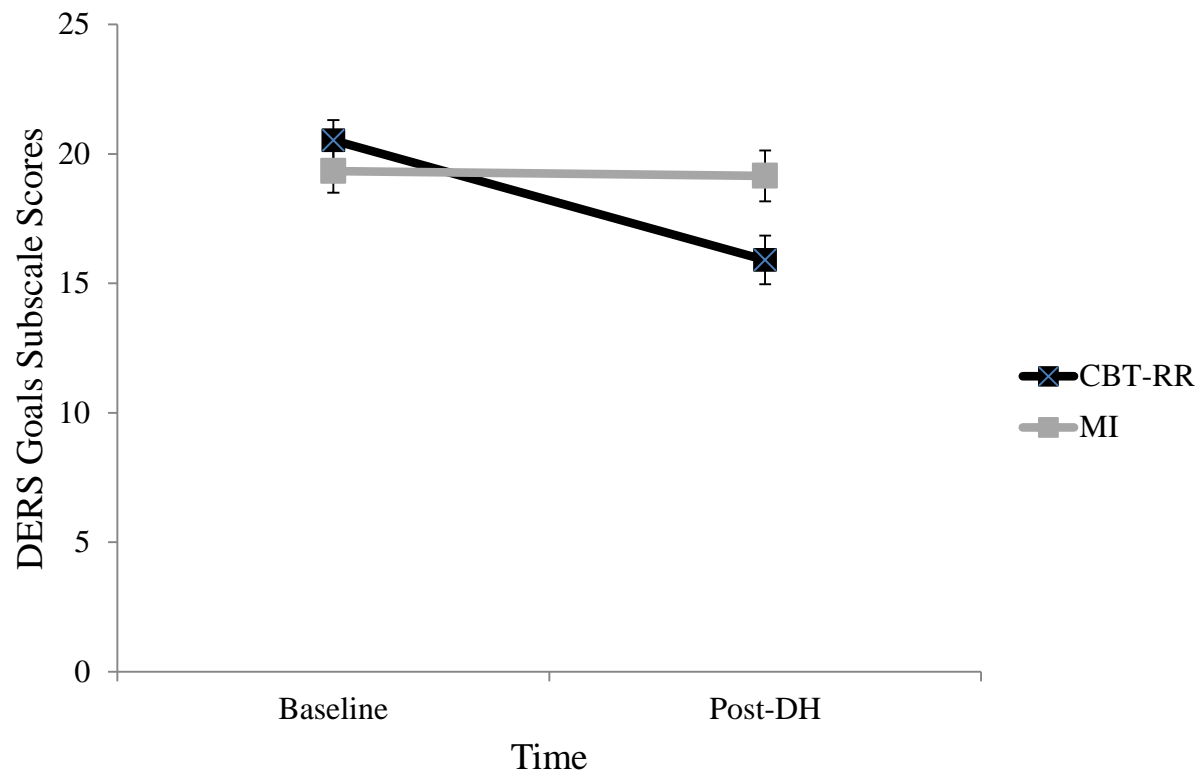


Figure 7. Change in Difficulties in Emotion Regulation Scale, Goals subscale scores over time, by treatment condition (ITT).

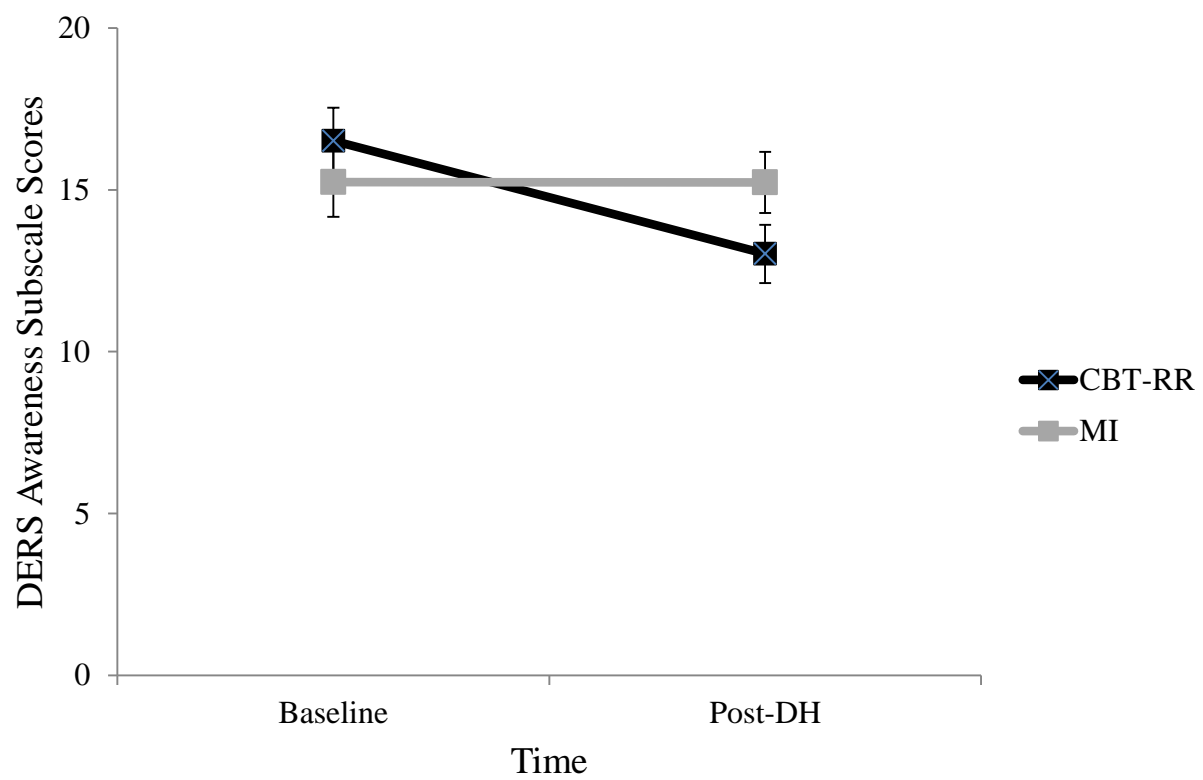


Figure 8. Change in Difficulties in Emotion Regulation Scale, Awareness subscale scores over time, by treatment condition (ITT).

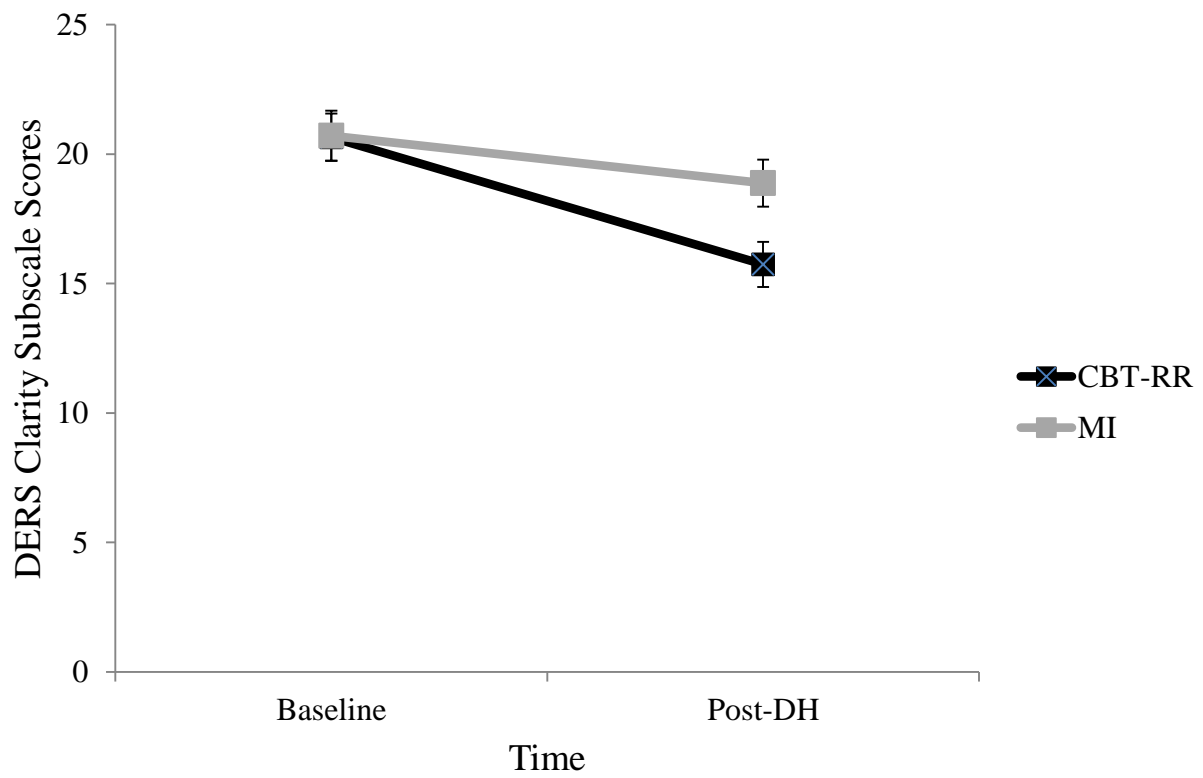


Figure 9. Change in Difficulties in Emotion Regulation Scale, Clarity subscale scores over time, by treatment condition (ITT).

that rapid and nonrapid responders did not differ at baseline. See Table 9 for means and standard deviations, and percentages, as applicable.

Hypothesis 7: Exploratory Analyses

Baseline depression as a moderator of treatment response. Baseline depression scores were explored as a potential moderator of treatment response. A condition by baseline BDI interaction term was computed. A multiple regression model was computed with frequency of binge/vomit/laxative episodes at week 4 of DH (ITT) as the criterion variable, and condition, BDI scores, and the condition by BDI interaction term entered as predictors. The overall model was significant, $F(3, 40) = 4.39, p = .009$. However, the interaction term was nonsignificant, $p = .10$, indicating that baseline depression scores did not moderate treatment response.

Baseline difficulties with emotion regulation as a moderator of treatment response. Baseline emotion regulation scores were explored as potential moderators of treatment response. Condition by baseline DERS interaction terms were computed and separate multiple regression models were computed for each DERS subscale with frequency of binge/vomit/laxative episodes at week 4 of DH (ITT) as the criterion variable, and condition, DERS subscale scores, and the condition by DERS interaction terms entered as predictors. The significance of the models was evaluated against a Bonferroni corrected critical value of $p < .008$, adjusted for six comparisons.

The overall models were nonsignificant using the Bonferroni corrected critical value for the following subscales: Nonacceptance, $F(3, 40) = 3.56, p = .02$; Goals, $F(3, 40) = 3.89, p = .02$; Impulse, $F(3, 40) = 3.03, p = .04$; Awareness, $F(3, 40) = 2.87, p = .05$; Strategies, $F(3, 40) = 3.36, p = .03$. However, for the DERS Clarity subscale, the overall model was significant, $F(3, 40) = 5.85, p = .002$, and the interaction term was statistically significant, $p = .03$. The results indicated that when treatment condition and DERS Clarity subscale were entered at Step 1, both

Table 9

Baseline Comparisons between Rapid and Nonrapid Responders Regardless of Group (N = 44)

Variable	<i>M (SD) or %</i>		<i>p</i>
	Rapid	Nonrapid	
Age	27.46 (8.96)	26.14 (5.61)	.71
BMI	24.45 (8.96)	25.59 (6.83)	.64
Illness Duration (years)	9.32 (7.47)	8.86 (9.10)	.89
# of Previous ED Treatments	2.09 (2.05)	2.43 (3.10)	.71
Caloric Intake (calories/day)	705.28 (421.70)	551.43 (193.26)	.15
Binge/Vomit/Laxative Episodes ^a	45.32 (44.60)	51.71 (22.93)	.72
Number of Comorbidities	1.81 (1.39)	1.29 (1.11)	.35
Mood Disorder	59.5%	57.1%	.99
Anxiety Disorder	40.5%	28.6%	.69
Obsessive Compulsive Disorder	10.8%	0.0%	.99
Posttraumatic Stress Disorder	10.8%	28.6%	.24
Substance Use Disorder	32.4%	0.0%	.16
Borderline Personality Disorder	0.0%	14.3%	.16
EDE-Q Weight & Shape Composite	5.20 (0.69)	4.77 (1.33)	.20
EDI ^b			
Drive for Thinness	15.46 (4.18)	18.57 (2.37)	.07
Bulimia	10.38 (5.35)	9.43 (6.90)	.69
Body Dissatisfaction	18.68 (6.45)	20.57 (9.62)	.52
WISE-Q	2.75 (0.89)	3.10 (0.98)	.36

EDUBS ^c			
Urges to Binge/Vomit	2.54 (1.27)	3.29 (1.41)	.17
Urges to Restrict	3.54 (1.46)	4.43 (0.79)	.03
ATQ	23.41 (3.39)	23.71 (4.54)	.84
RMQ Confidence ^a			
Bingeing	40.29 (22.76)	36.67 (32.66)	.74
Vomiting	40.28 (26.40)	38.57 (31.32)	.88
Restricting	56.54 (24.32)	51.43 (21.16)	.86
RMQ Action ^d			
Bingeing	53.24 (31.21)	78.33 (20.41)	.03
Vomiting	46.29 (35.40)	65.71 (26.37)	.18
Restricting	22.29 (29.11)	44.29 (29.92)	.08
HRRS	21.18 (3.54)	19.89 (4.48)	.40
BDI	31.29 (10.26)	38.14 (15.51)	.15
DERS ^c			
Nonacceptance	19.11 (6.55)	24.00 (7.12)	.08
Goals	20.41 (3.77)	22.14 (3.58)	.27
Impulse	20.08 (7.10)	22.71 (4.23)	.21
Awareness	19.70 (4.99)	21.29 (4.19)	.44
Strategies	26.92 (6.98)	30.71 (6.16)	.19
Clarity	15.73 (4.89)	16.86 (4.14)	.54
RSES	20.27 (4.31)	18.86 (5.18)	.45

Note. ATQ = Attitudes towards Treatment Questionnaire; BDI = Beck Depression Inventory; BMI = Body mass index; DERS = Difficulty with Emotion Regulation Scale; EDE-Q = Eating Disorder Examination Questionnaire; EDI = Eating Disorder Inventory; EDUBS = Eating Disorder Urges and Behaviours Scale; HRRS = Hope Related to Recovery Scale; RMQ = Readiness and Motivation Questionnaire; RSES = Rosenberg Self-Esteem Scale; WISE-Q = Weight Influenced Self-Esteem Scale.

^aTotal number of episodes in the month prior to the study.

^bA Bonferroni corrected critical value of $p = .05/3 = .017$ was used (3 comparisons).

^cA Bonferroni corrected critical value of $p = .05/2 = .025$ was used (2 comparisons).

^dA Bonferroni corrected critical value of $p = .05/6 = .008$ was used (6 comparisons).

variables were significant predictors of treatment response. Receiving MI, and having greater baseline DERS Clarity scores separately predicted more frequent binge/vomit/laxative episodes in the first 4 weeks of DH overall. However, the significant condition by DERS interaction term indicated that individuals who had higher DERS Clarity scores and who received MI were particularly likely to have higher episode frequencies (See Table 10 for model statistics). In other words, DERS Clarity scores significantly moderated the effect of treatment on total episodes.

End-of-treatment remission rates. End of treatment remission rates were compared between treatment conditions, using chi square analyses. Remission was defined as a maximum of one binge, vomit, or laxative episode in the individual's last four weeks of treatment. ITT remission values were constructed using multiple imputation of continuous episode frequencies in the last four weeks of DH and then categorizing these data. There were no differences between groups in terms of rate of remission using both completer ($p = .23$, one-tailed Fisher's exact test) and ITT analyses ($p = .45$, one-tailed Fisher's exact test). Thus, groups did not differ with respect to number of individuals who were remitted by end of treatment (see Table 4, shown previously).

6-Month Relapse Rates. Relapse status and month of relapse were computed for each individual who was classified as remitted at post-DH. Relapse was defined as meeting criteria for DSM-5 BN or PD (i.e., an average of four binge and/or purge episodes per month for three consecutive months) during the first 6 months after completing DH. ITT relapse values were constructed using multiple imputation of continuous episode frequencies during each of the first 6 months post-DH, and then categorizing the data. Cox regression was used to model survival (i.e., no relapse) over the 6 month period, and treatment condition was entered as a categorical predictor. Treatment condition was not a significant predictor of relapse for completers, $\exp(b) = .48$, $p = .55$, or using an ITT approach, $\exp(b) = .79$, $p = .69$ (see Table 4, shown previously).

Table 10

Model Statistics for Baseline Difficulties with Emotion Regulation, Clarity Subscale, as a Moderator of Treatment Response (N = 44)

Model	β	SE	β	t	p
Step 1					
Intercept	-4.22	1.75		-2.42	.02
Condition	1.97	0.68	0.40	2.89	.006
DERS Clarity	.17	.08	.31	2.20	.03
Step 2					
Intercept	3.43	3.85		.89	.38
Condition	-3.27	2.47	-.67	1.33	.19
DERS Clarity	-.31	.23	-.54	1.33	.19
Condition*DERS Clarity	.33	.15	1.30	2.20	.03

Note. DERS Clarity = Difficulties in Emotion Regulation Scale, Clarity Subscale, higher scores indicating greater pathology.

Note. For condition, positive values refer to the motivational interviewing condition.

Hypothesis 8: Post Hoc Comparison of Study Participants with DH as Usual

Rates of rapid response to DH were compared separately between CBT-RR and DHP as usual, and MI and DH as usual. A Bonferroni correction for multiple comparisons was used, such that statistical significance was evaluated against a critical value of $p < .025$. ITT analyses showed that CBT-RR resulted in a significantly higher rate of rapid response compared to DH as usual, $p = .01$, one-tailed Fisher's exact test, $V = .22$. In contrast, there were no differences between MI and DH as usual, $\chi^2(1) = .003$, $p = .96$. The rate of rapid response was 95.7% for CBT-RR, 71.4% for MI, and 72.0% for DH as usual (See Figure 10). There were no differences between the study participants and the DH as usual participants on baseline frequency of binge and/or vomit and/or laxative episodes, baseline BMI, baseline dietary restriction, or age ($ps > .20$).

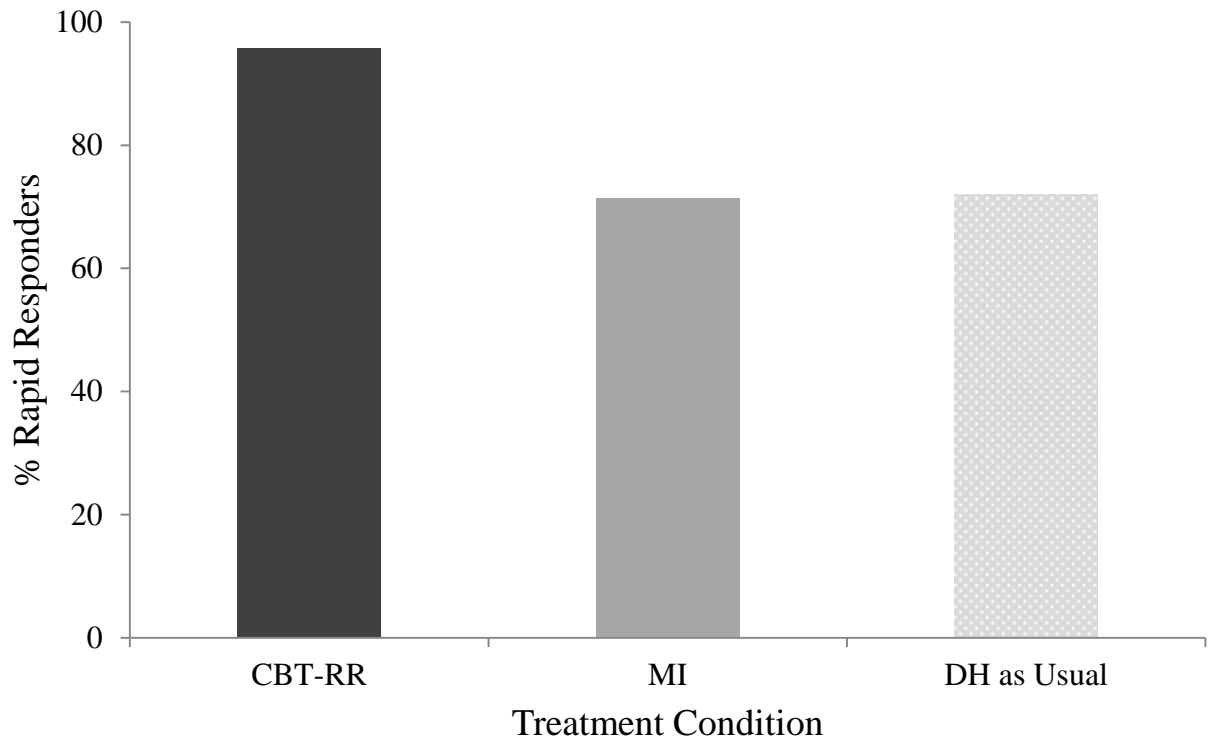


Figure 10. Rate of rapid response between study treatment conditions (ITT) and a cohort of individuals who participated in DH treatment as usual ($n = 100$).

Discussion

Rapid Response

Research has strongly and consistently demonstrated that rapid response to CBT is a robust, prospective predictor of good outcome for eating disorders (Vall & Wade, 2015). Evidence suggests that rapid response is likely due to factors related to CBT itself, as opposed to pre-existing characteristics of individuals, which has led to the suggestion that it might be possible to facilitate rapid response. Accordingly, this study sought to investigate whether rapid response to DH treatment could be clinically facilitated using a brief, adjunctive CBT intervention that focused specifically on encouraging early change.

The ITT results of this study support the study's primary hypotheses. Compared to MI, the CBT-RR intervention resulted in a substantially higher rate of rapid response to DH treatment. The vast majority of CBT-RR participants rapidly responded (95.7%), in contrast to only about two thirds of the MI group (71.4%). Additionally, CBT-RR participants exhibited fewer total binge and/or vomit and/or laxative behaviours and engaged in marginally more normalized eating during the first four weeks of DH, compared to MI. Post hoc analyses also showed that CBT-RR had a higher rate of rapid response compared to patients who received DH as usual (72.0%), whereas MI and DH as usual were equivalent (although DH as usual patients were not from the study cohort and therefore were not randomly assigned to condition). Accordingly, it appears that the CBT-RR intervention was successful in achieving the goal of facilitating rapid response to DH treatment.

These results provide strong support for the emerging evidence in the literature that rapid response is likely caused by elements of CBT, as opposed to being accounted for by pre-existing characteristics of the individual such as a less severe illness or fewer related difficulties. As

discussed, previous literature has failed to identify a pre-existing demographic or clinical characteristic that consistently prospectively differentiates individuals who will go on to rapidly versus nonrapidly respond to treatment (e.g., Bulik et al., 1999; Grilo et al., 2006; Grilo & Masheb, 2007; Haslam et al., 2011; Masheb & Grilo, 2007; McFarlane et al., 2013; Olmsted et al., 1996; Raykos et al., 2013; Zunker et al., 2010). In addition, one study showed that rapid response fully mediated the relationship between CBT (versus IPT) and more favourable end-of-treatment outcomes (Wilson et al., 2002). In support of this, the current study demonstrated that a brief, adjunctive CBT intervention that educates participants about rapid response and supports them in pursuing early and substantial change from a behavioural framework may dramatically increase rates of rapid response to CBT-based DH treatment. In this study, individuals were randomly assigned to groups and were equivalent at baseline on demographic and clinical characteristics. Additionally, across treatment conditions, rapid and nonrapid responders did not differ on any study variable at baseline. Collectively, the findings of this study bolster support for the idea that rapid response is due to a characteristic of CBT rather than individual factors. Ultimately, this study's findings suggest that when provided with the education, mindset, skills, and framework to do so, patients with BN and PD can be successfully assisted in making a rapid response to intensive treatment.

Eating Disorder Psychopathology and Difficulties with Emotion Regulation

In addition to successfully increasing rates of rapid response, the results of this study also demonstrated that the CBT-RR intervention had effects on other important clinical variables from study baseline to post-DH. This is particularly impressive given that the study interventions were brief and occurred at the beginning of this period, and all participants attended the same DH treatment. Most notably, participants who received CBT-RR made significantly greater

improvements during DH on two separate measures of overvaluation of weight and shape, meaning that they completed DH with less residual weight-based self-evaluation. This is an important finding because overvaluation of weight and shape is considered the core psychopathology of eating disorders (Fairburn et al., 2003; Fairburn, 2008), and residual overvaluation of weight and shape has been shown to prospectively predict relapse up to two years following treatment (Keel, Dorer, Franko, Jackson, & Herzog, 2005; McFarlane et al., 2008). It cannot be determined in this study whether the *process* of rapid response itself led to greater decreases in overvaluation of weight and shape, versus being driven by other elements of the CBT-RR protocol. Nevertheless, one possible interpretation of this finding is that rapid and substantial behaviour change early in treatment might promote greater improvements to the core cognitive psychopathology. If this is the case, this may shed light on mechanisms driving the well-established relationship between rapid response to CBT and good outcome by suggesting that rapid responders may be less vulnerable to relapse because they end treatment more cognitively resilient and with less residual psychopathology. Importantly, overvaluation was not directly targeted in the CBT-RR intervention, supporting the contention that early behavioural changes may be important to facilitating later cognitive changes (Wilson, 1999).

Additionally, the CBT-RR group made greater improvements from baseline to post-DH on three dimensions of emotion dysregulation, measured by the DERS Goals, Awareness, and Clarity subscales. Specifically, at end of DH, the CBT-RR group was better able to engage in goal directed behaviours, had greater awareness of their emotions, and was better able to differentiate between emotions. Emotion dysregulation has a well-established relationship with eating disorder psychopathology. For example, individuals with BN have broad deficits in behavioural control, are more impulsive and less able to remain goal directed under distress

compared to non-eating disorder controls, and have greater deficits related to emotional awareness, recognition, and differentiation (Lavender et al., 2015). Although it cannot be determined whether improvements in emotion regulation in the current study are due to the process of rapid response itself, versus other elements of the protocol, it is noteworthy that the CBT-RR protocol placed a strong emphasis on setting and pursuing concrete and specific rapid response goals. Regardless, these findings suggest that efforts to rapidly (rather than gradually) learn new behaviours might provide greater opportunities to improve and refine the ability to engage in goal directed behaviours – after all, by definition rapid response involves quickly achieving goals related to behavioural change. Additionally, rapid response may facilitate the development of skills to increase emotional awareness and emotional clarity. This may allow individuals to better recognize, understand, interpret, and respond to their emotions in a goal-directed rather than unplanned or unpredictable manner. The CBT-RR protocol's emphasis on learning to tolerate intense urges without escaping or avoiding, through the use of distress tolerance skills and other coping strategies, likely facilitated greater improvements to awareness of and clarity about emotions. This interpretation is supported by the results of the moderation analysis, which showed that individuals with greater problems with emotional clarity who received MI were particularly likely to be defined as nonrapid responders.

There were no differences between the CBT-RR and MI groups on changes to other elements of eating disorder psychopathology, including relevant EDI subscales (i.e., drive for thinness, bulimia, and body dissatisfaction), or eating disorder urges. Although group differences were hypothesized, the fact that no differences between groups were found can still be understood within the broad context of the previously described findings and the study's overall goals of rapidly increasing behavioural control in the CBT-RR group. Specifically, the results of

the study demonstrate that although CBT-RR and MI participants experienced similar urges for eating disorder behaviours, similar levels of drive for thinness and body dissatisfaction, and similar levels of perceived bulimia psychopathology over the course of DH, the CBT-RR group was nonetheless more quickly able to attain behavioural control. This further supports the idea that the CBT-RR intervention was particularly successful in helping individuals tolerate intense urges, while helping them remain goal directed in terms of both normalizing eating and reducing or eliminating binge eating and purging behaviours.

Treatment Process Variables

As predicted, the CBT-RR participants reported a greater goal-oriented therapeutic alliance with their therapists compared to the MI participants. In other words, participants in the CBT-RR group believed that their relationship with their therapist was more focused around achieving specific goals. This is consistent with both the content of the CBT-RR protocol, and the DERS finding indicating that CBT-RR participants made greater increases in ability to engage in goal directed behaviours. This finding also suggests that an explicitly goal-oriented relationship might be important in helping individuals pursue rapid and substantial early change. Waller (2012) similarly suggested that in helping clients pursue meaningful early change, the therapist must remain empathic but firm around upholding therapy “non-negotiables” that will be critical to change, such as insisting upon adherence to normalizing eating and completing treatment homework.

Contrary to predictions, however, the groups did not vary in terms of task-oriented therapeutic alliance. Perhaps even though the MI intervention was less directive than CBT-RR, the fact that it followed a manual with specific session content and homework led participants in both groups to perceive their relationship with their therapist as one that was oriented towards

completing certain tasks. Consistent with predictions, self-reported bond with the therapist was similar between treatment groups. MI explicitly focuses on the supportive therapeutic relationship as an important component of treatment. These findings suggest that even without an explicit focus on the relationship as a core component, the more directive and change-oriented CBT-RR treatment resulted in a similar bond between patient and therapist. This is consistent with previous research demonstrating that CBT for eating disorders results in a very strong therapeutic alliance across all three domains (i.e., goals, task, and bond) within the initial weeks of treatment, and that the alliance in CBT is higher than the alliances reported for general psychotherapy for a range of mental health concerns (Waller, Evans, & Stringer, 2012). Degree of eating disorder psychopathology was not correlated with the strength of the alliance in CBT (Waller et al., 2012).

Consistent with predictions, there were no differences in self-reported homework completion between groups. Although CBT generally has a greater emphasis on homework as an essential component of treatment compared to MI, one finding that often emerges in the literature is that MI increases treatment engagement (e.g., attendance, homework compliance, treatment adherence; Romano & Peters, 2015). As such, this finding indicates that participants in both groups were similarly engaged with treatment.

Finally, there were no differences between CBT-RR and MI on attitudes about treatment, represented by the ATQ between baseline and post-DH. Although it was expected that individuals in CBT-RR might express greater increases in the belief that early change is important to recovery, it is possible that the experience of being immersed in an intensive treatment setting where substantial change is encouraged actually facilitated similar attitudinal increases in all participants. It is possible that if this construct had been measured at a shorter

interval and before participants entered DH treatment – for example from baseline to the end of session 2 – there might have been a greater attitudinal shift in the CBT-RR group.

Self-Efficacy, Hope, and Motivation

Contrary to the study's hypotheses, the groups did not differ in the trajectories of change on self-efficacy to control eating disorder behaviours, motivation to change eating disorder behaviours, or hope for a life without an eating disorder. Theoretical discussions have suggested that rapid response may be related to good outcome via increased self-efficacy (Wilson, 1999), or remoralization and increased hope for a better life (Ilardi & Craighead, 1994). Accordingly, it was hypothesized that CBT-RR might result in greater changes during treatment on self-efficacy or hope from baseline to end of DH. The failure to find differences can be interpreted in a number of possible ways. Because there were a substantial proportion of rapid responders in both treatment groups, and because response classification was a categorical rather than continuous variable, it is possible that the study was simply underpowered to detect group differences on self-efficacy and/or hope. Secondly, it is possible that these constructs do in fact increase more in rapid responders, but that the measures used did not adequately capture the constructs of interest. The RMQ Confidence (i.e., self-efficacy) measure contains only a small number of items, each focused on the degree of confidence the individual has to stop engaging in each eating disorder behaviour. It is possible that a scale derived from a greater number of items may capture a more nuanced representation of the self-efficacy construct or may result in greater variability in scores. This is an important consideration for future research. Similarly, we developed the HRRS for the purposes of this study, as we were unable to locate an adequate measure in the literature. As such, this measure has not been subject to psychometric evaluation, and it is possible that the HRRS does not adequately assess hope as we conceptualized it. Finally, it is possible that

theoretical literature is incorrect, and the relationship between rapid response and treatment outcome is accounted for by a variable other than self-efficacy or hope.

Consistent with hypotheses, there were no group differences from baseline to post-DH in terms of trajectory of change on motivation to change eating disorder behaviours. Although MI explicitly targets motivation, it was not expected that MI would result in greater improvements in this domain. A review and meta-analysis of the mechanisms of change in mental health problems (including eating disorders) has indicated that MI does not in fact increase motivation for change more than other treatments (Romano & Peters, 2015). Furthermore, Waller (2012) has discussed that verbal declarations of motivation do not appear to predict behavioural action in eating disorders, and has suggested that perhaps early behavioural change is a better index of motivation than the verbal “change talk” that MI focuses on. Because the CBT-RR intervention was expected to be more robust than MI overall, and because it explicitly focused on early behavioural change, it was hypothesized that motivation over time as measured by the RMQ Action would be similar between groups. The results of this analysis are consistent with this.

It is important to note, however, that there was also no significant increase in motivation over time, regardless of condition. In other words, participants overall did not experience increases in motivation for change over the course of treatment. The RMQ Action subscale is focused on “action oriented” motivation (as opposed to contemplative or preparative motivation). Because the DH treatment is intensive and requires a commitment to engage in some level of behaviour change (which is communicated to and agreed upon by patients before they are admitted to the program), it is likely that most participants were already relatively “action oriented” in their thinking when they accepted intensive treatment. This is supported by the intercepts of the multilevel models for the RMQ Action subscales, which were around 70 (out of

100) for both binge eating and vomiting. This indicates that at baseline, participants across both conditions were already highly action oriented towards changing these behaviours. Thus, the nonsignificant effects of time may represent ceiling effects for motivation.

Depression and Self-Esteem

In contrast to predictions, there were no between groups differences in improvements to depression or self-esteem over time. Both groups experienced similar and significant decreases in depression and increases in self-esteem. Research indicates that individuals with eating disorders generally make moderate to large improvements on both BDI and RSES scores during intensive treatment (Fuss et al., 2015; Olmsted et al., 2013). Additionally, the CBT-RR intervention did not explicitly target symptoms of depression or self-esteem. Accordingly, the failure to detect differences between groups likely reflects the fact that participants from both groups made substantial and similar changes as a result of DH, and the study treatments did not have any added (or differential) impact on these variables. Relatedly, baseline depression did not moderate the effects of treatment on eating disorder behaviours.

Treatment Outcomes

Treatment outcomes were investigated only on an exploratory basis, both because expectations of differential treatment responses were contingent on CBT-RR effectively producing higher rates of rapid response, and because the study was not powered to look at remission or relapse rates. Therefore, these results should be interpreted cautiously. The exploratory results showed that end-of-DH remission rates did not differ between groups. However, because the study was not powered to detect differences in remission rates, it is possible that the interventions might have had differential effects on treatment outcome but the sample was not large enough to detect this.

Secondly, because the DH is a relatively contained environment, rates of behavioural remission at the end of DH are typically high. For example, a recent evaluation of the DH program at UHN showed that 66.2% of patients who completed at least four weeks of treatment in the standard group-based DH program were fully abstinent from bingeing and vomiting behaviours in the last 4 weeks of DH. Additionally, the average frequency of these behaviours during this period was only slightly more than one episode in total (i.e., binge eating: $M = 1.3$, $SD = 4.6$; vomiting: $M = 1.5$, $SD = 5.4$; McFarlane et al., 2015). Accordingly, this program is successful at producing high rates of behavioural remission in the short term. Therefore, similarities between the study groups may reflect a ceiling effect, whereby many participants were able achieve behavioural remission by end-of-DH, due to the DH containment and program expectations for change. However, around one third of behaviourally remitted BN patients in this center relapse within the first six months after DH (Olmsted et al., 2015). This indicates that a substantial proportion of patients who are behaviourally remitted at end-of-treatment are not truly remitted from their disorder, because they begin to relapse nearly immediately after leaving the highly structured DH environment. Accordingly, behavioural remission from intensive treatment should be interpreted cautiously unless there is evidence of maintenance of such gains. Toward this end, some studies from this center have defined behavioural remission using data from the first month of follow-up after discharge from DH (MacDonald et al., 2015). Defining remission this way might have resulted in a different finding in the current study.

Similarly, the exploratory results also showed that treatment condition did not significantly predict relapse during the 6-month follow-up period. However, it is important to highlight that these analyses had very small sample sizes. Only individuals who were remitted at post-DH were eligible for relapse analyses (because one must remit before relapsing back to the

disorder), and in addition, many individuals were lost to follow up. This resulted in a very small sample size of 22 participants for the completer analyses, and still only 30 remitted participants in the ITT analyses. The results showed that a smaller absolute percentage of the CBT-RR sample relapsed compared to the MI sample, and the odds ratio for treatment condition favoured CBT-RR in both of the Cox regression models, but neither was statistically significant. However, similar to the remission analyses, these results should be interpreted cautiously, as it is likely that the analyses were substantially underpowered.

Strengths and Limitations

Theoretical conceptualization, randomized design, and comparison intervention.

There are a number of strengths to this study. Firstly, the empirical question “Can rapid response be clinically facilitated?” and the CBT-RR intervention and all of its components were grounded in a strong theoretical foundation and conceptualized and designed based the extant body of rapid response literature. Thus, a primary strength of this study is that its theoretical underpinnings resulted in a well-designed study aiming to address an important gap in this area.

Secondly, the study used an RCT design, which allows causal inferences to be drawn that the CBT-RR intervention is responsible for the differential effects that were observed. This is the first study to attempt to show that rapid response can be clinically facilitated rather than simply being a natural trajectory of change experienced by some individuals and not others. Use of an RCT allows the conclusion to be drawn that the CBT-RR intervention caused a higher rate of rapid response. This finding provides the foundation for future mechanistic research on the causal role of rapid response on treatment outcomes, which is possible only if rapid response can be reliably manipulated in a clinical research setting (Kazdin, 2007). This research showing that

rapid response can in fact be clinically facilitated using the CBT-RR protocol provides the groundwork for this next step (to be discussed in more detail below).

Furthermore, the study utilized an active comparison intervention, which permits more nuanced conclusions than if a no treatment, wait list control group, or even supportive psychotherapy control group were used. MI is commonly used in the eating disorders field and is intended to be augmentative to other treatments, with the goal of increasing motivation and treatment engagement. On a broad level, this is similar to the goals of CBT-RR: An adjunctive intervention to be delivered at the front end of a more comprehensive treatment, with the goal of enhancing some of the effects of the primary treatment. However, as described, review literature indicates that MI does not increase the efficacy of already robust treatments for BN (Knowles et al., 2013; Macdonald et al., 2012). Therefore, MI was a plausible choice for a comparison intervention but was not expected to impact the primary outcomes of interest. Using MI allows the conclusion to be drawn that the observed effects are due to CBT-RR *specifically*, as opposed to the general effects of additional therapist attention or a nonspecific pretreatment intervention. Additionally, although not the goal of this study, the findings of the current study are consistent with the extant empirical literature on MI demonstrating little empirical evidence justifying its inclusion as an adjunct to CBT-based treatments (Knowles et al., 2013; Macdonald et al., 2012).

Assessment methods. Another strength of this study is the fact that assessors were not involved in the study and were blind to treatment condition, meaning that there was no researcher bias in assessing eating disorder behaviours. Furthermore, conducting assessments at multiple time points, including at 6-month follow-up, allowed for a variety of questions and change over time to be considered.

One limitation to the study's assessment procedure is that we did not use the EDE to assess eating disorder behaviours in the first 4 weeks of DH to corroborate the self-reported clinical records. Although the latter have been used in published research on rapid response from this centre on numerous occasions (e.g., MacDonald et al., 2015; McFarlane et al., 2013; McFarlane et al., 2015; McFarlane et al., 2008; Olmsted et al., 2015), and self-reported eating disorder behaviours are highly correlated with the EDE interview data (Fairburn & Beglin, 1994), the EDE remains the gold standard eating disorder assessment tool. As such, it would have been ideal to use this interview to assess the behavioural data at this time point and/or to corroborate the self-report records. However, this study benefited from having psychometrists from the DH who were not members of the research team to complete the study assessments, and unfortunately there were not sufficient resources for these assessors to administer additional interviews at the 4 week time point. Study quality would have been compromised if the author had completed these assessments, due to not being blind to study conditions, being a study therapist, and having an interest in the study hypotheses. Accordingly, we elected to use the self-report data only at this time point in order to keep assessors unbiased. Future research with greater resources may elect to use the EDE to assess eating disorder behaviours during the first 4 weeks of treatment.

Therapists. The use of graduate student therapists is a strength of this study, because it demonstrates that the CBT-RR intervention is robust and can produce the hypothesized effects when delivered by trained and supervised but non-expert clinicians. Research has shown that graduate student therapists can be effectively trained to expertise in CBT treatments for eating disorders, with similar treatment outcomes to therapy delivered by expert clinicians (Zandberg & Wilson, 2013). The present findings suggest that the CBT-RR intervention can be effectively

delivered by trained and supervised non-expert clinicians, promoting the likelihood of increased dissemination and uptake in the community.

Sample characteristics and generalizability. This study also had good ecological validity. Although the RCT was carefully conducted, it was also administered flexibly and in a real-world setting where individuals were provided DH as they normally would be, as opposed to in a clinical research laboratory. This increases the likelihood that the observed effects of the CBT-RR intervention accurately reflect the effects that would be observed if it were administered in routine clinical practice. Relatedly, we had very few exclusion criteria. Many RCTs have stricter inclusion criteria and exclude potential participants for a number of reasons, one being the presence of certain mental health comorbidities (e.g., Fairburn et al., 2009; Wonderlich et al., 2014). Research demonstrates that comorbidity is the rule rather than exception for individuals with BN and PD (Hudson et al., 2007; Keel et al., 2008), meaning that inclusion of such participants makes the study's outcomes generalizable to actual treatment-seeking patients. Similarly, most of the individuals included in the study had eating disorders classified as "severe" or "extreme". As such, the results of the study demonstrate that the CBT-RR intervention helps individuals rapidly attain behavioural control, even when their eating disorder symptoms are frequent and severe.

Despite good external validity, the study's overall sample size was small, precluding some conclusions (e.g., remission; relapse) from being confidently made because of low power in these analyses. A larger RCT would have increased statistical power and allowed for some of the outcomes in this study to be more clearly delineated. Specifically, a future direction in rapid response research should consider a larger scale RCT that examines whether the CBT-RR intervention improves DH treatment outcomes, particularly in terms of reduced rates of relapse.

Additionally, the sample was relatively homogenous. Although men were eligible for the study and the female to male prevalence ratio of BN is around 3:1 in the community (Hudson et al., 2007), very few diagnostically eligible men were admitted to the DH during the study period. In fact, only one eligible male patient was admitted during the entire study period; he was invited to participate but declined. Difficulty recruiting treatment-seeking men may reflect the fact that men with BN or PD may be less likely to seek eating disorder treatment generally (Hay, Loukas, & Philpott, 2005). As well, although there was some racial and sexual diversity in the sample, the majority of participants identified as White and heterosexual. Although sexual orientation is often unreported in eating disorder studies, predominantly White and female samples are not uncommon. For example, a large study from this centre reported their sample as 96.9% female and 89.1% White/European (McFarlane et al., 2015). Other studies that have used samples of treatment-seeking patients described similar makeups (e.g., Byrne et al., 2011; Fairburn et al., 2009). Prevalence literature indicates that eating disorders are similarly prevalent across racial and ethnic groups (Alegria et al., 2007; Hudson et al., 2007; Nicdao et al., 2007; Taylor et al., 2007). Therefore, like men, it may be that women of colour are less likely to seek eating disorder treatment compared to White women for a variety of reasons. Although diversifying research samples is important to ensure generalizability of findings, the homogeneity of eating disorder research samples reflects a broader issue. It is an important public health prerogative to identify why women of colour and men generally appear to be less likely to seek eating disorder treatment. It is possible that these individuals are less likely to be identified by their primary care physicians as having eating disorders, due to ongoing misperceptions that these are disorders of White females. Relatedly, internalized or community stigma might prevent such individuals from seeking care. There may also be issues related to accessibility of treatment. Although in Canada

eating disorder treatment is accessible through the publicly funded healthcare system, this is primarily available in urban centres, and in addition, individuals may be less likely to seek treatment if they have precarious employment or do not have access to childcare.

Another limitation is that because the study was conducted in a DH setting, it cannot be assumed that the results of the CBT-RR intervention will generalize to an outpatient environment. Although it is well established that rapid response predicts outcome to outpatient CBT in addition to intensive treatment, it cannot be concluded from this study whether rapid response to outpatient CBT can be enhanced in this same manner. Future research should investigate whether adapting the CBT-RR intervention to be suitable for an outpatient CBT environment can facilitate rapid response in this setting.

Statistical methods. The use of an ITT design with multiply imputed missing data is also an asset. ITT analysis using multiple imputation to account for missing data yields less biased findings than both completer analyses and ITT analyses using other strategies of missing data replacement (McKnight et al., 2007). This is because multiple imputation fits several multiple regression models to the data to predict the missing values in an iterative process and replaces the missing data with the mean predicted value derived from the repeated iterations, rather than arbitrarily replacing them with the last observation carried forward or the group mean. These latter strategies make potentially untenable assumptions about the missing data (e.g., that the last observation indeed reflects the individual's likely score, had they remained in the study) and may also inflate the likelihood of Type I errors (McKnight et al., 2007). In the current study, use of last-observation-carried-forward would have meant, for example, that an individual's eating disorder behaviour frequency at week 4 of DH would have been replaced with baseline scores,

which almost certainly would have been far higher than their actual value if they had provided week 4 data.

It is also important to note that in the current study, there were several occasions in which completer analyses did not demonstrate a significant difference between groups, but ITT analyses did. ITT analyses are sometimes assumed to be less likely to produce significant differences than completer analyses (Lachin, 2000). However, statistical power is higher in a completer analysis compared to an ITT analysis only when the completer model is less biased than the model using the full sample (Armijo-Olivo et al., 2009; Lachin, 2000). Study attrition and systematically missing data introduce biases into the statistical model because the individuals who are included in the model may differ from the individuals who are not included. Completer analyses ignore individuals who did not complete the intervention or who were not assessed, which relies on the assumption that data are missing at random or that these individuals are necessarily similar to those who are included (Lachin, 2000). However, it is not implausible that individuals who prematurely withdraw or are withdrawn from a clinical intervention study may differ systematically from those who complete the intervention (Lachin, 2000). This can introduce biases into the statistical model in the form of a completer sample that is systematically different both from the originally recruited sample, and the actual population to which it refers (Lachin, 2000). Therefore, ITT analyses can in fact have greater power to detect significant effects compared to completer samples because such sampling biases are accounted for by including all recruited participants. Because the current study used multiple imputation to handle missing data, it can be interpreted that the ITT models likely had fewer sampling biases than the completer models (McKnight et al., 2007). These models also had larger sample sizes than the

completer models. Accordingly, in this study, significant effects for ITT but not completer analyses may be interpreted as a reflection of greater statistical power.

Implications, Recommendations, and Future Directions

The primary implications of this study are that it strongly supports the idea that rapid response is due to the effects of CBT specifically, rather than being accounted for by individual factors or common factors across psychological treatments, and it shows that rapid response can indeed be clinically facilitated. Until now, the eating disorder literature has focused on evidence that rapid response to CBT robustly predicts good outcome, and has repeatedly sought (but failed) to prospectively predict which patients will rapidly respond. Evidence that rapid response is driven by CBT-specific factors and can be facilitated using a targeted intervention provides further incentive to investigate whether early changes play a causal role in producing good treatment outcomes (Byrne, 2015; Tatham et al., 2012; Waller, 2012; Wilson, 1999). The findings of this study provide the impetus for further research in this area investigating two primary lines of inquiry: 1) Does enhancing rapid response to DH using the CBT-RR intervention improve outcome? and 2) Is rapid response a mechanistic factor in good outcome to eating disorder treatment?

Does enhancing rapid response improve outcome? One important next step in the research is replicating and extending the current study in a larger RCT. The current findings may serve as pilot data to support an RCT with a much larger sample size. The current study has shown that CBT-RR effectively increases rates of rapid response to DH, and that MI is a plausible comparison intervention while having negligible effects on rates of rapid response. By conducting a larger-scale replication of this study, the effects of CBT-RR on end-of-treatment and sustained remission could be examined as the study's primary outcomes. MI remains an

adequate comparison intervention because based on the literature there is no expectation that MI would improve the efficacy of DH (Knowles et al., 2013; Macdonald et al., 2012). Unlike the current study, this larger RCT would be adequately powered to investigate effects on treatment outcome. For example, if compared to MI, individuals who received CBT-RR plus DH were more likely to achieve end-of-treatment remission, and/or more likely to sustain their remission 6 or 12 months later, this would support the idea that the CBT-RR intervention leads to improved treatment outcomes. Improving the efficacy of CBT is an important research prerogative given the high rates of nonremission and relapse in BN and PD. Given the clear value of rapid response to outcome, the proposed follow-up research is a logical and important next step.

Is rapid response a mechanistic factor in good outcome? If the CBT-RR intervention enhances treatment outcomes, an important follow-up research question pertains to whether rapid response itself is a correlate or mechanism of good outcome. That is, is rapid response merely a strong prospective predictor of good outcome, or does the process of rapidly (versus slowly) responding actually *cause* better treatment outcomes? Kazdin (2007) has described several conditions that must be met in order to establish a mechanistic relationship in treatment research. Furthermore, he has highlighted that although statistical mediation is often described as evidence of a mechanistic relationship, mediation is necessary but not sufficient to demonstrate a mechanism (Kazdin, 2007). Kazdin's criteria for demonstrating a mechanistic relationship in clinical research are as follows: 1) Strong association between the intervention and mediator, as well as a strong association between the mediator and change; 2) Specificity of the proposed mediator in accounting for the relationship between treatment and therapeutic change, as opposed to the relationship being accounted for by a number of possible mediators; 3) Repeated replication of the observed relationship between treatment type, proposed mediator, and

therapeutic change; 4) Establishment of a temporal relationship such that treatment type precedes the mediator, and the mediator precedes the outcome; 5) Demonstration of gradient, such that greater activation of the mediator is correlated with greater change in the treatment outcome; 6) Experimental manipulation of treatment type demonstrating impact on treatment outcome, as well as experimental manipulation of the proposed mediator, demonstrating impact on treatment outcome. A number of these criteria have already been satisfied based on the extant literature, and demonstrating empirical support for the remaining criteria is an important future direction for research examining whether rapid response is a mechanistic factor in good treatments outcomes for BN and PD.

1) *Strong association.* An association between CBT and rapid response has been demonstrated by showing that CBT results in a significantly higher proportion of patients exhibiting rapid response to treatment compared to other treatments (e.g., Grilo & Masheb, 2006; Grilo et al., 2012; Peterson et al., 2014; Wilson et al., 1999; Wilson et al., 2002). Additionally, as discussed in detail already, there is a well-established strong association between rapid response and better end-of-treatment and sustained remission rates (Vall & Wade, 2015).

2) *Specificity of proposed mediator.* A recent meta-analysis examined all known predictors of treatment outcome for eating disorders (Vall & Wade, 2015). Baseline individual and clinical characteristics and treatment process factors were investigated. Only treatment process factors are relevant to specificity of the mediator, because baseline factors temporally precede treatment type and therefore are not mediators of treatment and response. Very few potential mediators were identified as predictors of outcome. Rapid response to treatment was identified as a significant predictor of outcome at end-of-treatment and in follow-up, with moderate effects. Early reductions in shame and early increases in self-compassion during the

first four weeks of treatment were identified as other treatment processes that predicted outcome, but the effects of these variables were much smaller than the rapid response effects. No other potential mediators were identified. Therefore, the available literature to date suggests that it is rapid response specifically that likely accounts for the relationship between treatment and outcome. In fact, the authors concluded that of all investigated variables (baseline and treatment-related), rapid response most robustly accounted for end-of-treatment and sustained outcomes.

3) *Repeated replication.* The relationship between rapid response and good outcome has been repeatedly replicated in the literature (e.g., Agras et al., 2000; Begin et al., 2013; Fairburn et al., 2004; Grilo et al., 2006; Grilo & Masheb, 2007; Grilo et al., 2012; Grilo et al., 2015; MacDonald et al., 2015; McFarlane et al., 2008; Masheb & Grilo, 2007; Olmsted et al., 1996; Olmsted et al., 2015; Raykos et al., 2013; Thompson-Brenner et al., 2013; Vaz et al., 2014; Wilson et al., 2002; Zunker et al., 2010). In fact, a recent review of the literature showed that in 100% of studies examining rapid response to CBT in eating disorders, rapid response was a significant predictor of good outcome at end-of-treatment and in follow-up (Brauhardt et al., 2014). This finding has been replicated so frequently that it is currently well-accepted in the eating disorder field that rapid response predicts better outcome. Additionally, research has shown that while individuals may make a rapid response to other types of treatments, rapid response to behavioural treatments specifically is more strongly associated with good outcomes, both in eating disorders (e.g., Wilson et al., 2002) and depression (e.g., Fennell & Teasdale, 1987). The findings of the current study also support this association.

4) *Temporal relationship.* The temporal relationship between variables has been clearly established in the extant literature, and in some ways is inherent in the variable definitions. Participation in CBT temporally precedes rapid response, which occurs during the first phase of

treatment. One has to be assigned to treatment before one can respond to treatment. Rapid response temporally precedes treatment outcomes, as by definition rapid response occurs during the first phase of treatment whereas treatment outcomes occur at the end of or after treatment.

5) *Gradient.* A number of studies have demonstrated that percentage of change in eating disorder behaviours during the initial phase of treatment positively predicted treatment response (e.g., Agras et al., 2000; Fairburn et al., 2004; Grilo et al., 2006; Grilo & Masheb, 2007; Grilo et al., 2012; Zunker et al., 2010). Accordingly, gradient has been demonstrated, with a greater degree of early change being associated with better outcomes.

6) *Experimental manipulation of the treatment and experimental manipulation of the mediator, each demonstrating impact on treatment outcome.* A number of studies have investigated CBT versus other treatments in RCTs, and have shown that CBT produces superior treatment outcomes (e.g., Fairburn et al., 1993; Fairburn et al., 2015; Grilo et al., 2011; Wilson et al., 1999). Based on RCT research, CBT is currently recommended as the only first-line treatment for BN and related eating disorders, as it has the strongest evidence base (NICE, 2004).

An important next step in demonstrating a mechanistic relationship is replicating Wilson and colleagues' (2002) finding that rapid response fully mediates the relationship between treatment type and treatment outcome. The previously proposed replication and extension of the current study in a larger RCT would provide an ideal framework for this. This would involve randomizing a large sample of participants to CBT-RR versus MI, both in addition to DH, and determining whether rapid response mediates treatment type and end-of-treatment or sustained remission. This could also be accomplished in any other RCT that compares CBT to a different treatment and identifies differential rates of rapid response and treatment outcomes.

However, what has not yet occurred in the research is experimental manipulation of the mediator. Experimental manipulation of rapid response requires the ability to administer an intervention that can reliably vary the anticipated rate of rapid response between two otherwise similar conditions. Prior to the current study, no study had attempted to determine whether rapid response could be controlled by the researcher. However, the present study provides evidence that rates of rapid response can in fact be intentionally increased using an intervention that focuses explicitly on early change. This finding provides the foundation for research aiming to manipulate rates of rapid response. A next step in this line of research might be an RCT in which participants are randomized to a standard CBT condition versus a CBT condition with a strong emphasis on rapid response using similar components to the CBT-RR intervention. This would mean that all participants were receiving a similar treatment (i.e., CBT), and that only rates of rapid response would be expected to vary systematically between conditions. Manipulating rapid response would help to determine whether it is rapid response *specifically* that impacts more favourable treatment outcomes. This would help to demonstrate whether rapid response is a causal factor in good outcome, and would provide an avenue for improving the outcomes to CBT for BN and PD.

Conclusions

In summary, this study provides evidence that rapid response to DH treatment for BN and PD can be clinically facilitated, using a CBT intervention that focuses on psychoeducation about rapid response, goal setting, and behavioural skills. This is the first study to demonstrate that this is possible, and adds to a burgeoning body of literature that suggests that rapid response is an important factor in good outcome for eating disorders. The study also demonstrates that an adjunctive intervention focused on rapid early behaviour change may help to reduce

overvaluation of weight and shape and difficulties with emotion regulation during the course of intensive treatment. These variables may provide a window into understanding how rapid response is related to good outcome. Additionally, the findings of the current study lay the foundation for future research further investigating rapid response as a casual and mechanistic factor in good outcome. Evidence supporting rapid response as a causal factor in good treatment outcome would help to provide a strategy for improving CBT treatments, with the ultimate goal of enabling more individuals with BN and PD to attain a full and sustained recovery.

Appendix A
Cognitive-Behaviour Therapy for Rapid Response (CBT-RR)
Treatment Manual

Key Elements of the Protocol

- Psychoeducation about expectations for change and how change happens
 - Rapid response
 - Behavioural strategies for change
- Behavioural strategies
 - Symptom interruption
 - Eliminating negative expectations
 - Dealing directly with cognitions and emotions related to expectations around difficulties making changes.
 - Collaboratively developing behavioural chain analyses in detail if symptoms happen, and planning solutions to “break the chain” and avoid future slips.
- Building self-efficacy and hope
 - “Cheerleading” strategies from DBT.
 - “Rabbit hole” metaphor.
 - Other relational factors – e.g., Waller’s “firm empathy” (well-justified non-negotiable factors that help patient move into change)
 - Written testimonial from a former patient.
- Note that the order of content within each session can be delivered flexibly if deemed appropriate by the therapist to modify the order, as long as the components are delivered within the session.

Session 1
(2 [or 1] weeks prior to Starting DHP)

Objectives

- Introduction to therapist and treatment
- Psychoeducation about rapid response and patient buy-in to the rapid response model.
- Planning for rapid response and troubleshooting possible difficulties.

1. Introduction to therapist and treatment

- *The therapist should introduce herself or himself, including qualifications.*
- This treatment is designed to supplement your day hospital stay by helping you to make changes as quickly and fully as possible.
- Ask the patient for a brief introduction to herself/himself (rapport building and “get to know you”).

2. Psychoeducation about rapid response.

- The goal of this treatment is to help you make what we call a “rapid response”.
- Rapid response to treatment refers to giving up eating disorder symptoms fairly soon after starting treatment. This would mean, for example, giving up binge eating, vomiting, laxatives, and exercise, and getting on the meal plan, right away.
- *Ask about the patient’s expectations about speed of symptom change, so that the therapist is aware of her baseline expectations.*
- I understand that this probably sounds like a really daunting task – obviously if it were that simple to give up your eating disorder behaviours, you would have already done it!
- It also doesn’t mean that we think the eating disorder thoughts or feelings are going to go away quickly. We know that the thoughts and feelings underlying the eating disorder are complicated and take time to change. This idea about rapid response is really focused on making **behavioural changes** quickly by jumping into the day hospital treatment philosophy with both feet.
- Even though it’s challenging, there are some really important reasons for trying to make a rapid response to treatment.
- *Ask the patient for her ideas as to why rapid response might be important.*
- There is a great deal of literature showing that individuals who respond rapidly – that is, those who give up their eating disorder behaviours early in treatment – do better in treatment. First, these patients are more likely to be doing well at the end of treatment, compared to those who make changes more slowly. Also, research right out of our program has shown that the people who rapidly respond to day hospital treatment are less likely to relapse up to two years later.
- This means that we have substantial evidence to show that rapid response to treatment helps patients to **get well** and to **stay well**.

- This is really important because the relapse rate for eating disorders is high – between 35% and 50%. Because of this, figuring out ways to increase the number of people who get better and stay better is our top priority, and we think that one of the keys to this might be rapid response.
- ***Ask the patient why she thinks this is.***
- There are many possibilities for why rapid response may help people to stay well. One reason might be that making changes early on shows you that change actually is possible. Many people with EDs feel hopeless and trapped in the ED cycle – it might feel like recovery is an impossible task, because it's hard to see what life would be like without the ED. Some people who attend the day hospital treat the program like an experiment or an altered reality. What this experiment means is that the patient is testing out the idea that eating disorder symptoms are simply “not an option”. This is like testing out the idea of fully shutting the door on your symptoms and seeing what life is like. Patients who try the experiment of fully shutting the door on symptoms can throw themselves fully into it in order to see what happens. If they don't like it or find it isn't working, when the experiment is over they can go back to the eating disorder. However, for many of these patients, they quickly find that changing behaviours and not having symptoms actually helps prove to them that the impossible CAN happen, and to build momentum for even greater change.
- Furthermore, getting behaviours on track quickly leaves you more time to get to the next step in treatment and look at your thoughts, beliefs, and underlying issues of the eating disorder.
- In contrast, patients who continue to have symptoms throughout treatment often find that they've only got one foot in the door of recovery, and the other foot still in the eating disorder. And the problem is if the door remains open, it becomes easier to go back to your eating disorder. So if you enter treatment with the idea that you only need to close the door on your symptoms partway, it's going to make it easier to go back to the eating disorder when things get hard. That's why we want to really focus on embracing the program philosophy and doing your best to close the door. Closing the door really means giving yourself a chance to try out being symptom free and seeing what happens.
- ***Ask the patient what she thinks of this idea.***
- This really is a radically different mindset. It's kind of like in Alice in Wonderland, when Alice is following the white rabbit and she dives down into the rabbit hole after him. When she jumps into the rabbit hole, she doesn't know where she is going or what to expect down there, but nevertheless, she dives in headfirst. And as it turns out, when she gets down there, she sees all sorts of really weird things. She sees a floating cat's head that is showing up in weird places, she sees a talking caterpillar smoking a pipe, she sees a rabbit checking his watch and yelling about how he is late. Needless to say, the things that were going on down the rabbit hole were things that Alice never thought possible. But what did this show her? Alice learned that when you set out into unfamiliar territory, there are all sorts of unexpected things that seem weird, scary, and confusing. But even still, it also shows you that sometimes

the impossible *can happen*, and that if you want to get to that place, you sometimes need to jump in, head first, with both feet, and just be willing to take each moment as it comes.

- That's what it can be like here at the day hospital – an altered reality where the impossible can happen and you can get through a day without symptoms, and then another day and then another. If you jump into the experiment of symptoms not being an option – if you jump in headfirst and with both feet, chances are you are going to feel a lot of things. Maybe overwhelmed, maybe confused, maybe scared, maybe you just aren't sure how to interpret what's happening around you. *And* at the same time, you also have an opportunity to observe a whole new world where what you thought was impossible is happening right in front of you.
- ***Ask the patient what it would be like to “jump down the rabbit hole” and go into the program with both feet as if DH was an “altered reality” where symptoms are not an option.***
- There have also been questions about whether certain people are more likely to be able to make a rapid response, compared to other people who might find it harder. There have been three studies that have looked at the differences between those who respond rapidly versus those who respond more slowly. Two of these studies are from our own program. The unexpected finding was that in all three studies, there were almost **no other differences** between the patients who responded rapidly, and those who responded more slowly. There were no consistent differences in terms of how sick they were with their eating disorder, other symptoms like depression or anxiety, how motivated they felt they were for treatment, or even psychological characteristics like perfectionism or self-esteem.
- Although there might be some differences that research hasn't figured out yet, the fact that the groups were similar on many factors suggests to us that if given the right tools and mindset, patients might be able to go into treatment working towards a rapid response.
- ***Ask the patient what she thinks of this.***

3. Written testimonial.

- Ask the patient to read the written testimonial from a former patient (see Appendix A1) on what it was like to respond rapidly, and how it helped her with her recovery.
- ***Ask the patient what it was like for her to hear a recovered patient's perspective on rapid response and recovery.***

4. Planning for rapid response goals.

- After hearing all of that information about rapid response, how do you think rapid response fits in, in terms of planning for your own treatment and recovery process?

(Assuming patient is on board with RR, continue below. If patient does not express a desire to engage in behaviours towards RR, then this needs to be explored further and rapid response encouraged. Can be discussed further in terms of “going down the rabbit hole” – i.e., suspending your judgment and seeing what you can do. Cheerleading

strategies can be used here in terms of expressing that the therapist assumes that patient is doing the best she can with the tools she has now. The goal of the treatment would be to provide new tools to help her make abrupt changes once she starts intensive treatment. It is important to avoid motivational interventions if this situation comes up. Focus on psychoeducation and behavioural strategies.)

- This is going to be a big change – it’s almost like jumping down the rabbit hole, where you are not sure where you are going but you need to suspend your judgments about it in order to see what you are capable of doing. This is probably going to mean keeping an open mind to the strategies that you are going to learn and making an effort to try them. (Cheerleading:) I am assuming that you are doing your best with the skills that you have. Up until now, you’ve learned that the eating disorder helps you or serves a function for you in a variety of ways. But it sounds like since you’re pursuing treatment, there is at least an aspect of the eating disorder that is causing you problems, is that right? So even by coming to treatment, by asking for help, it seems to me that you are doing your best with what you know how to do. The goal here is to help you focus right in on the tools being suggested, so that as soon as you start treatment, you can embrace recovery. The quicker you do this, the better! And I think that we’ll be able to figure what is going to be helpful for you, and how you can make changes.
- ***Ask the patient for her thoughts.***

5. Goals for treatment

- So, assuming you’re going to go into treatment thinking of trying for rapid response as an experiment, what behavioural goals do you need to set?
- That is, if rapid response means giving up the actual eating disorder behaviours, what behaviours are we talking about for you? What eating disorder behaviours do you need to give up as part of the recovery process?
- ***Using the worksheet for staying symptom free (see Appendix A2) collaboratively elicit from the patient a list of key eating disorder behaviours that she engages in, and operationally define what “rapid response” means for those behaviours.***
 - *For behavioural excesses (e.g., binge eating, vomiting, laxatives, chewing & spitting, diet pills, diuretics), rapid response should be defined as a goal of zero behaviours.*
 - *Exercise should also be defined as zero if extreme exercise is a problem for the patient, but this may need to be discussed in more detail if the individual is also engaging in non-compensatory exercise such as walking or cycling for transportation. This should be discussed in terms of how non-compensatory exercise can become compensatory when other compensatory behaviours are given up, and that part of the experiment of “fully going for it” might mean putting these on hold as well. The decision to address exercise should be based on an assessment of whether exercise is or is likely to become a problem for the patient. If it doesn’t seem to be a big issue, then it might be excluded or just mentioned briefly.*

- *For behavioural deficits (i.e., dietary restriction) rapid response should be defined as full engagement in the meal plan, including all meals and snacks, and all choices at each intake.*
 - *The patient should be provided with some psychoeducation about the meal plan at this point so that she understands the importance of rapid adherence to the meal plan (see below).*
- **Psychoeducation about meal plan**
 - Regular eating is one of the most important elements of eating disorder treatment for people who have binge eating and/or compensatory symptoms.
 - ***Ask the patient why she thinks regular eating is so important.***
 - Explain the eating disorder cycle (weight & shape concerns → restriction → hunger → food preoccupation → binge eating → compensatory behaviours → guilt and shame → weight and shape concerns). Explain that every time the cycle is engaged in, it strengthens its potency.
 - Although binge eating can be triggered by many things (e.g., negative emotions), not just hunger, hunger is a precipitant for many binges, and it also makes you more vulnerable to bingeing if you are experiencing negative emotions or other triggers.
 - Regular eating interrupts the eating disorder cycle by reducing the hunger that fuels many binges. Although binge urges still come up when someone is recovering from an eating disorder, most people find that regular eating makes them feel more able to cope with binge urges without acting on them.
 - In many ways, this is physiological: When we are hungry, our body tells us to eat. People who are chronically hungry, like those with an eating disorder, often have powerful urges to eat, and for many this can turn into bingeing.
 - In many ways, this is also psychological: Restricting leaves you feeling deprived, and thinking about certain foods as “forbidden” gives these foods a scary power. Combined with the physical effects of hunger, psychological deprivation makes you vulnerable to bingeing once you finally do eat, especially if you have negative emotions, are experiencing other triggers, or eat foods that are “forbidden”.
 - Thus, regular eating with a variety of foods is a powerful way to fight the urge to binge. This is why we call eating regularly and eating a variety of foods – even scary ones – the ***anti-eating disorder meal plan*** – because it helps you to fight against the urge to binge, and thus, it fights against your ED.
 - ***Ask the patient what she thinks of this.***
 - In terms of making a rapid response to treatment – which is going to set you up for recovery – getting right on the meal plan is going to be one of your most powerful strategies. Not only is it changing the symptom of restriction, but also it’s going to help you fight the urges for binges, which will in turn help you fight the urges to compensate.

- *If she has not already done so, ask the patient if she is ready to commit to meal plan adherence, and discuss the thoughts and feelings she has about this.*
- *Ask the patient what she thinks will be challenging about these goals.*
 - We know that having a rapid response can lead to long term, permanent change. If this were really to happen, it would mean starting day hospital, having no binges, no vomits (and no other compensatory behaviours, if applicable), and getting fully on the meal plan.
 - **Knowing what you know now, that in order to put this eating disorder behind you, and to make this admission worthwhile, do you think it makes sense to pursue a rapid response?**
 - **So here is the million-dollar question: What do you need to do *right now* to prepare for this?** Sometimes these preparations are radical. Some people say they need to empty their house of food and eat each meal outside the home, they need to put certain relationships on hold, or they need to take a break from school, so that they can dive down that rabbit hole with both feet. Imagine if you were to start tomorrow and it was crucial that you leave bingeing and vomiting behind you right away. In that case, if symptoms are not an option, what do you need to do *right now* to make this happen?
 - *Brainstorm the strategies the patient needs to put in place and use the Million Dollar Question worksheet (Appendix A3) to record this plan.*
 - *Brainstorm barriers to these goals.*
 - *Brief guided rehearsal of the first week in DH – framed as “Wonderland”. What do you do at 6:15 pm on day 1 of DH when program is done? Where do you go? What do you do? Remember, this is not your old life where symptoms may have taken some of your time.*
 - *Express belief that as she learns tools in DH and in the individual sessions, she will be able to do it and reiterate the idea of jumping down the rabbit hole and suspending judgment so that she can keep an open mind about making changes.*
 - *DBT cheerleading strategies can be used to highlight to the patient that the therapist recognizes the patient’s current strengths and limitations, and that belief in the patient considers these (but only if the therapist genuinely believes this, or has enough information at this point to comment on it).*
 - *If the patient expresses reluctance that she will be able to bring these behaviours down to zero, the rabbit hole analogy can again be used to talk about the idea of suspending judgment and keeping an open mind about what can happen. Then focus on one day at a time, or even one hour at a time, emphasizing that any change in her pattern is worthwhile, and to focus on seeing what she can do.*

6. Homework

- Provide Chapter 4 (Normal Eating) and 5 (Coping Strategies) from the Overcoming Bulimia Workbook (McCabe et al., 2003) to get her thinking about strategies for normalizing eating and behavioural strategies for dealing with urges.
- Ask the patient to highlight anything that seems like it might be particularly helpful to discuss at Session 2. Let her know that reading the chapters prior to DH will help her to know what to expect so she can jump in with both feet on Day 1, but tell the patient to hold off on formally starting to implement these strategies until DH starts.
- Ask the patient to continue preparing for the Million Dollar Question by starting to put in place anything she needs to do *before day hospital starts* to help her ensure that she can make a rapid response, by finishing the provided worksheet.

Session 2 (1 week prior to Starting DHP [OR 1st week of DHP])

Objectives

- This session serves to stay in contact with the patient and check-in on how she is doing with preparing for/pursuing rapid response. This is consistent with Linehan's (1993a) cheerleading philosophy of "staying near", which argues that it is unfair to express belief in the patient's capabilities without ongoing support.

1. Check in and homework check.

- Ask briefly how the preceding week has been.
 - If the patient has started DHP, check in about how she is adjusting (*any challenges? Any surprises?*) and whether she has had any binge eating or purging episodes since starting DHP. If so, ensure a behavioural chain analysis is conducted during this session (see more details instructions in session 3).
- Follow-up about whether she read the two chapters (4 and 5).
 - If she did read them, reinforce her engagement with the homework, and then elicit from the patient what aspects she thought might be helpful to her, exploring these in more detail. Ask her how she thinks these strategies might be helpful in facilitating a rapid response to symptom change. This discussion can be quite in depth regarding the strategies she thinks might be helpful, what she thinks will be helpful particularly, and discussing how these strategies can be implemented.
 - If she did not read them, problem solve any barriers that prevented her from completing the homework. Reiterate that completing the homework is absolutely essential component to this treatment, and that homework completion is going to help facilitate rapid response (*this is consistent with Waller's "firm non-negotiable" aspects of treatment*). Provide psychoeducation about how early engagement with behavioural interventions has been shown to be associated with a rapid response, and justify this by telling her that completing homework is essential for providing evidence that she can indeed do the impossible.

2. Preparation for day hospital and rapid response.

- Ask the patient how she is feeling about the idea of "going for" a rapid response, now that she has had some time to sit with these ideas.
- Check in with the patient on her goals for the "million dollar question." What does she need to do *now* to make this happen? Have a short discussion with her using Socratic questioning about how and why these will help her reach this goal. If the items do not seem to be sufficient, the therapist can suggest alternatives or extensions to her plan, within the framework of "pushing" this million-dollar plan to be the best and strongest it can be. You

can also help the patient make a plan for how to implement the million dollar question items if she needs help or support in making these things happen.

- Use the rabbit hole analogy again to facilitate this conversation, by discussing the idea of going for the unknown and seeing what she can do. Remind her that by keeping an open mind and suspending her judgment about what she is capable of, she may be able to “do the impossible”. Also remind her that rapid response is going to mean totally going for it and changing her life around this idea of big change, as a way of leaving her old patterns behind, avoiding the usual triggers, and making new patterns for herself.

3. Psychoeducation about the Washout Phase

- Last week we talked about the importance of the meal plan for rapidly changing your bingeing and purging behaviours. I told you about how normalizing your eating and reducing restriction will help you to fight the urges to binge and purge, and we talked about how this is the “anti-eating disorder” meal plan.
- Another important thing to mention with respect to early changes is something called the *washout phase*. Some patients assume that if they jump in and get on board with rapid response, they are going to feel better right away.
- The washout phase has to do with how you feel when your body gets used to eating differently. In the early stages of treatment when you first start to eat regularly, you might actually feel bad before you feel better. This is because your system is not used to it. When you are restricting, bingeing, and purging, your body does something called delayed gastric emptying. This means that your body is slower to digest your food. When you start to eat normally again, your body needs to get used to eating, but in the first stages, you might feel things like bloating, gas, and pain, as your body adjusts to digesting more quickly and to the fact that you are eating more often than you are used to.
- You might also feel emotional distress, like feeling fat, anxious, or depressed.
- Physically, and mentally, it is likely that you won’t feel great as your body is getting used to the meal plan. The important thing is twofold:
 - One: This is normal! This is your body learning to be healthy again. The washout phase doesn’t last forever, but it is a process that you might experience as you start to change behaviours.
 - Two: The meal plan is *essential* for being able to stop bingeing and purging, so it’s really important to get through the short-term pain for the long-term benefit of permanent recovery.
 - There is really only one way to get to the other side of the washout phase, and that is to eat through it. Eventually, your body responds and speeds up the digestion process, but you can’t get there without learning to eat normally again.
- *Ask the patient for her thoughts about this.*

(If patient is in first week of DHP, also go through “Planning for the Next Few Days” from Session 3 during the current session instead of during Session 3).

4. Homework

- Remind the patient of the behavioural preparation goals for rapid response set during session 1 (*show her the worksheet completed in the session and remind her of the specifics of the goals*). If she hasn't yet started DHP, ask the patient to continue mentally preparing herself for the start of day hospital by looking again at the chapters and making a list of 5-7 strategies she thinks will be especially helpful to her in pursuing a rapid response to these goals, and to bring this list to the next session, using the Strategies List (Appendix A4). If she has already started DHP, ask her to start putting these strategies into use and work on staying symptom-free.
- Ask the patient to implement any outstanding plans on the million-dollar question worksheet.

ASK THE PATIENT TO COMPLETE THE SESSION 2 QUESTIONNAIRES!

Session 3 (During the 1st [or 2nd] Week of DHP)

Objectives

- Assess progress with symptom interruption so far, reinforce effective behaviours and analyze and problem solve ineffective behaviours
- Assess progress with meal plan, reiterate key aspects of psychoeducation about importance of meal plan, and problem solve difficulties with meal plan.
- Assess fears of weight gain and develop strategies for putting fears on hold for now (i.e., not acting on them).
- Planning for a symptom free weekend.

1. Check in

- Ask the patient how she has been since session 2, and how she is adjusting to DH.
- *What has been challenging?*
- *Any surprises?*

2. Homework review

- Find out if the patient reread the chapters about strategies and made the list of 5-7 strategies she thought would be helpful to her in working towards her rapid response goal.
- If yes, elicit from her which strategies she selected and what she believes will be helpful to her.
- If she did not do the homework, troubleshoot barriers, and emphasize that homework is not optional because of its importance to actually being able to use the strategies to help with symptom control and make a rapid response. Note that if the patient dislikes “strategies” language, the therapist can discuss things she can do without talking about these behaviours in terms of strategies.

3. Find out if the patient has had any eating disorder behaviours since starting day hospital.

- **If she has had symptoms**, the therapist and patient should collaboratively develop a behavioural chain analysis of the symptom.
- *Provide the rationale for this to the patient in terms of rapid response:* As you know, the goal of this treatment is to help you make changes as quickly as possible, so that you can “rapidly respond” to the intensive treatment, because we know that quickly reducing symptoms increases the likelihood of getting well and staying well as part of long-term, permanent change. Part of making behavioural changes is that when you have a symptom, we want to figure out the details of when and why it happened. That way we can come up with strategies so that if this situation comes up again, you will be better equipped to cope with urges without engaging in the symptom.

- The focus of this BCA should be:
 - Identifying the antecedents (including prompting event), consequences, and “weak links” of the chain that contributed to engaging in the behaviour.
 - Coming up with **concrete** behavioural strategies and a **specific** plan for how to deal with such situations in the near future. See behavioural strategies list for ideas, which should be specifically tailored to the patient depending on her behaviours and triggers.
 - (DBT strategies for conducting an in-session BCA Appendix A5)
- **Cheerleading:** Express encouragement and belief that the patient can do it (if the therapist does indeed believe this). It is important not to punish the behaviour, but rather to try to elicit self-efficacy and hope in the patient and reinforce any effective behaviours she has engaged in so far. This may mean framing the symptom in terms of a learning experience so that if the situation comes up again she can try out new skills, and expressing belief that you as the therapist think that she has what it takes to make changes. It may also mean highlighting evidence of using effective strategies at a different time, so she can draw the links to how effective behaviours might be implemented in the problem situation. **Note that cheerleading should only be employed when the therapist genuinely believes that the patient can do it. Genuineness is essential for this strategy.**
- (See Appendix A6 for details about cheerleading strategies).
- **Note:** Linehan (1993a) has stated that cheerleading is *most* important with the patients who are having the most difficulty. As such, these strategies should be employed particularly for those patients who have had symptoms or who are otherwise struggling.
- **If the patient has *not* had eating disorder behaviours** since starting day hospital, provide strong, genuine verbal reinforcement for this. The goal of this is behavioural reinforcement of being symptom-free. *Important to this praise is the therapist highlighting **concrete, specific evidence** of what the patient is doing well, rather than simply saying “great job!”.*
 - This may mean asking the patient how she was able to stay symptom free, and then reinforcing her for her work by summarizing the specific things she did to do that.
 - If the patient had strong urges but *did not* act on them (i.e., stayed symptom free) the therapist may go through an informal BCA-like analysis of the links following the prompting event to assess the solutions that the patient put in place to avoid having symptoms. This should be informal, less detailed than a real BCA, and not labeled as a BCA (since some patients may experience the BCA itself as an aversive consequence), but rather as a way to highlight the *specific* behaviours the patient engaged in that resulted in successful coping with urges, so that she can draw on these skills again.
 - The therapist should also ask the patient what it was like to stay symptom free, and praising her for doing it even in the face of strong urges or difficult emotions in order to reinforce the behaviours, and to build her pride and self-efficacy by attending to these issues. Clearly highlight here that even though it may have been challenging and

felt difficult, she was able to “do the impossible” nevertheless. The rabbit hole analogy can be returned to here if appropriate.

4. Meal Plan

- Ask the patient how she is adjusting to the meal plan
 - *What is challenging about it?*
 - *If she has not had meals outside of program, ask how has she gotten through program meals?*
- Since it is early in the first week, she will not have been responsible for much eating outside of program, but you can ask her how she has been doing with breakfasts and evening snacks (if applicable) so far – has she been getting them in, and if so, has she missed any choices.
 - If she has missed anything, discuss what has gotten in the way and strategies for getting in the meals (similar to above with symptoms).
 - If she has gotten everything in, ask how she managed it, and praise her for doing it (similar to above with symptoms), and encourage the patient’s self-reinforcement and expression of pride in herself.
- Reiteration of psychoeducation about meal plan
 - As we discussed in session 1, regular eating is probably one of the most important elements of eating disorder treatment for people who have binge eating and/or compensatory symptoms.
 - *Ask the patient if she has any thoughts on why regular eating is so important, now that she has had a chance to try it.*
 - Recall the eating disorder cycle (weight & shape concerns → restriction → hunger → food preoccupation → binge eating → compensatory behaviours → guilt and shame → weight and shape concerns). Every time the cycle is engaged in, it strengthens its potency. As we’ve discussed before, regular eating interrupts this cycle by reducing hunger and making you more resilient against your urges. This is why we call it the anti-eating disorder meal plan
 - As we have discussed previously, rapid adherence to the meal plan is going to be one of your most powerful strategies in setting you up for rapid response to full symptom interruption.
 - *If she has not already done so, ask the patient if she is ready to commit to meal plan adherence, and discuss the thoughts and feelings she has about this.*
 - Set up a concrete plan for meal plan adherence, if necessary.

5. Fear of weight gain

- One fear that patients often express when receiving treatment for bulimia is that they will gain a lot of weight, even when they are not on weight gain. Fear of weight gain can stand in the way of fully jumping down the rabbit hole, because you’re afraid of what might happen to your body weight and shape.

- In order to focus on a rapid response, it is going to be important to try to suspend this fear, at least for a period of time, in order to see what happens. Putting your fears of weight gain on the back burner might be challenging and scary, but it's all about jumping into the rabbit hole and seeing what happens.
- ***What are some strategies you can use to put your fear of weight gain on the back burner?***
 - Discuss the strategy of putting weight/shape concerns aside as an experiment. The patient should be encouraged to try the experiment of putting these concerns on hold while she focuses on behaviour change. If she finds that this is not working for her, she is free to go back to her weight and shape concerns at any time, but emphasize that if rapid response is her goal, it is worth giving it a chance to put her concerns about weight gain on hold.
 - Emphasize that putting weight and shape concerns on hold does not mean that the individual has to feel good about her body – that is probably too lofty a goal at this time – but rather that it means that she will focus on behavioural change without allowing her weight concerns to dictate her behaviours. This will make it easier to engage in challenging behaviours.
 - Relate this to the idea of the rabbit hole, and that even though it might seem inconceivable to not have weight and shape concerns, she will not know what is possible if she does not go in with both feet to this new world.

6. Planning for the next few days.

- (Note: If this the patient's second week in DHP, this planning exercise may have been done during Session 2. In this case, the therapist can use their discretion regarding whether it might be useful to make plans for this upcoming weekend or not.)
- The next few days are going to be really important for a few reasons. One is because the more days you get under your belt without symptoms, the more momentum you are going to get for recovery. The other reason is because the weekend is coming up, and this can be a real opportunity to see what you can do.
- Plans this weekend may need to be extreme, if that is what is needed to keep you symptom free. The idea here is that in order to kick start this idea of fully going for it and “doing the impossible”, it might be helpful to make a radical change in order to really leave your old patterns behind. For example, some people have moved in with a friend or family member in order for this to happen. Others have decided it is better not to make any social plans and prioritize their meal plan. Some people have used an even more extreme strategy, such as riding the subway all day in order to get through urges without acting on them. If you can open your mind to the idea that the “impossible CAN happen”, then these extreme strategies are what will help to get you there.
- What specific things do you need to plan? (*Collaboratively discuss with the patient the **specific** behaviours she will need to do in order to stay on the meal plan and avoid bingeing, purging, restricting, and exercising (as applicable). It should be framed as creating a “new*

schedule” since the “illness schedule” needs to be thrown out. These can be environmental constraints to make having symptoms more difficult, social support, or behavioural strategies to manage urges. This should be tailored to what the patient has found helpful so far, and for the specific symptoms, urges, and triggers that she struggles with. This plan should be written down and both patient and therapist should keep a copy using the planning form at the end of this document.)

7. Homework – Sticking to the plan

- The patient should focus on monitoring her urges, strategies, and behaviours on the monitoring sheet (see Appendix A7) in order to track her engagement in the strategy plan, and record whether or not she has had symptoms. She can also track thoughts and emotions related to the plan, urges, etc.
- The therapist should provide the summarized list of strategies for normalized eating (see Appendix A8), coping strategies for bingeing and purging behaviours (Appendix A9), and skills for emotion regulation and distress tolerance (Appendix A10) and ask the patient to keep these on hand to refer to if she has urges or requires support.
- Remind the patient that next week will be the last session.

ASK THE PATIENT TO COMPLETE THE SESSION 3 QUESTIONNAIRE!

Session 4
(During the 2nd [or 3rd] week of DHP)

1. Check in & homework review

- How has the patient been since last session? How was the weekend?
- Any eating disorder behaviours? On the meal plan? Was she able to stick to her plan and practice strategies?
- **If she has had symptoms or significant meal plan deviations**, should go through a BCA in session, similar to in session 3.
- **If she has not had symptoms and has been on the meal plan (or close to it)**, the therapist should reinforce this and briefly discuss with her what concrete and specific behaviours she employed to make that happen, focusing specifically on the behavioural strategies that kept her on track.
- If she practiced strategies as planned, she should be reinforced for this (even if she had symptoms). If the strategies were helpful in avoiding or interrupting a symptom, this should be pointed out clearly to her as evidence that using these behavioural strategies is helpful. If she practiced strategies but still had symptoms, the therapist should still reinforce the patient for using these strategies. Most patients at this point are having fewer symptoms than previously, so she can be reinforced for avoiding some symptoms, even if she wasn't completely symptom free. Help the patient acknowledge and celebrate her successes, while also helping her troubleshoot what got in the way of staying fully symptom free, discuss how she might have used the strategies to avoid any symptoms that did occur, and encourage her that the more she practices the strategies, the more adept she will become at using them to prevent symptoms.
- The idea here is to reinforce behavioural change to increase the occurrence of these behaviours in the future, and to problem solve (not punish) any difficulties in order to help the patient more adaptively problem solve similar circumstances in the future.

2. Discussion about rapid response.

- ***If she has been symptom free:***
- Rabbit hole idea: Ask her if she would have thought this would have been possible before starting treatment. What is it like to observe the “impossible” actually materializing?
- Engage a Socratic dialogue about what she has learned from this experience so far, and how she thinks this will affect her recovery going forward, incorporating a discussion about the testimonial.
- ***If she has not been symptom free:***
- Reinforce any changes she has made already (e.g., symptom reduction; interruption of a specific symptom; normalization of eating). Highlight specific examples of changes that she has made.

- Recap to the patient some of the key psychoeducation points about full symptom interruption.
- Ask her what her thoughts are about symptom change now that she has been in the program for a little over a week, and ask Socratic questions about her *thoughts and feelings* about why she has had trouble making changes. At this point it will be important to validate any emotions she might be having about difficulty making changes, as well as to possibly help her reframe any thoughts that might be getting in the way. Engage in a Socratic dialogue about this, and include a discussion about what concrete strategies she can implement going forward if she is aiming for recovery. (It is important at this point to be sure that the therapist does not draw on motivational strategies such as pros and cons. The therapist should restrict this discussion to reframing cognitions, discussion of emotions, and concrete behavioural strategies.)
- Use's Waller's idea of "firm empathy" to express to her that being symptom free has to be a non-negotiable component of treatment if recovery is a goal.
- Then come up with a concrete and specific behavioural plan for eliminating eating disorder behaviours going forward, using the strategies lists and any other solutions generated from the BCAs.
- **In both cases**, continue to use cheerleading strategies to communicate to the patient how well she has done so far, and the belief that she is doing the best she can at the given moment with the skills she has, and that going forward she will have further opportunities to keep an open mind to being symptom free and see what happens. Reinforcement of extant changes is important so that the patient feels encouraged and has a sense of self-efficacy for making change.

3. Planning for going forward (end of individual sessions)

- Set up a concrete plan for symptom control as she continues in the day hospital, including a few key components:
 - Stimulus control (environmental constraints) to prevent symptoms (e.g., removing binge foods from home, avoiding spending time alone)
 - Social support (e.g., drawing on support of friends and family when having difficulty, talking about struggles in group).
 - Strategies for coping with urges and strong emotions (e.g., delay, distraction, not an option, emotion regulation and distress tolerance strategies).
 - Reinforce the potency of the anti-eating disorder meal plan and emphasize that a big part of remaining free of binge-purge episodes will be staying on track with the meal plan. Strategize around staying on the meal plan and avoiding restriction.
- Suggest that she continue tracking the specific strategies she is using to cope with urges using her DHP self-monitoring form, or if she wishes, using copies of the monitoring forms from these sessions.

4. Wrap up and goodbyes.

ASK THE PATIENT TO COMPLETE THE SESSION 4 QUESTIONNAIRE!

REMIND THE PATIENT THAT AT WEEK 4 OF DAY HOSPITAL (2 WEEKS FROM NOW) SHE WILL BE GIVEN A SHORT PACKAGE OF QUESTIONNAIRES AS PART OF THE RESEARCH STUDY

Appendix A1

Written Testimonial from a Former Patient

Since I was a little girl I had problems with my appearance and I was surrounded by people who were consumed by how they looked. I had trouble looking in the mirror and my self-esteem was directly based on my weight. I was taunted about my weight which made it even more difficult to accept myself. I wanted to change my looks so I started to restrict, and then I went down the disastrous path of anorexia and bulimia. For years I was in denial and actually enjoyed the freedom of eating and not gaining weight. Then, the anxiety struck and I suddenly realized I was living a lie and desperately wanted to escape from this prison. I tried to get out so many times but I couldn't do it on my own or even with the help of others. I had my freedom and my future at stake, and too much to lose. After many sleepless nights I decided to make the hardest decision of my life and enter the Eating Disorders Day Program. I knew that this was it, and this was my best chance to escape this nightmare. There was no looking back, this was the time to make a change, and the day program was the place to do it!

I decided I needed to make symptoms NOT AN OPTION and hit the ground running, so to speak (even though running is not allowed). As I prepared to start the program, I knew that the day I started was the day I would embrace the treatment, follow the meal plan, and not engage in eating disorder symptoms. I considered the day program an alternative reality where it was possible to get through a day, a week, a month without symptoms. I figured that it was best to give up the eating disorder symptoms quickly while I had the support.

Sure enough, the impossible was possible. Even though I had struggled with my eating disorder for years, I allowed the day hospital to be almost a magical experience where I had been given the opportunity for things to be different. I embraced the program and left my eating disorder behaviours at the front door. I felt the momentum, each day without symptoms made me feel more confident and hopeful. Change led to more change, and I have to say it was a powerful experience!! Embracing the program quickly allowed me to finally stop the vicious cycle of the eating disorder and I have not looked back. None of it was easy, and I still have my ups and downs but if there is one thing that I would like to pass onto others preparing for the day program it's this: The sooner you get to business and lock onto the treatment and embrace this new reality, the better it is in terms of leaving the eating disorder prison behind you.

Appendix A2
Goal Sheet for Becoming Symptom Free Quickly

What eating disorder symptoms do I need to reduce? For each of these, what does it mean to be “symptom free”?

What does my life look like without symptoms? Where do I go? What do I do? (remember: be **concrete** and **specific**)?

- How do I cope with urges to restrict?
- How will I cope with urges to binge (if applicable)?
- How will I cope with urges to vomit/use laxatives/exercise/other compensation?

Appendix A3

The Million Dollar Question Worksheet

The Million Dollar Question asks what it will take to stay symptom free, and how can I get ready for that. *Rapid response is about doing whatever it takes.*

1. What things in my environment are likely to be triggers for symptoms or unnecessary stressors that might get in the way of rapidly responding? (e.g., certain places, people, situations, contexts).
2. **What do I need to do *now*** to prepare for rapid response when I start day hospital? No solution is too radical if it means I will be able to be symptom free. (Do I need to move? Put a relationship on hold or not see a certain friend for a while? Put school or work on hold?)

Appendix A4

Strategies List

Record 5-7 strategies from the Normal Eating and Coping Strategies chapters that you think will be especially helpful in pursuing your goals for rapid response once you start day hospital.

1.

2.

3.

4.

5.

6.

7.

Also: Don't forget to implement the plans made on your "Million Dollar Question" worksheet so that when day hospital starts, you feel ready.

Appendix A5
Therapist Instructions for Behaviour Chain Analysis
(Adapted from Linehan, 1993a)

The purpose of the behaviour chain analysis (BCA) is to analyze in detail a *specific* instance of a target behaviour, in order to understand why it happened, and how to problem solve similar situations in the future. The BCA should be used to analyze occurrences of binge eating, vomiting, laxative use, restriction, or other relevant eating disorder symptoms that occur after the beginning of DH. If more than one target behaviour has been engaged in since last session, the therapist and patient should work through one specific instance of the behaviour, so that the particular details of the event can be specifically analyzed (as opposed to simply general circumstances). The patient may choose the most recent, most severe, best remembered, most important, or most distressing behaviour.

The BCA elucidates the minute details in the chain of events leading from vulnerabilities and antecedents, to behaviour, to consequences. The reason that the BCA is conducted in such detail is because patients may not be able to recall all of the details of the event without specific exploration, or may not recognize the importance of specific antecedents or consequences to the occurrence of the target behaviour. In order to generalize skills learned from the behavioural analysis, the importance of the antecedents and consequences need to be made explicit.

Step 1: Selection of Target Behaviour

- The target behaviour should be *concrete* and *specific* (e.g., “The binge on Saturday at 7:00 pm”).

Step 2: Where to Start

- The target behaviour is typically located in the “middle” of the chain, where the chain is a larger context or sequence of events. That is, antecedents and consequences in the environment typically bracket the behaviour. The behaviour, antecedents, and consequences are linked together by smaller events in the chain.
- The BCA can start by asking the patient when the episode began, with the goal of helping the patient to connect environmental events as antecedents to the behaviour. This is particularly important if/when she does not recognize the importance of these events to her symptoms.
- Questions should be specific: Rather than asking about causes for the behaviour, questions should elicit more concrete and specific answers, such as “What set that off?”, or “What was going on right when that problem started?”

Step 3: Filling in the links

- Essential to the BCA is the therapist’s ability to conceptualize the chain in very small increments of behaviour. Often many links get missed, typically because the therapist incorrectly assumes he/she knows how one response and the next are connected. Thus, it is important to be extremely detailed in eliciting information about the sequence of events. These events should be both environmental and behavioural (including cognitive and emotional).

- Good questions may include: “What’s next?”, “Then what happened?”, “How did you get from A to B?”
- The attitude of the therapist at this stage is “naïve observer”, that is, assuming nothing, and questioning the patient consistently.
- There are several reasons for this level of detail in the BCA:
 - a. Serves to identify events that elicit symptoms, other maladaptive behaviours, or precursors to behaviours (i.e., thoughts and emotions).
 - b. Serves to identify areas where the patient might be lacking a more adaptive skill to cope with the situation, thus setting up for the teaching of a new skill.
 - c. Serves to identify cognitive or behavioural responses that preclude more adaptive behavioural responses.
 - d. Helps the therapist understand how the person led up to their behavioural response, and helps them to identify other alternative responses that might have been possible.

Step 4: Where to stop

- It is important to elicit information about what came after the behaviour – particularly, consequences that reinforce (i.e., maintain, strengthen, increase) the target behaviour. These reinforcers could be positive events, removal of something aversive, or the opportunity to engage in a behaviour that the patient finds rewarding.
- It is also important to elicit information about any consequences that might help to weaken the target behaviour (i.e., any negative sequelae that might be drawn upon).
- The therapist should elicit information about the effect of the behaviour on the environment (e.g., context, relationships), as well as on internal experiences such as thoughts, emotions, and bodily experiences.
- The goal of this part of the BCA is to determine the function of this behaviour: What reinforces it, and why? What problem has the behaviour solved for the patient?

Step 5: Solution Analysis

- Following the BCA, the therapist should help the patient come up with possible solutions to key links in the chain. That is, they can identify various areas along the chain where a possible solution (i.e., alternative behaviour) might have been engaged in to break the chain.
- The solution analysis is about behavioural problem solving.
- **Identifying goals:** The therapist should inquire from the patient about what her goals are, and then discuss how different links on the chain set her up for behaviours that are inconsistent with her goals (e.g., “I probably could have done something else at this point, rather than going to the grocery store while I was having urges, since bingeing is inconsistent with my goals”).
- **Generating solutions:** The therapist and patient should collaboratively come up with some potential alternative behaviours for the specific link on the chain that they have selected to problem solve around (e.g., “I could have put my grocery shopping off until tomorrow”, “I could have asked my mom if she could pick up the things I needed for me”, “I could have

done [specific distracting activity] instead and reevaluated the grocery shopping later”, “I could have gone shopping but only taken \$20 so I could only get what I needed”).

- **Evaluating solutions:** The therapist should help the patient assess how well she thinks each potential solution would have helped to “solve the problem” and break the chain of the target behaviour. Sometimes hesitations are realistic; other times the patient may simply be reluctant to try something new or challenging.
- **Identifying barriers to implementing effective solutions:** Although some solutions might be effective if they are used, and for which the patient has the behavioural skills, some solutions may be challenging for the patient to employ. The therapist should elicit from the patient what might get in the way of employing the potential solution (e.g., other preceding behaviours may be incompatible with it, contingencies in the environment may favour other behaviours over this one, this behaviour might be punished, etc.).
- **Choosing and troubleshooting a solution:** The therapist and patient should select a solution for the patient to implement next time the situation comes up, and should troubleshoot ways it might go wrong and what the patient would do if that were the case.

Appendix A6
Therapist Instructions for DBT Cheerleading Strategies
(Adapted from Linehan, 1993a)

Cheerleading is a type of communication strategy used in DBT. Its goal is to validate the patient's inherent ability to overcome adversity and to build hope that she can expand her skill set to improve her life. This is especially important for patients who are demoralized and hopeless, and who have difficulty envisioning themselves being able to change entrenched behaviours. Cheerleading strategies are encapsulated by the therapist attitude of "I believe in you."

This strategy is meant to be *validating*, and therefore the therapist must be aware of signs that the patient finds the communication invalidating (e.g., if the patient believes that the therapist does not understand how hard it is for her). The therapist needs to balance validation with realistic goals for the patient at each point in time: If goals appear too lofty for her present skill set, then the patient might feel invalidated. Following are some specific DBT Cheerleading communication strategies that can be incorporated into the therapeutic interaction.

1. Assuming the best

- This is the fundamental assumption is that the patient wants to get better and is doing the best she can at the given moment.
- When using this strategy, the therapist should explicitly verbalize that h/she assumes that the patient is doing her best.
- Assuming the best can be especially helpful when the patient expresses self-doubts or that she could have done better. At such times, the therapist can express belief that the patient has done the best she could in the moment.

2. Providing encouragement

- This refers to the therapist's expression of beliefs that the patient will be able to overcome her adversities, perform the behaviours she needs to get better, and cope with challenges.
- This strategy involves demonstrating the therapist's own hopefulness in the patient's ability to achieve her goals.
- Expressions of encouragement can be specific or general, and can be related to change or coping in short- or long-term.
- Encouragement should be formulated around the patient's actual abilities (or just beyond what she can do easily), such that the encouragement is perceived as realistic.

3. Focusing on the patient's capabilities

- Although it can be easy to focus on cognitions, with cheerleading it is important to emphasize specific behavioural *skills* that the patient has and can engage in to deal with her problems directly. The therapist can validate the patient's emotions and cognitions, but should highlight her skills.

- The therapist should communicate that the patient has or is learning the skills needs, and that her problems are a result of having learned specific behaviours rather than having some kind of internal deficit.
- Expressing a belief in the therapeutic relationship as a way to work *together* towards goals can also be emphasized.

4. Contradicting/modulating external criticism

- The patient may refer to others' criticisms of her. The therapist should point out that regardless of the relative validity of these statements (valid or not), these statements do not mean that things are hopeless.
- If the therapist in fact disagrees with others' criticisms, the therapist can express this directly.
- The therapist should be careful not to invalidate the patient's emotions about these criticisms.

5. Providing praise and reassurance

- Praise can be a reinforcer and can also be used to encourage the patient. Praise should focus on concrete and specific evidence of improvement or things done well.
- Regardless of symptom change, one domain that can be praised is the patient's hard work, which is demonstrated by the fact that she has stayed in treatment.
- Notes: Some patients (particularly those with personality disorders) may experience praise as threatening. In such cases, praise should be accompanied by reassurance, (e.g., you did a great job when you practiced X behaviour, **and** I also know you still need support working on this strategy). If the patient is constantly reassurance seeking, this should be addressed directly, as praise may no longer be encouraging her.

Appendix A7
Monitoring Sheet for Staying Symptom Free

Day/Time	Situation/Urge	Strategies used	Thoughts/Feelings/Outcomes

Appendix A8
Strategies List for Normalized Eating
(Adapted from McCabe, McFarlane & Olmsted, 2003)

Mechanical Eating

- Sticking to the meal plan, no matter how you feel (hungry, full, emotional), and no matter what your thoughts are telling you.
- Planning your meals and snacks (i.e., timing, location, foods) will help you stick to the plan.

Trying Normalized Eating as an Experiment

- Just like Alice didn't know what to expect when she jumped headfirst down the rabbit hole, you might not know what to expect with normalized eating.
- Engaging fully with the meal plan for a specific period of time (2 weeks? 2 months?) as an experiment can help you to jump in with both feet and close the door behind you. If you decide afterwards that it is not for you, then you know you have given it a good chance.

Food as Medicine

- The eating disorder works like a cycle. Your feelings about your body probably lead to dieting/restricting. The hunger that results from this can set you up to binge and purge, and can make you more vulnerable to bingeing/purging when you experience strong emotions.
- Breaking the cycle starts with normalizing your eating. This helps you to start fighting the urges to binge.
- In this way, food is your medicine. Just like with other illnesses, you might not like the taste or side effects of a medicine but you might still take it if it would help you to get better. With an eating disorder, *food is your medicine*, and the meal plan is your treatment regimen that will help you recover. This reminder can help you when you are struggling to stay on track.

Nondieting

- Dieting is counterproductive to recovery. How can you change your old behaviours if you still have one foot in the door? The premise of rapid response is that in order to recover, the door to the eating disorder needs to be shut completely. This means giving up dieting.
- Dieting can trigger to other symptoms, and it keeps you focused on your weight, which makes it really hard to take risks and work on your recovery.
- Part of the commitment to rapid response means getting rid of diet products and sticking to the balanced meal plan you create with the dieticians.

Incorporating Risky Foods

- Part of the anti-eating disorder meal plan is trying foods that are challenging. This is because a non-disordered way of thinking about food is that there are no good or bad foods, but rather that all foods are important to be able to eat in moderation.
- Additionally, when we are anxious or afraid of something, we usually want to avoid it, but research shows that over time, that avoidance makes the fear and anxiety worse. Usually, the outcome isn't as bad as we expect it to be if we give ourselves the chance to try it.

- In order to combat your avoidance of risky foods, you will learn to incorporate them in a planned way (rather than the out of control way like in a binge). Planning how to have these foods, and learning to eat them normally, will take away their salience and their power.
- Tips for incorporating risky foods include: planning; starting with a moderately risky food (not the scariest food possible); and doing it in a context (place and time) where you won't be able to binge and/or purge.

Plan and Monitoring Eating

- People with eating disorders often find that their eating is influenced by emotions and urges. Planning your eating will help you to decide what to eat without the influence of emotions in the moment. Self-monitoring your eating will help you and the team to identify any struggles and help you to make improvements, as well as to notice things you are doing well at.
- The WEBs in the day hospital are going to help you to do this.

Appendix A9
Strategies for Binge Eating and Compensatory Symptoms
(Adapted from McCabe, McFarlane & Olmsted, 2003)

Distraction

- Intense urges can overtake your mind. One way to fight these urges is to distract – do any activity that can take your mind off of the urges. This can be anything that you enjoy doing and that you are engaged enough in that it will sufficiently distract you.
- Examples include: Watching TV, listening to music, going on the internet, playing a video or computer game, reading, socializing, talking on the phone, texting a friend, painting nails, going outside for some fresh air, going to Chapters (or another large store that does not sell food or clothing) and browsing for as long as is needed. What can serve as a good distracter depends on the person, so it's important to think about what might work for you.
- Tip: Generate a list of distracting activities to have on hand for when urges arise.

Delay

- Sometimes when urges arise, it can feel like you need to engage in the behaviour *right now*.
- Often, people find that if they just wait it out, the salience of the urge reduces. The delay strategy involves making a mental commitment to wait a specified period of time (e.g., 10 minutes, 1 hour, 4 hours, etc.), before making a decision about whether to act on the urge. Once the period has ended, you have the opportunity to reevaluate what you want to do (e.g., wait for another period, use another strategy, etc.).

Urge Surfing

- Urges usually spike in intensity and then start to subside. It's kind of like waves in an ocean.
- Urge surfing is similar to delay in the sense that it involves waiting a period of time to let the urge pass. But with urge surfing, your goal is to "ride out the urge". Just like a surfer might rise and fall with the waves, in urge surfing you ride the urge as the intensity rises and falls.
- The goal is to ride out the urge until its intensity drops enough to cope with it. Just like a wave, the urge can't stay high forever. At some point it will come down.

Coping Statements

- These are phrases or statements that you can say to yourself to help yourself cope with urges without acting on them.
- Everyone's coping statements are different, so you will need to come up with something that resonates for you (examples are on pg. 74 of Chapter 5). Usually it's something that is relevant to your own goals and own recovery, and something that is salient to you.
- Some people wish to write down their coping statement on an index card so they can carry it with them and look at it in a time of intense urges.

Not an Option

- *Not an option* is a form of coping statement that specifically involves thinking about restriction, bingeing, and purging as behaviours that are not an option for you.

- Rapid response means shutting the door fully on symptoms and diving into the experiment with both feet, and that is what not an option is all about. It means that in times of high urges, reminding yourself that in order to recover permanently, symptoms are not an option, even and especially early in treatment.
- Sometimes it helps to remind yourself why behaviours are not an option (e.g., medical seriousness of purging symptoms; the cyclical nature of the eating disorder; the fact that rapid cessation of symptoms increases the chance of a full and permanent recovery).

Identifying and Planning for High-Risk Situations

- Inevitably situations will come up that trigger strong urges. This could be specific people, places, times, events, or even certain kinds of thoughts or emotions.
- To figure out which situations are high-risk think about situations that usually trigger strong urges or symptoms. “Situations” can include people, places or times, locations, events, or even difficult or specific thoughts or emotions. What is usually going on when you have symptoms, or when your urges are typically very strong?
- Once you know which situations are high-risk, you can either plan to avoid them, or plan strategies to help you cope with them.
- Some situations can be avoided, if they are things you don’t need to do right now while you are working on your recovery. For example, you probably don’t need to eat at a buffet dinner, go out to a nightclub, go swimming, buy new clothes, or see a friend whose comments are triggering to you.
- Other situations are hard to avoid and you may need to come up with a plan. For example, at some point you will probably need to go grocery shopping, talk to your family, spouse or boyfriend/girlfriend, or close friends or roommates, and think about or engage in activities related to work or school.
- For these latter situations, you and your therapist can come up with ideas about how to cope skillfully when these situations do come up. For example, if you need to go grocery shopping, a high-risk situation for bingeing, maybe you will use any or all of these strategies: making a shopping list, only taking \$20 so you can’t buy more than you need, shopping when you are not hungry and not upset, and taking a supportive, recovery-oriented friend or family member with you. Having multiple strategies on hand is a good safety plan.

Creating a Safe Environment

- It is also important to remove items from your environment that trigger your urges or increase the chances of having symptoms.
- For example, you should remove from your home (or limit access to): scales and measuring tapes, diet foods/products, binge foods, measuring cups, diet pills or laxatives, fashion magazines or diet books, gym clothes (you can also suspend your gym membership), clothes that don’t fit anymore, any objects you might have used for purging, and thinspiration pictures. You can even bring these in and leave them with your therapist.

Limiting Opportunities for Symptoms

- If you don't have opportunities to have symptoms, the chances of staying symptom free are much higher. Maybe this means committing to certain rules about symptoms that make your symptoms more difficult or inconvenient to engage in (e.g., "If I decide to binge, it can only be on this one single type of food"; "If I decide to purge it can only be in a toilet in a building across town"). This will make it much harder to engage in eating disorder behaviours.
- While limiting your opportunities, you can also engage in other strategies such as distraction or seeking out company of supportive others to fill your time. This way, time spent alone is minimized.

Behavioural Chain Analysis ("Breaking the Chain")

- Usually when you have eating disorder behaviours, you had an urge that came before it. However there are likely a whole bunch of small steps between the urge and the behaviour. You might have felt that there was "nothing you could do" to stop the symptom, but sometimes by breaking the chain of events down into its small details, you noticed events that triggered the urge and symptom. Maybe after breaking it all down, you will notice areas of the chain where you could have used a strategy or tried something different.
- By analyzing this in detail, you can plan to use strategies next time another situation like this arises.

Appendix A10
Strategies for Emotion Regulation and Distress Tolerance
(Adapted from Linehan, 1993b)

Opposite Action

- The behaviours we engage in during an emotion are an important part of maintaining that emotion. You can combat strong emotions by acting in a way that is inconsistent or oppositional to the current emotion, both in terms of actual behavioural responses, as well as in terms of body position and facial expression. The goal of opposite action is to express a different emotion than the one that is being experienced, to help bring the emotion down.
- Opposite actions to fear: Do the thing you fear; get closer to doing the things you fear; break the task into smaller steps that are more approachable.
- Opposite actions to unjustified guilt and shame: Do the thing that makes you feel guilty or ashamed; adopt a body posture of confidence to combat the feelings of shame.
- Opposite actions to sadness and depression: Engage in activities rather than withdrawing or avoiding; engage in activities that you feel competent and confident at doing.
- Opposite actions to anger: If you are angry at someone, gently avoid them for now rather than lashing out; do something nice for the person; try to imagine feelings of empathy for the person you are angry at.

Self-Soothing Strategies

- Soothing the senses can help to reduce strong emotions in the moment.
- Vision: Look at art, nature, a candle, a flower, the stars, pictures in a book, or even TV; paint your nails.
- Hearing: listen to soothing music or exciting music; listen to nature sounds; sing or hum; play an instrument; pay attention to sounds in your environment.
- Smell: use a nice perfume or lotion; light a scented candle; use lemon oil on furniture; go outside in breathe in the smells of nature.
- Touch: take a bubble bath; apply lotion to your feet or hands; put clean sheets on the bed and get in; lie on a very comfortable piece of furniture; pet your dog or cat; hold an ice pack or cold compress.

Deep Breathing

- Focus your attention on your breath, going in and out of your body. Breathe deeply, evenly, and gently, and focus on your breath as you breathe deeply. This is a way to reconnect with your mind and stop fighting reality.

Radical Acceptance

- Radical acceptance is about accepting a situation as it is. This doesn't mean approving of the situation, or liking it, but rather simply accepting that it is as it is.
- The idea here is that our pain only becomes suffering when we can't accept the pain as it is. If we can tolerate the pain in the moment, and acknowledge it without focusing on changing it, this is acceptance. Acceptance helps you to move out of suffering.

Distraction & Pleasant Events

- Many of the distraction activities in the binge strategies list can also be used as distress tolerance strategies.
- Engaging in activities in the moment that are pleasant for you can prompt positive emotions, or at least reduce some of the negative emotions.

Appendix B
Motivational Interviewing (MI)
Treatment Manual
(Adapted from Carter & Bewell-Weiss, 2012)

Key Elements of the MI Protocol

- The spirit of MI is not particularly consistent with a manualized approach, given that it is essentially person-centered. The goal is to help the patient resolve ambivalence and increase intrinsic motivation to change. Additional information about communication strategies and the spirit of MI can be obtained from Miller and Rollnick (2013) and is summarized in Appendix B1.
- Thus, the spirit of MI is more important than the use of particular techniques. The spirit of MI includes:
 - Collaborative and curious approach to eliciting the patient's reasons for and against change. This is done with open-ended questions and empathy.
 - It is meant to *evoke* from the client rather than *prescribe* techniques.
 - MI respects the patient's autonomy, meaning the therapist should follow the patient's lead in many ways. The therapist should always ask the patient if she would like to hear about a new idea or technique, and if she wishes to try it.
 - ***MI is free from praise.*** This is a departure from behavioural methods, so it is important in this intervention not to reinforce the patient but rather openly help her explore both sides of the issue. ***It is essential for this study that this tenet of MI (i.e., free from praise) be strictly adhered to, as reinforcement of change is an important part of the CBT-RR protocol.***
 - Techniques as laid out in the manual can be used, but the "protocol" should be modified flexibly according to the patient's needs and wishes. Overall, the therapist should focus on asking open-ended questions and being collaborative and empathic.

Session 1
(2 [or 1] weeks prior to Starting DHP)

Objectives:

- Establish rapport
- Introduce MI
- Explore the patient's history
- Explore the pros and cons of the eating disorder

1. Introduction to therapist and treatment

- The therapist should introduce herself/himself and qualifications.
- Let the patient know that you will describe a little bit about the treatment, and then she can talk about herself and her eating disorder in more detail so the therapist can get to know her.
- This intervention involves 4 weekly one hour sessions, beginning two weeks prior to starting day hospital.
- The spirit of MI is based on good rapport, so it is essential to establish this by session 1.
- Although patients have sought help by seeking intensive treatment, there is variability in patients' readiness to make changes to eating behaviours and binge/purge symptoms. There may be strong ambivalence towards change, such that although they want to make changes or have good reasons to do so, they also may value their eating disorder and wish to keep it as well. An essential feature of MI is to explore this ambivalence (i.e., both sides).
- *The therapist should explain the following to the patient during the first session. It should not sound like a didactic lecture, but it should be an interactive exchange that includes the following points. Be sure to use open-ended questioning and reflections throughout the conversation:*
 - It is normal to have mixed feelings about making changes to something like an eating disorder.
 - The therapist's job is not to convince you to change, but to help you to explore the pros and cons of both sides – staying with versus recovering from the eating disorder.
 - Change is a process, and the natural change process involves both steps forward and steps backward. This is normal.
 - It is common to take steps backwards sometimes when working towards change – this usually means that the person may have tried to do too much too soon. This can feel like a failure, but it usually just means that the change steps didn't quite fit the person's level of readiness.
 - The purpose of these next 4 sessions is to explore both the reasons for and against recovery from the eating disorder, so that you can decide whether or not this is the right time to make the commitment to the day hospital and recovery from the eating disorder. This is not a “now or never” thing, but rather a goal that may or may not be right for you at this time.

- If, after these 4 sessions, you feel like this isn't the right time to commit to the goals of the day hospital, this doesn't mean that you have failed. In this intervention, we are going to explore if now is the right time for you to commit to long-term recovery, so if you decide that it is not, that is okay. In order to figure this out, we will use a tool called the decisional balance.
- The decisional balance can begin by asking the patient if she has ever felt as if she is being pulled in two different directions at the same time with a decision (e.g., deciding where to go to school or what program to take, deciding to break up with a boyfriend or girlfriend, deciding to move, etc.). This non-eating disorder example can be explored, focusing on both sides (use reflection strategies from Miller & Rollnick, 2013). This doesn't need to be done in an "official" way (i.e., don't need to write everything down), just a brief, informal discussion of the both sides.
- The patient should be ensured that the therapist is on her side and that the therapist's job is to try to be neutral, which will facilitate a thorough exploration of all facets of the situation. The key for the therapist is to express curiosity in the different reasons that the patient comes up with.

2. Exploring the Patient's History

- Here, the therapist should solicit from the patient an introduction to herself and brief history of how her disorder developed, to increase the patient's awareness of her situation and the function that the eating disorder might have served for her. Here are some possible areas to ask about, noting that each question should be reflected, and periodically the therapist should summarize what has been disclosed:
 - Significant life events when weight or eating first changed.
 - Positive outcomes related to the change in eating or weight.
 - Nature of relationships at the time of onset, and ways in which the ED affected these relationships.
 - Things that motivated ongoing weight loss/dieting/bulimic behaviours (as applicable).
 - Point at which she started noticing negative outcomes related to eating/weight, and the specific outcomes that she noticed.
 - Factors that motivated the patient to first seek treatment.
 - Treatment history (including dropouts and completions, reasons for dropouts, and what it felt like to relapse [if applicable – not relevant if this is the patient's first treatment or if she has never had a period of remission]).

3. Pros and Cons of the Eating Disorder

- Note that this might be the first time that the patient has had the opportunity to safely discuss the benefits of her eating disorder. The goal of this and the other sessions is to nonjudgmentally explore all sides of this issue to decide whether or not the eating disorder is the right choice for them.

- Also note that some authors believe that decisional balance may be counterproductive for those who are already action-oriented. Miller and Rollnick (2013) indicate that decisional balance can be useful for counseling with neutrality, but nevertheless be attentive to the patient's reactions to ensure that this activity is productive for action-oriented patients.
- **Script for Initiating the Decisional Balance** (wording taken verbatim from Carter & Bewell-Weiss, 2012): "Sometimes it can be hard to sort out all these reasons when they're swimming around in our heads. I can think of one technique that some people find helpful. *Would you be interested in hearing about it?*" If so, continue saying, "This technique involves writing out on a sheet of paper the pros and cons of the ED and the pros and cons of recovery, so that we can more easily look at it all at once. This technique is similar to writing a pros and cons list, but it's a little different in that we'll not only look at the pros and cons of continuing this process of change, but also the pros and cons of the ED. Often the pros of changing will be similar to staying the same (and vice versa), but sometimes they can actually be different, so it's useful to look at all sides. *Is this something you might like to try right now?* We call this the decisional balance."
- Get started in session on the *Decisional Balance – Pros and cons of the eating disorder* using the worksheet (see Appendix B2).

4. Homework

- Finish the *Decisional Balance – Pros and cons of the eating disorder*.

Session 2
(1 week prior to Starting DHP [OR 1st week of DHP])

Objectives

- To continue exploring pros and cons of the eating disorder and start thinking about pros and cons of recovery.

1. Check in

- Briefly ask the patient how she is and how she is managing now that her DH admission is next week (or how she is adjusting to DH, if she has already started). Use open-ended questioning and reflection, as per MI.

2. Review Homework

- Elicit from the patient what it was like to complete the decisional balance, and whether anything interesting has occurred to her (do this while reviewing the completed worksheet together). Explore each additional point nonjudgmentally and in greater detail.
- Ask the patient to elaborate, explain the ways each is a benefit or drawback, and to give examples. The therapist should note any discrepancies that emerge, and to point out when she has listed the same item as both a pro and con (and explore the meaning of this further).
- The therapist can also ask the patient to rate from 1 to 10 how important each item is.
- A discussion of the function of the eating disorder can be folded into this homework review. Here are some possible topics:
 - What is good about the eating disorder?
 - What needs do the symptoms/eating disorder meet for you?
 - Do any of these symptoms hurt/worry you? How?
 - What element distresses you the most?
- Explain to the patient that in addition to exploring the pros and cons of the eating disorder, it's also important to explore the pros and cons of pursuing treatment, as this can help her decide whether now is the right time to pursue change.
- Get started in session on the *Decisional Balance – Pros and cons of recovery* using the worksheet (see Appendix B3).

3. Homework

- Finish the *Decisional Balance – Pros and cons of recovery*.

ASK THE PATIENT TO COMPLETE THE SESSION 2 QUESTIONNAIRES!

Session 3 (During the 1st [or 2nd] Week of DHP)

Note: The balance of the protocol should be devoted to further exploration/resolution of ambivalence, or preparing people for change. This depends on the individual patient's level of motivation, and the therapist should tailor sessions 3 and 4 depending on the patient and her readiness.

- When patients continue to be ambivalent about change, further decisional balance type techniques can be used to further explore this ambivalence.
- When patients are change-oriented, expressed by significant “change talk” or signs that the pros of recovery exceed the cons, the sessions can focus on the elaborating the reasons for this change.

Note that the nature of MI is collaborative, so the therapist should involve the patient in deciding what to discuss and try, by asking the patient whether she would like to hear about or try different tasks.

Objective

- Identifying the patient's values and determining if the ED is consistent with this.

1. Check in about adjustment to Day Hospital.

- Ask the patient how she is adjusting to day hospital.
- *What has been challenging? Any surprises?*
- Don't focus on eating disorder behaviours or behavioural control. If the patient reports having engaged in eating disorder behaviours, you can explore the patient's thoughts and feelings about this in a reflective, nondirective way, but don't focus on strategies for behavioural control. Ensure the discussion is in keeping with MI and doesn't overlap with the CBT-RR check-in which is behavioural in nature.

2. Homework review

- Pros and cons of recovery.
- Explore this in a similar way to the way the first decisional balance was reviewed in session.

3. Patient's values and goals

- Exploring the patient's values and goals can help the therapist to highlight any discrepancies between her values and her current behaviours. Example topics for this discussion include:
 - Most important areas of life.
 - Most valued areas of life.
 - Goals for the future
 - Reasons these are most important/most valued/sought after (*Why* they are important/valuable AND *what makes them* so valued/important).

- Whether these areas have always been important or highly valued.
- What is the role or place for eating/symptoms in these areas? How do they tie in?
- The last point is a jumping off point to amplify discrepancy between values and behaviours.
- The therapist can also present a list of possible personal values to stimulate this discussion (See Appendix B4).

3. Homework

- **If patient is still ambivalent:** Writing a letter to the eating disorder as a friend and then as an enemy (see Appendix B5 for instruction and Appendix B6 for worksheet).
- **If the patient is change-oriented:** Importance ruler and confidence ruler (see Appendix B7 for instructions and Appendix B8 for worksheet). (Note: If the patient has purging disorder [not BN], let her know that she can skip the items on bingeing.)
- Remind the patient that next week is the last session.

ASK THE PATIENT TO COMPLETE THE SESSION 3 QUESTIONNAIRE!

Session 4
(During the 2nd [or 3rd] week of DHP)

1. Check in.

- Ask the patient how her week and adjustment to DH has been.
- *Any challenges?*
- Again, let the patient take the lead and don't focus on behaviour control strategies.

2. Homework review

- Review the homework assignment that the patient completed the previous week.
- If she completed the letter writing exercise, review the letters in a similar way to the previous decisional balance homework assignments. Emphasis might be specifically focused on the emotions reflected in the letters, as this is likely to be a unique component not as present in the previous decisional balances. The patient can be asked for elaborations, explanations, and examples as appropriate.
- If the patient completed the importance and confidence ruler, then the therapist can review these in more detail. The therapist should **not** ask for reasons why a patient rates a ruler lower rather than at a higher rating (e.g., “Why are you an 5 and not a 8?”), as discussing her reasons might actually elicit “sustain talk” and dissuade her from change. However, the therapist **should** ask the patient about reasons why any of the ratings were not lower (e.g., “Why are you a 6 and not a 2?”; “What would move you from a 6 to a 7?”), as this can facilitate change talk. The therapist can also ask what it would take for the patient to move up on the ruler. Discuss this using open ended questions and find out about the patient's level of importance, confidence, and readiness for change in each applicable area.

3. Session Content

- **If the patient completed the letter writing exercise and is still ambivalent:**
Self-esteem pie exercise in session (see Appendix B9 for instructions and Appendix B10 for worksheet).
 - Offer self-esteem pie worksheet and explain it to the patient. There are several domains of life that may influence self-esteem, which she can select and rank in order of importance, and then draw a pie chart to show the proportion of each domain to her self-esteem. Give her some time to complete in session.
 - Once she is done, this should be discussed collaboratively. Areas to discuss: reactions, surprises, and feelings about current pie.
 - Then give her a second copy of the sheet and ask her to complete a pie for her ideal self-esteem. Explain that there are no correct answers and that this pie should reflect whatever she considers to be ideal. Once she is done, discuss collaboratively:
 - Changes/similarities between two pies
 - Will this influence behaviour? Why/why not?

- **If the patient completed the letter writing exercise and now seems change oriented:**
Importance and confidence ruler in session
 - Same as homework for change-oriented patients in session 3 and discussion of this homework for applicable patients in session 4.
- **If the patient completed the importance and confidence ruler for homework and is still change oriented: *Looking forward exercise*** (see Appendix B11).
 - Ask the patient to describe in detail two different scenarios for the future. The therapist should decide which scenario makes most sense for her to describe first, given the patient's individual difficulties and strengths.
 - One scenario is life in 5 years if she continues with the eating disorder. She should describe in detail what her life would be like.
 - The other scenario is what life would be like in 5 years if she made changes to her eating disorder in the present.
 - The therapist should patiently facilitate the patient's exploration and ensure not to promote one future scenario over the other. Then the differences between the scenarios and the patient's reactions to them can be discussed.
 - The importance and confidence ruler can be used as a tool to facilitate this discussion, depending on what she chooses. For example, if she believes that the future is more ideal if she makes changes now, the change ruler can be used to think about how she might make that happen.

4. Testing readiness and developing a change plan

- Ask the patient directly now that the pros and cons have been reviewed what she has decided regarding pursuing eating disorder recovery.
- Summarize the change talk that the client has made so far, and ask what she is considering doing at this point.
- Summarize the patient's plan for change, problem solving any potential challenging.
- Then elicit from the patient ideas about how she will work towards this goal, and the steps she plans to take this week towards it.

5. Wrap up and goodbyes.

ASK THE PATIENT TO COMPLETE THE SESSION 4 QUESTIONNAIRE!

REMIND THE PATIENT THAT AT WEEK 4 OF DAY HOSPITAL (2 WEEKS FROM NOW) SHE WILL BE GIVEN A SHORT PACKAGE OF QUESTIONNAIRES AS PART OF THE RESEARCH STUDY

Appendix B1
MI Communication Strategies
(Adapted from Miller & Rollnick, 2013)

Clinical strategies in MI consist of 4 components, each with several subcomponents. These are important to the spirit of MI.

1. Engaging: Fostering the therapeutic alliance

- Asking open-ended questions on which the client has an opportunity to elaborate.
- Affirming that the client has strengths and resources available to draw upon.
- Reflecting the client's statements back to him or her, focusing selectively on "change talk". Reflections should be formed as statements, not questions, in order to avoid defensiveness. Reflections can be straight reiterations of what the client has said, or can add meaning or a guess about unarticulated content.
- Summarizing an understanding of what the client has said and synthesizing the various aspects of his or her motivations and intentions.

2. Focusing: Developing a direction in the conversation about change

- With the client's permission, elicit information about what the client knows or is interested in knowing with respect to a target behaviour. It is important to ask permission about whether the client would like to receive this information.
- Provide information that might be helpful to the client's understanding, respecting the client's autonomy to disregard this information if he or she wishes.
- Elicit information about how the client understands and interprets the information that has been provided.

3. Evoking: Having the client voice his or her own motivations, reasons, and strategies for change

- Pro-change talk is referred to as "change talk", and counter-change talk is referred to as "sustain talk". Change talk may be preparatory (i.e., "thinking about change") or action oriented (i.e., "ready to change").
- Increasing change talk can strengthen clients' commitment to change, which can be achieved through asking open-ended questions that evoke change talk (i.e., questions related to desire for change, ability or strategies for change, reasons for change, or need for change).
- Several of the homework assignments (i.e., importance and confidence ruler; looking back; looking forward) are also strategies that can evoke change.
- The engaging strategies (i.e., open-ended questions, affirming, reflecting, and summarizing) can be used to respond to and encourage change talk.
- Several strategies can be used to respond to sustain talk. It is important to know that there is nothing "wrong" with sustain talk, it is simply one side of an ambivalent position.
 - Straight reflection.

- Amplified reflection that overstates the position contained within the sustain talk.
 - Double sided reflection that captures first the sustain talk and then the change talk (e.g., “On one hand...”).
 - Emphasizing the individual’s autonomy for choice.
 - Confidence talk can be used to strengthen the client’s confidence in his or her ability to make change. This can be achieved by:
 - Asking open-ended questions for which the client’s responses are likely to be a discussion of confidence in their abilities (e.g., “What gives you some confidence that you could make these changes?”).
 - Giving information or advice.
 - Highlighting past successes, focusing on relevant skills.
 - Brainstorming solutions.
 - Reframing failures as attempts.
 - Hypothetical thinking about as imagined success.
 - Developing discrepancy
 - Ask the client to explain their knowledge of the issue, and then provide information to correct a misunderstanding.
 - Provide information about how the client’s behaviour compares to normative behaviour.
 - Explore the client’s perception of others’ concerns about their behaviour.
 - Respecting the individual’s autonomy to choose not to change.
- 4. Planning: Commit to change and develop a plan to do so.**
- Ask the client directly about her readiness for change and what she plans to do.
 - Then the therapist can discuss with the client the client’s plans and ideas for change, help her troubleshoot potential problems, and develop concrete goals for initial changes.

Appendix B2
Decisional Balance: Pros and Cons of the Eating Disorder

	Pros of the eating disorder	Cons of the eating disorder
Short term		
Long term		

Appendix B3
Decisional Balance: Pros and Cons of Recovery

	Pros of recovery	Cons of the recovery
Short term		
Long term		

Appendix B4
Values Card (Abridged)
(Taken verbatim from Carter & Bewell-Weiss, 2012)

1. Acceptance (to be accepted as I am)
2. Accuracy (to be accurate in my opinions and beliefs)
3. Achievement (to have important accomplishments)
4. Adventure (to have new and exciting experiences)
5. Attractiveness (to be physically attractive)
6. Authority (to be in charge of and responsible for others)
7. Autonomy (to be self-determined and independent)
8. Beauty (to appreciate beauty around me)
9. Caring (to take care of others)
10. Challenge (to take on difficult tasks and problems)

Appendix B5

Letter Writing Exercise (Instructions)

(Adapted from Carter & Bewell-Weiss, 2012; as adapted from Serpell, Treasure, Teasdale, & Sullivan, 1999, and Serpell & Treasure, 2002).

Writing a letter to the eating disorder:

1. First as a friend
2. Then as an enemy

Objective

- To continue working on identifying the pros and cons of the eating disorder, and to explore the emotions related to these. It is likely that this will get at the emotions related to the functions more than the standard decisional balance.

Important points

- In the spirit of MI, the therapist should ask the patient if it is okay to present the rationale for the letter writing exercise, explain the premise, methods and possible benefits.
- The letters can be any length, and the writer should personalize the eating disorder so that they can speak directly to the eating disorder as if it is another person.
- If she chooses to complete the exercise, the patient should do each letter one at a time, and should do it in a stream-of-consciousness way, including any and all emotions.
- Because the letter writing activity may bring up strong emotions, it is recommended to do this exercise the same day of the next session, or when she knows support will be available.
- When going over the letters in session, the therapist can focus on the emotional components, and can ask the patient to expand, elaborate, and give examples, similarly to the decisional balances.

Appendix B6
Letter to My Eating Disorder as a Friend

Letter to My Eating Disorder as an Enemy

Appendix B7
Importance and Confidence Ruler (Instructions)
(Adapted from Carter & Bewell-Weiss, 2012)

Objective

- To assess both motivation and confidence to change if the decision to try change was undertaken. This exercise was adapted from its original format to be appropriate/relevant for patients with bulimia rather than anorexia.

Set-up

- Ask the patient to complete the rulers for homework. When taking up the homework, the therapist can go over the rulers with the patient in more detail.
- When a ruler is give a low rating (e.g., 4), in the spirit of MI, the therapist should ask the patient why she chose that rating and not something lower (e.g., 1 or 2). This will encourage the patient to talk about reasons for change.
- The therapist *should not* ask the patient why she does not have a higher rating, as this will likely lead her to argue against change.
- The therapist can also ask the patient what it would take to move her from a lower score to a higher score (e.g., 4 to 5).

Appendix B8

Importance and Confidence Ruler Worksheet

Please consider the following items, and rate each on a scale from 1 to 10 by circling the appropriate number on the ruler.

1. How important is it for you to eat normally (i.e., without dieting, restricting, or having forbidden foods)?

1 2 3 4 5 6 7 8 9 10

2. If you decided to change your eating, how confident are you that you would succeed?

1 2 3 4 5 6 7 8 9 10

3. How ready are you to change your eating?

1 2 3 4 5 6 7 8 9 10

4. How important is it for you to stop binge eating?

1 2 3 4 5 6 7 8 9 10 N/A

5. If you decided to stop binge eating, how confident are you that you would succeed?

1 2 3 4 5 6 7 8 9 10 N/A

6. How ready are you to stop binge eating?

1 2 3 4 5 6 7 8 9 10 N/A

7. How important is it for you to stop vomiting?

1 2 3 4 5 6 7 8 9 10 N/A

8. If you decided to stop vomiting, how confident are you that you would succeed?

1 2 3 4 5 6 7 8 9 10 N/A

9. How ready are you to stop vomiting?

1 2 3 4 5 6 7 8 9 10 N/A

10. How important is it for you to stop using laxatives (if applicable)?

1 2 3 4 5 6 7 8 9 10 N/A

11. If you decided to stop using laxatives (if applicable), how confident are you that you would succeed?

1 2 3 4 5 6 7 8 9 10 N/A

12. How ready are you to stop using laxatives?

1 2 3 4 5 6 7 8 9 10 N/A

13. How important is it for you to stop exercising (if applicable)?

1 2 3 4 5 6 7 8 9 10 N/A

14. If you decided to stop exercising (if applicable), how confident are you that you would succeed?

1 2 3 4 5 6 7 8 9 10 N/A

15. How ready are you to stop exercising (if applicable)?

1 2 3 4 5 6 7 8 9 10 N/A

16. How important is it for you to improve your weight and shape concerns?

1 2 3 4 5 6 7 8 9 10

17. If you decided to change your weight and shape concerns, how confident are you that you would succeed?

1 2 3 4 5 6 7 8 9 10

18. How ready are you to change your weight and shape concerns?

1 2 3 4 5 6 7 8 9 10

Appendix B9
Self-Esteem Pie Exercise (Instructions)
(Adapted from Carter & Bewell-Weiss, 2012)

Objective

- To allow the patient to examine the areas of life which contribute to her self-esteem, and to notice the role of weight and shape compared to other factors. She might notice that weight and shape plays a large role, and/or that the role of weight and shape is not consistent with what she values in life.

Important Points

- The therapist should provide the self-esteem pie worksheet (Geller, Johnston, & Madsen, 1997), and ask the patient to complete the pie chart showing which domains are relevant to her, and indicating the proportion of the pie comprised by each domain.
- The therapist and patient can collaboratively discuss her reactions to doing this (including: emotions about it, any surprises).
- Then the therapist can ask her to do a second pie, but this time thinking about what her ideal self-esteem would like.
- The therapist should indicate that there are no right or wrong answers. Following this, they can discuss any changes, similarities, etc., between the two pies. The therapist can also ask whether this will have any impact on behaviour.

Appendix B10 **Self-Esteem Pie Worksheet** (Geller, Johnston, & Madsen, 1997)

DIMENSIONS OF SELF-ESTEEM INVENTORY **OUR OPINION OF OURSELVES IS BASED ON HOW WE FEEL ABOUT OUR DIFFERENT** **PERSONAL ATTRIBUTES.**

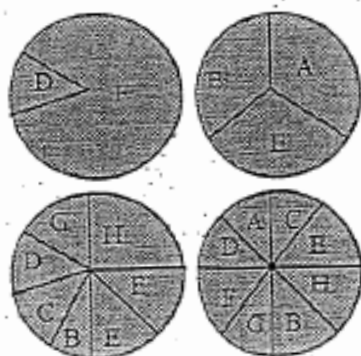
STEP 1: Please read through the list below and **PLACE AN "X"** on the line next to each attribute that is important to how you have felt about yourself over the last four weeks.

STEP 2: Now, look over the attributes you have selected and **RANK ORDER** them in terms of how much your opinion of yourself in the last four weeks has been based on each attribute. The numbers should not necessarily reflect how satisfied you have been with the attribute, but rather how important the attribute has been to how you feel about yourself.

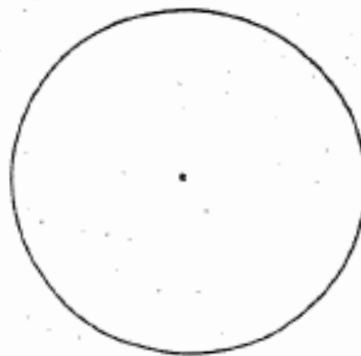
STEP 3: Using the attributes you have selected, **DIVIDE THE CIRCLE** below so that the size of each section is a reflection of how much your opinion of yourself in the last four weeks has been based on that attribute (larger sections should indicate that a greater part of your opinion of yourself has been based on that attribute). Place the letters corresponding to the attributes inside the pieces of the circle.

- ☐ _____ **A: Your intimate or romantic relationships**
e.g., as reflected in the level of closeness you feel in close relationships
- ☐ _____ **B: Your body shape and weight**
e.g., your actual current shape or weight
- ☐ _____ **C: Your competence at school/work**
e.g., as reflected by grades or work evaluation
- ☐ _____ **D: Your personality**
e.g., warmth, level-headedness, openness, self-control
- ☐ _____ **E: Your friendships**
e.g., as reflected by the number or quality of friendships
- ☐ _____ **F: Your face**
e.g., how "good looking" you are
- ☐ _____ **G: Your personal development**
e.g., your sense of morality, ethics, or spirituality
- ☐ _____ **H: Your competence at activities other than school/work**
e.g., your competence in music, sports, hobbies
- ☐ _____ **I: Other**
Please describe: _____

Examples:



Your circle:



Appendix B11

Looking Forward Exercise (Instructions)

Objective

- To encourage the patient to think about her future life and consider that her future life would be better if she recovered from the eating disorder.

Important Points

- Ask the patient to describe two future scenarios, five years from now. The therapist can decide which scenario to ask for first, depending on what makes most sense in the session.
- The first is life in 5 years if she continues with the ED. She should describe in detail what her life would be like.
- Then she should describe in detail what life would be like in 5 years if she made changes in the present.
- The therapist must not promote or advocate one scenario over the other, but rather help the patient to explore both scenarios.

Appendix C

Eating Disorder Urges and Behaviours Scale (EDUBS)

Please indicate the strength of your *urges at this moment* to engage in each behaviour, and *how likely you are to engage in each behaviour over the next couple of days*

1. **Binge eating** (e.g., eating 1000 or more calories, or more than most people would generally eat in one discrete period, and feeling out of control while eating).

URGE TO BINGE at this moment

Not at all A little Moderate Strong Very Strong

LIKELIHOOD OF BINGEING in the next couple of days

Definitely not Unlikely Likely Very likely Definitely will

2. **Self-induced vomiting** as a way of controlling your weight or shape.

URGE TO VOMIT at this moment

Not at all A little Moderate Strong Very Strong

LIKELIHOOD OF VOMITING in the next couple of days

Definitely not Unlikely Likely Very likely Definitely will

3. **Food restriction** (i.e., eating much less than most people usually eat, skipping meals).

URGE TO RESTRICT at this moment

Not at all A little Moderate Strong Very Strong

LIKELIHOOD OF RESTRICTING in the next couple of days

Definitely not Unlikely Likely Very likely Definitely will

4. **Physical exercise** as a way of burning off calories consumed.

URGE TO EXERCISE at this moment

Not at all A little Moderate Strong Very Strong

LIKELIHOOD OF EXERCISING in the next couple of days

Definitely not Unlikely Likely Very likely Definitely will

5. **Laxative** use as a way of controlling your weight or shape.

URGE TO USE LAXATIVES at this moment

Not at all A little Moderate Strong Very Strong

LIKELIHOOD OF LAXATIVE USE in the next couple of days

Definitely not Unlikely Likely Very likely Definitely will

Appendix D

Hope Related to Recovery Scale

Please indicate in each item how you feel *right now* with respect to *recovery from your eating disorder* by circling the appropriate response.

	Strongly Disagree	Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. I feel hopeful about my recovery.	1	2	3	4	5	
2. I am optimistic that I can recover from my eating disorder.	1	2	3	4	5	
3. I feel discouraged about my chances of recovering from my eating disorder.	1	2	3	4	5	
4. I can imagine a life without an eating disorder.	1	2	3	4	5	
5. I think I can recover from my eating disorder.	1	2	3	4	5	
6. I believe I can have a fulfilling life without an eating disorder.	1	2	3	4	5	

Appendix E

Attitudes about Treatment Questionnaire (ATQ)

Please indicate the extent to which the following statements apply to you.

1. I am ready to put my life on hold and really focus on recovery.
Strongly disagree Disagree Unsure Agree Strongly Agree
2. I need to carry on with my life while I work towards recovery.
Strongly disagree Disagree Unsure Agree Strongly Agree
3. I am so sick of having my eating disorder that I am prepared to do whatever it takes to recover.
Strongly disagree Disagree Unsure Agree Strongly Agree
4. I expect that it will take some time for me to make changes.
Strongly disagree Disagree Unsure Agree Strongly Agree
5. I feel confident that I can recover now.
Strongly disagree Disagree Unsure Agree Strongly Agree
6. I need to understand my problems before I can control my symptoms.
Strongly disagree Disagree Unsure Agree Strongly Agree
7. Concern about my weight is a huge obstacle to recovery for me.
Strongly disagree Disagree Unsure Agree Strongly Agree
8. I can put my body image concern to the side for now and focus on recovery.
Strongly disagree Disagree Unsure Agree Strongly Agree
9. It is not realistic for me to control my symptoms all at once.
Strongly disagree Disagree Unsure Agree Strongly Agree

Appendix F

Beliefs Questionnaire

Please indicate in each item how you feel *right now*, by placing a circling the appropriate number on the horizontal line.

1. I completed the homework that my therapist asked me to do.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree		Strongly agree	

2. I believe that rapidly interrupting my symptoms is important to my recovery.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree		Strongly agree	

3. I feel motivated for recovery.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree		Strongly agree	

4. I believe that I have a chance to do well in day hospital treatment.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree		Strongly agree	

5. I believe that I can stop binge eating.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree		Strongly agree	

6. I believe that I can stop vomiting.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree		Strongly agree	

7. I believe that I can eat normally without restriction.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree		Strongly agree	

Appendix G

Demographic Questionnaire

The following questions refer to demographic information about yourself. You may skip any questions that you do not wish to answer.

1. Age: _____

2. Gender:
 - ☐ Female
 - ☐ Male
 - ☐ Transgender
 - ☐ Other (please specify) _____

3. Sexual Orientation:
 - ☐ Heterosexual/Straight
 - ☐ Lesbian/Gay
 - ☐ Bisexual
 - ☐ Other (Please specify) _____

4. Race/Ethnic Origin: (Please check all that apply)
 - ☐ Aboriginal
 - ☐ Arab/West Asian
 - ☐ Black
 - ☐ East Asian
 - ☐ Latin American
 - ☐ South Asian
 - ☐ South East Asian
 - ☐ White
 - ☐ If none of the above, please specify: _____

Appendix H

Consent to Participate in a Research Study

STUDY TITLE:

Individual Therapy to Prepare for Day Hospital Treatment for Bulimia Nervosa and Purging Disorder: A Randomized Controlled Trial Comparing Two Brief Interventions

NAME OF PRINCIPAL INVESTIGATOR:

Dr. Traci McFarlane, PhD (Psychologist, TGH Eating Disorder Program)

Danielle MacDonald, MA (PhD Student, Clinical Psychology, Ryerson University)

Dr. Michelle Dionne, PhD (Associate Professor, Psychology, Ryerson University)

CONTACT INFORMATION:

Dr. Traci McFarlane: traci.mcfarlane@uhn.ca, 416-340-3720

Danielle MacDonald: danielle.macdonald@psych.ryerson.ca, 416-340-4800, ext. 5664

Michelle Dionne: mdionne@psych.ryerson.ca, 416-979-5000, ext. 7103

(Please note that email should not be used to communicate confidential or sensitive information, and should be used for general communication only.)

INTRODUCTION:

You are being asked to take part in a research study. Please read this explanation about the study and its risks and benefits before you decide if you would like to take part. You should take as much time as you need to make your decision. You should ask Dr. McFarlane or Ms. MacDonald to explain anything that you do not understand and make sure that all of your questions have been answered before signing this consent form. Before you make your decision, feel free to talk about this study with anyone you wish including your friends, family, and family doctor. Participation in this study is voluntary.

BACKGROUND/PURPOSE:

You are being asked to participate in this study because you have been diagnosed with bulimia nervosa or purging disorder and have accepted treatment at the Toronto General Hospital Eating Disorder Day Program. This study will investigate the effects of adding two different types of individual treatment interventions to our standard day hospital treatment for bulimia or purging disorder. Research indicates that although day hospital treatment is helpful for many patients with these disorders, nevertheless some patients continue to struggle at the end of treatment, and some patients who do get better initially may return to their eating disorder within a short time. As such, we are researching ways to improve day hospital treatment to try to improve patients' ability to get better and stay better. This study gives you an opportunity to work one-on-one with an individual therapist about your eating disorder, in addition to the standard group treatment you are receiving in the day hospital. This may help you to gain a better understanding of your difficulties, and will give you the opportunity for individualized support as you work towards recovery. Additionally, your participation will benefit the scientific community and others with eating disorders by contributing to greater understanding of how we can improve the treatment of eating disorders.

Both of the study treatments will consist of 4 individual treatment sessions in the two weeks before starting day hospital, and the first two weeks of day hospital, in addition to receiving day hospital treatment as usual. These specific 4-session individual treatments are not currently used in our day program, but many of the strategies in these treatments overlap with strategies used by the day program and other settings that treat eating disorders. The length of the total individual participation in the study, including the follow-up period, is about 8 months (i.e., 4 weeks of individual treatment, plus additional

assessments, during and after completing day hospital), and we will be running the study over a total period of about 1.5 years. We hope to collect data from about 70 patients during the next 1.5 years.

STUDY DESIGN:

This study uses a study design called a *randomized controlled trial*. This means that you will be *randomized* to one of the two study treatments (“cognitive behaviour therapy” (CBT) or “motivational interviewing” (MI)). “Randomized” means that a computer will randomly assign you (like flipping a coin) to one of the two treatments. This means that every study participant has an equal chance of being in either of the two conditions, and that the study investigators are not choosing which patients receive which treatments. The randomization procedure helps us to compare the effects of the two treatments to one another to understand more about how the two treatments work. In addition to receiving one of the two study treatments, you will also receive your day hospital treatment as usual, meaning you won’t miss out on any aspects of standard day hospital treatment as a result of participating in this study.

PROCEDURES:

If you consent to the study, we will collect information about you for the purpose of this study. This will include interview questions about your eating behaviours and psychological functioning, and questionnaires about your eating, psychological functioning, and demographic variables (e.g., age, gender). For example, we will ask you about your bingeing and/or purging symptoms, body image, self-esteem, mood, and emotions using the interview and questionnaires. Because the study involves reading, writing, and communicating in English, in order to participate you must be able to read and speak fluent English. Because the interview is administered as part of the day hospital clinical service, we will obtain a copy of the interview rather than asking you to complete it twice. The additional initial questionnaires will take approximately 30 minutes. We will also obtain information about your eating disorder diagnosis and any other diagnoses you might have (if applicable), and your height and weight, from your clinical records.

After the pre-treatment assessment, you will be randomized to one of the two study treatments – CBT or MI. Both study treatments involve working with an individual therapist for four sessions (three 50-minute sessions and one 30-minute session) to prepare for day hospital treatment and to receive individual support during the first stage of treatment, but the specific strategies used will differ between the treatments. After you complete the initial assessment, the study coordinator will inform you about which treatment you have been randomized to, and the name and contact information of your therapist. All study therapists are PhD students in clinical psychology with training and experience treating patients with eating disorders, and trained thoroughly in the study treatments. All study therapists will be supervised by Dr. Traci McFarlane or Dr. Kathryn Trottier, both of whom are clinical psychologists registered with the College of Psychologists of Ontario, and who work in the Eating Disorder Program. Sessions will be audiotaped in order to ensure the quality of the therapy you are receiving and so that your therapist can receive adequate supervision. Audiotapes will be stored confidentially, will only be listened to by your therapist, the therapist’s supervisor, and the study investigators who will be examining the quality of the therapy provided, and will be destroyed upon completion of the study.

Information about your eating behaviours and weight collected throughout day hospital treatment for clinical purposes will be used in this study for research purposes. You will also be asked to complete additional questionnaires for research purposes at the end of the individual sessions (about 5 minutes each), after four weeks of day hospital (about 15 minutes), and at the end of day hospital (about 30 minutes). We will also assess your eating behaviours using a brief interview at the end of day hospital and 6 months later to follow-up on how you are doing. If you already complete any of these measures at post-Day Hospital or 6-month follow-up, as part of the Day Hospital Program Evaluation, we will use that data rather than asking you to complete these measures twice. This means that at these time points, you might

be asked to complete some measures, but we will ensure that you are not asked to complete the same measures twice.

VOLUNTARY PARTICIPATION:

Your participation in this study is entirely voluntary and you can choose not to participate at any time. You have the right to decline any component of the treatment or assessments if you wish. Your decision not to participate in the study or parts of it will not have any effect on your treatment in the Eating Disorder Program or at the Toronto General Hospital, or with your relationships with any of the staff.

WITHDRAWAL FROM STUDY:

You can choose to withdraw from the study at any time, and choosing to withdraw will not have any effect on your treatment in the Eating Disorder Program or at the Toronto General Hospital. Additionally, if over the course of the study, study or clinic staff have reason to believe you may be at risk of harm to yourself, we will withdraw you from the study for your own wellbeing. In the event that you withdraw from the study, please let Dr. McFarlane or Ms. MacDonald know if you would like to request to have all the information collected on you to be removed from the analysis of the study.

RISKS:

This study has some potential risks. Some of these risks we know about. The risks we know of are:

- The completion of therapy for your eating disorder may bring up issues that are personal, upsetting, or difficult. Thus, there is the potential for psychological distress as a result of working with a therapist in the study treatments.
- Sometimes completion of the assessments or questionnaire measures can be personal, or can bring up upsetting thoughts or emotions as well. Thus, there is also the potential for psychological distress following the assessment procedures.

If any aspect of the study leads to psychological distress, please let Dr. McFarlane know.

If any new risks are discovered you will be fully informed about this information.

BENEFITS:

You may or may not find that individual therapy is a direct benefit from being in this study. Information learned from this study may help in understanding the treatment of individuals with eating disorders in the future.

CONFIDENTIALITY:

As part of this study, the research team will look at your personal health information, and collect only that information that is needed for the study. Any information about you learned during this study will be confidential and neither your name nor any other identifying particulars will be made available to anyone other than the investigators, or appear in any publication without prior approval from you. All data collection forms used purely for research will be identified only by a subject number, and all electronic study data will be identified using this subject number. The list linking your subject number to your name will be kept in a secure place, and separate from all study-related documents. All data will be stored securely in locked cabinets or on the secure UHN server for 10 years.

As part of the clinical treatment provided by your therapist in the study intervention, your therapist will document the nature of the sessions and the issues discussed in a confidential clinical research file that includes your name and Medical Record Number. This is required by the College of Psychologists of Ontario as part of providing psychological services such as therapy (including services provided as a part of research), and this file will be stored in a locked cabinet separate from research data collection forms. Additionally, your therapist will be supervised by a clinical psychologist registered with the College of Psychologists of Ontario, and as such will discuss the details of your case and review audiotapes of your sessions with the supervisor as required by the College as part of the provision of services by a non-

registered treatment provider. The research team will also be reviewing audiotapes to assess the quality of the therapy you received as part of the study. Audio recordings will be stored electronically on the secure UHN server and will be destroyed upon completion of the study. All clinical details will be kept confidential.

Research Information in Shared Clinical Records

If you participate in this study, information about you from this research project may be stored in your hospital file and in the UHN computer system. The UHN shares the patient information stored on its computers with other hospitals and health care providers in Ontario so they can access the information if it is needed for your clinical care. The study team can tell you what information about you will be stored electronically and may be shared outside of the UHN. If you have any concerns about this, or have any questions, please contact the UHN Privacy Office at 416-340-4800, x6937 (or by email at privacy@uhn.ca)

Please note that representatives of the University Health Network, including the Research Ethics Board, may look at your study records and personal health information to ensure that the information collected for the study is correct and to ensure the study is following proper laws and guidelines.

A description of this clinical trial will be available on <http://www.ClinicalTrials.gov>, as required by U.S. Law. This Web site will not include information that can identify you. At most, the website will include a summary of the results. You can search this Web site at any time.

COSTS:

There are no financial costs associated with participating in this study. Participants will not be compensated for participation in this study.

RIGHTS AS A PARTICIPANT

If you are harmed as a direct result of taking part in this study, all necessary medical treatment will be made available to you at no cost.

By signing this form you do not give up any of your legal rights against the investigators, sponsor or involved institutions for compensation, nor does this form relieve the investigators, sponsor or involved institutions of their legal and professional responsibilities.

CONFLICT OF INTEREST

The researchers have an interest in completing this study. Their interests should not influence your decision to participate in the study.

QUESTIONS ABOUT THE STUDY

If you have any questions, concerns, or would like to speak to the study team for any reason, please call: Dr. Traci McFarlane at (416) 340-3720. If you are interested in receiving a copy of the study findings (or your individual results), please contact Dr. McFarlane after August 2016.

If you have any questions about your rights as a research participant or have concerns about this study, call the Chair of the University Health network Research Ethics Board (UHN REB) or the Research Ethics office number at 416-581-7849. The REB is a group of people who oversee the ethical conduct of research studies. The UHN REB is not part of the study team. Everything that you discuss will be kept confidential.

CONSENT

This study has been explained to me and any questions I had have been answered.
I know that I may leave the study at any time. I agree to take part in this study.

Print Study Participant's Name

Signature

Date

(You will be given a signed copy of this consent form)

My signature means that I have explained the study to the participant named above. I have answered all questions.

Print Name of Person Obtaining Consent

Signature

Date

References

- Agras, W. S., Crow, S. J., Halmi, K. A., Mitchell, J. E., Wilson, G. T., & Kraemer, H. C. (2000). Outcome predictors for the cognitive behavior treatment of bulimia nervosa: Data from a multisite study. *American Journal of Psychiatry*, *157*, 1302-1308. doi:10.1176/appi.ajp.157.8.1302
- Alegria, M., Woo, M., Cao, Z., Torres, M., Meng, X.-L., & Striegel-Moore, R. (2007). Prevalence and correlates of eating disorders in Latinos in the United States. *International Journal of Eating Disorders*, *40*, S15-S21. doi:10.1002/eat.20406
- Allen, K. L., Byrne, S. M., & Crosby, R. D. (2015). Distinguishing between risk factors for bulimia nervosa, binge eating disorder, and purging disorder. *Journal of Youth and Adolescence*, *44*, 1580-1591. doi:10.1007/s10964-014-0186-8
- American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders* (4th Edition, Text Revision). Arlington, VA: Author.
- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th Edition). Arlington, VA: Author.
- Anestis, M. D., Fink, E. L., Smith, A. R., Selby, E. A., & Joiner, T. E. (2011). Eating disorders. In M. J. Zvolensky, A. Bernstein, & A. A. Vujanovic (Eds.), *Distress tolerance: Theory, research, and clinical applications* (pp. 245-260). New York: Guilford.
- Armijo-Olivo, S., Warren, S., & Magee, D. (2009). Intention to treat analysis, compliance, drop-outs and how to deal with missing data in clinical research: A review. *Physical Therapy Reviews*, *14*, 36-49. doi:10.1179/174328809X405928
- Baker, E. H., & Sandle, G. I. (1996). Complications of laxative abuse. *Annual Review of Medicine*, *47*, 127-134. doi:10.1146/annurev.med.47.1.127

- Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Beck Depression Inventory-II*. San Antonio, TX: Pearson.
- Beck, J. S. (2011). *Cognitive behaviour therapy: Basics and beyond* (2nd edition). New York: Guilford.
- Bégin, C., Gagnon-Girouard, M.-P., Aimé, A., & Ratté, C. (2013). Trajectories of eating and clinical symptoms over the course of a day hospital program for eating disorders. *Eating Disorders: The Journal of Treatment and Prevention*, 21, 249-264.
doi:10.1080/10640266.2013.779188
- Bell, L. (2001). What predicts failure to engage in or drop out from treatment for bulimia nervosa and what implications does this have for treatment? *Clinical Psychology and Psychotherapy*, 8, 424-435. doi:10.1002/cpp.288
- Berg, K. C., Peterson, C. B., Razier, P., & Crow, S. J. (2012). Psychometric evaluation of the Eating Disorder Examination and Eating Disorder Examination-Questionnaire: A systematic review of the literature. *International Journal of Eating Disorders*, 45, 428-438. doi:10.1002/eat.20931
- Bickel, R. (2007). *Multilevel analysis for applied research: It's just regression!* New York: Guilford.
- Brauhardt, A., de Zwaan, M., & Hilbert, A. (2014). The therapeutic process in psychological treatments for eating disorders: A systematic review. *International Journal of Eating Disorders*, 47, 565-584. doi:10.1002/eat.22287
- Brown, C. A., & Mehler, P. S. (2013). Medical complications of self-induced vomiting. *Eating Disorders: The Journal of Treatment and Prevention*, 21, 287-294.
doi:10.1080/10640266.2013.797317

- Bulik, C. M, Sullivan, P. F., Carter, F. A., McIntosh, V. V., & Joyce, P. R. (1999). Predictors of rapid and sustained response to cognitive-behavioral therapy for bulimia nervosa. *International Journal of Eating Disorders*, 26, 137-144. doi:10.1002/(SICI)1098-108X(199909)26:2<137::AID-EAT2>3.0.CO;2-N
- Burke, B. L., Arkowitz, H., & Menchola, M. (2003). The efficacy of motivational interviewing: A meta-analysis of controlled clinical trials. *Journal of Consulting and Clinical Psychology*, 71, 843-861. doi:10.1037/0022-006X.715843
- Byrne, S. (2015, April). What do we do when we have no data to guide us? In D. Bunnell, C. Thornton, & K. von Ranson (Chairs), *Dissemination and development of psychological treatment in eating disorders: Evidence-based or how to sell snake oil?*. Symposium conducted at the meeting of the International Conference on Eating Disorders, Boston, MA.
- Byrne, S. M., Fursland, A., Allen, K. L., & Watson, H. (2011). The effectiveness of enhanced cognitive behavioural therapy for eating disorders: An open trial. *Behaviour Research and Therapy*, 49, 219-226. doi:10.1016/j.brat.2011.01.006
- Carter, J. C., & Bewell-Weiss, C. V. (2012). Motivational interviewing for eating disorders: Treatment manual [Unpublished treatment protocol]. Toronto: University Health Network.
- Carroll, Lewis. (2009). *Alice's Adventures in Wonderland*. Toronto: Tundra.
- Chen, E. Y., Matthews, L., Allen, C., Kuo, J. R., & Linehan, M. M. (2008). Dialectical behavior therapy for clients with binge eating disorder or bulimia nervosa and borderline personality disorder. *International Journal of Eating Disorders*, 41, 505-512. doi:10.1002/eat.20522

- Clausen, L., Lubeck, M., & Jones, A. (2013). Motivation to change in the eating disorders: A systematic review. *International Journal of Eating Disorders*, 46, 755-763.
doi:10.1002/eat.22156
- Cloninger, C. R., Svrakic, D. M., & Przybeck, T. R. (1993). A psychobiological model of temperament and character. *Archives of General Psychiatry*, 50, 975-990.
doi:10.1001/archpsyc.1993.01820240059008
- Crosby, R. D., Mitchell, J. E., Raymond, N., Specker, S., Nu8gent, S. M., & Pyle, R. L. (1993). Survival analysis of response to group psychotherapy in bulimia nervosa. *International Journal of Eating Disorders*, 13, 359-368. doi:10.1002/1098-108X(199305)13:4<359::AID-EAT2260130404>3.0.CO;2-6
- Crow, S. J., Peterson, C. B., Swanson, S. A., Raymond, N. C., Specker, S., Eckert, E. D., & Mitchell, J. E. (2009). Increased mortality in bulimia nervosa and other eating disorders. *American Journal of Psychiatry*, 166, 1342-1346. doi:10.1176/appi.ajp.2009.09020247
- Evans, D. R. (2011). *Law, standards, and ethics in the practice of psychology (3rd ed.)*. Toronto: Thompson Reuters.
- Fairburn, C. G. (1994). Interpersonal psychotherapy for bulimia nervosa. *The Clinical Psychologist*, 47, 21-22.
- Fairburn, C. G. (2008). *Cognitive behavior therapy and eating disorders*. New York: Guilford.
- Fairburn, C. G. (2013). *Overcoming binge eating (2nd ed.)*. New York: Guilford.
- Fairburn, C. G., Agras, W. S., Walsh, B. T., Wilson, G. T., Stice, E. (2004). Prediction of outcome in bulimia nervosa by early change in treatment. *American Journal of Psychiatry*, 161, 2322-2324. doi:10.1176/appi.ajp.161.12.2322

- 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
- Fairburn, C. G., & Beglin, S. J. (1994). Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders*, 16, 363-370. doi:10.1002/1098-108X(199412)16:4<363::AID-EAT2260160405>3.0.CO;2-#
- Fairburn, C. G., & Beglin, S. (2008). Eating Disorder Examination Questionnaire (EDE-Q 6.0). In C. G. Fairburn, *Cognitive behavior therapy and eating disorders* (pp. 309-314). New York: Guilford.
- Fairburn, C. G., Cooper, Z., Doll, H. A., O'Connor, M. E., Bohn, K., Hawker, D. M., ... 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, 311-319. doi:10.1176/appi.ajp.2008.08040608
- Fairburn, C. G., Cooper, Z., & O'Connor, M. E. (2008). Eating Disorder Examination (EDE 16.0D). In C. G. Fairburn, *Cognitive behavior therapy and eating disorders* (pp. 265-308). New York: Guilford.
- Fairburn, C. G., Cooper, Z., & Shafran, R. (2003). Cognitive behaviour therapy for eating disorders: A "transdiagnostic" theory and treatment. *Behaviour Research and Therapy*, 41, 509-528. doi:10.1016/S0005-7967(02)00088-8
- Fairburn, C. G., Jones, R., Peveler, R. C., Hope, R. A., & O'Connor, M. (1993). Psychotherapy and bulimia nervosa. *Archives of General Psychiatry*, 50, 419-428. doi:10.1001/archgenpsychiatry.2011.1239

- Favaro, A., Ferrara, S., & Santonastaso, P. (2002). The spectrum of eating disorders in young women: A prevalence study in a general population sample. *Psychosomatic Medicine*, 65, 701-708. doi:10.1097/01.PSY.0000073871.67679.D8
- Fennell, M. J. V., & Teasdale, J. D. (1987). Cognitive therapy for depression: Individual differences and the process of change. *Cognitive Therapy and Research*, 11, 253-271. doi:10.1007/BF01183269
- Fichter, M. M., & Quadflieg, N. (2016). Mortality in eating disorders: Results of a large prospective clinical longitudinal study. *International Journal of Eating Disorders*, 49, 391-401. doi:10.1002/eat.22501
- Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). London: Sage.
- Fittig, E., Jacobi, C., Backmund, H., Gerlinghoff, M., & Wittchen, H.-U. (2008). Effectiveness of day hospital treatment for anorexia nervosa and bulimia nervosa. *European Eating Disorders Review*, 16, 341-351. doi:10.1002/erv.883
- Forney, K. J., Haedt-Matt, A. A., & Keel, P. K. (2014). The role of loss of control eating in purging disorder. *International Journal of Eating Disorders*, 47, 244-251. doi:10.1002/eat.22212
- Fuss, S., Trottier, K., & Carter, J. (2015). An investigation of the factor structure of the Beck Depression Inventory-II in anorexia nervosa. *European Eating Disorders Review*, 23, 43-50. doi:10.1002/erv.2338
- Garner, D. M., & Garfinkel, M. (1979). The Eating Attitudes Test: An index of the symptoms of anorexia nervosa. *Psychological Medicine*, 9, 273-279. doi:10.1017/S0033291700030762
- Garner, D. M., Olmsted, M. P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia.

- International Journal of Eating Disorders*, 2, 15-34. doi:10.1002/1098-108X(198321)2:2<15::AID-EAT2260020203>3.0.CO;2-6
- Gauvin, L., Steiger, H., & Brodeur, J. M. (2009). Eating-disorder symptoms and syndromes in a sample of urban-dwelling Canadian women: Contributions toward a population health perspective. *International Journal of Eating Disorders*, 42, 158-165. doi:10.1002/eat.20590
- Geller, J., Brown, K. E., Srikameswaran, S., Piper, W., & Dunn, E. C. (2013). The psychometric properties of the Readiness and Motivation Questionnaire: A symptom-specific measure of readiness for change in the eating disorders. *Psychological Assessment*, 25, 759-768. doi:10.1037/a0032539
- Geller, J., Johnston, C., & Madsen, K. (1997). The role of shape and weight in self-concept: The Shape and Weight Based Self-Esteem Inventory. *Cognitive Therapy and Research*, 21, 5-32. doi:10.1023/A:1021912124937
- Geller, J., Williams, K. D., & Srikameswaran, S. (2001). Clinician stance in the treatment of chronic eating disorders. *European Eating Disorders Review*, 9, 365-373. doi:10.1002/erv.443
- Ghaderi, A., & Scott, B. (1999). Prevalence and psychological correlates of eating disorders among females aged 18-30 years in the general population. *Acta Psychiatrica Scandinavica*, 99, 261-266. doi:10.1111/j.1600-0447.1999.tb07223.x
- Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the Difficulties in Emotion Regulation Scale. *Journal of Psychopathology and Behavioral Assessment*, 26, 41-54. doi:10.1007/s10862-008-9102-4

Griffiths, R. A., Beaumont, P. J., Giannakopoulos, E., Russell, J. Schotte, D., Thornton, C., ...

Varano, P. (1999). Measuring self-esteem in dieting disordered patients: The validity of the Rosenberg and Coopersmith contrasted. *International Journal of Eating Disorders*, 25, 227-231. doi:10.1002/(SICI)1098-108X(199903)25:2<227::AID-EAT13>3.0.CO;2-4

Grilo, C. M., & Masheb, R. M. (2007). Rapid response predicts binge eating and weight loss in binge eating disorder: Findings from a controlled trial of orlistat with guided self-help cognitive behavioral therapy. *Behaviour Research and Therapy*, 45, 2537-2550. doi:10.1016/j.brat.2007.05.010

Grilo, C. M., Masheb, R. M., & Wilson, G. T. (2006). Rapid response to treatment for binge eating disorder. *Journal of Consulting and Clinical Psychology*, 74, 602-613. doi:10.1037/0022-006X.74.3.602

Grilo, C. M., Masheb, R. M., Wilson, G. T., Gueorguieva, R., & White, M. A. (2011). Cognitive-behavioral therapy, behavioural weight loss, and sequential treatment for obese patients with binge-eating disorder: A randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 79, 675-685. doi:10.1037/a0025049

Grilo, C. M., White, M. A., Masheb, R. M., & Gueorguieva, R. (2015). Predicting meaningful outcomes to medication and self-help treatments for binge-eating disorder in primary care: The significance of early rapid response. *Journal of Consulting and Clinical Psychology*, 83, 387-394. doi:10.1037/a0038635

Grilo, C. M., White, M. A., Wilson, G. T., Gueorguieva, R., & Masheb, R. M. (2012). Rapid response predicts 12-month post-treatment outcomes in binge-eating disorder: Theoretical and clinical implications. *Psychological Medicine*, 42, 807-817. doi:10.1017/S0033291711001875

- Gulec, H., Moessner, M., Tury, F., Fiedler, P. Mezei, A., & Bauer, S. (2014). A randomized controlled trial of an Internet-based posttreatment care for patients with eating disorders. *Telemedicine and e-Health*, 20, 916-922. doi:10.1089/tmj.2013.0353
- Haedt., A. A., & Keel, P. K. (2010). Comparing definitions of purging disorder on point prevalence and associations with external validators. *International Journal of Eating Disorders*, 43, 433-439. doi:10.1002/eat.20712
- 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, 660-681. doi:10.1037/a0023660
- Haedt-Matt, A. A., & Keel, P. K. (2015). Affect regulation and purging: An ecological momentary assessment study in purging disorder. *Journal of Abnormal Psychology*, 124, 399-411. doi:10.1037/a0038815
- Halmi, K. A., Agras, W. S., Mitchell, J., Wilson, G. T., Crow, S., Bryson, S. W., & Kraemer, H. (2002). Relapse predictors of patients with bulimia nervosa who achieved abstinence through cognitive behavioral therapy. *Archives of General Psychiatry*, 59, 1105-1109. doi:10.1001/archpsyc.59.12.1105
- Haslam, M., Meyer, C., & Waller, G. (2011). Do eating attitudes predict early change in eating behaviors among women with bulimic disorders who are treated with cognitive behavioral therapy? *International Journal of Eating Disorders*, 44, 741-744. doi:10.1002/eat.20910
- Hay, P. (2003). Quality of life and bulimic eating disorder behaviors: Findings from a community-based sample. *International Journal of Eating Disorders*, 33, 434-442. doi:10.1002/eat.10162

- Hay, P., Loukas, A., & Philpott, H. (2005). Prevalence and characteristics of men with eating disorders in primary care: How do they compare to women and what features may aid in identification. *Primary Care & Community Psychiatry, 10*, 1-6.
doi:10.1185/135525705X40346
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford.
- Hesser, H., Weise, C., Rief, W., & Andersson, G. (2011). The effect of waiting: A meta-analysis of wait-list control groups in trials for tinnitus distress. *Journal of Psychosomatic Research, 70*, 378-384. doi:10.1016/j.jpsychores.2010.12.006
- Horvath, A. O., & Greenberg, L. S. (1989). Development and validation of the Working Alliance Inventory. *Journal of Counselling Psychology, 36*, 223-233. doi:10.1037/0022-0167.36.2.223
- Hudson, J. I., Hiripi, E., Pope, Jr., H. G., & Kessler, R. C. (2007). The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. *Biological Psychiatry, 61*, 348-358. doi:10.1016/j.biopsych.2006.03.040
- Hudson, J. I., Hiripi, E., Pope, Jr., H. G., & Kessler, R. C. (2012). ERRATUM: The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. *Biological Psychiatry, 72*, 164.
- Ilardi, S. S., & Craighead, W. E. (1994). The role of nonspecific factors in cognitive-behavior therapy for depression. *Clinical Psychology: Science and Practice, 1*, 138-156.
doi:10.1111/j.1468-2850.1994.tb00016.x
- Jacobi, C., Hayward, C., de Zwaan, M., Kraemer, H. C., & Agras, W. S. (2004). Coming to terms with risk factors for eating disorders: Application of risk terminology and

suggestions for a general taxonomy. *Psychological Bulletin*, 130, 19-65.

doi:10.1037/0033-2909.130.1.19

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, 12-19. doi:10.1037/0022-006X.59.1.12

Kazdin, A. E. (2007). Mediators and mechanisms of change in psychotherapy research. *Annual Review of Clinical Psychology*, 3, 1-27. doi:10.1146/annurev.clinpsy.3.022806.091432

Keel, P. K., Dorer, D. J., Franko, D. L., Jackson, S. C., & Herzog, D. B. (2005). Postremission predictors of relapse in women with eating disorders. *American Journal of Psychiatry*, 162, 2263-2268. doi:10.1176/appi.apj.162.12.2263

Keel, P. K., Haedt, A., & Edler, C. (2005). Purging disorder: An ominous variant of bulimia nervosa? *International Journal of Eating Disorders*, 38, 191-199. doi:10.1002/eat.20179

Keel, P. K., & Mitchell, J. E. (1997). Outcome in bulimia nervosa. *American Journal of Psychiatry*, 154, 313-321.

Keel, P. K., & Striegel-Moore, R. H. (2009). The validity and clinical utility of purging disorder. *International Journal of Eating Disorders*, 42, 706-719. doi:10.1002/eat.20718

Keel, P. K., Wolfe, B. E., Gravener, J. A., & Jimerson, D. C. (2008). Co-morbidity and disorder-related distress and impairment in purging disorder. *Psychological Medicine*, 38, 1435-1442. doi:10.1017/S0033291707001390

Keel, P. K., Wolfe, B. E., Liddle, R. A., De Young, K. P., & Jimerson, D. C. (2007). Clinical features and physiological response to a test meal in purging disorder and bulimia nervosa. *Archives of General Psychiatry*, 64, 1058-1066. doi:10.1001/archpsyc.64.9.1058

- Knowles, L., Anokhina, A., & Serpell, L. (2013). Motivational interventions in the eating disorders: What is the evidence? *International Journal of Eating Disorders*, 46, 97-107. doi:10.1002/eat.22053
- Kraemer, H. C., Wilson, G .T., Fairburn, C. G., & Agras, S. (2002). Mediators and moderators of treatment effects in randomized clinical trials. *Archives of General Psychiatry*, 59, 877-883. doi:10.1001/archpsych.59.10.877
- Lachin, J. M (2000). Statistical consideration in the intent-to-treat principle. *Controlled clinical trials*, 21, 167-189. doi:10.1016/S0197-2456(00)00046-5
- Lavender, J. M., Wonderlich, S. A., Engel, S. G., Gordon, K. H., Kaye, W. H., & Mitchell, J. E. (2015). Dimensions of emotion dysregulation in anorexia nervosa and bulimia nervosa: A conceptual review of the empirical literature. *Clinical Psychology Review*, 40, 111-112. doi:10.1016/j.cpr.2015.05.010
- Leavey, G., Vallianatou, C., Johnson-Sabine, E., Rae, S., & Gunpath, V. (2011), Psychosocial barriers to engagement with an eating disorder service: A qualitative analysis of failure to attend. *Eating Disorders: The Journal of Treatment and Prevention*, 19, 425-440. doi:10.1080/10640266.2011.609096
- Lindgren, B.-M., Enmark, A., Bohman, A., & Lundstrom, M. (2015). A qualitative study of young women's experiences of recovery from bulimia nervosa. *Journal of Advanced Nursing*, 71, 860-869. doi:10.1111/jan.12554
- Linehan, M. M. (1993a). *Cognitive behavior therapy for borderline personality disorder*. New York: Guilford.
- Linehan, M. M. (1993b). *Skills training manual for treating borderline personality disorder*. New York: Guilford.

- MacDonald, D. E., & McFarlane, T. L. (in preparation). The Eating Disorder Urges and Behaviours Scale (EDUBS): A brief measure assessing eating disorder urges and likelihood of behaviours. *Unpublished manuscript in progress*.
- MacDonald, D. E., Trottier, K., McFarlane, T., & Olmsted, M. P. (2015). Empirically defining rapid response to intensive treatment to maximize prognostic utility for bulimia nervosa and purging disorder. *Behaviour Research and Therapy*, 68, 48-53.
doi:10.1016/j.brat.2015.03.007
- Macdonald, P., Hibbs, R., Corfield, F., & Treasure, J. (2012). The use of motivational interviewing in eating disorders: A systematic review. *Psychiatry Research*, 200, 1-11.
doi:10.1016/j.psychres.2012.05.013
- Masheb, R. M., & Grilo, C. M. (2007). Rapid response predicts treatment outcomes in binge eating disorder: Implications for stepped care. *Journal of Consulting and Clinical Psychology*, 75, 639-644. doi:10.1037/0022-006X.75.4.639
- McCabe, R. E., McFarlane, T. L., & Olmsted, M. P. (2003). *The overcoming bulimia workbook*. Oakland: New Harbinger.
- McFarlane, T. L., MacDonald, D. E., Royal, S., & Olmsted, M. P. (2013). Rapid and slow responders to eating disorder treatment: A comparison on clinically relevant variables. *International Journal of Eating Disorders*, 46, 563-566. doi:10.1002/eat.22136
- McFarlane, T., MacDonald, D. E., Trottier, K., & Olmsted, M. P. (2015). The effectiveness of an individualized form of day hospital treatment for eating disorders. *Eating Disorders: The Journal of Treatment and Prevention*, 23, 191-205. doi:10.1080/10640266.2014.981430

- McFarlane, T., Olmsted, M. P., & Trotter, K. (2008). Timing and prediction of relapse in a transdiagnostic eating disorder sample. *International Journal of Eating Disorders*, 41, 587-593. doi:10.1002/eat.20550
- McKnight, P. E., McKnight, K. M., Sidani, S., & Figueredo, A. J. (2007). *Missing data: A gentle introduction*. New York: Guilford.
- Miller, W. R., & Rollnick, S. (2013). *Motivational interviewing: Helping people change* (3rd ed.). New York: Guilford.
- Mitchell, J. E., Agras, W. S., Wilson, G. T., Halmi, K., Kraemer, H., & Crow, S. (2004). A trial of a relapse prevention strategy in women with bulimia nervosa who respond to cognitive-behavior therapy. *International Journal of Eating Disorders*, 35, 549-555. doi:10.1002/eat.10265
- Mond, J. M., Hay, P. J., Darby, A., Paxton, S. J., Quirk, F., Buttner, P., ... Rodgers, B. (2009). Women with bulimic eating disorders: When do they receive treatment for an eating problem? *Journal of Consulting and Clinical Psychology*, 77, 835-844. doi:10.1037/a0015336
- Murphy, R., Cooper, Z., Hollon, S. D., & Fairburn, C. G. (2009). How do psychological treatments work?: Investigating mediators of change. *Behaviour Research and Therapy*, 47, 1-5. doi:10.1016/j.brat.208.10.001
- National Institute for Clinical Excellence. (2004). *Eating disorders: Core interventions in the treatment and management of anorexia nervosa, bulimia nervosa and related eating disorders*. (Report No. 9) London: National Collaborating Centre for Primary Care and the Centre for Public Health Excellence at NICE.

- Nicdao, E. G., Hong, S., & Takeuchi, D. T. (2007). Prevalence and correlates of eating disorders among Asian Americans: Results from the National Latino and Asian American Study. *International Journal of Eating Disorders*, 40, S22-S26. doi:10.1002/eat
- O'Brien, K. M., & Vincent, N. K. (2003). Psychiatric comorbidity in anorexia and bulimia nervosa: Nature, prevalence, and causal relationships. *Clinical Psychology Review*, 23, 57-74. doi:10.1016/S0272-7358(02)00201-5
- Olmsted, M. P., Kaplan, A. S., & Rockert, W. (1994). Rate and prediction of relapse in bulimia nervosa. *The American Journal of Psychiatry*, 151, 738-743. doi:10.1176/ajp.151.5.738
- Olmsted, M. P., Kaplan, A. S., & Rockert, W. (2005). Defining remission and relapse in bulimia nervosa. *International Journal of Eating Disorders*, 38, 1-6. doi:10.1002/eat.20144
- Olmsted, M. P., Kaplan, A. S., Rockert, W., & Jacobsen, M. (1996). Rapid responders to intensive treatment of bulimia nervosa. *International Journal of Eating Disorders*, 19, 279-285. doi:10.1002/(SICI)1098-108X(199604)19:3<279::AID-EAT7>3.0.CO;2-J
- Olmsted, M. P., MacDonald, D. E., McFarlane, T., Trottier, K., & Colton, P. (2015). Predictors of rapid relapse in bulimia nervosa. *International Journal of Eating Disorders*, 48, 337-340. doi:10.1002/eat.22380
- Olmsted, M. P., McFarlane, T. L., Carter, J. C., Trottier, K., Woodside, D. B., & Dimitropoulos, G. (2010). Inpatient and day hospital treatment for anorexia nervosa. In C. M. Grilo & J. E. Mitchell (Eds.), *The treatment of eating disorders: A clinical handbook* (pp. 198-211). New York: Guilford.
- Olmsted, M. P., McFarlane, T., Trottier, K., & Rockert, W. (2013). Efficacy and intensity of day hospital treatment for eating disorders. *Psychotherapy Research*, 23, 277-286. doi:10.1080/10503307.2012.721937

- Olmsted, M. P., Woodside, D. B., Carter, J. C., McFarlane, T. L., Staab, R. A., Colton, P. A., & Molleken, L. L. (2007). Intensive treatments. In G. O. Gabbard (Ed.), *Treatment of psychiatric disorders* (pp. 709-721). Arlington, VA: American Psychiatric Publishing.
- Osman, A., Downs, W. R., Barrios, F. X., Koppoer, B. A., Gutierrez, P. M., & Chiro, C. E. (1997). Factor structure and psychometric characteristics of the Beck Depression Inventory-II. *Journal of Psychopathology and Behavioral Assessment*, 19, 359-376.
doi:10.1007/BF02229026
- Papadopoulos, F. C., Ekbom, A., Brandt, L., & Ekselius, L. (2009). Excess mortality, causes of death and prognostic factors in anorexia nervosa. *The British Journal of Psychiatry*, 194, 10-17. doi:10.1192/bjp.bp.108.054742
- Pearson, C. M., Wonderlich, S. A., & Smith, G. T. (2015). A risk and maintenance model for bulimia nervosa: From impulsive action to compulsive behaviour. *Psychological Review*, 122, 516-535. doi:10.1037/a0039268
- Peterson, C. B., Wonderlich, S. A., Crosby, R., Crow, S. J., Mitchell, J. E., Berg, K. C., ... Accurso, E. C. (2014, March). Rapid treatment response in bulimia nervosa: CBT-E and ICAT-BN. Paper presented at the International Conference on Eating Disorders Annual Meeting, New York, NY.
- Pisetsky, E. M., Thornton, L. M., Lichtenstein, P., Pedersen, N. L., & Bulik, C. M. (2013). Suicide attempts in women with eating disorders. *Journal of Abnormal Psychology*, 122, 1042-1056. doi:10.1037/a0034902
- Raykos, B. C., Watson, H. J., Fursland, A., Byrne, S. M., & Nathan, P. (2013). Prognostic value of rapid response to enhanced cognitive behavioral therapy in a routine clinic sample of

- eating disorder outpatients. *International Journal of Eating Disorders*, 46, 764-770.
doi:10.1002/eat.22169
- Richard, M., Bauer, S., Kordy, H., & COST Action B6. (2005). Relapse in anorexia and bulimia nervosa – A 2.5-year follow-up study. *European Eating Disorders Review*, 13, 180-190.
doi:10.1002/erv.638
- Romano, M., & Peters, L. (2015). Evaluating the mechanisms of change in motivational interviewing in the treatment of mental health problems: A review and meta-analysis. *Clinical Psychology Review*, 38, 1-12. doi:10.1016/j.cpr.2015.02.008
- Rosenberg, M. (1979). *Conceiving the self*. New York: Basic Books.
- Royal, S., McFarlane, T., Strimas, R., MacDonald, D. E., Dionne, M. M., & Olmsted, M. P. (2013, July). A randomized controlled trial examining the efficacy of a cognitive behavioural treatment for relapse prevention in eating disorders. Paper presented at the World Congress for Behavioral and Cognitive Therapies Annual Meeting, Lima, Peru.
- Rush, A. J., Kovacs, M., Beck, A. T., Weissenburger, J., & Hollon, S. D. (1981). Differential effects of cognitive therapy and pharmacotherapy on depressive symptoms. *Journal of Affective Disorders*, 3, 221-229. doi:10.1016/0165-0327(81)90024-0
- Schulz, K. F., Altman, D. G., & Moher, D., for the CONSORT Group. (2010). CONSORT 2010 statement: Updated guidelines for reporting parallel group randomized trials. *British Medical Journal*, 340, c322.
- Selig, J., & Coulombe, P. (2015). *Multilevel modeling*. (Unpublished course materials from *Stats Camp: Multilevel Modeling* course). Texas Tech University: Institute for Measurement, Methodology, Analysis & Policy, Lubbock, TX.

- Serpell, L., & Treasure, J. (2002). Bulimia nervosa: Friend or foe?: The pros and cons of bulimia nervosa. *International Journal of Eating Disorders*, 32, 164-170. doi:10.1002/eat.10076
- Serpell, L., Treasure, J., Teasdale, J., & Sullivan, V. (1999). Anorexia nervosa: Friend or foe? *International Journal of Eating Disorders*, 25, 177-186. doi:10.1002/(SICI)1098-108X(199903)25:2<177::AID-EAT7>3.0.CO;2-D
- Sheeran, P. (2002). Intention-behavior relations: A conceptual and empirical review. *European Review of Social Psychology*, 12, 1-36. doi:10.1080/14792772143000003
- Smedslund, G., Berg, R. C., Hammerstrom, K. T., Steiro, A., Leiknes, K. A., Dahl, H. M., et al. (2011). Motivational interviewing for substance abuse. *Cochrane Database of Systematic Reviews* (5).
- Smyth, J. M., Wonderlich, S. A., Heron, K. E., Sliwinski, M. J., Crosby, R. D., Mitchell, J. E., & Engel, S. G. (2007). Daily and momentary mood and stress are associated with binge eating and vomiting in bulimia nervosa patients in the natural environment. *Journal of Consulting and Clinical Psychology*, 75, 629-638. doi:10.1037/0022-006X.75.4.629
- Stice, E., Marti, C. N., & Rohde, P. (2013). Prevalence, incidence, impairment, and course of the proposed DSM-5 eating disorder diagnoses in an 8-year prospective community study of young women. *Journal of Abnormal Psychology*, 122, 445-457. doi:10.1037/a0030679
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Needham Heights, MA: Allyn & Bacon.
- Tasca, G. A., Maxwell, H., Bone, M., Trinneer, A., Balfour, L., & Bissada, H. (2012). Purging disorder: Psychopathology and treatment outcomes. *International Journal of Eating Disorders*, 45, 36-42. doi:10.1002/eat.20893

- Tatham, M., Evans, J., & Waller, G. (2012). Cognitive behavioural therapy for eating disorders: Getting off to a flying start. In J. R. E. Fox & K. P. Gross (Eds.), *Eating and its Disorders* (pp. 225-243). Chichester, UK: John Wiley & Sons, Ltd.
- Taylor, J. Y., Caldwell, C. H., Baser, R. E., Faison, N., & Jackson, J. S. (2007). Prevalence of eating disorders among Blacks in the National Survey of American Life. *International Journal of Eating Disorders*, 40, S10-S14. doi:10.1002/eat
- Telch, C. F., Agras, W. S., & Linehan, M. M. (2001). Dialectical behavior therapy for binge eating disorder. *Journal of Consulting and Clinical Psychology*, 69, 1061-1065. doi:10.1037/0022-006X.69.6.1061
- Thompson-Brenner, H., Shingleton, R. M., Sauer-Zavala, S., Richards, L. K., & Pratt, E. M. (2014). Multiple measures of rapid response as predictors of remission in cognitive behaviour therapy for bulimia nervosa. *Behaviour Research and Therapy*, 64, 9-14. doi:10.1016/j.brat.2014.11.004
- Treasure, J., & Schmidt, U. (2001). Ready, willing and able to change: Motivational aspects of the assessment and treatment of eating disorders. *European Eating Disorders Review*, 9, 4-18. doi:10.1002/erv.390
- Trottier, K., McFarlane, T., Olmsted, M. P., & McCabe, R. E. (2013). The Weight Influenced Self-Esteem Questionnaire (WISE-Q): Factor structure and psychometric properties. *Body Image*, 10, 112-120. doi:10.1016/j.bodyim.2012.08.008
- Turner, H., Marshall, E., Wood, F., Stopa, L., & Waller, G. (2016). 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*, 77, 1-6. doi:10.1016/j.brat.2015.11.011

- Vall, E. & Wade, T. D. (2015). Predictors of treatment outcome in individuals with eating disorders: A systematic review and meta-analysis. *International Journal of Eating Disorders*, 48, 946-971. doi:10.1002/eat.22411
- Vaz, A. R., Conceicao, E., & Machado, P. P. P. (2014). Early response as a predictor of success in guided self-help treatment for bulimic disorders. *European Eating Disorders Review*, 22, 59-65. doi:10.1002/erv.2262
- Wade, T. D., Bergin, J. L., Tiggemann, M., Bulik, C. M., & Fairburn, C. G. (2006). Prevalence and long-term course of lifetime eating disorders in an adult Australian twin cohort. *Australian and New Zealand Journal of Psychiatry*, 40, 121-128. doi:10.1111/j.1440-1614.2006.01758.x
- Waller, G. (2012). The myths of motivation: Time for a fresh look at some received wisdom in the eating disorders? *International Journal of Eating Disorders*, 45, 1-16. doi:10.1002/eat.20900
- Waller, G., Evans, J., & Stringer, H. (2012). The therapeutic alliance in the early part of cognitive-behavioral therapy for the eating disorders. *International Journal of Eating Disorders*, 45, 63-69. doi:10.1002/eat.20914
- Weiss, C. V., Mills, J. S., Westra, H. A., & Carter, J. C. (2013). A preliminary study of motivational interviewing as a prelude to intensive treatment for an eating disorder. *Journal of Eating Disorders*, 1, 34.
- Westra, H. A., Dozois, D. J. A., & Marcus, M. (2007). Expectancy, homework compliance, and initial change in cognitive-behavioral therapy for anxiety. *Journal of Consulting and Clinical Psychology*, 75, 363-373. doi:10.1037/0022-006X.75.3.363

- Wilson, G. T. (1999). Rapid response to cognitive behavior therapy. *Clinical Psychology: Science and Practice*, 6, 289-292. doi:10.1093/clipsy.6.3.289
- Wilson, G. T., Fairburn, C. G., Agras, W. S., Walsh, B. T., & Kraemer, H. (2002). Cognitive-behavioral therapy for bulimia nervosa: Time course and mechanisms of change. *Journal of Consulting and Clinical Psychology*, 70, 267-274. doi:10.1037/0022-006X.70.2.267
- Wilson, G. T., Loeb, K., Walsh, B. T., Labouvie, E., Petkova, E., Liu, X., & Waternaux, C. (1999). Psychological versus pharmacological treatments of bulimia nervosa: Predictors and processes of change. *Journal of Consulting and Clinical psychology*, 67, 451-459. doi:10.1037/0022-006X.67.4.451
- Wonderlich, S. A., Peterson, C. B., Crosby, R. D., Smith, T. L., Klein, M. H., Mitchell, J. E., & Crow, S. J. (2014). A randomized controlled comparison of integrative cognitive-affective therapy (ICAT) and enhanced cognitive-behavioral therapy (CBT-E) for bulimia nervosa. *Psychological Medicine*, 44, 543-553. doi:10.1017/S0033291713001098
- Wonderlich, S. A., Peterson, C. B., Leone Smith, T., Klein, M. H., Mitchell, J. E., & Crow, S. J. (2015). *Integrative Cognitive-Affective Therapy for Bulimia Nervosa*. New York: Guilford.
- Young, J. E., Rygh, J. L., Weinberger, A. D., & Beck, A. T. (2008). Cognitive therapy for depression. In D. H. Barlow (Ed.) *Clinical handbook of psychological disorders: A step-by-step treatment manual* (pp. 250-305). New York: Guilford.
- Zandberg, L. J., & Wilson, G. T. (2013). Train-the-trainer: Implementation of cognitive behavioural guided self-help for recurrent binge eating in a naturalistic setting. *European Eating Disorders Review*, 21, 230-237. doi:10.1002/erv.2210.

Zeeck, A., Weber, S., Sandholz, A., Wetzler-Burmeister, E., Wirsching, M., & Hartmann, A.
(2009). Inpatient versus day clinic treatment for bulimia nervosa: A randomized trial.

Psychotherapy and Psychosomatics, 78, 152-160. doi:10.1159/000206869

Zunker, C., Peterson, C. B., Cao, L., Mitchell, J. E., Wonderlich, S. A., Crow, S., & Crosby, R.

(2010). A receiver operator characteristics analysis of treatment outcome in binge eating disorder to identify patterns of rapid response. *Behaviour Research and Therapy*, 48,

1227-1231. doi:10.1016/j.brat.2010.08.007

Glossary of Abbreviations

-2LL: -2 log likelihood

AN: Anorexia nervosa

AN-BP: Anorexia nervosa, binge/purge subtype

APA: American Psychiatric Association

ATQ: Attitudes towards Treatment Questionnaire

BCA: Behaviour chain analysis

BDI-II: Beck Depression Inventory-II

BMI: Body mass index

BED: Binge eating disorder

BN: Bulimia nervosa

BQ: Beliefs Questionnaire

BT: Behaviour therapy

CBT: Cognitive behavioural therapy

CBT-E: Cognitive behavioural therapy, enhanced for eating disorders

CBT-RR: Cognitive behavioural therapy for rapid response

DBT: Dialectical behaviour therapy

DERS: Difficulties in Emotion Regulation Scale

DH: Day hospital

DSM-IV-TR: Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text revision

DSM-5: Diagnostic and Statistical Manual of Mental Disorders, fifth edition

EAT-26: Eating Attitudes Test

EDE: Eating Disorder Examination

EDE-Q: Eating Disorder Examination Questionnaire

EDI: Eating Disorder Inventory

EDNOS: Eating disorder not otherwise specified

EDUBS: Eating Disorder Urges and Behaviours Scale

HRRS: Hope Related to Recovery Scale

ICAT: Integrative cognitive affective therapy

IPT: Interpersonal psychotherapy

ITT: Intent-to-treat

MI: Motivational interviewing

MTAU: Maintenance treatment as usual

NICE: National Institute of Clinical Excellence

OSFED: Other specified feeding and eating disorder

PD: Purging disorder

RCT: Randomized controlled trial

RMQ: Readiness and Motivation Questionnaire

ROC: Receiver operating characteristic

SMR: Standardized mortality ratio

TAU: Treatment as usual

WAI: Working Alliance Inventory

WISE-Q: Weight Influenced Self-Esteem Questionnaire