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Appetite Focused Cognitive Behaviour Therapy for Binge Eating

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Introduction

Bulimia nervosa and binge eating disorder are characterized by recurrent binge eating episodes during which the individual feels out of control while consuming abnormally large quantities of food. Cognitive behaviour therapy (CBT) is well established as an effective treatment for binge eating in bulimia nervosa and binge eating disorder (1-3). However for some individuals binge eating continues despite treatment with CBT, and other individuals cease binge eating with treatment, but relapse at some later time (4, 5). Appetite focused cognitive-behaviour therapy (CBT-A) is a modification of standard CBT for bulimia nervosa and binge eating that aims to improve the efficacy of standard CBT. Appetite focused CBT has a primary focus on the role of appetite, both hunger and fullness, in problems with binge eating. In normal eating, hunger prompts the initiation of eating and fullness is the signal for stopping eating. For individuals who binge, one or both of the normal appetite mechanisms may be disturbed. To date there is some evidence that addressing these appetitive disturbances can be therapeutic. Ventura and Bauer (6) implemented an expanded version of CBT that focused on desynchronising the appetite system. Participants were taught about the psychobiological mechanisms controlling appetite, and were encouraged to recognize hunger and satiety and to experiment with different foods in order to maximize satiation. The expanded treatment led to lower rates of binge eating and purging than standard CBT. Another treatment designed to help the self-regulation of eating through heightened responsiveness to hunger and satiety cues has shown preliminary efficacy in reducing binge eating (7, 8). This treatment modified CBT by teaching participants to self-monitor hunger and fullness (rather than monitoring food and fluid intake), and to initiate eating in response to moderate hunger and stop eating in response to moderate fullness.

Appetite focused CBT aims to eliminate binge eating by retraining the individual to respond to internal appetite cues. This includes responding to internal cues of hunger (to cue the initiation of eating) and fullness (to cue the cessation of eating). Learning to recognize and respond to *moderate* hunger and *moderate* fullness levels is a key goal of treatment. Treatment also emphasizes selecting foods that promote satiety. All other aspects of standard CBT for binge eating and bulimia nervosa are included in appetite focused CBT.

This article is a brief overview of CBT-A. A more full description can be found in (9). The rationale for focusing on appetite in the treatment of binge eating is introduced. The experimental and applied research on the role of appetite in binge eating is reviewed. Specific appetite focused strategies are outlined. First, an appetite focused model of the development and maintenance of binge eating is presented. Second, the self-monitoring of appetite – both hunger and fullness – is described. Third, the principles of choosing foods that promote satiety are reported – increasing food volume, increasing the proportion of protein, and choosing longer-lasting carbohydrates. A randomized controlled trial of cognitive behavioural therapies for bulimia nervosa and binge eating with CBT-A as one of the comparison therapies is described.

The role of appetite in binge eating

Individuals who frequently binge have impaired satiety and hunger responses (10-13). The deficits may be partly due to physiological abnormalities in appetite functioning (11, 14, 15), and partly due to a psychological or learned insensitivity to satiety signals (16-19). By definition, individuals with bulimia nervosa and binge eating disorder consume abnormally large amounts of food, both

during binge episodes and over a 24-hour period (20, 21). This appears, at least in part, to be caused by disturbances in appetite signals. Individuals with bulimia nervosa and binge eating disorder also consume a lower than normal proportion of foods that are known to be satiating (21, 22). Relative to control subjects those with bulimia nervosa consume less dietary protein (21, 23, 24). The lack of awareness or neglect of internal cues of hunger and satiety may put people at risk for binge eating. Eating behaviour and binge eating may instead come to be driven by external cues such as the presence of highly palatable food (25, 26), or by internal cues not related to appetite, such as emotional and cognitive cues (27) (28). People with frequent binge eating may notice and respond to their hunger and fullness signals only once they have reached extreme states – either ravenous or very overfull (7).

An appetite focused model

An appetite focused model of bulimia nervosa and binge eating conceptualises appetite as central to the diet-binge-purge cycle.

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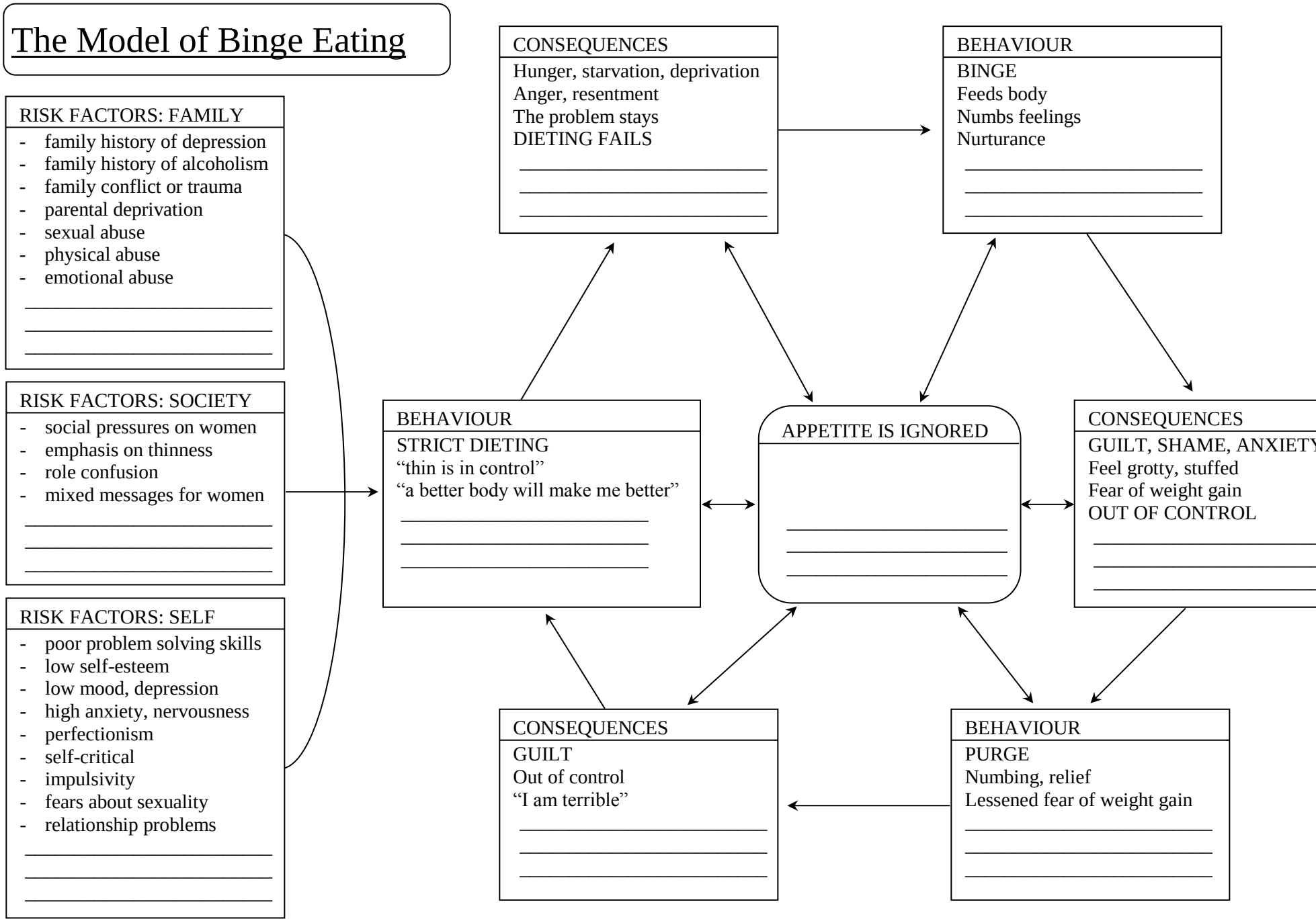
The Model of Binge Eating



The model highlights risk factors that contribute to the onset of the eating problems. For any individual a unique combination of family, sociocultural and personal risk factors combine to begin the cycle. For most individuals dieting to lose weight is the entry to the diet-binge-purge cycle. Dieting inevitably requires that the individual ignore her body's messages to eat (hunger). Increased hunger or symptoms of starvation become cues for binge eating. Because binge eating involves consuming large quantities of food, beyond the amount that feels comfortable, the body's normal mechanisms for signaling the cessation of eating are overridden. This has the effect of "turning down the volume" on appetite, which in turn further disinhibits eating. During vomiting, normal physiological deterrents are overridden. Vomiting is the body's "emergency" response to the presence of dangerous substances. Repeated or regular vomiting overrides the body's natural processes, and interferes with normal digestion and normal satiety signals. In turn, ignoring appetite has the effect of making dieting, binging and purging less difficult. Appetite is like the hub of a wheel around which the diet-binge-purge cycle spins.

Self-monitoring of appetite

A major innovation with self-monitoring in appetite focused CBT is the routine focus on monitoring appetite alongside details of food and fluid intake. By referring to the quantity of food eaten and time since last eating awareness of hunger and fullness is gradually retrained. When first approaching the task of monitoring appetite, the individual may be unable to accurately read her body's appetite signals.

The goals of monitoring appetite are to re-sensitize the individual to feelings of hunger and fullness and to encourage eating in response to these appetite cues. Recognizing and responding to appetite cues involves retraining to start and stop eating in response to feelings of hunger and fullness, rather than in response to other cues – environmental, cognitive, or affective. In particular, the focus is on learning to respond to *moderate* hunger cues and *moderate* satiety cues. The first attempts at monitoring appetite are likely to be by retrospective recall. Hunger is rated at salient points throughout the day using a simple 0-10 scale, with 0 being "not at all hungry" and 10 being "the most hungry imaginable". This may include rating hunger before eating or drinking, at times when others are eating, or at particular times that have been agreed on. Initially, the monitoring of hunger and fullness is likely to be hypothetical or cognitive, and may utilize a third person or the therapist's own self-disclosure.

For some individuals who have a pattern of under eating with infrequent binge eating episodes, monitoring of appetite may begin with increasing awareness of hunger. For other individuals who binge or eat constantly and have little dietary restraint or restriction, more emphasis may need to be placed on awareness of fullness, and the absence of hunger. Education and discussion about the various signs of hunger and fullness will also help facilitate awareness of appetite cues.

Appetite focused food choices

A second major focus of CBT-A is education about satiety mechanisms and the choice of foods that promote satiety – foods that are more satisfying or last longer, supplying energy over a longer time.

Three principles of choosing foods to promote satiety are: choosing foods with greater volume, eating a higher proportion of protein, and choosing carbohydrates that have a more sustained release of energy, and therefore last longer (i.e. have a lower glycemic index and glycemic load).

Food volume

The energy density of food can have a marked effect on both satiation (the amount eaten in a meal) and satiety (the effect on subsequent intake), independently of palatability and macronutrient content (29). In general, the water content of foods is a critical determinant of energy density. Whole foods generally have a

lower energy density, with less processed foods being less energy dense. Individuals are encouraged to attend to portion size, eat normal portions of food, and increase the proportion of higher volume, lower energy density foods (including wet or soupy foods, fruits, vegetables, whole foods, and higher fibre foods).

Protein

Individuals who binge eat have a lower protein intake throughout the day (23). Consuming protein decreases subsequent food intake, both in the short (30-32) and long term (33), and reduces subsequent binge eating in individuals with bulimia nervosa and binge eating disorder (34). Sources of protein include meat, poultry and fish, eggs, dairy products, seeds and nuts, beans and lentils, soy products, and grains, especially wheat but less so barley and corn.

Health professionals recommend that protein makes up 10 to 35% of the daily diet for the general population. For individuals who binge, however, increasing the daily percentage of food intake from protein towards the upper end of this range (i.e. 20-35%) is likely to aid in the reduction of binge eating by increasing satiety. Individuals who binge eat are likely to benefit from eating protein-rich foods regularly throughout the day, and at most meals and snacks rather than having one or two meals each day that contain moderate amounts of protein.

Choosing carbohydrates that last longer

Food provides fuel for the body in the form of fat, protein, and carbohydrates, but carbohydrates are the body's preferred fuel source. Carbohydrate-containing foods include bread, cereals, rice, pasta, legumes, corn, potato, fruit, milk, yoghurt, sugar, biscuits, cakes, sweets, or chocolate.

Digesting and absorbing carbohydrates

Many researchers have begun to pay more attention to the ways carbohydrates in foods break down into and affect blood-sugar or blood-glucose levels. Some carbohydrates quickly and powerfully raise blood-sugar and insulin levels. These "quick release" carbohydrates cause a spike of energy. However, this energy spike is followed by a dramatic drop in energy (a hypoglycemic state, often referred to as a "hypo"). This results in dramatically increased hunger, and is often accompanied by feeling weak, light-headed, and irritable. For individuals who are prone to binge eating, this drop in energy can lead to overeating or binge eating.

Measuring the effects of carbohydrate on blood glucose

Carbohydrate-containing foods can be rated according to their immediate effect on blood sugar levels. Various rating systems have been devised, including the glycemic index and glycemic load, which are rankings of how rapidly a given food triggers a rise in the blood-sugar level (35). The lower the glycemic index or glycemic load, the less likely it will be that the food will cause blood sugar to spike.

Figure 2. Glycemic index and glycemic Load ratings

	Glycemic index (GI)	Glycemic load (GL)
High	GI of 70+	GL of 20+
Moderate	GI of 56 - 69	GL of 11-19
Low	GI of 55 or less	GL of 10 or less

Some examples of the glycemic load of various carbohydrates include

- slow release – low GL - soy products, beans, fruit, milk, whole grain bread
- medium release – medium GL - sugar, orange juice, oats
- fast release – high GL - potatoes, wholemeal and white bread, rice.

For a more comprehensive list of the glycemic load of foods refer to (35).

A randomized clinical trial of appetite focused CBT

Appetite focused CBT is currently one treatment arm in a trial of three psychotherapies for bulimia nervosa and binge eating. Cognitive behaviour therapy is the treatment with the most evidence of effectiveness for binge eating, and uses both cognitive (identifying and challenging unhelpful thoughts or beliefs about weight, shape, and eating) and (education and advice, particularly around normalising eating) strategies. However, in spite of CBT's demonstrated efficacy, a proportion of individuals does not fully recover, or relapses after recovery.

A randomized treatment trial being conducted in Christchurch, New Zealand, aims to evaluate whether the effectiveness of standard CBT for binge eating may be enhanced in two different ways. Schema therapy enhances the cognitive component of CBT by focusing on changing deeper level beliefs or schemas. Appetite focused CBT enhances the component of CBT by focusing on the role of hunger and satiety in binge eating.

In the study 200 women with bulimia nervosa or binge eating disorder will be randomly assigned to one of the three therapies – CBT for binge eating, appetite focused CBT, or schema therapy. Treatment consists of six months of weekly psychotherapy sessions, followed by six months of monthly sessions. Follow-up assessments will be conducted at yearly intervals after the end of treatment with all participants.

Summary

Cognitive behaviour therapy has the best evidence of effectiveness in treating binge eating, being equal to or better than other psychological therapies for binge eating. However the proportion of those participants who do poorly or only partially respond to treatment is still unacceptably high. Continued effort is needed to improve treatment efficacy by developing new treatments or enhancing the outcome of existing treatments. Traditional CBT has paid relatively little attention to the role of appetite and satiety, instead attending to the pattern of eating and dismantling the binge-purge cycle. Although there is much to learn about the biological underpinnings of binge eating, there is now good evidence from laboratory and feeding studies of the role of deregulation of hunger and satiety in those with binge eating disorders. There have also been promising studies adapting CBT to include greater attention to appetite. Appetite focused CBT builds on this research by promoting the role of appetite and satiety within the treatment model, and introducing a major focus on food choices that maximize satiety. Although appetite focused CBT builds on existing elements of effective treatments, this combination of CBT components has not been trialled before. An ongoing randomized controlled trial will examine the extent to which appetite focused modifications to standard CBT may improve outcomes in this group.

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