

Multi-Impulsive Eating Disorders:
the Role of Distress Tolerance and
Invalidating Environments

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D.Clin.Psy. thesis (Volume 1), 2006

University College London

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Overview

The following thesis consists of three parts:

- Part 1 is the Literature review. The review addresses the question of whether the Dialectical Behaviour Therapy (DBT) model (Linehan, 1993) is applicable to the eating disorders. It explores the factors which implicate the DBT model as a potentially useful framework by which to develop our understanding of the eating disorders. The review then provides an overview of the DBT model and a critique of the empirical evidence for DBT in the treatment of borderline personality disorder and the empirical evidence for DBT in the eating disorders.
- Part 2 is the empirical paper. The aim of the study is to explore the role of invalidating environments and distress tolerance (key concepts in the DBT model) in individuals with multi-impulsive and non-multi-impulsive eating disorders. The main findings of the study were that individuals with multi-impulsive eating disorders are more likely to engage in maladaptive forms of distress tolerance and more likely to report having experienced an invalidating childhood environment than non-clinical individuals.
- Part 3 is the critical appraisal. This will explore possible interpretations of the findings. It will also look at clinical implications, limitations of the research and future areas for research.

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Acknowledgements

I would like to thank my supervisors, Glenn Waller and Janet Feigenbaum, for all of their much valued guidance and support, and Pasco Fearon for his last minute statistical help. I would also like to thank the clinicians at St George's eating disorders service for their help with the recruitment of participants. Finally, I would like to thank my friends and family for all of their patience and encouragement, without which I might never have made it through to the end.

Part 1: Literature Review

The Applicability of the Dialectical Behaviour Therapy Model to the Eating Disorders

The applicability of the dialectical behaviour therapy model
to the eating disorders

1. Abstract

Dialectical behaviour therapy (DBT) was developed by Linehan (1993) for the treatment of borderline personality disorder (BPD). The model proposes that BPD is primarily a dysfunction of the emotion regulation system, and that impulsive behaviours (e.g., self-harm, compulsive spending, risky sexual behaviour, alcohol abuse) serve the function of regulating emotion regulation. It has been proposed that binge eating may also serve a similar function (e.g., Root & Fallon, 1989). For this reason the DBT model has been adapted for eating disorders (e.g., Telch, Agras & Linehan, 2001; Safer, Telch & Agras, 2001).

This review will consider whether the DBT model can further our understanding of the eating disorders, and whether it can suggest future directions for clinical interventions with this client group. The paper will begin with a discussion of why the DBT model should be considered for application to the eating disorders. It will then provide an overview of the biosocial model (Linehan, 1993) that forms the basis for DBT. The DBT treatment will be outlined, and a review of the empirical evidence for DBT and its application to the eating disorders will follow.

2. Why consider the DBT model for eating disorders?

2.1. Binge eating and affect regulation

There is a well established link within the literature between negative affect and binge eating (Polivy & Herman, 1993). However, the precise nature of this link is still under debate. Two different models have been proposed - the *affect regulation* model (e.g., Root & Fallon, 1989) and the *escape* model (Heatherton & Baumeister, 1991). The affect regulation model proposes that binge eating serves the function of regulating negative (and in some circumstances positive) emotions. The precise nature of how this emotional regulation is achieved is uncertain, but Root & Fallon (1989) have proposed that bulimic behaviours are “a way to anaesthetise intense negative feelings”. The escape model (Heatherton & Baumeister, 1991) views avoidance of negative affect to play a key role in binge eating. However, it proposes a different mechanism by which this occurs. It suggests that binge-eaters attempt to narrow attention, thereby reducing awareness of their negative self-perceptions (triggered by aversive stimuli). This cognitive narrowing of attention results in a reduction of the higher level cognitions that would serve to inhibit overeating, and can therefore lead to binge eating.

The link between negative affect and overeating has also been proven experimentally, in studies where negative mood induction has been shown to precipitate episodes of over-eating (e.g., Heatherton, Herman & Polivy, 1991). Fairburn, Cooper & Shafran (2003) propose that mood intolerance is a key factor for a sub-group of eating disordered patients, and that it is this group who use binge-eating and often other forms of “dysfunctional mood modulatory behaviour” (e.g., self-harm and substance misuse) to regulate their emotions. They state that it is unclear whether these patients

experience unusually extreme mood states or whether they find it especially difficult to tolerate intense emotions. Stice & Agras (1999) found there to be two subgroups of individuals with bulimia nervosa - those who they classed as 'dietary subtype', and those who they classed as 'dietary-depressive subtype'. The dietary-depressive group were those whose binge-eating was rooted in negative affect as opposed to dieting behaviours. This group were found to have a poorer response to cognitive-behavioural therapy.

2.2. Current models of treatment in the eating disorders

Cognitive-behavioural therapy (CBT) is the model most widely used in the treatment of eating disorders. It is recommended as the treatment of choice in the NICE guidelines (National Institute of Clinical Excellence, 2004) for all of the eating disorders. However, CBT treatments generally have not directly targeted emotion regulation (e.g., Fairburn, Marcus & Wilson 1993), even though this is widely accepted in the literature as a key element in eating disorders.

CBT treatment is based on a model of eating disorders where an interplay between overvalued ideas of shape and weight and strict dieting rules results in the individual being vulnerable to developing an eating disorder. It is possible that that for individuals with bulimia nervosa, CBT is effective for those who fit into the dietary subtype, but is not sufficient for those in the dietary-depressive subtype, potentially accounting for the fact that CBT has only limited efficacy. Fairburn et al. (1995) states that only around 50% of clients with bulimia nervosa report abstinence from bingeing by the end of CBT treatment. The absence of any focus upon affect regulation within treatment, particularly within the most common form of CBT for bulimia nervosa

(CBT-BN; as proposed by Fairburn, Marcus & Wilson, 1993) may be the reason for this low response rate. Stice & Agras (1999) also found high levels of Axis I and Axis II comorbidity within the eating-disordered subgroup in whom negative affect was a key factor. It is important that this comorbidity is taken into consideration in treatment.

2.3. Borderline Personality Disorder and Eating Disorders

There is an established link between BPD and eating disorders. 53% of those with BPD reported a lifetime prevalence of an eating disorder (Zanarini et al., 1998). Conversely, 20-30% of eating disorder clients have been found to meet criteria for BPD (Wonderlich & Mitchell, 1997). BPD was found to be the predominant personality disorder found in those with binge/purge eating disorders (Dennis & Sansone, 1997). Many of the impulsive behaviours observed in BPD can also be found in the eating disorders, most commonly within the bulimia nervosa group. Favaro, Ferrara & Santonastaso (2003) found a prevalence of at least one impulsive self-injurious behaviour of 22.7% within those with a diagnosis of anorexia nervosa and a prevalence of 31.2% among those with a diagnosis of bulimia nervosa. Garfinkel, Moldofsky & Garner (1980) commented that within individuals with bulimia there was more substance abuse, stealing, self-harm and suicide attempts.

Lacey & Evans (1986) proposed the concept of multi-impulsive bulimia and suggested that there was a strong link between this multi-impulsivity and binge-eating in particular. This group have a particularly poor prognosis. This may be because they often have comorbid BPD. It is suggested that multi-impulsive bulimia and BPD are related constructs, yet the precise nature of this relationship is not clearly understood

(Wonderlich et al., 2002). It is important for further research to develop a more comprehensive understanding of how these constructs relate, in order to develop treatments.

2.4. Summary

Conceptualising eating disorders as essentially being a problem with affect regulation for a significant subgroup, means that the biosocial model proposed by Linehan (1993) for Borderline Personality Disorder (BPD) might provide a more useful framework for developing our understanding of binge eating and associated behaviours. That subgroup of patients respond less favourably to CBT. This may be because it does not focus upon affect regulation.

There is a well established link between BPD and eating disorders, particularly within the bulimia nervosa group. Both groups often display impulsive behaviours, which can be conceptualised as a means of regulating affect. It therefore may be an important direction for future work to draw from the literature on the aetiology and treatment of BPD. DBT is a treatment which has become widely used in the BPD population. It is possible that DBT may be an appropriate therapy for bulimia nervosa and binge-eating disorder as this is effectively a treatment which targets affect regulation. The model is described in detail below.

3. The DBT model

3.1. The development of emotional dysregulation

Linehan's biosocial model (1993) proposes that BPD is primarily a dysfunction of the emotion regulation system. This dysfunction is caused by a transaction between

biological factors and an invalidating environment. Ideally, a child is brought up in an environment in which their thoughts and feelings are considered. These individuals receive comfort when they are distressed, and therefore learn that their thoughts and decisions are valid and that their emotions are tolerable. However, within an invalidating environment, a child's emotional responses may be ignored, contradicted or punished. An example of this might be a parental response to a crying child of "I'll give you something to really cry about". Therefore, these individuals do not learn to label their emotions and do not develop the skills necessary to tolerate and manage their emotional states. Furthermore, their emotional experiences may be attributed to socially unacceptable characteristics or personal traits. An example of this is where the expression of negative emotion is attributed to overactivity, oversensitivity or paranoia. In such an environment, it is often the case that only extreme emotional displays receive any attention and are thereby reinforced. As a consequence, they swing between inhibiting their emotions and extreme emotional outbursts.

Zanarini (2000) suggests that some individuals may have a heightened emotional response system, which may be present from birth, or which may be the consequence of early experiences of trauma or neglect. The heightened emotional response system may mean that individuals are more sensitive to emotional stimuli, experience more intense emotional responses, and take a longer time to return to their emotional baseline. Linehan (1993) suggests a transactional model, in which the combination of this emotional vulnerability and the invalidating environment can cause the child to develop BPD.

In many cases of BPD, a history of abuse is present. The model suggests that abuse is

a possible cause of emotional vulnerability. The individual experiences intense negative emotions, but within an environment whereby these emotions may not be accepted, understood or tolerated. There is thus a disparity between their emotional experience and the message that their emotions are not valid. Linehan (1993) perceives abuse to be the most extreme form of invalidating environment, as the abuse is often justified by the abuser, in direct contradiction of the child's own emotional experience. The prevalence of childhood sexual abuse within individuals with BPD has been consistently shown to be over 50% (e.g., Bandelow et al., 2003). Herman et al. (1989) found that 81% of BPD patients had histories of childhood abuse, including both physical (71%) and sexual (67%). The relationship between abuse and eating disorders appears to be a complex one. Many researchers have investigated the link between childhood sexual abuse and eating disorders, with many conflicting findings. For example, in their reviews of the literature Wonderlich et al. (1997) concluded that childhood sexual abuse is a risk factor in the development of eating disorders, whereas Pope & Hudson (1992) concluded in their review that there was no relationship. Sexual abuse, physical abuse and emotional abuse have all been implicated as potential aetiological factors in the development of eating disorders. The relationship appears to be a complex one, due to the multi-factorial aetiological factors and the multidimensional nature of abuse (Kent, Waller & Dagnan, 1998) and the fact that this relationship is likely to be mediated by multiple factors (Waller, 1996). Although the relationship appears to be complex, sexual abuse has been identified as having a stronger association with bulimia nervosa than with anorexia nervosa (e.g. Rorty & Yager, 1993). As it appears likely that a history of sexual abuse is more common in bulimia nervosa, this supports the hypothesis that bingeing is the eating disordered behaviour that occurs in response to affect dysregulation. These findings suggest that

BPD and bulimia nervosa have similar aetiological factors.

The invalidating family may take three different forms: the 'chaotic family'; the 'perfect family'; and the 'typical family'. The 'chaotic family' may have difficulties with substance abuse, financial problems or mental health problems, and the parents are generally unavailable to support the child's needs. The 'perfect family' appears fine on the surface. However, there is an expectation that the child should hide her feelings and get on with things, as other members of the family do. The 'typical family' is focused upon achievement and success. The child is expected to put her feelings to one side and behave like an adult, thus denying normal developmental capabilities and experiences. Various experiences have been found to be significantly higher in individuals with BPD than in a control group, including neurotic disorders in parents, childhood sexual abuse, separation from parents and unfavourable parenting styles all examples of factors in invalidating families, (Bandelow et al., 2005; Bradley, Jenei & Westen, 2005).

In eating disorders, family environments have also been a focus of research as a possible aetiological factor. Claes et al. (2004) found that individuals with eating disorders, particularly those who also engaged in self-injurious behaviours, described a lack of cohesion, expressiveness and social orientation within their families, and a presence of conflict and disorganisation. Some researchers have focussed upon the role of attachment theory and parental bonding in the eating disorders. Armstrong & Roth (1989) found 96% of eating disorder patients to be anxiously attached and Kenny & Hart (1992) found individuals with eating disorders to be less securely attached than those without eating disorders and also found their family relationships to be less

affectively positive and less emotionally supportive. Calam et al. (1990) used the Parental Bonding Instrument (Parker, Tupling & Brown, 1979), and found that individuals with eating disorders perceived their parents to be lower in care and warmth than those individuals without eating disorders. Hilde Bruch (1974) conducted a study of 70 individuals with eating disorders. She identified that these families placed emphasis upon success, achievement and appearance and that there was a lack of reinforcement of self-expression, meaning that 'reliance on their own inner resources, ideas or autonomous decisions had remained undeveloped' (Bruch, 1974; p82). She also found that these families would express how happy and normal their families were, which directly conflicted with and undermined the experience of the illness of the individual. Although this research was conducted a long time ago the findings clearly demonstrate aspects of the 'perfect' family and the 'typical' family, which emphasises the possible relevance of the invalidating environment in the development of eating disorders.

3.2. The development of impulsive behaviours

Possible consequences for individuals growing up in such an environment are that they do not learn to label their emotions or modulate emotional arousal. As their problems are not recognized, they are not taught how to solve them. They are taught that it is important to control their emotions, but are not provided with effective or appropriate strategies to do so. The child does not learn to trust his or her own emotions, and therefore seeks external cues as to what is a valid way to think, feel and act. They condemn themselves for failure and feel shameful of their emotional responses. They develop a phobic reaction to negative emotions and, through their attempts to avoid their negative emotions, they do not learn to tolerate them. Guttman & Laporte (2002)

studied individuals with anorexia nervosa and BPD and their families, and found higher levels of alexithymia within these populations than in control groups. Wheeler, Greener & Boulton (2005) found alexithymia to be more highly correlated with binge eating than other forms of eating-disordered behaviour. These findings show that these individuals have difficulties with emotional awareness.

Thus, the child may grow up experiencing very distressing emotions, for which no adaptive coping response has been developed. Linehan (1993) views suicidal and other impulsive dysfunctional behaviours as maladaptive solutions, developed in order to manage such negative affect. Self-harming acts result in substantial relief from intense negative emotions in individuals with BPD and others (e.g. Leinbenluft, Gardner & Cowdry, 1987; Suyemoto, 1998). As in binge-eating, the mechanism by which this occurs is unknown. However, it seems likely that this mechanism is similar to that in binge eating. The affect regulation model proposed for eating disorders could equally be applied to self-harming behaviour, drug taking or alcohol use, as each could serve the function of temporarily 'anaesthetising' the individual from their negative emotions. In support of the hypothesis that self-harming behaviours serve the function of affect-regulation, Gratz (2003) proposes that self-harm operates as a form of emotional avoidance, which provides the function of escaping, avoiding, or altering unwanted emotions.

3.3 Summary

Linehan's (1993) model provides us with an explanation for how individuals might develop borderline personality disorder. Many of the themes that are common in the development of BPD are also apparent within the eating disorders. The model

implicates both biological and environmental factors in the aetiology of BPD. Considering eating disorders from a biosocial perspective would be in accordance with the shift towards understanding the origins of eating disorders as lying in a combination of developmental/biological factors and social and cultural factors (Collier & Treasure, 2004).

We can draw from the model an explanation as to how individuals develop difficulties with affect regulation. It also provides a framework for understanding the role of impulsive behaviours as a dysfunctional means of managing emotion. For this reason it is possible that a similar model may be applied to the aetiology of individuals with binge-eating and related problems. However, it is necessary for further research to be conducted to verify the construct of the invalidating environment and its relationship to affect dysregulation.

4. Dialectical Behaviour Therapy

4.1. An Overview of the treatment

Dialectical behavioural therapy (DBT) is primarily a cognitive-behavioural treatment. It was originally developed to treat chronically suicidal adults with a diagnosis of borderline personality disorder. It is based on the biosocial model outlined above, and therefore focuses upon enabling the individual to develop affect regulation skills. The dialectical aspect of the therapy draws from the concept that opposites can coexist and can be integrated. Taking this perspective is particularly appropriate for a BPD client group, due to their tendency to think in a particularly polarised style. The purpose of using a dialectical perspective within the context of the therapeutic relationship is to help them to become aware of the opposite view (the thesis and the antithesis) and to

work towards a synthesis (a more functional form of dealing with the world). The main dialectic within the therapy is that of acceptance versus change.

Many of the therapeutic approaches of DBT are drawn from CBT, including elements such as problem-solving, skills training and exposure techniques. These elements enable change to be elicited. In addition, elements that enable the individual to develop an acceptance of their current experiences are included (validation strategies). A key element is mindfulness, which is derived from Eastern Zen principles. Its purpose is to enable the individual to develop awareness of their current emotional state, while promoting a non-judgemental stance.

Much of the focus of therapy is upon developing skills of emotion regulation and distress tolerance. It also considers personal and environmental factors that might hinder change and possibly reinforce maladaptive behaviours. The components of the therapy are: to develop behavioural capabilities; to increase the client's motivation to change; to enable the client to generalise skills to their own environment; to enhance the therapist's capabilities (through consultations, supervision, etc.); and to structure the environment through recognition of contingency management and the systemic theories of change. These components are targeted through five different modes of treatment: individual therapy sessions; skills training groups; generalisation strategies; case management; and consultation meetings.

There are various stages in DBT, although stage 1 and 2 are the key elements. Stage 1 focuses upon stabilizing behaviour. A hierarchy of target problem behaviours will be collaboratively drawn up at this stage. Target I of the hierarchy focuses upon life-

threatening behaviours, target II focuses upon therapy interfering behaviours, and target III focuses upon quality-of-life interfering behaviours. If any target I behaviours have been present over the week, they will be tackled prior to any target II or target III behaviours. Also at stage 1, the skills training group focuses upon the development of skills in four areas - interpersonal effectiveness; distress tolerance; emotional regulation; and mindfulness. Stage 2 focuses upon post-traumatic stress. This stage often involves exposure techniques, but can only be undertaken once the skills developed in stage 1 are present, to enable the individual to tolerate the distressing emotions that may arise as a consequence of doing this work.

4.2. Empirical Basis of DBT for Borderline Personality Disorder

BPD is a condition that is generally regarded as having a poor prognosis, high drop-out from treatment rates, and a high risk of suicide. There is no treatment at this point in time that has provided enough evidence to support it being the treatment of choice for this client group. However, DBT has been recommended by the American Psychiatric Association (2001) for the treatment of BPD and the UK Department of Health (2003). DBT has produced considerable interest in the research and clinical communities, and five published randomised controlled trials have been completed. Despite a number of limitations to these research trials, they have produced some promising preliminary results.

Randomised controlled trials have been conducted by Linehan et al. (1991), Koons et al. (2001), Linehan et al. (1999), Verheul et al. (2003) and Turner (2000). Due to the limited scope of this review, I shall focus on the original trial (Linehan et al, 1991) along with its follow-up study (Linehan et al., 1993), the most recent (Verheul et al.,

2003) along with its follow-up study (Van den Bosch et al., 2005), and Turner (2000) as this is the only published trial to have compared DBT to another specific psychotherapy. Linehan et al.'s (in press) trial which also compares DBT to another form of psychotherapy will also be reviewed.

4.2.1. Linehan et al. (1991) and Linehan et al. (1993)

The trial conducted by Linehan et al. (1991) was the first randomised controlled trial of the efficacy of a psychosocial treatment for borderline personality disorder. The focus for the trial was chronically parasuicidal borderline women, as this was the population that DBT had originally been designed for. All participants in the trial were female and between the ages of 18 and 45 years old. In order to be included in the study, they had to meet DSM-III (American Psychiatric Association, 1980) criteria for borderline personality disorder, assessed using the Diagnostic Interview for Borderlines (Zanarini et al., 1987). They also were required to have had at least two incidents of parasuicide within the last five years, and one during the last eight weeks. Parasuicide was defined as 'any intentional, acute self-injurious behaviour with or without suicidal intent, including both suicide attempts and self-mutilating behaviours'. Exclusion criteria were meeting DSM-III criteria for schizophrenia, bipolar disorder, substance dependence, or a learning disability. These restrictions mean that generalisability becomes a problem. Certainly, the issue of drug dependence is one which is common amongst borderline individuals (Bowden-Jones et al., 2004), and can be understood in terms of Linehan's model as a product of affect dysregulation, and therefore a manifestation of BPD. Thus, substance misuse can be conceptualised in the same way as parasuicidal behaviour, as a means of regulating or avoiding emotions. Therefore, excluding this group may result in a somewhat biased

representation of the BPD population. However, both the Verheul et al (2003) study and a subsequent Linehan et al. (1999) study included individuals with BPD and drug dependence. The results of these will be covered later.

Patients matched on lifetime frequency of parasuicidal events, psychiatric hospitalisations, age and clinical prognosis (this was based upon sub-clinical levels of schizophrenia and drug dependence). They were then randomly allocated to receive either DBT or Treatment as Usual (TAU). DBT was conducted as described in the manual (and outlined above), and was delivered for a period of one year. In the TAU group, four participants continued with previous individual therapists and 12 began with new therapists. No details are given for this group with regard to the type of individual therapy or the experience/expertise of the therapist. It is possible that individuals receiving DBT were in fact receiving an improved quality of care, not due to the treatment itself, but due to the commitment of the therapists to the therapy being delivered. Marsha Linehan and a number of the other authors made up a significant part of the team of therapists delivering DBT. As part of DBT, they would also have been receiving regular structured supervision and the therapists might have been motivated by being part of the research team. Therefore, experimenter bias may well have played a role. In an attempt to control for this, those conducting the assessments were blind as to which treatment condition the participant was in.

Assessments were conducted at pre-treatment, 4 months, 8 months and 12 months (posttreatment). Follow-up assessments were conducted at 18 months and 24 months and described in Linehan et al. (1993). The initial assessment measures used were: 1) the Parasuicide History Interview (PHI; Linehan et al, 1989), to assess parasuicidal

behaviour; 2) the Treatment History Interview (THI; Linehan, 1987), to obtain information regarding previous medical treatment and psychiatric inpatient care; 3) the self-report form of the Scale for Suicidal Ideators (Schotte & Clum, 1982), to assess suicidal ideation; 4) the Beck Depression Inventory (Beck et al., 1961), to measure levels of depression; 5) the Beck Hopelessness Scale (Beck et al., 1974), to measure generalised hopelessness; and 6) the Reasons for Living Inventory, Survival and Coping Scale (Linehan et al., 1983), to measure expectations regarding the consequences of living versus killing oneself.

Following drop-outs, 22 participants remained in both groups. DBT was shown to have quite positive results for parasuicidal behaviours. At each assessment point and throughout the whole year TAU participants engaged in more parasuicidal acts than those in the DBT group. 7 of the DBT participants had no incidents of parasuicidal behaviour in comparison to only 1 in the TAU group. The parasuicidal acts of those in the TAU group were also found to be significantly more medically risky than those of participants in the DBT group.

Those assigned to the DBT group were significantly more likely to begin therapy, continue therapy with the same therapist for the year, and remain in therapy for longer. It is difficult to draw any conclusions from this, as many factors may have contributed. Of particular significance is that individuals in the TAU group had to pay for the therapy they received, whereas those on the DBT group received therapy for free (Linehan & Heard, 1993).

Participants in the TAU group had a higher number of psychiatric admissions and

spent a significantly greater number of days in hospital. There was no significant difference between groups for the likelihood of having at least one psychiatric admission. There was also no significant difference between groups in the number of participants receiving psychotropic medication.

Further comparisons were made between the DBT group and those participants assigned to the TAU group but who received ongoing individual therapy for the whole year (this group consisted of 9 out of the 22 TAU participants). This enabled a direct comparison of DBT with other stable individual therapy. However, we still have no information with regard to what this treatment consisted of, and the analysis is also using a very small number of participants. These comparisons found that the DBT group still reported fewer parasuicidal acts and fewer days in psychiatric hospitals. There were no significant differences in terms of medical risk. However, these findings show that something specific about DBT is effective in bringing about change in these domains.

Although the results of DBT appear to be very positive in terms of parasuicide, maintenance in therapy and psychiatric inpatient treatment, no significant differences were found between groups on depression, hopelessness, reasons for living or suicidal ideation. However, these were not targets of stage 1 of therapy.

In the follow up study (Linehan et al, 1993) information was collected on subsequent parasuicidal behaviour at 18 months and 24 months using the PHI. A smaller group of participants who were recruited in the second cohort also completed the following assessments at these two time points: 1) the Treatment History Interview; 2) the trait

spent a significantly greater number of days in hospital. There was no significant difference between groups for the likelihood of having at least one psychiatric admission. There was also no significant difference between groups in the number of participants receiving psychotropic medication.

Further comparisons were made between the DBT group and those participants assigned to the TAU group but who received ongoing individual therapy for the whole year (this group consisted of 9 out of the 22 TAU participants). This enabled a direct comparison of DBT with other stable individual therapy. However, we still have no information with regard to what this treatment consisted of, and the analysis is also using a very small number of participants. These comparisons found that the DBT group still reported fewer parasuicidal acts and fewer days in psychiatric hospitals. There were no significant differences in terms of medical risk. However, these findings show that something specific about DBT is effective in bringing about change in these domains.

Although the results of DBT appear to be very positive in terms of parasuicide, maintenance in therapy and psychiatric inpatient treatment, no significant differences were found between groups on depression, hopelessness, reasons for living or suicidal ideation. However, these were not targets of stage 1 of therapy.

In the follow up study (Linehan et al, 1993) information was collected on subsequent parasuicidal behaviour at 18 months and 24 months using the PHI. A smaller group of participants who were recruited in the second cohort also completed the following assessments at these two time points: 1) the Treatment History Interview; 2) the trait

section of the State-Trait Anger Scale (STAS-T; Spielberger et al., 1983); 3) an interview that was an adapted version of the psychosocial functioning sections of both the Social Adjustment Scale-Interview (SAS-I; Weissman & Paykel, 1974) and the Longitudinal Interview Follow-up Evaluation (LIFE; Keller et al., 1987), which provided the information necessary for an observer rating of social adjustment and a Global Assessment Scale (GAS; Endicott et al., 1976); and 4) the Social Adjustment Scale-Self Report (SAS-SR; Weissman, & Bothwell, 1976), which measured overall social adjustment, anxious rumination, work and employment performance. Interviewers were blind as to the treatment condition in which participants were placed.

During the 12- to 18-month follow-up period, the DBT group still reported a lower frequency of parasuicidal acts and fewer medically treated episodes. However, during the 18- to 24-month period, there were no significant differences between the groups. With regard to psychiatric inpatient days, those in the DBT group had a lower frequency in the 18- to 24-month period, but no significant differences were found between groups in the 12- to 18-month period. At both time points, participants from the DBT group reported significantly better employment performance and were rated significantly higher on global adjustment. At the 18-month time point, those who received DBT reported significantly less anger and better social adjustment, but no significant differences were found at the 24-month time point. At 24 months those who received DBT were rated by the interviewer as significantly higher on all social adjustment scales, but not at the 18-month time point. No significant differences were found between groups on work performance or anxious rumination.

These results show that some of the apparent benefits of DBT were maintained at the one year follow-up. However, this was not the case for all of the results. Of particular note is the lack of difference between the groups at the 24-month point on frequency of parasuicidal acts. This finding suggests that the benefits gained whilst actively involved in therapy may not be sustainable once therapy has been completed. Another interpretation is that 1 year of treatment may not be a sufficient amount to create a lasting change. However, the follow-up study is described as a naturalistic study due to the fact that there was no requirement of therapy to terminate after one year. We are not provided with any information on how many individuals in each group did actually continue with therapy, and for how long. Therefore, there may well have been significant differences between the groups in terms of the amount of therapy provision, which might account for the results. Indeed, in the first study, efforts were made to control for these differences by comparing the DBT group to participants who received stable ongoing individual therapy in the TAU group. These comparisons were not considered in the follow up. It is therefore difficult to draw any conclusions from the differences found between the groups on social adjustment, anger and global adjustment.

Considering the study as a whole, once again, the conclusions we can draw are limited. In terms of the design of the study, only a small sample size was used. This means that the significant differences between the groups are quite robust findings. However, a large number of variables were analysed, and no corrections for multiple analyses were conducted. This means that type 1 errors may have played a part. The failure to find any differences between the groups on the variables of suicidal ideation, depression, hopelessness and reasons for living rules out the interpretation that the

reduction in parasuicidal acts is mediated by any of these factors. Although positive results are achieved through DBT, these appear to be on a behavioural level rather than being a consequence of any change in the underlying difficulties. Due to the hierarchy of importance in DBT, the first priority of focus for each session is any parasuicidal acts and life threatening behaviours which have occurred, followed by any therapy interfering behaviours and then behaviours that interfere with quality of life. Thus, reduction of parasuicidal acts, engagement in therapy and reduction of psychiatric hospitalisations will be high on the agenda for discussion in DBT. In other forms of therapy, some of these aspects may not be prioritised in the same way. This focus may bring about the change in the behaviours but not in underlying difficulties. Scheel (2000, pp. 79) suggests that this may be due to the fact that the reduction in parasuicidal behaviour 'may have been mediated more by behavioural management than by production of "deeper" and perhaps more self sustaining cognitive and affective changes'.

4.2.2. Verheul et al. (2003) and Van den Bosch et al. (2005)

Verheul et al. (2003) conducted a similar randomised controlled trial of DBT in the Netherlands. One benefit of this study was that it was the first randomised controlled trial that was not conducted by the author of DBT, and it therefore takes into consideration whether the treatment can be effectively applied by other teams. This may also somewhat reduce the experimenter bias which may have been present in the previous studies. The differences in this sample, compared to that of the study described above, were that drug dependence was not an exclusion criterion and participants were not required to have recently committed a parasuicidal act. This creates a more generalizable sample than that in the above study. Participants were

matched on age, alcohol problems, drug problems and social problems, and randomly assigned to receive either DBT or TAU. In this study, the information that we are given about the input received by those in the TAU group is that they received 'clinical management' by the original referral source and that they 'attended generally no more than two sessions per month with a psychologist, a psychiatrist or a social worker'. This description suggests that very few participants in this group received any stable therapy, and that many received no therapy at all.

There were 64 participants assigned to the two treatment conditions (31 to DBT, and 33 to TAU). Following drop-outs, 47 participants were included in the analysis at the end of the year (24 in the DBT group, 23 in the TAU group).

Assessments were conducted at baseline, 11, 22, 33, 44 and 52 weeks. The Borderline Personality Disorder Severity Index (BPDSI; Arntz et al, 2003) was used to measure parasuicidal behaviours (this distinguishes between self-mutilating behaviours and actual suicide attempts) and other impulsive behaviours (e.g., gambling, binge eating, drug use). The Lifetime Parasuicide Count (LPC; Comtois & Linehan, 1999) was also administered at 22 weeks and 52 weeks to obtain information regarding frequency of parasuicidal behaviours and subsequent medical treatment.

Significantly more participants in the DBT group remained in therapy with the same therapist for the year than in the TAU condition. However, this result is not particularly surprising when we consider that many of the TAU group were receiving only clinical management and also seeing their therapist less regularly than those in the DBT group. This difference would suggest that those in the TAU group would be

less engaged with their therapist. To control for this factor, additional analyses were conducted using the Working Alliance Inventory (Horvarth & Greenberg, 1989), and no significant differences were found between the groups. This similarity suggests that therapeutic alliance was not the mediating factor, although very limited information is given about this analysis, so it is difficult to draw many conclusions. Another important factor may be that when recruited into the study, participants had to agree to terminate any ongoing therapy that they were receiving. Therefore, some individuals may have received less input than they were previously as a consequence of participating in the trial. This change could have resulted in participants from the TAU group feeling disappointed by their treatment allocation, and could have led to them dropping out of the trial.

No significant differences were found between groups on the frequency and time course of suicidal behaviours. However, those in the DBT group did show a greater reduction in frequency of self-mutilating behaviours over time than those in the TAU group. No significant difference was found between the groups on impulsive behaviours at the end point, but again, a significantly greater improvement over time was found in the DBT group. No significant differences were found between the groups in the use of psychotropic medication. Further analysis was conducted by splitting the group in accordance with lifetime number of self-mutilating acts, to yield a variable of severity. This analysis found that the reduction in self-mutilating behaviours for those in the DBT group was significantly greater for those who demonstrated a greater frequency of lifetime self mutilation.

Van den Bosch et al. (2004) conducted a follow-up study, where assessments were

conducted at 78 weeks (6 months after DBT treatment termination). Those in the TAU condition did not have to terminate treatment, whilst those in the DBT condition had to terminate DBT and were not allowed to receive any further DBT input. However, they were free to receive input of other kinds. Parasuicidal behaviour, impulsivity and substance abuse were assessed, using the same measures as in the original study. The results of this study suggest that although participants who had received DBT retained the benefits, demonstrating lower levels of impulsive behaviours and self-mutilating behaviours, the differences between groups was no longer significant. This finding is similar to that found by Linehan (1993), and adds extra weight to the argument that the benefits of one-year DBT become less apparent once active treatment is ceased. However, without details of the input received by the participants over the 6-month follow-up period, it is difficult to draw any conclusions.

The Verheul study provides a larger sample size than did the Linehan study. However, it is still a relatively small sample size for a randomised controlled trial. A replication with a larger sample size would be useful in further verifying the efficacy of DBT. This study does, however, demonstrate that DBT can be effective for those with BPD and drug dependence. An interesting finding in this study is that, for DBT participants, the reduction in self-mutilating behaviours was significantly greater for the participants with more severe pathology. In fact, for the low severity group the results were very similar to that of the TAU group. This finding suggests that DBT is a more effective treatment for those with high frequency impulsive behaviours.

4.2.3. Turner (2000)

Turner (2000) added an extra element to the research that had been conducted thus far

by comparing DBT to another active treatment - client-centred therapy (CCT; Carkhuff, 1969; Carkhuff, Pierce & Cannon, 1976). This is a non-directive manualised treatment, which places a particular emphasis upon empathic understanding. There is no empirical evidence base to support the efficacy of this treatment for individuals with BPD. It would have been more useful to have compared DBT to a treatment which has proven its efficacy for this client group. The study took place in the more naturalistic setting of a community mental health clinic, using regular mental health staff. This setting gives ecological validity to the research, providing the opportunity to test whether DBT can be effective in a real-world setting rather than within a research context. However, conducting the research in this setting does make the variables more difficult to control.

To be included in the study, participants had to meet diagnostic criteria for borderline personality disorder. The exclusion criteria were having a diagnosis of schizophrenia, schizoaffective disorder, bipolar disorder, organic mental disorder, or a learning disability. 24 participants were randomly assigned to treatment (12 to the DBT group and 12 to the CCT group). 19 were female and 5 were male. The average age was 22 years old, ranging from 18 to 27. Of the 24 participants, 23 met diagnostic criteria for a comorbid axis I disorder (including depression, anxiety disorder and alcohol or drug dependence). Most participants also met criteria for additional personality disorders. Having such a diverse group is useful, in that it is much more representative of the sample that present to mental health services than those groups who meet diagnostic criteria for borderline personality disorder but have no comorbid diagnosis. However, it does mean that a number of confounding variables are present, which may make the results more difficult to interpret.

Initial assessments were conducted to verify the diagnosis of borderline personality disorder. For this purpose, a 90 minute structured interview based on the Diagnostic Interview for Borderlines (DIB; Gunderson, Kolb & Austin, 1981) and the Structured Clinical Interview for DSM-III Disorders (SCID-I; Spitzer et al., 1990) were used. The Personality Disorders Examination (PDE; Loranger; 1988) was also conducted to verify the diagnosis and to establish whether any other Axis II disorders were present. Assessments were conducted at pre-treatment, 6 months and 12 months. No follow-up assessments were conducted. The outcome measures used were: 1) the Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960); 2) the Brief Psychiatric Rating Scale (BPRS; Overall & Gorman, 1962); 3) the Beck Depression Inventory (BDI; Beck et al., 1961); 4) the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown & Steer, 1988); and 5) the Beck Scale for Suicidal Ideation (BSI; Beck, Steer & Ranieri, 1988). Participants also kept a daily log of suicidal urges and attempts, and assessors gave target behaviour ratings for anger, impulsive behaviour, emotional instability and frequency of parasuicide. These ratings were made on an 8-point scale, where 0 indicated no symptoms and 8 indicated severe symptoms. Although these scales produced good inter-rater reliability, they are not a validated method of measuring these variables.

Four therapists administered both treatments. They were given equal training in both therapy models. The number of treatment sessions was not controlled for, and participants received anything from 49 sessions up to 84 sessions. There were no significant differences between the groups on the number of sessions. However, no details are given regarding how it was decided how many sessions each participant

would receive. Some modifications were made to the original DBT programme. Some psychodynamic techniques were used, but no rationale is given for why this decision was made and this addition could be seen to contaminate the DBT model. This addition creates even more difficulty in interpreting which are the active components of the therapy. Also, no DBT skills group was conducted. Instead, the skills component was delivered within the individual sessions, and six group sessions were conducted with a focus upon significant other people within the participants' lives. The reason for making this alteration was so that the two groups were more equal.

At pre-treatment, there were no significant differences between the two groups. For suicide and self-harm behaviour, both groups were found to have significantly improved over the course of treatment. However, the DBT group made significantly more improvement than the CCT group at both 6 months and 12 months. Also, both groups were found to have made significant improvements over time on the emotional domain measures. However, those in the DBT group made significantly greater improvements than the CCT group on impulsivity, anger and depression at 12 months. No differences were found between the groups on anxiety. The DBT group was also found to score significantly lower on the BPRS at 12 months, which measures global mental health functioning. Hospitalization days were also more significantly reduced in the DBT group at both 6 months and 12 months.

This study contributes further evidence that DBT is effective for individuals with BPD. The results showed significant improvements on the measures of affect which had not been found in the previous studies. It is not possible to draw any conclusions as to the reason for this without further research. One possible hypothesis is that the

added psychodynamic elements may have been effective in bringing about changes in underlying emotional difficulties. This research is again limited by a small sample size and also by the large number of measures that have been used, with no multiple comparison corrections being applied. The study suggests that DBT can be effectively applied in a more naturalistic setting such as a community mental health clinic, which is encouraging if a wider dissemination of DBT is to occur. Using CCT as a comparison treatment is useful in that it shows that the components of DBT make it more effective than just a supportive psychotherapy. However, it would have been useful to compare it to a treatment with an evidence base.

4.2.4. Linehan et al. (in press)

In order to address the concerns raised about comparing DBT to TAU and the role of therapeutic expertise in any differences found, Linehan et al. (in press) have also conducted a study comparing DBT to treatment by comparable experts in psychotherapy. DBT was compared to Community Treatment-By-Experts (CTBE). Individuals in the CTBE group received at least weekly therapy sessions from therapists with experience of working with difficult clients. The treatment was not prescribed by the study, and therefore varied in therapeutic model across therapists. Participants receiving DBT were found to be half as likely to make a suicide attempt and less likely to be hospitalized for suicidal ideation than those in the CTBE condition. Those receiving DBT were also found to have significantly lower medical risk across parasuicidal acts. Furthermore, the DBT group were found to have fewer psychiatric hospitalisations. There were no differences between the groups on depression, reasons for living and suicidal ideation, although both groups showed significant improvement on these measures. This study further supports the hypothesis

that factors specific to DBT are effective in reducing parasuicidal behaviour.

4.3. Summary

No model of therapy has proven itself to be the treatment of choice for BPD clients, who are widely recognised as a difficult client group to treat. However, research in the field of DBT has received much interest from both the research and clinical fields. The research that has been conducted has resulted in DBT being acknowledged as a recommended treatment, due to the positive results which have been produced.

Generally the studies described provide quite promising initial results for DBT. However further research needs to take place. It would be useful to compare this treatment against another active treatment that has been proven to be effective in treating BPD, for example, psychoanalytically oriented partial hospitalisation (Bateman & Fonagy, 1999).

The studies do not show which elements of the treatment are the active components, and therefore a dismantling study would be useful. In order to deliver the full DBT programme, therapists need to commit a large amount of time to its delivery. A dismantling study may go to show that all of the components are not necessary, which may make it a treatment which is more able to be utilised in community settings, in which resources are more limited. This difficulty has been addressed in some settings, by adapting DBT in accordance with what the service is capable of providing. For example McQuillan et al. (2005) showed a three week intensive DBT programme to be effective for individuals with BPD who were in crisis. This approach enabled a large number of individuals to be treated within a short space of time. Sneed et al.,

(2003) illustrated how they drew from DBT strategies to treat individuals within a psychiatric emergency room. However, it is still important to develop an understanding of which elements of DBT are the most effective, in order for DBT to be used in this way of drawing elements from the model, rather than applying it, in accordance with the original model.

The results that have been shown to be significant have mainly been behavioural changes, such as reduction in parasuicidal acts and impulsive behaviours. However, changes were found in the Turner (2000) study for anger and depression. Furthermore, changes in measures of affect were also found by Koons et al. (2001). There is no evidence that DBT is capable of bringing about any changes in other core features of BPD, such as interpersonal instability, chronic feelings of emptiness and identity disturbance (Blennerhassett & O'Raghallaigh, 2005), and this area warrants further research, as no research has sufficiently measured these constructs. One possible interpretation of the fact that there is less evidence to support DBT's efficacy in bringing about change in underlying emotional factors is that much of the focus of the therapy is upon behaviours as they occur. Considering this, alongside the fact that DBT appears to be more effective in those individuals who are more chronically suicidal, may suggest that rather than being an effective treatment for BPD itself, DBT is in fact an effective treatment for individuals with 'severe, life-threatening, impulse-control disorders' (Verheul, 2003). If the treatment is beneficial in helping individuals with impulsivity difficulties, it is possible that the treatment is effective in improving distress tolerance. Changes of this kind would not necessarily be seen in the measurements of depression and hopelessness, as the individual may still be feeling the same yet be able to regulate and tolerate these emotions more effectively. It would

therefore be appropriate to consider the treatment in other conditions where impulse control is a difficulty such as in the eating disorders.

5. DBT for the Eating Disorders

5.1 Adaptation of the DBT Model

Two papers have been published describing how DBT can be adapted for eating disorders (Wiser & Telch, 1999; Wisniewski & Kelly, 2003) Wisniewski & Kelly (2003) describe how the biosocial model can be adapted for eating disorders, before going on to describe the adapted treatment. They suggest that individuals who develop eating disorders may possess either an emotional vulnerability or a nutritional vulnerability or both. When this vulnerability interacts with an invalidating environment, the individual may develop an eating disorder. They view the nutritional vulnerability to be the body's biological difficulty in signalling hunger and satiety. They propose that this vulnerability may either be present prior to the eating disorder or develop as a consequence of the overeating and undereating, which are related to the eating disorder itself. They also extend the concept of the invalidating environment to include more eating disorder specific concepts. They consider today's culture to be an invalidating environment, in which the notion of what is beautiful in a woman is unobtainable for the majority of the population, and that an acceptance of one's existing body shape is not encouraged. They also consider invalidating responses to the eating disorder symptoms by those in the immediate environment, such as, "What do you mean you can't eat it, it's only a piece of bread" or an overprotective environment, which gives the message that the individual is unable to cope with life's difficulties. They suggest that, within an eating disorder population, the main dialectical dilemma is over-controlled eating versus out of control eating. This

extension of the biosocial model enables us to have a greater understanding of how the model can be applied to eating disorder cases.

Wisniewski & Kelly (2003) suggest an adapted version of DBT, but one that looks generally very similar to Linehan's original treatment structure. However, they suggest the importance of a pre-treatment stage, which essentially is to establish motivation to change. The standard DBT target hierarchy is replicated, with additional information regarding how eating behaviours fit into each of the different targets as follows: Target I – Life threatening behaviours would include eating disorder behaviours that could lead to a medical emergency; Target II – therapy interfering behaviours including, for example, not completing food diary cards, refusing to be weighed, and manipulating one's weight; Target III – quality-of-life interfering behaviours including, for example, restrictive eating, bingeing, purging, calorie counting, and body checking. They also suggest an expansion of the traditional diary card used in DBT to include food intake and targeted behaviours (bingeing, purging, exercise, etc), similar to the food diaries completed in CBT. An additional module in the group skills training is proposed, focusing on nutrition. This module would provide education with regard to issues such as nutritional information, portion sizes, metabolism, effects of food restriction and bingeing. The final adaptation that they suggest is for extra emphasis to be placed upon mindfulness, either within individual sessions or within the group sessions. They suggest this in order to help with the difficulties that this population often have in attending to food or to their bodies without judgement. Developing mindfulness skills would enable individuals to move closer towards a position of acceptance.

The adaptations that are suggested here seem to be logical adjuncts to the original

DBT programme, and provide a comprehensive guide as to how this treatment could be administered. Only limited changes are made, and these bring the focus to specific eating disorder related concepts. However, there is no research which has been conducted applying these particular adaptations as of yet, and therefore there is no way of knowing whether this adaptation would be an effective treatment.

Wiser & Telch (1999) propose an adapted version of DBT for binge-eating disorder. This adaptation digresses further from original DBT than that described above. It is conducted purely as a group therapy which runs for only 20 sessions. There is no justification for why they suggest this group format as opposed to the traditional combination of group and individual sessions. The interpersonal-effectiveness module is eliminated from the programme, but the mindfulness, emotion regulation and distress tolerance modules remain. The justification for the elimination of that module is that it makes it possible to then compare this treatment with other interpersonally focussed therapies, and also because it allowed them to fit the programme into 20 sessions. Being able to compare DBT to other forms of therapy is obviously very important. However, the decision to eliminate a module, when it is still unclear which elements of the original therapy are necessary to produce change, may be a little hasty. Fitting the programme in to a 20 session group programme may be useful as it could enable services with more limited resources to provide this treatment. The groups seem to encompass elements of what would originally be in the individual sessions and the group sessions. However, the amount of work covered and the amount of time spent looking at individualised issues is obviously going to be highly compromised.

The pre-treatment stage is present again here, which focuses upon gaining

commitment to treatment goals. They set out a hierarchy of treatment goals, specific to binge eating disorder, the first target being to 'stop any behavior that interferes with treatment' moving down to number 6, which is 'decrease apparently irrelevant behaviors' (behaviours engaged in as if irrelevant and harmless when in fact they make binge-eating more likely). Some added binge-eating specific components are suggested to be added to the mindfulness skills module. One example of this is the development of 'mindful eating'. An exercise that they suggest for the group is 'mindful eating' - everyone is given a few raisins, which they focus upon in their hand and then eat, all the time focusing upon sight, texture, smell, taste and the experience of having the raisins in their hand and in their mouth. Another example is 'urge-surfing', which is developing the ability to ride out an urge to binge, rather than responding to it. The emotion regulation skills module and the distress tolerance module cover the same elements as they would in original DBT. Research has been conducted on the efficacy of this adaptation to the DBT model (this is described below).

5.2 Empirical basis of DBT for eating disorders

Telch (1997) described a case study of a woman with binge-eating disorder treated with an adapted form of DBT. Safer, Telch & Agras (2001a) then applied that treatment to a woman with bulimia nervosa. Both of these case reports demonstrated that over the course of therapy, eating-disordered behaviours (i.e., bingeing and purging) were greatly reduced. However, as these were only case studies, it is difficult to generalize the findings.

Palmer et al. (2003) applied the DBT programme to individuals with an eating

disorder and comorbid BPD. The full DBT programme was used, with an additional skills training module that targeted problems with weight and eating. Only seven participants were involved in the research, and therefore no statistical analysis was conducted. However, a marked decrease in self harming incidents and days admitted to hospital were found in the participants. Also, eating disorder symptoms were found to decrease markedly. At the beginning of treatment, all participants had diagnosable eating disorders. However, by the end of follow-up, none met full diagnostic criteria, although four retained eating disorder features which meant that they still fulfilled criteria for EDNOS (eating disorder not otherwise specified). These findings show that DBT appears to be an effective treatment for individuals with an eating disorder and a co-morbid personality disorder. They are a particularly difficult client group to treat, and therefore a larger study into this treatment for this group would be desirable. Unfortunately, due to the low numbers of participants and the lack of a control group, it is difficult to draw any conclusions.

Two randomised controlled trials have been conducted to evaluate the adapted version of DBT proposed by Wisner & Telch (1999). One of these considers the application of DBT to binge eating disorder (Telch, Agras, & Linehan, 2001), while the other evaluates an individual therapy version adapted for bulimia nervosa (Safer, Telch & Agras, 2001b).

5.2.1. Telch et al. (2001)

Telch et al. (2001) evaluated the group therapy described above. Participants were recruited through newspaper advertisements. The inclusion criteria for participants were that they had to be female, between 18 and 65 years old and fulfil DSM-IV

criteria for binge-eating disorder. Exclusion criteria were: currently receiving treatment (psychotherapeutic, psychotropic or weight loss treatment); current substance abuse or dependence; current suicidality or psychosis; and pregnancy (because weight was being used as an outcome measure). 44 women were randomly assigned to receive either DBT or to be put on a waiting list (22 assigned to DBT, 22 assigned to the waiting list). Ten participants dropped out following randomisation (4 from the DBT group and 6 from the waiting list group). Using a waiting list option as a control condition is an ethical way of providing a control group, as everyone has the opportunity to receive the treatment. However, although they are not receiving treatment, simply being put on the waiting list can have an effect in itself, as positive or negative changes may occur due to the anticipation of receiving therapy. It also creates difficulties around follow-up, due to the dilemma of whether they should be kept on the waiting list for an extended period of time to provide a control group, or should they then begin treatment. In this study, it appears that the latter decision was taken, as no comparison figures are provided for the follow-up data.

Assessments were conducted at baseline, after 20 weeks of treatment, 3 months after treatment and 6 months after treatment. The assessment measures used were: 1) Eating Disorders Examination (EDE: Fairburn & Cooper, 1993), conducted at baseline and 20 weeks in order to establish diagnosis and eating disordered behaviours; 2) SCID I and II (Spitzer et al., 1990a, 1990b), conducted only at baseline in order to again verify diagnosis and any comorbid psychopathology including the presence of a personality disorder; 3) the Binge Eating Scale (Gormally et al., 1982), which assesses severity of binge eating problems; 4) the Emotional Eating Scale (EES; Arnow, Kenardy & Agras, 1995), which assesses the extent to which emotions prompt an

individual to feel the urge to eat; 5) the Rosenberg Self-Esteem Scale (Rosenberg,1979); 6) the Beck Depression Inventory (BDI; Beck et al; 1961); 7) the Positive and Negative Affect Schedule (PANAS; Watson, Clark & Tellegen, 1988); and 8) the Negative Mood Regulation Scale (Catanzaro & Mearns, 1990). The last three measures are all looking at affect and affect regulation. Height and weight were also measured.

Treatment was delivered as described by Wisner & Telch (1999) by two female psychologists. The participants had a mean age of 50 years, with a mean body mass index (BMI) of 36.4 (in the obese range). The mean duration of binge-eating disorder was 29.2 years. Comorbid psychopathologies within the group were depression (9%), anxiety disorder (18%) and personality disorder (27%). Over three quarters of the sample had received psychological treatment in the past.

No significant differences between the groups were found at baseline. At the end of treatment, the DBT group was found to binge on significantly fewer days and to have significantly fewer bingeing episodes. There was also a significantly larger number of those from the DBT group who were now abstinent from bingeing compared with the waiting list group. The DBT group also scored significantly less on the EDE subscales of weight concerns, shape concerns and eating concerns. There were no significant differences in terms of dietary restraint. Those in the DBT group also scored significantly less on the anger subscale of the EES, which indicates less of an urge to eat when feeling angry. No other significant differences were found on the emotion measures.

At follow-up, the efficacy appeared to be diminishing. At 3 months, 67% were still abstinent and at 6 months 56% were abstinent; this compares with 89% at the end of treatment. There is no control group at follow up with which to compare these results, making it difficult to draw any conclusions. The proportion of abstinence appears to be quite high for a group of women with an average duration of binge-eating of 29.2 years. It is also still much higher than the wait-list were at 20 weeks (12.5%). However, it appears that it may be difficult for the results to be sustained over a period of time without additional intervention or support. which suggests that further work on relapse prevention could be useful. It would have been useful to have had results from a further follow-up point at 12 months to see if the abstinence rates continued to drop. Also, considering the duration of illness, a 6 month follow-up may not have been sufficient.

These results appear to demonstrate that this adapted group DBT is more effective than no treatment for women with binge eating disorder. However, there is no way of determining whether DBT-specific factors produced the positive results. As it was being compared essentially to no treatment, it may well have been non-specific factors that brought about the changes. It is possible that it may have been more effective or produced more sustainable results if it had not been limited to only 20 weeks and to only group sessions. A large proportion of the group (27%) met criteria for a personality disorder. It might have been useful to have seen what impact this comorbidity had upon the effectiveness of the treatment. However, the small sample size may have prevented this being a possibility. Further studies need to be conducted to consider these issues.

As in the research conducted on BPD, the significant differences between the groups were behavioural factors. No differences were found on the measures of depression, anxiety, and self esteem. One way of interpreting these findings might be that instead of the treatment working directly on altering emotions, it is enabling the individual to accept and tolerate emotions without resorting to behavioural strategies such as bingeing to manage them. This conclusion is in line with the targets of the therapy and, as this treatment took the more limited format of a 20-week group only programme, tackling the underlying emotional responses may have been beyond the scope of the intervention.

5.2.2. Safer et al. (2001b)

The other randomised controlled trial of DBT for the eating disorders was conducted by Safer, Telch & Agras. (2001b). They recruited 31 women aged 18-65 years who suffered with bulimia nervosa (BN), with at least one binge/purge episode per week over the previous three months. The criteria of only one episode differs from the DSM-IV criteria of two episodes per week (American Psychiatric Association, 1994). Their rationale for this was to broaden the applicability to more individuals who present with symptoms but who do not fulfil DSM-IV criteria. 25 of those recruited met full criteria for BN. The following exclusion criteria were applied: body mass index of below 17.5; psychosis or severe depression with suicidal ideation; active drug/alcohol abuse; already receiving psychotherapy or using psychotropic medication. Participants were recruited through clinical referrals and newspaper advertisements.

Participants were randomly assigned to either the DBT condition or the waiting list

condition. Those assigned to the DBT condition were offered 20 weeks of DBT. Those assigned to the waiting list condition were offered DBT following 20 weeks on the waiting list, during which time they had to agree not to receive any psychotherapeutic input. One waiting list participant did not comply with this stipulation, and therefore her baseline results were carried forward.

Participants were assessed at baseline and at post-treatment using the following measures: 1) Eating Disorder Questionnaire (Fairburn & Cooper, 1993); 2) the Negative Mood Regulation Scale (Catanzaro & Mearns, 1990); 3) the Beck Depression Inventory (Beck et al., 1961); 4) the Emotional Eating Scale (Arrow, Kenardy & Agras, 1995); 5) the Multidimensional Personality Scale (Tellegen & Waller, 1994); 6) the Positive & Negative Affect Schedule (Watson, Clark & Tellegen, 1988); and 7) the Rosenberg Self Esteem Scale (Rosenberg, 1965). No follow-up assessments were conducted, thus limiting the conclusions we are able to draw and providing no information regarding the sustainability of improvements.

Participants assigned to the DBT group received 20 sessions of individual psychotherapy as opposed to group therapy. However, it is stated that the treatment used is that described in Wiser & Telch (1999), which is in fact the description of the group therapy for binge-eating disorder. We can only assume that it was further adapted so that all of the components took place within individual sessions, but this is not clearly set out or discussed. There is also no mention of whether further adaptations were made for a bulimia nervosa group as opposed to a binge eating disorder group. Since the treatment is not described specifically, it makes the research difficult to replicate.

The mean age of participants was 34 years and their mean BMI was 23.7. At baseline, they had a median of 25 objective binges and 32 purging episodes over the previous 28 days. The mean duration of illness was 12.2 years. No significant differences were found between the two groups at baseline other than on the Negative Mood Regulation Scale Score. Three participants did not complete the study (one from the waiting list group and two from the DBT group).

The results showed that participants in the DBT group managed to decrease their rates of bingeing and purging significantly in comparison to the waiting list group. At 20 weeks, in the DBT group, 28.6% were abstinent from bingeing and purging, 35.7% had only mild symptoms, and 35.7% remained symptomatic. In contrast, none of the waiting list group were abstinent, 13.3% had mild symptoms, and 80% continued to be symptomatic.

Initial significant differences were found between the groups on a number of the secondary measures. The DBT group were found to have made significantly greater improvements than the waiting list group on the Negative Mood Regulation Scale, BDI, all subscales of the Emotional Eating Scale and negative affect score of the PANAS. No significant differences were found between groups on the Multidimensional Personality Scale, the positive affect score on the PANAS or the Rosenberg Self-Esteem score. However, once a Bonferroni correction for multiple analysis had been conducted, none of the differences on the secondary measures were significant. This correction eliminated the possibility of type I errors playing a part. It is worth noting that the differences on the Emotional Eating Scale subscale scores of

anger/frustration, anxiety and depression were highly significant prior to the application of the Bonferroni correction, and therefore it is possible that the small sample size reduced the power of detecting any differences. Therefore, although statistically these results were not significant, they suggest that DBT can produce some improvement on these emotional measures. These results add further weight to the possibility that although DBT does not alter individuals underlying affect, it might enable them to reduce the temptation to use maladaptive behavioural strategies to manage these emotions. It is also worth noting that this study produced a greater effect on the secondary measures than the Agras et al. (2001) study. This finding may suggest that the individual therapy version of DBT is more effective than the group therapy version, or that DBT is more effective for bulimia nervosa than for binge-eating disorder. Alternatively, these results may be due to the longer duration of illness in the binge-eating disorder group. It is necessary for further research to be conducted on the eating disorders groups for us to be able to draw any conclusions from this.

The lack of any follow-up measures is detrimental to the study, as there is no information as to whether improvements were maintained after therapy was terminated. The study used a small sample, which may have reduced the power to detect differences. Also using a waiting list comparison group means that we can only conclude that the therapy is more effective than no therapy. We cannot draw any conclusions that something specific about the therapy was the active component. It may well have been non-specific elements of the therapy that enabled the participants to make the changes that they did. However, the results are promising and certainly suggest that it is necessary for further research with larger sample sizes to be conducted.

5.3. Summary

DBT has been suggested by many clinicians working with eating disorders as a potentially useful model of therapy. For this reason adaptations, have been proposed as to how it can be applied to this population. Wisniewski & Kelly (2003) propose additional eating disorder-specific adaptations to the biosocial model alongside a suggested adaptation of the therapy itself. However, no research has been conducted into the efficacy of this model. Wiser & Telch (1999) also propose a DBT programme adapted for eating disorders, which follows a purely group therapy format. They have conducted case studies and randomised controlled trials of this treatment. Palmer et al. (2003) conducted research on a DBT programme for individuals with an eating disorder and BPD.

The research provides promising results, suggesting that DBT can be effective in reducing disordered eating behaviours. It appears that, similar to research in BPD more broadly, DBT is primarily effective in reducing the impulsive behaviours (in this case bingeing and purging), rather than underlying emotional constructs. There were trends towards improvements in some emotional constructs in the Safer, Telch & Agras (2001b) study. However, the findings suggest that DBT enables individuals to tolerate their emotions without resorting to use the maladaptive behaviours of bingeing and purging.

Some notable limitations of the studies are their small sample sizes and lack of comparison to another evidence based treatment. In order to gain more substantial evidence for DBT as an effective treatment in the eating disorders, further research

needs to be conducted using larger sample sizes. It will also be important to compare DBT to CBT, which is currently the treatment of choice for this client group.

6. Conclusions

DBT has made an important contribution to our understanding of BPD and has provided an effective treatment for this difficult to treat client group. The empirical literature for DBT offers some promising results in the treatment of BPD. Most notably, the treatment has resulted in a reduction in parasuicidal behaviour. Evidence that DBT is effective in treating underlying difficulties is more limited. It appears that DBT enables individuals to tolerate their emotions more effectively and therefore not need to resort to the use of dysfunctional emotional modulatory behaviours. Further research is needed in order to ascertain the impact of DBT upon affect and core aspects of borderline psychopathology. Some limitations of the research have been that sample sizes have been small and it has yet to be compared to another treatment which has proven efficacy for this clinical population.

The application of the treatment model to the eating disorders has also produced some promising initial findings. Significant improvements have been found in bingeing and purging for individuals who have received DBT. Limitations of this work again have been the small sample sizes, and the lack of a treatment comparison group. Important future directions for research would be to compare DBT to treatments with a proven efficacy for this client group (e.g. CBT-BN – Fairburn & Cooper, 1989). An important aspect of this research would be to identify which individuals respond well to the DBT treatment and compare this to the individuals who respond well to CBT. It may be the case that for individuals who fit the dietary subtype profile, CBT is sufficient, yet for

those individuals whose binge eating is rooted in negative affect, then DBT may address their needs more appropriately. It is also important to further explore the impact that DBT has upon affect in individuals with eating disorders and whether it can help individuals with some of their cognitive difficulties, such as preoccupation with shape and weight.

As DBT has been implicated as a potentially useful treatment for individuals with eating disorders, it is important to establish whether the theoretical model which underpins DBT is applicable to the eating disorders. The bio-social model (Linehan, 1993) provides a useful framework for conceptualising BPD and it appears to provide an appealing framework for understanding difficulties of affect regulation within the eating disorders. It is possible that the construct of the invalidating environment may be implicated in aetiology of eating disorders. Future research may focus upon the role of the invalidating environment and its relationship with affect regulation and distress tolerance in the eating disorders. It may also be useful to explore these constructs with particular emphasis upon the multi-impulsive sub-group. This client group appear to display increased efforts to regulate their emotions through varying maladaptive behaviours. This client group are found to be difficult to treat and their psychopathology is still relatively unclear. With further research, it is possible that DBT might further our understanding of this group and provide an effective treatment for them, in the same way as it has for BPD

7. References

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Part 2: Empirical Paper

Multi-Impulsive Eating Disorders: the Role of Distress Tolerance and Invalidating Environments

Multi-Impulsive Eating Disorders: the Role of Distress Tolerance and Invalidating Environments

1. Abstract

Objective: The aim of the study was to investigate the roles of distress tolerance and invalidating environments in individuals with multi-impulsive and non-multi-impulsive eating disorders.

Method: Fifty seven eating disordered women (thirty who were multi-impulsive and twenty seven who were non-impulsive) and thirty non-clinical women completed the Invalidating Childhood Environments Scale (ICES; Mountford et al., in press) and the Distress Tolerance Scale (DTS; Corstorphine et al., in press).

Results: Individuals with multi-impulsive eating disorders were found to use more maladaptive forms of distress tolerance (i.e. avoidance) and were more likely to report invalidating childhood environments than the non-clinical group.

Conclusions: The constructs of distress tolerance and invalidating environments are both relevant in the presentation of individuals with multi-impulsive eating disorders but not for individuals with non-impulsive eating disorders.

2. Introduction

2.1. Eating disorders and affect regulation

The link between eating disorders and emotional dysfunction is well established in the literature, and is commonly observed within clinical settings. Binge-eating in particular has been identified being related to emotional states. The *affect regulation* model (e.g. Lacey, 1986; Root & Fallon, 1989) proposes that binge eating serves the function of regulating negative (and sometimes positive) emotions. Root & Fallon (1989) propose a number of functions that are served by bulimic behaviours. One such function is that the behaviours 'anaesthetize' negative emotions, by way of repressing and dissociating from feelings and traumatic memories. This is achieved by focussing attention upon food, weight, eating and purging, which displaces or redirects the original feelings. They suggest that a further function of the bulimic symptoms, is to reduce tension. This occurs as a maladaptive attempt at problem solving. They suggest that these techniques serve to only temporarily relieve negative affect, and therefore the behaviours have to be frequently used in order to continue to manage the feelings. The link between negative affect and binge eating has also been demonstrated experimentally (e.g., Agras & Telch, 1998; Heatherton, Herman & Polivy, 1991).

Waller (submitted) proposes a schema-based cognitive model of eating disorders. This model suggests that individuals with eating disorders use strategies in order to avoid affect, either through schema compensation or schema avoidance. Individuals with bulimia nervosa are thought to use schema avoidance, which means that bulimic behaviours are behavioural attempts to reduce the awareness of the negative affect, which occurs when a schema is triggered. This is termed as *secondary avoidance of*

affect. This is in contrast to individuals with restrictive pathologies, who, it is proposed use more *primary avoidance of affect*, which involves a process of schema compensation, whereby the individual thinks or behaves in opposition to their schema in order to avoid the schema being triggered at all. Therefore, this suggests that bulimic individual experiences negative affect, which the anorexic individual avoids and that the bulimic behaviours, serve to manage this negative affect.

Fairburn, Cooper & Shafran (2003) suggest that 'mood intolerance' is a key feature for a sub-group of individuals with eating disorders. They suggest that this sub-group have difficulty in appropriately managing adverse (and in some cases) positive emotions, and that they engage in "dysfunctional mood modulatory behaviour" (e.g. bingeing and vomiting) in order to reduce their awareness of their mood states. Stice & Agras's (1999) found support for this hypothesis when they identified two sub-groups of individuals with bulimia nervosa, which they classed as the 'dietary subtype' and the 'dietary-depressive subtype'. They found that the dietary-depressive subtype presented with higher rates of emotional disturbance, and this appeared to be linked to their binge-eating. This subgroup were also found to have a higher rate of Axis I and Axis II disorders, and were more likely to be resistant to Cognitive Behavioural Therapy (CBT). Fairburn, Cooper & Shafran (2003) proposed that this subgroup were likely to engage in other impulsive behaviours, such as self-harm and substance misuse, which served the same mood modulating function as the eating disordered behaviour.

2.2. Eating disorders and multi-impulsivity

The concept of multi-impulsive bulimia was first proposed by Lacey & Evans (1986).

Multi-impulsivity is hypothesised to reflect a greater effort to regulate emotions. While such patients are relatively easily identified, their psychopathology is not well understood, and their treatment can be difficult. These individuals were found to show poorer prognosis and were often found to have comorbid borderline personality disorder (BPD). 20-30% of eating-disordered individuals have co-morbid BPD (Wonderlich & Mitchell, 1997). Dennis & Sansone (1997) found multi-impulsivity to be more prevalent in those individuals with binge/purge eating disorders (i.e. individuals with eating disorders who engage in bingeing and purging behaviours, who may or may not fulfil dull diagnostic criteria for bulimia nervosa). There is a complex connection between multi-impulsive bulimia and BPD, which appear to be related constructs, yet their explicit relationship is unknown (Wonderlich et. al. 2002).

Thus, studies have identified a subgroup of individuals with bulimic type eating disorders who may have difficulties with emotion regulation. These individuals often engage in further impulsive behaviours, which can be understood as increased efforts to modulate emotional distress. CBT for bulimia nervosa (as proposed by Fairburn, Marcus & Wilson 1993) is likely to be less effective for this subgroup, possibly as there is no focus within the treatment on affect regulation. The recent transdiagnostic development of that model of CBT for the eating disorders (Fairburn, Cooper & Shafran 2003) does include a module on affect regulation, but there are no data on the impact of that treatment as a whole.

2.3. The Dialectical Behaviour Therapy (DBT) model

The Dialectical Behaviour Therapy (DBT) model may enable us to gain a greater understanding of this group. DBT was developed by Linehan (1993) to help modify

affect dysregulation (and consequent behaviours) in borderline personality disorder (BPD). Linehan's (1993) bio-social model proposes that BPD is primarily a dysfunction of the emotion regulation system, and that impulsive behaviours (e.g., self-harm, compulsive spending, binge-eating, alcohol abuse) serve the function of achieving emotion regulation. This formulation may be applicable to the eating-disordered group described earlier. Telch (1997) proposed that binge eating serves the same function as impulsive behaviours in BPD, in that they serve the function of gaining temporary relief from negative affect.

Research on the efficacy of DBT has produced some promising results in individuals with a diagnosis of BPD. Most markedly, it has a significant effect in decreasing levels of parasuicidal behaviour (Linehan et al., 1991; Linehan et. al., 1993; Verheul et. al., 2004). Some promising results have also been achieved in the application of DBT to the eating disorders. Telch, Agras & Linehan. (2001) found DBT to be effective in reducing binge-eating for individuals diagnosed with binge-eating disorder, while Safer, Telch & Agras (2001) showed that it reduces bingeing and purging in individuals diagnosed with bulimia nervosa.

One element of the therapy is a target of improving distress tolerance - the ability to endure and accept negative emotions in order to facilitate problem-solving (Linehan, 1993). Distress tolerance is an area where individuals with borderline personality disorder have specific difficulties. While this difficulty often occurs in the context of an overtly abusive family, such abuse is not a necessary (or even sufficient) causal factor in Linehan's (1993) bio-social model. The model proposes that the development

of poor distress tolerance is caused by the interaction between a biologically determined emotional vulnerability and the invalidating environment – the sustained experience of having one’s emotional states cast into doubt, usually by one’s family. Such an environment is defined as one where caretakers (usually parents) consistently act in ways that leave the individual doubting the validity of his or her emotions, beliefs, preferences, etc. (e.g., “You don’t really feel upset”). Linehan (1993) suggests that invalidation is typically found in three types of families – the ‘perfect’, the ‘typical’ and the ‘chaotic’. The ‘perfect family’ appears fine on the surface, however, there is an expectation that the child hides her feelings and gets on with things. The ‘typical family’ is focussed upon achievement and success; the child is expected to put her feelings to one side and behave like an adult, thus denying normal developmental capabilities and experiences. The ‘chaotic family’ may often have difficulties with substance abuse, financial problems or mental health problems; the parents may generally be unavailable to support the child’s needs.

2.4. Distress tolerance and the eating disorders

Distress tolerance also seems to be an area of difficulty for individuals with eating disorders who use bingeing and other impulsive behaviours as dysfunctional forms of managing distress. As noted earlier, the most common form of CBT for bulimia nervosa in the eating disorders (Fairburn, Marcus & Wilson 1993) does not place any emphasis upon affect regulation. In contrast, DBT’s focus upon affect regulation, including the development of distress tolerance skills may address a key deficit for these individuals, but does not address the central eating-, weight- and shape-related beliefs.

Distress tolerance is a key construct in the DBT model. Until recently, no instrument existed for a reliable measurement of this construct. However, Corstorphine et al. (in press) developed a self-report measure of distress tolerance in the eating disorders, in order to assess whether this was a particular deficit for this client group. The measure assesses three different factors, reflecting different strategies in the management of emotions - 'Accept and manage', 'Avoidance of affect', and 'Anticipate and distract'. 'Accept and manage' is an adaptive form of managing affect, which enables problem solving to take place. It was found that non-clinical women were more likely to engage in this strategy. 'Avoidance of affect' reflects a maladaptive form of managing affect, and was found to be more apparent in the eating-disordered women. 'Anticipate and distract' reflects a more neutral style of managing affect. This style of managing distress enables the regulation of emotion in the short-term, but prevents appropriate problem-solving from taking place, and is therefore less helpful in the long-term. These findings support the hypothesis that individuals with eating disorders lack distress tolerance skills. However, it does not establish whether such a characteristic is more prominent in multi-impulsive individuals who appear to make greater dysfunctional efforts to manage their distress.

2.5. Invalidating environments and the eating disorders

If we are to consider the construct of distress tolerance in the eating disorders within the framework of Linehan's bio-social model, it is important to establish whether the origin lies in the invalidating environment. Much research has been conducted into the role of childhood abuse in the aetiology of the eating disorders. For example, sexual abuse has been identified as a risk factor in the eating disorders (e.g., Oppenheimer et al., 1985) with a stronger association with bulimia nervosa than with anorexia nervosa

(e.g. Waller, 1991). However, the presence of dysfunctional family environments in the absence of overt abuse has also been implicated in the eating disorders. Claes et al. (2004) found that individuals with eating disorders, particularly those who also engaged in self-injurious behaviours, described a lack of cohesion, expressiveness and social orientation within their families, and a presence of conflict and disorganisation. These findings support the hypotheses that an invalidating environment may also be implicated in the aetiology of eating disorders, and may be a more prevalent factor in multi-impulsive bulimics.

Until recently (as with distress tolerance) no tool had been developed, that enabled measurement of the construct of the invalidating environment. In order to establish the applicability of this construct, it was important that a reliable and valid method for measuring invalidating environments was developed. Mountford et al. (in press) have developed a self-report measure to assess perceived invalidating environments in childhood. They found that eating-disordered patients were more likely to report having experienced an invalidating childhood environment, and that such environments were associated strongly with a coping style of emotional avoidance (on the distress tolerance measure). It was also found that bulimic behaviours in particular were associated with perceived parental invalidation. These findings support the hypothesis that an invalidating environment is a factor in the aetiology of eating disorders, particularly those with bulimic type disorders.

2.6. Summary

In summary, eating disorders are commonly linked to disturbances in affect regulation. Bingeing, in particular, can be seen as a dysfunctional behaviour that functions to

modulate distressing emotions. Within a sub-group of individuals with bulimia nervosa, bingeing is rooted in negative affect. It is likely that multi-impulsive bulimics fall within this group, as their impulsive behaviours can be conceptualised as more extreme attempts at managing negative affect. These individuals are found to be fairly treatment resistant to CBT. DBT may offer an alternative in the conceptualisation and treatment of these individuals. DBT has proven its efficacy with a BPD population - a presentation that has a high rate of comorbidity within multi-impulsive bulimia. Initial results have also shown positive outcomes for DBT in eating-disordered populations. Linehan's biosocial model suggests that distress tolerance is a key deficit in individuals with BPD, and that this deficit is caused by an interaction between biologically determined emotional vulnerability and an invalidating environment. Corstorphine et al. (in press) found the construct of distress tolerance to be a deficit in individuals with eating disorders, who are more likely to engage in avoidance strategies when faced with negative emotions than acceptance strategies. Mountford et al. (in press) investigated the construct of the invalidating environment within the eating disorders. They found that individuals with eating disorders are more likely to report having experienced invalidating childhood environments, and that the invalidating environment related to difficulties with distress tolerance. It is important to extend this research in order to investigate these constructs within the multi-impulsive bulimic population, whose presentation can be hypothesised to be a manifestation of increased emotional dysregulation. This clinical group are relatively treatment resistant, and therefore this research will enable us to develop a better understanding of the psychopathology of this group and may inform future treatment directions.

2.7. Aims and hypotheses

The following study will investigate the constructs of the invalidating environment and distress tolerance within individuals with eating disorders who use bingeing behaviours, as this is proposed to be the key mood-modulatory behaviour in the eating disorders (e.g. Root & Fallon, 1989). The study shall compare individuals with eating disorders, who do, or do not engage in other impulsive behaviours (i.e individuals with multi-impulsive and non-impulsive eating disorders) and a non-clinical group.

Therefore the hypotheses of this study are:

- Maladaptive forms of distress tolerance will be more prominent in the clinical group, and most prominent in the multi-impulsive eating-disordered group.
- Positive forms of distress tolerance will be more prominent in the non-clinical group, and least prominent in the multi-impulsive group.
- Invalidating childhood environments will be reported to be more prominent in the eating disordered group, and most prominent in the multi-impulsive group.
- Validating childhood environments will be reported to be most prominent in the non-clinical group, and least prominent in the multi-impulsive group.

3. Method

3.1. Ethical issues

Ethical approval was obtained at the Riverside REC (see appendix for letter granting approval). All participants were provided with information sheets describing the study, and signed a consent form to confirm that they had read and understood the information sheet and agreed to participate in the study (see appendix for information sheet and consent form).

3.2. Participants

The participants included both eating-disordered and non-clinical women.

Eating-disordered group

The clinical sample consisted of 57 women. They were diagnosed by clinicians trained in the differential diagnosis of the eating disorders, using a semi-structured interview (Waller et al., in press) which addresses symptoms, behaviour, and psychopathology of eating disorders and enables eating disorders to be diagnosed in accordance with DSM-IV criteria (American Psychiatric Association, 1994). To be included in the study, it was necessary for binge eating to be a feature of their eating disorder. All participants met DSM-IV criteria for eating disorders including: anorexia nervosa (of the binge/purge subtype; $N = 5$, 8.8%); bulimia nervosa ($N = 32$, 56.1%); and Eating Disorder Not Otherwise Specified (EDNOS; $N = 20$, 35.2%). Exclusion criteria were male gender, lack of fluency in the English language, comorbid learning disability, or comorbid psychotic psychopathology.

Non-clinical group

The non-clinical group consisted of 30 non-eating disordered women who were

recruited from a university undergraduate and postgraduate population.

3.3. Procedures

The study employed a comparative design, with a clinical and a non-clinical group.

Individuals in the eating-disordered group were recruited following their assessment at a specialist outpatient eating disorders service. They were asked to read the information sheet in order to decide whether they wished to participate. They were provided with a stamped addressed envelope, and asked to return the signed consent sheet, accompanied by the questionnaires if they agreed to take part. Information regarding monthly frequency of bingeing and vomiting, BMI and presence of multi-impulsive behaviours was obtained as part of the routine clinical assessment. In order to calculate an accurate body mass index (BMI), height and weight were measured objectively. Individuals were classed as being multi-impulsive if they currently engaged in two or more of the following behaviours: self-harm (including cutting, overdosing, self-hitting), excessive alcohol use, substance misuse, stealing, risky sexual behaviour, overspending. The criterion of two or more impulsive behaviours was used, as this is in accordance with that set for the MIS (Multi-Impulsivity Scale; Evans, Searle & Dolan, 1998).

Individuals in the non-clinical group were recruited from a university population. A brief verbal introduction was given at the beginning of their lectures. They were asked to read the information sheet in order to decide whether they wished to participate. They were provided with a stamped addressed envelope and asked to return the signed consent sheet and questionnaires if they wished to take part. Alternatively they were

provided with the opportunity to hand consent sheets and questionnaires back to the researcher in person. In order to calculate BMI, these women were asked to report their height and weight when completing the questionnaires. The Multi-Impulsivity Scale (MIS; Evans, Searle & Dolan, 1998) was completed in order to screen for the presence of multi-impulsivity. One of the non-clinical participants was found to meet criteria for multi-impulsivity, and therefore was excluded from the analysis, leaving 29 non-clinical participants. The eating and weight related subscales of the EDI (Garner, Olmstead & Polivy, 1983), i.e. drive for thinness, bulimia and body dissatisfaction were also completed in order to screen for eating disorders. None of the non-clinical participants met clinical levels.

3.4. Measures

All participants completed two self-report measures (alongside the additional MIS and EDI for the non-clinical group), these are described below.

Distress Tolerance Scale (DTS; Corstorphine et. al., in press).

The DTS is a 14-item, measure of an individual's ability to tolerate emotional distress (see appendix). The scale was shown to have moderate internal reliability and good clinical validity (distinguishing clinical and non-clinical groups; Corstorphine et al., in press). This measure was validated for eating disordered and non-clinical populations. The measure consists of three subscales, which reflect different strategies of dealing with emotion – 'avoidance of affect' (e.g., 'I avoid situations that I know will make me nervous'); 'accept and manage affect' (e.g., 'If I find I am getting too anxious, I will do something to soothe myself; e.g., listen to music, read a book'); and 'anticipate affect and distract' (e.g., 'If I know I am going to be alone for any length of time I will

make sure that I have lots of things to do to make the time pass quickly’). Each item is rated on a five point Likert scale, ranging from ‘never’ to ‘all the time’. The score for each of the subscales is calculated by taking the mean of the relevant items. The internal consistency of the scale varied for the different sub-scales in this study (Cronbach’s alpha: avoidance of affect – alpha = .7349 [good]; accept and manage – alpha = .5366 [poor]; anticipate and distract – alpha = .6689 [adequate]).

Invalidating Childhood Environment Scale (ICES; Mountford et al., in press)

The ICES is an 18-item measure of the individual’s experience of an invalidating environment during childhood (see appendix). The measure was shown to have good internal consistency and good clinical validity (Mountford et al., in press). This measure was validated for eating disordered and non-clinical populations. The first section consists of 14 items, which reflect specific maternal and paternal invalidating behaviours (e.g., negate emotions, ignore thoughts and judgements). Items are rated on a Likert scale (1 = ‘never’, 5 = ‘all of the time’). Each item is rated for both mother and father, and a separate score is yielded for each (calculated from the mean of the items). The second section consists of four items describing four family environments - the ‘typical’, ‘perfect’ and ‘chaotic’ (as proposed by Linehan, 1993) and the ‘validating’. Again each item is rated on a five-point Likert scale (1 = not like my family, 5 = like my family all of the time). The internal consistency of the scale was good in this study (Cronbach’s alpha: maternal invalidation – alpha = .7707; paternal invalidation – alpha = .8038).

Multi-Impulsivity Scale (MIS; Evans, Searle & Dolan, 1998)

The MIS is a 22-item self-report measure, which assesses the temptation to use and

actual use of impulsive behaviours, in order to gain a sense of relief (see appendix). It covers 11 different domains of impulsive behaviours: bingeing; drinking alcohol; shoplifting; gambling; physical aggression; verbal aggression; fire setting; self-harm; overdosing; illicit drug abuse; and sexual behaviour. Each item is rated on a six-point Likert scale, ranging from 'never' to 'always'. The classification of multi-impulsive is given if a respondent scores at the 'sometimes' or above level on three or more domains. This scale was devised using clinical populations (individuals with eating disorders and individuals who abused alcohol), and on non-clinical populations.

Eating Disorders Inventory (EDI; Garner, Olmstead & Polivy, 1983)

The EDI yields 11 scales, and higher scores represent greater levels of pathology. Of these, only the three subscales related to food and weight were included. Three of these scales relate directly to eating psychopathology, addressing restriction of intake (Drive for Thinness), body concept (Body Dissatisfaction), and bulimic tendencies (Bulimia). However, only the Drive for thinness and body dissatisfaction scales were included for the screening process, in case individuals presented with anorexic pathology. The inventory subscales have been shown to have appropriate content, convergent, and discriminant validity and good internal consistency (Garner,1991). Although there is no set criteria for cut-offs to discriminate between clinical and non-clinical groups, it is suggested that the 95th percentile be used as this is fitting with the prevalence of eating disorders. This equates to a score of 16 or more on the drive for thinness scale and 23 or more on the body dissatisfaction scale.

3.5. Data Analysis

The data were not normally distributed. Therefore, nonparametric tests were used throughout. One-tailed tests were used where there were directional hypotheses. In order to establish any demographic differences between the groups, Kruskal-Wallis tests were conducted for age and BMI. Post hoc Mann-Whitney tests were conducted to determine pairwise differences. Mann-Whitney tests were also conducted to establish whether there were differences between the clinical groups on frequency of bingeing and vomiting.

Differences between the groups on distress tolerance and invalidating childhood environments were also tested using Kruskal-Wallis and post hoc Mann-Whitney tests. Finally, associations within the clinical groups between eating pathology and the DTS and ICES scores were tested using Spearman's rho correlations.

Regressions using bootstrap methods were conducted to control for differences in age, as this variable was found to be significantly different between the clinical and non-clinical groups.

No participants dropped out of the study, following giving consent. One non-clinical participant was found to meet criteria for multi-impulsivity, therefore her data was not included in the analysis.

4. Results

4.1. Descriptives

Of the 57 clinical participants, 30 were found to be multi-impulsive and 27 were found to be non-impulsive.

Table 1 shows age and BMI, comparing the two clinical groups and the non-clinical group. The non-clinical group were significantly younger than the eating-disordered non-impulsive group and the eating-disordered multi-impulsive group. However the two eating-disordered groups did not differ significantly in age. No significant differences in BMI were found between the groups.

Table 2 shows frequency of bingeing and vomiting, comparing the two clinical groups only (as these measures were not applicable to the non-clinical group). The multi-impulsive group had a significantly higher frequency of vomiting than the non-impulsive group. However, no differences were found between the two groups on frequency of bingeing.

Table 1. Descriptive statistics (mean and standard deviation) for age and BMI in the non-clinical, eating disordered non-impulsive and eating disordered multi-impulsive groups

	Group						Kruskal-Wallis test χ^2	<i>p</i>	Mann-Whitney test (<i>p</i> <0.05)
	Control <i>M</i>	(sd)	ED non-imp <i>M</i>	(sd)	ED multi-imp <i>M</i>	(sd)			
Age	23.38	(3.310)	27.33	(6.214)	26.23	(5.008)	10.372	.006	0 < 1 = 2
BMI	21.631	(3.045)	23.766	(8.449)	23.536	(6.012)	0.297	ns	

Note: 0 = non-clinical; 1 = ED non-imp; 2 = ED multi-imp

Table 2. Descriptive statistics (mean and standard deviation) for frequency of bingeing and vomiting per month, in the eating disordered non-impulsive and eating disordered multi-impulsive groups

	Group				Mann-Whitney test	
	ED non-imp <i>M</i>	(sd)	ED multi-imp <i>M</i>	(sd)	<i>Z</i>	<i>p</i>
Bingeing	18.230	(17.780)	30.833	(33.130)	-1.283	ns
Vomiting	11.444	(18.222)	35.367	(45.026)	-2.288	.022

4.2. Hypothesis Testing

4.2.1. Distress Tolerance

It was hypothesised that:

- Maladaptive forms of distress tolerance would be more prominent in the clinical group, and most prominent in the multi-impulsive eating disordered group.
- Positive forms of distress tolerance would be more prominent in the non-clinical group, and least prominent in the multi-impulsive group.

Table 3 shows the subscales of the DTS ('avoidance of affect', 'accept and manage' and 'anticipate and distract'), comparing the three groups. Significant differences were found between the groups for avoidance and acceptance. Post hoc Mann-Whitney tests were used to compare the groups. The multi-impulsive group scored significantly higher on the avoidance scale than the non-clinical group. Also, the non-clinical group were found to score significantly higher on the acceptance scale than both clinical groups. No further significant differences were found.

In order to ascertain whether these results remained significant when controlling for age (as this variable was significantly different between the clinical and non-clinical groups), a regression was carried out testing group differences using bootstrap methods to determine significance levels. This test was used as the dependent variables were not normally distributed. One participant was identified as a statistical outlier for age (i.e. 3 standard deviations from the group mean), therefore the analyses were conducted; including the outlier's data, removing the

outlier's data and reducing the outlier to just above that of the other cases. All results remained significant when age was controlled for.

Although a significant difference was found between the two control groups for frequency of vomiting, there was no need to control for this as no significant differences were found between the two clinical groups.

Table 3. Distress tolerance in non-clinical, eating disordered non-impulsive and eating disordered multi-impulsive groups

	Group						Kruskal-Wallis test χ^2 p		Mann-Whitney test ($p < 0.05$)
	Control		ED non-imp		ED multi-imp				
	<i>M</i>	(sd)	<i>M</i>	(sd)	<i>M</i>	(sd)			
DTS avoid	2.161	(0.470)	2.310	(0.740)	2.628	(0.742)	6.384	.021	0 < 2
DTS accept	3.043	(0.616)	2.593	(0.740)	2.478	(0.663)	11.967	.002	0 > 1 = 2
DTS distract	2.810	(0.650)	2.630	(0.884)	2.483	(0.768)	2.476	ns	

Note: 0 = non-clinical; 1 = ED non-imp; 2 = ED multi-imp

4.2.2. Invalidating Childhood Environments

It was hypothesised that:

- Invalidating childhood environments would be reported to be more prominent in the eating-disordered group, and most prominent in the multi-impulsive group.
- Validating childhood environments would be reported to be most prominent in the non-clinical group, and least prominent in the multi-impulsive group.

Table 4 shows the ICES ratings for the participants' mothers and fathers and for the different family types, comparing them across the three groups. Significant differences between the groups were found for 'validating' and 'perfect' families. Post hoc Mann-Whitney tests showed that validating families were significantly more common in the non-clinical group than in either of the eating disordered groups. The perfect family type was significantly more common in the multi-impulsive group than the non-clinical group. No further significant differences were found.

Once again, in order to ascertain whether these results remained significant when controlling for age a regression was carried out testing group differences using bootstrap methods to determine significance levels. All results remained significant when age was controlled for.

It was not necessary to control for frequency of vomiting, as again, no significant differences were found between the two clinical groups.

Table 4. Invalidating environments in non-clinical, eating disordered non-impulsive and eating disorders multi-impulsive groups

	Group			Kruskal-Wallis test		Mann-Whitney test ($p < 0.05$)
	Control <i>M</i> (sd)	ED non-imp <i>M</i> (sd)	ED multi-imp <i>M</i> (sd)	χ^2	<i>p</i>	
Fam typ1	1.379 (0.979)	1.667 (1.074)	1.767 (1.223)	3.538	ns	
Fam typ2	3.966 (1.180)	3.296 (1.353)	3.267 (1.437)	5.155	.038	0 > 1 = 2
Fam typ3	1.621 (1.015)	1.926 (1.207)	2.233 (1.194)	5.285	.036	0 < 2
Fam typ4	2.207 (1.264)	2.704 (1.436)	2.600 (1.453)	1.769	ns	
Inv mother	1.863 (0.604)	1.967 (0.509)	2.026 (0.538)	2.144	ns	
Inv father	1.913 (0.613)	1.989 (0.556)	2.037 (0.673)	0.744	ns	

Note: 0 = non-clinical; 1 = ED non-imp; 2 = ED multi-imp

4.2.3. Associations between eating pathology and distress tolerance and invalidating environment

Spearman's rho correlations were conducted in order to determine if there were associations between age, eating pathology and the DTS and ICES factors, within the clinical groups. Table 5 shows the correlations. Significant correlations were found only for the DTS 'anticipate and distract' factor. This negatively correlated with age, BMI and frequency of bingeing (i.e. there was an association between high scores on the 'anticipate and distract' factor and younger age, lower BMI and lower frequency of bingeing). No other correlation was significant.

Table 5. Correlations between age, eating pathology and DTS and ICES, using Spearmans Rho.

	Age	BMI	Bingeing	Vomiting
Fam typ1	-.242	-.070	-.200	-.056
Fam typ2	.068	.178	-.140	-.161
Fam typ3	.009	.078	-.085	-.026
Fam typ4	-.084	.025	-.086	-.074
Inv mother	-.116	-.085	-.011	.124
Inv father	-.247	-.146	-.070	.129
DTS avoid	-.044	.143	.018	-.106
DTS accept	-.194	-.048	-.156	-.217
DTS distract	-.346**	-.298*	-.308*	-.157

* $p < 0.05$, ** $p < 0.01$, boldface indicates significant associations

4.3. Summary

The main findings were that:

- Only the multi-impulsive eating-disordered group scored significantly higher on the DTS 'avoidance of affect' subscale than the non-clinical group.
- The non-clinical group scored significantly higher than both eating-disordered groups on the DTS 'accept and manage' subscale.
- Only the multi-impulsive eating-disordered group scored significantly higher on the ICES 'perfect family' scale than the non-clinical group.
- The non-clinical group scored significantly higher than both eating-disordered groups on the ICES 'validating family' scale.
- No significant differences were found between the two eating-disordered groups. Thus, the hypothesis that a step-wise difference would be found between the three groups was not supported.
- Negative correlations were found between the DTS 'anticipate and distract' subscale and age, BMI and frequency of bingeing.

5. Discussion

5.1 Summary of aims and findings

The aims of this study were to investigate the role of distress tolerance and invalidating environments in eating-disordered women, who present with or without multi-impulsive behaviours, and to compare these groups to a non-clinical sample. Step-wise differences were predicted for the three groups on distress tolerance and invalidating environments. These differences were not found to be significant for any of the measures, although the trend was in the predicted direction. It is possible that the sample was not large enough, and therefore that the study did not have sufficient power to establish these differences.

Multi-impulsive eating disordered women were more likely than the non-clinical group to engage in avoidance as a style of managing distress. The non-clinical group were more likely than the clinical groups to engage in acceptance as a style of managing distress. Multi-impulsive eating disordered women were more likely to endorse the 'perfect' family type in comparison with the non-clinical group. The non-clinical group were more likely to endorse the 'validating' family type in comparison with the clinical groups. Negative correlations were found between the 'anticipate and distract' style of managing distress and age, BMI and frequency of bingeing.

5.2. Distress tolerance

It was predicted that maladaptive forms of distress tolerance (i.e. avoidance of affect) would be more prominent in the clinical group, and particularly within the multi-impulsive group. This prediction was based on the findings of Corstorphine

et al. (in press), who found that avoidance was more common in an eating-disordered group than in a non-clinical group. Multi-impulsivity can be postulated to reflect a greater effort to regulate emotions, and therefore these individuals would be likely to display increased avoidance.

The findings of this study showed that only the multi-impulsive group displayed a greater tendency to avoid distress than the non-clinical population. The step-wise progression that was predicted within the groups was apparent although not significant. This supports the idea that individuals with multi-impulsive eating disorders have particular difficulty in regulating affect, and that they use dysfunctional strategies (such as bingeing, self-harm, substance misuse) in order to avoid experiencing distress. This would be in accordance with affect regulation models (e.g. Lacey, 1986; Root & Fallon, 1989) and the schema-based cognitive behavioural model (Waller, submitted). It is possible that this group reflect the 'dietary-depressive' group (Stice & Agras, 1999), whose bingeing is seen to be rooted in negative emotion. Corstorphine et al. (in press) found that individuals with eating disorders used avoidance as strategy to manage distress more than the non-clinical group. The current study developed these findings to explore the distress tolerance in the multi-impulsive and non-impulsive subgroups of individuals with eating disorders. It is possible that Corstorphine's results were due to the fact that multi-impulsive individuals made up a significant proportion of the eating disordered group and therefore accounted for the difference. Within this study, the multi-impulsives made up 52.6% of the clinical group, therefore if the clinical group had been considered as a whole, it is likely that they would have impacted upon the significance of the difference.

It was also predicted that the individuals without eating disorders would be more likely to use adaptive strategies for managing distress than the eating disordered-group, and that multi-impulsive eating-disordered individuals would be least likely to use adaptive strategies. Positive forms of managing distress (i.e., accept and manage) were significantly stronger in the non-clinical group than in the two clinical groups. This difference supports Corstorphine et al.'s (in press) conclusion that this is an adaptive form of managing distress. The implication of this finding is that individuals with eating disorders struggle to use adaptive forms of managing distress. Thus, the development of this positive form of distress tolerance could be a useful addition to therapy for individuals with eating disorders. However, it is important to take into consideration the fact that the internal consistency of the 'accept and manage' factor did not meet the required level, and therefore it is difficult to draw any firm conclusions from this finding.

5.3. Invalidating Environments

It was predicted that invalidating childhood environments would be more prominent in individuals with eating disorders than in those without eating disorders, and most prominent in individuals with multi-impulsive eating disorders. This prediction was based upon the finding (Mountford et al., in press) that individuals with eating disorders are more likely to report invalidating childhood environments than a non-clinical group. Claes et al.'s (2004) findings suggest that eating-disordered individuals who self-harm (and are therefore more likely to be multi-impulsive) are more likely to report family backgrounds that are less cohesive, expressive, socially oriented, and organised than the families of those

patients with eating disorders who do not self-harm. Some of these family characteristics may be reflective of an invalidating environment.

The multi-impulsive group were more likely than the non-clinical group to endorse the 'perfect' family as reflective of their childhood environment. No statistically significant differences were found between levels of invalidating environments reported in the non-clinical group and the eating-disordered non-impulsive group. The 'perfect' family type is characterised by parents who find it difficult to tolerate their child's expression of negative emotions, and an emphasis is placed upon controlling those emotions. This pattern may relate to Claes et al.'s (2004) finding that a lack of expressiveness within families is a feature of eating-disordered individuals who self-harm, as this lack of expressiveness fits the construct of the 'perfect' family. Therefore, this particular family type appears to be implicated in the aetiology of multi-impulsive eating disorders. Mountford et al.'s (in press) study did not explore the differences between the clinical and non-clinical groups for the different family types. Their study investigated the differences between the clinical group and non-clinical group for the overall measures of parental invalidation. They found the clinical group to score more highly on parental invalidation than the non-clinical group. This finding was not replicated within this study. It is unclear why this may have been the case. The difference between the samples in the two groups was that only individuals with bulimic type disorders were included within this study. It is possible that the inclusion of individuals with more anorexic presentations in the Mountford et al. (in press) study may have accounted for differing findings. As their study took a transdiagnostic approach (Fairburn, Cooper & Shafran, 2003) it is not possible to establish whether this may

be the case. Alternatively, a smaller sample size was used in the current study and therefore, it may not have had sufficient power to establish these differences.

It was predicted that validating family types would be more prominent in individuals without eating disorders, and least prominent in individuals with multi-impulsive eating disorders. The non-clinical group were more likely to endorse the 'validating' family type as being reflective of their childhood family environment than the eating-disordered groups, supporting the findings of Mountford et. al. (in press).

5.4. Associations between eating pathology and distress tolerance and invalidating environment

It was predicted that there would be an association between eating pathology and reported distress tolerance and invalidating childhood environments. Individuals who engaged in the 'anticipate and distract' strategy of managing distress were more likely to be younger, have a lower BMI and a lower frequency of bingeing. Thus, the use of this strategy, with its short-term effectiveness but its longer-term failure to resolve problems, seems to be associated with the compulsive-restrictive form of pathology, rather than the impulsive-bulimic form. It is necessary to conduct further research comparing individuals with anorexia nervosa and bulimia nervosa in order to establish whether this is the case, as the sample in this study was insufficient to allow such a direct comparison. However, this set of associations may be an important preliminary finding, as it suggests that different forms of distress tolerance differentiate individuals who present with more bulimic behaviours from those who present with more anorexic behaviours.

5.5. Clinical implications of findings

The findings of this study support the proposal that the DBT model (Linehan, 1993) may be a useful framework to help us to conceptualise the difficulties experienced by individuals who present with multi-impulsive eating disorders. However, the model may not be as useful in the conceptualisation of individuals who present with non-impulsive eating disorders. Distress tolerance appears to be a key deficit for individuals with multi-impulsive eating disorders, and therefore is implicated as an area that therapy should target. These findings may account for the fact that this group are relatively treatment resistant to conventional CBT for bulimia nervosa (Stice & Agras, 1999), as this version of CBT (Fairburn, Marcus & Wilson 1989) does not target emotional regulation. The adaptive strategy of accepting and managing affect is a strategy that could be developed in order to enhance the impact of CBT. Safer et Al. (2001) and Telch et al. (2001) have found promising results when using DBT with individuals with bulimia nervosa and binge eating disorder. It may be useful to conduct further work that particularly focuses on using DBT for multi-impulsive bulimics. DBT focuses on developing mindfulness, which would increase client's abilities to develop strategies of accepting affect. Van den Bosch et al. (2005) found DBT to be effective in reducing self-harm, alcohol use and other impulsive behaviours, suggesting that DBT may be effective in treating all forms of behavioural manifestations of attempts to regulate affect.

For bulimic individuals who present with more anorexic behaviours, it appears that distress tolerance may also be a deficit, although they do not develop such maladaptive forms of managing distress. These individuals seem to develop more

neutral ways of tolerating distress (i.e. anticipating and distracting), but this does not allow for problem solving in the long term. Therefore, therapy focused upon developing strategies of accepting and managing distress may also be implicated for this group.

The findings of both this study and of the Mountford et al. (in press) study suggest that individuals who perceive their childhood environments to be validating are less likely to develop eating disorders. This finding could have important implications for family work conducted with individuals with eating disorders. Eating disorders are common within a young population, and services often target children and adolescents with eating disorders. Supporting families to develop a validating style of interacting with their children might help the child to develop the ability to tolerate distress (and therefore become less dependent upon dysfunctional behaviours as a means of regulating emotion).

5.6. Limitations of the study

The small sample size of this study may have limited its power to support the original hypotheses. The prediction that there would be a step-wise progression in these elements (from the non-clinical group to the non-impulsive group, to the multi-impulsive group) was not supported for distress tolerance or invalidating environments, although the scores tended to reflect this general pattern. Therefore, a replication of this study with a larger sample size would be useful.

The sample consisted of individuals with bulimic type eating disorders. The associations between the 'anticipate and distract' factor on the DTS and low BMI

and lower frequency of bingeing suggest that this may be related to anorexic pathology. However, the sample did not include any individuals with a diagnosis of anorexia nervosa of the restrictive subtype, and therefore it is difficult to draw any conclusions from this finding. It would therefore be useful to compare individuals with a diagnosis of bulimia nervosa and those with a diagnosis of restrictive anorexia nervosa, in order to see whether this style of distress tolerance differentiated the two groups.

The ICES is a self-report measure, which means that it may not reliably reflect the actual childhood environment of the individual. However, as noted by Mountford et al. (in press), the individual's perception of their environment is key to the child's experience. Also, the retrospective nature of the measure might also affect the tool's ability to reflect reliably upon the actual childhood environment. Mountford et al. (in press) note that 'this might be particularly relevant in early onset cases, for whom the eating-disordered behaviour and attitudes might influence both the perception and reality of the parent-child relationship'. However, this interaction between the child's behaviour and response of the parent can be seen to accurately reflect the 'transactional' nature of the concept of the invalidating environment (Linehan, 1993). Furthermore, the family types are based on ratings for one item per family type. It would be useful to develop a further understanding of these constructs, in order to be able to measure them more accurately. It would then be useful to explore whether particular family types relate to specific clinical presentations.

Linehan (1993) originally developed her model and treatment for individuals with

BPD. It is known that there is considerable overlap between the multi-impulsive bulimic and BPD (Wonderlich et. al., 2002). It is possible that the findings are due to the prevalence of BPD within this group, rather than the model actually being applicable to individuals with eating disorders. Therefore, it would be important to replicate this study, controlling for the presence of BPD.

5.7. Summary

The findings of this study suggest that individuals with multi-impulsive eating disorders are more likely to use avoidant styles of coping with distress than non-clinical individuals. Multi-impulsive individuals were also more likely to report 'perfect' family types. The non-clinical group were found to be more likely to use adaptive forms of distress tolerance than the clinical groups, although this finding is difficult to interpret due to the lack of reliability of the sub-scale. The non-clinical group were also more likely to report a 'validating' family type. Individuals who engaged in the 'anticipate and distract' strategy of managing distress were more likely to be younger, have a lower BMI and a lower frequency of bingeing, therefore suggestive of more anorexic psychopathology.

There were some limitations to the study. The sample size may have reduced the power to detect differences between the non-clinical group and the non-impulsive eating-disordered group. The lack of well-validated measures which assess the constructs of distress tolerance and invalidating environments, also limit the conclusions which can be drawn from the study. However, the findings suggest that the DBT model can be applied to individuals with multi-impulsive eating disorders. The concept of the invalidating environment is implicated as an

aetiological factor and distress tolerance appears to be a deficit for individuals with multi-impulsive eating disorders. Therefore DBT may provide an effective treatment programme for these individuals.

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Part 3: Critical Appraisal

1. Overview

The following critical appraisal will evaluate the study as a whole. It will begin by summarising the hypotheses and the main findings, and will then consider how these can be interpreted. The relationship between multi-impulsivity and borderline personality disorder (BPD) will be explored, along with how that relationship might influence how we choose to interpret the findings of the study. The clinical implications of the study will then be considered. The limitations of the study will be discussed with particular reference to how representative the sample is, the problem of confounding variables and measurement issues. Some ideas for future research will also be proposed.

2. Summary of the aims and findings

The aims of the study were to explore the relationships between invalidating childhood environments and distress tolerance in multi-impulsive and non multi-impulsive eating-disordered women, and to compare these with a non-clinical group. A number of hypotheses were put forward for testing. First, it was predicted that maladaptive forms of distress tolerance would be more prominent in the clinical group, and most prominent in the multi-impulsive eating-disordered group. Second, it was predicted that positive forms of distress tolerance would be more prominent in the non-clinical group, and least prominent in the multi-impulsive group. Third, it was predicted that invalidating childhood environments would be reported to be more prominent in the eating-disordered group, and most prominent in the multi-impulsive group. Fourth, it was predicted that validating childhood environments would be reported to be most prominent in the non-clinical group, and least prominent in the multi-impulsive group. Finally, it was predicted that

there would be an association between eating-disordered psychopathology and distress tolerance and invalidating environments.

None of the hypotheses relating to the differences between the groups on distress tolerance and invalidating environments were fully supported, as significant differences were not found between all three groups on any of the measures. However, the most striking finding was that the multi-impulsive eating-disordered group were found to use significantly more avoidance strategies for managing distress than the non-clinical group, and they were also more likely to report their family environment as reflecting a 'perfect' family type than the non-clinical group.

The non-clinical group were more likely to accept and manage distress than the two clinical groups. However, it is difficult to draw any conclusions from this, as the 'accept and manage' subscale was shown to have poor internal consistency. The non-clinical group were also more likely to report their family to be 'validating'.

These findings have further developed the findings of Corstorphine et al. (in press), and Mountford et al. (in press), who identified a difference between eating-disordered individuals and non-clinical individuals on distress tolerance and invalidating environments. The current study found that it is the multi-impulsive sub-group of individuals with eating disorders who show more avoidant strategies as a means of distress tolerance, and are more likely to have experienced invalidating childhood environments than non-eating-disordered individuals. No

differences were found between the non-impulsive eating-disordered group and the non-clinical group, and therefore the prediction of a step-wise difference between the groups was not supported.

3. Interpretation of the findings

As stated above the hypotheses were only partially supported. The step-wise difference between the three groups was not supported. One possible explanation for why no significant differences were found between the non-impulsive eating-disordered group and the non-clinical group is that the sample size of the current study was not large enough to generate enough power to find a significant difference between them. This may well have been the case, as the step-wise pattern of results between the three groups was as predicted, but not to a significant degree. Therefore, it would have been desirable to have used a larger sample size in order to establish whether this was the case.

An alternative explanation is that the inclusion of individuals with multi-impulsive eating disorders in the Corstorphine et al. (in press) and Mountford et al. (in press) studies accounted for the significant difference found between the eating-disordered group and non-clinical groups. It is difficult to state this with any certainty, as the number of individuals with multi-impulsive eating disorders included in the two above named studies cannot be verified. However, within the sample used for the current study, individuals with multi-impulsive eating disorders made up 52.6% of the clinical group. It is likely that this proportion would have been lower in the other two studies, as their samples included individuals with a diagnosis of anorexia nervosa, and the prevalence of multi-

impulsivity in anorexia nervosa is lower than it is in individuals with bulimia nervosa (e.g. Diaz-Marsa, Carrasco & Saiz, 2000). However, it still appears likely that the inclusion of multi-impulsive individuals accounted for the significant findings.

The implication of the finding that only the multi-impulsive eating-disordered group differ from a non-clinical group on invalidating environments and avoidant styles of managing distress is that the aspects of the DBT model that were being investigated can only be applied to those individuals with multi-impulsive eating disorders. For this group, a 'perfect' family type (i.e., one in which parents have difficulty in tolerating the child's expression of distress and emphasis is placed upon controlling emotions) appears to be implicated as a contributing factor towards the development of the presentation. The association between the 'perfect' family type and an avoidant style of managing distress is in accordance with Linehan's (1993) model, whereby the invalidating environment contributes towards the development of emotional dysregulation, which may then lead to difficulties with tolerating distress. Thus, in this type of family displays of emotion are not 'allowable', and the family suppress expression of emotion rather than teaching their children the skills necessary to regulate emotion and tolerate distress. The child is raised to believe that experiencing and expressing emotions is wrong or shameful. However, it appears that this model is not applicable to individuals with eating disorders who do not present with multi-impulsive behaviours.

Interpreting these findings is made more difficult by the complex connection

between multi-impulsive bulimia and BPD, which appear to be related constructs but where the explicit relationship is unknown (Wonderlich et al., 2002). It is yet to be determined whether these multi-impulsive behaviours are behavioural manifestations of the more fundamental underlying BPD, or whether multi-impulsivity in the eating disorders is distinct from BPD. The literature does not provide a clear distinction between these two constructs. Therefore, the findings of the current study could suggest that the 'perfect' family type and avoidant style of managing distress are implicated in the aetiology of multi-impulsive eating disorders, or alternatively, are limited to BPD individuals who present with bulimic symptomatology. If the latter is the case, then the findings may only be representative of the fact that the DBT model is applicable for individuals with BPD, for whom it was originally developed.

It is important for further research to be conducted in order for us to gain a better understanding of the complex nature of the relationship between the constructs of multi-impulsive bulimia and BPD. In order to clarify the findings of this study, a replication of the study could be conducted, including an assessment of BPD in the participants. This would enable BPD to be controlled for, in order to see whether this was the determining factor in the findings.

It would also be important for future research to explore the relationship between the invalidating environment and distress tolerance. Ideally, longitudinal work could be conducted in order to establish whether an invalidating childhood environment is implicated in the development of difficulties with distress tolerance. The current study, demonstrated that the invalidating environment is

implicated as a factor for individuals with multi-impulsive eating disorders and that these individuals are likely to display difficulties with distress tolerance, however it did not look at the relationship between these two factors. It would have been possible to look at the correlational relationship between these constructs and this is a potential avenue for future research.

4. Clinical Implications

The findings suggest that DBT may be important to consider for a sub-group of individuals who present to eating disorder services. The multi-impulsive eating-disordered participants were presenting to an eating disorder service for treatment. For this reason, whether or not BPD is the underlying disorder, it is important to address the bulimic symptomatology within the context of a wider emotional dysregulation problem, and therefore the use of DBT is implicated for individuals with multi-impulsive eating disorders. The findings of Telch, Agras & Linehan (2001) and Safer, Telch & Agras (2001) have already provided some preliminary suggestions that DBT can be effective for individuals with binge eating disorder and bulimia nervosa. Palmer et al. (2003) have also provided some preliminary results that suggested that DBT may be effective for individuals with eating disorders and co-morbid BPD. It is important that further research builds upon these studies, in order to address more specifically which groups of individuals with eating disorders DBT is effective for. It would also be important to investigate which elements of the DBT model are effective for this group.

Wisniewski & Kelly (2003) proposed an adaptation of DBT for eating disorders. However, no research has yet been conducted to evaluate this model. Only limited

adaptations to Linehan's (1993) original DBT model are made. They add in an extra pre-treatment module to assess motivation to change and an extra nutrition-focused group skills module. These appear to be sensible adaptations for an eating-disordered group. Useful future research could evaluate the efficacy of this model for an eating-disordered population, comparing those individuals with or without multi-impulsive presentations. A dismantling study would also be useful in order to evaluate which aspects of the model are the most effective and whether all elements of the therapy are necessary. Another useful direction for future research would be to compare DBT to CBT for the eating disorders population. It is possible that CBT may be sufficient for individuals with non-impulsive eating disorders, but that DBT more appropriately addresses the needs of individuals with multi-impulsive eating disorders.

The recent transdiagnostic development of CBT for the eating disorders (Fairburn et al., 2003) includes a module on mood intolerance, which might increase the efficacy of CBT with the multi-impulsive eating-disordered population. As yet, no data on the efficacy of this treatment have been published. Although the DBT model might be applicable to the aetiology of multi-impulsive eating disorders (i.e., invalidating environments and affect dysregulation are indicated), this does not necessarily mean that DBT has to be the mode of therapy that is provided. Any treatment that addresses the difficulties around distress tolerance and affect regulation may be equally effective.

Whichever therapeutic model is used to treat individuals with multi-impulsive eating disorders, it appears to be essential that it targets mood intolerance and the

development of distress tolerance skills. If the development of more adaptive strategies for managing emotions is not developed, and the eating disorder symptoms are treated in isolation from the other presenting difficulties, it is possible that symptom substitutions may take place (Lacey & Evans, 1986). For this reason, it is important that future research that is conducted on the efficacy of treatment models should consider the influence of treatment upon impulsive behaviours other than the eating-disordered behaviour alone.

The finding that particular invalidating family environments also appear to be implicated in the aetiology of multi-impulsive eating disorders may also have implications for family work conducted with children and adolescents with eating disorders. Individuals with multi-impulsive eating disorders were more likely to perceive their family as being of the 'perfect' type than non-clinical individuals. This means that they perceived their families to expect them to hide their feelings and felt their parent's were unable to tolerate their expression of negative emotions. In contrast, the non-clinical group were more likely to have perceived their families as being validating. This means that they perceived their parents to be supportive and encouraging, and that they felt listened to and cared for. Therefore, family therapy could help the families of individuals with eating disorders to develop these more validating traits, such as supporting the patient in the expression of their emotions. It is impossible to know whether intervention at the stage when the eating disorder has developed will result in any improvement in the eating disorder or associated multi-impulsive behaviours. However, this may be a useful future direction for research. Hoffman et al. (2005) have developed a programme for the families of individuals with BPD, based upon DBT principles.

It involves a number of modules, one of these being accurate and effective self-expression (which focuses upon validation), which may be particularly relevant in light of the findings of this study. This treatment approach is one that could be adapted for the families of adolescent eating-disordered individuals. In order to evaluate the efficacy of this work, it would be necessary to develop a tool that assesses current parental invalidation levels, and to evaluate whether improvements in this characteristic result in improvements in the patient's ability to tolerate emotions. Linehan has developed the 'Parental Anger Test' (unpublished) which appears to assess some elements of current parental invalidation.

5. Limitations of the study

5.1. How representative is the sample?

There are issues to consider around the sample's representativeness, which may have affected the generalizability of the results. To begin, I would like to consider the non-clinical group. Approximately 50 women were approached and invited to participate in the study. Of these, 30 consented, giving a response rate of approximately 60%. These individuals were approached during a lecture. Information sheets, consent sheets and questionnaires were handed out and individuals were asked to sign the consent sheets and complete the questionnaires if they wished to take part. It is possible that those choosing to take part were a biased sample of the individuals who were asked to take part. For example, it is possible that the individuals who have difficulties tolerating distress or who perceived their families to be more invalidating may have been more unlikely to participate. While this problem is insurmountable due to issues of informed

consent, it is one that should be acknowledged.

The response rate for the clinical group was unknown as clinicians within the service were responsible for handing out questionnaires, information sheets and consent sheets at assessment. Patients were then asked to return the questionnaires to the service by post if they wished to participate. Unfortunately, due to demands placed upon the clinicians, the questionnaires were not routinely handed out. It was therefore not possible to deduce how many patients were asked to participate. As it was not possible to establish the response rate, it is not possible to establish whether it is likely that any bias was caused by those who chose to participate or not. As was discussed for the non-clinical group, there may have been factors that influenced patients' decisions regarding whether to participate or not. Some of the factors that influenced this choice might have been linked to the subject of the research, and therefore may have influenced the results.

The clinical group were drawn from a specialist outpatient eating disorders service. This may have resulted in a bias in the sample. A large proportion of the clinical sample were found to be multi-impulsive. Lacey (1993) found that 30% of individuals with bulimia nervosa who presented to a specialist eating disorders service were multi-impulsive. However, Welch & Fairburn (1996) found that only 6% of a community sample of individuals with bulimia nervosa were multi-impulsive. Welch & Fairburn (1996) therefore propose that a sampling bias (Berkson's bias) is present in clinic based studies and identifying multi-impulsive bulimics as a separate sub-group is premature. Therefore, it is possible that if a community based sample had been used, only a small number of individuals who

engaged in multi-impulsive behaviours may have been identified. The smaller group size would have been likely to reduce the power to identify any differences between the groups. It is important that further research is conducted in non-specialist eating disorders services to reduce the likelihood of this bias occurring and to enable us to gain further understanding of a multi-impulsive presentation within the eating disorders.

It is also worth noting that the diagnostic procedure used for the clinical group, was not one which has been tested for reliability and validity. This assessment was used as it forms the basis of a wider assessment procedure conducted with new referrals at the service. It appears to have good face validity, was conducted by experienced clinicians and is in accordance with DSM-IV criteria (American Psychiatric Association, 1994). However, it is possible that the lack of a standardised tool may result in some participants being misdiagnosed. This is not problematic in terms of the diagnosis itself, as the research did not take a diagnostic approach, however if people were misdiagnosed with an eating disorder who did not in fact have an eating disorder, this could have resulted in the eating disorders group being misrepresented.

5.2. Confounding variables

The non-clinical group was obtained by opportunity sampling from a university population. This population was chosen as it was an easier one to access and also because it is quite well matched to the demographics of individuals with eating disorders. However, information regarding the educational background of the clinical group was not gathered, and therefore it is not possible to assess whether

the groups were well matched on this demographic aspect. Therefore, educational background could have been a confounding variable

Another issue with regard to the demographic differences between the groups is the significant difference that was found between the clinical and non-clinical groups for age. The non-clinical group were significantly younger than both clinical groups. Again this may have influenced the findings. It is possible that individuals who are younger might have different perceptions of their families than those who are older because they are less independent from their parents. It is possible that they might also differ on distress tolerance. The construct of distress tolerance has not been researched in enough detail to be able to determine developmental patterns. However, in the present study a negative association was found between age and the 'anticipate and distract' factor. This may be related to a more anorexic pathology, or alternatively may suggest that the strategies we use to tolerate distress do alter as we grow older. It may be the case that these skills improve as we get older. For these reasons, it would have been useful to match the groups on demographic variables such as age and educational level, in order to have achieved more reliable results. This would have made it more certain that the influential variable accounting for the differences in distress tolerance and invalidating environments was actually the presence or absence of an eating disorder and multi-impulsive behaviours. Unfortunately for the current study, the non-clinical group were an easily accessible group, and time constraints prevented the possibility of matching the participants from taking place.

Another variable which was not controlled for within the study was the presence of

an overt abuse history (i.e., physical, sexual or emotional). Linehan (1993) suggests that overt abuse is not a necessary factor in the aetiology of affect dysregulation. However, Linehan conceptualises overt abuse as an extreme form of invalidating environment. Without controlling for the presence of abuse, it is possible that this may have influenced the results. The relationship between overt abuse histories and invalidating environments is an area which has, as yet, received little attention. It is possible that the difference between an overtly abusive history and a non-abusive invalidating environment might result in differences in affect dysregulation, distress tolerance or clinical presentation. This is an important area for future research. The scope of this piece of research did not allow for this exploration to take place.

A further potential confounding variable is mood differences. This also was not controlled for. It is likely that the clinical and non-clinical groups differed in presence of depression and anxiety. The presence of co-morbid axis I disorders in individuals with eating disorders has been found to be higher than in the normal population. For example, Brewerton et al. (1995) found 75% of individuals with a diagnosis of bulimia nervosa to have had a lifetime presence of an axis I affective disorders. It is possible that this difference may have accounted for the differences between the groups on invalidating environments and distress tolerance as links have also been found between affective disorders and family relationships and coping style. Gomez & McClaren (2005) found perceived parental support to be negatively associated with anxiety and depression and an avoidant coping style to be positively associated with anxiety and depression. Therefore an area for future research would be to explore whether these results are replicated once the presence

of axis I disorders are controlled for.

5.3. Measurement Issues

The two main scales used in the study were the Distress Tolerance Scale (DTS: Corstorphine et al., in press) and the Invalidating Childhood Environments Scale (ICES; Mountford et al., in press). Both of these measures are new, and therefore have only limited evidence of psychometric validity. However, these tools were the only measures designed to explore these constructs that existed at the time of conducting this study. The measures have good concurrent validity, as they distinguish between the clinical and non-clinical groups. However, criterion validity was difficult to establish, as there were no previous measures of these constructs that they could be compared against. Obviously, using measures that are not well validated limits the conclusions that can be drawn from the findings.

Since beginning this study, a new scale measuring distress tolerance has been published (Simons & Gaher, 2005). This scale has established good convergent and discriminant validity by exploring its relations with other measures of affective functioning. Therefore, this scale would have been useful if it had been published prior to the commencement of the study. In the future, it would be useful to compare these two measures, to further establish their validity.

6. Conclusions

Overall, this study has highlighted the importance of the role of the invalidating environment within individuals with multi-impulsive eating disorders. It has also shown that avoidance strategies for managing distress are prevalent within this

client group. The research suggests that the DBT model can provide us with a framework for understanding this difficult-to-treat clinical population, for whom little is still known about their psychopathology.

The research had a number of limitations. Difficulties with the representativeness of the sample and measurement issues were identified. However, the results highlight the need for further investigation to take place, in order more fully to explore the roles of the invalidating environment and distress tolerance in multi-impulsive eating disorders and other eating disorders. It is also necessary to gain a further understanding of the relationship between multi-impulsive eating disorders and BPD.

It is necessary to ascertain the applicability of the theoretical model underpinning DBT to the eating disorders, in order to inform decisions as to whether this is an appropriate treatment option for this client group. This research suggests that the model is relevant for individuals with multi-impulsive eating disorders, but may not be useful for those with non-impulsive eating disorders.

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Appendices



Riverside Research Ethics Committee

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Miss Jane Evans
University College London
8 Whitehorse Mews
37 Westminster Bridge Road
London SE1 7QD

30 January 2006

Dear Miss Evans

Full title of study: Invalidating Environments, Distress Tolerance and Impulsive Behaviours in the Eating Disorders

REC reference number:

Thank you for your letter of 11 January 2006, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Ethical review of research sites

The Committee has designated this study as exempt from site-specific assessment (SSA). There is no requirement for Local Research Ethics Committees to be informed or for site-specific assessment to be carried out at each site.

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Application		14 November 2005
Investigator CV		
Protocol		
Covering Letter		14 November 2005
Letter from Sponsor		31 October 2005
Peer Review		06 December 2004
Compensation Arrangements		01 August 2005
Questionnaire		

GP/Consultant Information Sheets	1	01 November 2005
Participant Information Sheet	2	10 January 2006
Participant Information Sheet (Control Group)	2	10 January 2006
Participant Consent Form	1	01 November 2005
Participant Consent Form (Control Group)	1	01 November 2005
Response to Request for Further Information		11 January 2006
Supervisor CV		

Research governance approval

You should arrange for the R&D department at all relevant NHS care organisations to be notified that the research will be taking place, and provide a copy of the REC application, the protocol and this letter.

All researchers and research collaborators who will be participating in the research must obtain final research governance approval before commencing any research procedures. Where a substantive contract is not held with the care organisation, it may be necessary for an honorary contract to be issued before approval for the research can be given.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

Please quote this number on all correspondence

With the Committee's best wishes for the success of this project

Yours sincerely

Dr Steve Yentis
Chair

Email: achakraborty@hhnt.org

Enclosures: Standard approval conditions

Copy to: Mr Dave Wilson
UCL Biomedicine R&D Unit
Room G650, Medical School Admin Corridor
Royal Free and University College Medical School
Hampstead Campus
Rowland Hill Street
London

INFORMATION SHEET - CONTROL GROUP

(10th January 2006; Version 2)

Title of Project:

Underlying factors of impulsive behaviours in the eating disorders

Name of Researcher:

Jane Evans

You are invited to take part in this research study. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully, and discuss it with friends, family and your GP if you wish. Ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Consumers for Ethics in Research (CERES) publish a leaflet called *Medical Research and You*. This leaflet gives more information about medical research, and looks at some questions that you may want to ask. A copy can be obtained from CERES, PO Box 1365, London N16 0BW.

Background to the study

Some people with eating disorders have difficulties in regulating and controlling their emotions. Individuals who use other risky behaviours (such as alcohol or drug use or self harm) may also have these same difficulties. It has been suggested that treatment for people with eating disorders might be modified to address this problem. The present study addresses the measurement of distress tolerance (the ability to tolerate a range of emotional experiences) in individuals with eating disorders, who may or may not display other risky behaviours. It also investigates how distress tolerance may be related to experiences in childhood interactions with one's parents.

The research will take approximately ten months, although you will only need to take part for approximately 15 minutes.

Why have I been chosen?

You are being asked to take part as a woman who does not suffer from an eating disorder, to provide a control group for the data collected elsewhere, from a group of women diagnosed with an eating disorder.

Do I have to take part?

You do not have to take part. If you do not take part, it will have no impact on you.

Trust Headquarters, Springfield University Hospital, 61 Glenburnie Road, London SW17 7DJ
Tel: 020 8682 6000 www.swlstg-tr.nhs.uk

What will happen to me if I take part?

You will be asked to complete four simple questionnaires relating to your eating patterns, impulsive behaviours, ways of coping with distress and how you experienced emotion when growing up. We may also use information about your age, weight and height.

What are the possible disadvantages and risks of taking part?

There are no known risks in taking part in this form of study. The only disadvantage is that you will be asked to give up 15 minutes of your time.

What are the possible benefits of taking part?

The treatment of eating disorders may be influenced by the information that you give us, since we will be more readily able to understand how women with those problems differ from women without an eating disorder.

What if something goes wrong?

During research trials, there can be problems due to the methods that are used or due to the way in which you are treated. It is highly unlikely that the method being used in this study will have any harmful effects. University College London (UCL) is the research Governance sponsor of this study. UCL has non-negligent harm indemnity arrangements in place, in the event that you are harmed as a result of taking part in the study. If you are harmed due to someone's negligence, then you may have grounds for legal action (but you may have to pay the costs). Regardless of this, if you wish to complain about any aspect of the way that you have been approached or treated during the course of this study, the normal NHS complaints mechanisms may be available to you.

If you feel that completing the questionnaires raises emotional issues for which you would like to seek some support, the following contact details may be of use to you:

UCL Student Counselling Service
3 Taverton Street
Tel: 020 7679 1487
E-mail: j.etienne@ucl.ac.uk

Nightline
Tel: 020 7631 0101
6pm - 8am

Samaritans
Tel: 0845 790 9090
E-mail: Jo@samaritans.org

Eating Disorder Association
Tel: 01603 621414
E-mail: info@edauk.com
<http://www.edauk.com>

Will my taking part in the study be kept confidential?

All information collected about you during the course of the research will be kept entirely confidential. Any information about you that leaves the hospital will have your name and address removed, so that you cannot be recognized from it.

What will happen to the results of the research study?

It is anticipated that the results will be submitted for publication in a peer-reviewed journal. You will not be identified in any report or publication. If you should wish, then you will be sent a brief summary of the findings at the end of the study (September 2005) and/or a copy of the final paper when it is published.

Who is organizing and funding the research?

The research is not funded by any external source, and the researcher is not being paid for including you in the study.

Contact for further information

For further information about the study, please contact: Jane Evans at Adult Eating Disorders Service, Harewood House, Springfield University Hospital, Tooting, SW17 7DJ. (Tel: 020 8682 6747)

This copy of the Information Sheet is yours to keep. If you agree to take part, then you will be asked to sign a Consent Form.

Participant Number:

CONSENT FORM - CONTROL VERSION
(1st November 2005; Version 1)

Title of Project:

Underlying factors of impulsive behaviours in the eating disorders

Name of Researcher:

Jane Evans

**Please initial
below**

1. I confirm that I have read and understand the Information Sheet dated 10th January 2006 (Version 2) for the above study, and have had the opportunity to ask questions.
2. I understand that my participation is voluntary, and that I am free to withdraw at any time, without giving any reason and without my medical care or legal rights being affected.
3. I agree to take part in the above study.

Name of participant

Date

Signature

Name of Researcher

Date

Signature

Trust Headquarters, Springfield University Hospital, 61 Glenburnie Road, London SW17 7DJ
Tel: 020 8682 6000 www.swlstg-tr.nhs.uk

PATIENT INFORMATION SHEET

(10th January 2006; Version 2)

Title of Project:

Distress tolerance problems in the eating disorders

Name of Researcher: Jane Evans

You are invited to take part in this research study. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully, and discuss it with friends, family and your GP if you wish. Ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Consumers for Ethics in Research (CERES) publish a leaflet called *Medical Research and You*. This leaflet gives more information about medical research, and looks at some questions that you may want to ask. A copy can be obtained from CERES, PO Box 1365, London N16 0BW.

Background to the study

Some people with eating disorders have difficulties in regulating and controlling their emotions. Individuals who use other risky behaviours (such as alcohol or drug use or self harm) may also have these same difficulties. It has been suggested that treatment for people with eating disorders might be modified to address this problem. The present study addresses the measurement of distress tolerance (the ability to tolerate a range of emotional experiences) in individuals with eating disorders, who may or may not display other risky behaviours. *It shall then investigate how distress tolerance may be related to experiences in childhood interactions with one's parents.*

The research will take approximately ten months, although you will only need to take part for approximately 15 minutes.

Why have I been chosen?

You have recently been referred to the Outpatient Eating Disorders Service, Springfield University Hospital. All patients who are referred to this service between November 2005 and June 2006 are being asked to take part.

Do I have to take part?

You do not have to take part. If you do not take part, it will have no impact on the treatment that you will be offered.

What will happen to me if I take part?

You will be asked to complete three simple questionnaires relating to your eating patterns, ways of coping with distress and how you experienced emotion when growing up. We may also use information about other any risky behaviours you may use, your age, diagnosis, weight and height.

What are the possible disadvantages and risks of taking part?

There are no known risks in taking part in this form of study. The only disadvantage is that you will be asked to give up 15 minutes of your time.

Trust Headquarters, Springfield University Hospital, 61 Glenburnie Road, London SW17 7DJ
Tel: 020 8682 6000 www.swlstg-tr.nhs.uk

What are the possible benefits of taking part?

Your treatment may be influenced by the information that you give us, since we will be more readily able to understand your problem and suggest treatment strategies.

What if new information becomes available?

Sometimes during the course of a research project, new information becomes available about the topic that is being studied. If this happens, the researcher will tell you about it and discuss with you whether you wish to continue in the study. If you decide to withdraw, the researcher will make arrangements for your care to continue. If you decide to continue in the study, then you will be asked to sign an updated consent form.

On receiving new information, the researcher might consider it to be in your best interests to withdraw you from the study. She will explain the reasons and arrange for your care to continue.

What if something goes wrong?

During research trials, there can be problems due to the methods that are used or due to the way in which you are treated by members of staff. It is highly unlikely that the method being used in this study will have any harmful effects. University College London (UCL) is the Research Governance sponsor of this study. UCL has non-negligent harm indemnity arrangements in place, in the event that you are harmed as a result of taking part in the study. If you are harmed due to someone's negligence, then you may have grounds for legal action (but you may have to pay the costs). Regardless of this, if you wish to complain about any aspect of the way that you have been approached or treated during the course of this study, the normal NHS complaints mechanisms may be available to you.

Will my taking part in the study be kept confidential?

All information collected about you during the course of the research will be kept entirely confidential. Any information about you that leaves the hospital will have your name and address removed, so that you cannot be recognized from it. However, you will be asked if it is acceptable for the researcher to notify your GP and your subsequent therapist that you are taking part in the research. *It is possible that your GP may share information with the researcher with regard to any changes in your condition around the time of your participation.*

What will happen to the results of the research study?

It is anticipated that the results will be submitted for publication in a peer-reviewed journal. You will not be identified in any report or publication. If you should wish, then you will be sent a brief summary of the findings at the end of the study (September 2006) and/or a copy of the final paper when it is published.

Who is organizing and funding the research?

The research is not funded by any external source, and the researcher is not being paid for including you in the study.

Contact for further information

For further information about the study, please contact: Jane Evans at Adult Eating Disorders Service, Harewood House, Springfield University Hospital, Tooting, SW17 7DJ. (Tel: 020 8682 6747)

This copy of the Information Sheet is yours to keep. If you agree to take part, then you will be asked to sign a Consent Form, and you will be given a copy of that form.

CONSENT FORM - PATIENT VERSION
(1st November 2005; Version 1)

Title of Project:

Underlying factors of impulsive behaviours in the eating disorders

Name of Researcher:

Jane Evans

Please initial below

1. I confirm that I have read and understand the Information Sheet dated 1st November 2005 (Version 1) for the above study, and have had the opportunity to ask questions. _____
2. I understand that my participation is voluntary, and that I am free to withdraw at any time, without giving any reason and without my medical care or legal rights being affected. _____
3. I understand that sections of any of my medical notes may be looked at by responsible individuals from South West London and St. George's Mental Health NHS Trust or from regulatory authorities where it is relevant to my taking part in research. I give permission for these individuals to have access to my records. _____
4. I agree to take part in the above study. _____

Name of patient

Date

Signature

Name of person taking consent
(if different from researcher)

Date

Signature

Name of Researcher

Date

Signature

DTS

	Item	Never	Rarely	Sometimes	Most of the time	All the time
1	If I am concerned that I am going to feel anxious, I make sure that I have planned lots of things to do to keep my mind occupied					
2	I avoid situations in which I know I will become over excited					
3	When I am lonely, I call a friend or find someone to keep me company					
4	When I feel sad, I try to think about other things not related to my situation					
5	If I think that I might feel lonely, I will make sure that I am surrounded by people					
6	When I feel too elated I will try and calm myself down (e.g. by doing some deep breathing, going for a walk).					
7	If I am feeling anxious, I will do something practical to steady my nerves (e.g., clean the house)					
8	When I am really angry, I do something mentally to calm myself (e.g., count to 100)					
9	If I know I am going to be alone for any length of time I will make sure that I have lots of things to do to make the time pass quickly					
10	I avoid situations that I know will make me nervous					
11	I tend to avoid situations and people that I know will make me feel sad					
12	I won't engage in activities/relationships about which I know I will become too enthusiastic					
13	If I find I am getting too anxious, I will do something to soothe myself (e.g., listen to music, read a book, watch TV)					
14	When I feel unhappy I try to keep busy to distract myself					
15	When I get angry, I have to leave the situation in order to control my temper					
16	I don't let myself think about things that would depress me					
17	If I feel myself enjoying something too much, I will stop it before I get carried away					
18	If I think I am going to get angry with someone, I will avoid them					
19	I cope with feeling lonely, I do something to remind my self that there are other people there for me (e.g., read letters, look at photographs)					
20	I tend to avoid thinking about the things that frustrate me					

ICES

The following questions address your experiences of how your parents responded to your emotions when you were young. For each item, please choose the rating from 1 to 5 that most closely reflects your experience *up to the age of 18 years*.

- 1 – Never
- 2 – Rarely
- 3 – Some of the time
- 4 – Most of the time
- 5 – All of the time

Because your parents may have been very different, please rate them separately. The left hand column is to rate your mother, and the right hand column is to rate your father.

<i>Mother</i>	<i>During my childhood...</i>	<i>Father</i>
	My parents would become angry if I disagreed with them.	
	When I was anxious, my parents ignored this.	
	If I was happy, my parents would be sarcastic and say things like: "What are you smiling at?"	
	If I was upset, my parents said things like: "I'll give you something to really cry about!"	
	My parents made me feel OK if I told them I didn't understand something difficult the first time.	
	If I was pleased because I had done well at school, my parents would say things like: "Don't get too confident".	
	If I said I couldn't do something, my parents would say things like: "You're being difficult on purpose".	
	My parents would understand and help me if I couldn't do something straight away.	
	My parents used to say things like: "Talking about worries just makes them worse".	
	If I couldn't do something however hard I tried, my parents told me I was lazy.	
	My parents would explode with anger if I made decisions without asking them first.	
	When I was miserable, my parents asked me what was upsetting me, so that they could help me.	
	If I couldn't solve a problem, my parents would say things like: "Don't be so stupid – even an idiot could do that!"	
	When I talked about my plans for the future, my parents listened to me and encouraged me.	

We would like to know how you saw your whole family when you were younger. Please read the following descriptions and rate how closely each one matches your experience of growing up in your family (up to 18 years).

- 1 – not like my family
- 2 – a little bit like my family
- 3 – like my family some of the time
- 4 – like my family most of the time
- 5 – like my family all of the time

	Family types	Rating (1-5)
1	During my childhood, my parents were often not available, and I got little time or attention. I was often left to fend for myself or go round to friends/relatives. My parents often got angry if I asked for things. One or both of my parents may have had substance misuse difficulties, mental health problems or financial problems.	
2	During my childhood, I felt listened to and cared for. My parents were interested in my thoughts and ideas and encouraged me to make my own decisions and choices. If things were difficult for me, they supported me and tried to comfort me.	
3	During my childhood, everything in my family was perfect on the surface. However, my parents couldn't stand it if I showed I was upset, scared or angry. They expected me to put hide my feelings and get on with it.	
4	During my childhood, it was important to be able to control your emotions and focus on achievement and success. "Behaving like a grown-up" was desirable.	

MIS

This questionnaire is concerned with a number of common behaviours and feelings about those behaviours. You may have experienced all, some or none of these behaviours and feelings at sometime. We are interested about how you have been feeling and what you have actually done in the past 2 months. Read the following statement and answer the questions by ticking the column which best applies to you.

In the PAST TWO MONTHS I have sometimes felt increasingly tense and had an almost irresistible urge to do something that I would not normally do. After doing this thing I feel a sense of relief, even though I may feel guilty.

	Never	Occasionally	Sometimes	Often	Very Often	Always
1. Have you felt this way about eating a large amount of food in a short amount of time (i.e. a food binge) in the past 2 months?						
2. Have you actually binged on food like this in the past 2 months?						
3. Have you felt this way about drinking alcohol in the past 2 months?						
4. Have you drunk alcohol in this way in the past 2 months?						
5. Have you felt this way about shoplifting or stealing something in the past 2 months?						
6. Have you actually stolen anything in this way in the past 2 months?						
7. Have you felt this way about gambling money in the past 2 months?						
8. Have you actually gambled in this way in the past 2 months?						
9. Have you felt this way about hitting someone or breaking something in the past 2 months?						
10. Have you actually hit someone or damaged something in this way in the past 2 months?						
11. Have you felt this way about provoking or getting into an argument or fight in the past 2 months?						
12. Have you provoked a fight like this in the past 2 months?						
13. Have you felt this way about setting fire to something in the past 2 months?						
14. Have you set fire to something like this in the past 2 months?						
15. Have you felt this way about hurting (e.g. cutting or burning) yourself in the past 2 months?						
16. Have you actually damaged yourself like this in the past 2 months?						
17. Have you ever felt this way about taking an overdose in the past 2 months?						
18. Have you taken an overdose in this way in the past 2 months?						
19. Have you felt this way about taking illegal drugs in the past 2 months?						
20. Have you actually taken drugs in this way in the past 2 months?						
21. Have you felt this way about having sexual intercourse with anyone in the past 2 months?						
22. Have you actually had sexual intercourse with someone like this in the past 2 months?						

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INSTRUCTIONS

The items ask about your attitudes, feelings and behaviour. Some of the items relate to food or eating. Other items ask about your feelings about yourself.

For each item, decide if the item is true about you ALWAYS (A), USUALLY (U), OFTEN (O), SOMETIMES (S), RARELY (R), or NEVER (N). Circle the letter that corresponds to your rating. For example, if your rating for an item is OFTEN, you would circle the (O) for that item. Respond to all of the items, making sure that you circle the letter for the rating that is true about you. If you need to change an answer, make an 'X' through the incorrect letter and then circle the correct one.

- | | | | | | | |
|--|---|---|---|---|---|---|
| 1) I eat sweets and carbohydrates without feeling nervous | A | U | O | S | R | N |
| 2) I think that my stomach is too big | A | U | O | S | R | N |
| 4) I eat when I am upset | A | U | O | S | R | N |
| 5) I stuff myself with food | A | U | O | S | R | N |
| 7) I think about dieting | A | U | O | S | R | N |
| 9) I think that my thighs are too large | A | U | O | S | R | N |
| 11) I feel extremely guilty after overeating | A | U | O | S | R | N |
| 12) I think that my stomach is just the right size | A | U | O | S | R | N |
| 16) I am terrified of gaining weight | A | U | O | S | R | N |
| 19) I feel satisfied with the shape of my body | A | U | O | S | R | N |
| 25) I exaggerate or magnify the importance of weight | A | U | O | S | R | N |
| 28) I have gone on eating binges where I have felt that I could not stop | A | U | O | S | R | N |
| 31) I like the shape of my buttocks | A | U | O | S | R | N |
| 32) I am preoccupied with the desire to be thinner | A | U | O | S | R | N |
| 38) I think about bingeing (overeating) | A | U | O | S | R | N |
| 45) I think my hips are too big | A | U | O | S | R | N |
| 46) I eat moderately in front of others and stuff myself when they're gone | A | U | O | S | R | N |
| 49) If I gain a pound, I worry that I will keep gaining | A | U | O | S | R | N |
| 53) I have the thought of trying to vomit in order to lose weight | A | U | O | S | R | N |
| 55) I think that my thighs are just the right size | A | U | O | S | R | N |
| 59) I think my buttocks are too large | A | U | O | S | R | N |
| 61) I eat or drink in secrecy | A | U | O | S | R | N |
| 62) I think that my hips are just the right size | A | U | O | S | R | N |

What is your height? _____

What is your weight? _____

What is your age? _____ years

Date of birth: ____ / ____ / ____

This is the end of the questionnaires. Thank you very much for completing them.

Now go back over the booklet, making sure that you have not missed out any items.

Once you are sure that you have completed all items, please return the booklet as arranged.