

**SELF-REFERENT BELIEFS AND EMOTION  
REGULATION IN YOUNG WOMEN WITH EATING  
DISORDERS**

BY

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## **DECLARATION**

“This thesis has been composed by myself and the work contained herein in my own.”

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## **ABSTRACT**

**Aim:** This study aimed to assess dysfunctional self-referent beliefs and emotion regulation processes in adolescent females with eating disorders.

**Background:** Eating disorders are problems that are commonly presented to adolescent mental health services. Recent cognitive models of eating disorders have implicated dysfunctional self-referent beliefs, unrelated to food, weight or body shape, as key maintenance, and possibly causal, factors (Cooper et al, 2004; Fairburn et al, 2003). Research using the Young Schema Questionnaire has found evidence that a number of self-referent beliefs, such as failure and dependence, may be specifically related to eating disorder symptomatology. However, no studies have investigated these beliefs in a clinical adolescent sample and few have accounted for the possible confounding influence of comorbid depressive symptoms. It has also been suggested that eating disorder symptoms are maladaptive strategies which individuals use to reduce awareness of aversive emotions (Heatherton & Baumeister, 1991; Root & Fallon, 1989). This appears to be in contrast to a ruminative style of coping characteristic of depression where individuals focus upon their emotions and cognitions.

**Methods:** Fourteen adolescent females with eating disorders and 13 with depression were recruited from adolescent mental health services. Twenty school-based adolescent females were recruited as a non-clinical control group. In order to assess differences in dysfunctional self-referent beliefs and emotion regulation, the three groups were compared on the Young Schema Questionnaire and the Trait Meta-Mood

Scale. The Beck Depression Inventory was also completed and used as a covariate in the analyses to account for the possible confounding influence of depressive symptoms. A discriminant function analysis was also conducted to see which set of variables were best able to predict group membership.

**Results:** The eating disorders group was significantly different from the non-clinical control group on a number of self-referent beliefs and emotion regulation variables, however, most differences did not remain when depressive symptoms were accounted for. There were differences between the two clinical groups on beliefs of unrelenting standards and mistrust and abuse. These beliefs, in addition to depressive symptoms, were found to distinguish the three groups. The eating disorder group was characterised by strong beliefs of unrelenting standards and moderate beliefs of mistrust and abuse. The depression group was characterised by very strong beliefs of mistrust and abuse. Both the clinical groups demonstrated poorer ability to perceive their emotions clearly or regulate them effectively.

**Discussion:** The results suggest that adolescent females with eating disorders are characterised by perfectionistic attitudes, which may have developed in response to beliefs of mistrust and abuse. During adolescence, when the body goes through physical changes, these perfectionist attitudes may be manifest in disordered eating. Furthermore, such individuals may use disordered eating behaviours to manage aversive emotions that they are unable to perceive clearly.



# **1. INTRODUCTION**

## **1.1 STUDY OVERVIEW**

Eating disorders are a common problem encountered in adolescent mental health services. Onset often occurs during adolescence which is thought to be attributable to the many biological, cognitive and social changes that take places over this period.

The overwhelming majority of those presenting with an eating disorder are female. Eating disorders are characterised by behaviours such as severe restriction of diet and periods of bingeing on food followed by compensatory purging, such as vomiting. Cognitive factors include overvalued beliefs regarding food and thinness (e.g. “If I eat even a small amount, I will become fat.”) and their relation to the value of the self (e.g. “If I put on weight, it means I am worthless”).

More recently research has suggested that underlying dysfunctional self-referent beliefs (e.g. “I am worthless”) have an influence in the onset and maintenance of eating disorders. These beliefs have previously been found to be similarly important in individuals with depression. Everyday eating behaviours have been shown to be linked with the experience of negative emotions. Perhaps as a result of dysfunctional self-referent beliefs, individuals with eating disorders report experiencing more intense negative emotions. Consequently, it has been hypothesised that disordered eating behaviours are attempts to regulate the intense negative emotional experience. Whereas depressed individuals tend to ruminate upon their emotions, it has been

found that those with eating disorders tend to distract themselves from or avoid experiencing negative emotions.

This study aims to investigate the presence of self-referent beliefs and emotion regulation mechanisms in adolescent women with eating disorders compared to a group with depression and non-clinical control group.

## 1.2 EATING DISORDERS

### *1.2.1 Section Overview*

In modern western society eating disorders have become a well recognised problem. They are characterised by the presence of a number of psychological symptoms related to attitudes towards diet, weight and body shape and use of food. Based on the particular symptoms, recent diagnostic models have identified two major categories, anorexia nervosa and bulimia nervosa, with a third category, eating disorder not otherwise specified, for those who have an eating disorder of clinical severity without meeting the criteria for the first two (DSM-IV, American Psychiatric Association, 1994; ICD-10, World Health Organisation, 1992). This section will discuss these diagnostic categories along with the prevalence and incidence of eating disorders.

### *1.2.2 Anorexia Nervosa*

Anorexia nervosa is characterised by severe dieting and restriction of food intake to the extent that the body mass index<sup>1</sup> is 17.5 or below. Normal weight is characterised by a body mass index of between 20 and 25. Individuals restrict their food intake because they have a distorted image of their body whereby drive for thinness is maintained as an intrusive and overvalued idea and the individual imposes a low weight on themselves. The weight loss is achieved and maintained by the avoidance of foods believed to be fattening and behaviours aimed at reducing food intake or burning calories, such as self-induced vomiting and purging (including laxative and diuretic abuse), excessive exercise or use of appetite suppressants. Eating food may be highly anxiety provoking and individuals may have beliefs about certain foods being

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<sup>1</sup> Body Mass Index (BMI) is calculated by dividing an individual's weight (in kilograms) by the square of their height (in metres).

particularly fattening. In many cases low weight leads to amenorrhea in women and loss of sexual interest and potency in men and in some cases can be life threatening. Mortality research has shown that individuals with anorexia nervosa have an almost four-fold risk of dying compared to healthy people the same sex and age (Nielsen, 2001). Recently, classification systems have introduced the sub-classifications of anorexia nervosa into pure restriction and binge-purging (also known as bulimic anorexia) subtypes. These were suggested in response to the considerable overlap in symptoms with bulimia nervosa (DSM-IV, American Psychiatric Association, 1994).

### *1.2.3 Bulimia Nervosa*

Bulimia nervosa is characterised by a similar preoccupation with eating and overvalued ideas about low weight. However, in response to irresistible cravings for food, individuals succumb to episodes of overeating in which large amounts of food are consumed in short periods of time (known as bingeing). Importantly, there must be a sense of loss of control during the eating episode (i.e. a feeling that one cannot stop eating or control what or how much one is eating). Some researchers have suggested that this aspect is more important than the actual quantities consumed (e.g. Fairburn & Wilson, 1993). To counteract the fattening effects of food individuals may use compensatory behaviours such as self-induced vomiting and purging, alternating periods of starvation, the use of drugs such as appetite suppressants and excessive exercise. As with anorexia nervosa, individuals with bulimia nervosa exhibit a dread of fatness and set themselves a sharply defined weight threshold, well below that which constitutes the optimum of healthy weight premorbidly. There is often, but not always, a history or an earlier episode of anorexia nervosa, the interval between the two disorders ranging from a few months to several years (Mitchell & Carr, 2000).

#### *1.2.4 Atypical Eating Disorders*

A third diagnostic category of eating disorder, atypical eating disorder or eating disorder not otherwise specified, was created for those individual with an eating disorder of clinical severity but whose symptom profile did not fit the criteria for anorexia or bulimia nervosa.

#### *1.2.5 Problems with Diagnostic Categories*

The heterogeneity of disordered eating symptoms has meant that atypical eating disorder is the most common category of eating disorder encountered in routine clinical practice (Fairburn & Bohn, 2005). The diagnosis and categorisation of eating disorders has been recognised to be a problem as research has shown that symptom profiles, and hence diagnoses, change and rarely remain stable over time. This suggests the presence of underlying biological and psychological processes which lead to the development and maintenance of eating disorders (Milos, Spindler, Schnyder & Fairburn, 2005). Furthermore, it has been argued that diagnostic categories lack either scientific validity or clinical utility and that a focus upon symptoms (or clusters of symptoms) is a more clinically useful approach as it accounts for the variability across individuals without ignoring their similarities (Waller, 1993).

#### *1.2.6 Epidemiology of Eating Disorders*

Prevalence and incidence studies have tended to be based on the two major diagnostic categories with the relative neglect of atypical eating disorders, although it is the largest category of eating disorder (Fairburn & Bohn, 2005). A review by van

Hoeken, Seidell and Hoek (2003) of epidemiology studies of eating disorders reported that the average prevalence rate for anorexia nervosa was 0.3% and for bulimia nervosa was 1%. The overall incidence was found to be at least 8 and 12 new cases per year in a population of 100 000 for anorexia nervosa and bulimia nervosa respectively. The prevalence and incidence rates for anorexia nervosa tend to be easier to estimate as the presence of extremely low weight makes detection more obvious, however, those with bulimia nervosa often have relatively normal weight and can be secretive about their eating behaviours so do not present for treatment. Indeed some of these individuals do not consider that their behaviour is problematic and often view vomiting as a valid weight control method. In those studies that have reported it, the female to male ratio for anorexia nervosa is approximately 11 to 1 (Hoek, Bartelds, Bosveld, van der Graaf, Limpens, Maiwald & Spaaij, 1995), while for bulimia nervosa it is between 23 and 33 to 1 (Hoek et al, 1995, Soundy, Lucas, Suman, & Melton, 1995). The incidence rate for anorexia nervosa is highest between 15 and 19 years of age and this constitutes 60% of all female cases (Lucas, Beard, O’Falcon & Kurland, 1991). The highest incidence rate for bulimia nervosa is between 20 and 24 years of age, although few studies have investigated incidence in younger age groups (Hoek et al, 1995; Soundy et al, 1995). The treatment of eating disorders, particularly of anorexia nervosa which can be life threatening, presents a significant challenge for mental health services.

### *1.2.7 Section Summary*

Eating disorders are difficult and distressing psychological problems which present a significant challenge for mental health services. It is evident that difficulties exist within the diagnostic framework as a result of the heterogeneity of symptoms. It has

been suggested that symptoms or clusters of symptoms proved a more clinically useful approach. Furthermore, epidemiological research suggests that eating disorders develop in adolescence and occur overwhelmingly in females.

## **1.3 ADOLESCENCE AND DEVELOPMENTAL INFLUENCES ON EATING DISORDERS**

### *1.3.1 Section Overview*

Adolescence is a time of transition between childhood and adulthood. The changes an individual goes through during this stage are profound and often have an important impact on mental health and may influence the development of eating disorders. As suggested in the previous section, eating disorders often emerge during adolescence, indeed anorexia nervosa is the most widely diagnosed psychiatric disorder during this period (McCabe, Rothery, Wrate, Aspin & Bryce, 1996). The key areas involved in the developmental transitions during adolescence have an influence on the individuals in terms of the development of cognitions related to food, weight and the body and the management of emotions. These areas of development are biological, cognitive, emotional, identity and social/interpersonal (McClure, 2000). It is suggested that a complex interaction of these areas contributes to the development of eating disorders (McClure, Timini & Westman, 1995).

### *1.3.2 Biological Development*

Biological development involves hormonal changes that bring about a growth spurt, puberty and the development of secondary sexual characteristics. The change in shape and maturation of the body, including hips and waists widening, breast development and larger buttocks, may lead young women in particular to diet, and in some cases develop eating disorders. Extreme dieting and food restriction can lead to such emaciation that young women develop amenorrhea. It has been hypothesised that eating disorders have the function of preventing physical growth and maturation as



adolescents struggle to cope with the changes and the responsibilities that come with the transition to adulthood (Ruuska, Kaltiala-Heino, Koivisto & Rantanen, 2003). Furthermore, brain growth and development are associated with cognitive development (Graber & Petersen, 1991).

### *1.3.3 Cognitive Development*

Cognitive development involves the increased capacity for abstract reasoning and a more psychological concept of the self with greater recognition and understanding of personal characteristics, emotions and beliefs (Crocket & Petersen, 1993). Alongside physical changes, increased self-awareness can develop into concern of how one appears to others in terms of weight and body shape with a heightened regard for the opinions of others, particularly peers. The interpersonal influences of peers, parents and family can lead to the formation of strong beliefs regarding the self in relation to others, which can have implications for mental health functioning (e.g. Young, 1999). The role of cognitive structures and process are similar to that of adults and adolescents have been shown to exhibit a similar pattern of automatic thoughts and dysfunctional assumptions (Harrington, 1993; Leitenberg, Yost & Carroll-Wilson, 1986).

### *1.3.4 Emotional Development*

Alongside cognitive and social development, adolescents have a greater understanding of their emotions and how they and others are affected by them. The huge changes in adolescence may be accompanied by strong emotions but while the experience of sadness, tearfulness, anxiety and self-depreciation is common, the majority do not exhibit emotional disorder. An inability to adaptively manage

emotions can lead to the use of maladaptive mechanisms, such as self-harming behaviour, alcohol and drug misuse or disordered eating behaviour (Cooper, Shaver & Collins, 1998). The development of adaptive coping and emotion regulation strategies is also important. Research has shown that children and adolescents who are unable to regulate emotion in an adaptive manner face broad negative consequences, including peer rejection (McDowell, O'Neil & Parke, 2000) and psychological maladjustment (Bradley 2000; Shipman, Zeman, Penza-Clyve & Champion, 2000).

### *1.3.5 Development of Identity*

Identity development takes place in relation to social roles, ideology, sexuality and occupation (Bosma, 1992). In tandem with the increased capacity for self-awareness, young people begin to experiment with different self-images which they select from peers and culture and blend with their own personality. The influence of the media and society has a particular role to play with many domains promoting the ideal appearance to which young people aspire. In particular, modern western societies value thinness in women and judges those who are thin as beautiful and successful (Fairburn, Shafran & Cooper, 1998). Adolescents can be heavily influenced by messages from societal and media sources during a time when a search for identity is taking place.

### *1.3.6 Social and Interpersonal Development*

Adolescence is a period of social and interpersonal development. While the attachment to parents becomes weaker, greater emphasis is placed upon relationships with peers (Coleman & Hendry, 1999). The development of adult roles, with the possibility of an accompanying sexual role, involves negotiation of the end of

childhood and the beginning of adulthood. This is thought to present particular fears for individuals with eating disorders, particularly in relation to sexuality (Key, Mason & Bolton, 2000; Ruuska et al, 2003). The context in which social development occurs has implications for the development of beliefs related to the self and the ability to cope with the change and accompanying emotions that occur during adolescence. The ability to develop meaningful relationships with both same-sex and opposite-sex peers also becomes important (Savin-Williams & Berndt, 1990).

### *1.3.7 Characteristics of Eating Disorders in Adolescence*

Eating disorders in adolescence have similar features to their occurrence in adulthood and include weight control behaviours such as restricted food intake, restraint around eating behaviour, excessive exercising and self-induced vomiting. However, compensatory behaviours such as laxative or diuretic misuse are less common in young people. Other features include preoccupation with food, eating and calories, a distorted view of 'normal' amount of food, guilt associated with eating, increased interest in food preparation and recipes, concern about eating in front of others and low self-esteem (Nicholls & Bryant-Waugh, 2003).

### *1.3.8 Section Summary*

Eating disorders often emerge in adolescence and young adulthood. It is likely that the changes in size and shape of the body are accompanied by greater self-awareness and an increased value of the opinions of peers and society. Amongst others, these factors may influence a desire, in women in particular, to maintain standards of physical appearance that are viewed as acceptable to others and this may be taken to unhealthy extremes. Consequently, it is important to study eating disorders in adolescence so

that aetiological factors can be explored with a view to directing intervention at an early stage in the development of the disorders.

## 1.4 COGNITIVE THEORY IN EATING DISORDERS

### *1.4.1 Section Overview*

Early cognitive theories of both anorexia nervosa (Garner & Bemis, 1982) and bulimia nervosa (Fairburn, Cooper & Cooper, 1986) proposed that both these eating disorders are characterised by automatic thoughts, cognitive distortions and overvalued ideas and assumptions about food, weight and body shape. These dysfunctional cognitions are thought to have a central role in the maintenance of disordered eating behaviours. Based on these theories cognitive behavioural interventions were devised (e.g. Fairburn, Marcus & Wilson, 1993), however, outcome studies have found that, although these interventions demonstrated good efficacy, relapse rate were high and a large proportion of individuals did not benefit at all. In addition, further research reported the importance of underlying dysfunctional beliefs, related to the self but unrelated to food, in the onset and maintenance of eating disorders (e.g. Cooper, 1997; Guidano & Liotti, 1983). The presence of such beliefs was suggested as a factor in the limited effectiveness of the existing cognitive models and the interventions based upon them. Subsequent models of eating disorders have proposed a central role of underlying dysfunctional beliefs related to the self.

### *1.4.2 Early Cognitive Models of Eating Disorders*

Early cognitive theories applied the principles of Beck's cognitive theory and therapy of depression (Beck, Rush, Shaw & Emery, 1979) to eating disorders. They emphasised the role of automatic thoughts and beliefs about food, weight and body shape in the maintenance of disordered eating behaviours.

#### *1.4.2.1 Anorexia Nervosa*

Garner and Bemis (1982) gave an account of the development as well as maintenance of anorexia nervosa. They suggested that prior to the development of the eating disorder, individuals tend to be introvert, sensitive, isolated and try to live up to the expectations of others. Immediately prior to the onset of symptoms, these individuals become increasingly withdrawn and preoccupied which contributes to low mood and a sense of helplessness and loss of control. They highlighted that family and cultural influences may be important in giving the individual the idea that losing weight will alleviate distress. With early success in losing weight the individual gains a sense of control and mastery which is positively reinforcing. Once the belief that thinness is of paramount importance has become firmly established, anorexic beliefs and behaviours may become functionally autonomous.

At a later stage, when the progressive emaciation becomes more noticeable, further reinforcement may be provided by attention and concern given by parents and others. The progressive starvation leads to problems such as poor concentration, concrete thinking, social withdrawal, which further insulates individuals from information and experiences that could modify their beliefs. Distorted information processing and assumptions are highlighted, including conditional beliefs about food (such as “If I eat even a small amount, I will become fat”), conditional beliefs which relate to an individual’s self-concept (such as “I am special if I am thin”), and the belief that self control is desirable.

#### *1.4.2.2 Bulimia Nervosa*

Fairburn and colleagues (1986) suggested that, as with individuals with anorexia nervosa, those with bulimia nervosa tend to exhibit beliefs that associate their self-worth with weight and shape. It is suggested that attitudes towards food are secondary to the consequences of attitudes to weight and shape. These beliefs hold great personal significance and are dysfunctional because they are extreme and rigid. Fatness is viewed negatively and thinness and self-control positively. The intense concern over weight leads to the imposition of strict rules regarding food and diet that are impossible to adhere to. Consequently, minor transgressions of these rules are viewed as catastrophic and evidence of weakness. The result is that individuals abandon all control over eating and an episode of binge eating occurs. Following the binge, and as a result of the beliefs about weight, the individual experiences negative feelings, such as guilt, and employs purging mechanisms, such as vomiting or the use of laxatives, to counteract the effect of the binge. The purging reduces the negative feelings which reinforces the over-valued ideas about weight and shape and the binge-purge cycle.

#### *1.4.3 Effectiveness of Cognitive Interventions*

Cognitive behavioural interventions have been developed based upon the above models of eating disorders (e.g. Fairburn, Marcus & Wilson, 1993). A large amount of research has investigated the efficacy of cognitive behavioural therapy for bulimia nervosa and found that this treatment is largely efficacious (Fairburn, Norman, Welch, O'Connor, Doll & Peveler, 1995). However, some researchers have argued that the treatment model, although efficacious, is limited in its clinical effectiveness. While about 50% of individuals achieve a full recovery, many experience a reoccurrence of

symptoms a short time after treatment and some do not benefit at all (Wilson & Fairburn, 2002). There has only been one controlled study of cognitive behavioural treatment for anorexia nervosa which found that a cognitive behavioural treatment was not superior to other types of treatment (Channon, de Silva, Hemsley & Perkins, 1989).

Clinical observations by numerous researchers also suggested that dysfunctional cognitions related to eating, weight and body shape did not fully explain the experience of individuals with eating disorders (Cooper, 1997; Guidano & Liotti, 1983; Vitousek & Hollon, 1990). It was suggested that dysfunctional beliefs related to the self, but unrelated to food, play a key role in the development and maintenance of disordered eating behaviours and attitudes. Consequently, for interventions to be more effective it was suggested that they would need to focus on challenging these deeper underlying beliefs. Particularly in the case of bulimia nervosa, these two pieces of evidence led some researchers to question the validity of the existing models and proposed new adapted models which take into account this new information.

#### *1.4.4 Adapted Cognitive Models of Eating Disorders*

In light of the research highlighting the influence of deeper underlying beliefs and questions over the effectiveness of treatment based upon existing cognitive models of eating disorder, adapted models were proposed. These included a new cognitive model of bulimia nervosa (Cooper, Wells & Todd, 2004) and a “transdiagnostic” model of eating disorders which attempted to provide a treatment framework to include all the different diagnoses.



#### *1.4.4.1 Bulimia Nervosa*

Cooper and colleagues (2004) proposed an adapted cognitive model of bulimia nervosa which emphasised the importance of negative beliefs about the self in the maintenance of the disordered eating. The authors suggested that, against a background of concerns over weight and body shape, negative affect and automatic thoughts are triggered by the activation of negative beliefs about the self (such as “I’m worthless”). In individuals with bulimia nervosa, eating is used as a mechanism by which negative self-directed emotions are managed through changes in cognition and interoceptive awareness (i.e. awareness of internal states such as hunger and satiety). Permissive beliefs that one cannot control one’s eating are then activated in response to the conflict experienced between the negative beliefs about the potential consequences of eating and the positive beliefs regarding emotion management. After the cognitive and physiological effects of binge eating take hold, the negative beliefs regarding the consequences of eating are dominant and the individual switches from bingeing to purging or other compensatory behaviours.

#### *1.4.4.2 The Transdiagnostic Model of Eating Disorders*

Fairburn and colleagues (2003) proposed a “transdiagnostic” model to incorporate the wide variety of different eating disorder symptoms that are often presented, and in response to the theoretical difficulties of fitting these symptoms into the current diagnostic categories. This formulation-based model expands on the cognitive behavioural model of bulimia nervosa to include four additional maintaining mechanisms. The mechanisms are (1) clinical perfectionism, (2) core low self-esteem, (3) mood intolerance, and (4) interpersonal difficulties. It is suggested that in certain patients the core psychopathological processes of eating disorders, which include diet

restriction, preoccupation with weight and the use of compensatory behaviours (such as vomiting), interact with one or more of the four mechanisms to maintain disordered eating attitudes and behaviours. The authors emphasise that this model may not apply to all eating disorder patients, however, they suggest that these are common mechanisms that are involved in the persistence of bulimia nervosa, anorexia nervosa and atypical eating disorders. Both clinical perfectionism and core low self-esteem represents an individual's global negative evaluation of themselves, and may be regarded as similar to dysfunctional beliefs about the self that are unrelated to food which have been suggested to be an important aspect of eating disorders.

The adapted models of eating disorders have highlighted underlying dysfunctional beliefs about the self as important maintaining factors. They have suggested that these beliefs may be a target for interventions.

#### *1.4.5 Section Summary*

Cognitive models of anorexia nervosa and bulimia nervosa propose that cognitive distortions, overvalued ideas and assumptions about food, weight and body shape have a central role in the maintenance of disordered eating behaviours. Interventions based on these models have been shown to be efficacious but their effectiveness has been questioned. Furthermore, it has been suggested by some researchers that deeper underlying beliefs about the self, which are unrelated to food, have an important role in the onset and maintenance of eating disorders. Adapted models have been proposed which have been influenced by the perceived importance of these beliefs. The models highlight a central role for negative self-beliefs and negative self-evaluation, the latter being involved in core perfectionism and core low self-esteem.

## 1.5 THE ROLE OF SELF-REFERENT BELIEFS IN EATING DISORDERS

### *1.5.1 Section Overview*

As discussed in the previous section, recent research has highlighted the important role of dysfunctional beliefs that are unrelated to food in the development and maintenance of the eating disorders. Various investigators have proposed the importance of a number of differently named cognitive belief structures (e.g. core beliefs, self-schemata, personal identity structures) which essentially refer to unconditional self-referent beliefs. The confusion over the definition and terminology of beliefs structure is discussed. In order to further investigate the role of self-referent beliefs in eating disorders, two questionnaire measures have been used; the Eating Disorder Belief Questionnaire and the Young Schema Questionnaire. Evidence from these has highlighted specific self-referent beliefs that appear to be linked with eating disorder symptoms. However, research has demonstrated similar beliefs are associated with depression and only a few studies have addressed the issue of distinguishing beliefs related to eating disorders from those related to depression.

### *1.5.2 Early Concepts of Underlying Beliefs in Eating Disorders*

The importance for the role of underlying beliefs that were unrelated to food was initially proposed in a theory by Guidano and Liotti (1983) who focused on anorexia nervosa. They maintained that individuals with this disorder have dysfunctional self-referent beliefs which they called *personal identity structures* or *self-schemata*, defined as beliefs and rules under which individuals operate and organise their lives. This cognitive content is characterised by beliefs of general ineffectiveness, failure and fear of expressing feelings or opinions due to the expectation of rejection or

criticism. Developmental factors are suggested which may lead to anorexia nervosa, such as failure to develop autonomy or self-expression in childhood, and an unfulfilling parental relationship which leads to later interpersonal difficulties due to fears of rejection. In order to prevent rejection, the authors proposed that those with anorexia nervosa demand perfection from themselves. Ultimately, these individuals have difficulties in identifying the true nature of their problems, and in response to dysfunctional beliefs attempt to manage their distress through dieting and weight loss. The model emphasises interventions with the underlying self-referent beliefs and rules with little attention paid to issues of food, eating or weight.

Building upon this work, Vitousek and Hollon (1990) provided a framework for research to guide existing models. They focused on schema theory and utilise concepts related to self worth, as well as eating and weight. They suggest a disturbance in three types of beliefs in individuals with eating disorders called *self-schema* (related to the general self), *weight-related schema*, and *weight-related self schema*. The presence of self-schema related to weight was hypothesised to have consequences for self-schema which influences perception, affect, thought and behaviour. They suggest that eating disorders are maintained by such schema which are influenced by selective attention and memory towards reinforcing experiences.

### *1.5.3 Beliefs Terminology and Eating Disorders*

The early concepts of the importance of underlying beliefs unrelated to food in eating disorders have been described as personal identity structures (Guidano & Liotti, 1983) and self-schemata (Vitousek & Hollon, 1990). Other researchers have used alternative terms such as negative self-beliefs (Cooper, Todd & Wells, 1998), core beliefs

(Leung, Waller & Thomas, 1999; Waller, Ohanian, Meyer & Osman, 2000), or early maladaptive schema (Overton, Selway, Strongman & Houston, 2005). These terms essentially describe the same concept: dysfunctional beliefs about the self and the relationship with others, the world and the future.

In a recent discussion paper, James, Southam and Blackburn (2004) highlighted the problem of the number of different terms used for cognitive structures and beliefs related to schema, and the confusion and lack of discrimination between them. The authors proposed a definition of three key concepts; *schemas*, *core beliefs* and *self-referent beliefs*. Firstly, schemas were described as cognitive structures that are essentially memories, activated consciously or unconsciously, enabling the processing of routine and familiar information efficiently by reducing the amount of mental processing capacity needed to deal with the demands of a situation. Secondly, core beliefs were defined as a verbal representations of schemas that a person strongly identified with and endorsed and has the capacity to produce a great deal of affect when activated. Core beliefs need not be exclusively about the self, but can also be a strongly held conviction (e.g. cultural or religious). Thirdly, self-referent beliefs were described as types of core beliefs that a person holds about the self in relation to others, the world and the past. The terms for beliefs used by numerous researchers (e.g. personal identity structures, self-schema) in women with eating disorders are examples of self-referent beliefs. These types of beliefs can be conditional (such as “If I am fat, I am worthless”) or unconditional (such as “I am worthless”). Consistent with the definition that these beliefs are held about the self, the term “self-referent beliefs” will be used in this study to refer to the conditional and unconditional beliefs.

#### *1.5.4 The Assessment of Self-Referent Beliefs in Eating Disorders*

In order to further investigate the role that self-referent beliefs might play in the onset and maintenance of eating disorders researchers have used the Eating Disorders Belief Questionnaire and the Young Schema Questionnaire. The former was specifically developed to measure beliefs in eating disorders.

##### *1.5.4.1 The Eating Disorders Belief Questionnaire*

The Eating Disorders Belief Questionnaire (EDBQ: Cooper, Cohen-Tovée, Todd, Wells & Tovée, 1997) was developed to be able to assess a number of self-referent beliefs of individuals with eating disorders, including conditional eating and weight related assumptions and unconditional negative self-referent beliefs. Dysfunctional conditional beliefs about weight and diet were identified (such as, “If I gain weight I can’t feel happy about myself”), in addition to unconditional beliefs regarding worthlessness, inferiority, failure and abandonment in women with anorexia nervosa and bulimia nervosa.

Initial work with the EDBQ demonstrated good psychometric properties and that the assessed beliefs were related to eating disorders (Cooper et al, 1997). Follow up research found that the same unconditional negative self-referent beliefs were reported by women with anorexia nervosa to a significantly greater extent than ‘normal’ dieters. Both of these groups exhibited similar levels of conditional beliefs about weight and food (Cooper & Turner, 2000; Turner & Cooper, 2002). Furthermore in an undergraduate sample, those who had a history of dieting scored more highly on assumptions related to shape, eating and weight but not on negative

self-beliefs than non-dieters (O'Connor, Simmons and Cooper, 2003). The Eating Disorders Belief Questionnaire was found to be valid for use with adolescent in-patients with anorexia nervosa who scored highly on dysfunctional self-referent beliefs (Bradford & Rutherford, 2001). The EDBQ, however, assesses general negative self-referent beliefs and is not a useful tool to assess more specific beliefs which may be linked with disordered eating behaviours.

#### *1.5.4.2 The Young Schema Questionnaire and Eating Disorders*

The largest body of research with self referent beliefs in women with eating disorders has been conducted by Glenn Waller and his colleagues using the Young Schema Questionnaire (Young, 1998a). The questionnaire has been designed to assess 15 self-referent beliefs, or early maladaptive schema as they have been called by Young (1999). Both the long and short versions of the Young Schema Questionnaire have been found to be valid measures of dysfunctional beliefs in eating disorder samples (Waller, Meyer & Ohanian, 2001a). For the most part, studies have compared clinically diagnosed eating disorders (i.e. bulimia nervosa, anorexia nervosa, binge eating disorder) with each other and non-clinical samples (Leung et al, 1999; Leung, Waller & Thomas 2001; Overton et al, 2005; Waller, 2003; Waller et al, 2000; Waller, Shah, Ohanian & Elliot, 2001b). However, due to the considerable heterogeneity of eating disorder symptoms within diagnostic categories, researchers have also investigated links between self-referent beliefs and specific disordered eating behaviours, such as bingeing and vomiting (Gongora, Derksen & van Der Staak, 2004; Waller et al, 2000; Waller, Dickson & Ohanian, 2002). Links between a number of self-referent beliefs and diagnoses and specific symptoms have been reported. These are detailed below.

*(i) Eating Disorder Samples vs. Non-clinical Controls*

In general, the research has demonstrated that eating disorder groups score significantly higher on most, if not all, of the dysfunctional self-referent beliefs of the Young Schema Questionnaire than non-clinical controls (Leung et al, 1999; Overton et al, 2005; Waller, 2003; Waller et al, 2000). However, evidence supporting differences between different eating disorder diagnostic groups has been more limited. Leung and colleagues (1999) found that the only difference between their eating disorder groups was that bulimic women had significantly stronger entitlement beliefs than restrictive anorexic women. However, they also found that a number of self-referent beliefs (including abandonment, dependence, failure and unrelenting standards) were correlated with unhealthy eating behaviours in a group with bulimia nervosa but not in a group with anorexia nervosa which included some individuals with a bulimic subtype. Furthermore, Waller (2003) reported that women with bulimia nervosa has a similar level of beliefs of entitlement than controls but significantly greater than women with binge eating disorder. This study also reported that women with bulimia nervosa exhibited significantly stronger beliefs of being dependent upon others and of failure. However, Waller and colleagues (2000) did not find any significant differences in beliefs between women with bulimia nervosa, bulimic anorexia and binge eating disorder.

Some studies have used discriminant function analyses to investigate whether specific dysfunctional self-referent beliefs were able to distinguished different eating disorders groups from each other, and non-clinical control groups. Waller and colleagues (2000) found that beliefs of being defective, of not being in control and of being a



failure compared to others, reliably differentiate three different bulimic groups (bulimia nervosa, bulimic anorexia<sup>2</sup> and binge eating disorder<sup>3</sup>) from a non-clinical comparison group. The bulimia nervosa group were characterised by few beliefs of defectiveness and not being in control but strong beliefs of failure. The bulimic anorexia group held all these beliefs strongly while the binge eating disorder group reported moderate defectiveness and lack of control beliefs but very strong beliefs of personal failure. In contrast, Waller (2003) found that groups with bulimia nervosa and binge eating disorder were reliably discriminated from each other and non-clinical controls by perceptions of not being able to express or experience emotions, of being dependent on others, and of abandonment. Women with bulimia nervosa had stronger beliefs of abandonment, while those with binge eating disorder had strong beliefs of being unable to express emotions and of dependence.

*(ii) Associations between Disordered Eating and Self-Referent Beliefs*

Specific associations between disordered eating attitudes and behaviours have been reported. Leung and associates (1999) reported that in women with bulimia nervosa, frequency of bingeing was found to be negatively associated with beliefs about being socially different, while in women with anorexic bulimia, frequency of vomiting was positively associated with beliefs of being a failure. However, it should be noted that the latter group consisted of only ten women. In a group of bulimic women, Waller and colleagues (2000) found that frequency of bingeing was positively predicted by beliefs that one cannot express or experience emotions, while frequency of vomiting was positively predicted by beliefs of defectiveness. Furthermore, bulimia symptoms

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<sup>2</sup> Bulimic anorexia is also known as the binge-purging diagnostic subtype of anorexia nervosa.

<sup>3</sup> Binge eating disorder is a preliminary diagnostic category in DSM-IV (American Psychiatric Association, 1994) which is distinguished from bulimia nervosa by the absence of purging or compensatory behaviours.

were found to be significantly associated with beliefs of being socially different, of being unable to control oneself and of being deprived of emotional support in one study (Waller et al, 2002), but with only the perception that one cannot control oneself in another (Overton et al, 2005). A further study found that bulimic symptomatology was predicted by beliefs that one must maintain the highest of personal standards and that one cannot trust others for fear of being abused (Meyer & Gillings, 2004).

Restrictive attitudes and behaviours have been found to be significantly associated with perceptions of the self as dependent and incompetent and unable to express or experience emotions (Waller et al, 2002; Turner, Rose & Cooper, 2005) and also beliefs that one is defective and must maintain the highest standards (Overton et al, 2005). One study found that body dissatisfaction was not associated with any dysfunctional self-referent beliefs (Waller et al, 2002) but another found associations with beliefs of being emotionally unsupported, that one's needs are unimportant, of being socially different and the perception that one will be taken advantage of by others (Overton et al, 2005). However, Waller (2003) found no such associations between bulimic behaviours and dysfunctional self-referent beliefs in a group of women with bulimia nervosa but found many of such associations in a group with binge eating disorder. These included beliefs of being socially different, dependent and that one is constantly vulnerable to harm, and that one is emotionally over-involved with others and must maintain the highest of personal standards. Furthermore, Overton and colleagues (2005) reported that the perception that one cannot control oneself was the only belief associated with bulimic behaviours and attitudes.

In summary, it appears that eating disordered groups hold significantly stronger dysfunctional self-referent beliefs than non-clinical controls, perhaps with the exception of entitlement beliefs. Otherwise, the research has tended to be inconsistent which makes it difficult to interpret with different studies reporting significant findings with different self-referent beliefs. However, a number of self-referent beliefs have been found to have the ability to distinguish eating disorder diagnostic groups in more than one study. These are beliefs of being dependent upon others, a failure compared to others, defective, unable to express or experience emotions and of being abandoned. Furthermore, each of these beliefs has also been specifically found to be significantly associated with disordered eating behaviours or attitudes.

#### *1.5.5 Eating Disorders, Depression and Self-Referent Beliefs*

The research methodology in the above studies has either been to compare one or more eating disorders groups with a non-clinical control group, or investigate associations within a single eating disorders sample. A shortcoming in these studies has been an absence of a clinical control group or the consideration of depressed mood as a confounding variable. There is ample evidence for the association between self-referent beliefs and other mental health problems, particularly depression. A review of the use of the Young Schema Questionnaire (both the short and long versions) with depressed samples reported that the most consistently found beliefs which were predictive of depressive symptoms were those of being defective and abandoned. The same was found with others beliefs (e.g. of being socially different and of personal failure) but much less consistently (Calvette, Estévez, López de Arroyabe & Ruiz, 2005). There is the possibility that the dysfunctional self-referent beliefs found to be associated with disordered eating are influenced by comorbid

depressive symptoms or are a measure of general psychological distress rather than being specific to eating disorders. This point is particularly important as depressed mood is common in individuals with eating disorders (Herzog, Keller, Sacks, Yeh & Lavori, 1992). A number of recent studies have endeavoured to address this issue.

#### *1.5.5.1 Research with Self-Referent Beliefs, Eating Disorders and Depression*

Five studies have investigated the confounding link between depressive symptoms and dysfunctional self-referent beliefs in disordered eating; two studies have used a depressed group as a comparison (Cooper & Hunt, 1998; Waller et al, 2001b) while the others have accounted for depressive symptoms in statistical analyses (Cooper, Rose & Turner, 2005; 2006; Gongora et al, 2004).

Using the Eating Disorders Belief Questionnaire, Cooper and Hunt (1998) found that women with depression and bulimia nervosa reported similarly greater levels of unconditional negative self-beliefs compared to non-clinical control women, but that the eating disordered group were distinguished by greater beliefs about diet and weight. In this study depressive symptom level was similar across the two clinical groups but was not used as a covariate when comparing the negative beliefs of the groups. Consequently, it is difficult to know the extent to which severity of depressive symptoms may have affected the report of dysfunctional self-referent beliefs or whether these beliefs were characteristic of bulimia nervosa or the depressive symptoms.

Two studies with non-clinical adolescent samples used both the Eating Disorders Belief Questionnaire and the Young Schema Questionnaire and were

methodologically aimed at accounting for depressive symptoms (Cooper et al, 2005, 2006). Cooper and colleagues (2005) found strong beliefs of being unable to express or experience emotion, of personal failure, abandonment and of being vulnerable to harm were found to distinguish adolescents with high levels of depressive symptoms from both healthy individuals and those with dysfunctional eating attitudes. In a second study, the same authors found that significant associations between self-referent beliefs and disordered eating attitudes became non-significant when depressive symptoms were accounted for (Cooper et al, 2006).

Waller and colleagues (2001b) compared three groups of women with bulimia nervosa with varying levels of depression, no depression, mild, moderate-severe depression, with a non-eating disordered depressed group and non-clinical control group. They reported that while both bulimia nervosa and major depressive disorder were characterised by the presence of beliefs regarding being socially different and being defective, individuals with bulimia nervosa were distinguished by high levels of beliefs about personal failure.

Gongora and associates (2004) investigated eating disordered symptoms and attitudes, self-referent beliefs and depression in a group of women being treated for a bulimic eating disorder. They found that rigid weight regulation was significantly predicted by defectiveness beliefs, and approval from others was significantly predicted by beliefs of personal failure but in neither case did depression significantly contribute to the model. In contrast, bulimic thoughts and behaviours were significantly predicted by depressive symptoms but not self referent beliefs. These results suggest that aspects of

disordered eating may be differentially linked with dysfunctional beliefs and depressive symptoms.

As with the studies discussed in the previous section the above research, which aimed to investigate the confounding influence of depression on self-referent beliefs in those with eating disorders, has proved limited and inconsistent. Two studies have shown that the link between self-referent beliefs and dysfunctional eating attitudes is attributable to depressive symptoms. However, these studies used non-clinical adolescents and it is difficult to know whether these findings can be applicable to clinical populations. In two others studies which used clinical samples, beliefs of personal failure appear to be specific to bulimics symptoms in one but specifically associated with depression in the other. Additionally, beliefs of defectiveness were found to be specifically related to restrictive behaviours.

#### *1.5.6 Section Summary*

Given the different samples and methodologies employed by the above research investigating disordered eating and self-referent beliefs, it is difficult to compare studies and find consistency in the results. Consequently, the conclusions should be treated with some caution particularly as the size of some of the groups has been as small as ten. Without exception, studies have demonstrated that women with eating disorders exhibit significantly stronger dysfunctional self-referent beliefs than non-clinical comparison groups. Additionally, associations between disordered eating attitudes and behaviours and dysfunctional self-referent beliefs have been found in most studies that have tested for them. The self-referent beliefs that appeared to be the best at distinguishing eating disordered groups from controls, and that were associated

with disordered eating, were those of being dependent upon others, a personal failure compared to others, defective, unable to express or experience emotions, and abandoned.

Some research has considered the confounding influence of depressive symptoms on the link between self-referent beliefs and disordered eating attitudes and behaviours. This is particularly important given the strong link between depression and dysfunctional self referent beliefs, particularly those of defectiveness and abandonment (Calvette et al, 2005). It is necessary to ascertain whether any associations between disordered eating and self-referent beliefs are specific to eating disorders rather than comorbid depression or general psychological distress. The research addressing this issue has, however, been similarly inconsistent, but those studies with clinical participants suggested that beliefs of personal failure might be associated specifically with eating disorders. Overall, the research suggests that beliefs of dependence, being unable to express or experience emotions and beliefs regarding personal failure are likely to be specific to disordered eating attitudes and behaviours, whereas the presence of beliefs of abandonment and defectiveness may be indicative of depressive symptoms or general psychological distress.

## 1.6 EMOTIONAL EXPERIENCE IN EATING DISORDERS

### *1.6.1 Section Overview*

The evidence discussed above suggests that there is an important role for dysfunctional self-referent beliefs in individuals with eating disorders. It is suggested that these beliefs develop in childhood and adolescence through repeated interactions with caregivers and family, where unpleasant emotions are experienced and not resolved (Young, 1999). For individuals with many strongly held dysfunctional self-referent beliefs, such as those linked with eating disorders, it is likely that they will be triggered more frequently and, consequently, will have unpleasant emotional experiences more often and to a greater degree. Both everyday eating and disordered eating behaviours have been found to be linked with negative affective experiences (e.g. Macht, 1999; Sanftner, Barlow, Marschall & Tangney, 1995). This has provided support to suggestions that eating disorder symptoms can be maladaptive attempts to regulate unpleasant emotions. The possible mechanisms by which bingeing, purging and restrictive behaviours regulate emotional experience for individuals with eating disorders are discussed. Difficulties in identifying and describing emotions, known as alexithymia, have been linked with disordered eating behaviours and been suggested as the manifestation of a mechanism by which awareness of unpleasant emotions is reduced. Furthermore, the ability of those with eating disorders to reflect upon emotions, perceive them clearly and take steps to regulate them (described as the meta-experience of mood) is explored and compared with the role of rumination in the maintenance of depression.



### *1.6.2 Emotional Experience and Everyday Eating*

There is limited research investigating associations between eating and emotions. The small amount of research that has been done has found that both everyday eating and disordered eating behaviours are linked with negative and positive affective experiences. Two studies have focused on normal emotional experience during eating in non-clinical populations (Macht, 1999, Macht & Simons, 2000). Macht (1999) studied the eating behaviours reported by non-clinical individuals during different emotional states (joy, anger, fear and sadness). Four factors related to eating behaviour were found: Hunger (i.e. eating food due to hunger), Impulsive eating (i.e. eating food without control), Sensory eating (i.e. eating foods for the taste or physical sensation of chewing) and Hedonic eating (i.e. eating foods for pleasure). Participants reported higher levels of hunger during the experience of anger and joy than during fear or sadness. Impulsive and sensory eating was rated higher during anger than during sadness, fear or joy while hedonic eating was associated with joy. Macht and Simons (2000) found four clusters of emotional experience reported by women during everyday eating. These were labelled Anger-dominance, Tension/Fear, Relaxation/Joy and an Unemotional state. Self-rated motivations to eat were increased during the Anger and Tension states compared to Relaxation and Unemotional states, this was particular the case when the tendencies to eat were aimed at regulating the momentary emotional state. There was also a higher tendency to eat irregularly during the emotions of anger and fear rather than relaxation or feeling unemotional. These studies indicate that emotions have an important influence in everyday eating, with anger in particular related to impulsive eating and emotion regulation.

### *1.6.3 Negative Affect and Disordered Eating*

A larger body of research has focused on the relationship between disordered eating behaviours and emotional experience in both eating disordered and non-clinical groups. Intense states of negative affect have received particular attention, which is consistent with the evidence from everyday eating discussed above. It has been reported that women with bulimic attitudes and behaviours demonstrated greater levels of negative affect than do controls (Ruderman & Besbeas, 1992; Stice, Ziemba, Margolis & Flick, 1996). More specifically, bulimic behaviours have been found to be associated with depressed mood and anxiety (Arnou, Kenardy & Argms, 1995; Beebe 1994; Hinz & Williamson, 1987; Williamson, Goreczny, Davis, Ruggiero & McKenzie, 1988). Additionally, negative affect has been linked to specific attitudes and behaviours of eating disorders, including overvalued shape and weight concerns, dietary restraint, and fear of fatness (Davis, Freeman & Garner, 1988; Stice, Nemeroff & Shaw, 1996; Stice, Shaw and Nemeroff, 1998). Although, research has consistently indicated the comorbidity of depression and anxiety with eating disorders (e.g. Herzog et al, 1992), many theorists argues that these states fail to account adequately for the full spectrum of negative affect experienced by individuals with eating disorders. They suggest that other emotions, such as anger and shame, may also be influential in the emotional experience of eating disordered individuals. Research has shown that individuals with eating disorders report higher levels of both anger and shame than non-clinical controls (Grabhorn, Stenna, Stangier & Kaufhold, 2006; McManus & Waller, 1995; Milligan & Waller, 2000; Milligan, Waller & Andrews, 2002; Swan & Andrews, 2003; Waller, Babbs, Milligan, Meyer, Ohanian & Leung, 2003). Additionally, specific disordered eating behaviours, such as binge eating and diet restriction, have been found to be associated with greater levels of anger

(Milligan et al, 2002; Penas-Lledo, de Dios Fernandez & Waller, 2004) and shame (Burney & Irwin, 2000; Hayaki, Friedman & Brownell, 2002; Sanftner et al, 1995; Sanftner & Crowther, 1998). These findings provide strong evidence for a relationship between a number of negative emotions, including depression, anxiety, anger and shame, and disordered eating attitudes and behaviours.

#### *1.6.4 Emotion Regulation in Eating Disorders*

Difficulties in managing intense negative emotions have been recognised in those with eating disorders. Bruch (1973) suggested that the difficulty in distinguishing and describing feelings was the main deficit in eating disorders and was related to a sense of general inadequacy and lack of control over one's life. A number of researchers have suggested that some symptoms of eating disorders, although damaging to the individual in the long term, have the short term function of regulating unpleasant emotions (e.g. McManus & Waller, 1995). Emotion regulation refers to a variety of mechanisms (behavioural, cognitive, affective or somatic) by which an individual manages their pleasant and unpleasant emotional experience. These mechanisms can be conscious or unconscious and may act on both a momentary and a long term basis (Gross, 1998). Researchers have suggested that behaviours such as bingeing, purging and diet restriction may regulate negative affect by reducing awareness of unpleasant cognitions and emotions (e.g. Heatherton & Baumeister, 1991). Furthermore, the inability to describe or identify emotions, known as alexithymia, has been found in individuals with eating disorders (e.g. Bourke, Taylor, Parker & Bagby, 1992) and has been proposed as a mechanism by which the experience of negative emotions is managed and reduced (Schwartz & Gay, 1996). Consequently, a related concept, that of the meta-experience of mood, which is the ability to consciously reflect upon and

manage emotional experience, may provide some new insights into the mechanisms by which those with eating disorders manage their emotions (e.g. Mayer & Stevens, 1994).

#### *1.6.4.1 The Functions of Bingeing and Purging*

Numerous researchers have described the roles of bingeing and purging in regulation of emotional experience and, specifically in the case of bingeing, mechanisms through which this occurs have been proposed. A predictable pattern of emotional variation across the binge/purge cycle has been suggested (Beebe, 1994): Before a binge individuals experience increased anxiety, depressed mood or anger (Abraham & Beaumont, 1982; Hsu, 1990; Lingswiler, Crowther & Stephens, 1989; Schlundt & Johnson, 1990). However, during binges or the consumption of “forbidden foods” other negative feelings (such as guilt, shame, helplessness) are also reported to increase (Cooper, Morrison, Bigman, Abramowitz, Levin & Krener, 1988; Johnson & Larson, 1982; Macdiarmid & Heatherington, 1995), and bingeing is followed by depression and anxiety (Elmore & De Castro, 1990; Hsu, 1990, Kaye, Gwirtsman, George, Weiss & Jimmerson, 1986; Williamson et al, 1988). After a binge, negative feelings such as shame, guilt and anxiety (often related to weight gain) are often reduced by purging and other compensatory behaviours (Beebe, 1994; Williamson, Prather, Goreczny, Davis & McKenzie, 1989) while feelings of control, security and relief increase (Cooper et al, 1988; Hsu, 1990). Following purging, feelings of guilt and depression return (Hsu, 1990; Johnson & Larson, 1982). More specifically, Pitts and Waller (1993) suggested that while bingeing serves an affect regulation function, vomiting tends to serve the function of reducing awareness of aversive cognitions.

Overall, the research suggests that both bingeing and purging have the function of reducing negative affect.

Two alternative mechanisms by which bingeing can regulate the experience of negative affect have been proposed. The first suggests that the experience of emotional distress, particularly anxiety and anger, leads to the use of bulimic behaviours to block the intolerable thoughts and feelings (Lacey, 1986; Root & Fallon, 1989). Root and Fallon (1989) suggested that bingeing may allow the individual to “anaesthetise intense negative feelings.” The second model proposes that emotional distress leads to cognitive narrowing in an effort to reduce self-awareness which results in behavioural disinhibition and, consequently, bingeing in those that are trying to restrict their eating (Heatherton & Baumeister, 1991). Bingeing, therefore, occurs as a result of a cognitive mechanism which is employed to reduce self-awareness rather than being a direct consequence of negative affect. The authors also highlight the importance of internal “ego threats” (i.e. self-denigratory cognitions, personality characteristics) in eliciting emotional difficulties which result in the need for reducing self-awareness. In both mechanisms the positive emotional consequence of alleviating negative emotions, even momentarily, serves to reinforce and maintain the bingeing behaviour. Although there has been little research to support one or other of these mechanisms, studies in general coping have supported the concept of general avoidance of negative emotions (Ball & Lee, 2000; Sherwood, Crowther, Wills & Ben-Porath, 2001; Spranger, Waller & Bryant-Waugh, 2001). Research has provided evidence for the role of the bulimic behaviours of bingeing and purging in the regulation of negative affect though possible mechanisms that involve

the reduction of self-awareness or cognitive narrowing which leads to behavioural inhibition and bingeing.

#### *1.6.4.2 The Function of Restrictive Eating Behaviours*

The function of restrictive eating behaviours in emotion regulation has been less well studied. However, researchers emphasise the central concept of control over diet, as well as the experience of emotions, as a maintaining mechanism in restrictive eating. Research has suggested that in many individuals with eating disorders, negative emotions elicited through general feelings of inadequacy and worthlessness, are manifest through a focus on physical appearance and weight (e.g. Fairburn et al, 1998). In response, restrictive eating behaviours can provide individuals with feelings of control and security in relation to many of these personal aspects which elicit negative affect (Slade, 1982). Furthermore, Slade (1982) suggested that diet restriction and the feelings of control are positively reinforced through the resultant feelings of success, and negatively through fear of weight gain and avoidance of negative affect. High levels of anger have been found to be related to restrictive dieting behaviours in non-clinical samples (Milligan et al, 2002; Penas-Lledo et al, 2004) while the control and suppression of anger has been reported to be greater in women with anorexia nervosa (Horesh, Zalsman & Apter, 2000). The limited research suggests that restrictive eating behaviours have the function avoidance of negative affect through the mechanisms of suppression and control.

#### *1.6.4.3 Alexithymia and Eating Disorders*

Bruch (1973) suggested that the ability to identify and describe emotional states was the main deficit in eating disorders. This deficit is similar to alexithymia, which has

typically been defined as consisting of the following dimensions: difficulty in identifying and describing feelings, difficulty in distinguishing between feelings and the bodily sensations of emotional arousal, constricted imaginative fantasy life, and the tendency to focus on concrete details of external events (Lesser, 1981; Taylor, 1984). Research has shown that the relationship between alexithymia (and other related concepts such as emotion identification) and eating disorders is complex and may be largely due to the presence of comorbid factors such as depression and anxiety. However, it has been suggested that alexithymia is a form of emotion regulation employed to reduce awareness of demanding emotions (Schwartz & Gay, 1996).

Alexithymia has been the focus of many studies in the field of eating disorders. Research has been consistent in reporting that individuals with eating disorders demonstrate significantly higher levels of alexithymia compared to normal controls (Bourke et al, 1992; Cochrane, Brewerton, Wilson & Hodges, 1992; De Groot, Rodin, & Olmsted, 1995; Jimerson, Wolfe, Franko, Covino & Sifneos, 1994; Schmidt, Jiwany & Treasure, 1993). However, a strong relationship has also been found between alexithymia and both depression and anxiety (Hendryx, Haviland & Shaw, 1991; Honkaalampi, Hintikka, Saarinen, Lehtonon & Viinamak, 2000; Honkaalampi, Koivumaa-Honkaalampi, Takanen, Saarinen, Lehtonon & Viinamak, 2001; Jacob & Hautekeete, 1999; Pandey & Mandal, 1996). In order to address the potentially confounding effect of comorbidity some studies have controlled for the effects of depression and anxiety and found that differences between eating disorder groups and control disappear (Corcos, Guilbaud, Speranza, Paterniti, Loas, Stephan & Jeammet, 2000; Eizaguirre, de Cabezón, de Alda, Olariaga & Juaniz, 2004). Other studies have

found that the differences, particularly in the affective deficit aspects of alexithymia and related concepts (e.g. difficulty identifying and describing feelings), remain when depression was controlled for (De Groot et al, 1995; Sexton, Sunday, Hurt & Halmi, 1998). Furthermore, Sim and Zeman (2004) reported that adolescent females with bulimia nervosa demonstrated an inability to express emotions and inferior interoceptive awareness (i.e. awareness of internal states such as hunger and satiety) compared to depressed and non-clinical control groups.

Studies have also looked at differences in alexithymia between different types of eating disorder and associations with symptoms. Three studies compared individuals with anorexia nervosa and bulimia nervosa and found that the former group exhibited significantly greater levels of alexithymia to the latter. However, when one study controlled for depression the difference disappeared (Corcos et al, 2000) while another did not control for depression (Schmidt et al, 1993), and the third study found no difference at all (Cochrane et al, 1993). Taylor, Parker, Bagby and Bourke (1996) found that although alexithymia was higher in eating disorders groups, it was unrelated to disordered eating attitudes such as drive for thinness, body dissatisfaction and bulimia. Similarly, Quinton and Wagner (2004) found that aspects of alexithymia and body dissatisfaction or drive for thinness were not related, however, they reported that bulimic attitudes were associated to an inability to *identify* emotions and a greater ability to *describe* them. The authors suggest that this result reflects the function of binge eating blocking negative emotional states leading to a difficulty in identification rather than description.



Some researchers have hypothesised that the presence of alexithymia in individuals with eating disorders is indicative of a defence mechanism or emotion regulation strategy employed to reduce awareness of demanding emotional circumstances (Schwartz & Gay, 1996). Evidence for the utility of alexithymia as an emotion regulation strategy has been found in substance abusers and patients with severe physical illnesses (Haviland, Hendryx, Cummings, Shaw & MacMurray, 1991; Wise, Mann, Mitchell, Hryvniak & Hill, 1990). In addition, alexithymia or poor emotion awareness has been reported to be a mediator in the relationship between childhood abuse and eating disorders (Hund & Espelage, 2005; Mazzeo & Espelage, 2002) and between body dissatisfaction and bulimia nervosa (Sim & Zeman, 2005). These studies provide further evidence for the function of disordered eating behaviours with regards reducing awareness of intolerable emotions and cognitions.

The evidence for a specific link between alexithymia and disordered eating attitudes and behaviours appears inconsistent, and it may be that any link is a function of comorbid depression or anxiety or general psychopathology (Bydlowski, Corcos, Jeammet, Paterniti, Bertoz, Laurier, Chamby & Consoli, 2005; Quinton & Wanger, 2004). While some researchers have suggested that alexithymia is an emotion regulation strategy which may be used by individuals with eating disorders. However, specific evidence to support this is limited.

#### *1.6.5 Awareness of Emotional Experience*

The above research suggests that disordered eating behaviours and alexithymia serve a function of regulating emotions through the avoidance of the awareness of unpleasant feelings. It is evident, however, that an avoidant approach to the regulation

of distressing cognitions and emotions contrasts with the ruminative approach hypothesised to be important in the maintenance of depressive symptoms (e.g. Nolen-Hoeksema, 1991; 2000). The differences between individuals with depression and eating disorders in awareness of their emotions may provide some important clues for theory and intervention in both these psychological problems. Awareness of emotions has been further studied within the area of the meta-experience of mood, which relates to ability to reflect and act upon emotional states. The meta-experience of mood has been found to be related to rumination and depression but has not been used with eating disordered samples (Salovey, Mayer, Goldman, Turvey and Palfai, 1995).

Research with depression has shown that individuals with a ruminative response style think repetitively and passively about their negative emotions, focusing on their symptoms of distress and worrying about the meanings of their distress (Nolen-Hoeksema, 1991; 2000; Nolen-Hoeksema, Morrow & Fredrickson, 1993; Nolen-Hoeksema, Parker & Larson, 1994). This contrasts with the evidence detailed above regarding the largely avoidant processes by which individuals with eating disorders regulate unpleasant emotions. The potential differences in the mechanisms which individuals depression and eating disorders use to alter their awareness of unpleasant emotions may provide some important clues as to the psychological processes underlying the presence of symptoms in both disorders. This may further provide additional evidence in the further development of psychological interventions.

The concept related to an individual's tendency to attend to and reflect upon their emotions and actively make decisions regarding their management has been called the meta-experience of mood or meta-mood (Mayer & Gaschke, 1988; Meyer & Stevens,

1994; Salovey et al, 1995). A distinction has been made between the momentary experience of mood, which has been called *state* meta-mood and longer term experience which has been called *trait* meta-mood. Three characteristics have been identified within the concept of trait meta-mood; two evaluative and one regulatory. The first is the tendency to attend to one's emotional state, the second is the clarity with which one experiences emotions, while the third involves regulation or repair of one's emotional state or mood. These aspects of meta-mood are assessed by the Trait Meta-Mood scale (TMMS: Salovey et al, 1995).

Research with the Trait Meta-Mood Scale has tended to focus on meta-mood and related constructs within non-clinical normal samples. Initial research found that depressed mood was associated with high levels of attention to emotions, low clarity in discriminating feelings, and beliefs that one cannot repair negative moods (Salovey et al, 1995). It has also been suggested that these meta-mood traits were important in ruminative thought and that clarity of emotions is a precondition for effective emotion regulation. It was hypothesised that individuals can stop aversive ruminative processes quickly because they can perceive their feelings clearly. Further research has found significant negative associations between depressed mood and clarity of emotions and perceived ability to repair emotions (Fernandez-Berrocal et al, 2004; Gohm & Clore, 2002; Salovey et al 2002). Similar findings have been reported with psychological well-being (Gohm & Clore, 2002), anxiety and psychological distress (Goldman et al, 1996). Additionally, rumination has been found to be associated with high attention to emotions (Fernandez-Berrocal et al, 2004) and poor emotion repair (Fernandez-Berrocal et al, 2004; Salovey et al, 2002) but not with clarity of emotions. One study has investigated a clinical sample and reported that depressed individuals

exhibit significantly lower attention to, and clarity of, emotions compared to non-clinical controls, while formerly depressed individuals scored significantly lower on clarity of emotions but not on attention to emotions (Rude & McCarthy, 2003).

The research with emotion regulation in those with eating disorders suggests that awareness of emotional state is an important aspect. Differences between the mechanisms to alter awareness in depression and eating disorders may provide some insight into underlying affective processes which maintain both of these problems and may influence psychological interventions. The tendency to reflect upon emotion experience, perceive emotions clearly, and take steps to regulate negative emotions has been found to be related to depression and vulnerability to depression. Investigating these trait abilities in individuals with eating disorders may provide a valuable insight into the emotional experience and regulation of emotions in this group, to the author's knowledge there has been no research addressing this to date.

#### *1.6.6 Section Summary*

Strong evidence has been found for the strong link between both everyday eating and disordered eating and negative affect. A number of researchers have suggested that disordered eating attitudes and behaviours, although maladaptive, may provide a function for individuals in regulating or reducing awareness of unpleasant emotional experience in the absence of more adaptive strategies. It is suggested that the mechanism of reducing emotional awareness contrasts with ruminative style responses which have been found to be a maintaining factor in depression. Research regarding trait meta-mood has linked the tendency to reflect upon, perceive clearly

and regulate emotional states to depression but little have been done in this area with eating disorders. It remains a potentially fruitful area of research.

## 1.7 AIMS

The research detailed above informs the aims of the present study. Developmental aspects of adolescence have been highlighted as an important influence in eating disorders which occur overwhelmingly in females, consequently an adolescent sample, exclusively female, will be investigated. The importance of dysfunctional self-referent beliefs in the maintenance of eating disorders has been described. In addition, the concept of trait meta-mood has been described as a potentially interesting area to investigate within the context of eating disorders. Both self-referent beliefs and trait meta-mood are considered to have influence over momentary states (such as depressive symptoms) but they themselves are considered relatively stable trait characteristics. Consequently, it is thought that the influence of these variables can be directly observed when the confounding effect of state variables (such as depressive symptoms) is controlled for. Therefore, in addition to measures of self-referent beliefs and meta-mood, a measure of depressive symptoms will be taken so that any confounding effect of this state variable can be largely removed. In relation to the above considerations, the aims of the present study are as follows:

(A) To investigate whether particular dysfunctional self-referent beliefs (those of personal failure, of being unable to express or experience emotions, and of being dependent upon others, as measured by the Young Schema Questionnaire, YSQ) are specific to adolescents with eating disorders.

(B) The investigate whether particular dysfunctional self-referent beliefs (those of abandonment and defectiveness as measured by the YSQ) are characteristic of both eating disordered and depressed adolescents.

(C). To investigate whether other dysfunctional self-referent beliefs measured by the YSQ are characteristic of eating disordered and depressed adolescents.

(D). To investigate whether eating disordered adolescents demonstrates a tendency to avoid attending to their emotions (as measured by the Trait Meta-Mood Scale, TMMS).

(E). To investigate whether both eating disordered and depressed adolescents demonstrate a tendency to perceive their emotions less clearly and have a lower ability to repair emotions (as measured by the TMMS).

## 1.8 HYPOTHESES

(A1). The eating disorder group will demonstrate significantly higher scores on failure, emotional inhibition and dependence beliefs than the depression and non-clinical control groups.

(A2). The eating disorder group will demonstrate significantly higher scores on failure, emotional inhibition and dependence beliefs than the depression and non-clinical control groups, after the possible effect of depressive symptoms has been accounted for.

(B1). Both the eating disorder and the depression groups will demonstrate significantly higher scores on abandonment and defectiveness beliefs than the non-clinical control group.

(B2). Both the eating disorder and the depression groups will demonstrate significantly higher scores on abandonment and defectiveness beliefs than the non-clinical control group, after the possible effect of depressive symptoms has been accounted for.

(C1). Both the eating disorder group and the depression group will demonstrate significantly higher scores on other self-referent beliefs than the non-clinical control group.



(C2). The eating disorder, depression and non-clinical control groups will demonstrate scores on other self-referent beliefs that are not significantly different, after the possible effect of depressive symptoms has been accounted for.

(D1). The eating disorders group will demonstrate a significantly lower score on the tendency to attend to emotions than the depression and non-clinical control groups.

(D2). The eating disorder group will demonstrate a significantly lower score on the tendency to attend to emotions than the depression and non-clinical control groups, after the possible effect of depressive symptoms has been accounted for.

(E1). Both the eating disorder and the depression groups will demonstrate a significantly lower score on the tendency to perceive their emotions clearly and ability to repair motions than non-clinical control groups.

(E2). Both the eating disorder and the depression groups will demonstrate a significantly lower score on the tendency to perceive their emotions clearly and ability to repair emotions than non-clinical control groups, after the possible effect of depressive symptoms have been accounted for.



## 2. METHODS

### *2.1 Overview*

A comparative design was employed involving three groups. The main experimental group was composed of adolescent females with eating disorders, they were compared with an adolescent female clinical control group with depression, and an adolescent female non-clinical control group.

### *2.2 Preparation*

In advance of data collection, this study was approved by the Lothian Local Research Ethics Committee to ensure ethical standards of research, and by the Chief Executive of the NHS Lothian Primary and Community Division so that participants could be recruited from the Young People's Unit and the Cullen Centre at the Royal Edinburgh Hospital.

### *2.3 Subjects and Power Analysis*

Data from Waller and colleagues (2001b) were used to calculate an effect size that would be expected in the analysis. Of the three self-referent beliefs hypothesised to be specific to the eating disorders group (failure, dependence and emotional inhibition beliefs), dependence beliefs were the median and thought most likely to represent the true effect size from the sample. In each of experimental groups of the Waller et al study the mean/sample sizes were: control = 1.60/45, eating disorder = 2.18/26, depression = 3.32/18 giving a large effect size of 0.65. In order to find a large effect size, with alpha set at 0.05 level of significance and when testing for the differences

between the means of three groups, a total sample of 48 participants would be required to achieve 80% power.

#### *2.4 Total Sample*

A total sample of 47 adolescent females participated in the present study. There were 14 in the eating disorder group and 13 in the depression group. A further 20 non-clinical participants were recruited from schools. All individuals participated on a voluntary basis.

#### *2.5 Questionnaire Measures*

The following standardised questionnaire measures were included in this study:

##### *2.5.1 Demographic Information Questionnaire (see Appendix 1)*

Participants were asked to give details of their age, weight, height and postcode. From these details body mass index could be calculated and socio-economic status could be estimated.

##### *2.5.2 The Young Schema Questionnaire- Short Form (see Appendix 2)*

The Young Schema Questionnaire- Short Form (YSQ-S: Young, 1998a) is a 75-item self-report questionnaire assessing 15 Early Maladaptive Schemas (EMS) which are unconditional dysfunctional beliefs about the self, and relationships with others. It has been designed for use with any clinical population in which these beliefs might be relevant, including patients diagnosed with Axis I and Axis II disorders. All items are

answered on a 6-point scale (1 = “completely untrue” to 6 = “describes me perfectly”). There are two methods of scoring the YSQ-S. The first is recommended for clinical use (Young, 1990) where only scores of five or six are counted. The second method uses mean scores of the five items of each EMS and is the preferred method in research studies (Lee, Taylor & Dunn, 1999; Schmidt, Joiner, Young & Telch, 1995; Stopa, Thorne, Waters & Preston, 2001; Stopa & Waters, 2005). In the present study the overall score for each EMS was calculated from the mean of the items in that scale. A higher score reflects a more maladaptive, unhealthy self-referent belief.

Young (1999) proposed that EMS can be grouped into five domains which represent their hypothesised developmental origins which were disconnection and rejection, impaired autonomy and performance, other-directedness, over-vigilance and inhibition, and impaired limits. These domains contain the fifteen EMS which are assessed by the YSQ-S: They are:

(i) Disconnection and Rejection

Abandonment - a belief that one will not be protected or supported by others (e.g. “I worry that people I feel close to will leave me or abandon me”).

Mistrust and Abuse - a belief that others will hurt, manipulate, or take advantage of one (e.g. “I feel that people will take advantage of me”).

Emotional Deprivation - a belief that one’s emotional needs will not be satisfied (e.g. “In general, people have not been there to give me warmth, holding, and affection”)

Defectiveness - perceived defects that make one unlovable and inferior (e.g. "I'm unworthy of the love, attention and respect of others").

Social Isolation - perceiving oneself as different and isolated from others (e.g. "I don't belong, I'm a loner").

#### (ii) Impaired Autonomy & Performance

Dependence - the perception that one cannot cope without support from others (e.g. "I'm not capable of getting on in everyday life").

Vulnerability to Harm - a belief that one cannot control the threat of disaster (e.g. "I can't escape the feeling that something bad is about to happen").

Enmeshment - perceived emotional over involvement with others, due to fear that one will not cope without them (e.g. "I often feel that I don not have a separate identity from my parents or partner).

Failure to Achieve - perceived inadequacy, leading to failure to meet desired goals (e.g. I'm incompetent when it comes to achievement").

#### (iii) Other-directedness

Subjugation - desires of others are perceived as more important than one's own (e.g. "I've always let others make choices for me, so I really don't know what I want for myself").

Self-sacrifice - a belief that one should focus on other's needs, rather than one's own (e.g. I am a good person because I think of others more than of myself").

#### (iv) Over-vigilance and Inhibition

Emotional Inhibition - emotional expression is seen to have aversive consequences (e.g. "I control myself so much that people think I am unemotional").

Unrelenting Standards - a belief that one should strive to achieve impossible goals (e.g. "I must be the best at most of what I do: I can't accept second best").

#### (v) Impaired Limits

Entitlement - perception that one can act without considering others (e.g. "I'm special and shouldn't have to accept many of the restrictions placed on other people").

Insufficient Self-Control - a belief that one cannot or need not control impulses and feelings (e.g. "I have a very difficult time giving up short-term pleasures in order to reach long-term goals").

Psychometric Properties: The factor structure of the long version of the YSQ (YSQ-L) has been found to be broadly in accordance with Young's description and good levels of validity and reliability were demonstrated for the 15 EMS scales (Lee et al, 1999; Schmidt et al, 1995). In particular, Lee and colleagues (1999) demonstrated that its primary factor structure was stable across clinical samples from different countries and for varying degrees of client psychopathology, and Schmidt and associates (1995) reported an adequate test-retest reliability (average  $r = 0.76$ ).

Welburn, Corostine, Dagg, Pontefract and Jordan (2002) were the first to investigate the factor structure of the YSQ-S. Their results with a general psychiatric sample supported the 15 factor structure and Cronbach's alpha for each of the 15 scales scale ranged from 0.76 to 0.93, suggesting moderate to very good internal consistency for the 15 scales.

Two studies have reported that the YSQ-L and the YSQ-S have similar levels of internal consistency, reliability and produce equivalent results (Waller et al, 2001a; Stopa et al, 2001). Specifically, Waller and colleagues (2001a) compared the psychometric properties of the YSQ-S and the YSQ-L and reported that for each of the individual YSQ-S scales, Cronbach's alpha was greater than 0.80 in both an eating disordered and a non-clinical sample. The alpha level of 0.7 is regarded at the lower threshold for psychometric robustness of a scale (Tabachnick & Fidell, 1996). They found that neither questionnaire was superior to the other in terms of internal consistency and that the discriminant validity of the YSQ-S was found to be good with 87% of respondents correctly allocated to either a bulimic or control group. The false positive rate was 7% and false negative rate 18%. Stopa and colleagues (2001) also compared the YSQ-L and YSQ-S with a group of psychiatric outpatients. They found that the two versions of YSQ had similar internal consistency with Cronbach's alpha levels above 0.7 in all except two EMS, vulnerability to harm and dependence.

A further study found evidence for robust psychometric properties of the YSQ-S in a sample of non-clinical adolescents (Beckley & Stopa, submitted). The authors found that a 15 factor structure was supported, while each of the scales had Cronbach's alpha levels above 0.70, with a range from 0.72 to 0.91. With regard to convergent validity, each of the scales, with the exceptions of unrelenting standards and dependence, was found to have one or more significant correlations with either low self-esteem or three subscales of the Brief Symptom Inventory (BSI: Derogatis, 1993); severity of psychopathology, number of symptoms and level of psychological

distress. This suggests that the YSQ-S is a valid and reliable measure for use with adolescents.

### *2.5.3 The Trait Meta-Mood Scale (see Appendix 3)*

The Trait Meta-Mood Scale (TMMS; Salovey et al, 1995) is a 30-item measure of attitudes towards evaluating and regulating mood and feelings. There are three subscales of the TMMS, the attention subscale (13 items), which reflects the degree to which respondents' report paying attention to their feelings and moods (e.g. "The best way for me to handle my feelings is to experience them to the fullest"), the clarity subscale (11 items), which reflects the degree to which respondents report clarity and lack of confusion about their feelings (e.g. "I am rarely confused about how I feel"), and the mood repair subscale (6 items) which reflects the respondents ability to regulate their feelings (e.g. "I try to think good thoughts no matter how badly I feel"). Participants rate the items on a 5-point scale from "strongly agree" to "strongly disagree." In the present study, the score for each subscale was calculated from the mean of the items in that scale. In each case a higher score reflects a greater degree of attention, clarity or repair.

**Psychometric Properties:** In developing the scale, Salovey and colleagues (1995) reported adequate internal consistency with the Cronbach's alpha for the 30-item version for the three factors (attention, clarity and mood Repair) to be 0.86, 0.88 and 0.82 respectively. In a further study, Salovey and colleagues (2002) reported Cronbach's alphas for three samples for the attention subscale of 0.82, 0.71 and 0.88, for the clarity subscale of 0.88, 0.86 and 0.74 and for the mood repair subscale of



0.85, 0.64 and 0.86. All of these scores were above threshold for psychometric robustness for a scale (Tabachnick & Fidell, 1996), with the exception of mood repair on one sample.

A Spanish translation of a 23-item version of the scale (which had resulted from a principal components factor analysis of the 40-item version which was discussed in the study) was found to produce a three factor solution and have good internal consistency with Cronbach's alphas for the attention, the clarity and the mood repair subscales to be 0.90, 0.90 and 0.86 respectively (Fernandez-Berrocal, Extremera & Ramos, 2004). These authors also reported that test-retest correlations over a period of four weeks were satisfactory, correlations were 0.60, 0.70, 0.83 for the attention, clarity and mood repair subscales, respectively.

Good convergent and discriminant validity of the TMMS has been established by correlating it with constructs with which it should share some variance. The attention subscale has been found to be associated with private and public self-consciousness ( $r = 0.42$  and  $0.36$  respectively) but not with ambivalence over emotional expression, depression, optimism or beliefs about negative mood regulation (Salovey et al, 1995) reported that. The clarity subscale was negatively associated with ambivalence over emotional expression and depression ( $r_s = -0.25$  and  $-0.27$ , respectively). Mood repair was negatively associated with depression ( $r = -0.37$ ) and positively associated with optimism and beliefs about negative mood regulation ( $r_s = 0.57$  and  $0.53$ , respectively). This pattern of correlations supports the validity of the TMMS subscales suggests, to varying degrees, this is measures significant variance not already accounted for by these existing measures.

Although, normative research has not been done with the TMMS on an adolescent population, it has been used previously with adolescents. Latorre and Montanes (2004) used the a Spanish version of the scale on a school based sample of adolescents, while a further study used a 23-item version (which had resulted from a principal components factor analysis) with a sample of male adolescent sex offenders (Moriarty, Stough, Tidmarsh, Eger & Dennison, 2001).

#### *2.5.4 The SCOFF (see Appendix 4)*

The SCOFF (Morgan, Reid & Lacey, 1999) is a five-item screening questionnaire, which addresses the core features of anorexia nervosa and bulimia nervosa. The name is an acronym, drawn from the five items. The questions are: (1) Do you make yourself sick because you feel uncomfortably full; (2) Do you worry you have lost control over how much you eat; (3) Have you recently lost more than one stone (14lb) in a three-month period; (4) Do you believe yourself to be fat when others say you are too thin; (5) Would you say that food dominates your life. Participants respond “yes” or “no” to each of the five questions and a score of two or more suggests the presence of an eating disorder.

Psychometric Properties: Preliminary research (Morgan et al, 1999) has shown that the SCOFF has good validity in terms of its ability to discriminate eating disordered and non-clinical groups. In a sample of women with a confirmed diagnosis of either anorexia nervosa or bulimia nervosa, all had a score of two or more positive

responses. In contrast, the same score was achieved by only 12.5% of the non-clinical group who were women who definitely did not have an eating disorder. Further research with women in primary care showed that the SCOFF threshold of 2 was able to detect all anorexia and bulimia cases and seven of nine cases of eating disorder not otherwise specified, while there were 34 false positives of a sample of 328. These results demonstrated a sensitivity of 84.6% and specificity of 89.6% (Luck, Morgan, Reid, O'Brien, Brunton, Price, Perry & Lacey, 2002). The SCOFF has also been found to be equally as effective in written format as delivered orally (Perry, Morgan, Reid, Brunton, O'Brien, Luck & Lacey, 2002). This screening test has not been validated with an adolescent sample.

#### *2.5.5 The Beck Depression Inventory – Version II (see Appendix 5)*

The Beck Depression Inventory – Version II (BDI-II: Beck, Steer & Brown, 1996) is a 21 item measure of the severity of self-reported depressed mood. Each item assesses a different symptom of low mood, such as self-criticalness, inability to concentrate and loss of pleasure. Participants are required to respond to each of the items on a 4-point scale, ranging from 0, indicating a low frequency of the symptom, to 3 indicating a high frequency of the symptom. The measure takes less than 10 minutes to complete. The responses are summed to give an overall score which can range from zero to 63. The time frame for the BDI-II rating is for the “past two weeks, including today.” Thresholds for the degree of depressed mood with the BDI-II have been set with scores of zero to 13 indicating minimal depression, 14 to 19 indicating mild

depression, 20 to 28 indicating moderate depression and above 29 indicating severe depression.

**Psychometric Properties:** While the BDI-II was intended for use with both adults and adolescents, the manual does not report details regarding internal consistency, factorial validity and convergent validity for adolescent samples. However, subsequent research has demonstrated a good internal consistency and convergent validity when assessing self-reported depression in adolescents.

For example, Steer, Kumar, Ranieri and Beck (1998) administered the BDI-II to adolescent psychiatric outpatients (aged 12-18 years) and reported that the internal consistency was high with a Cronbach's alpha of 0.92 and that the cognitive and non-cognitive dimensions of the measure was similar to that found with adults (e.g. Steer, Ball, Ranieri & Beck, 1999). Further studies with adolescent psychiatric inpatients (aged 12-17 years) reported Cronbach's alphas of 0.92 (Krevet, Steer, Gulab & Beck, 2002), 0.94 (Kumar, Steer, Teitelman & Villacis, 2002) and 0.93 (Osman, Kopper, Barrios, Gutierrez & Bagge, 2004). Furthermore, Krevet, Steer and Kumar (2003) also reported a high internal consistency (Cronbach's alpha = 0.89) in clinically depressed outpatient adolescents (aged 13-17).

With regard to convergent validity, Krevet and colleagues (2002) reported a correlation between the BDI-II and a self-report depression scale specifically for adolescents (the Reynolds Depression Scale) of 0.84. Both of these measures were found to be comparably effective in differentiating between patients who were and were not diagnosed with a major depressive disorder. Osman and associates (2004)

reported correlations between the BDI-II and similar measures with which it is likely to be related for boys and girls separately. For boys they reported high significant correlations with the Beck Hopelessness Scale ( $r = 0.62$ ) and the Suicide Behaviors Questionnaire-Revised ( $r = 0.51$ ) which remained significant in both cases ( $r_s = 0.59$  and  $0.43$  respectively) when scores on the Beck Anxiety Inventory were partialled out. For girls, high significant correlations between the BDI-II and the Beck Hopelessness Scale ( $r = 0.69$ ) and the Suicide Behaviors Questionnaire-Revised ( $r = 0.60$ ) were reported, which remained when scores on the Beck Anxiety Inventory were partialled out ( $r_s = 0.59$  and  $0.43$  respectively). Kumar and colleagues (2002) also demonstrated the effectiveness of the BDI-II as a screening tool in adolescent psychiatric in-patients.

All of the above studies have reported that the mean BDI-II score of the adolescent girls was four to five points higher than the boys (Krevet et al, 2002; 2003; Osman et al, 2004; Steer et al, 1998), however, Kumar and colleagues (2002) found that this difference was as large as ten points. Additionally, all of these studies found that age was not associated with scores on the BDI-II.

In summary, the Young Schema Questionnaire and the Trait Meta-Mood Scale have been found to be valid and reliable measures of dysfunctional self-referent beliefs and emotion regulation processes respectively, the former, in particular, has been validated with adolescents. The Beck Depression Inventory-II and the SCOFF are valid screening measures of depression and eating disorders respectively, while the former is also a valid and reliable measure of depressive symptoms in clinical adolescent samples.

## *2.6 Recruitment*

### *2.6.1 Clinical samples*

Inclusion criteria: To be included in this study, individuals in both clinical groups were required to be female, between 14 and 21 years, and seeking treatment primarily for an eating disorder or depressed mood. In the case of the latter group, for inclusion the degree of depressive symptoms were required to be in or above the moderate range (a score of over 19) as assessed by the Beck Depression Inventory-II and not secondary to other problems, such as anxiety.

Exclusion criteria: Individuals were excluded if they scored above two on the SCOFF (indicating likely eating disorder), had a learning disability or other major mental health problems such as psychosis or substance abuse.

The clinical samples were recruited through the Young People's Unit at the Royal Edinburgh Hospital which is a specialist adolescent mental health service. In addition, women under 21 years of age with an eating disorder were recruited through the Cullen Centre which is a specialist eating disorders service.

Participants were recruited via their clinicians (clinical psychologists, psychiatrists, occupational therapists, social workers, psychiatric nurses, community mental health workers). Those professionals known to be involved with eating disorder and adolescent services were contacted and the study explained to them so that potential participants were able to be identified from their caseloads. Once potential participants were identified, the clinician asked the young person to consider taking

part in the study which involved completing questionnaires. If the young person was willing, they were given a research pack by the clinician containing all the materials required to take part in the study: These included:

A set of instructions to help the young person to participate (see Appendix 6)

Participant information sheet (see Appendix 7)

Parental information sheet (see Appendix 8)

Consent form (see Appendix 9)

The questionnaires (see Appendices 1 to 5)

For those participants aged under 16, informed parental consent was required. In each case, it was made clear (via a Participant Information Sheet and consent form) that participation was voluntary and that participation (or not) would have no impact on their treatment. The Parental and Participant Information Sheets also gave contact details where the parent or young person could directly ask the researcher any questions if needed. A stamped addressed envelope was available for the participants to return the questionnaires and consent form directly to the researcher to minimise the risk of the clinician influencing response unduly. In total 54 study packs were given to clinicians to pass onto identified potential participants, 21 to those with eating disorders and 33 to those with depression. Fourteen completed questionnaire packs were received back from those with eating disorders and 18 back from those with depression. Consequently, the response rate was 66.7% for the eating disorders group and 54.5% for the depression group. Five individuals from the depression group were excluded from the analyses due to scoring 2 or above on the screening measure for eating disorders

There were ethical considerations regarding the possibility that the young person might feel obliged to participate because their clinician had asked them to, and that the clinician might feel that asking them to participate may interfere with the therapeutic relationship. Consequently, the clinician was asked not to ascertain whether or not the young person had completed the questionnaires following giving them a research pack. It was felt that this method would mean that clinician and young person involvement in the study would not oblige the young person to participate and have as little interference on the therapeutic relationship as possible.

### *2.6.2 Non-Clinical Sample*

Inclusion criteria: To be included in this study, individuals were required to be female, between 14 and 21 years and not have an eating disorder, depressed mood, a learning disability or other major mental health problems such as psychosis or substance abuse.

Exclusion criteria: Individuals were excluded if they scored above two on the SCOFF (indicating likely eating disorder) or above 13 on the BDI-II (indicating at least moderate depression).

Two schools were approached for their pupils to take part in the study; a state school (Beeslack High School, Penicuik) and a private school (St Georges School for Girls). This was done so that the socio-economic profile of the sample was spread wider than with a single state or private school. The state school was approached following permission from the Education Department of Midlothian Council, while the Head Teacher of the private school was approached directly. Following permission from the



Head Teacher of each school, the research was discussed in detail with the Head Guidance Teacher so that they fully understood the nature of the study.

In both schools the Head Guidance teacher identified a group of pupils to participate in the study. Initially, informed consent was sought from parents of those under 16 years, via a Parental information sheet (see Appendix 10) and opt-out consent form (see Appendix 11). After participant information sheets (see Appendix 12) had been distributed to potential participants, a meeting between with the researcher was arranged to give an opportunity for questions, obtaining consent (see Appendix 13) and to complete the questionnaires. Potential participants and their parents also had to opportunity to phone the researcher with questions prior to this meeting. An opportunity for feedback through the school was offered for those who participated following the completion of the study.

### *2.7 Design & Procedure*

The present study was cross-sectional and comparative in design, investigating between group differences of three groups of adolescent females; eating disorder, depression and non-clinical control.

After obtaining informed consent, all participants were asked to complete the demographic questionnaire and to complete the Young Schema Questionnaire, the Trait Meta-Mood Scale and the Beck Depression Inventory. Those in the depression and non-clinical groups also completed the SCOFF to screen for the possibility of an unknown eating disorder. Those receiving treatment for an eating disorder (i.e. in the

eating disorders group) were not required to complete the SCOFF screening questionnaire.

## *2.8 Statistical Analysis*

### *2.8.1 Data Management*

Data was entered, stored and analysed using the Statistical Package for Social Sciences (SPSS). Prior to analysis all of the main variables for each of the main groups were examined through SPSS for accuracy of data entry, missing values and similarity between their distribution and the assumptions of analyses of variance.

### *2.8.2 Missing Data*

Only a few data points, less than 1%, were missing from this large data set. Mean substitution was used to complete missing data points where possible.

### *2.8.3 Preliminary Analysis*

In order to investigate the differences between the three groups on demographic and physical characteristics, and depressive symptoms, one-way between-subjects analyses of variance (ANOVA) were conducted on age, body mass index and BDI-II scores. Sheffé post hoc tests were conducted with those variables which where an overall group difference was found in order to identify any specific between group differences. A  $\chi^2$  test was conducted due to ascertain group differences with regards socio-economic status. Due to some of the socio-economic deprivation categories having zero participants in them, the categories were collapsed into high and low

socio-economic status, incorporating the first three and last three categories respectively.

#### *2.8.4 Main Analysis*

To investigate group differences in specific self-referent beliefs and emotion regulation variables, one way between-subjects ANOVAs were conducted. Based on the study hypotheses, planned contrasts were conducted comparing the eating disorder group with the non-clinical control group and with the depression group. For those self-referent beliefs where it is hypothesised that there is no difference between the eating disorder and depression group a further contrast was conducted between the two clinical groups (eating disorders and depression) combined and the non-clinical control group. Furthermore, to account for the effect of depressed mood on the self-referent beliefs and emotion regulation scores, the score on the BDI-II was entered as a covariate in one way between-subjects analyses of covariance (ANCOVAs). In these analyses, similar contrasts made to ascertain specific group differences.

#### *2.8.5 Exploratory Analysis*

In order to determine the set of variables (including depressive symptoms, self-referent beliefs and emotion regulation variables) which best differentiates the three groups, an exploratory stepwise discriminant function analysis was conducted. This analysis used the method of entering variables that minimised Wilks's Lambda at each step. In addition to the depressive symptoms (BDI-II score), those variables that were found to have significant group differences from the ANCOVAs were entered into the discriminant function analysis.

A discriminant function analysis differs from the analyses of variance in that it statistically accounts for variance that is shared between dependent variables. This is particularly important in the case of the beliefs of the Young Schema Questionnaire, many of which are highly correlated with each other and share variance (Lee et al, 1999; Schmidt et al, 1995; Welburn et al, 2002). The discriminant function analysis can highlight the variables which can most reliably distinguish the three groups, however, it is acknowledged that this analysis is exploratory and therefore has less power than ANOVAs.

### 3. RESULTS

#### 3.1 Total Sample

A total of 47 adolescent females participated in the present study. Thirteen participants with eating disorders and 13 with depression were recruited from the Young People's Unit and the Royal Edinburgh Hospital. Five of the eating disorder group were receiving in-patient treatment, the rest and all the depression group were out-patients. One further participant with an eating disorder was recruited as an out-patient from the Cullen Centre (a specialist eating disorders service) at the Royal Edinburgh Hospital. Twenty non-clinical control participants were recruited from schools.

#### 3.2 Group Characteristics

##### 3.2.1 Demographic and Physical Characteristics

###### (a) Age

The mean age of the eating disorder, depression and non-clinical control groups are shown in Table 3.2.1. Using a one way between-subjects ANOVA, the three groups were found not to differ significantly in terms of age ( $F(2, 47) = 0.718, p = 0.494$ ).

Table 3.2.1. Mean ages of the eating disorder, depression and non-clinical control groups.

	<b>Eating Disorder (n = 14)</b>	<b>Depression (n = 13)</b>	<b>Control (n = 20)</b>
<b>Age (years)</b>			
<b>Mean (SD)</b>	17.0 (1.5)	16.5 (1.1)	16.7 (1.0)

(b) Socio-economic Status<sup>4</sup>

Table 3.2.2 Socio-economic status of individuals in the eating disorder, depression and non-clinical control groups

Deprivation Category	Eating Disorder		Depression		Control	
	n	%	n	%	n	%
1	4	29¶	3	23	2	10
2	1	7	2	15	5	25
3	5	36	2	15	2	10
4	4	29¶	0	0	10	50
5	0	0	3	23	1	5
6	0	0	3	23	0	0
<b>Total</b>	14	100	13	100	20	100
<b>High</b>	10	71	7	54	9	45
<b>Low</b>	4	29	6	46	11	55
<b>Total</b>	14	100	13	100	20	100

¶ percentages that have a sum greater than 100 are due to scores being rounded up

Characteristics of the socio-economic status of each of the three groups are shown in Table 3.2.2 and Figure 1. It was evident in viewing the distributions of deprivation category scores across the three groups that they may be different. No individuals from the eating disorders group lived in areas designated in the lowest two categories, while 50% of the depression group lived in these areas. Furthermore, 50% of the control group lived in areas designated as category 4. It appears that the eating disorders group may have more individuals in higher socio-economic groups than the depressed and non-clinical control groups. However, the small sample size and the fact that some categories had no cases, meant that it was impossible to conduct a meaningful statistical analysis on the data. Consequently, categories were merged to create high and low socio-economic status groups which are also shown in Table

<sup>4</sup> Socio-economic status was estimated using the Carstairs Deprivation Index (Carstairs & Morris, 1991) which is calculated from an individual's postcode, 1 corresponds to the highest category and 6 to the lowest.

3.2.2. A  $\chi^2$  test revealed that the three groups were not significantly different in terms of how many individuals were in high or low socioeconomic categories ( $\chi^2 (2) = 2.34$ ,  $p = 0.310$ ).

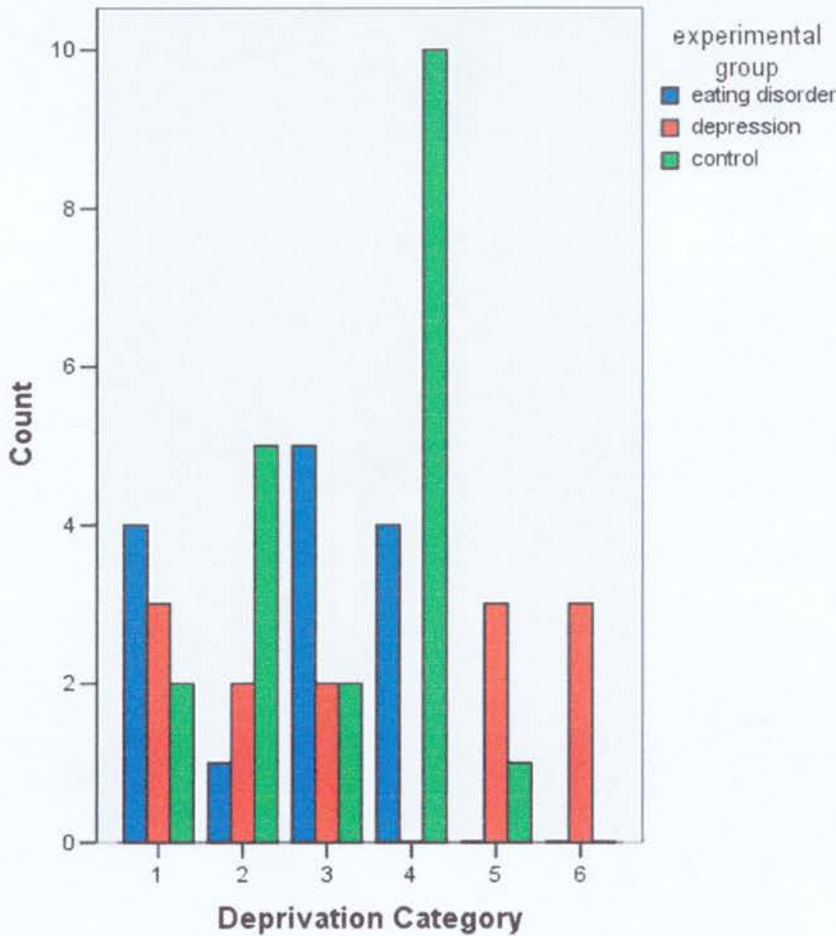


Figure 1. The distribution of the experimental groups in terms of Carstairs Deprivation Categories

*(c) Body Mass Index<sup>5</sup>*

Details related to the mean body mass index scores of the three main groups are shown in Table 3.2.3. Using a one way between-subjects ANOVA, the groups were

<sup>5</sup> Body Mass Index is calculated by dividing an individual's weight in kilograms by the square of their height in metres.

found to be significantly different in terms of body mass index ( $F(2, 39) = 7.9, p = 0.001$ ) with Scheffé post hoc tests indicating that the eating disorders group were significantly lower compared to the depressed group ( $p = 0.002$ ) but not the non-clinical control group. It should be noted that all the individuals from the eating disorders group gave details of height and weight while some from the depression and control groups did not, consequently, this calculation was based upon 10 and 15 individuals in these groups respectively.

Table 3.2.3 Mean body mass index of the eating disorder, depression and non-clinical control groups

	<b>Eating Disorder (n = 14)</b>	<b>Depression (n = 10)</b>	<b>Control (n = 15)</b>
<b>BMI (kg/m<sup>2</sup>)</b>			
<b>Mean (SD)</b>	17.7 (3.3)	22.7 (4.5)	20.6 (1.4)

Within the eating disorders group, five individuals were receiving inpatient treatment and seven were being treated on an outpatient basis. The mean body mass index scores of these two sub-groups are shown in Table 3.2.4. The in-patients had a significantly lower body mass index than the out-patients ( $t = 3.8, p = 0.002$ ). This is to be expected as low body mass index is one of the main criteria for inpatient admission.

Table 3.2.4 Mean body mass index of the in-patients and out-patients of the eating disorders group

	<b>Eating Disorders</b>	
	<b>In-patients (n = 5)</b>	<b>Out-patients (n = 9)</b>
<b>BMI (kg/m<sup>2</sup>)</b>		
<b>Mean (SD)</b>	14.5 (0.6)	19.5 (2.8)



### 3.2.2 Depressive Symptoms

The mean scores of each of the main groups on the Beck Depression Inventory-II (Beck et al, 1996) are shown in Table 3.2.5. A one way between-subjects ANOVA indicated that the three groups were significantly different on scores of depressive symptoms ( $F(2, 47) = 34.6, p < 0.001$ ). This was to be expected as the control group was screened to exclude depression. However, it was important to note that the eating disorders group and the depressed group were not significantly different in terms of depressive symptoms. It is important to note that 50% of the eating disordered individuals reported a severe level of depressive symptoms (i.e. a score of 29 or above on the BDI-II).

Table 3.2.5 Mean scores on depressive symptoms in the eating disorder, depression and non-clinical control groups

	<b>Eating Disorder (n = 14)</b>	<b>Depression (n = 13)</b>	<b>Control (n = 20)</b>
<b>BDI-II</b>			
<b>Mean (SD)</b>	29.1 (17.1)	31.4 (8.4)	4.6 (3.0)

### 3.3 Detecting Outliers and Collinearity

Box plots and scatter plots were used to check the data for outliers and collinearity.

No extreme outliers or linearity was found.

### 3.4 Skewness and Kurtosis

A check on the skewness and kurtosis for all variables for each of the eating disorder, depression and non-clinical control groups was performed. Values for skewness and kurtosis can be seen in Appendix 14. Kolmogorov-Smirnov tests were performed for

each variable in each group. No variables were found to be significantly different from a normal distribution and consequently no transformations were required for the analysis.

### *3.5 Multiple Testing and Bonferoni Corrections*

Due to the large number of dependent variables (18) and number of potential statistical analyses, a correction was made for multiple testing to reduce the possibility of making a type I statistical error. For the three specific self-referent beliefs variables in hypotheses A1 and A2 which previous findings suggested were specific to eating disorders, alpha was conservatively set at 0.01 with differences reported as near-significant or a trend with alpha at 0.02. With regards the remaining 15 variables, alpha was set at 0.001 (calculated from  $0.02/15$ ) with trend reported at 0.003 ( $0.04/15$ ). This gives an overall alpha threshold for significance of 0.05 and for a trend of 0.1.

### *3.6 Differences in Self-Referent Beliefs*

#### *3.6.1 Hypothesis A1*

**The eating disorder group will demonstrate significantly higher scores on failure, emotional inhibition and dependence beliefs than the depression and non-clinical control groups.**

The means for the eating disorder, depression and non-clinical control groups on the self-referent beliefs of failure, emotional inhibition and dependence are shown in Table 3.6.1. One way between-subjects ANOVAs were used to investigate differences

between the groups. With regard to beliefs of failure and of emotional inhibition there were significant differences across the groups. With failure beliefs planned contrasts revealed that the eating disorder group scored significantly higher than the non-clinical control group ( $p < 0.01$ ) but there was no difference between the two clinical groups. No specific differences were found between groups with beliefs of emotional inhibition, and no overall or specific differences between the groups were found with dependence beliefs.

Table 3.6.1 Comparison of the mean scores on the dependence, failure and emotional inhibition beliefs in the eating disorder, depression and non-clinical control groups.

	<b>Eating Disorder</b>	<b>Depression</b>	<b>Control</b>		
	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>F</b>	<b>p</b>
<b>FAIL</b>	3.2 (1.7)	3.6 (1.8)	1.7 (0.5)	9.8*	<0.001
<b>EMI</b>	2.8 (1.3)	3.0 (1.5)	1.8 (0.6)	5.5*	0.007
<b>DEP</b>	2.2 (1.2)	3.0 (1.8)	1.7 (0.6)	4.4	0.018

FAIL = Failure to Achieve beliefs, EMI = Emotional Inhibition beliefs, DEP = Dependence beliefs.

\* significant with Bonferoni correction setting  $p$  at 0.01

† trend with Bonferoni correction setting  $p$  at 0.02

In summary, the eating disorder group exhibited significantly stronger beliefs of failure than the non-clinical control group but not the depression group. There were no significant differences between specific group on beliefs of emotion inhibition or dependence. Therefore, hypothesis A1 is rejected.

### 3.6.2 Hypothesis A2

**The eating disorder group will demonstrate significantly higher scores on failure, emotional inhibition and dependence beliefs than the depression and non-clinical control groups after the possible effect of depressive symptoms has been accounted for.**

The mean scores, adjusted for depressive symptoms, for the eating disorder, depression and non-clinical control groups on the self-referent beliefs of failure, emotional inhibition and dependence are shown in Table 3.6.2. One way between-subjects ANCOVAs were used to investigate differences between the groups. There were no observed group differences in belief scores between the groups after depressive symptoms had been covaried for.

Table 3.6.2 Comparison of the mean scores on the dependence, failure and emotional inhibition beliefs in the three groups after accounting for depressive symptoms.

	<b>Eating Disorder</b>	<b>Depression</b>	<b>Control</b>		
	<b>Adj. mean (SE)</b>	<b>Adj. Mean (SE)</b>	<b>Adj. Mean SE)</b>	<b>F</b>	<b>p</b>
<b>DEP</b>	1.7 (0.3)	2.3 (0.4)	2.4 (0.3)	1.7	0.192
<b>FAIL</b>	2.6 (0.3)	2.8 (0.4)	2.7 (0.4)	0.2	0.852
<b>EMI</b>	2.4 (0.3)	2.4 (0.3)	2.4 (0.3)	0.0	0.992

Adj mean = adjusted means, SE = standard error, FAIL = Failure to Achieve beliefs, EMI = Emotional Inhibition beliefs, DEP = Dependence beliefs.

\* significant with Bonferoni correction setting p at 0.01

† trend with Bonferoni correction setting p at 0.02

In summary, there were no differences between the groups on beliefs of failure, emotional inhibition and dependence after the possible effects of depressive symptoms were accounted for. Therefore, hypothesis A2 is rejected.

### 3.6.3 Hypothesis B1

**Both the eating disorder and the depression groups will demonstrate significantly higher scores on abandonment and defectiveness beliefs than the non-clinical control group.**

The means for the eating disorder, depression and non-clinical control groups on the self-referent beliefs of abandonment and defectiveness are shown in Table 3.6.3. One

way between-subjects ANOVAs were used to investigate differences between the groups. In the case of these two beliefs a further planned contrast was made (clinical vs. non-clinical) in order to ascertain whether there was a difference between the combined clinical groups and the non-clinical group. With regard to abandonment beliefs, there was a significant difference across the groups and contrasts demonstrated that the non-clinical control group scored significantly lower on these beliefs than the clinical groups ( $p < 0.001$ ). There was not a significant difference between the eating disorders group and the non-clinical controls or between the two clinical groups. With defectiveness beliefs, the groups were significantly different overall with the non-clinical control group scoring significantly lower than the two clinical groups combined ( $p < 0.001$ ) and the eating disorders groups alone ( $p < 0.001$ ). Again, there was no difference found in scores between the two clinical groups.

Table 3.6.3 Comparison of the mean scores on the abandonment and defectiveness beliefs in the eating disorder, depression and non-clinical control groups.

	<b>Eating Disorder</b>	<b>Depression</b>	<b>Control</b>		
	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>F</b>	<b>p</b>
<b>ABN</b>	3.1 (1.6)	4.2 (1.5)	1.8 (0.9)	13.4*	<0.001
<b>DEF</b>	3.5 (1.8)	3.5 (1.7)	1.4 (0.4)	14.5*	<0.001

ABN = Abandonment beliefs, DEF = Defectiveness beliefs.

\* significant with Bonferoni correction setting p at 0.001

† trend with Bonferoni correction setting p at 0.003

In summary, both the eating disorder and depression groups exhibited significantly stronger beliefs of abandonment and defectiveness than the non-clinical control group. Therefore, hypothesis B1 is accepted.

### 3.6.4 Hypothesis B2

**Both the eating disorder and the depression groups will demonstrate significantly higher scores on abandonment and defectiveness beliefs than the non-clinical control group after the possible effect of depressive symptoms has been accounted for.**

The means scores, adjusted for depressive symptoms, for the eating disorder, depression and non-clinical control groups on the beliefs of abandonment and defectiveness are shown in Table 3.6.4. One way between-subjects ANCOVAs were used to investigate differences between the groups. There were no group differences on these beliefs when depressive symptoms were covaried for.

Table 3.6.4 Comparison of the mean scores on the abandonment and defectiveness beliefs in the three groups after accounting for depressive symptoms.

	<b>Eating Disorder</b>	<b>Depression</b>	<b>Control</b>		
	<b>Adj. mean (SE)</b>	<b>Adj. mean (SE)</b>	<b>Adj. mean (SE)</b>	<b>F</b>	<b>p</b>
<b>ABN</b>	2.5 (0.4)	3.4 (0.4)	2.7 (0.4)	2.4	0.102
<b>DEF</b>	2.7 (0.3)	2.5 (0.3)	2.6 (0.3)	0.1	0.870

Adj mean = adjusted means, SE = standard error, ABN = Abandonment beliefs, DEF = Defectiveness beliefs.

\* significant with Bonferoni correction setting p at 0.001

† trend with Bonferoni correction setting p at 0.003

In summary, there were no differences between the groups on beliefs of abandonment and defectiveness after the effect of depressive symptoms was accounted for.

Therefore, hypothesis B2 is rejected.

### 3.6.5 Hypothesis C1

**Both the eating disorder group and the depression group will demonstrate significantly higher scores on other self-referent beliefs than the non-clinical control group.**

Table 3.6.5 shows the means scores of the other self-referent beliefs examined by the Young Schema Questionnaire in each of the main groups. One way between-subjects ANOVAs were used to investigate differences between the groups. It is evident that there were further significant differences between the groups on beliefs other than those that were the subject of the earlier hypotheses. With beliefs of mistrust and abuse, emotional deprivation, social isolation, vulnerability to harm and subjugation significant overall group differences were found. With beliefs of unrelenting standards a trend towards an overall difference across the groups was found. However, planned contrasts revealed that there were no significant differences between the two clinical groups.

As with hypothesis B1, further planned contrasts were conducted with each belief to ascertain whether there were differences between the combined clinical groups and the non-clinical group. The combined clinical group scored significantly higher than the non-clinical control group on beliefs of mistrust and abuse, emotional deprivation, social isolation, subjugation and vulnerability to harm (all  $p \leq 0.001$ ). With all the beliefs no significant differences were found between the two clinical groups. With regard beliefs regarding enmeshment, self-sacrifice, entitlement and insufficient self-control, no significant overall group differences were found.

Table 3.6.5 Comparison of the mean scores on the remaining YSQ beliefs in the eating disorder, depression and non-clinical control groups.

	<b>Eating Disorder</b>	<b>Depression</b>	<b>Control</b>		
	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>F</b>	<b>p</b>
<b>MA</b>	2.8 (1.3)	4.4 (1.1)	1.8 (0.6)	26.1*	<0.001
<b>EMD</b>	2.2 (1.2)	3.5 (1.3)	1.5 (0.6)	17.1*	<0.001
<b>SI</b>	3.0 (1.6)	3.4 (1.3)	1.6 (0.5)	12.1*	<0.001
<b>VUL</b>	2.0 (1.1)	3.3 (1.6)	1.4 (0.5)	12.6*	<0.001
<b>ENM</b>	1.4 (0.4)	1.7 (0.8)	1.4 (0.5)	1.8	0.171
<b>SUB</b>	2.4 (1.1)	3.2 (1.7)	1.6 (0.6)	7.6*	0.001
<b>SS</b>	3.4 (0.8)	3.6 (1.2)	2.7 (0.9)	4.7	0.014
<b>US</b>	4.3 (1.5)	3.0 (1.0)	2.8 (1.0)	7.1†	0.002
<b>ENT</b>	1.9 (0.8)	2.3 (1.0)	2.3 (1.2)	0.8	0.459
<b>ISC</b>	2.5 (1.4)	3.8 (1.6)	2.8 (1.1)	3.6	0.036

MA = Mistrust and abuse beliefs, EMD = Emotional deprivation beliefs, SI = Social isolation beliefs, VUL = Vulnerability to harm beliefs, ENM = Enmeshment beliefs, SUB = Subjugation beliefs, SS = Self-sacrifice beliefs, US = Unrelenting standards beliefs, ENT = Entitlement beliefs, ISC = Insufficient self-control beliefs.

\* significant with Bonferoni correction setting p at 0.001

† trend with Bonferoni correction setting p at 0.003

In summary, there were significant differences between the two clinical groups and the non-clinical control groups on a number of beliefs. Therefore, hypothesis C1 is accepted.

### 3.6.6 Hypothesis C2

**The eating disorder, depression and non-clinical control groups will demonstrate scores on other self-referent beliefs that are not significantly different after the effect of possible effect of depressive symptoms has been accounted for.**

One way between-subjects ANCOVAs were used to investigate differences between the groups with regard the other self-referent beliefs of the Young Schema Questionnaire taking depressive symptoms into account. There was an overall group difference related to beliefs of mistrust and abuse and this was mainly accounted for



by significantly higher scores in the depression group compared to the eating disorder group ( $p < 0.001$ ). However, there was no difference between the two clinical groups and the non-clinical control group on this belief. A near-significant overall difference were found with beliefs of emotional deprivation which was also mainly due to higher scores in the depression group ( $p < 0.001$ ). No other significant differences were found.

Table 3.6.6 Comparison of the mean scores on the remaining YSQ beliefs in the three groups after accounting for depressive symptoms.

	<b>Eating Disorder</b>	<b>Depression</b>	<b>Control</b>		
	<b>Adj. mean (SE)</b>	<b>Adj. mean (SE)</b>	<b>Adj. mean (SE)</b>	<b>F</b>	<b>p</b>
<b>MA</b>	2.6 (0.3)	4.1 (0.3)	2.1 (0.3)	11.1*	< 0.001
<b>EMD</b>	1.7 (0.3)	3.0 (0.3)	2.1 (0.3)	6.5†	0.003
<b>SI</b>	2.5 (0.3)	2.7 (0.3)	2.4 (0.3)	0.3	0.741
<b>VUL</b>	1.7 (0.3)	2.9 (0.3)	1.9 (0.3)	5.0	0.012
<b>ENM</b>	1.5 (0.2)	1.8 (0.2)	1.2 (0.2)	2.3	0.108
<b>SUB</b>	2.0 (0.3)	2.6 (0.3)	2.2 (0.3)	1.4	0.268
<b>SS</b>	3.3 (0.3)	3.6 (0.3)	2.7 (0.3)	1.5	0.235
<b>US</b>	4.2 (0.4)	2.9 (0.4)	2.9 (0.4)	4.9	0.013
<b>ENT</b>	1.9 (0.3)	2.4 (0.3)	2.3 (0.3)	0.6	0.540
<b>ISC</b>	2.2 (0.4)	3.4 (0.4)	3.3 (0.4)	3.5	0.038

Adj mean = adjusted means, SE = standard error, MA = Mistrust and abuse beliefs, EMD = Emotional deprivation beliefs, SI = Social isolation beliefs, VUL = Vulnerability to harm beliefs, ENM = Enmeshment beliefs, SUB = Subjugation beliefs, SS = Self-sacrifice beliefs, US = Unrelenting standards beliefs, ENT = Entitlement beliefs, ISC = Insufficient self-control beliefs.

\* significant with Bonferoni correction setting  $p$  at 0.001

† trend with Bonferoni correction setting  $p$  at 0.003

In summary, there were differences between the groups in beliefs of mistrust and abuse and emotional deprivation when depressive symptoms were accounted for in the analyses. Therefore, hypothesis C2 is partially accepted.

### 3.7 Differences in Emotion Regulation

#### 3.7.1 Hypothesis D1

**The eating disorder group will demonstrate a significantly lower score on the tendency to attend to emotions than the depression and non-clinical control groups.**

The means scores of the eating disorder, depression and non-clinical control groups on the Attention subscale of the Trait Meta-Mood Scale are shown in Table 3.7.1. A one way between-subjects ANOVA was used to investigate differences between the groups. In viewing the table, it is evident that the non-clinical control group exhibited higher mean scores than both the clinical groups. However, from the analysis it is evident that there were no overall significant differences across the groups.

Table 3.7.1 Comparison of the mean scores on attention to emotions in the eating disorder, depression and non-clinical control groups.

	<b>Eating Disorder</b>	<b>Depression</b>	<b>Control</b>		
	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>F</b>	<b>p</b>
<b>TMMS-A</b>	3.5 (0.7)	3.6 (0.7)	4.0 (0.5)	2.6	0.089

TMMS-A = Trait Meta-Mood Scale – Attention to Emotions subscale

\* significant with Bonferoni correction setting p at 0.001

† trend with Bonferoni correction setting p at 0.003

In summary, there were no differences between the groups on attention to emotions.

Therefore, hypothesis D1 is rejected.

#### 3.7.2 Hypothesis D2

**The eating disorder group will demonstrate a significantly lower score on the tendency to attend to emotions than the depression and non-clinical control groups after the possible effect of depressive symptoms has been accounted for.**

The means scores of the tendency to attend to emotions of the three groups following adjustment for depressive symptoms are shown in Table 3.7.2. A one way between-subjects ANCOVA was used to investigate differences between the groups. No significant group differences were evident once depressive symptoms had been covaried for.

Table 3.7.2 Comparison of the mean scores on attention to emotions in the three groups after accounting for depressive symptoms.

	<b>Eating Disorder</b>	<b>Depression</b>	<b>Control</b>		
	<b>Adj. Mean (SE)</b>	<b>Adj. mean (SE)</b>	<b>Adj. mean (SE)</b>	<b>F</b>	<b>p</b>
<b>TMMS-A</b>	3.6 (0.2)	3.8 (0.2)	3.8 (0.2)	0.4	0.694

Adj mean = adjusted means, SE = standard error, TMMS-A = Trait Meta-Mood Scale – Attention to Emotions subscale

\* significant with Bonferoni correction setting p at 0.001

† trend with Bonferoni correction setting p at 0.003

In summary, there were no differences between the groups on attention to emotions following the possible influence of depressive symptoms being accounted for. Therefore, hypothesis D2 is rejected.

### 3.7.3 Hypothesis E1

**Both the eating disorder and the depression groups will demonstrate a significantly lower score on the tendency to perceive their emotions clearly and ability to repair emotions than non-clinical control groups.**

The mean scores of the three main groups with regard to clarity of emotions and mood repair are shown in Table 3.7.3. One way between-subjects ANOVAs were used to investigate differences between the groups. There were significant overall group differences with regard clarity of emotions, with the clinical groups combined

demonstrating significantly lower scores than the non-clinical group ( $p < 0.001$ ). Furthermore, the eating disorder group demonstrated significantly lower scores than the non-clinical control group ( $p < 0.001$ ) but not differently from the depression group. Significant group differences were found on mood repair, with the combined clinical groups exhibiting significantly lower scores than the non-clinical control group ( $p < 0.001$ ), however, there were no differences between specific groups.

Table 3.7.3 Comparison of the mean scores on clarity of emotions and mood repair in the eating disorder, depression and non-clinical control groups.

	<b>Eating Disorder</b>	<b>Depression</b>	<b>Control</b>		
	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>F</b>	<b>p</b>
<b>TMMS-C</b>	2.4 (0.8)	2.8 (0.9)	3.5 (0.4)	10.1*	<0.001
<b>TMMS-M</b>	3.1 (1.0)	2.3 (1.0)	4.0 (0.6)	15.9*	<0.001

TMMS-C = Trait Meta-Mood Scale – Clarity of Emotions subscale, TMMS-M = Trait Meta-Mood Scale – Mood Repair subscale.

\* significant with Bonferoni correction setting  $p$  at 0.001

† trend with Bonferoni correction setting  $p$  at 0.003

In summary, the two clinical groups demonstrated significantly lower scores on both clarity of emotions and emotion repair than the non-clinical control group. Therefore, hypothesis B1 is accepted.

### 3.7.4 Hypothesis E2

**Both the eating disorder and the depression groups will demonstrate a significantly lower score on the tendency to perceive their emotions clearly and ability to repair emotions than non-clinical control groups after the possible effect of depressive symptoms have been accounted for.**

The mean scores on the clarity to emotions and mood repair subscales for the three main groups that have been adjusted to account for depressive symptoms are shown in

Table 3.7.4. One way between-subjects ANCOVAs were used to investigate differences between the groups. As with the many of the previous results, there were no significant group differences when depressive symptoms had been controlled for.

Table 3.7.4 Comparison of the mean scores on clarity of emotions and mood repair in the three groups after accounting for depressive symptoms.

	<b>Eating Disorder</b>	<b>Depression</b>	<b>Control</b>		
	<b>Adj. Mean (SE)</b>	<b>Adj. mean (SE)</b>	<b>Adj. mean (SE)</b>	<b>F</b>	<b>p</b>
<b>TMMS-C</b>	2.6 (0.2)	3.0 (0.2)	3.2 (0.2)	2.2	0.127
<b>TMMS-M</b>	3.3 (0.3)	2.5 (0.3)	3.7 (0.3)	4.4	0.018

Adj mean = adjusted means, TMMS-C = Trait Meta-Mood Scale – Clarity of Emotions subscale, TMMS-M = Trait Meta-Mood Scale – Mood Repair subscale.

\* significant with Bonferoni correction setting p at 0.001

† trend with Bonferoni correction setting p at 0.003

In summary, no specific differences were found between the groups on either clarity of emotions or emotion repair after the possible influence of depressive symptoms had been accounted for. Therefore, hypothesis E2 is rejected.

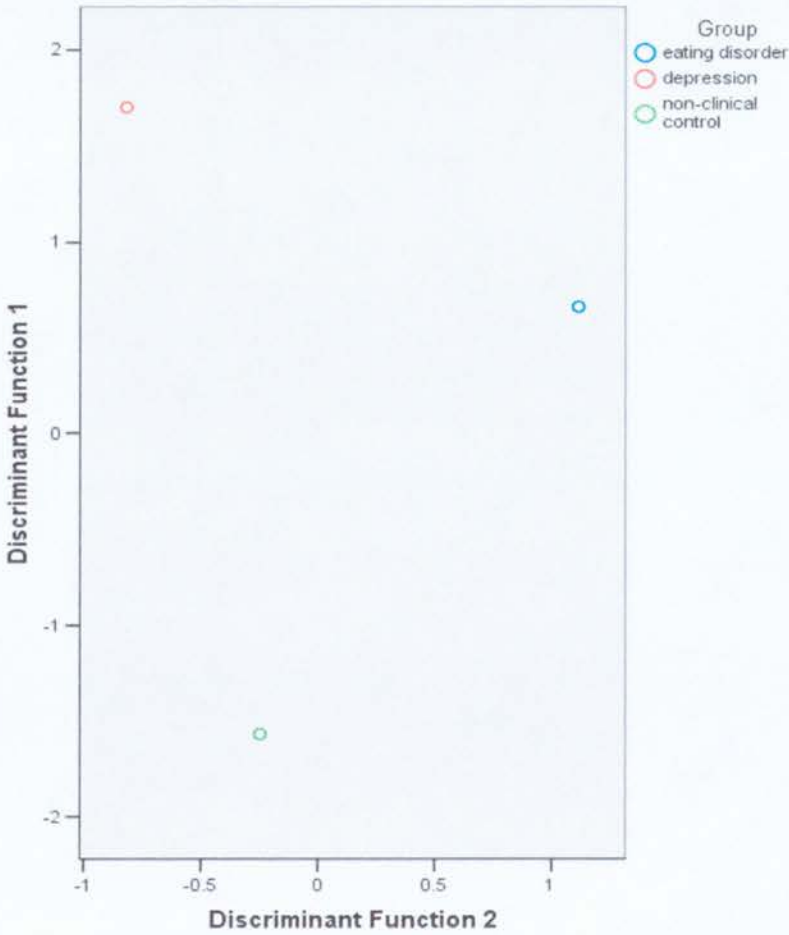
### 3.8 Predicting Group Membership

An exploratory discriminant function analysis was performed to ascertain which set of variables might best be able to distinguish the three main groups, namely eating disorder, depression and non-clinical control groups. It was decided that depressive symptoms (BDI-II scores) would be entered into the analyses as a predictor as previous analyses had suggested that it accounted for a large proportion of the variance between the groups. Additionally, the aim was to see which other variables would contribute to the variance in addition to depressive symptoms. Those self-referent beliefs and emotion regulation variables which were to be included in the analysis as predictors were required to have some unique variance that was not

accounted for by depressive symptoms, and have some distinguishing ability between the groups. It was decided that four variables were to be entered into the analysis alongside depressive symptoms as predictors: mistrust and abuse beliefs, emotion deprivation beliefs, vulnerability to harm beliefs, and unrelenting standards beliefs. These were chosen because they were either able to demonstrate significant differences between the groups or were considered to have potential to bring unique variance to the analysis due to the adjusted mean scores of the groups suggesting independence from depressive symptoms. Emotion repair was also included as this was the emotion regulation variable most able to demonstrate differences between the groups.

These variables were entered into the discriminant function analysis using a stepwise method which aims to minimise Wilks's Lambda at each step. Two discriminant functions were calculated (Wilks's  $\lambda = 0.20$ ,  $\chi^2(6) = 69.6$ ,  $p < 0.001$ ). After removal of the first function, there were strong associations between groups and predictor variables (Wilks's  $\lambda = 0.62$ ,  $\chi^2(2) = 20.8$ ,  $p < 0.001$ ). The first function (eigen value = 2.12) accounted for 77% of the between group variability and consisted of strong positive loadings for BDI-II score (0.72) and mistrust and abuse beliefs (0.55). The second function (eigen value = 0.62) explained 23% of the between group variability and consisted of positive loadings from unrelenting standards beliefs (0.797) and BDI-II score (0.46), and negative loadings from mistrust and abuse beliefs (-0.74). As shown in Figure 2, the first discriminant function maximally separated the non-clinical control group (-1.6) from the two clinical groups (eating disorder group = 0.7, depression group = 1.7). The second discriminant function discriminated the eating disorder group (1.1) from the depression (-0.8) and non-clinical control groups (-0.2).

In particular, beliefs of unrelenting standards, which loaded highly on factor two, appeared to discriminate the eating disorder group from the depression and non-clinical control groups.



Note: Discriminant function 1 = depressive symptoms, beliefs of mistrust and abuse  
Discriminant function 2 = depressive symptoms, beliefs of unrelenting standards, beliefs of mistrust and abuse (negative loading)

Figure 2. Plots of the three groups centroids which load on the two discriminant functions.

Overall, this analysis correctly allocated 87.2% of the participants to the appropriate group, shown in Table 3.8.

Table 3.8. Ability of the two discriminant functions the predict group membership

	<b>Predicted Group Membership</b>					
	<b>Eating Disorder</b>		<b>Depression</b>		<b>Control</b>	
	<b>N</b>	<b>%</b>	<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>
<b>Actual Group Membership</b>						
<b>Eating Disorder</b>	10	71.4	2	14.3	2	14.3
<b>Depression</b>	2	15.4	11	84.6	0	0.0
<b>Control</b>	0	0.0	0	0.0	20	100.0



## 4. DISCUSSION

### *4.1 Summary of Results.*

The present study set out to investigate dysfunctional self-referent beliefs and emotion regulation in female adolescents with eating disorders compared to those with depression and a non-clinical control group.

The results suggested that, contrary to the hypotheses, strong beliefs of failure, dependence and emotional inhibition were not found to be held by the eating disorders group independently of depressive symptoms. With regard other self-referent beliefs, in general any differences observed between the eating disorders group and the comparison groups were accounted for by differences in depressive symptoms. Somewhat in contrast, an exploratory analysis indicated that the eating disorders group could be distinguished from the comparison groups by strong beliefs of unrelenting standards, while both the clinical groups were discriminated from the non-clinical controls by beliefs of mistrust and abuse and high levels of depressive symptoms.

The results of the emotion regulation measure suggested that, contrary to the hypotheses, the eating disorders group did not display a lesser tendency to attend to their emotions compared to the comparison groups. Furthermore, both the clinical groups had a greater difficulty in perceiving their emotions clearly and repairing their mood, however, this was attributable to the differences in depressive symptoms.

The theoretical implications of the main findings are discussed in the context of previous research with eating disorders. The clinical implications of the study are also discussed with suggestions for future research.

#### *4.2 Self-Referent Beliefs and Eating Disorders*

The present study found that strong beliefs of unrelenting standards were able to discriminate the eating disorders group from the other two groups. This finding supports much previous research with perfectionism in those with eating disorders (e.g. Franco-Paredes, Mancilla-Diaz, Vazquez-Arevalo, Lopez-Aguilar & Alvarez-Rayon, 2005). The eating disorder group, in addition to the depression group, exhibited strong beliefs of mistrust and abuse. It is speculated that there may be an interaction between the occurrence of these beliefs that might explain the development of disordered eating in adolescent females. These findings are different from the previous research with Young Schema Questionnaire which has mostly investigated adult samples. Possible reasons for the differences are discussed.

##### *4.2.1 Beliefs of Unrelenting Standards and Eating Disorders*

Although the present study did not find significant differences between the eating disorders group and the comparison groups on the belief that one must maintain the highest of personal standards, this belief was found to reliably distinguish the eating disorders group from the comparison groups in the exploratory analysis. This belief is similar to the concept of perfectionism, which has been acknowledged for many years as a characteristic in anorexia nervosa (Bruch, 1973, Slade, 1982), but has only more recently been recognised in bulimia nervosa (e.g. Heatherton & Baumeister, 1991; Meyer & Gillings, 2004). Indeed, the important role of perfectionism has been

demonstrated by the existence of a specific subscale in the Eating Disorders Inventory (EDI-2; Garner, 1991).

The findings of the present study provide support for the large number of studies that have linked perfectionism and eating disorders (see Franco-Paredes et al, 2005 for review). However, previous research with the Young Schema Questionnaire has not found that beliefs of unrelenting standards have been so consistently linked with eating disorders, with only a few studies reporting significant effects (Meyer & Gillings, 2004; Overton et al, 2005; Waller et al, 2000; 2001a). As the present findings were in an adolescent sample, the results also support studies which have found that perfectionism in adolescence is a risk factor in the development of eating disorders (Bulik, Sullivan, Fear & Pickering, 2000; Fairburn, Cooper, Doll & Welch, 1999; Sassaroli & Ruggiero, 2005; Tyrka, Waldron, Graber & Brooks-Gunn, 2002). Additionally, research has suggested that perfectionism in eating disorders is a stable trait characteristic as it has been shown to precede onset (Tyrka et al, 2002) and persist in those who have recovered (Bastiani, Rao, Weltzin & Kaye, 1995; Srinivasagam, Kaye, Plotnicov, Greeno, Weltzin & Rao, 1995). It has been suggested that persistence of perfectionism and associated rigid thinking means that individuals might find it hard give up on their eating disorder or engage in treatment for fear of failure (Sutandar-Pinnock, Woodside, Carter, Olmsted & Kaplan, 2003).

Young (1999) suggests that the development of beliefs of unrelenting standards (and hence perfectionism) may be attributable to criticism within early relationships where the individual is made to feel deficient in some way. In order to avoid further criticism, the individual aims for the highest standards. Eventually, these standards are

internalised in the form of self-referent beliefs. This suggests that feelings or beliefs of deficiency or defectiveness, found to be strong in the eating disorders group but not independent of depressive symptoms, may be important. In the present study, the measure of unrelenting standards which characterised the eating disorder group consisted of items which assessed the respondents propensity to set rigid, unrealistic standards for herself, to strive to meet those standards, and to associate lack of complete success with utter failure. Furthermore, such individuals are likely to have difficulty meeting the demands of adolescence which include adjusting to physical changes to body shape which then often does not fit the stereotypical thin frame that equates to the “feminine ideal” (Tyrka, Graber & Brooks-Gunn, 2000), as well as other tasks of adolescence such as developing a sense of mastery and establishing close relationships. Consequently, these individuals are likely to have great difficulty with the demands of adolescence, and a rigid and perfectionistic approach to dieting may lead to the development of an eating disorder.

#### *4.2.2 Beliefs of Mistrust and Abuse, and Eating Disorders*

The analyses of covariance and discriminant function demonstrated that, in addition to depressive symptoms, the presence of beliefs of mistrust and abuse were largely characteristic of the depression group but also, to a lesser degree, the eating disorders group. The depression group was distinguished from the two other groups by very high levels of these beliefs, while the eating disorder group was discriminated from the non-clinical control group by moderately high scores.

It has been hypothesised by Young (1999) that the development of beliefs of mistrust and abuse are the consequence of an early abusive environment. The finding that

these beliefs characterise both the clinical groups is consistent with previous research which has demonstrated the association between childhood experiences of mistrust and abuse with depression (e.g. Andrews, 1995; Andrews & Brown, 1988; Bagley & Ramsey, 1985; Burnham, Stein, Golding, Siegel, Sorensen, Forsythe & Telles, 1988; Holmes & Robins, 1987) and eating disorders (Andrews, Valentine & Valentine, 1995; Meyer & Gillings, 2004; Murray, Waller & Legg, 2000; Root & Fallon, 1989). Power and Dalgliesh (1997) suggested that individuals with a history of childhood abuse or neglect may experience anger, shame and disgust towards the self or the body as particularly aversive and intolerable. It has also been suggested that women who have been sexually abused in childhood develop feelings of inferiority and disgust about their own femininity and sexuality which may be expressed in concern with body image, leading to an eating disorder (Oppenheimer, Howells, Palmer & Challoner, 1985). Furthermore, a number of studies have demonstrated that bodily shame was a mediator between abuse and eating disorders, particularly bulimia nervosa (Andrews, 1995; 1997). It is possible that the mistrust and abuse beliefs that were found to characterise the eating disorders group are manifest through feelings of shame related to the self and body shape. Particularly during adolescence, when the body is developing and changing (i.e. hips widening, waist thickening) these feelings of shame may be felt more acutely and lead to disordered eating attitudes and behaviours, such as diet restriction and purging.

#### *4.2.3 Beliefs of Unrelenting Standards, Mistrust and Abuse, and Eating Disorders*

The finding that both the clinical groups exhibited beliefs of mistrust and abuse, but that only the eating disorders group also reported strong beliefs of unrelenting standards, leads to speculation as to how these beliefs might interact in this group. As

suggested above, beliefs of unrelenting standards may be developed in response to early critical relationships, but also beliefs of mistrust and abuse developed through early abusive experiences. This concept is similar to the process of schema compensation proposed by Young (1999), where individuals adopt maladaptive coping mechanisms or behaviours in order to avoid having dysfunctional self-referent beliefs triggered. In particular, Young suggested that beliefs of unrelenting standards (which tend to develop later in childhood) are compensatory and may be developed in response to the existence of other beliefs, such as defectiveness or abuse (which can develop earlier in childhood). It is likely, as suggested, that the early lives of the individuals in both clinical groups were characterised by abusive and critical experiences. However, it may be speculated that the two groups might be distinguished by the coping mechanisms that they adopted to manage aversive emotions related to this early environment and associated beliefs. It may be that those individuals who later go on to develop an eating disorder are distinguished from those who develop depression by the adoption of a strategy by which they strive for perfection in order to prevent further criticism and abuse from others. In particular, perfectionism may be sought in relation to body shape which, as suggested above, may be a source of shame and unpleasant emotions for these individuals. However, striving for perfection is ultimately a maladaptive strategy and individuals may use disordered eating behaviours as a means of managing the distress caused when they inevitably fail to meet these high standards. This suggestion is speculative but there are a number of researchers who have suggested similar concepts (Graber et al, 1994; Heatherton & Baumeister, 1991).

#### *4.2.4 Differences from the Previous Research*

The salience of specific beliefs of unrelenting standards and mistrust and abuse in the present study contrasts with much of the previous research with the Young Schema Questionnaire. This may be due to the main differences between the methodologies of the present and previous studies. The present study has investigated a clinical adolescent sample and recruited a general eating disorder group rather than a group with a specific diagnosis or behaviour. There are a number of reasons why there may be differences from previous research which have tended to report that beliefs of failure, emotional inhibition and dependence were specific to eating disordered individuals.

##### *(i) Adolescent Clinical Sample*

The present study is one of a few that has looked at the link between self-referent beliefs and disordered eating attitudes in adolescents. Investigating adolescence in this context is important in order to gain insight into the influence of developmental factors on the onset of eating disorders which happens most often during this period (e.g. McCabe et al, 1996). For example, it may be that with the development of greater awareness during adolescence, of both physical appearance and other people's opinions of themselves, those individuals who go on to develop eating disorders strive for perfection to prevent perceived criticism or abuse and consequent negative affect. The over-valued concern regarding the opinion of others during adolescence compared adulthood underlines that the appearance of one's physical self and character may be particularly important, which is why unrelenting standards were so salient in the present findings with adolescents compared to the findings of other studies with adults.

*(ii) A Sample with Clinically Significant Problems*

The present study is unique in examining self-referent beliefs in adolescents who were being treated for clinically significant problems. Other studies which have investigated the relationship between self-referent beliefs and sub-clinical disordered eating behaviours and attitudes in non-clinical samples (e.g. Cooper et al, 2005; 2006). This distinction is particularly important as some researchers have suggested that rather than being on a continuum, the disordered eating symptoms experienced by those with clinically significant problems and those sub-clinically in the general population are categorically distinct (Polivy & Herman, 1987; Shisslak, Crago & Estes, 1995). Consequently, conclusions arrived at with non-clinical adolescent samples may not strictly apply to, or be compared to, clinical samples or relate to the development of a clinical significant problem.

*(iii) The Influence of Restrictive Behaviours*

It is evident that many previous studies have focused their attentions on the diagnosis of bulimia nervosa or bulimic behaviours, to the relative neglect of anorexia nervosa and restrictive behaviours (e.g. Waller et al, 2001b; 2002). The present study investigated a group of adolescents with eating disorders rather than particular diagnoses under the premise that this group was defined by the presence of clinically dysfunctional cognitions about food, weight and body shape which is a feature common to all eating disorders (Cooper, 1997). The sample contained five individuals (over 35% of the sample) who were receiving inpatient treatment on the basis of having a low body mass index and exhibiting severe restrictive eating behaviours. If, as hypothesised, specific links exist between self-referent beliefs and disordered



eating behaviours, then this large proportion of the sample with restrictive behaviours may account for some of the discrepancy between the present study and previous research. However, beliefs related to both unrelenting standards and mistrust and abuse have also been reported in bulimia nervosa (Heatherton & Baumeister, 1991; Meyer & Gillings, 2004) and clear distinctions between bulimic and restrictive behaviours are difficult to draw due to the heterogeneity of eating disorder symptoms across individuals. Furthermore, it has been suggested that symptoms of eating disorders tend to change over time and with age (Milos et al, 2005), to the extent that anorexia nervosa has been described as the 'adolescent' eating disorder before the development of the 'adult' problem of bulimia nervosa (Eddy, Keel, Dorer, Delinsky, Franko & Herzog, 2002). The different stages of the eating disorder may be reflected in the difference between the present adolescent sample and adult samples of previous studies. Consequently, although a large proportion of the present sample demonstrated severe restricting behaviours it is more likely that the differences between the present findings and those of previous studies are due to the developmental factors of adolescence.

#### *4.2.5 Summary*

It is speculated that those who go on to develop eating disorders are distinguished from those who become depressed by the development of high perfectionist standards in an apparent attempt to manage feelings of abuse and criticism from childhood. These perfectionist standards become applied to weight and body shape during adolescence when these physical attributes are changing. It is further speculated that the developmental issues important in adolescence may be a source of some of the difference between the present study and previous research, generally with adults.

Other areas of differences included the use of clinical samples and the investigation of a general eating disorder sample as opposed to a particular diagnostic category.

#### *4.3 Emotion Regulation and Eating Disorders*

The present study found that the eating disorders group did not demonstrate a reduced tendency to attend to emotions compared to the others groups. This finding contrasts with the proposed mechanisms by which disordered eating behaviours may be linked to the reduction in awareness of aversive emotions (Heatherton & Baumeister, 1991; Lacey, 1986; Root & Fallon, 1989). However, a significant tendency for the clinical groups to perceive their emotions less clearly was found, although this was not independent of depressive symptoms. This supports previous research suggesting that although individuals with eating disorders exhibit a difficulty in identifying and describing feelings, such as with alexithymia, this is attributable to comorbid depressive symptoms (Corcos et al, 2000; Eizaguirre et al, 2004). A significant difference across the groups in the ability to repair or regulate emotions was found but, again, this was not independent of depressive symptoms. The non-clinical control group had highest scores, the eating disorder group next and depression group with the lowest. This supports previous research suggesting that individuals who score highly on emotion repair experience lower psychological distress (Fernandez-Berrocal et al, 2001; Gohm & Clore, 2002; Goldman et al, 1996).

These results suggest that the three experimental groups demonstrate differing tendencies on the three aspects of their meta-experience of mood (i.e. attention, clarity and mood repair). Specifically, for the eating disorders group these results suggest the hypothesis that these individuals exhibit a general trait aimed at reducing awareness

of their emotions is too simplistic. The presence of comorbid problems, such as depression and anxiety disorders, suggests that eating disordered individuals engage in processes such as rumination and worry, which have been found to be maintaining processes in depression and anxiety in adolescents (Muris, Roelofs, Meesters & Boomsma, 2004). More specifically, eating disordered individuals have been shown to display obsessive thoughts and worry over food, weight and body shape (e.g. Turner & Cooper, 2002) and obsessive-compulsive disorder, in particular, is a common problem in those with eating disorders (Shafran, Bryant-Waugh, Lask & Arscott, 1995). Furthermore, the results from the present study show that, although attending to emotions equally, the individuals with eating disorders perceived their emotions with less clarity than non-clinical controls. Researchers have suggested that if one is not able to identify the emotion that one is experiencing, then one cannot choose an effective coping or regulation mechanism (Sim & Zeman, 2004). Therefore, it may be that individuals use disordered eating behaviours to attempt to reduce awareness of those emotions that they are unable to perceive clearly, identify or label. This is consistent with the research which has found that eating disordered individuals have difficulties in identifying and describing feelings, such with alexithymia (e.g. Bourke et al, 1992; Cochrane et al, 1992; Jimerson et al, 1994) and with awareness of emotion (Sim & Zeman, 2004). Additionally, it has been suggested that binge eating, purging and restriction were used as strategies to regulate emotional states that the individual had difficulty identifying (Leon, Fulkerson, Perry & Early-Zald, 1995; Leon, Fulkerson, Perry, Keel & Klump, 1999).

The present study is different from much of the previous research with emotion regulation (including meta-mood and alexithymia) in that the participants are

adolescents. It may be important to consider, as with findings with self-referent beliefs, that there may be differences in the way in which adolescents and adults evaluate and regulate their emotions. This may be reflected in emotional experience in eating disorders in adolescence and it might be suggested that emotional development during adolescence involves a greater tendency to attend to emotions with a view to a greater understanding of the experience. This may explain why the non-clinical control group scored higher, although not significantly than the two clinical groups. This is supported by the suggestion that behavioural correlates of eating disorder symptoms are influenced by developmental status, such that different factors are relevant to symptoms in early adolescence than to symptoms in older adolescence or adulthood (Marcus & Kalarchian, 2003).

#### *4.4 Depression in Adolescents with Eating Disorders*

The high levels of depressive symptoms in the eating disorders group demonstrated the high degree of comorbidity and the difficulty in identifying beliefs specific to eating disorder symptomatology rather than depression. Indeed, the eating disorder and depression groups had similar levels of depressive symptoms and 50% of the eating disordered individuals reported a severe level of depressive symptoms (i.e. a score of 29 or above on the BDI-II). The results of the present study confirm the important influence of the association between depressive symptoms and self-referent beliefs as many differences were non-significant after these symptoms were statistically controlled for. The present study is different from many of the previous studies as the design included a depressed clinical control group to account for the possibility that self-referent beliefs were linked with general psychopathology. Also, the possible confounding influence of depressive symptoms was accounted for in the

statistical analyses. Consequently, the findings of the importance of beliefs of mistrust and abuse and unrelenting standards have greater significance due as they were independent of depressive symptoms.

However, it is possible that by removing the effect of depressive symptoms from the analyses, an integral aspect of eating disorders in adolescence is also being removed. Research has demonstrated the importance influence of depressive symptoms on eating disorders in adolescence. As suggested above, behavioural correlates of eating disorder symptoms may be influenced by developmental status, with different behaviours relevant to symptoms in early adolescence than to symptoms in older adolescence or adulthood (Marcus & Kalarchian, 2003). However, negative affect has been found to be a relatively consistent predictor of disordered eating (and bulimic symptoms in particular) in adolescence and adulthood (Greenberg & Harvey, 1987; Stice, 2001; Stice & Agras, 1998; Stice, Killen, Hayward & Taylor, 1998). A number of studies have reported that the occurrence of depression during early adolescence contributes to the development of eating disorders later in adolescence or early adulthood (Johnson et al, 2002; Zaider et al, 2000; 2002). Furthermore, as discussed above, it has been suggested that disordered eating behaviours are an attempt to reduce awareness of negative affect (Heatherton & Baumeister, 1991; Lacey, 1986, Root & Fallon, 1989), while others have speculated that this may be due to failing to achieve the high standards that they set themselves (Graber et al, 1994; Heatherton & Baumeister, 1991). It seems therefore that the relationship between eating disorders and depressive symptoms is a complex one. Further research is required to elucidate the nature of this relationship, particularly in the context of adolescent development.

#### *4.5 Clinical Implications and Further Research*

The findings of the present study have a number of implications for clinical interventions with individuals with eating disorders regarding the role of perfectionism in maintenance of symptoms, the important influence of comorbid depressive symptoms and the ability to adaptively regulate aversive emotions. The limitations of the present study are also discussed with suggestions for further research.

The present study found that beliefs that one must maintain the highest of personal standards is a specific self-referent belief to adolescent females with eating disorders. The importance of self-referent beliefs and clinical perfectionism in the onset and maintenance of eating disorders has been detailed by recent cognitive models (Cooper et al, 2004; Fairburn et al, 2003; Shafran, Cooper & Fairburn, 2002). Consequently, addressing this belief using a schema-focused approach may prove a fruitful area of intervention for eating disorders. Therapeutic techniques by which this is done have been detailed (Padesky, 1994; Young, 1999) and a therapeutic focus on perfectionism has been demonstrated to be effective on disordered eating behaviours (Shafran, Lee & Fairburn, 2004) and other problems (Shafran & Mansell, 2001). However, the important influence of developmental issues need to be considered as the results found in the present study appear to be different from previous research with adults. It may be that interventions for adults are not necessarily appropriate for adolescents. Furthermore, the presence of beliefs of mistrust and abuse in those with eating disorders may need to be addressed as they may influence the development of the therapeutic relationship and may also be subject to schema-focused work. Further research to establish whether the salience of perfectionism is related to the age and

developmental stage of the participants would be appropriate, whether this trait may be a risk factor in younger children, and whether perfectionism itself is an appropriate target for intervention.

It is possible to speculate about the development of beliefs of unrelenting standards as a compensation mechanism related to beliefs of mistrust and abuse. It may be appropriate for further research to investigate schema processes, such as compensation and avoidance, in those with eating disorders using the Young-Rygh Avoidance Inventory (Young & Rygh, 1994) or the Young Compensation Inventory (Young, 1998b). These are newly developed measures informed by Young's (1999) schema-focused model, however, little research has been done to psychometrically validated them as yet (Spranger et al, 2001). It may also be important to investigate whether there are any links between particular eating disorder behaviours or attitudes and beliefs of unrelenting standards or other self-referent beliefs in adolescents. Specific symptoms were not assessed in the present study so this could not be done.

The present study found that individuals with eating disorders displayed a high level of comorbid depressive symptoms as well as exhibiting a difficulty in perceiving their emotions clearly. Prospective research has suggested that depressive symptoms in early adolescence may be a risk factor for the later development of disordered eating behaviours (Johnston, et al, 2002; Zaider et al, 2000; 2002), possibly as a means of managing these symptoms (Leon et al, 1995; 1999). These studies suggest that interventions that focus upon developing a greater ability to identify and describe their emotions, particularly depressive symptoms, with view to developing more adaptive means of regulating emotions, may be beneficial in adolescents with eating disorders.

Psychological interventions related to awareness of emotional experience, such as alexithymia, have been devised (Apfel-Savitz, Silverman & Bennett, 1977; Fukunishi, Ichikawa, Ichikawa & Matsuzawa, 1994; Kennedy, 2002; Swiller, 1988) but have had mixed results with eating disorders (Becker-Stoll & Gerlinghoff, 2004; Bourke, Taylor & Crisp, 1985; Clyne & Blampied, 2004).

The present study used the Trait Meta-Mood Scale to assess reflection upon, and regulation of, general emotions and moods, however, it appears that it was not specific enough to assess responses to different emotions. Further research may need to investigate whether specific emotions, such as anger and shame, may lead to the possible use of disordered eating behaviours to manage the affect, or whether intensity of emotion is the crucial factor. The differences between the emotional experience of adolescents and adults may be a further area that might ascertain factors involved in development of eating disorders in adolescence. Furthermore, possible differences between the way in which adolescents and adults evaluate and regulate their emotions needs to be investigated. It is possible that emotional development during adolescence may involve the tendency to attend to emotions with a view to a greater understanding of the experience. This may explain why the non-clinical control group scored higher, although not significantly than the two clinical groups.

The present study did not address the regulation of positive emotions. This is an area generally neglected by research but it has been suggested that positive emotions play a powerful motivating and reinforcing role in the maintenance of eating disorders (Garner & Bemis, 1982; Overton et al, 2005; Vitousek & Ewald, 1993). It may prove



interesting to investigate how individuals regulate positive emotions in addition to negative.

The present study has been useful in providing some insight into the self-referent beliefs and emotion regulation strategies that adolescent females with eating disorders exhibit. It has provided some evidence to support therapeutic approaches which target perfectionist beliefs, as well as adaptive ways to manage aversive emotions. It has highlighted the need to consider developmental issues as it appears that the cognitive and emotional process in eating disorders in adolescence is different from that in adults.

#### *4.6 Limitations of the Present Study*

In the present study, the number of variables subject to statistical analyses was large. Consequently, an adjustment for multiple testing was made to avoid the possibility of making a type I statistical error (i.e. rejecting the null hypothesis when it is true). Less conservative thresholds of statistical significance were set for the three self-referent beliefs that had been highlighted from previous studies to be specific to eating disorders (failure, emotional inhibition and dependence). The variables which became salient in the present study, beliefs of unrelenting standards and mistrust and abuse, were not related to a specific hypothesis and, therefore, subject to a more conservative alpha level. The adoption of this approach suggests that the likelihood of making a type I error was small.

It is important to note that the power analysis of the present study was based upon a belief variable (dependence beliefs) which did not differentiate the eating disorder

groups from the comparison groups as hypothesised. If the data regarding beliefs of mistrust and abuse were used from Waller and colleagues (2001b) study to recalculate the power for the present study it would be similar.

The cross-sectional design of the present study meant that the causal influences of variables on each other can only be the subject of speculation. Longitudinal research is needed to be able to support the causal links between variables and in many cases the influences may be bi-directional. Furthermore, although the size of the current sample was only one less than the number suggested by a power calculation, the unequal sizes of the groups will have tested the robustness of the statistical analyses conducted and, as such, the result should be viewed with some caution.

The design of the present study only included female participants, consequently, the findings should be applied to males with eating disorders with caution. The overwhelming majority of individuals with eating disorders are female and for ease of recruitment and to avoid any confounding influences of gender no males were included in any of the groups.

The socio-economic status of participants was assessed using Carstairs Deprivation Categories (Carstairs & Morris, 1991). However, due to the large number of categories and the distribution of individuals within them, it was difficult to control for this variable. Although, there appeared to be no differences between the groups on a simple dichotomous high versus low category comparison, the distribution suggests that the groups may have been different. Socio-economic status has influences on individuals in terms of their mental health and in the case of eating disorders there is

some evidence that of a greater prevalence in higher social categories (e.g. McClelland & Crisp, 2001). McClelland and Crisp (2001) suggested that the bias towards higher social classes reflects a conflict between social class related family values or attitudes and adolescent turbulence within the family. If self-referent beliefs and emotion regulation strategies are also formed within the context of the family, then social class may have an influence. Consequently, the findings of the present study should be considered in the context of a possible difference between the groups in socio-economic status.

Depressive symptoms were assessed in all the groups and were covaried for in the statistical analyses. However, anxiety disorders are also found in those with eating disorders and found to be linked with self-referent beliefs (e.g. Calvette et al, 2004) and cognitive strategies aimed at regulating emotion (Muris, et al, 2004) but were not assessed in the present study. It is possible that the findings may be influenced by anxiety symptoms and further research should take these into consideration.

The self-report nature of the measures used in the present study have their own inherent limitations. While adolescents are acknowledged to be valid reporters of their own emotions and beliefs (Sourander, Helstela & Helenius, 1999), the possible influence of the eating disordered and depressive symptoms on self-report need to be acknowledged. It has been suggested that individuals with eating disorders are poor reporters of their own experiences and that they may be influenced by deliberate distortion, inadvertent distortion or overcompliance (Vitousek, Daley & Heiser, 1991). In the present study influences over self-report in those with eating disorders may include; secrecy over their true feelings; denial of any unpleasant beliefs about

themselves that they do not want to acknowledge to themselves or others; and the desire to present themselves in a positive light as part of their perfectionist attitudes. Consequently, it may be easier for adolescents with an eating disorder to admit that they strive for perfection rather than being defectives or a failure in some way. Additionally, the possible effect of emaciation and starvation on the cognitive function of those with low body mass indexes may influence the ability to understand and consider response to the questionnaire items (Fowler, Blackwell, Jaffa, Palmer, Robbins, Sahakian & Dowson, 2005).

The influence of depressed mood on the completion of self-report measures must also be considered. In a non-clinical adult sample, Stopa and Waters (2004) found that greater scores on defectiveness and emotional deprivation were reported during induced sad mood as opposed to a happy or neutral mood. As both the eating disorder and depression groups reported similar levels of depressive symptoms, this may have affected both these group similarly and exaggerated differences from the non-clinical controls. However, by controlling for depressive symptoms in statistical analyses any confounding influence will have been removed.

It has been commented that some emotion regulation and coping strategies may be below the level of conscious awareness (Gross, 1998). It may be that some of the mechanisms by which those with eating disorders manage their emotional experience have become automatic and consequently inaccessible to self-report. Experimental paradigms using subliminal stimuli in order to assess sub-conscious processing may be an alternative method of investigating emotion regulation strategies that may be below conscious awareness (Mountford, Waller, Watson & Scragg, 2004).

#### *4.7 Conclusions*

The findings of the present study suggest that adolescent females with eating disorders and those with depression have experienced critical and abusive childhoods resulting in the development of beliefs that others with abuse or take advantage of one in some way. In order to manage the emotions that result from these beliefs, it is suggested that adolescents who later go on to develop eating disorders adopt perfectionistic attitudes, particularly towards the body as it goes through physical developmental changes. These attitudes can later result in diet restriction and other disordered eating behaviours. The findings regarding emotion regulation are also consistent with the concept that individuals with eating disorders, although attending to their emotions to a similar extent to non-clinical controls, do not perceive their emotions as clearly and, consequently, are unable to manage or regulate them as effectively. It is likely that they may resort to using other maladaptive mechanisms, such as food restriction, bingeing and purging, to cope with the aversive emotions that they cannot perceive clearly or identify. These findings provide evidence for the use of focused psychological interventions related to particular cognitive and emotional aspects of eating disorders, and impetus for further research into these aspects during adolescence.

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Appendix 1: Demographic Questionnaire





**An investigation into the beliefs that young women have about themselves and how they cope with their feelings.**

Participant number: .....

Please can you provide the following details as best you can:

Date of Birth: ..... Home postcode .....

Height: ..... Weight: .....

The questionnaires contained in this booklet measure a variety of different attitudes to yourself and your feelings. In addition, there are some questions about your current mood and your attitude to food. There are no right or wrong answers so try very hard to be completely honest in your responses. The results are completely confidential. Please answer all the questions on both sides of the pages.

Thank you for taking part.

Appendix 2: The Young Schema Questionnaire – Short Form

## YSQ-SF

**INSTRUCTIONS:** Listed below are statements that a person might use to describe himself or herself. Please read each statement and decide how well it describes you. When you are not sure, base your answer on what you emotionally feel not on what you **think** to be true. Choose the **highest rating from 1 to 6** that describes you and write the number in the space before the statement.

### RATING SCALE

- 1. Completely untrue of me
- 2. Mostly untrue of me
- 3. Slightly more true than untrue
- 4. Moderately true of me
- 5. Mostly true of me
- 6. Describes me perfectly

1. \_\_\_ Most of the time, I haven't had someone to look after me or care deeply about everything that happens to me.

2. \_\_\_ In general, people have not been there to give me warmth, holding, and affection.

3. \_\_\_ For much of my life, I haven't felt that I am special to someone.

4. \_\_\_ For the most part, I have not had someone who really listens to me, understands me, or is tuned into my true needs and feelings.

5. \_\_\_ I have rarely had a strong person to give me good advice or direction when I'm not sure what to do.

6. \_\_\_ I find myself clinging to people I'm close to because I'm afraid they'll leave me.

7. \_\_\_ I need other people so much that I worry about losing them.

8. \_\_\_ I worry that people I feel close to will leave me or abandon me.

9. \_\_\_ When I feel someone I care for pulling away from me, I get desperate.

10. \_\_\_ Sometimes I am so worried about people leaving me that I drive them away.

11. \_\_\_ I feel that people will take advantage of me.

12. \_\_\_ I feel that I cannot let my guard down when I'm with other people, or else they will hurt me on purpose.

13. \_\_\_ It is only a matter of time before someone lets me down.

14. \_\_\_ I am quite suspicious of other people's reasons for doing things.

15. \_\_\_ I'm usually on the lookout for people's reasons for doing things.

16. \_\_\_ I don't fit in.

## YSQ-SF

### RATING SCALE

- 1. Completely untrue of me
- 2. Mostly untrue of me
- 3. Slightly more true than untrue
- 4. Moderately true of me
- 5. Mostly true of me
- 6. Describes me perfectly

7. \_\_\_ I'm basically different from other people.
8. \_\_\_ I don't belong; I'm a loner.
9. \_\_\_ I feel alienated from other people
10. \_\_\_ I always feel on the outside of group
11. \_\_\_ No person I am attracted to could love me once he/she saw my faults.
12. \_\_\_ No one I am attracted to would want to stay close to me if he/she knew the real me.
13. \_\_\_ I'm unworthy of the love, attention, and respect of others.
14. \_\_\_ I feel that I'm not loveable.
15. \_\_\_ I am too unacceptable in very basic ways to show the real me to other people,
16. \_\_\_ Almost nothing I do at work (or school) is as good as other people can do.
17. \_\_\_ I'm not particularly good when it comes to achievement.
18. \_\_\_ Most other people are better than I am in areas of work and achievement.
19. \_\_\_ I'm not as talented as most people are at their work,
20. \_\_\_ I'm not as intelligent as most people when it comes to work (or school).
21. \_\_\_ I do not feel able to get by on my own in everyday life.
22. \_\_\_ I think of myself as a person who depends on others, when it comes to everyday functioning.
23. \_\_\_ I lack common sense.
24. \_\_\_ My judgement cannot be relied upon in everyday situations
25. \_\_\_ I don't feel confident about my ability to solve everyday problems that come up.
26. \_\_\_ I can't seem to escape the feeling that something bad is about to happen.
27. \_\_\_ I feel that a disaster (natural, criminal, financial or medical) could strike at any moment.
28. \_\_\_ I worry about being attacked.

## YSQ-SF

### SCALING SCALE

- 1 Completely untrue of me
- 2 Mostly untrue of me
- 3 Slightly more true than untrue
- 4 Moderately true of me
- 5 Mostly true of me
- 6 Describes me perfectly

39. \_\_\_ I worry that I'll lose all my money and become homeless/a 'down-and-out'
40. \_\_\_ I worry that I'm developing a serious illness, even though nothing serious has been diagnosed by a doctor
41. \_\_\_ I have not been able to separate myself from my parent(s), the way other people my age seem to.
42. \_\_\_ My parent(s) and I tend to be over involved in each other's lives and problems.
43. \_\_\_ It is very difficult for my parent(s) and me to keep private details from each other, without feeling let down or guilty.
44. \_\_\_ I often feel as if my parent(s) are living through me - I don't have a life of my own
45. \_\_\_ I often feel that I do not have a separate identity from my parents or partner.
46. \_\_\_ I think if I do what I want, I'm only asking for trouble.
47. \_\_\_ I feel that I have no choice but to give in to other peoples' wishes, or else they will be unpleasant to me or reject me in some way.
48. \_\_\_ In relationships, I let the other person have the upper hand.
49. \_\_\_ I've always let others make choices for me, so I really don't know what I want for myself
50. \_\_\_ I have a lot of trouble demanding that my rights be respected and that my feelings be taken into account.
51. \_\_\_ I'm the one who usually ends up taking care of the people I'm close to.
52. \_\_\_ I am a good person because I think of others more than of myself.
53. \_\_\_ I'm so busy doing things for the people that I care about that I have little time for myself.
54. \_\_\_ I've always been the one who listens to everyone else's problems.
55. \_\_\_ Other people see me as doing too much for others and not enough for myself
56. \_\_\_ I am too self-conscious to show positive feelings to others (e.g., affection, showing I care).
57. \_\_\_ I find it embarrassing to show my feelings to others,
58. \_\_\_ I find it hard to be warm and natural.

## YSQ-SF

### RATING SCALE

- 0 Completely untrue of me
- 1 Mostly untrue of me
- 2 Slightly more true than untrue
- 3 Moderately true of me
- 4 Mostly true of me
- 5 Describes me perfectly

59. \_\_\_ I control myself so much that people think I have no feelings
60. \_\_\_ People see me as a tense person
61. \_\_\_ I must be the best at most of what I do; I can't accept second best.
62. \_\_\_ I try to do my best, I can't settle for "good enough."
63. \_\_\_ I must meet all my responsibilities.
64. \_\_\_ I feel there is constant pressure for me to achieve and get things done.
65. \_\_\_ I can't let myself off the hook easily or make excuses for my mistakes.
66. \_\_\_ I have a lot of trouble accepting "no" for an answer when I want something from other people.
67. \_\_\_ I'm special and shouldn't have to accept many of the restrictions placed on other people.
68. \_\_\_ I hate to be limited or kept from doing what I want.
69. \_\_\_ I feel that I shouldn't have to follow the normal rules and conventions other people do,
70. \_\_\_ I feel that what I have to offer is of greater value than what others have to offer
71. \_\_\_ I can't seem to discipline myself to complete routine or boring tasks.
72. \_\_\_ If I can't reach a goal, I become easily frustrated and give up.
73. \_\_\_ I have a very difficult time giving up short-term pleasures in order to reach long-term goals
74. \_\_\_ I can't force myself to do things I don't enjoy even when I know it's for my own good
75. \_\_\_ I have rarely been able to stick to my resolutions.

Appendix 3: The Trait Meta-Mood Scale

## TMMS

Please read each statement and decide whether or not you agree with it. Place a number in the blank line before each statement using the following scale:

- 5 = strongly agree
- 4 = somewhat agree
- 3 = neither agree nor disagree
- 2 = somewhat disagree
- 1 = strongly disagree

1. \_\_\_ I try to think good thoughts no matter how badly I feel.
2. \_\_\_ People would be better off if they felt less and thought more
3. \_\_\_ I don't think it's worth paying attention to your emotions or moods
4. \_\_\_ I don't usually care much about what I'm feeling
5. \_\_\_ Sometimes I can't tell what my feelings are
6. \_\_\_ I am rarely confused about how I feel
7. \_\_\_ Feelings give direction to life
8. \_\_\_ Although I am sometimes sad, I have a mostly optimistic out-look
9. \_\_\_ When I am upset I realize that the "good things in life" are illusions
10. \_\_\_ I believe in acting from the heart
11. \_\_\_ I can never tell how I feel
12. \_\_\_ The best way for me to handle my feelings is to experience them to the fullest
13. \_\_\_ When I become upset I remind myself of all the pleasures in life
14. \_\_\_ My belief and opinions always seem to change depending on how I feel



## TMMS

- 5 = strongly agree
- 4 = somewhat agree
- 3 = neither agree nor disagree
- 2 = somewhat disagree
- 1 = strongly disagree

15. \_\_\_ I am often aware of my feelings on a matter
16. \_\_\_ I am usually confused about how I feel
17. \_\_\_ One should never be guided by emotions
18. \_\_\_ I never give into my emotions
19. \_\_\_ Although I am sometimes happy, I have a mostly pessimistic outlook
20. \_\_\_ I feel at ease about my emotions
21. \_\_\_ I pay a lot of attention to how I feel
22. \_\_\_ I can't make sense out of my feelings
23. \_\_\_ I don't pay much attention to my feelings
24. \_\_\_ I often think about my feelings
25. \_\_\_ I am usually very clear about my feelings
26. \_\_\_ No matter how badly I feel, I try to think about pleasant things
27. \_\_\_ Feelings are a weakness humans have
28. \_\_\_ I usually know my feelings about a matter
29. \_\_\_ It is usually a waste of time to think about your emotions
30. \_\_\_ I almost always know exactly how I am feeling

Appendix 4: The SCOFF

## SCOFF

Please indicate yes or no for the following questions.

- |  | Yes | No  |
|--|-----|-----|
| 1. Do you make yourself sick because you feel uncomfortably full?              | [ ] | [ ] |
| 2. Do you worry you have lost control over how much you eat?                   | [ ] | [ ] |
| 3. Have you recently lost more than one stone (14 pounds) in a 3-month period? | [ ] | [ ] |
| 4. Do you believe yourself to be fat when others say you are too thin?         | [ ] | [ ] |
| 5. Would you say that food dominates your life?                                | [ ] | [ ] |

Appendix 5: The Beck Depression Inventory-II

Name: \_\_\_\_\_ Marital Status: \_\_\_\_\_ Age: \_\_\_\_\_ Sex: \_\_\_\_\_  
 Occupation: \_\_\_\_\_ Education: \_\_\_\_\_

**Instructions:** This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and pick out the **one statement** in each group that best describes the way you have been feeling during the **past two weeks, including today**. Circle the number beside the statement you have picked. If several statements in the group apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

### 5. Sadness

- 0 I do not feel sad.
- 1 I feel sad much of the time.
- 2 I am sad all the time.
- 3 I am so sad or unhappy that I can't stand it.

### 6. Pessimism

- 0 I am not discouraged about my future.
- 1 I feel more discouraged about my future than I used to be.
- 2 I do not expect things to work out for me.
- 3 I feel my future is hopeless and will only get worse.

### 7. Past Failure

- 0 I do not feel like a failure.
- 1 I have failed more than I should have.
- 2 As I look back, I see a lot of failures.
- 3 I feel I am a total failure as a person.

### 8. Loss of Pleasure

- 0 I get as much pleasure as I ever did from the things I enjoy.
- 1 I don't enjoy things as much as I used to.
- 2 I get very little pleasure from the things I used to enjoy.
- 3 I can't get any pleasure from the things I used to enjoy.

### 9. Guilty Feelings

- 0 I don't feel particularly guilty.
- 1 I feel guilty over many things I have done or should have done.
- 2 I feel quite guilty most of the time.
- 3 I feel guilty all of the time.

### 6. Punishment Feelings

- 0 I don't feel I am being punished.
- 1 I feel I may be punished.
- 2 I expect to be punished.
- 3 I feel I am being punished.

### 7. Self-Dislike

- 0 I feel the same about myself as ever.
- 1 I have lost confidence in myself.
- 2 I am disappointed in myself.
- 3 I dislike myself.

### 8. Self-Criticalness

- 0 I don't criticize or blame myself more than usual.
- 1 I am more critical of myself than I used to be.
- 2 I criticize myself for all of my faults.
- 3 I blame myself for everything bad that happens.

### 9. Suicidal Thoughts or Wishes

- 0 I don't have any thoughts of killing myself.
- 1 I have thoughts of killing myself, but I would not carry them out.
- 2 I would like to kill myself.
- 3 I would kill myself if I had the chance.

### 10. Crying

- 0 I don't cry anymore than I used to.
- 1 I cry more than I used to.
- 2 I cry over every little thing.
- 3 I feel like crying, but I can't.

\_\_\_\_\_ Subtotal Page 1

**Continued on Back**

**. Agitation**

- 0 I am no more restless or wound up than usual.
- 1 I feel more restless or wound up than usual.
- 2 I am so restless or agitated that it's hard to stay still.
- 3 I am so restless or agitated that I have to keep moving or doing something.

**. Loss of Interest**

- 0 I have not lost interest in other people or activities.
- 1 I am less interested in other people or things than before.
- 2 I have lost most of my interest in other people or things.
- 3 It's hard to get interested in anything.

**. Indecisiveness**

- 0 I make decisions about as well as ever.
- 1 I find it more difficult to make decisions than usual.
- 2 I have much greater difficulty in making decisions than I used to.
- 3 I have trouble making any decisions.

**. Worthlessness**

- 0 I do not feel I am worthless.
- 1 I don't consider myself as worthwhile and useful as I used to.
- 2 I feel more worthless as compared to other people.
- 3 I feel utterly worthless.

**. Loss of Energy**

- 0 I have as much energy as ever.
- 1 I have less energy than I used to have.
- 2 I don't have enough energy to do very much.
- 3 I don't have enough energy to do anything.

**. Changes in Sleeping Pattern**

- 0 I have not experienced any change in my sleeping pattern.

---

- 1a I sleep somewhat more than usual.
- 1b I sleep somewhat less than usual.

---

- 2a I sleep a lot more than usual.
- 2b I sleep a lot less than usual.

---

- 3a I sleep most of the day.
- 3b I wake up 1-2 hours early and can't get back to sleep.

**17. Irritability**

- 0 I am no more irritable than usual.
- 1 I am more irritable than usual.
- 2 I am much more irritable than usual.
- 3 I am irritable all the time.

**18. Changes in Appetite**

- 0 I have not experienced any change in my appetite.

---

- 1a My appetite is somewhat less than usual.
- 1b My appetite is somewhat greater than usual.

---

- 2a My appetite is much less than before.
- 2b My appetite is much greater than usual.

---

- 3a I have no appetite at all.
- 3b I crave food all the time.

**19. Concentration Difficulty**

- 0 I can concentrate as well as ever.
- 1 I can't concentrate as well as usual.
- 2 It's hard to keep my mind on anything for very long.
- 3 I find I can't concentrate on anything.

**20. Tiredness or Fatigue**

- 0 I am no more tired or fatigued than usual.
- 1 I get more tired or fatigued more easily than usual.
- 2 I am too tired or fatigued to do a lot of the things I used to do.
- 3 I am too tired or fatigued to do most of the things I used to do.

**21. Loss of Interest in Sex**

- 0 I have not noticed any recent change in my interest in sex.
- 1 I am less interested in sex than I used to be.
- 2 I am much less interested in sex now.
- 3 I have lost interest in sex completely.

\_\_\_\_\_ Subtotal Page 2

\_\_\_\_\_ Subtotal Page 1

\_\_\_\_\_ Total Score

Appendix 6: Instruction for participants

This research pack contains:

**1. A participant information sheet.**

This tells you about the study and why it is being conducted.

**2. A parent information sheet.**

This is for the parent/guardian of those who are under 16 years old. It is a legal requirement for a parent/guardian to give consent for those under 16 to take part in this research. Please give this sheet to your parent/guardian to read so they can consent to you taking part in this study.

**3. A consent form.**

If you are happy to take part in this research then please sign and date this sheet in the appropriate space. If you are under 16 then please also get your parent/guardian to sign this sheet.

**4. The questionnaires**

Once you have consented to taking part in this study, please complete the questionnaires. They should take between 30 and 45 minutes to do.

**5. A stamped addressed envelope**

Please send the completed consent form and questionnaires back to me in the stamped addressed envelope provided.

Once I receive the consent form and questionnaires, I will sign the consent form myself and send a copy to your GP. If at any stage you have questions about the study then please feel free to contact me at the Young People's Unit on 0131 537 6364.

Many thanks

Richard Cosway



Appendix 7: Participant Information Sheet for the clinical participants

1<sup>st</sup> February 2006

**An investigation into the beliefs that young women have about themselves and how they cope with their feelings.**

You are being invited to take part in a 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 others if you wish. Please 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.

**Purpose of the Study:** This study aims to investigate the beliefs that young women with mental health problems (such as eating disorders and depression) have about themselves and how they deal with difficult feelings. They will be compared with young women from a school-based population. Research has suggested that having lots of negative beliefs about ourselves can make us vulnerable to problems such as eating disorders and depression. In addition, some researchers have shown that the way in which we deal with difficult feelings can be important in helping us to avoid mental health problems.

**Who is being asked to take part?** You have been asked to take part in this study as part of a group of young women who are seeking treatment for problems such as eating disorders or depression. Other young women with similar problems have been asked to take part. A group of young women from a school-based population have also been asked to take part to see how the groups differ.

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time without giving a reason. If you withdraw at any time this will not affect the standard of care you receive.

**What will happen?** If you agree to take part you will be asked to fill in several questionnaires that will take 30 to 45 minutes to do. You will not be asked to give your name or any means of identifying yourself. Your responses to the questions will therefore be anonymous and confidential. The questionnaires will be stored in a secure place.

This study is part of an educational qualification being funded through the University of Edinburgh and the NHS and has been reviewed and approved by the Lothian Research Ethics Committee. There will be no personal benefit from taking part but this study may contribute to a greater understanding of eating disorders and depression in young women and to the development of better treatments in future. The overall results from the study can be made available to you if you wish.

If you have any questions about the research please feel free to contact me, Richard Cosway at the Young People's Unit, Tipperlinn Road, Edinburgh EH10 5HF (0131 537 6364).

Thank you for your time and consideration.

Appendix 8: Parental Information Sheet for the clinical participants

1<sup>st</sup> February 2006

**An investigation into the beliefs that young women have about themselves and how they cope with their feelings.**

**Dear Parent**

I am writing to inform you that your daughter has been invited to take part in a research study. Before you and your daughter 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 together. Please 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 your daughter to take part.

**Purpose of the Study:** This study aims to investigate the beliefs that young women with mental health problems (such as eating disorders and depression) have about themselves and how they deal with difficult feelings. They will be compared with young women from a school-based population. Research has suggested that having lots of negative beliefs about ourselves can make us vulnerable to problems such as eating disorders and depression. In addition, some researchers have shown that the way in which we deal with difficult feelings can be important in helping us to avoid mental health problems.

**Who is being asked to take part?** Your daughter has been asked to take part in this study as part of a group of young women who are seeking treatment for problems such as eating disorders or depression. Other young women with similar problems have been asked to take part. A group of young women from a school-based population have also been asked to take part to see how the groups differ.

It is up to you and your daughter to decide whether or not to take part. If you do decide that your daughter can take part she will be given an information sheet to keep and both of you will be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time without giving a reason. If you withdraw at any time this will not affect the standard of care she receives.

**What will happen?** If your daughter takes part she will be asked to fill in several questionnaires that will take 30 to 45 minutes to do. She will not be asked to give her name or any means of identifying herself. Her responses to the questions will therefore be anonymous and confidential. The questionnaires will be stored in a secure place.

This study is part of an educational qualification being funded through the University of Edinburgh and the NHS and has been reviewed and approved by the Lothian Research Ethics Committee. There will be no personal benefit from taking part but this study may contribute to a greater understanding of eating disorders and depression in young women and to the development of better treatments in future. The overall results from the study can be made available to you and your daughter if wished.

If you have any questions about the research please feel free to contact me, Richard Cosway at the Young People's Unit, Tipperlinn Road, Edinburgh EH10 5HF (0131 537 6364).

Thank you very much for taking the time to read this and to consider if you are willing to allow you daughter to participate.

Appendix 9: Consent form for clinical participants

1<sup>st</sup> February 2006

### CONSENT FORM

**Title of Project:** An investigation into the beliefs that young women have about themselves and how they cope with their feelings.

**Researcher:** Richard Cosway, Young People's Unit

Please initial

I confirm that I have read and understand the information sheet dated 1<sup>st</sup> February 2006 for the above study. I have had the opportunity to ask questions and have had these answered satisfactorily.

\_\_\_\_\_

I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected

\_\_\_\_\_

I understand that any information, disclosed during the course of the research, will remain confidential unless deemed important for my continuing care in which case it will be shared with my therapist

\_\_\_\_\_

I agree for notice to be sent to my General Practitioner about my participation in this study

\_\_\_\_\_

I agree to take part in the above study

\_\_\_\_\_

\_\_\_\_\_  
Name of participant (please print)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name of parent/guardian (if under 16)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Researcher

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date



Appendix 10: Parental Information Sheet for the non-clinical participants

1<sup>st</sup> February 2006

**An investigation into the beliefs that young women have about themselves and how they cope with their feelings.**

**Dear Parent**

I am writing to inform you that your daughter has been invited to take part in a research study. Before you and your daughter 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 together. Please 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 your daughter to take part.

**Purpose of the Study:** This study aims to investigate the beliefs that young women from a school population have about themselves and how they deal with difficult feelings. They will be compared with young women with mental health problems (such as eating disorders and depression). Research has suggested that having lots of negative beliefs about ourselves can make us vulnerable to problems such as eating disorders and depression. In addition, some researchers have shown that the way in which we deal with difficult feelings can be important in helping us to avoid mental health problems.

**Who is being asked to take part?** Your daughter and those in her class have been asked to take part in this study as part of a group of school-based participants. Other young women in her class and in other schools have been asked to take part. A group of young women with mental health problems have also been asked to take part to see how the groups differ.

It is up to you and your daughter to decide whether or not to take part. If you do decide that your daughter can take part she will be given an information sheet to keep and both of you will be asked to sign a consent form. If you decide that she can take part she is still free to withdraw at any time without giving a reason.

**What will happen?** If your daughter takes part she will be asked to fill in several questionnaires that will take 30 to 45 minutes to do. She will not be asked to give her name or any means of identifying herself. Her responses to the questions will therefore be anonymous and confidential. The questionnaires will be stored in a secure place.

This study is part of an educational qualification being funded through the University of Edinburgh and the NHS and has been reviewed and approved by the Lothian Research Ethics Committee and Education Department of the City of Edinburgh Council. For your information, I have attached the permission letter from the Education Department. There will be no personal benefit from taking part but this study may contribute to a greater understanding of eating disorders and depression in young women and to the development of better treatments in future. The overall results from the study can be made available to you, your daughter and her school if wished.

If you have any questions about the research please feel free to contact me, Richard Cosway at the Young People's Unit, Tipperlinn Road, Edinburgh EH10 5HF (0131 537 6364).

Thank you very much for taking the time to read this and to consider if you are willing to allow you daughter to participate.

If you are not willing for your daughter to participate, please complete the enclosed opt-out slip and return it to the school office by (date).

Appendix 11: Opt-out consent form for parents of non-clinical participants

**OPT OUT SLIP**

(Please complete if you **do not** want your daughter to participate in the study)

I do not want my daughter to participate in the research project titled:

An investigation into the beliefs that young women have about themselves and how they cope with their feelings.

Name of daughter(s) (please specify which year she is in):

Name .....

Name .....

Name .....

Appendix 12: Participant Information Sheet for the non-clinical participants

1<sup>st</sup> February 2006

**An investigation into the beliefs that young women have about themselves and how they cope with their feelings.**

You are being invited to take part in a 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 others if you wish. Please 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.

**Purpose of the Study:** This study aims to investigate the beliefs that young women from a school population have about themselves and how they deal with difficult feelings. They will be compared with young women with mental health problems (such as eating disorders and depression). Research has suggested that having lots of negative beliefs about ourselves can make us vulnerable to problems such as eating disorders and depression. In addition, some researchers have shown that the way in which we deal with difficult feelings can be important in helping us to avoid mental health problems.

**Who is being asked to take part?** You have been asked to take part in this study as part of a group of school-based participants. Other young women in your class and in other schools have been asked to take part. A group of young women with mental health problems have also been asked to take part to see how the groups differ.

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time without giving a reason.

**What will happen?** If you agree to take part you will be asked to fill in several questionnaires that will take 30 to 45 minutes to do. You will not be asked to give your name or any means of identifying yourself. Your

responses to the questions will therefore be anonymous and confidential. The questionnaires will be stored in a secure place.

This study is part of an educational qualification being funded through the University of Edinburgh and the NHS and has been reviewed and approved by the Lothian Research Ethics Committee. There will be no personal benefit from taking part but this study may contribute to a greater understanding of eating disorders and depression in young women and to the development of better treatments in future. The overall results from the study can be made available to your school and yourself if you wish.

If you have any questions about the research please feel free to contact me, Richard Cosway at the Young People's Unit, Tipperlinn Road, Edinburgh EH10 5HF (0131 537 6364).

Thank you for your time and consideration.



Appendix 13: Consent form for non-clinical participants

1<sup>st</sup> February 2006

### CONSENT FORM

**Title of Project:** An investigation into the beliefs that young women have about themselves and how they cope with their feelings.

**Researcher:** Richard Cosway, Young People's Unit

Please initial

I confirm that I have read and understand the information sheet dated 1<sup>st</sup> February 2006 for the above study. I have had the opportunity to ask questions and have had these answered satisfactorily.

\_\_\_\_\_

I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected

\_\_\_\_\_

I agree to take part in the above study

\_\_\_\_\_

\_\_\_\_\_  
Name of pupil (please print)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Researcher

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

APPENDIX 14: Details of skewness and kurtosis

Table A1. Details of skewness and kurtosis for all the self-referent belief and emotion regulation variables in the eating disorder group (n = 14).

	Skewness		Kurtosis	
	Statistic	Standard error	Statistic	Standard error
abandonment	.592	.597	-.511	1.154
abuse and mistrust	1.014	.597	1.048	1.154
defectiveness	-.206	.597	-1.566	1.154
dependence	1.346	.597	.893	1.154
emotional deprivation	1.384	.597	1.451	1.154
emotional inhibition	.057	.597	-1.527	1.154
enmeshment	1.295	.597	2.071	1.154
entitlement	.633	.597	-.176	1.154
failure to achieve	.184	.597	-1.260	1.154
insufficient self-control	.845	.597	-.618	1.154
self-sacrifice	.028	.597	-1.102	1.154
social isolation	.482	.597	-1.413	1.154
subjugation	.894	.597	1.082	1.154
unrelenting standards	-.249	.597	-1.273	1.154
vulnerability to harm	1.183	.597	.618	1.154
TMMS attention scale	.355	.597	-1.223	1.154
TMMS clarity scale	.375	.597	-.428	1.154
TMMS repair scale	-.242	.597	-1.183	1.154

Table A2. Details of skewness and kurtosis for all the self-referent belief and emotion regulation variables in the depression group (n = 13).

	Skewness		Kurtosis	
	Statistic	Standard error	Statistic	Standard error
abandonment	-.795	.616	-.144	1.191
abuse and mistrust	-.083	.616	-.706	1.191
defectiveness	.148	.616	-1.165	1.191
dependence	.370	.616	-1.180	1.191
emotional deprivation	.209	.616	-.154	1.191
emotional inhibition	.358	.616	-1.085	1.191
enmeshment	1.237	.616	1.464	1.191
entitlement	.976	.616	.508	1.191
failure to achieve	.120	.616	-1.786	1.191
insufficient self-control	-.092	.616	-1.215	1.191
self-sacrifice	.418	.616	-.431	1.191
social isolation	-.314	.616	-.655	1.191
subjugation	.182	.616	-1.490	1.191
unrelenting standards	.270	.616	-.816	1.191
vulnerability to harm	-.115	.616	-1.277	1.191
TMMS attention scale	-.060	.616	-1.175	1.191
TMMS clarity scale	-.698	.616	-1.114	1.191
TMMS repair scale	.471	.616	-.838	1.191

Table A3. Details of skewness and kurtosis for all the self-referent belief and emotion regulation variables in the non-clinical control group (n = 20).

	Skewness		Kurtosis	
	Statistic	Standard error	Statistic	Standard error
abandonment	1.420	.512	1.440	.992
abuse and mistrust	.509	.512	-1.233	.992
defectiveness	.567	.512	-1.505	.992
dependence	1.138	.512	.878	.992
emotional deprivation	1.008	.512	-.262	.992
emotional inhibition	.817	.512	-.231	.992
enmeshment	1.353	.512	.940	.992
entitlement	1.301	.512	1.083	.992
failure to achieve	.092	.512	-.352	.992
insufficient self-control	.704	.512	.324	.992
self-sacrifice	1.216	.512	1.834	.992
social isolation	.875	.512	.317	.992
subjugation	1.138	.512	.657	.992
unrelenting standards	1.188	.512	1.243	.992
vulnerability to harm	1.591	.512	2.294	.992
TMMS attention scale	-.305	.512	-.556	.992
TMMS clarity scale	.101	.512	-.908	.992
TMMS repair scale	-.130	.512	-1.168	.992