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An Investigation of Schema Modes in the Eating Disordered Population

Doctorate in Clinical Psychology
The University of Edinburgh
2009

Declaration

This thesis has been composed by myself and the work contained herein is my own.

Signed

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August 2009

Acknowledgements

Firstly I would like to thank all of the participants for taking the time to complete the necessary questionnaires, without them and their kind donation of time this project would not have been possible.

I would like to thank Dr. David Gillanders for his advice, support, encouragement and the provision of nuggets of wisdom during the planning and implementation of this piece of work. I would also like to thank Dr Susan Simpson and Dr Emma Morrow for their faith in this project and their kind words of support and reassurance throughout.

I would also like to thank all the staff at the Outpatient Eating Disorders Service in Aberdeen, I would like to say a special thanks to Marie McKimmie, Sara-Jane Beedie and Sally Hill for their help with identifying participants and to Dr. Philip Crockett, Team Leader of the Eating Disorders Service, for allowing this research to happen.

I would like to thank my fellow trainees, namely, Alice, Ceri and Dianne for normalising the experience, being very adept sounding boards and providing necessary reassurance during times of need.

Finally, thanks go to my family and friends. To my Mama who always has faith in me and has willingly been at the end of a phone when needed. Also to my sisters, Sioned and Rhiannon for their encouragement and reassurance. I would also like to acknowledge my friends who have supported me, a special thanks goes to Ciara for always being there and holding me in her thoughts.

Abstract

Background: Many eating disordered patients fail to respond to traditional cognitive behaviour therapy. As a result it has been suggested that further research needs to be completed to determine the cognitive processes and mechanisms that underpin these disorders.

Objectives: This research aims to empirically test Young's Schema Mode concept (Young *et al*., 2003) within the eating disordered population and determine the relationship between schema modes and early maladaptive schemata, experience of invalidation of emotion during childhood and symptoms of anxiety and depression.

Design: In total 15 patients from an outpatient eating disorders service and 28 non patient controls completed the Schema Mode Inventory, The Young Schema Questionnaire, the Hospital Anxiety and Depression Scale, The Invalidating Childhood Environment Scale, and measures of eating disordered pathology. Non parametric analyses were completed to determine the differences between the two groups. The relationship between all measures was determined using correlation analyses.

Results: The eating disordered group were significantly more dysfunctional than the control group across all schema modes and early maladaptive schemata. Both groups did not display uniformity in their dysfunctional schema modes. The eating disordered group had raised scores in the detached self soother, the compliant surrender and the vulnerable child mode, whereas the control group had lower scores in the detached protector and the vulnerable child modes. The measure if eating pathology was not associated with the total score on any questionnaire measure.

Conclusion: This research indicates that the schema mode concept may be a useful addition to the schema model of eating disorders.

Word Count: 28,006

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INTRODUCTION

Chapter One – Eating Disorders

Eating Disorders have received a lot of attention in recent years, but they are by no means a contemporary phenomenon. Past writings in religious and ancient texts would suggest that people have starved themselves for centuries – behaviour that may appear at first to share some similarities in form to Anorexia Nervosa (AN). For example, Vardhamma – the founder of Jainism – died of voluntary starvation in the 6th Century BC (Smart, 1967). Lacey (1982) describes the legend of St. Wilgefortis who was a bearded medieval female saint. She led the development of cults that were based on the rejection of sexuality, asceticism and the wasting of the body. While legend has it that her beard appeared overnight in response to prayers to save her from an unwanted engagement, it is now recognised that St Wilgefortis was likely to be anorexic, and the body hair she was famous for likely to be *lanugo* – a long, fine, dark hair that is present in low weight anorexics. However, there is more to AN than starving oneself; it also involves a number of psychological aspects that often can not be determined simply from physical descriptions of people who died many years ago (Parry-Jones & Parry-Jones, 1995). Consequently, it is important to treat the early descriptions of what appear to be cases of AN with caution.

The first modern descriptions of Anorexia Nervosa (AN) were thought to have originated in the late 19th Century by Lasègue in France, and simultaneously by Gull in England in 1873. William Withey Gull described the disease "In…1868, I referred to a peculiar form of disease occurring mostly in young women, and characterised by extreme emaciation... The want of appetite is, I believe, due to a morbid mental state …We might call the state hysterical" (Gull, 1873). At around the same time Ernest-Charles Lasègue described L'anorexic hysterique (1873) as "A young girl… suffers from some emotion which she avows or conceals… at first she feels uneasiness after food... at the end of some weeks there is …a refusal of food that may be indefinitely prolonged" (p.146).

Following the work of Gull and Lasègue there were a number of publications on AN in the latter part of the nineteenth century and the early part of the twentieth century

(Silverman, 1997). At this time AN began to be understood as a psychiatric disorder but there was debate as to whether it could be construed as an entity in itself or as a variant of other psychiatric disorders such as obsessional neurosis or schizophrenia (Bliss & Branch, 1960). It wasn't until the 1960s onwards that AN became established as a diagnostic category in its own right. As summarised by Palmer (2000), it wasn't long after the condition gained this recognition as an independent psychiatric disorder that debate began as to useful sub categorisation of the disorder. These sub categorisations stemmed from anecdotal reports of differences between groups of individuals, namely those who maintained a low weight by restriction alone and those who did so by purging through vomiting (Beumont *et al.,* 1976). It was evident that some of the individuals who resorted to vomiting also showed episodes of bingeing behaviour (Casper *et al.,* 1980). Palmer (2000) notes that the two groups of patients did not only differ in terms of their eating disordered behaviour but differed on a number of characteristics of their background. The individuals who binged and purged also appeared to be more likely to show a wider variety of troubling behaviour.

In 1979 Gerald Russell published a paper where he described a category of eating disorders characterised by episodes of bingeing behaviour and purging, from this paper the term Bulimia Nervosa (BN) emerged. Prior to this time a range of other labels had been given to describe individuals of normal weight who appeared to binge and purge and they were dietary chaos syndrome, bulimarexia, and dysorexia. The word Bulimia is the Latin form of the Greek word boulimia, which means "extreme hunger".

There has been some debate as to whether BN is a modern disorder. Hamilton *et al.* (1984) stated that BN seldom occurred until recent years and prior to 1970 was mentioned only as a symptom of AN. It would appear however that this is not the case as Parry-Jones and Parry-Jones (1991) reported finding several possible bulimia cases in 18th and 19th century literatures. They considered that the prevailing view of BN as a modern disorder was attributable to the fact that AN had received significant medical attention, while BN had not.

A range of physicians attempted to subcategorise BN. For example, in 1772 William Cullen, who was a physician and professor of Chemistry in Edinburgh, differentiated seven forms of BN. Ziolko (1995) summarised these as Bulimia *helluonum* (mere gluttony), Bulimia *syncopalis* (in which the danger of fainting accompanies ravenous hunger), Bulimia *emetica* (canine appetite in which vomiting is key) and four symptomatic forms: Bulimia *verminosa (*caused by worms), Bulimia *Adephagia* (affected children), Bulimia *convulsorum* (in the case of patients with epileptic seizures) and Bulimia *ab acidis* (nonspecified.) Cullen's work made it clear that BN was an independent disorder and in the beginning of the nineteenth century psychiatric disorders of a functional type were beginning to be suggested. This included psychopathological characteristics, which included 'obsessiveness, anomalies of the drives and desires, obsessions and impulsions, and independent neurosis' (Ziolko, 1996).

TABLE 14.2.....*– Incidence and prevalence of eating disorders*

Eating disorders are frequently seen within psychiatric services and have morbidity and mortality rates that are among the highest across both psychological and physical health conditions. AN has the highest mortality rate among any psychiatric disorder and a follow up study of 21 years found a death rate of 15.6% (Zipfel *et al.*, 2000). This is even more shocking when the incidence rates of AN reported in an American based study are highest for females between the ages of 15-19 years (Lucas *et al*., 1999). The prevalence rates of AN have been reported in the DSM-IV-TR as 0.5% (APA, 2000). The prevalence rates for BN reported in the DSM-IV-TR are between 1 and 3%. It should be noted that many prevalence rate studies have not accounted for the diagnostic category of eating disorder not otherwise specified (EDNOS). It has been reported that the addition of individuals in this category could result in to up to 50% more cases than this estimate (Nicholls *et al.* 2000). It is also evident that subclinical eating disorders are substantially more common than the full syndrome of BN and AN. Whitehouse *et al*. (1992) found a prevalence of 1.5% for full syndrome and 5.4% for BN that did not meet all diagnostic criteria. A longitudinal study over ten years may provide a more realistic picture to the prevalence of ED. Lewinsohn (2001) followed adolescent females over a ten year period and assessed eating

disorder pathology at regular intervals. By the time the adolescents had reached an age of twenty four years the prevalence among this population was 1.4% for AN, 2.8% for BN and 4.4% for individuals who met some criteria but not full diagnostic criteria for AN or BN.

The gender differences in the epidemiology of eating disorders are striking with ten more women than men being affected. Research that has included males in the sample is very sparse. One of the reasons for this in relation to AN is that amenorrhea was a necessary condition for a diagnosis of AN during the 1960s and 1970s. Burns and Crisp (1985) report that males typically account for 5-10% of all diagnoses of AN. Carlat and Carmargo (1991) reviewed 24 epidemiological studies on the prevalence of BN in males and found that in a community sample 0.2% of adolescents are affected and 10-15% of males are affected. This review did highlight however that the data may not be reliable as most cases were identified through self report questionnaires. The sample may also be unrepresentative of the population as they were predominantly high school and college scholars.

1.2 – Current conceptualisation of Eating Disorders

Historical accounts of eating disorders have been summarised and over time two distinct categories of eating disorder have emerged, namely AN and BN. The current conceptualisations of eating disorders remain with these two distinct categories although subcategories have emerged. The current conceptualisations of eating disorders will now be discussed.

Eating Disorders are now conceptualised in terms of diagnostic criteria. Diagnosis can be a useful clinical and research tool. Assigning a diagnosis to a set of symptoms engenders a common language for clinicians and researchers throughout the world. It allows for the information to be organised in a meaningful way and for communication between people working in the field to be efficient, and standardised. Diagnostic criteria can also be a powerful tool in terms of access to services. Many psychiatric services or specialist eating disorders services in the UK are overwhelmed with referrals and in order to be able to work with the resources within these teams there are often strict referral criteria that must be met before referrals are accepted.

The referral criteria are often based on the diagnostic categories of the disorder in which they are specialising.

At the current time there are two main diagnostic approaches to Eating Disorders. These are outlined in the Diagnostic Statistical Manual – fourth edition, DSM-IV, (American Psychiatric Association, 1994) and the International Classification of Disease, version 10 (World Health Organisation, 1993).

There are eight categories of eating disorders according to ICD-10. These can be seen in Table 1.

TABLE 1: EATING DISORDER CLASSIFICATION IN THE ICD-10

DIAGNOSTIC CATEGORY	DESCRIPTION OF DISORDER
F50.0 – Anorexia Nervosa	A disorder characterised by deliberate weight loss, induced and sustained by the patient. It occurs most commonly in adolescent girls and young women, but adolescent boys and young men may also be affected, as may children approaching puberty and older women up to the menopause. The disorder is associated with a specific psychopathology whereby a dread of fatness and flabbiness of body contour persists as an intrusive overvalued idea, and the patients impose a low weight threshold on themselves. There is usually under-nutrition of varying severity with secondary endocrine and metabolic changes and disturbances of bodily function. The symptoms include restricted dietary choice, excessive exercise, induced vomiting and purgation, and the use of appetite suppressants and diuretics.
F50.1 – Atypical Anorexia Nervosa	Disorders that fulfil some of the features of anorexia nervosa but in which the overall clinical picture does not justify that diagnosis. For instance, one of the key symptoms, such as amenorrhea or marked dread of being fat, may be absent in the presence of marked weight loss and weight-reducing behaviour. This diagnosis should not be made in the presence of known physical disorders associated with weight loss.
F50.2 – Bulimia Nervosa	A syndrome characterised by repeated bouts of overeating and an excessive preoccupation with the control of body weight, leading to as pattern of overeating followed by vomiting or use of purgatives. This disorder shares many psychological features with anorexia nervosa, including an over-concern with body shape and weight. Repeated vomiting is likely to give rise to disturbances of body electrolytes and physical complications. There is often, but not always, a history of an earlier episode of anorexia nervosa, the interval ranging from a few months to several years.
F50.3 – Atypical Bulimia Nervosa	Disorders that fulfil some of the features of bulimia nervosa, but in which the overall clinical picture does not justify that diagnosis. For instance, there may be recurrent bouts of overeating and overuse of purgatives without significant weight change, or the typical over-concern about body shape and weight may be absent.

TABLE 1: EATING DISORDER CLASSIFICATION IN THE ICD-10 (cont)

DIAGNOSTIC CATEGORY	DESCRIPTION OF DISORDER
F50.4 – Overeating associated with other psychological disturbance	Overeating due to stressful events, such as bereavement, accident, childbirth, etc. Psychogenic overeating.
F50.8 – Other eating Disorders	Pica in adults Psychogenic loss of appetite
F50.9 Eating Disorder, unspecified	No description.

The criteria of the DSM-IV- TR has a reduced number of categories; however subtypes of diagnoses are included as can been below:

TABLE 2: EATING DISORDER CLASSIFICATION IN THE DSM-IV-TR

DIAGNOSTIC CATEGORY	DESCRIPTION OF DISORDER
307.1 Anorexia Nervosa	A. Refusal to maintain body weight at or above a minimally normal body weight for age and height (e.g., weight loss leading to maintenance of body weight less than 85% of that expected; or failure to make expected weight gain during period of growth, leading to body weight less than 85% of that expected). B. Intense fear of gaining weight or becoming fat, even though underweight. C. Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low weight. D. In postmenarcheal females, amenorrhea, i.e. the absence of at least three consecutive menstrual cycles. (A woman is considered to have amenorrhea if her periods occur following hormone e.g. oestrogen administration). Specify types **Restricting Type:** During the current episode of Anorexia Nervosa, the person has not regularly engaged in binge-eating or purging behaviour (i.e. self-induced vomiting or the misuses of laxatives, diuretics, or enemas). **Binge-Eating/Purging Type:** during the current episode of Anorexia Nervosa, the person has regularly engaged in binge-eating or purging behaviour (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas).
307.51 Bulimia Nervosa	A. Recurrent episodes of binge eating. An episode of bingeing is characterised by both of the following: 1. Eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances 2. A sense of lack of control over eating during the episode, defined by a feeling that one cannot stop eating or control what or how much one is eating B. Recurrent inappropriate compensatory behavior to prevent weight gain - Self-induced vomiting - Misuse of laxatives, diuretics, enemas, or other medications

	TABLE 2: EATING DISORDER CLASSIFICATION IN THE DSM-IV-TR (CONT.) - Fasting - Excessive exercise The binge eating and inappropriate compensatory behavior both occur, on average, at least twice a week for 3 months. Self evaluation is unduly influenced by body shape and weight. The disturbance does not occur exclusively during episodes of anorexia nervosa. **Purging type**: During the current episode of bulimia nervosa, the person has regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas. **Nonpurging type**: During the current episode of bulimia nervosa, the person has used inappropriate compensatory behavior but has not regularly engaged in self-induced vomiting or misused laxatives, diuretics, or enemas.
Eating Disorder – Not otherwise specified. (EDNOS)	Eating disorder not otherwise specified includes disorders of eating that do not meet the criteria for any specific eating disorder. For female patients, all of the criteria for anorexia nervosa are met except that the patient has regular menses. All of the criteria for anorexia nervosa are met except that, despite significant weight loss, the patient's current weight is in the normal range. All of the criteria for bulimia nervosa are met except that the binge eating and inappropriate compensatory mechanisms occur less than twice a week or for less than 3 months. The patient has normal body weight and regularly uses inappropriate compensatory behavior after eating small amounts of food (e.g., self-induced vomiting after consuming two cookies). Repeatedly chewing and spitting out, but not swallowing, large amounts of food.

The notable difference between the European and American diagnostic criteria is that ICD-10 has an atypical category for conditions of AN and BN that do not fully reach diagnostic criteria for the 'pure' disorder. DSM-IV-TR on the other hand accounts for these cases through the category of EDNOS.

Palmer (2003) states that a classification system should consist of categories that are mutually exclusive and collectively exhaustive. The current classification of eating disorders do not convincingly operationalise these dimensions. Although distinct symptoms are necessary for the diagnoses of AN and BN, the two disorders share a common characteristic feature of over-concern over body weight or shape. Additionally, patients with BN may restrict their food intake in just as extreme ways as patients with AN, and patients with AN can purge their food in a similar way as individuals with BN through vomiting, laxative abuse, excessive exercise or through the use of diuretics. Binge eating also does not separate AN or BN as the DSM-IV-

TR diagnostic category for AN has a binge-purge subtype. Fairburn *et al*. (2003) reports that the major difference between BN and AN is the balance of over eating and under eating in the two disorders. Individuals with BN tend to be of normal weight as the bingeing and purging can result in a net intake that is similar to what is required to maintain weight. In AN under eating predominates resulting in weight becoming low.

Fairburn *et al.* (2003) report that the similarities between the two conditions becomes evident when a longitudinal perspective is taken. Agras *et al*. (2000) reported that approximately one quarter of individuals with BN showed evidence of AN in their medical history. Similarly, Sullivan *et al*. (1998) reported that patients who do not recover from their AN frequently develop a diagnosis of BN.

A second limitation of the current DSM-IV diagnostic criteria is they do not appear to encapsulate the two disorders. This is demonstrated by the fact that many patients that present with eating disorders do not fit into a diagnosis of BN or AN. For example, a patient may have rapid weight loss with a body mass index of 16, an intense fear of fatness and rigidity in rules around food intake but they may still be menstruating. Although this may appear to be a typical picture of AN, according to the DSM-IV criteria they would fall into the category of EDNOS as they continue to have menses. This is a category of exclusion for patients who have a clinical ED but do not fulfil strict criteria of either AN or BN. The diagnostic category of EDNOS is highly heterogenous. Palmer (2003) notes that the category of EDNOS is very common with it being the single most common diagnosis and constitutes the majority of cases. Thomas *et al*. (2009) highlight that this heterogeneity undermines the utility of classifying disorders into homogenous subgroups and the high prevalence of this diagnosis can in fact impede clinical communication, treatment planning, epidemiological inquiry and research. The heterogeneity observed within the EDNOS category may present obstacles in developing treatment packages. Although treatment packages for AN and BN have similarities they also have distinct differences. The development of treatment packages for those with a diagnosis of EDNOS may prove challenging as characteristics from two distinct disorders are grouped together to form a single diagnostic category.

1.3 – Alternative conceptualisations of Eating Disorders

Most research on eating disorders to date has been completed using categorical conceptualisations in that diagnostic criteria have been used to identify patients. Wade et al. (2006) used a transdiagnostic dimensional model, whereby lifetime eating disordered behaviours (LEDB) were examined in relation to three factors. These were the relationship of LEDB to current functioning, the exposure to genetic and environmental risk factors and the exposure to specific environmental risk factors. In total, self report and interview data were collected for 1002 female twins. From this data 15.4% of the women met criteria for an eating disorder according to DSM-IV but 29% of the sample had at least one LEDB. Interestingly, the results indicated that it was the number of LEDBs that were associated with impairment of current functioning despite the fact that LEDBs were not indicative of the presence of a diagnosable eating disorder. This impairment appeared to be influenced mainly by what they described as the non-shared environment. The factors that seemed pertinent within the non-shared environment were conflict between parents, criticism from parents whilst growing up and negative comments about eating and weight from peers.

1.4 – Transdiagnostic theory of Eating Disorders

It has been suggested that different eating disorder diagnoses share distinct psychopathology and it has also been demonstrated that eating disordered patients often move between diagnostic categories over time (Fairburn *et al*., 2003). In light of these findings, Fairburn *et al*. (2003) suggest that 'common mechanisms are involved in the persistence of bulimia nervosa, anorexia nervosa, and the atypical eating disorders' (p.520). Fairburn & Bohn (2005) propose a 'transdiagnostic' model of eating disorders. In light of this model Fairburn *et al*. (2003) have developed a transdiagnostic treatment based on cognitive behaviour therapy (CBT), which they propose is suitable for all presentations of eating disorders and they note that the diagnosis of the eating disorder is not of any relevance to treatment. Instead, the focus is dictated by the individual's psychopathological features, which appear to be maintaining the disorder.

There has been some criticism about adopting a transdiagnostic theory. Birmingham *et al.* (2008) state that they believe that eating disorders have multiple causal pathways that include a variety of factors such as genetics, environmental factors, psychological stressors, neurological function and malnutrition. They argue that if AN and BN are a single disorder they should have a common cause. In order to test this they used Hills Criteria of Causation (Hill, 1965). The results of this study did not support the idea that AN and BN have a single cause. Birmingham *et al*. (2008) suggest that this finding alone disputes the 'transdiagnostic' theory as set out by Fairburn & Bohn (2005). Although a reasonable challenge to the transdiagnostic approach it would seem somewhat premature to disregard this concept based on the fact that AN and BN do not have the same cause. Depression is a well conceptualised disorder which is characterised by a range of different emotions, physiology and behaviours. This disorder can have many different presentations and the causes of depression vary widely. This would suggest that in order to conceptualise a disorder accurately the sole focus on cause is not sufficient. In order to determine a causal relationship it is necessary to investigate a range of different variables. The selection of such variables is likely to be influenced by the assumptions of the researcher and might include genetics, attachment relationships, cognitions etc. Such variables can never really be known to be causal factors but can only be hypothesised, tested and then either supported or rejected.

1.5 – Summary and implications of classification issues

The debate around the classification of eating disorders continues to this day and it is evident that more research needs to be completed before a more clear understanding is reached. The transdiagnostic model as proposed by Fairburn *et al*. (2005) could be seen as a radical new way of thinking that has a number of implications for the assessment and treatment of not only eating disorders but a range of other disorders. This indicates a shift away from the diagnostic model and instead places the individual's psychopathology at the forefront of the clinicians mind.

1.6 – Comorbidities of Eating Disorders

In order to develop effective treatments for eating disorders a clear understanding of the psychopathology of patients is useful. A wider understanding of the

psychopathology of these patients can be gained by considering the recognised comorbidities of eating disorders.

1.6.1 – Depression

There are a number of reasons for the interest in depression in relation to eating disorders, particularly AN. Many anorexic patients display depressive symptomatology and depression also occurs more frequently within families of the anorexic patient. Moreover, many patients with AN respond to antidepressant medication. Sykes *et al.* (1988) reported a 50% prevalence rate of depression in 252 patients referred to a clinic for AN and BN. Grubb *et al.* (1993) reported a high proportion of depressive disorders among ED women. They also highlighted that the depressive symptoms did appear to subside following treatment of their eating disorder. It is also common for women to report to psychiatric services because of their low mood and not as a result of their eating disturbance (Schwartz & Cohn, 1996). Moreover, it has been highlighted that many of the symptoms of depression are evident in AN and these include appetite disturbance, weight loss, amenorrhea, lowered self esteem, sleep disturbance and cognitive impairment (Garfinkel & Kaplan, 1986). It is worth noting that some of these symptoms in AN are likely to be due to starvation as opposed, necessarily, to depression. There has been suggestion over the years that AN is a variant of depression (Altshuler & Weiner, 1985) although opinion on this appears to be mixed. For example, Stonehill and Crisp (1977) reported that patients with AN reported themselves as significantly less depressed than a sample of depressed females of matched age. A similar picture is evident for BN with Herzog (1982) reporting that 75% of women with BN reported significant depressive symptoms. Interestingly, there is evidence to show that antidepressant medication can be a useful tool in reducing bulimic symptomatology. It is still unclear, however, whether patients are depressed because of their BN or whether their depression increases the risk of bingeing and purging, or if these are related to a third variable.

1.6.2 – Obsessive Compulsive Disorder

There is a wealth of evidence that reports rigidity, perfectionism and inflexible thinking in individuals with a diagnosis of AN (Vitousek & Hollon, 1990). These are

all characteristic features of Obsessive Compulsive Disorder. The prevalence data of obsessional compulsive personality disorder (OCPD) in AN varies greatly with reports ranging from 3% (Piran *et al*., 1988) to 60% (Wonderlich *et al*., 1990). The largest study suggests more conservative figures with a reported comorbidy of OPCD of 10% in restricting anorexics and 4% in the binge-purge subtype (Herzog *et al.*, 1992).

Although anecdotally symptoms of OCD are more severe in AN there have been a few studies that have looked at the comorbidity of OCD within a bulimic population. It would appear that OCD is also more prevalent in the bulimic population than 'normal' volunteers. Rubenstein *et al.* (1995) recruited twenty-eight 'normal' volunteers, fifty OCD outpatients, thirty seven bulimic inpatients and thirty two bulimic out-patients. All patients were screened at the National Institute of Mental Health using a measure of depression, OCD, and an eating pathology questionnaire. The results of this study indicated that bulimics' OCD pathology was midway between the OCD patients and the 'normal' volunteers. It is not surprising to learn that obsessional and compulsive behaviours and evident in the eating disordered population when you consider the phenomenological similarities between two disorders. Often eating disordered patients will ruminate about food or their weight or shape and this can be likened to the obsessions observed in OCD. Eating disordered patients often have a number of rituals such as cutting their food in to small pieces or strictly sticking to a certain calorific intake each day. It could be argued that these behaviours are representative of compulsions experienced by people with OCD. Other compulsions that BN patients report are the desire to purge their food and they often describe a feeling of relief and reduced anxiety following the completion of this. Again, compulsive behaviours are completed in an attempt to reduce anxiety in people with OCD. It may be argued that similar psychological processes underpin both disorders (e.g. intrusive evaluative thoughts, short term reduction in distress by stereotyped behaviour at the cost of longer term psychological functioning) and consequently it may be that diagnostic approaches are less useful than formulating the key psychological processes hypothesised to initiate and maintain these disorders.

1.6.3 – Personality Disorders

It is a common encounter for experienced clinicians within eating disorder services to come across patients who display a large array of symptoms; who are challenging to the clinician and whose symptoms manifest for a long period of time due to their personality pathology. Although anecdotal evidence suggests that axis II disorders are prevalent in the eating disordered population there is very little empirical evidence to support this. Researching the prevalence of personality disorders is constrained by the lack of a time and cost effective measure to provide a diagnosis of personality disorders to a large group of people (Sansone, Levitt & Sansone, 2006). The research undertaken is often limited by small sample sizes. Additionally, estimates of prevalence should be interpreted with caution as samples may be biased due to recruitment occurring within tertiary level services, which are inherently known to over-represent people with more complex presentations.

Although the prevalence of personality disorders is uncertain it is apparent that patterns of association occur. For example, AN of the restricting type is often associated with OCPD or OCD. Additionally AN binge-purge subtype, BN of the purging type and binge eating disorders are often associated with impulsive personality features and personality difficulties such as borderline personality disorder (Sansone *et al.*, 2006). Sansone *et al.* (2006) completed a review on the prevalence of personality disorders within the eating disordered population. The authors do stress that their results are to be treated with caution as there were a number of limitations with their methodology. One such limitation refers to the sampling of individuals. In order to recruit the largest samples, studies were included that examined eating disorders and a range of other comorbidities. As a result of this it is difficult to draw firm conclusions whether the personality disorders reported are characteristic of eating disorders or the other comorbid conditions. Despite this, the results suggested that individuals with the restricting type AN were most likely to have OCPD at a prevalence of 22% and avoidant personality disorder with a prevalence of 19%. Borderline personality disorder (BPD) and dependent personality disorder were also evident with the restricting AN with a prevalence of 5%.

TABLE 3 – CLUSTER OF PERSONALITY DISORDERS

CLUSTER A **Odd or Eccentric Disorders**	**CLUSTER B** **Dramatic, emotional or Erratic Disorders**	**CLUSTER C** **Anxious of Fearful**
Paranoid PD	Antisocial PD	Avoidant PD
Schizoid PD	Borderline PD	Dependent PD
Schizotypal PD	Histrionic PD	Obsessive-compulsive PD
	Narcissistic PD	

In terms of personality disorder clusters it appeared as though Cluster C personality disorders were more prevalent in this subgroup of eating disorder. Table 3 defines the cluster organisation of personality disorder diagnoses. In terms of the binge purge subtype of AN, it was found that BPD was the most frequently reported with a prevalence of 25%. Avoidant or dependent personality disorder and histrionic personality disorder were also evident within this subgroup and consequently the predominant clusters of personality disorders are both Cluster B and Cluster C.

In terms of BN more research has been completed on its links with personality disorders and consequently there were more studies included in the review by Sansone, Levitt & Sansone (1996) than for AN. The results of this review showed that the most prominent personality disorder within this diagnostic category was BPD at 28%, followed by dependent, histrionic, and avoidant personality disorder with prevalence rates of around 20% each. Again, in terms of clusters the predominant cluster of PD within BN is Cluster B followed to a lesser extent by Cluster C.

A limitation of mapping diagnoses of eating disorders onto personality disorder diagnoses is the poor discriminant validity of personality disorder diagnoses. It is rare for a patient to present with a 'pure type' personality disorder in that they present only with the traits described for just one of the DSM-IV or ICD-10 categories of personality disorder. Patients often present with several traits that are also associated with other categories of personality disorder. As highlighted in the report by the British Psychological Society on 'Understanding Personality Disorder' (2006) the psychiatric classification of personality disorder is unsatisfactory.

It is interesting however that certain symptoms of eating disorders such as purging (which can occur in both a diagnosis of AN and BN) can be linked to the two

disorders by the personality trait of impulsiveness. This idea adds credit to the argument that eating disorders should not be categorised according to the current diagnostic criteria as this results in treatment packages being devised to treat a collection of symptoms as opposed to focusing on a hypothesised psychological mechanism, such as a personality characteristic. There are a lot of individuals who have attracted a diagnosis of both AN and BN at different points throughout their eating disorder. This movement between diagnoses would support the idea of a treatment package that could map symptoms onto mechanisms and use this information to create an individualised formulation. This formulation would then allow the opportunity to address the hypothesised maintaining factors of the eating disorder by indicating life patterns, which could predict the approach or coping mechanism that the patient is likely to employ or suppress in different life situations. This would allow the skills gained in treatment to be generalised to many situations and not just relate specifically to an individual symptom.

Franko *et al.* (2003) summarise research that has investigated whether eating disordered individuals may compose different subgroups with varying levels of personality traits such as impulsiveness, compulsiveness, self-destructive behaviour and other comorbidities. Goldner *et al.* (1999) used a cluster analysis of the responses of eating disordered participants on the Dimensional Assessment of Personality Pathology (DAPP). The results of this showed three groups emerging. The highest number of participants (49.3%) were described as having high levels of compulsiveness and interpersonal difficulties, the second group were characterised by minimal personality pathology and differed little from controls (32.4%) and the third group were described as more psychopathic, neurotic and impulsive (18.2%). The BN participants were not linked to any particular personality based cluster.

Alexthymia relates to an inability to identify and express emotions and feelings and an impoverished imaginative life and an externally orientated cognitive style (Taylor *et al.*, 1991). Research has indicated higher rates of alexthymia in eating disordered populations, and it is suggested that anorexic patients are more alexthymic than bulimic patients (Cochrane *et al.*, 1993). Taylor *et al.* (1996) demonstrated that alexthymia is positively associated with several psychological and cognitive traits

characteristic of eating disordered patients. The largest effect was seen in the association between alexthymia and interpersonal distrust and this was observed in an anorexic population; a matched comparison group and an unmatched comparison group. As has been outlined previously, eating disorders are comorbid with a number of other emotional disorders such as depression and anxiety. It is possible that many people with eating disorders are unaware of the emotions that they are experiencing or are unsure whether they are experiencing emotion at all.

The cognitive transactional model of stress supposes that stress is the relationship between an individual and their environment (Lazarus & Folkman, 1984). Stress is thought to originate when the demands of an interaction between the individual and environment is greater than the individual's ability to cope with that situation. There has been interest in childhood environments of individuals with eating disorders as a potential mechanism in the aetiology of eating disorders. Schmidt (1997a) summarises that this research suggests that individuals with bulimic disorders, which are classed as BN and AN of the binge-purge subtype, show the highest levels of childhood adversity. It is of note that it is also this population who display borderline features and it is well recognised that childhood adversity is prevalent in individuals with borderline features (Weaver & Clum, 1993). Although the restricting anorexics show little childhood adversity, they do report severe events and difficulties prior to the onset of the eating disorder (Schmidt *et al*., 1993). In terms of stress being a precipitating factor in the development of an ED research by Welch *et al*. (1997) showed that 76% of women in the community with BN had experienced a negative life event in the year prior to the onset of their ED, while 40% of the non psychiatric controls reported a negative life event.

1.7 – Summary of Chapter One

It has been established that eating disorders are a significant health problem affecting a large number of the population. Increasing our understanding of eating disorders is crucial. Research is being completed to further our understanding although there are challenges in drawing firm conclusions due to confusion regarding the categorical nature of the eating disorders. There has been a recent shift in emphasis towards focusing on the psychopathological characteristics of eating disordered patients. This

has been investigated through researching comorbid conditions and common cognitive and personality traits of individuals with eating disorders.

In order to provide an effective treatment for these disorders it is necessary to have a robust model of eating disorders. A number of approaches have been applied to explain the eating disorders, including the sociocultural, medical, psychodynamic and family theories. One of the most frequently researched treatments of eating disorders is based on the cognitive behavioural model. This will be discussed in Chapter Two.

Chapter two– Cognitive Models of Eating Disorders

2.1 – Cognitive Behaviour Models of Eating Disorders

The cognitive behavioural models serve two main purposes in the understanding of eating disorders. The first of these is a framework to understand the factors that lead to the development and maintenance of pertinent cognitive and behavioural aspects of the phenomenology of the disorders. The second purpose of the cognitive behavioural models is to improve the treatment of eating disorders. Although it is recognised that there is some overlap between the factors that predispose and those that maintain the disorder it is important to draw a distinction between the two (Cooper, 1997).

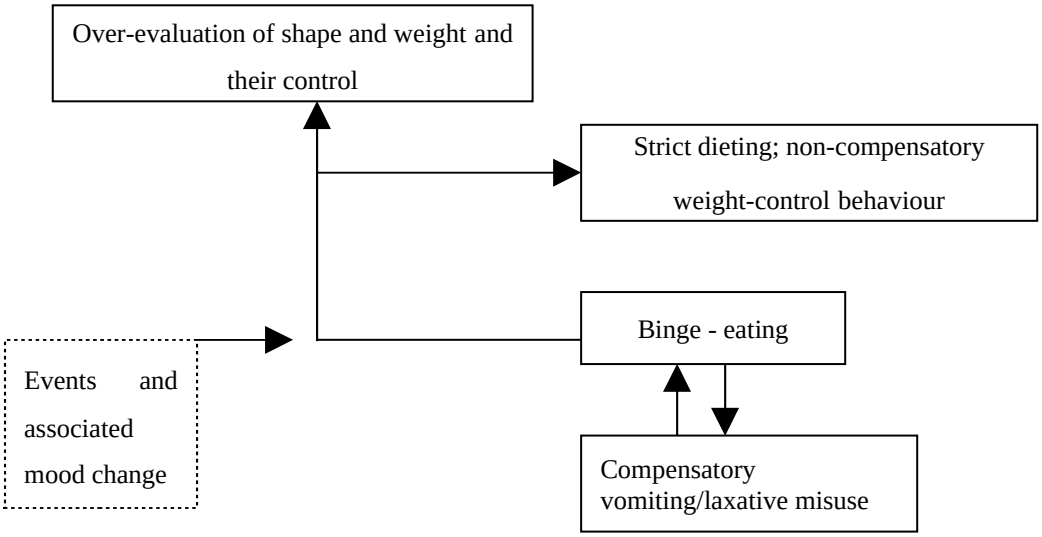

Figure 1 – Cognitive Behavioural Model of Bulimia Nervosa (Fairburn, 2008)

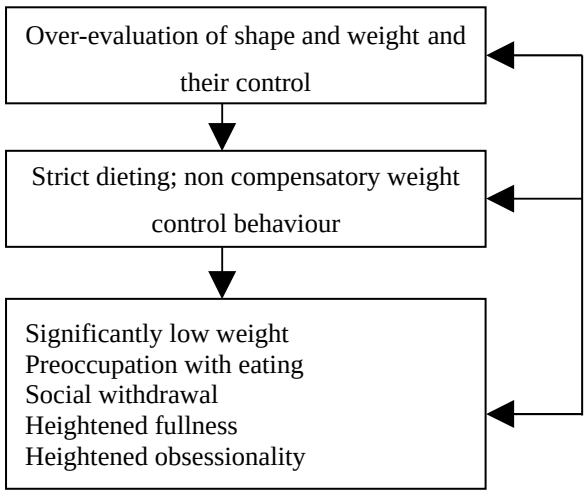

Figure 2 – Cognitive Behavioural Model of restricting AN (Fairburn, 2008)

The CBT model of BN (Fairburn, 2008) and restricting AN (Fairburn, 2008) can be seen in Figure 1 and 2.

The majority of studies using CBT have concentrated on maintenance models of eating disorders and focus on the factors that keep the eating disorder going. Maintenance models of CBT with an eating disordered population have shown some promising results. The effectiveness of CBT for BN has been empirically tested by Agras *et al*. (2000). In this study 200 patients who met DSM-III-R criteria for BN were randomly allocated to 20 week treatments for either CBT or Interpersonal Therapy (IPT). Data was collected immediately after treatment and at 1-year post treatment. The results indicated that for those finishing treatment CBT was superior to IPT immediately after treatment with a recovery rate of 45% in the CBT condition and a recovery rate of 8% for IPT. It should be noted that there were large differences between the numbers in each group with only n=5 in the IPT condition and n=29 in the CBT group. The variance in numbers between these groups could indicate that the recovery rate should be treated with caution until it can be replicated with larger numbers. At the one-year post follow up the superiority of CBT had abated and the recovery rate of those in the CBT group had decreased to 38% with an increase to 27% observed in the IPT group. Agras *et al*. (2000) concluded that CBT should be the preferential treatment for individuals with BN due to the more rapid treatment gains.

In terms of long term follow up this has been reported by Fairburn *et al*. (1995). This research was a prospective follow-up of participants from two randomised control trials. The trials involved the comparison of CBT, Behaviour Therapy (BT) and IPT on its effectiveness for the treatment of BN. In total 99% of the participants were reassessed by interview. The mean length of follow up was 5.8 years. The results indicated that at follow up 46% of the sample met DSM-IV criteria for an eating disorder. Of the 46%, 19% had BN, 3% had AN and 24% EDNOS. Although CBT was found to have the highest remission rates when compared to BT and IPT there was still a significant number of patients who were treated with CBT and continued to experience eating disorder symptoms at follow up. In total 28% of those treated with CBT still met criteria for an eating disorder.

Agras *et al*. (2000) reported a success rate of 45%, which indicates that less than half of BN patients recover following a course of CBT. The longer term follow up is less encouraging indicating that almost a 1/3 of those who received a CBT intervention for BN continue to suffer with an eating disorder at long term follow up.

The evidence base for CBT for AN is even less encouraging. A Cochrane review completed in 2003 and updated in 2005 examined the effectiveness of individual psychotherapy for adult outpatients with AN (Hay *et al*, 2003). As part of this review they compared treatment as usual with a range of therapies including IPT, Cognitive Analytic Therapy (CAT) and CBT. The review included all randomised control trials that have examined 1:1 psychological treatments for individuals with a diagnosis of AN according to DSM-III, DSM-III-R, DSM-IV (APA, 1994) and the ICD-10 (WHO, 1992). In total, seven small trials were included in the review. The results of two of these trials indicated that individual psychotherapy was more effective than treatment as usual; however, no treatment approach was consistently superior to any other approach. Hay *et al*. (2003) conclude that no specific treatment approach can be recommended for the outpatient treatment of AN and they stress the urgency for large, well-designed trials in this area.

It has been proposed that the early models and the developed therapies are not robust enough to be able to manage the wide range of eating disorders (Hollon & Beck, 1994). Also, CBT is no more effective than any other psychological treatments of AN. This is further demonstrated by the lack of evidence for the effectiveness of CBT with atypical eating disorders such as the presentations of AN and BN that do not fulfil diagnostic criteria (Fairburn & Harrison, 2003).

Fairburn and colleagues have responded to the relatively low levels of success of the maintenance models of CBT by developing a transdiagnostic CBT for patients with eating disorders, which they have named enhanced CBT (CBT-E). This model of treatment focuses not only on the eating disorder features but addresses other psychological characteristics such as mood difficulties, interpersonal difficulties, low self esteem and clinical perfectionism.

CBT-E has been empirically tested by Fairburn *et al.* (2009) using a randomised controlled trial. In this trial two forms of enhanced CBT were assessed. The first form was labelled the focussed form (CBT-Ef) and targeted eating disorder psychopathology exclusively. The second form was classed as a more complex broad form (CBT-Eb) and addressed not only eating disorder features but the psychological characteristics outlined above. In total, 154 patients who met diagnostic criteria for an eating disorder but were not underweight (BMI>17.5) were randomly assigned to either condition, which involved 20 weeks of treatment and a 60-week closed period of follow up. The results of this trial indicated that those in the control waiting list group showed little change in symptom severity whereas those in the clinical groups showed a substantial and equivalent improvement which was maintained at follow up. At follow up 51.3% of the sample had eating disorder features one standard deviation above the community mean. Fairburn *et al*. (2009) conclude that eating disorder patients with mood intolerance, low self esteem, interpersonal difficulties and clinical perfectionism responded better to CBT-Eb, whereas those without responded better to CBT that targeted eating disorder psychopathology exclusively. It should be noted that no patient in the study had a BMI of less than 17.5 and hence no patients with a diagnosis of AN were included on the study. Fairburn notes that a trial with AN is currently underway. Traditional CBT has shown more effectiveness in a bulimic population so it will be interesting to see how these developments can map onto treatment packages for individuals with a diagnosis of AN.

It has been suggested that eating disorders can be best understood by considering a range of cognitive representations, including schema level cognitive patterns (Vitousek, 1996). As a result of the limited success of existing treatments for eating disorders it is important to identify the key psychopathological features that are not addressed by the existing treatments.

2.2 – Schemata

Jeffrey Young's schema model is a development of traditional cognitive therapy, designed to treat individuals with chronic axis 1 pathology and personality problems associated with axis 2 personality disorders.

Young focuses on schema level cognitive patterns as opposed to negative automatic thoughts and assumptions. Young (1994a) argues that patients with personality problems have a number of unique psychological characteristics that are distinguishable from Axis 1 cases and such traits make them unsuitable candidates for traditional cognitive behavioural therapy alone. These traits include diffuse presentations, interpersonal problems, rigidity and avoidance (McGinn & Young, 1996).

Diffuse presentation relates to patients who present with no clear problems that can become the focus of treatment. Although the presenting problems are ill defined and without any apparent triggers, they appear to have a significant effect on the individual's functioning. As target problems can not be identified traditional CBT becomes difficult and requires modification.

CBT is well known for its collaborative nature, which requires the formation of a functional therapeutic relationship within a few sessions. For some individuals, especially those with personality disorders, this can be a considerable challenge. McGinn & Young (1996) state that some individuals find it difficult to engage in a therapeutic relationship at all, whereas others become overly reliant on the therapist. The early models of CBT do not account well for difficulties within the therapeutic relationship and provide little guidance on how these can be overcome. Without addressing such issues it is unlikely that the patient will be able to achieve therapeutic benefits as collaboration is one of the key principles of CBT. As has previously been outlined eating disorders are known to be comorbid with a range of personality disorders. It would be reasonable to assume that for individuals with an eating disorder and comorbid personality difficulties the development of a collaborative therapeutic relationship may well be a difficult task.

At the heart of traditional CBT is the expectation that patients learn to modify their cognitive and behavioural patterns by challenging negative automatic thoughts and dysfunctional assumptions. The alternative rational thoughts that are generated are reinforced through behavioural experimentation. In order to succeed in this process

the patient is required to adopt a flexible viewpoint which allows for the modification of thoughts and behaviour. It is well documented that rigid thinking styles and behaviours are characteristics of the eating disordered population (see Fairburn, Cooper & Shafran, 2003). With this in mind it would be reasonable to assume that their ability to challenge negative automatic thoughts and dysfunctional assumptions is a more challenging task for this population.

A further prerequisite for CBT is the ability to access one's thought and feelings. Young (1994a) states that patients with characterological problems block out or avoid painful feelings. It is hypothesised by Young (1994a) that this strategy develops through aversive conditioning whereby anxiety and depression are conditioned to painful memories and cognitions and as a result are avoided. As has previously been outlined higher rates of alexthymia have been demonstrated in an eating disordered population (Taylor *et al*., 1991), suggesting that some patients are unaware of the emotions that they are experiencing. Regardless of the processes that are involved (e.g. avoidance) the higher rates of alexthymia would suggest that some eating disordered patients struggle to identify certain emotions or cognitions that may precipitate or maintain eating disordered behaviour. The inability to identify such cognitions and emotions would be a contra indicator to CBT for these individuals.

As a result of the potential difficulties that eating disordered individuals may experience with traditional CBT, in addition to the relatively low effectiveness of CBT with such individuals, an investigation of deeper cognitive processes (or schemata) seems appropriate.

Young, Klosko and Weisshar (2003) note that an important concept of the schema in terms of psychotherapy is that schemata are 'formed in early life, continued to be elaborated and then superimposed on later life experiences, even when they are no longer applicable. This is something referred to as the need for "cognitive consistency", for maintaining a stable view of oneself and the world, even if it is, in reality inaccurate or distorted. By the broad definition, a schema can be positive or negative, adaptive or maladaptive; schemas can be formed in childhood or later in life.' (p. 7).

Unlike traditional cognitive therapy, which focuses on automatic thoughts and underlying assumptions, the schema-focused approach suggests a primary focus on the deepest level of cognition, which is the early maladaptive schema. Young *et al.* (2003) define early maladaptive schemata as 'broad, pervasive themes or patterns, comprised of memories, emotions, cognitions, and bodily sensations regarding oneself and ones relationships with others which are developed during childhood and adolescence and elaborated on throughout one's lifetime and dysfunctional to a significant degree' (p. 7).

2.3 – Young's Schema Model (1990, 1999)

Young's schema model is a working theory that has been developed to integrate and guide clinical interventions for patients who have personality difficulties. Four main constructs are proposed and these are early maladaptive schema (EMS), schema domains, schema processes and schema modes. Each of these constructs will now be discussed.

2.3.1 – Early Maladaptive Schema (EMS)

Young (1990) defines schemata as broad pervasive themes about oneself and one's relationship with others. EMS have a number of defining characteristics according to Young *et al.* (2003). EMS are described as essentially implicit and are perceived to be irrefutable. The schemata serve as a template for understanding life experiences and consequently become more elaborate throughout life. They are also hypothesised to define an individual's behaviour, feelings, thoughts and relationships with others. A distinction can be made between schemata and underlying assumptions, as schemata are usually unconditional and consequently more rigid. EMS are developed through childhood experiences; namely through dysfunctional experiences with significant others such as parents, siblings and peers. The schemata develop in an attempt by the child to make sense of their experiences and to reduce emotional pain that such dysfunctional experiences evoke. The development of EMS can lead to entrenched patterns of distorted thinking and dysfunctional behaviour, which becomes self perpetuating. The early development of dysfunctional schemata results in an individual becoming familiar with this pattern of thinking and behaving and becomes

central to an individual's self concept. As a result of this familiarity individuals often struggle to accept any evidence that goes against their EMS as a schematic change would be extremely disruptive to the core cognitive organisation of the individual (McGinn & Young, 1999). In order to prevent such disruption it is hypothesised that a number of 'schema processes' are employed to maintain the EMS.

2.3.2 – Schema Domains

Young has developed eighteen early maladaptive schemata, which can be grouped into five domains. Each schema domain is believed to arise from the repeated experience of an unmet childhood need. A full outline of each domain can be seen in Appendix 1.

Domain 1 – Disconnection and rejection

Individuals with schemata in this domain are unable to form secure, satisfying attachment to others. The EMS that make up this domain are: 'Abandonment/Instability' (the belief that close relationships will end imminently), 'Mistrust/Abuse' (the belief that one will be taken advantage of by others), 'Emotional Deprivation' (expectation that one's emotions will not be met), 'Defectiveness/shame' (feeling that one is inwardly flawed), and 'Social Isolation' (the belief that one is different from others).

Domain 2 – Impaired autonomy and performance

Individuals with schemata in this domain have difficulties in developing a sense of autonomy and as a result have difficulties separating from one's own family and functioning independently. Four EMS make up this domain and these are: 'Dependence/Incompetence' (the belief that one is unable to handle responsibilities without considerable help from others), 'Vulnerability to harm' (one has no control over the threat of disasters), 'Enmeshment/Undeveloped self' (a lack of individual identity due to emotional over involvement with others), and 'Failure' (the belief that one will fail or is fundamentally inadequate relative to peers).

Domain 3 – Impaired Limits

Individuals with schemata in this domain have deficiencies in internal limits and struggle with responsibility to others or the reaching of long term goals. Two schemata make up this domain and these are: 'Entitlement' (the belief that one is superior to others) and 'Insufficient self-control' (inability to control one's impulses or feelings).

Domain 4 – Other-Directedness

This domain refers to an excessive focus on the desires of others at the expense of meeting one's own needs to gain approval from others. Three schemata make up this domain and these are: 'Subjugation' (excessive focus on meeting the needs of others to avoid negative consequences), 'Self-sacrifice' (the sacrificing of one's own needs in order to meet the needs of others)', and 'Approval seeking' (excessive emphasis on gaining approval at the expense of developing a secure and true sense of self).

Domain 5 – Overvigilance and Inhibition

The final domain is categorised by emphasis being placed on suppressing spontaneous feelings, impulse and choices or meeting rigid internalised rules and standards. In total, four schemata make up this domain. These are: 'Negativity/pessimism' (a pervasive, lifelong focus on the negative aspects of life), "Emotional Inhibition' (the belief that emotions should be inhibited to avoid adverse consequences), 'Unrelenting standards' (the belief that one should strive for perfection to avoid criticism) and 'Punitiveness' (the belief that one should be harshly punished for mistakes).

2.3.3 – Schema Processes

The schema model suggests that EMS are maintained by maladaptive coping responses or schema processes. The three schema processes that are highlighted to be of importance are schema surrender, schema avoidance and schema overcompensation. Schema surrender refers to the process whereby individuals do not try to fight or avoid schema activation. Instead, they behave as though the schema is true and act in ways to maintain the schema. This leads to cycles of dysfunctional schema driven patterns of behaviour. Schema avoidance is a coping style adopted by individuals to avoid schemata being activated. Cognitive, behavioural or emotional

strategies are used to avoid the activation of schemata. If schemata are activated attempts are made to block out associated affect. Schema overcompensation refers to the schema process whereby individuals fight activated schema by thinking, feeling and behaving as though the opposite of the schema were true. For example, an individual with the defectiveness schema may behave in a showy, over-competitive manner to overcompensate for their sense of defectiveness.

Schema modes are the final construct in the schema model. Schema modes refer to the schemata or schema operations that are currently active for an individual. The schema mode concept will be discussed in detail later. Following the development of the Schema model, Young (1990, 1999) developed schema therapy to treat individuals with personality difficulties.

2.3.4 – Schema Therapy

Schema therapy is defined as "an innovative, integrative therapy that significantly expands on traditional cognitive behavioural treatment and concepts. The therapy blends elements from cognitive-behavioural, attachment, Gestalt, object relations, constructivist, and psychoanalytic schools into a rich, unifying conceptual and treatment model." (Young *et al.*, 2003).

Schema- focused therapy does not provide a comprehensive theory of psychopathology but is described by McGinn & Young (1996) as a 'working theory to integrate and guide the clinical interventions with patients who present with character disorders' (p.187). The schema conceptual model was developed with an openness to many approaches of psychopathology and psychotherapy. As a result of this approach the schema model overlaps with a wide range of other approaches including cognitive behavioural, psychodynamic, object relations, Gestalt and constructionist approaches. Despite the similarities with other approaches Young *et al.* (2003) do not regard schema therapy as an eclectic therapy but conceptualises it as a unifying theory, which is based on a structural, systematic model. It is also stipulated that despite these overlaps schema therapy is a distinctive approach.

The overlap between Beck's Cognitive Model (Beck *et al.*, 1990) and schema focused

therapy is pronounced although Young *et al.* (2003) note that the subtle differences between the two are better explained by differences in emphasis as opposed to areas of disagreement. One difference in approach relates to the explanation of schema modes presented. For example, Young's concept of EMS incorporates both schemata and modes as defined by Beck (1996). Also, mode activation as described by Beck (1996) relates more to Young's concept of schema activation. Young notes that his schema mode concept is only marginally related to Beck's use of the term 'mode'. The Schema model also has a greater emphasis on coping styles and suppose that these play a central role in schema maintenance.

Two of the most distinct differences between schema therapy and cognitive therapy relate to the processes employed in therapy. Schema therapy adopts a "bottom up" approach, with the initial focus being on core beliefs and then linking these schemata to accessible cognitions. Cognitive therapy on the other hand adopts a "top down" approach whereby negative automatic thoughts are initially accessed and core beliefs may be worked with later in treatment. The second major difference between these approaches is the emphasis placed on childhood experiences and parental styles. Schema therapy educates individuals about the origins of EMS and uses the therapeutic relationship as a vehicle for change to overcome the associated maladaptive emotions, cognitions and behaviours. The focus on childhood experiences has strong links with attachment theory (Ainsworth & Bowlby, 1991). Young emphasises the importance of a secure base in order to overcome psychopathology.

The links between the schema conceptual model and attachment are interesting in relation to eating disorders. Ward *et al.* (2000) reviewed twenty five studies examining attachment patterns in individuals with eating disturbance and concluded that abnormal attachment patterns are evident in this population with insecure attachment predominating. Bowlby (1988) reports that the pattern of attachment developed during infancy, childhood and adolescence is profoundly influenced by the way in which parents treat their child. This links in with family theories of eating disorders, which highlight the influence of family environment and eating pathology.

2.3.5 – The Schema Concept in Eating Disorders

Although the Young Schema Questionnaire was not originally developed for use with an eating disordered population it has been used to examine the cognitive content in AN and BN. Previous research has show that women with eating disorders hold more dysfunctional core beliefs than control women. Leung *et al*. (1999) assessed the impact of unhealthy core beliefs on eating disorders and their symptoms. In total four groups (restricting anorexics n=20, bulimic anorexics n=10, bulimics n=27 and a control group n=23) completed the Young Schema Questionnaire. Due to the non normal distribution of their resulting data non parametric analyses were completed. These analyses compared the differences in EMS between the four groups and correlation analysis was used to assess the relationship between EMS and eating attitudes and eating disorder symptoms. As a result of the numerous statistical tests which were run on the data set Leung *et al.* (1999) adjusted the alpha to 0.01 to reduce the risk of a Type 1 error occurring. The results found significant differences between the overall schema score for the clinical and comparison women, with more dysfunctional schema present for the clinical population. The only EMS that was significantly different between the eating disordered groups was 'entitlement' with restrictive individuals scoring significantly lower than bulimic individuals. A positive and significant correlation was found between unhealthy eating attitudes and EMS for women with bulimia nervosa. There were no significant correlations between these variables for anorexic or comparison groups however.

An important finding from the research by Leung *et al.* (1999) was that different patterns of association between EMS and eating psychopathology were observed in anorexic and bulimic women; however, there were not significant differences in the levels of unhealthy core beliefs between these diagnostic groups. Leung *et al.* (1999) conclude that the strength of core beliefs do not distinguish anorexic and bulimic women but the way in which these beliefs are related to unhealthy eating attitudes is the distinguishing factor. In light of the transdiagnostic theory of eating disorders this would assume that the relationship between core beliefs and unhealthy eating attitudes is not fixed but variable over time which then present in different eating disordered symptomatology. However, without completing a longitudinal study to evaluate this it is difficult to determine the validity of this conclusion. Leung *et al.* (1999) was the

first to investigate the relationship between eating disorders and Young's EMS. The results suggest that there is a clear link between core beliefs and eating psychopathology. However, the sample sizes were relatively small so the results should be treated with caution. It should also be noted that no measures of affective disorders were included so the confounding effect of comorbid disorders such as depression or anxiety could not be assessed. Another important finding from this research is that although the level of unhealthy eating attitudes were associated with unhealthy core beliefs the results did not suggest that they impacted on actual eating behaviour (e.g. restriction or vomiting). This would suggest that although a deeper cognitive understanding has been achieved the effect of these cognitions remains unclear and the mere presence of EMS does not provide a causal link to eating disordered pathology.

The relationship between EMS and eating disordered individuals described by Leung *et al*. (1999) has received further support with subsequent research being carried out by Waller, Meyer, Ohanian & Osman (2000). In this study fifty bulimic women and fifty comparison women completed the Young Schema Questionnaire in addition to a diary measure of bulimic behaviours. The bulimic women they describe include individuals with a diagnosis of BN (n=28), anorexia nervosa of the binge purge subtype (n=12) and binge eating disorder (n=10). The results of this study replicated those of Leung *et al*. (1999) in that the comparison women had significantly lower levels of EMS than the clinical women on all schemata apart from entitlement. No significant differences in EMS were found between diagnostic groups; although, as in Leung *et al*. (1999) the sample sizes were particularly low so again such results should be interpreted with caution. A further finding of this study highlighted that certain core beliefs were predictive of levels of eating disordered behaviour. The frequency of bingeing was reliably predicted by the YSQ scales, but the only individual significant predictor was a positive effect of the EMS emotional inhibition. The frequency of vomiting was also reliably predicted by the YSQ scales although the only significant predictor was a positive effect of defectiveness/shame.

Waller *et al*. (2000) concluded that bulimic women binged more often if they deemed the expression of emotion to be unsafe or unacceptable, and were more likely to vomit

if they believed themselves to be fundamentally flawed or defective. This conclusion is compatible with the suggestion that vomiting serves the function of reducing awareness of aversive cognitions, whereas bingeing serves more of an affect regulation function (Pitts & Waller, 1993). An important finding from Waller *et al.* (2000) is that the core beliefs which appear to be most relevant to eating disorders differ according to the nature of the presenting symptoms and syndrome. This would suggest that the targets of cognitive therapy for eating disordered individuals may need to vary for each individual and a consequently a generic 'treatment package' for everyone may not be effective.

One limitation to the conclusions that Waller *et al.* (2000) have made relate to the confounding effect of other disorders on core beliefs. Both of the described studies by Leung *et al*. (1999) and Waller *et al.* (2000) failed to incorporate a screening measure of affect disorders. It could be argued that core EMS are more prevalent in eating disordered populations due to the general psychopathology found within a range of clinical populations.

Waller *et al*. (2002) examined the relationship between EMS and ego-dysfunction characteristics (e.g. perfectionism, impulse recognition, maturity fears etc) and unhealthy eating characteristics as measured by the Eating Disorders Inventory (EDI-2; Garner, 1991) in women with bulimic disorders. In total seventy-five women with bulimic disorders were included (BN n=45, AN binge-purge subtype n=17, Binge Eating Disorder n=13). It should be highlighted that fifty of these individuals were the same individuals included in the analysis by Waller *et al.* (2000). Waller *et al.* (2002) state that core beliefs or EMS showed a relatively specific pattern of association with unhealthy eating attitudes as previously shown by Leung *et al.* (1999) and Waller *et al*. (2000). Although replication of these findings is encouraging, some of the same data was analysed by Waller *et al.* (2000) and Waller *et al.* (2002) so the replication is not surprising. The correlation analysis inferred that restrictive eating was associated with perceptions of the self as being dependent and incompetent and unable to express emotions. Bulimic attitudes were found to be greater among women who viewed themselves as being deprived of emotional support and being socially different, and among individuals who reported lower levels

of self-control. Body dissatisfaction was not related to any of the subscales of the YSQ. Although associations were found between unhealthy eating attitudes and core beliefs the inference of a causal relationship should be interpreted with caution when using cross sectional data. Waller *et al.* (2002) conclude that the five EMS that are important in unhealthy eating patterns are dependence, emotional inhibition, emotional deprivation, social isolation and insufficient self control.

Although the importance of schema level cognitive beliefs in the eating disorders have been demonstrated the evidence to date suggests that schema content does not actually differ between individuals with a diagnosis of AN or BN. This suggests that the presence of particular core beliefs cannot account for behavioural differences between the eating disorders. In terms of treating individuals with an eating disorder it is the behavioural characteristics of the disorder that are usually measured to assess for improvement. Behaviours such as restriction and purging are the concerning factors, as it is these behaviours that put the individual's health at immediate risk.

2.3.6 – Schema-Based Model of Eating Disorders (Waller, submitted).

Waller (submitted) has proposed a new cognitive behavioural model of the eating disorders, which hypothesises that restrictive and bulimic disorders can be distinguished by cognitive differences at the schema level. The focus shifts from the schema content to the schema processes. According to schema theory, schema processes are activated at the same time as core beliefs and serve to maintain schema level beliefs; they are also thought to protect an individual from the emotional impact of schema activation (Young *et al.*, 2003). It has been hypothesised that schema processes explain features of psychopathology, such as ego-syntonicity and chronicity and play important roles in different personality disorders (Young *et al.*, 2003). The schema model of eating disorders hypothesises that restrictive and bulimic pathologies differ in their pattern of schema processes. Both appear to be related to affect regulation but the key difference between anorexic and bulimic pathologies is the point in the cognition-emotion-behaviour chain at which the individual makes any attempt to reduce the experience of intolerable negative affect. The two processes that are described are a primary avoidance and a secondary avoidance of affect. Primary avoidance of affect relates to attempts to avoid the affect being triggered at

all whereas secondary avoidance of affect involves the reduction of affect after it has been triggered.

The schema based model as proposed by Waller (submitted) suggests that restrictive eating pathology shares cognitive features with other compulsive disorders, whereas bulimic pathology has common elements with impulse disorders. The model goes on to suppose that different schema processes govern the two disorders. The comorbidity of personality disorders with the eating disordered population that is described in Chapter 1 lends some support to the distinction between compulsive and impulsive features between the two disorders. For example, AN is often associated with obsessional compulsive personality disorder and perfectionism, whereas BN is associated with disorders of impulse control such as BPD. Waller (submitted) suggests that general schema processes are present in a range of disorders but the manifestation into an eating disorder only occurs in the presence of additional environmental contexts such as negative comments about weight and shape or dieting behaviour.

Interestingly, Waller's schema-based model of eating disorders does not follow the typical dichotomy of diagnoses seen within the eating disorders field. Instead of categorising the disorder in terms of AN and BN, the emphasis is on restrictive and bulimic disorders with bulimic disorders referring to anorexic presentations of the binge-purge subtype, BN and binge eating disorder. The rationale for this appears to be related to the key psychopathological characteristics associated with bingeing and purging and the key characteristics of restriction. Conceptualising the disorders in these ways and developing treatment approaches based on these distinctions is at odds with the current diagnostic approach to eating disorders.

In essence Waller's schema based model supposes that schema compensation is central to restrictive pathology. This compensation leads to a primary avoidance of affect when schemata are triggered. An example given by Waller is that in restrictive disorder a compensatory schema of 'unrelenting standards' might be activated as a result of the cognitive elements of the 'failure to achieve schema' which reduces the risk of the activation of negative emotions associated with cognitions of failure. The

behavioural manifestation of this compensation would be to restrict dietary intake to perfect the body or to achieve a sense of personal control through dietary restraint.

The schema process deemed central to bulimic pathology according to Waller (submitted) is schema avoidance. This is different from restrictive patients as for these individuals the affect has already been activated through the triggering of schemata. Attempts are made by the individuals to reduce the associated affect; this is coined a secondary avoidance of affect. Bingeing and purging are deemed to be impulsive acts that serve to block out affect following the activation of a schema.

Waller's schema based model of eating disorders was driven by theoretical considerations of the clinical observations of eating disordered patients. The schema based model of eating disorders has been tested empirically by Luck *et al.* (2005). In total, 345 non clinical participants completed the Young-Rygh Avoidance Inventory (YRAI; Young, 1994) and the Young Compensatory Inventory, (YCI; Young, 1998). The results of this study indicated that abnormal processes were found in the anorexic disorders, while only secondary avoidance processes were found in the bulimic disorder. Also, one scale of the YCI and one of the YRAI were not significantly different between control and eating disordered women. Waller's schema processes model was partially supported in that anorexic individuals scored abnormally for a primary and secondary avoidance of affect. However, one of the subscales of the YRAI, which is a measure of secondary avoidance of affect, was found to have very low internal consistency so the results should be treated with caution.

The schema model of eating disorders has received some empirical support but the model is still in its infancy and further testing is required before the concept can be supported. Additionally, this model implies a distinction between bulimic and restrictive pathologies and as has previously been described many eating disorder cases are not purely restrictive or bulimic. The model would suppose that such cases can be explained by amalgamating the schema models with individuals employing both primary and secondary avoidance of negative affect. The employment of either a primary or secondary avoidance depends on the trigger of schema activation and the strength of the schema that is being activated.

2.3.7 – Gaps in the literature on the schema model of Eating Disorders

Although the schema concept has been explored within eating disordered participants a large number of unanswered questions remain. All research has been completed on adult eating disordered women and although this encapsulates the majority of cases according to the prevalence data the literature fails to address schemata in children or adolescents or males. The literature has also concentrated on women with a diagnosis of eating disorders and as a result it has failed to add to the understanding of individuals who display eating disordered behaviour but do not meet full diagnostic criteria for an eating disorder. As has previously been described it is thought that such individuals make up half of the clinical population (Fairburn & Harrison, 2003). Moreover, the nature of the methodologies employed to investigate the schema concept in eating disorders have been cross sectional or correlations. Consequently, inferring causal links between schema processes or schemata and eating pathology should be resisted. Finally, although the literature has added to the understanding of the nature and origins of schema level pathology in eating disorders there is a dearth of literature regarding the usefulness of such information in the treatment of eating disorders. Further research is required on the treatment of eating disordered individuals using schema focused cognitive behaviour therapy. It would be reasonable to assume that treatment using a schema model approach could lead to symptomatic relief as previous research in a general psychiatric population has shown that modification of early maladaptive schema strongly predicted symptom relief by the end of treatment (Nordahl *et al.,* 2005).

In terms of treating dysfunctional schemata difficulties can arise as although several schemata may underlie an individual's thoughts, feelings, behaviour and relationships with others it is unlikely that all schemata will be activated at the same time. It is possible that some schemata may be active while others remain dormant. This can result in therapy being particularly difficult as the formation of clear goals is hampered by the different presentation of patients between sessions. The schema mode concept relates to a group of schemata that are currently active for an individual. Consequently, as an individual shifts from one schema mode to another, different schemata are activated for this individual. As different schemata are

activated, different thoughts, feelings, behaviours present in different modes; consequently treatment requires the therapist to use different treatment strategies in response to each mode.

Summary

EMS have been shown to play an important role in individuals with a diagnosis of eating disorders. Previous research has demonstrated that a large number of EMS have been pertinent to eating disordered individuals. Research regarding the role of EMS and schema processes is still in its infancy. For example, there is no known published research that has investigated the activation of EMS and the resultant influence on behaviour or the causal link between EMS and eating disordered pathology. The literature suggests that EMS are present for individuals who currently meet a diagnosis of eating disorders and are present to a lesser extent with recovered individuals but a direct causal link is not substantiated.

Research from the field of personality disorders has indicated that for some individuals a large number of dysfunctional schemata can be activated at any one time, which results in an unclear focus of treatment. An extension of Young's schema model has been developed over recent years and this is the schema mode model (Young *et al.*, 2003). All of the empirical research has concentrated on personality disordered individuals. As has previously been discussed eating disorders are known to be comorbid with a range of personality disorders. No known research has investigated Young's schema mode concept within the eating disordered population.

In order to further enhance the understanding of the role of cognitive processes in the eating disordered population this research aims to investigate the schema mode concept within an eating disordered population. Eating disordered individuals are reported to be particularly difficult patients to treat and furthering the understanding of the schema processes within these individuals will aid the development of treatment approaches for these individuals.

2.4 – Schema Modes

The Schema Mode concept is a relatively new concept that is less well known among

clinicians and researchers in the field of cognitive therapy. Lobbestael *et al.* (2007) propose that the unfamiliarity with the schema mode concept is due to the infancy of the concept and also because it is a difficult construct that emphasises many elements. The schema mode concept was constructed as it became apparent that for some patients a large number of EMS are evident and it is possible that many of these EMS are activated at any one time. This is particularly evident in patients with personality disorders and much of the research completed to date on the schema mode concept has been with individuals with a diagnosis of a personality disorder; more specifically, borderline personality disorder (BPD) (e.g. Lobbestael *et al.* 2008, Johnston *et al.* 2009). However, Young *et al*. (2003) note that the schema mode concept can be applied to other diagnostic categories. The cognitive behavioural approach has been found to achieve high success in reducing the symptomatology of personality disorders such as suicidal behaviour (Beck, 2002), although similar success is not evident for deeper personality changes (Arntz & van Genderson, 2009).

For some patients with borderline personality disorder it is proposed that as many as 15 schemata may be activated at any one time (Lobbestael *et al.,* 2007). This large number of activated EMS can hamper the therapeutic process as it makes the formation of therapy goals particularly difficult. Clinical descriptions of patients with severe personality disorders also highlight that although they may appear calm and in control for a large proportion of the time they can have a very rapid change of affect (Young *et al*., 2003). Such rapid changes of affect can not be explained by EMS as these are hypothesised to be trait constructs, and as a result are thought of as the stable underpinnings of the personality construct. In order to try and explain the abrupt changes in thoughts, feelings and behaviours that are evident in such individuals, Young amalgamated a number of EMS and coping responses together so that the number of EMS could be reduced. Young refers to the sets of EMS and coping responses as schema modes (Bamber, 2004; Young *et al*., 2003).

Young *et al.* (2003) define a schema mode as 'those schemas or schema operations – adaptive or maladaptive – that are currently active for an individual' (p.37). Young *et al*. (2003) highlight that a dysfunctional schema mode is activated when dysfunctional EMS or coping responses result in distressing emotions, avoidance or behaviours that

are dysfunctional for the individual. Lobbestael *et al.* (2007) highlight that by this definition the addition of schema modes into SFT does not result in any new content-related aspect, but offers a unit of analysis that combines EMS and coping responses in an attempt to make such information more manageable.

There are two main differences between schema modes and EMS. One of these differences relates to the dimensionality of the constructs. For example, EMS relate to one dimension, such as defectiveness. The schema mode construct however is much broader and incorporates more than one EMS, and coping responses (e.g. the vulnerable child mode is a combination of a number of EMS such as defectiveness and emotional deprivation in addition to the coping responses of surrender, avoidance and overcompensation). The second difference between EMS and schema modes refers to the distinction between state and trait theory. EMS are stable personality constructs and as such are referred to as trait constructs. Schema modes on the other hand reflect state constructs as they are dependent on the situation an individual is in and are strongly related to the current emotional state of the patient (Young *et al*., 2003).

In total there are four categories of schema modes incorporating a range of individual schema modes. The Schema Mode Inventory (SMI; Young *et al.,* 2008) is a measure of schema modes and fourteen modes in total are assessed. The validity and reliability of the Schema Mode Inventory is discussed in chapter 3.

Child Modes	Dysfunctional Coping Modes	Dysfunctional Parent Modes	Healthy Adult Mode
Vulnerable child	Compliant surrender	Demanding parent	Healthy adult
Angry Child	Detached protector	Punitive Parent	
Impulsive child	Detached self-soother		
Undisciplined child	Self aggrandiser		
Happy Child	Bully and attack		

TABLE 1 – CATEGORIES OF SCHEMA MODES ACCORDING TO YOUNG *ET AL*. (2003).

Young's definition of schema modes will now be discussed.

Child Modes

Child modes are thought to be innate and represent the emotional range of all human beings. Consequently all people are brought into this world with the capacity to express all four modes. Child modes are moulded by childhood experiences and the environment in which a person grows up is thought to either suppress or enhance a particular mode. Young *et al.* (2003) suggest that the vulnerable child mode is an extremely important mode and is regarded as the most important for mode work. The description given by Young *et al.* (2003) states that vulnerable child 'experiences dysphoric or anxious affect, especially fear and sadness, and helplessness, when "in touch" with associated schemata' (p.273). The angry child relates to the experience of a young child when it has become angry as a result of its core needs not being met. This behaviour may be managed by a parent through a variety of means and the anger experienced by a young child in this situation is normal. In the angry child mode an adult individual may react angrily in response to a perception of their needs not being met or a perception of a personal injustice. Often patients who are in this mode have the associated schemata of abandonment, mistrust/abuse, emotional deprivation, subjugation and others (Young *et al.*, 2003). The impulsive/undisciplined child will meet their needs and gain pleasure by behaving impulsively with little concern for others or within any forms of limits. It is described as the natural state of a child, which behaves with little inhibition and little cares or responsibilities in a free environment. An impulsive/undisciplined child does not tolerate frustration well and is unable to delay gratification and so struggles to achieve long- term goals. The associated EMS associated with this mode are insufficient self control and entitlement. The characteristics of this mode in an individual may present as appearing spoilt, careless, impatient, unfocused or out of control (Young *et al.*, 2003).

The happy child is not a dysfunctional mode and in this mode the individual feels loved and contented. There are no associated EMS in this mode as it is a mode that indicates an absence of dysfunctional schema activation.

Dysfunctional Coping Modes

The coping modes correspond to the schema processes of surrender, avoidance and overcompensation outlined earlier. The surrender coping strategy is characterised by

the mode ‘compliant surrender’. The avoidance coping strategies are depicted by the ‘detached protector’ and the ‘detached self-soother’ modes. The ‘detached protector’ refers to the psychological withdrawal of individuals by disconnecting from others and acting in an almost robotic manner to shut off emotions. The ‘detached self soother’ mode is also an avoidant strategy whereby individuals shut off their emotions by engaging in activities that will soothe or distract them from feeling. The schema modes that relate to the schema process of overcompensation are the ‘self-aggrandizer’ and ‘bully and attack’. These relate to behaviours characterised by self absorption and a lack of empathy for others.

Dysfunctional parent modes

These modes reflect the internalised behaviour of parents towards the child. The ‘punitive parent’ is the voice of the parent criticising the individuals. The ‘demanding parent’ refers to the parents expecting excessively high standards.

The healthy adult mode is a functional mode characterised by performing appropriate adult functions.

2.4.1 – Infancy of the concept

Research on the schema mode concept has been limited. The paucity of experimental studies on the schema mode illustrates the infancy of this concept. The research that has been completed has investigated the schema mode concept in personality disordered populations. Arntz *et al.* (2005) and Lobbestael *et al.* (2005) have investigated the mode concept with individuals with a diagnosis of borderline personality disorder using the Schema Mode Inventory (SMI). These studies have highlighted that BPD is characterised by the detached protector, abandoned child, angry child and punitive parent modes when compared to patients with Cluster C personality disorders and non patient controls. Lobbestael *et al.* (2008) investigated the schema mode concept in a mixed sample of 439 participants which contained patients with axis I, axis II and non patients. This study implemented correlation analyses between schema mode profile and psychopathology (as assessed by the Structured Clinical Interview for DSM-IV axis I and II disorders or the Structural Interview for DSM-IV Personality Disorders). The results of this study corroborated

the hypothesised personality disorder mode correlations as suggested by Young *et al*. (2003). This research lends some support to the construct validity of the mode concept although future research needs to be completed using prospective longitudinal design in order to assess the predictive value of schema modes (Lobbestael *et al*., 2008*).*

2.4.2 – Rationale for investigating the schema mode concept in an eating disordered population.

It is well recognised that for many people with a diagnosis of an eating disorder the factors that maintain their difficulties are concerns about their weight and/or shape. However, this does not appear to be the maintaining factor for all individuals with eating disorders and instead difficulties in regulating their emotion appear to be the key feature in maintaining their problems with eating (Corstorphine, 2008). Affect regulation difficulties have been discussed in the eating disorders literature by a number of authors. For example, Linehan (1993) describes such patients as having difficulties in distress tolerance, whereas Fairburn *et al*. (2003) describes 'mood intolerance'. As previously outlined alexthymia also appears to be more prevalent in eating disordered populations. Distress tolerance refers to the ability to endure and accept negative affect so that problem solving can take place (Linehan, 1993). Difficulties in distress tolerance result in high emotional vulnerability and an inability to regulate emotions through adaptive means. Linehan (1993) hypothesises that difficulties in distress tolerance are a product of growing up in an invalidating environment, which is defined as an environment in which communication of emotion is ignored or responded to negatively, and displays of affect are not tolerated (Linehan, 1993). Existing psychological interventions such as dialectical behaviour therapy (DBT) and cognitive emotional behaviour therapy (Corstorphine, 2006) have addressed affect regulation difficulties although these approaches require patients to consciously acknowledge the experience of emotion.

The schema model of eating disorders as proposed by Waller (submitted) suggests that eating disorders can be understood in terms of schema processes. The schema modes that relate to avoidance are the detached protector and the detached self soother. The detached protector is characterised by psychological withdrawal and

avoidance of affect. The detached self soother refers to the shutting off of emotions through distraction activities. As avoidant strategies are reported to be prevalent among eating disordered individuals it will be interesting to determine whether the detached protector or detached self-soother mode will be characteristic modes of the eating disordered population. Corstophine (2008) notes that it may be necessary to work with the detached protector mode with eating disordered patients when affect regulation difficulties arise and disable them from connecting to their emotions in any other way apart from in an intellectual way. Despite this assertion, no known research has been completed that has assessed the schema mode concept within an eating disordered population.

The compliant surrender mode relates to the schema processes of surrender and is an important indictor of patterns of dysfunctional schema driven patterns. As a coping strategy it may be relevant to an eating disordered population. As the current research is exploratory it would seem appropriate to determine the relevance of the compliant surrender mode with an eating disordered population.

2.5 – Aims and Hypotheses

The aims of this research are to determine whether the schema mode profile of individuals with eating disorders differ significantly from a control population and whether an eating disordered population are characterised by particular schema modes. The research also aims to determine the relationship between schema modes and EMS, experience of invalidation of emotion during childhood and symptoms of depression and anxiety. The research also aims to determine the relationship between these factors and eating disordered pathology.

In order to fulfil the aims outlined above six hypotheses will be tested. These hypotheses can be seen below:

Hypothesis 1

There will be a significant difference in the schema mode scores of the eating disordered and control population.

Hypothesis 2

The schema mode scores will not be evenly distributed across the different schema modes (i.e. a schema mode profile will exist).

Hypothesis 3

The coping modes (detached protector, detached self soother, compliant surrender) and the vulnerable child mode are characteristic modes of an eating disordered population.

Hypothesis 4

The eating disordered group will score higher on the Young Schema Questionnaire than the control group.

Hypothesis 5

There will be a significant relationship between dysfunctional schema modes and core beliefs, experience of invalidation of emotion during childhood and symptoms of anxiety and depression.

Hypothesis 6

There will be a significant relationship between eating disordered pathology and dysfunctional schema modes, maternal and paternal invalidation, core beliefs and depression and anxiety symptoms.

Chapter Three – Method

3.1 – Design

This project is a between subjects quantitative design. The two groups within this study are a clinical group made up of individuals with a diagnosis of an eating disorder according to ICD-10, and an undergraduate control.

3.2 – Statistical Power

Previous research examining core beliefs or EMS using the YSQ with has shown a very large effect size (d = 2) between an eating disordered and control sample (Leung, Waller & Thomas, 1999). No research to date has used the SMI (Young et al, 2008) with an eating disordered population. It would be reasonable to assume that a similar effect size as shown with the YSQ would be evident with the SMI. The necessary sample size calculation was based on Cohen's (1992) recommendations for detecting the difference between two independent sample means. To achieve power of 0.80 and an $\alpha = 0.05$ between two independent means with a large effect size, twenty-six participants in each group are required (Cohen, 1998).

3.3 – Procedure

Ethical Considerations

In order to gain ethical approval for this project it was necessary to submit an application to three ethics committees. This included the North of Scotland Research Ethics Committee (NOSREC), including NHS Grampian's Research and Development Office. The Philosophy, Psychology and Language Sciences (PPLS) Ethics Committee at the University of Edinburgh and the Clinical Psychology Ethics Committee at the University of Edinburgh.

North of Scotland Research Ethics Committee (NOSREC) approval

Some changes were required from the initial application, which was submitted on the 5th February 2009, these changes were made and ethical approval was granted on the 1st April 2009. Approval from NHS Grampian's Research and Development team was granted on the 15th April 2009. A substantial amendment was submitted to NOSREC on the 5th May 2009. This amendment was made in an attempt to recruit more clinical

participants and is discussed further on page 49. This amendment was given full approval on the 8th May 2009 and confirmation from NHS Grampian's research and development office that this substantial amendment did not alter the local approval of this project was granted on the 13th May 2009. Full details of the correspondence can be found in appendix two.

One recommendation made by NOSREC after the initial ethical review was to make the control group anonymous. As the Hospital and Depression Scale (HADS) and the Short Evaluation of Eating Disorders (SEED) were being used as screening measures in the control group the researcher was concerned that some questionnaires may be returned indicating symptomatology for depression, anxiety and/ or eating disorders. Prior to the ethics application advice was sought from the British Psychological Society (BPS) on how to ensure confidentiality yet not neglect the researcher's duty of care to the participants in this study. Following advice from the BPS, discussion with supervisors and personal reflection, the research was designed so that all participants were informed that with their consent they would receive a letter from the researcher indicating if their scores could be indicative of depression/anxiety and/or and eating disorder. The cut off for writing to control participants was a score of 11 or more on the Anxiety and the Depression scale of the HADS and a score of 2 or more on either the Anorexia severity index or the Bulimia severity index on the Short Evaluation of Eating Disorders. It was highlighted that there could also be a number of other explanations for the scores on their questionnaires and that the results of these questionnaires do not mean that they have a depressive/anxiety and/or eating disorder. A link to an NHS information leaflet on anxiety/depression and/or eating disorders was also included in the letter, which was emailed to control participants if they consented.

Although encouraged by the ethics committee to make the questionnaires anonymous and remove all duty of care to the researcher this would have meant that participants would not have been able to withdraw from the study and they would not be able to give written consent. Additionally, the researcher felt that it would be unethical to be aware that participants in their research may well be displaying symptomatology of a mental health problem and ignore this information. Following further clarification on

my reasons for not making the control group anonymous through a telephone call with the scientific advisor and manager of NOSREC and a second amendment to the letter to control participants this methodology was eventually approved from NOSREC.

Following full approval, a research monitor from NOSREC contacted the researcher explaining that this project had been randomly selected for monitoring for adherence to good clinical practice. Consequently, the researcher arranged to meet with the research monitor to allow for this to take place.

PPLS approval

An application was made to the PPLS ethics committee on the 9th March and full approval for the project was granted on the 18th March 2009. The PPLS ethics committee were contacted on the 1st June 2009 to inform them of the required changes to the project following the amendment of the letter sent to control participants who were symptomatic of anxiety, depression and/ or an eating disorder.

Clinical Psychology Ethics Committee

An application was made to the Clinical Psychology Ethics committee on the 27th January 2009. The project was granted ethical approval subject to minor changes on the 1st February 2009.

3.4 – Participants

Recruitment

The control participants used in this study were undergraduate psychology students. Recruitment began by initially liaising with the Psychology Department at the University of Edinburgh to gain permission to have access to their students as a control group. I received confirmation from the Psychology Department at the University of Edinburgh that I was able to approach their undergraduate students subject to ethical clearance from the PPLS. Following ethical approval, a week was highlighted when recruitment would commence. Participants were recruited at level one, two and three lectures and individual lecturers from these lectures were contacted

beforehand to seek permission to speak to their class for five minutes in order to explain the nature of the research and to ask them to participate. All lecturers consented to the researcher giving a small presentation on the research project to the undergraduate psychology students and to hand out the information sheet, consent form and questionnaires at the end of the lecture. In total four lectures were attended, one level 1 lecture, one level 2 lecture and two level 3 lectures. The control group were provided with stamped addressed envelopes and if interested they were asked to send their consent form and questionnaires to the Outpatient Eating Disorders Service in Aberdeen.

The clinical participants in this study were individuals who had a diagnosis of an eating disorder according to ICD-10. All participants received their diagnosis through a clinician trained in diagnostics at their initial triage participants. The clinicians who ran their triage appointment were psychiatrists, clinical psychologists or clinical nurse specialists. Three NHS Eating Disorders Services in the North of Scotland were approached and permission was sought to approach their service users to invite them to take part in the research project. NHS Tayside and NHS Highland were unable to allow the researcher to approach their service users due to other commitments. The researcher worked clinically in the Outpatient Eating Disorders Service (EDS) in NHS Grampian throughout the duration of the research project and permission to seek ethical approval using NHS Grampian's service users was granted from the Head of the Outpatient EDS. Following full ethical approval new patients to the service were invited to take part in the research. This was achieved by a letter of invitation and an information sheet being sent out by the secretaries of the EDS with the patient's initial triage appointment letter. The clinician leading the triage appointment asked patients who had a diagnosis of an eating disorder if they were interested in taking part in the research project. All interested parties then met with the researcher and this allowed the researcher to give an overview of the research and to reinforce the important points from the information sheet that they had previously received. It also allowed the participant to ask any questions that they may have regarding the research. If the participants agreed to participate in the research they were asked to sign a consent form and were then given the Schema Mode Inventory (SMI), Young Schema Questionnaire Short Form (YSQ-S), and the Invalidating Childhood Environment

Scale (ICES) to complete. Participants were given the option of completing the questionnaires there and then or to complete them within their own time and send them back to the researcher in a provided stamped addressed envelope.

The approved methodology for recruitment of this study only allowed new referrals to the service to be approached. The full ethical approval for this project was not granted until 15th April 2009 and this meant that the data collection period was just over 3 months. The researcher was concerned that sufficient numbers would not be recruited from the approved protocol to achieve statistical power in the time frame. Consequently, the researcher submitted a major amendment to the NOSREC, which proposed an additional recruitment method. This involved writing to all patients who had presented to the Outpatient Eating Disorders Service in NHS Grampian for a triage appointment from 01/01/09 – 30/04/09 and who have a diagnosis of an ICD-10 Eating Disorder (made at their triage appointment) and who had not received any psychological treatment from the EDS (receiving any psychological treatment may result in a modification of their schema's since the diagnosis and hence would jeopardize the scientific value of the design). These participants were invited to take part via a letter of invitation. Participants were informed that they could either complete the questionnaires at home and send them into the department or they could come into the department and meet with the researcher to discuss the project before deciding whether or not they would like to participate. A reminder letter was also sent to all participants who had not returned the questionnaires within 2 weeks.

3.5 – Data gathering

The data was received through the post at the EDS and all data was addressed to the researcher. The questionnaires and consent forms were coded upon delivery. Following coding, the consent forms – (which contained identifiable information) – were separated from the questionnaires, - (which had no identifiable information). The data was then stored in a locked filing cabinet in the Outpatient EDS.

In addition to data received from the questionnaires additional data was required for the clinical group. This involved the researcher gathering data from the clinical

participants' medical records. This information included the participants scores on the Eating Disorders Examination Questionnaire (EDEQ), HADS and the eating disorder diagnosis that was made by a clinician trained in diagnostics at their initial triage appointment. The EDEQ and the HADS are routine measures used within the EDS and the return of these questionnaires is a requirement before a triage appointment is offered. The results of these questionnaires and the clinical participant's diagnosis were gathered from the departmental computerized clinical note system, which is called Excelicare.

The data were marked and then put into a database using the statistical package for social scientists (SPSS inc.) v.15.

Return rate of questionnaire measures

The return rate of questionnaire measures for the clinical and control participants can be seen in the tables below:

QUESTIONNAIRES GIVEN TO INTERESTED PARTIES	QUESTIONNAIRES RETURNED	
N	**N**	**Percentage return rate**
38	28	74%

TABLE 5 – RETURN RATE OF QUESTIONNAIRES FOR CONTROL GROUP

RECRUITMENT METHOD 1			RECRUITMENT METHOD 2		
Questionnaires given out	**Questionnaires returned (N)**	**Percentage return rate**	**Questionnaires given out**	**Questionnaires returned (N)**	**Percentage return rate**
18	13	72%	28	2	7%

TABLE 6 – RETURN RATE OF QUESTIONNAIRES FOR CLINICAL GROUP

3.6 – Demographics

The total number of participants in this study was 43 with 15 in the clinical group and 28 in the control group.

	EATING DISORDERED			CONTROL		
	Range	**Mean**	**Std. Dev**	**Range**	**Mean**	**Std.Dev**
Age	18-32	20.3	2.65	18-53	20.9	10.8
Sex – Females	15			28		
Male	0			0		

TABLE 7 – DEMOGRAPHIC INFORMATION OF CLINICAL AND CONTROL GROUP

Of the 15 eating disordered participants, two were diagnosed with Anorexia Nervosa, two were diagnosed with Bulimia Nervosa and eleven were diagnosed with Atypical Anorexia Nervosa.

3.7 – Measures

In total six questionnaires were used in this study. These are the:

- The Eating Disorders Examination Questionnaire (EDEQ) – Fairburn and Beglin, (1994). Completed by the clinical group only.

- The Short Evaluation of Eating Disorders (SEED) – Bauer, Winn, Schmidt & Kordy (2005). Completed by the control group only.

- The Invalidating Childhood Environment Scale (ICES) – Mountford, Corstorphine, Tomlinson, Waller (2005). Completed by both the clinical and control group.

- The Schema Mode Inventory (SMI) – (Young, Arntz, Atkinson, Lobbestael, Weishaar, van Vreeswijk and Klockman, 2008). Completed by the clinical and control group.

- The Hospital Anxiety and Depression Scale (HADS) (Zigmond and Snaith, 1983). Completed by the clinical and control group.

- The Young Schema Questionnaire – Short Form (YSQ-S) – Young (1998). Completed by the clinical group and the control group.

The Hospital Anxiety and Depression Scale (HADS) (Zigmond and Snaith, 1983)

The HADS was developed in 1983 in order to identify possible and probable caseness of anxiety and depressive disorders among patients who were in a clinic in a non-psychiatric hospital. The scale is divided into two scales, namely the Anxiety subscale (HAD-A) and the Depression subscale (HAD-D), both of these scales contain seven items. Each of the items is on a scale from 0 – 3 with 3 indicating the highest symptom severity. The scores on the HADS can be separated in three categories, whereby a total score on each subscale defines the category. A subscale

score of 0-7 indicates an absence of pathology and is a non case, a subscale score of 8-10 is defined as a doubtful case and a score of 11 or greater indicates a definite presence of pathology and is categorised as having 'caseness' (Zigmond and Snaith, 1983).

In order to prevent any conflicts between somatic disorders and the physical symptoms of depression and anxiety all physical symptoms were excluded. This is particularly useful when using this questionnaire with an eating disordered population due to the overlap between the physical symptoms of an eating disorder and the physical symptoms of depression and/or anxiety, for example, loss of appetite/weight and sleeping difficulties.

The HADS has been used extensively and a in a review of the validity of the HADS, Bjelland *et al.* (2002) noted 747 papers that referred to the use of HADS by May 2000. In this review, support was found for the two-factor structure of the HADS. Using an empirically based exploratory factor analyses the majority of the studies which they reviewed revealed two relatively independent dimensions of anxiety and depression which were closely related to HAD-A and the HAD-D. The review also demonstrated that the HADS has reliable internal consistency. In terms of concurrent validity it was shown that despite the low number of items on the HADS compared with other measures (e.g. the General Health Questionnaire (GHQ), Beck Depression Inventory (BDI) and the State Trait Anxiety Inventory (STAI)) the concurrent validity of the HADS is good to very good. This was demonstrated by medium to strong correlations with a range of other measures frequently used to assess depression or anxiety. In Bjelland *et al's* (2002) review the range of correlations between the HAD-D and BDI were 0.62 – 0.73, between the GHQ and HADS-D were 0.50 – 0.66, between the GHQ and HADS-A were 0.50 – 0.68 and between the STAI and the HADS-A were 0.64 – 0.81. Bjelland *et al*. (2002) also demonstrated that the HADS had excellent case finding abilities in a range of samples, including those from the general population, those attending primary care services and psychiatric patients.

The Young Schema Questionnaire – Short Form (YSQ-S) – Young (1998)

The Young Schema questionnaire is a self report measure used to identify a range of

early maladaptive schemata (EMS) and consists of 205 items (Young, 1994). The items on the YSQ were derived from clinical experience with chronic and/or difficult psychotherapy patients. Young hypothesised that there are 16 core beliefs or Early Maladaptive Schema (EMS). These are outlined in Appendix 1. Each item on the YSQ is rated using a 6 point scale (1= completely untrue of me, 2 = mostly untrue of me, 3 = slightly more true than untrue, 4 = moderately untrue of me, 5 = mostly true of me, 6 = describes me perfectly).

The first research using the YSQ with a clinical population was carried out by Schmidt *et al.* (1995) and this demonstrated that the YSQ had a factor structure, which reflected Young's hypothesised core beliefs or EMS's. Fifteen of the original 16 scales were replicated in a factor analysis. A further study (Lee, *et al.,* 1999) used the YSQ with a larger clinical population and found the same fifteen factors as Schmidt *et al.* (1995). The 16 subscales of the YSQ have shown adequate convergent and discriminant validity as well as adequate test-retest validity and internal consistency. The YSQ has been shown to have acceptable psychometric properties but it is a time intensive measure, taking up to an hour to complete for some individuals. A shorter version of the YSQ, called the YSQ-S has been devised and this consists of 75 items (Young, 1998). This was devised to provide a more time effective measure of EMS. This measure assesses 15 EMS, namely abandonment, mistrust/ abuse, social alienation, defectiveness, incompetence, dependency, vulnerability of harm, enmeshment, subjugation of needs, self-sacrifice, emotional inhibition, unrelenting standards, entitlement, and insufficient self-control. Waller *et al.* (2001) tested the psychometric validity of the YSQ-S with an eating disordered and nonclinical comparison group. Similar levels of internal consistency were found between the long version (YSQ-L) and the short version (YSQ-S). Among the bulimic population the internal consistency of each of the 15 subscales for the YSQ-L was 0.98 and 0.98 for the YSQ-S. For the comparison women the alpha levels for these subscales were 0.97 for the YSQ-L and 0.92 for the YSQ-S. All alpha levels exceeded 0.80 on all subscales which is can be deemed acceptable as it exceeds the value of 0.70 which Nunally (1978) describes as an acceptable value for internal consistency. Waller, Meyer & Ohanian (2001) also reported string correlations between the overall scale scores of the YSQ-L and YSQ-S with Pearson's *r* exceeding

0.84 ($p<0.001$) in all cases. In terms of discriminant validity the YSQ-L and the YSQ-S has very similar patterns of differences between the groups on t-tests and discriminant function analyses (YSQ-L – $F(3,116) = 40.8$, $p<0.001$; YSQ-S – $F(2, 91) = 75.5$, $p<0.0001$). Welburn, Coristine, Dagg, Pontefract & Jordan (2002) examined the psychometric properties of the YSQ-S using a sample of patients from a psychiatric day treatment program. The factor analysis supported the 15 subscales, which also demonstrated good internal consistency. Welburn *et al* (2002) examined the relationship between the subscales on the YSQ-S and psychiatric symptomatology and found support for the construct validity of the YSQ-S, indicating the importance of EMS in the development and maintenance of psychiatric symptoms.

The YSQ-S was utilised instead of the YSQ as it has been shown to have comparable psychometric properties and it is a more time effective tool. As it takes a shorter time to complete it was also deemed less of a burden for participants to complete. As outlined previously it has also been utilised with an eating disordered population before (Waller *et al*., 2001).

The Schema Mode Inventory (SMI) – (Young, Arntz, Atkinson, Lobbestael, Weishaar, van Vreeswijk and Klockman, 2008).

The SMI is a self- report measure containing 124 items and measures 14 schema modes. These can be categorised into four main types of modes namely the child modes, the coping modes, the parent modes and the adaptive modes. The child modes are the vulnerable child mode, the angry child mode, and the enraged child mode, and these are thought to result from unmet core childhood needs (Young *et al*., 2003). The coping modes are the compliant surrender mode, the detached protector mode and the detached self-soother mode, and these are thought to correspond to the overuse of the fight, flight or freeze coping strategies (Young *et al*., 2003). The parent modes are the self- aggrandizer mode, the bully and attack mode, the punitive parent mode and the demanding parent mode, and these are thought to result from internalised behaviour of the parent towards the child (Young *et al*., 2003). The two adaptive modes are the happy child mode which is described as a playful and spontaneous mode and the healthy adult mode which is described as the mode that

reflects the adaptive thoughts, feelings and behaviours (Lobbestael, van Vreeswijk, & Arntz, 2008).

The SMI is a relatively new measure and the psychometric properties of this questionnaire have only been investigated in one research project to the author's present knowledge. Lobbestael, van Vreeswijk Spinhoven, Schouten & Arntz (submitted for publication) describe a study in which 863 participants completed the SMI, the results indicated an excellent fit for the 14 factor model (CFI = .98) and as well as good internal consistencies (Cronbach's α ranging from .76 to .96, mean = . 86). The results of this study also indicated that the intercorrelations between the subscales were moderate to high, the test-retest validity was excellent (mean ICC = . 84) and construct validity was reasonable. Good discriminant and moderate convergent validity was also demonstrated (Lobbestael *et al.,* submitted for publication).

The SMI has not been empirically tested using an eating disordered population before.

The Invalidating Childhood Environment Scale (ICES) – Mountford, Corstorphine, Tomlinson, Waller (2005)

Mountford et al (2005) note that parental invalidation of a child's emotional needs is a potentially important construct in the eating disorders. They highlight that invalidation may be related to future difficulties in tolerating distress, which are often reported in adults with eating disorders. The ICES is an 18 item self-report questionnaire, the items were generated from clinical experience and previous clinical descriptions (Linehan, 1993). Of the eighteen items, fourteen relate to specific maternal and paternal behaviours and the remaining four items reflect broad perceptions of family structure and style (Mountford *et al.,* 2005*).* An invalidating environment is defined by Linehan (1993) through eight themes, namely – ignore emotions, ignore thoughts and judgements, negate thoughts and judgements, negate emotions, over-react to thoughts and judgements, overreact to emotions, overestimate problem solving, and oversimplify problem solving (Linehan, 1993).

The ICES has been used previously with an eating disordered and control population by Mountford *et al.* (2005).

The Eating Disorders Examination Questionnaire (EDEQ) – Fairburn and Beglin, (1994).

The EDEQ is a self-report questionnaire measure that is widely used to assess the attitudes and behavioural features of individuals diagnosed with an eating disorder. The EDEQ is derived from the Eating Disorders Examination (EDE; Fairburn & Cooper, 1993). The EDE has been extensively researched and it is considered the 'gold standard' for the assessment of eating disordered pathology (Garner, 1995). Although the EDE has been shown to be a very effective tool in the assessment of eating disordered pathology it is a time intensive assessment which requires specialist training to administer. The EDEQ was developed in order to provide an efficient, cost effective alternative to the EDE (Fairburn & Beglin, 1994). The EDEQ provides a comprehensive assessment of specific psychopathology of eating disordered behaviour in a 36 item self report format. Mond *et al.* (2006) review the validity of the EDEQ and note that a number of studies have found a high level of agreement between the EDE and the EDEQ in the assessment of attitudinal features of ED psychopathology in the general population (e.g. Mond *et al.*, 2004a) and in clinical samples of BN and Binge Eating Disorder (BED) patients (Carter, *et al*., 2001; Wilfley *et al.*, 1997; Grilo *et al.*, 2001). Other psychometric properties of the EDEQ have shown acceptable internal consistency, test-retest reliability and temporal stability (Luce & Crowther, 1999; Mond *et al.*, 2004a).

The Short Evaluation of Eating Disorders (SEED) – Bauer, Winn, Schmidt & Kordy (2005)

The SEED was developed for the assessment of the key symptoms of eating disorders (Bauer *et al.*, 2005). The SEED assesses the three main symptoms of AN and BN. These are degree of underweight, fear of weight gain, and distortion of body perception for AN, and amount of binge eating, amount of compensatory behaviour and over concern with body shape and weight for BN. This results in two total

severity indices, namely the AN TSI and the BN TSI. Each of the six main symptoms is scored on a scale of 0-3 with 3 indicating the highest severity, two of the symptoms which are deemed the most central to the two diagnoses are counted double and these are the degree of underweight for AN and the amount of binge eating for BN. The SEED is made up of 6 questions and takes no longer than 5 minutes to complete. In comparison to the EDEQ it a relatively basic tool that is a useful screening measure for the main eating disorder symptoms.

Bauer *et al.,* (2005) investigated the validity of the SEED using two clinical samples, one of which was from Germany and the other Britain; there was also one British non clinical sample. This research highlighted that the SEED has good construct validity and this was highlighted by the relations between the SEED and the EDI were observed in the expected direction. Good criterion – related validity was also observed indicating that the SEED is able to discriminate between eating disordered patients and non patients (Bauer *et al.,* 2005).

3.8 – Data Analysis

The YSQ-S, SMI, HADS, EDEQ and the SEED were all scored as advised by the developers of these questionnaires. In order to score the ICES (Mountford *et al.,* 2005) the developers recommend that levels of perceived invalidation by parents are calculated by obtaining the mean score of the 14 items for each parent; a higher score reflects a greater perception of invalidation by the parents. Although this scoring method was advised it was not followed. The rationale for this is because the 14 items of this questionnaire contain statements of validation and invalidation (for example, 'My parents would become angry if I disagreed with them' and 'My parents made me feel ok if I told them I didn't understand something difficult for the first time'). Both of these statements are rated on a Likert scale of 1-5 (never-all of the time). Consequently, high scores on the statements of validation would elevate the total mean score of the questionnaire. Mountford *et al.* (2005) state that a higher total mean score reflects a more invalidating environment although this would not be the case as high scores on the validating items would confound the measure of invalidation. In order to prevent this occurring, the scores on validating items were reverse coded.

All of the data was analysed using the computerised 'statistical package for the social sciences' (SPSS inc.) v.15. In order to test the six hypotheses a number of non-parametric analyses were completed. These included a Mann-Whitney U Test to determine the differences between the eating disordered and control group on a number of measures. Next, the Friedman's Test was completed to determine the distribution of schema modes across both groups. Planned post-hoc analyses, based on theoretical predictions from the schema mode theory as applied to eating disordered populations, were then completed using the Wilcoxon Signed Rank test. Finally, the relationship between eating disordered pathology and schema modes, core beliefs, depression, anxiety and parental invalidation was explored using Spearman's correlation analyses.

Chapter Four – Results

4.1 – Exploratory Data analysis

Exploratory analysis of the data set was completed to visually inspect the quality of the data for outliers, distribution, and central tendency. The minimum and maximum scores of all variables were also screened to check for data entry errors. In addition to observing the minimum and maximum scores, the data sheet was visually inspected to ensure no errors had been made in data entry. Each of the subscales of all of the questionnaire measures were examined and no significant outliers were identified. As a result no data was excluded from the subsequent analysis. The Short Evaluation of Eating Disorders was used as a screening measure of eating disordered behaviour for participants in the control group. Eating disordered pathology is indicated by a scale score above 2 on either the anorexia severity index or the bulimia severity index. None of the control participants exceeded this value and as a result no control participants were excluded from the study.

4.2 – Descriptive Statistics

TABLE 8 – SUMMARY DESCRIPTIVE STATISTICS FOR THE WHOLE SAMPLE

MEASURES	N	MIN	MAX	MEAN	SE	SD
HADS - Anxiety	43	2	18	8.65	0.66	4.33
HADS – Depression	43	0	15	4.81	0.67	4.39
HADS total score	43	3	29	13.4	1.12	7.35
Total dysfunctional schema mode score (SMI)	43	16.7	48.3	30.9	1.16	1.16
Total Schema Score (YSQ)	43	18.2	61.2	38.1	1.78	11.6
EDEQ* – Global score	15	2.4	5.40	4.68	0.22	0.86
****Maternal Invalidation (ICES)**	43	14	52	24.2	1.31	8.58
****Paternal Invalidation (ICES)**	41	14	66	29.1	2.27	14.6
Age	43	18	53	23.3	1.18	7.79

*EDEQ – Eating Disorders Examination Questionnaire.

The descriptive statistics show a large range of values for all measures. This is to be expected as both the eating disordered group and the control group are included within table 8.

TABLE 9 – SUMMARY DESCRIPTIVE STATISTICS FOR THE CONTROL SAMPLE

MEASURES	N	MIN	MAX	MEAN	SE	SD.
HADS - Anxiety	28	2	10	6.78	0.61	3.24
HADS – Depression	28	0	8	2.67	0.47	2.49
HADS total score	28	3	20	9.42	0.92	4.85
Total dysfunctional schema mode score (SMI)	28	18	32	20.36	1.23	2.66
Total Schema Score (YSQ)	28	16.7	43.8	27.1	1.74	6.52
Maternal Invalidation (ICES)	28	14	41	22.8	1.42	6.55
Paternal Invalidation (ICES)	26	14	66	27.8	2.95	13.1
Age	28	18	32	20.3	0.5	2.65

TABLE 10– SUMMARY DESCRIPTIVE STATISTICS FOR THE EATING DISORDERED SAMPLE

MEASURES	N	MIN	MAX	MEAN	SE	SD
HADS - Anxiety	15	7	18	12.13	1.03	3.99
HADS – Depression	15	3	15	8.8	1.14	4.44
HADS total score	15	18	29	21.1	1.22	4.73
Total dysfunctional schema mode score (SMI)	15	33.6	53	28.9	0.99	10.8
Total Schema Score (YSQ)	15	33	48.3	37.8	2.09	3.84
EDEQ* – Global score	15	2.43	5.40	48.6	0.22	8.12
Maternal Invalidation (ICES)	14	14	70	29.4	2.8	11.2
Paternal Invalidation (ICES)	14	14	65	28.7	3.3	12.7
Age	15	18	53	28.9	2.79	10.8

In order to determine whether the data was normally distributed the Kolmogorov-Smirnov test was utilised. The full results of this analysis can be seen in Appendix 12. Table 11 indicates the results of the Kolmogorov – Smirnov test from the total scores on each of the questionnaire measures.

Measure	Group	Kolmogorov-Smirnov (a)		
		Statistic	df	Sig.
HADS total score	Control	0.168	*26*	0.056
	Eating Disordered	0.193	14	0.164
SMI total Score	Control	0.084	26	0.20
	Eating Disordered	0.219	14	0.68
YSQ total score	Control	0.130	26	0.20
	Eating Disordered	0.272	26	0.006
Maternal Invalidation (ICES*)	Control	0.129	26	0.20
	Eating Disordered	0.179	14	0.20
Paternal Invalidation (ICES*)	Control	0.279	26	0.00
	Eating Disordered	0.205	14	0.88

Age	Control	0.244	26	0.00
	Eating Disordered	0.224	14	0.055

* ICES – Invalidating Childhood Environment Scale

TABLE 11 – KOLMOGOROV –SMIRNOV TEST OF NORMAL DISTRIBUTION FOR TOTAL SCORE OF QUESTIONNAIRE MEASURES.

The above table shows that for the eating disordered group, the distribution of the YSQ Total Score variable deviates significantly from normal ($p<0.01$). For the control group, the distribution of the paternal invalidation variable deviates significantly from normal ($p<0.01$) as does the age of the control group ($p<0.01$).

Although the above table gives an indication that the data set may not be normally distributed somewhat of a mixed picture emerges. In order to determine whether a parametric or non parametric analysis should be used, the results of the Kolmogorov – Smirnov test on the individual variables of each questionnaire were consulted. These results indicate that for the Schema Mode Inventory four of the fourteen modes were not normally distributed across both groups (Enraged Child, Detached Protector, Punitive Parent and Healthy adult mode). The results for the Young Schema Questionnaire indicated that twelve of the fifteen individual schemas were not normally distributed across both groups (Emotional Deprivation, Mistrust and Abuse, Defectiveness, Failure to Achieve, Dependence, Enmeshment, Subjugation, Self-Sacrifice, Emotional Inhibition Unrelenting Standards, Entitlement and Insufficient Self control). Careful consideration was given to the utilisation of a parametric or non-parametric analysis. Although some variables indicated normality a large number did not. Also, of those that did indicate normality a proportion of these approached significance.

Coolican (1994) states that a parametric test makes three assumptions. These assumptions are that the data is at least interval level, the data is normally distributed, and that there is a homogeneity of variance. The data from this study is interval level although the assumption of normality is not met for many variables. There has been some controversy regarding the implementation of non parametric tests when all three assumptions are not met. For example, Siegel & Castellan (1988) strongly recommend the use of non parametric tests, whereas Howell (1997), emphasize that parametric tests are very robust to violations of these three assumptions and highlight

that there is a loss of power when nonparametric tests are utilized. Kinnear & Gray (2000) state that if there is a violation of the three assumptions in addition to a marked variation in sample size across the two groups then non parametric tests would be appropriate. Although aware that the probability of making a Type 2 error is increased using a non parametric test it was decided that to prevent making a Type 1 error a non parametric analysis would be conducted as much of the data in this study is not normally distributed and there is a considerable variation in sample size between the two groups (Control group N=28, Eating Disordered Group N=15).

4.3 - Hypotheses

The primary aim of this research is to determine whether the schema mode profile of individuals with eating disorders differ significantly from a control population. In order to investigate this the following hypothesis was tested:

Hypothesis 1 – There will be a significant difference in the schema mode scores of the eating disordered and control population.

A pictorial representation of the mean schema mode score for each group can be seen in Figure 3.

5

Figure 3 – Graph of the mean schema mode score for the clinical and control group.

The graph above highlights that the mean schema mode score was lower in the control group than the eating disordered group on all modes apart from the happy child mode and the healthy adult mode. This is to be expected as these two modes make up the only two functional schema modes within the questionnaire. The mean score for the Bully and Attack mode was the same for the eating disordered and the control population. In order to determine whether there was a significant difference between the schema mode scores across the two groups Mann-Whitney tests were used. The results of this can be seen in Table 12 below:

3.9

TABLE 12– RESULTS OF THE MANN WHITNEY U ANALYSIS OF THE DIFFERENCE BETWEEN GROUPS ON SCHEMA MODES.

Mode	Group	N	Mean Rank	Sum of Ranks	Mann-Whitney U	Z	Asymp. Sig (2-tailed)
Vulnerable child	Control	28	15.43	432	26	-4.7	p<0.001
	Eating Dis	15	34.63	514			
Angry Child	Control	28	17.46	489	83	-3.2	p<0.01
	Eating Dis	15	30.47	457			
Enraged Child	Control	28	18.86	528	122	-2.3	p<0.05
	Eating Dis	15	27.87	418			
Impulsive Child	Control	28	19.23	538.5	132.5	-1.9	p<0.05
	Eating Dis	15	27.87	407.5			
Undisciplined child	Control	28	20.41	571.5	165.5	-1.1	*ns*
	Eating Dis	15	24.97	374.5			
Happy Child	Control	28	28.46	797.	29	-4.6	p<0.001
	Eating Dis	15	9.93	149			
Compliant Surrender	Control	28	17.23	482.5	76.5	-3.4	p<0.01
	Eating Dis	15	30.90	463.5			
Detached Protector	Control	28	15.68	439	33	-4.5	p<0.001
	Eating Dis	15	33.80	507			
Detached Self Soother	Control	28	17.29	484	78	-3.3	p<0.01
	Eating Dis	15	30.80	462			
Self Aggrandizer	Control	28	20.61	577	171	-0.9	*ns*
	Eating Dis	15	24.60	369			
Bully and Attack	Control	28	22.55	631	194	-0.4	*ns*
	Eating Dis	15	20.97	314.5			
Punitive Parent	Control	28	15.59	436.5	30.5	-4.6	p<0.001
	Eating Dis	15	33.97	509.5			
Demanding Parent	Control	28	16.73	468.5	62.5	-3.8	p<0.001
	Eating Dis	15	31.83	477.5			
Healthy Adult	Control	28	26.73	748.5	77.5	-3.4	p<0.01
	Eating Dis	15	15.43	197.5			
SMI total score*	Control	28	15.43	432	26	-4.7	p<0.001
	Eating Dis	15	34.27	514			

- The SMI total score refers to the mean of 12 dysfunctional schema modes. The two modes excluded from this calculation were the Happy Child and the Healthy Adult mode. The reason for their exclusion is that these two modes are functional modes. Their inclusion would result in the total SMI score not being a valid measure of dysfunctionality.

Table 12 demonstrates that eleven of the fourteen schema modes are significantly different between the control and eating disordered group. The three modes that are not significantly different are the Undisciplined Child mode, the Self Aggrandizer mode and the Bully and Attack mode. The total SMI score is significantly more dysfunctional for the eating disordered group (p<0.001).

The second aim of this research was to determine whether the eating disordered

population are characterised by particular schema modes. In order to investigate this aim the following hypothesis was tested:

Hypothesis 2 – The schema mode scores will not be evenly distributed across the different schema modes.

In order to investigate this hypothesis separate Friedman's Tests were completed on the schema mode variables for both the control group and the eating disordered group. This test was implemented to determine whether mean schema mode scores were distributed evenly across the different schema modes. The results of this analysis indicate that the rankings differ significantly across the different schema modes for the eating disordered group (Chi-square = 105.21; df= 13; $p<0.001$) and the control group (Chi-square =225.5; df=13; $p<0.001$). Individuals in both groups show higher scores on some schema modes than others, rather than showing an even profile of schema mode scores.

As hypothesis two has been supported a number of planned post-hoc comparisons were made.

Hypothesis 3 - The coping modes (detached protector, detached self soother, compliant surrender) and the vulnerable child mode are characteristic modes of an eating disordered population.

In order to test this hypothesis the mean schema mode score of each individual was calculated, a Wilcoxon signed rank test was then completed on both the eating disordered data and the control data and the results of this can be seen in the table 13 and 14 below.

Variables	N	Mean Rank	Sum of	Z	Asymp. Sig.

				Ranks		(2-tailed)
SMI mean – Detached Protector	Negative Ranks Positive Ranks Ties Total	10 5 0 15	7.30 9.40	73 47	-0.74	0.460
SMI mean – Detached self soother	Negative Ranks Positive Ranks Ties Total	13 2 0 15	8.62 4.00	112 8	-2.95	0.003
SMI mean – Compliant surrender	Negative Ranks Positive Ranks Ties Total	12 3 0 15	9.00 4.00	108 12	-2.73	0.006
SMI mean – Vulnerable child	Negative Ranks Positive Ranks Ties Total	14 1 0 15	7.86 10.00	110 10	-2.84	0.005

TABLE 13 – WILCOXON SIGNED RANK TEST OF MODE COMPARISONS FOR THE EATING DISORDERED POPULATION.

In order to prevent making a Type 1 error it was necessary to use a corrected alpha value. This was achieved by dividing α by the number of comparisons (0.05/4) which results in a corrected α of 0.0125. Taking into account the corrected alpha Table X indicates that the Detached Self Soother mode, the Compliant Surrender Mode and the Vulnerable Child Mode are significantly different from the mean schema mode score for the eating disordered population. The Detached protector mode is not significantly different from the mean schema mode score which would suggest that the eating disordered group do not score higher on the detached protector mode scale than their overall mean schema mode score.

In order to determine whether the pattern between the mean schema mode score and the coping and vulnerable child modes were specific to the eating disordered population the Wilcoxon signed rank test was also completed on the control data. Figure 4 highlights the modes that were investigated.

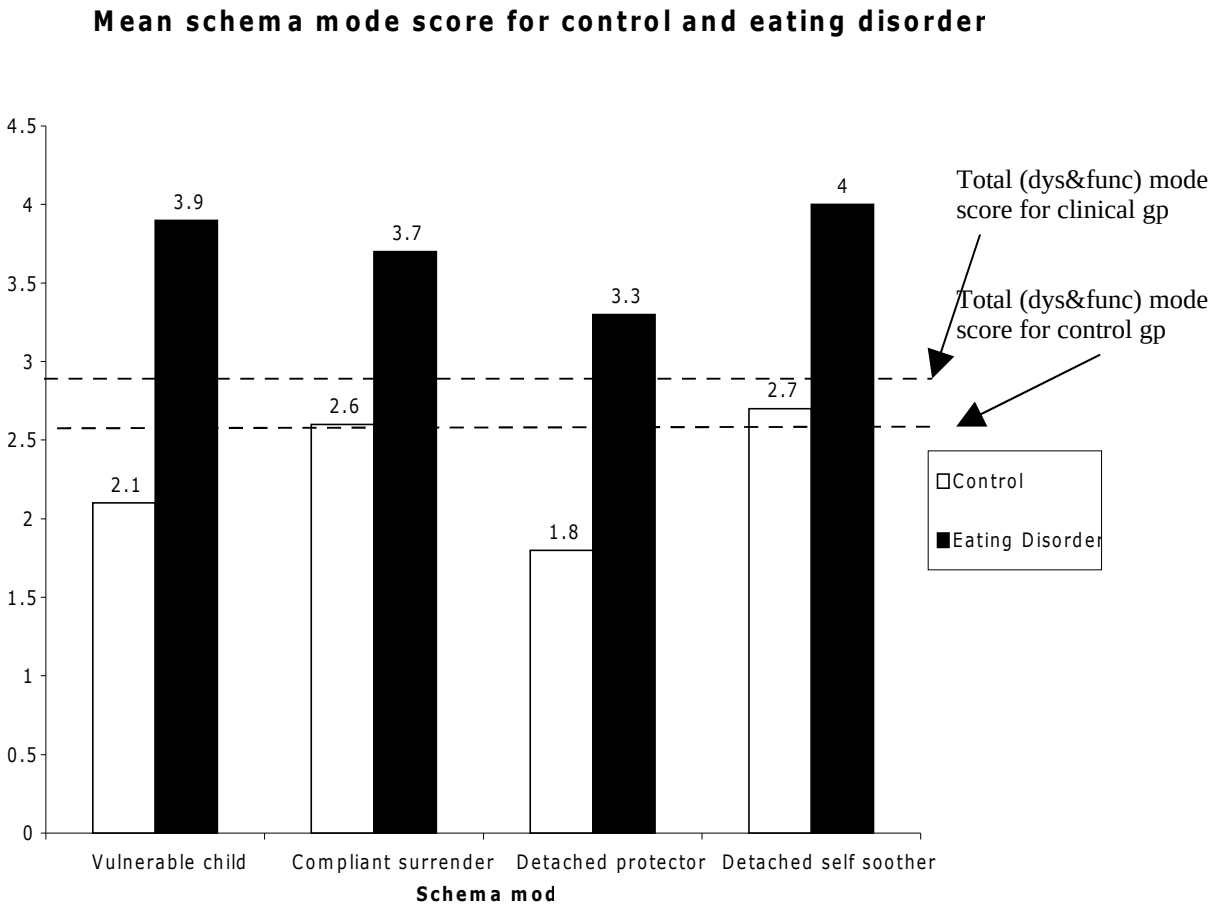

Figure 4 – Graph of the mean scores of investigated modes for the clinical and control group.

The results of the analysis can be seen in Table 14. Table 14 indicates that the Detached Self Soother mode and the Compliant Surrender mode are not significantly different from the mean schema mode score of the control population. The Vulnerable Child mode and the Detached Protector mode are significantly different from the mean schema mode score of the control population (see table 14).

Variables		N	Mean Rank	Sum of Ranks	Z	Asymp. Sig. (2-tailed)
SMI mean – Detached Protector	Negative Ranks Positive Ranks Ties Total	3 25 0 28	4.00 15.76	12 394	-4.39	0.000
SMI mean – Detached self soother	Negative Ranks Positive Ranks Ties Total	15 13 0 28	15.67 13.15	235 171	-7.29	0.466
SMI mean – Compliant surrender	Negative Ranks Positive Ranks Ties Total	19 9 0 28	15.95 11.44	303 103	-2.28	0.023
SMI mean – Vulnerable child	Negative Ranks Positive Ranks Ties Total	6 22 0 28	9.83 15.77	59 347	-3.28	0.001

TABLE 14 – WILCOXON SIGNED RANK TEST OF MODE COMPARISONS FOR THE CONTROL POPULATION.

Hypothesis 4 – The eating disordered group will be higher on the Young Schema Questionnaire than the control group.

A pictorial representation of the mean core belief score for each group can be seen in Figure 5.

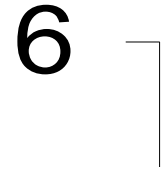

Figure 5 – Graph of the mean core belief score for the eating disordered and the control population.

Figure 5 highlights that the mean schema score was higher on all but core beliefs

apart from entitlement.

A Mann-Whitney U Test was implemented to test hypothesis four. The result of this analysis can be seen in Table15. Table 15 also indicates the mean core belief scores derived from previous research on the YSQ-S with an eating disordered and a comparison population (these were non student volunteers).

Core Belief	Current Study			Waller, Meyer & Ohanian (2001)	
	Eating Disordered	Control Group	Mann Whitney U Z	Eating Disordered	Comparison Women
Total YSQ score	3.23 (0.64)	2.17 (1.12)	-4.18**	3.33 (0.84)	2.02 (0.94)
Emotional Deprivation	3.01 (1.49)	1.86 (1.14)	-2.70**	3.82 (1.62)	2.19 (1.33)
Abandonment	2.85 (1.47)	2.31 (1.03)	-1.09	3.43 (1.48)	1.77 (0.99)
Mistrust/abuse	3.53 (1.24)	2.21 (1.19)	-3.07**	3.33 (1.31)	2.04 (0.99)
Social Isolation	3.80 (1.55)	2.00 (0.91)	-3.46**	3.52 (1.53)	2.03 (1.06)
Defectiveness	3.64 (1.52)	1.52 (0.71)	-4.12**	3.30 (1.39)	1.48 (0.64)
Failure to achieve	3.00 (1.58)	2.08 (1.22)	-2.14*	3.54 (1.43)	1.66 (0.88)
Dependence	2.62 (0.82)	1.72 (0.74)	-3.23**	2.57 (1.01)	1.43 (0.56)
Vulnerability to Harm	3.21 (0.77)	1.89 (0.74)	-4.19**	2.71 (1.20)	1.74 (0.80)
Enmeshment	1.93 (0.98)	1.74 (0.83)	-0.36	2.40 (1.55)	1.57 (0.85)
Subjugation	3.50 (0.96)	1.81 (0.86)	-4.39**	3.36 (1.43)	1.82 (0.82)
Self-sacrifice	4.18 (1.60)	3.26 (0.99)	-1.97*	3.63 (1.26)	2.78 (0.75)
Emotional Inhibition	3.08 (1.50)	1.86 (0.73)	-2.57*	3.41 (1.36)	2.00 (1.06)
Unrelenting Standards	4.85 (0.85)	3.63 (1.34)	-2.92**	4.01 (1.14)	3.26 (0.80)
Entitlement	2.22 (1.04)	2.16 (0.82)	-0.15	2.41 (1.00)	2.38 (0.90)
Insufficient self control	3.09 (1.41)	2.46 (1.14)	-1.53	4.04 (1.12)	2.18 (0.77)

* $p<0.05$ ** $p<0.01$

Table 15 – Mean scores and standard deviations on the YSQ-SF for the current research and previous research by Waller, Meyer & Ohanian (2001) and the results of the Mann Whitney U between control and eating disordered participants on the current research.

Hypothesis four has been supported as the total Schema Score is significantly different between the control participants and the eating disordered participants. By observing the sum of ranks for this analysis it indicates that the total schema score is significantly higher among the eating disordered population compared to the control population. Closer examinations of the individual core beliefs or schemata show that eleven of the fifteen core beliefs are significantly different between the control and clinical population. The four schemata that are not significantly different between these two populations are Abandonment, Enmeshment, Entitlement and Insufficient

Self Control.

Hypothesis 5 – There will be a significant relationship between dysfunctional schema modes and early maladaptive schema, experience of invalidation during childhood and symptoms of anxiety and depression.

In order to test Hypothesis five a Spearman correlation analysis was completed on all of the data sets. The result of this analysis can be seen in Table 16.

	Core beliefs	Maternal Invalidation	Paternal Invalidation	HAD-A	HAD-D
Schema mode total Spearman's Correlation Sig (2-Tailed) N	 0.848 p<0.001 43	 .407 p<0.01 43	 0.448 p<0.01 43	 0.584 p<0.001 43	 0.637 p<0.001 43

TABLE 16 – CORRELATION BETWEEN SCHEMA MODES AND CORE BELIEFS, INVALIDATION AND ANXIETY AND DEPRESSION.

Table 16 indicates that the total dysfunctional schema mode score is significantly correlated with core beliefs, maternal and paternal invalidation and anxiety and depression scores. The positive correlations indicate that as the total schema mode score increases, so do maladaptive schema (or core beliefs), maternal and paternal invalidation and anxiety and depression. As a result hypothesis five can be supported.

Hypothesis 6 – There will be a significant correlation between eating disordered pathology and dysfunctional schema modes, maternal and paternal invalidation, core belief and depression and anxiety symptoms.

In order to test hypothesis six a correlation analysis was administered. It was initially planned to examine the relationship between each variable of the measures, however, this would have resulted in a large number of correlations being undertaken. In order to prevent a Type- 1error being committed, correlations were only undertaken on the total scores of each of the questionnaire measures. A Spearman's correlation was administered (N=15) and no significant correlations were found. As a result the null hypothesis is accepted and no evidence for hypothesis 6 was found.

Summary of results

The eating disordered group were more dysfunctional than the control group across all schema modes.

The eating disordered group were not uniform in their dysfunctional schema modes, but showed raised scores in certain modes including the detached self soother, the compliant surrender and the vulnerable child mode. The control group were not uniform in their dysfunctional schema modes but showed lowered scores in the detached protector and the vulnerable child modes.

The eating disordered group held more dysfunctional core beliefs than the control group.

Schema modes scores were significantly associated with parental invalidation of emotion, early maladaptive schemata, and measures of anxiety and depression.

Schema modes scores were not associated with eating disordered pathology.

Chapter Five - Discussion

The findings for each of the experimental hypotheses will be summarised in turn and discussed in relation to previous research findings. Furthermore, the implications of these results on schema theory for eating disorders, and CBT more widely, will also be discussed and related to the wider implications on clinical practice. As the schema mode concept has not previously been empirically tested in an eating disordered population the research was in essence exploratory. As is often the case in exploratory studies a number of limitations arise which require tentative discussion of the results. Such limitations will also be discussed.

5.1 - Hypothesis 1

Support was found for Hypothesis 1 and a significant difference was observed between the eating disordered and control population on the total dysfunctional mode score. By observing the individual modes it is evident that the eating disordered population scored significantly higher than controls on nine of the twelve dysfunctional schema modes. The dysfunctional modes that were not significantly different were the undisciplined child mode, the self-aggrandizer and the bully and attack mode.

The bully and attack mode and the self-aggrandizer mode are maladaptive coping modes that relate to the schema process of overcompensation. The self-aggrandizer mode is characterised by entitled, competitive, grandiose or abusive behaviour. Individuals in this mode are described as self absorbed and show little empathy for the needs or feelings of others. The bully and attack mode relates to behaviour that directly harms other people in a controlled and strategic way, either emotionally, physically, sexually, verbally or through criminal behaviour. Research into mode conceptualisations of personality disorders (Lobbestael *et al.,* 2005) reported that the bully and attack mode was highest among individuals with a diagnosis of antisocial personality disorder. The self-aggrandizer mode is reported to be a characteristic mode of narcissistic personality disorder (Lobbestael *et al.*, 2007).

As discussed in Chapter 1, eating disorders are comorbid with a number of personality

disorders. However, antisocial and narcissistic personality disorders do not appear to be prevalent in eating disorder populations. Consequently, the results would indicate support for the idea that these modes are not characteristic of an eating disordered population when compared to a non-patient control.

The undisciplined child mode was higher in the eating disordered population although not statistically so. The undisciplined child is characterised by a lack of discipline and the inability to finish routine or boring tasks, which results in the failure to achieve such tasks. This mode does not appear to be more prevalent in an eating disordered population than a healthy control group. This is an interesting finding in light of research that demonstrates that eating disordered populations are known to be characterised by perfectionistic tendencies (Vitousek & Hollon, 1990). Perfectionism has also been identified as a specific risk factor for the development of eating disorders in large scale community studies that examined risk factors for BN, AN and binge eating disorder (Fairburn *et al.,* 2008; Fairburn, Cooper, Doll & Welch, 1999). It could be argued that perfectionism and an inability to finish routine tasks are at odds with each other because the individual's high standards would not allow for a failure. This theoretical interpretation would support the idea that the undisciplined child is not more prevalent in the eating disordered population. An alternative viewpoint may be that as a result of the association between perfectionism and procrastination (Frost *et al.,* 1990), perfectionistic tendencies actually lead to the inability to finish tasks. This interpretation would go against the results of this study as undergraduate control participants did not score significantly different from eating disordered participants. It should be noted however that such an interpretation assumes that perfectionistic tendencies are not prevalent in the control population. Given that the control participants were high functioning individuals who were students on a competitive undergraduate psychology degree it would not be unreasonable to assume that such individuals hold high standards for themselves, which is a characteristic feature of perfectionism. Without adequate norms of the mean undisciplined child mode score for a non patient population it is difficult to assess whether the mean undisciplined child mode score was elevated in this control population.

In addition to significant differences being observed between the two groups on

dysfunctional schema modes, the same was true for functional schema modes. The control population scored significantly higher on the happy child and healthy adult modes. These modes characterise an absence of dysfunctional schema activation and relate to the ability to perform appropriate adult functions such as work, assuming responsibility, and pursuing healthy adult behaviours such as intellectual and cultural interest and health maintenance. Individuals in the happy child or healthy adult mode are able to function effectively and as demonstrated would be more likely to be observed in a non patient control than a psychiatric population.

5.2 - Hypotheses 2 & 3

The results indicate that the schema mode scores are not evenly distributed across the different schema modes for both the control group and clinical group. This result suggests that certain schema modes may be characteristic for both groups of participants. Hypothesis 3 was designed to determine whether the coping modes (detached protector, detached self-soother, and compliant surrender) and the vulnerable child mode were characteristic of the eating disordered participants.

The results suggests that the eating disordered participants scored significantly higher than the mean mode score on the vulnerable child, compliant surrender and detached self soother mode. The detached protector was not significantly elevated for the eating disordered population. In order to determine if these trends were specific to the clinical population the same analysis was completed for the control group. The results of this indicated that there were no significant differences between the detached self-soother or compliant surrender mode and the mean mode score. The detached protector and vulnerable child modes were significantly lower than the mean mode score for the control population.

These results indicate that the detached self-soother and compliant surrender modes may be important modes to consider when working with an eating disordered population. The analysis was completed with a small sample size however, so the results should be interpreted with caution. Although an adjusted alpha was implemented to reduce the possibility of committing a Type 1 error, no firm conclusions should be drawn without replication of these findings.

Despite the caution required in interpreting these results they can be understood in terms of existing psychological theory. The detached self-soother mode is an avoidant coping mode characterised by shutting off emotions by engaging in activities that will soothe or distract them from feeling. As discussed in Chapter One, there is a recognition that one function of eating disordered behaviour may be as an avoidant coping strategy. Waller (submitted) suggests that restrictive pathology is related to a primary avoidance of affect whereby attempts are made to avoid affect being triggered at all, whereas bulimic pathology is related to a secondary avoidance of affect, which involves attempts at avoidance of any activated affect. Although this research is unable to draw any conclusions in terms of the distinction between bulimic and restrictive pathology it suggests that avoidant strategies are prevalent in an eating disordered population as measured by the Schema Mode Inventory.

The compliant surrender mode can also be viewed as an avoidant mode as it is hypothesised that the individuals in this mode avoid their schema being triggered by focusing on the needs and feelings of others. This strategy leads to the avoidance of conflict, confrontation, anger or rejection and is linked with the EMS of self-sacrifice, subjugation and approval seeking. These schemata are secondary to the schemata of defectiveness and shame. These secondary EMS function to avoid the primary schemata being triggered or - as in the case of secondary avoidance of affect (as proposed by Waller (submitted)) - to escape the painful emotions associated with their activation. Additionally, in terms of the schema model of eating disordered behaviour it could be interpreted that the function of eating disordered behaviour is compensatory and when in the compliant surrender mode they lose control over their own life though subjugation to others and compensate for this through using eating disordered behaviour as a method of feeling more in control.

It is interesting that the detached protector mode is not significantly elevated above the mean. Anecdotal and theoretical accounts would indicate that if eating disordered behaviour is an avoidant coping strategy this mode should be elevated. Corstorphine (2008) notes that the schema mode that appears to be most relevant to individuals with affect regulation difficulties is the detached protector mode. Corstorphine (2008) reports that work with the detached protector mode is crucial as this mode prevents access to negative core beliefs that may be maintaining eating disordered behaviour.

Although this assertion fits with anecdotal reports from patients, the lack of research on the schema mode concept in an eating disordered population results in some uncertainty as to whether the detached protector mode is characteristic of an eating disordered population or is in fact more prevalent in general psychopathology. This research is limited by a small sample. However, the finding that the detached protector is not significantly higher than the mean mode score suggests that no firm conclusions can be drawn regarding this mode in the eating disordered population.

The methodology applied in this research does not allow for conclusions to be drawn regarding whether or not certain modes are characteristic of an eating disordered population. Although it is possible to ascertain that certain modes may be significantly elevated against the mean mode score it is not possible to determine if this is specific to eating disorders. It could be argued that dysfunctional coping modes are a feature of general psychopathology. In order to determine this, further research is required that examines the schema mode profile of a range of clinical populations before firm links can be made between modes and psychiatric disorders.

The vulnerable child mode was also found to be elevated against the mean mode score for eating disordered individuals. Young *et al*. (2003) suggests that the vulnerable child mode is an extremely important mode and regards this as the most important for mode work. The aim of schema therapy is to 'heal' the vulnerable child through limited reparenting. According to schema theory, higher scores on this mode would indicate that individuals are functioning in the vulnerable child mode and experience dysphoric or anxious affect, especially fear and sadness when in touch with associated schemata. The results indicate that this mode may be pertinent to eating disordered individuals, which would in turn suggest (according to schema theory) that schema mode work may be of benefit to these individuals.

5.3 - Hypothesis 4

Support was found for Hypothesis 4 and the eating disordered group scored

significantly higher on the total dysfunctional schema score than the control group. This result is consistent with previous findings. For example Leung *et al.* (1999) and Waller *et al*. (2000) reported significant differences between the overall schema score for eating disordered individuals and comparison women with more dysfunctional schema present for the clinical population.

On closer examination of the early maladaptive schemata (EMS), the results indicate that the eating disordered group are significantly more dysfunctional than control women on eleven of the fifteen schemata. The schemata that were not statistically significant were abandonment, enmeshment, entitlement and insufficient self control. Waller *et al.* (2000) reported significant differences between clinical and control women on all schemata apart from entitlement. This research did support the finding by Waller *et al*. (2000) that no significant differences were observed between groups for the entitlement schema. However, this was not the only schema that did not differ between groups, which is contrary to previous findings. Waller *et al*. (2000) has suggested that insufficient self control is a characteristic belief of bulimic individuals. However, this research did not indicate that this belief was significantly higher for the eating disordered population. Waller *et al*. (2000) reported that bingeing behaviour was associated with the insufficient self control schema among bulimic women. The inconsistency in findings between the current study and Waller *et al's* study could be explained in terms of the sample of eating disordered women studied. It is possible that the insufficient self control schema is only characteristic of bulimic women. The current research collapsed diagnostic categories in order to recruit as many eating disordered patients as possible. In total, only two patients who had received a diagnosis of BN were included in the analysis; the majority of clinical participants had received a diagnosis of AN or Atypical AN. It could be interpreted that the schema of insufficient self control is not as relevant for eating disordered individuals who do not fulfil criteria for BN. Alternatively, it could be that the inconsistencies in results are a representation of the lack of consensus regarding which core beliefs are pertinent to eating disordered pathology. It could also be argued that eating disordered behaviour can not be characterised by particular schemata, but a general higher level of dysfunctional beliefs. Further research that incorporates larger sample sizes of each diagnostic category would need to be completed before firm conclusions

can be drawn regarding the key schemata in eating disordered individuals.

5.4 - Hypothesis 5

A significant positive correlation was found between the total dysfunctional schema mode score and measures of core beliefs, maternal and paternal invalidation and measures of anxiety and depression. Consequently, it can be inferred that a higher dysfunctional mode score is associated with higher scores of dysfunctional schemata, higher levels of paternal and maternal invalidation and higher levels of anxiety and depression symptoms.

It is unsurprising that a positive association was observed between dysfunctional modes and dysfunctional schemata. As has previously been outlined, the schema mode concept was devised to incorporate a range of EMS and coping responses, and is essentially measuring similar constructs. Consequently, a positive association would be expected.

It is interesting that measures of maternal and paternal invalidation are positively associated with dysfunctional schema modes and dysfunctional schemata. This finding is not specific to the eating disordered group as the correlation analysis included all data sets. To the author's knowledge, research that has examined the relationship between these factors has not been completed before. This finding may suggest that parental invalidation could play a part in the development of dysfunctional schema modes or schemata, although inferring a causal relationship from a correlation analysis should be resisted. This finding is not surprising when you consider the theoretical assumption made by Young *et al*. (2003) regarding the development of EMS. Young *et al.* (2003) suggest that dysfunctional schemata are developed through dysfunctional childhood experiences with significant others such as parents, siblings or peers. Although Young postulated the link between dysfunctional experiences and the development of dysfunctional schemata, the actual behaviours or experiences which lead to the development of these schemata remain poorly understood. This is partly because of limited empirical data and the difficulties in assessing these relationships. The finding that maternal and paternal invalidation are positively associated with dysfunctional schemata and modes may be useful in

terms of clinical intervention. For example, when working with younger people it may be possible for treatments to target parental responses so that they enhance their use of validating behaviours.

5.5 – Hypothesis 6

There was no significant association between the measure of eating pathology and schema modes, early maladaptive schemata, invalidation of emotion or anxiety and depression symptoms. This finding goes against previous research, which has demonstrated a relationship between core beliefs and disordered eating (Leung *et al.*, 1999; Waller, 2003, and Waller *et al*., 2000). The discrepancy in results could be explained by the fact that this correlation was underpowered and as a result a Type 2 error may have occurred. Alternatively, it could be interpreted that the intensity of eating disorder symptoms do not relate specifically to EMS, schema modes or the other variables assessed. In light of these findings that suggest that eating disordered individuals are significantly more dysfunctional across these measures it could be that these processes are related to general psychopathology and not specific to eating disordered pathology. However, in order to further understand the relationship between eating pathology and these processes, further research is required, especially to determine the relationship between schema modes and eating disorder symptoms.

5.6 Limitations of the current study

5.6.1 Sample size

This research aimed to recruit twenty-eight participants in each group. This was achieved for the control group. Significant attempts were made to recruit as many eating disordered participants as possible and these included approaching numerous eating disorder services in Scotland and submitting a major amendment to the ethics panel to implement a second recruitment method. The pool of potential participants was restricted to new referrals to the eating disorder service as there was concern that existing patients may have received psychological treatments that could have led to schema modification. Despite such attempts the eating disordered sample fell short of the recommended number of twenty eight people and only fifteen individuals were included in the analysis. As has previously been discussed, the small number of

clinical participants requires the results to be interpreted with caution. Despite the small sample of clinical participants, significant effects of group were found. In light of the small sample size and the fact that this research is the first to investigate the schema mode concept in eating disordered individuals, the findings from this study require replication before firm conclusions can be drawn regarding the role of schema modes in an eating disordered population.

The small sample size also necessitated the collapse of clinical diagnoses for the eating disordered participants. As discussed in Chapter 1, research has suggested that specific eating disordered behaviours may be related to personality characteristics. It may be useful for future research into the schema mode concept of eating disorders to draw a distinction between certain eating disordered behaviours such as bingeing, purging and restriction, to determine whether these behaviours are more likely to occur when functioning in a particular schema mode.

5.6.2 Reliance on self report measures

All of the information derived in this research was obtained from self report. Self report measures have inherent difficulties relating to the accuracy of the information derived. Vitousek *et al*. (1991) note the challenge of obtaining accurate information on thoughts and feelings from eating disordered participants. Clinical research suggests that the denial of illness is common among individuals with eating disorders (Garner & Garfinkel, 1982). The motivation for deliberate distortion has been investigated between different eating disorder diagnoses and Vitousek *et al*. (1991) suggest that this may be more of a problem with the anorexic population. Vitousek *et al*. (1991) argue due to the extent to which anorexics deny the very existence of their disorder and accompanying pathological behaviour the information derived from self report measures should be interpreted with caution.

Although the self-report assessment of schemata is practical and common (e.g. Leung *et al.,* 1999; Waller *et al*., 2003) it has its limitations. Segal (1988) noted that the paper and pencil measures allow for the descriptive definition of self schema but cannot provide evidence regarding the structural relationships among elements in a self structure.

The Invalidating Childhood Environment Scale is a retrospective measure of parental validation of emotion during childhood. As this is a self report measure it is difficult to ascertain whether the information provided is an accurate measure of parental behaviour or a measure of the perception of this behaviour by the individuals completing this questionnaire. As a result it would be inaccurate to presume that the scores on this questionnaire actually reflect the behaviour of parents during childhood. Despite this it has been suggested that, when personality characteristics or pathology are the object of interest, the individual's perception of their parents is more relevant than their parents' actual behaviour (Perris *et al*. 1986).

The potential difficulties associated with self report measures require the results to be interpreted with some caution until other methodologies are employed (such as experimental or observational) which can substantiate these findings.

5.7 Schema model

Schema work was designed to treat axis II patients. James (2001) reports that the schema approaches are also becoming the preferred approach for people with axis I disorders. This is of concern as schema therapy is much more time intensive and consequently economically more draining. Additionally, there is little evidence to suggest schema approaches are any more effective for axis I problems than non-schema focused treatments (Jacobsen & Gartner, 2000). Many health care services have adopted a stepped care model for psychotherapy (Davison, 2000). One of the premises of the stepped care approach is to provide an effective treatment with the lowest level of intervention. The schema approach is a far more intensive approach than non schema focused CBT approaches. Implementing schema approaches for axis I patients goes against the stepped care approach in light of lack of evidence for its superiority in treatment effectiveness. Consequently the necessity for appropriate assessment is required when considering schema work in the eating disordered population.

Although it makes practical and economic sense to develop specific psychological therapies for specific conditions this is somewhat of a limited view and fails to capture all individuals in psychological distress. It is well recognised that

psychotherapy is essentially concerned with people and not common conditions or disorders. One of the most robust findings of research into psychological therapies is that the best predictor of outcome is a good therapeutic alliance (Horvath *et al.,* 1991). SFT emphasises the importance of therapeutic relationships, and this relationship is of key importance in schema mode work. The emphasis on the therapeutic relationship is in keeping with the psychoanalytic approach to treating psychological disorders.

One asset of the schema approach is the overlap with many other models, which allows for the therapeutic model to be accessible to a range of therapists and could lead to a shared understanding between different schools of thought. Often schools of thought celebrate their differences and rarely focus on the similarities between them. The identification of a shared understanding allows research findings and clinical techniques to be amalgamated to further our understanding of psychopathology and effective psychotherapy. SFT has the potential to work towards bridging the gap between these distinct schools of thought by providing a language that is understood by clinicians from many psychotherapeutic training backgrounds.

5.7.1 Limitations of the schema concept

Although the findings of the usefulness of schema in eating disordered patients is encouraging and adds to the conceptualisation of the disorder, the research is still in its infancy. All individuals are thought to have schemata that may be dysfunctional in a number of situations. Due to the lack of evidence of a causal relationship between dysfunctional beliefs and behaviour it is worth noting that these beliefs may not be at the root of their problems. This emphasises the need for a thorough assessment of all individuals before a schema approach is adopted.

The schema model emphasises the impact that the activation of dysfunctional schemata have on thoughts, feelings and behaviour. Cognitive therapy is based on the information processing theory, which posits that schemata develop as part of normal human development. In accordance with this theory, individuals are thought to group experiences into categories to help us understand and organise our world. Consequently, schemata are activated all of the time and cognitive psychology would purport that it is impossible to not have schemata activated. As a result, it is

important to draw a distinction between adaptive and dysfunctional schemata. The schema model discusses in detail dysfunctional schemata and the relationship of this to disordered functioning but it does not extend this in depth analysis to adaptive schemata. It would be reasonable to assume that healthy functioning is characteristic of healthy and more flexible schemata, modes and processes. However such processes are not discussed in detail within the schema model. As the aim of schema focused therapy is to modify dysfunctional schemata into more healthy beliefs it could be argued that more emphasis should be placed on determining the schema processes that maintain healthy schemata which, it could be assumed, would reduce the risk of relapse.

It should also be noted that research into the schema concept has predominantly been investigated in Western societies. The specificity of the core beliefs identified by Young to other cultures has not been validated. Cultural differences in eating disordered behaviour are beginning to emerge; for example, the morbid fear of fatness does not appear to be central to anorexic pathology in Japanese women. It is possible that the impact of core beliefs on eating disordered behaviour may be culturally specific which would have implications for the usefulness of this approach in different cultures. Cultural variations should be a focus of further research into the effectiveness of schema model.

The schema mode concept was initially devised in an attempt to reduce the complexity of cognitive information and reduce the number of EMS. A schema mode is an amalgamation of a number of EMS and coping responses. Although a mode incorporates both of these constructs it could be argued that the complexity has in fact increased. Each individual mode relates to a number of EMS and coping strategies so is a more complex representation than an EMS. This may have reduced complexity if only a few modes were devised but the YSQ measures 15 EMS and the SMI measures 14 schema modes so the complexity hasn't really reduced. It could also be argued that schema mode concept is just a different language for the same phenomena as it represents previously theorised concepts. Young *et al.* (2003) would disagree with this assertion as he regards EMS as stable trait constructs whereas schema modes are hypothesised to reflect state constructs. This brings in to question how schema modes can truly be measured if they are dependent on the situation an individual is in

and relate to their current emotional state.

5.8 Implications for clinical practice

5.8.1 Assessment

This research has determined that dysfunctional schema modes are prevalent in an eating disordered population. Increasing our understanding of such processes for patients can help formulate schema driven patterns of behaviour. Consequently, this research highlights the advantages of using the YSQ and SMI in assessment, to provide valuable information regarding the beliefs regarding self, others and the world and the associated behaviour and emotional patterns which in turn drive eating pathology. A schema focused assessment would involve detailed discussion of the behavioural patterns in the patient's life to identify which schemata/modes the eating behaviours are most clearly linked with. The results of this research suggest that particular attention should be paid to the detached self-soother, compliant surrender and vulnerable child mode. Schema focused therapy involves the gentle triggering of schemata through imagery work to identify the most prominent schemata which would then become the focus of treatment.

5.8.2 Formulation

Incorporating the results from the schema questionnaires (YSQ and SMI), alongside information gathered from clinical interview allows for a more sophisticated formulation of a patients difficulties. It is also reported (Young *et al*., 2003) that this increased sophistication of the formulation can be of great benefit to patients as it helps them see the links between beliefs that developed early on in their lives, patterns that have maintained their schemata (avoidance, surrender or overcompensation) and their current emotional and eating difficulties.

5.8.3 Intervention

In line with a stepped care model, treatment should begin with a short term CBT approach. As has been discussed in Chapter 2, this approach will be sufficient for a

large proportion of patients and will allow patients to determine the links between their eating and emotional pattern. For the patients that fail to respond to traditional CBT the schema focused approach allows for the identification of core beliefs and begins to challenge them at a cognitive level, before moving on to more emotion focused processing work. This approach aims to help patients start to understand the schema focused model and the function of their eating behaviour within the context of both their childhood, adolescence, and adulthood. This increased understanding aims to reduce the shame and self blame associated with having an eating disorder, and increase the patients self compassion.

In terms of the coping modes discussed within this project a schema focused intervention aims to work with an individual's schema modes. For example, work with the detached self soother mode would begin with helping clients recognise the behaviour and associated urges that are present when in this mode. This can be achieved through the use of schema diaries and flashcards. The model aims to enable patients to stay with the painful underlying feelings rather than avoiding them through a process of gradual exposure. The schema model also introduces the concept of 'mental space' before acting on urges to binge, vomit, restrict or exercise which allows the patients the opportunity to make a conscious choice in what otherwise feels like a compulsive automatic behaviour.

Anecdotal reports suggest that work on the compliant surrender mode should focus on increasing the patient's awareness of their needs and feelings and teaching them to stand up for their own rights. Although research into the treatment of eating disordered behaviour using a CBT approach is dearth it has been suggested that group schema therapy may be particularly useful for the treatment of the compliant surrender mode. The group setting allows the patient to begin to practise new behaviours and tackles the avoidant behaviour by encouraging them to gently challenge themselves and others to experiment with changing unhelpful behaviours.

5.8.4 Supervision

As with any psychological intervention, supervision is of crucial importance when working in a schema focused approach. It is important for therapists to have an

awareness of their own schemata and how these interact with those of the patient. For example, if the therapist also has a compliant surrender mode then this may be manifested by wishing to avoid confronting the patient with his or her own avoidant behaviours. Schema focused supervision is essential to keep track of these processes. As the schema focused model develops within the field of eating disorders it will be important for practitioners to adapt the model to the particular needs of individuals with eating disorders. This could be achieved through the development of training courses which are specific to eating disorders patients and through supervision.

5.8.5 Further research

Research has importantly opened up new areas of cognition relevant to eating disorders, especially in relation to schemata. At the heart of any cognitive model is the proposed causal relationship between cognitions and disturbed behaviour. This relationship remains to be largely untested in the eating disordered population. This could be achieved through further research of a longitudinal design or through cross sectional designs which statistically control relevant variables. The link between cognition and behaviour could also be investigated through controlled experimental design in which cognitions are manipulated and the resultant effect on behaviour measured.

5.9 Conclusion

This research has been the first to investigate the schema mode concept in an eating disordered population. Eating disorders have the highest morbidity and mortality rates among any psychiatric disorder. It is recognised that a more in depth understanding of the psychopathological mechanisms that underpin eating disordered behaviour is a necessity if effective treatments are to be developed to treat complex and comorbid eating disorders.

Although tentative conclusions have had to be drawn because of the sample size and other reported limitations, this research indicates that further exploration into deeper cognitive structures and processes is warranted within this population or other clinical populations who struggle to respond to traditional CBT.

Although research into the schema mode concept adds to the conceptualisations of deeper cognitive processes and the aetiology of certain disordered behaviours, the model still needs to be proved in terms of therapeutic effectiveness. While preliminary findings suggest that schema modification can lead to symptom reductions, much more research is required to substantiate these findings.

The schema focused approach is an exciting addition to the development of CBT which attempts to conquer the criticised shortcomings of traditional CBT with complex individuals. Although the schema model was devised for use with personality disordered individuals, this research suggests that it may have use with other clinical populations. Going forward, it will be interesting to see how such a model can map onto other clinical disorders.

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APPENDIX 1

List of 15 Early Maladaptive Schema as outlined by Young, Klosko & Weishaar (2003).

Taken from Young, Klosko & Weishaar (2003)

Domain 1 – Disconnection and Rejection

(The expectation that one's needs for security, safety, stability, nurturance, empathy, sharing of feelings, acceptance, and respect will not be met in a predictable manner. Typical family origin is detached, cold, rejecting, withholding, lonely, explosive, unpredictable, or abusive).

1. Abandonment/Instability

The perceived instability or unreliability of those available for support and connection.
Involves the sense that significant other will not be able to continue providing emotional support, connection, strength, or practical protection because they are emotionally unstable and unpredictable (e.g. have angry outbursts), unreliable, or present only erratically; because they will die imminently; or because they will abandon the individual in favour of someone else.

2. Mistrust/Abuse

The expectation that other will hurt, abuse, humiliate, cheat, lie, manipulate, or take advantage. Usually involves the perception that the harm is intentional or the result of unjustified and extreme negligence. May include the sense that one always ends up being cheated relative to others or 'getting the short end of the stick".

3. Emotional Deprivation

The expectation that one's desire for a normal degree of emotional support will not be adequately met by others. The three major forms of deprivation are:

A. Deprivation of Nurturance: Absence of attention, affection, warmth, or companionship.
B. Deprivation of Empathy: Absence of understanding, listening, self-disclosure, or mutual sharing of feelings from others.
C. Deprivation of Protection: Absence of strength, direction, or guidance from others.

4. Defectiveness/Shame

The feeling that one is defective, bad, unwanted, inferior, or invalid in important respects or that one would be unlovable to significant others if exposed. May involve hypersensitivity to criticism, rejection, and blame; self-consciousness, comparisons and insecurity around others; or a sense of shame regarding one's perceived flaws. These flaws may be private (e.g. selfishness, angry impulse, unacceptable sexual desires) or public (e.g. undesirable physical appearance, social awkwardness).

5. Social Isolation/Alienation

The feeling that one is isolated from the rest of the world, different from other people, and/or not part of any group or community.

Domain 2 - Impaired Autonomy and Performance

(Expectations about oneself and the environmental interfere with one's perceived ability to separate, survive, function independently, or perform successfully. Typical family origin is enmeshed, undermining of child's confidence, overprotective, or failing to reinforce child for performing competently outside the family.

6. Dependence/Incompetence

Belief that one is unable to handle one's everyday responsibilities in a competent manner, without considerable help from others (e.g., take care of oneself, solve daily problems, exercise good judgement, tackle new tasks, make good decisions). Often presents as helplessness.

7. Vulnerability to Harm or Illness

Exaggerated fear that imminent catastrophe will strike at any time and that one will be unable to prevent it. Fears focus on one or more of the following: (A) Medical catastrophes (e.g. heart attacks, AIDS); (B) Emotional catastrophes (e.g. going crazy); (C) External catastrophes (e.g. elevators

collapsing, victimization by criminals, airplane crashes, earthquakes).

8. Enmeshment/Undeveloped Self

Excessive emotional involvement and closeness with one or more significant others (often parents) at the expense of full individuation or normal social development. Often involves the belief that at least one of the enmeshed individuals cannot survive or be happy without the constant support of the other. May also include feelings of being smothered by or fused with others or insufficient individual identity. Often experiences as a felling of emptiness and foundering, having no direction, or in extreme cases questioning one's existence.

9. Failure

The belief that one has failed, will inevitably fail, or in fundamentally inadequate relative to one's peers in areas of achievement (school, career, sports, etc.,). Often involves beliefs that one is stupid, inept, untalented lower in status, less successful than others, and so forth.

Domain 3 - Impaired Limits

(Deficiency in internal limits, responsibility to others, or long-term goal orientation. Leads to difficulty respecting the rights of others, cooperating with others, making commitments, or setting and meeting realistic personal goals. Typical family origin is characterized by permissiveness, overindulgence, lack of direction, or a sense of superiority rather than appropriate confrontation, discipline, and limits in relation to taking responsibility, cooperating in a reciprocal manner, and setting goals. In some cases, the child may not have been pushed to tolerate normal levels of discomfort or may not have been given adequate supervision, direction or guidance.)

10. Entitlement

The belief that one is superior to other people, entitled to special rights and privileges; or not bound by the rules of reciprocity that guide normal social interaction. Often involves insistence that one should be able to do or have whatever one wants, regardless of what is realistic, what others consider reasonable, or the cost to others; or an exaggerated focus on superiority (e.g. being among the most successful, famous, wealthy) in order to achieve power or control (not primarily for attention or approval) Sometimes included excessive competitiveness toward or domination of others: asserting one's power, forcing one's point of view, or controlling the behaviour of others in line with one's own desires without empathy or concern for others' needs or feelings.

11. Insufficient Self-Control/ Self- Discipline

Pervasive difficulty or refusal to exercise sufficient self-control and frustration tolerance to achieve one's personal goals or to restrain the excessive expression of one's emotions and impulses. In its milder form, the patient presents with an exaggerated emphasis on **discomfort avoidance:** avoiding pain, conflict, confrontation, responsibility, or overexertion at the expense of personal fulfilment, commitment, or integrity.

Domain 4 – Other- Directedness

(An excessive focus on the desires, feelings, and responses of others, at the expense of one's own needs in order to gain love and approval, maintain one's sense of connection, or avoid retaliation. Usually involves suppression and lack of awareness regarding one's own anger and natural inclinations. Typical family origin is based on conditional acceptance: Children must suppress important aspects of themselves in order to gain love, attention, and approval. In many such families, the parents' emotional needs and desires – or social acceptance and status – are valued more than the unique needs and feelings of each child.)

12. Subjugation

Excessive surrendering of control to others because one feels coerced – submitting in order to avoid anger, retaliation, or abandonment. The two major forms of subjugation are:

A. Subjugation of needs: Suppression of one's preferences, decisions, and desires.
B. Subjugation or emotions, especially anger.

Usually involves the perception that one's own desires, opinions, and feelings are not valid or

important to others. Frequently presents as excessive compliance, combined with hypersensitivity to feeling trapped. Generally leads to a build up of anger, manifested in maladaptive symptoms (e.g. passive-aggressive behaviour, uncontrolled outbursts of temper, psychosomatic symptoms, withdrawal of affection, "acting out", substance abuse).

13. Self-Sacrifice

Excessive focus on voluntary meeting the needs of others in daily situations at the expense of one's own gratification. The most common reasons are: to prevent causing pain to others; or avoid guilt from feeling selfish, or to maintain the connection with others perceived as needs. Often results from an acute sensitivity to the pain of others. Sometimes leads to a sense that one's won needs are not being adequately met and to resentment of those who are taken care of. (Overlaps with concept of codependency).

14. Approval Seeking/Recognition–Seeking

Excessive emphasis on gaining approval, recognition, or attention from other people or on fitting in at the expense of developing a secure and true sense of self. One's sense of esteem is dependent primarily on the reactions of others rather than on one's own natural inclinations. Sometimes includes an overemphasis on status, appearance, social acceptance, money, or achievement as means of gaining approval, admiration, or attention (not primarily for power or control). Frequently result in major life decisions that are inauthentic or unsatisfying or in hypersensitivity to rejection.

Domain 5 – Overvigilence and Inhibition

(Excessive emphasis on suppressing one's spontaneous feelings, impulses, and choices or on meeting rigid, internalised rules and expectations about performance and ethical behaviour, often at the expense of happiness, self-expression, relaxation, close relationships, or health. Typical family of origin is grim, demanding, and sometimes punitive: performance, duty or perfectionism, following rules, hiding emotions, and avoiding mistakes predominate over pleasure, joy and relaxation. There is usually an undercurrent of pessimism and worry that things could fall apart if one fails to be vigilant and careful at all times).

15. Negativity/Pessimism

A pervasive, lifelong focus on the negative aspects of the life (pain, death, loss , disappointment, conflict, guilt, resentment, unsolved problems, potential mistakes, betrayal, things that could go wrong, etc.) while minimizing or neglecting the positive or optimistic aspects. Usually includes an exaggerated expectation – in a wide range of work, financial or interpersonal situations – that things will eventually go seriously worng or that aspects of one's life that seem to be going well will ultimately fall apart. Usually involves an inordinate fear of making mistakes that might lead to financial collapse, loss, humiliation, or being trapped in a bad situation. Because they exaggerate potential negative outcomes, these individuals are frequently characterised by chronic worry, vigilance, complaining, or indecision.

16. Emotional Inhibition

The excessive inhibition of spontaneous action, feeling or communication, usually to avoid disapproval by others, feelings of shame, or losing control of one's impulses. The most common area of inhibition involve: (a) inhibition of anger and aggression; (c) difficulty expressing vulnerability or communicating freely about one's feelings, needs, and so forth; or (d) excessive emphasis on rationality while disregarding emotions.

17. Unrelenting Standards/Hypercriticalness

The underlying belief that one must strive to meet very high internalised standards of behaviour and performance, usually to avoid criticism. Typically results in feelings of pressure or difficulty slowing down and in hypercriticalness toward oneself and others. Must involve significant impairment in pleasure, relaxation, health, self-esteem, sense of accomplishment, or satisfying relationships.

Unrelenting standards typically present as (a) perfectionism, inordinate attention to detail, or an underestimate of how good one's own performance is relative to the norm; (b) rigid rules and 'should' in many areas of lie, including unrealistically high moral, ethical, cultural, or religious precepts; or (c)

preoccupation with time and efficacy, the need to accomplish more.
18. Punitiveness The belief that people should be harshly punished for making mistakes. Involves the tendency to be angry, intolerant, punitive, and impatient with those people (including oneself) who do not meet one's expectations or standards. Usually includes difficulty forgiving mistakes in oneself or others because of a reluctance to consider extenuating circumstances, allow for human imperfection, or empathize with feelings.

APPENDIX 2 – ETHICS DOCUMENTS

Appendix 2(i) – Letter of approval from NOSREC

Appendix 2ii – Letter of approval from NHS Grampian Research and Development Department

Appendix 2(iii) NOSREC letter of approval for substantial amendment

Appendix 2(iv) – Confirmation letter from NHS Grampian R & D department following substantial amendment

Appendix 3 – Information sheet to Clinical Group

Information sheet for potential participants

Project: An investigation into schema modes among people with eating problems

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.

Thank you for taking the time to read this.

What is the purpose of the study?

In order to provide effective treatment for individuals suffering from an eating disorder it can be important to understand the relationship between the beliefs an individual has, the way they manage their emotions and their eating disorder symptoms. This research project aims to explore the relationship between these factors for people suffering from an eating disorder.

This research is being completed as part of an educational qualification.

Do I have to take part it?

No. Participation in this research project is entirely voluntary. Participants can opt – in to the study and it is not compulsory. Participation or non-participation in this study will not affect your treatment from NHS Grampian's Eating Disorders Service in any way. If you do decide to take part you will be given this information sheet and asked to sign a consent form. If you do decide to take part, you are still free to withdraw at any time and without giving a reason.

What will I have to do?

If you agree to take part, you will be asked by the researcher to complete a number of questionnaires. There are four questionnaires in total, these questionnaires are designed to assess your mood, your long held beliefs about the self, other people and the world, your experience of emotion as a child and your schema modes which are the moment to moment emotional states.

As part of the research I am interested in the symptoms and diagnosis of eating disorders that all participants have. In order to gain this information the researcher

would need to access your medical records to determine the scores you received on the Eating Disorders Evaluation Questionnaire (which you completed routinely prior to your triage appointment) and to determine if you have a diagnosis of an eating disorder. If you agree to take part in this research study you will be consenting for the researcher to do this.

What will be done with the information I give?

Any information that you provide will be treated with the strictest confidence. All information will be anonymised and will be held in a secure office in a locked filing cabinet in the Outpatient Eating Disorders Service. Your name will not be used on any of the information you provide and instead you will have a research code number to ensure confidentiality.

It is important that each patient's General Practitioner is aware of participation in research. This is because they are the central contact for any contact that an individual has with the NHS. As a result of this I will be required to send a letter to your General Practitioner highlighting that you have taken part in this project and completed a number of questionnaires. This will only take place if you consent for me to do this. There is a box on the consent form that relates specifically to this and please initial if you are happy to consent.

What are the possible disadvantages and risks of taking part?

The disadvantages or risks of taking part are minimal. However, it is possible that some of the questions in the questionnaires may identify areas of difficulty or feelings that you had not considered before. If you require support you can ring the Eating Disorders Service on 01224 557392 and a therapist will be able to discuss any concerns that you have.

If you are concerned about this or have any additional questions about participating in the study the researcher is more than happy to discuss this with you before deciding on your participation in the study. Independent advice can be found by telephoning the Eating Disorders Service on 01224 557392 where you can request to speak to a member of the team that is not directly involved in the research project.

What are the possible benefits of taking part?

The information from this research project will increase the understanding of the role of emotions in eating disorders and it is hoped this will contribute to helping patients recover from their eating disorder. There is no individual benefit to taking part in this research.

What will happen to the results of the research study?

The anonymised results of this research study will be written up and submitted as part fulfilment of the researcher's Doctorate in Clinical Psychology at the University of Edinburgh. The results of the research will also be disseminated through presentations to the outpatient Eating Disorders Service and other interested parties. It is also hoped

that the results will be written up for a scientific article.

Complaints

If you have any concerns about any aspect of this study you should contact the researcher in the first instance who will do their best to answer any questions or queries that you may have. If you remain unsatisfied and wish to complain formally this can be done through the NHS complaints procedure or the University of Edinburgh, the details of which can be seen below:

NHS Grampian Complaints Team
Westholme
Woodend Hospital
Queens Road
Aberdeen
AB15 6LS
Telephone: 01224 556447

Dave Peck – Programme Director (D. Clin. Psychol.)
School of Health in Social Science
The University of Edinburgh
Medical School
Teviot Place
Edinburgh
EH8 9AG
Telephone: 0131 651 3972

Who has reviewed the research project?

The project has been reviewed by the University of Edinburgh and the North of Scotland Research Ethics Service.

Contact details

Investigator:	Gwenllian Jenkins	Supervisor: Dr Susan Simpson
Job title:	Trainee Clinical Psychologist	Job Title: Consultant Clinical Psychologist
Email:	g.jenkins@nhs.net	Telephone: 01224 557392
Telephone:	01224 557392	
Address:	The Eating Disorders Service Fulton Clinic Royal Cornhill Hospital Aberdeen AB25 2ZH	Address: The Eating Disorders Service Fulton Clinic Royal Cornhill Hospital Aberdeen AB25 2ZH

Thank you for considering participation in this research

Appendix 4 – Information sheet for the control group

Information sheet for potential control participants

Project: An investigation into schema modes among people with eating problems.

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.

Thank you for taking the time to read this.

What is the purpose of the study?

In order to provide effective treatment for individuals suffering from an eating disorder it can be important to understand the relationship between the beliefs an individual has, the way they manage their emotions and their eating disorder symptoms. This research aims to explore the relationship between these factors for women suffering from an eating disorder. In order for the researcher to complete this it is important for them to be able to see the relationship of these factors among healthy women. **Your participation in this project would be to act as a healthy control**.

This research is being completed as part of an educational qualification.

Do I have to take part it?

No. Participation in this research project is entirely voluntary. Participants can opt –in to the study and it is not compulsory. If you do decide to take part you will be given this information sheet and asked to sign a consent form. If you do decide to take part, you are still free to withdraw at any time and without giving a reason.

What will I have to do?

If you agree to take part, you will be asked by the researcher to complete a number of questionnaires. There are five questionnaires in total to complete, these questionnaires are designed to assess your mood, your long held beliefs about yourself, other people and the world, your experience of emotion as a child and what your family were like and your schema modes which are the moment to moment emotional states. There is also a questionnaire, which asks you about the way in

which you perceive your body.

What will be done with the information I give?

Any information that you provide will be treated with the strictest confidence. All information will be anonymised and will be held in a secure office in a locked filing cabinet at the Outpatient Eating Disorders Service in Aberdeen. Your name will not be used on any of the information you provide and instead you will have a research code number to ensure confidentiality.

Some of the questionnaires used in this study are designed to assess symptoms of depression, anxiety and eating disorders. It is possible that some responses from participants may indicate that they have a number of symptoms of depression, anxiety or eating disorders. Although participants may indicate symptoms of depression, anxiety or anxiety this DOES NOT necessarily mean that they are suffering from any form of disorder. It is common for the general population to experience some of these symptoms from time to time without them actually suffering from depression/anxiety or eating disorders**.** There could be a number of other explanations for your scores on these questionnaires. As a researcher I have a duty of care to your participants and consequently it would be appropriate for the researcher to contact a participant (if they consented) if they showed symptoms of these conditions. The consent form has a section which asks you whether or not you would be happy for the researcher to contact you if your responses on the questionnaires indicated a number or symptoms of either depression, anxiety or an eating disorder. As the questionnaires will be anonymous it will be necessary for the researcher to look at the document which is kept in a secure filing cabinet which indicates the link between the participants name and research code. Only the principal researcher will have access to this document.

What are the possible disadvantages and risks of taking part?

The disadvantages or risks of taking part are minimal. However, it is possible that some of the questions in the questionnaires may identify areas of difficulty or feelings that you had not considered before. Support can be found through Nightline, which is an anonymous and confidential support & information service run especially for students in Edinburgh. You can call **0131 557 4444** any night of term between 8pm and 8am to talk to a trained volunteer about any issue, however big or small.

If you are concerned about this or have any additional questions about participating in the study the researcher is more than happy to discuss this with you before deciding on your participation in the study.

If you would like further information about eating disorders, you can find this from:

Beating Eating Disorders, 103 Prince of Wales Road, Norwich, NR1 1DW, United Kingdom.
Helpline: 0845 634 1414
Website: http://www.b-eat.co.uk
Email: help@b-eat.co.uk

If you are concerned that you may have symptoms of an eating disorder it is important that you discuss this with you General Practitioner who will be able to refer you to specialist help if it is deemed necessary.

What are the possible benefits of taking part?

The information from this research project will increase the understanding of the role of emotions in eating disorders and it is hoped this will contribute to helping patients recover from their eating disorder. There is no individual benefit to taking part in this research.

What will happen to the results of the research study?

The anonymised results of this research study will be written up and submitted as part fulfilment of the researcher's Doctorate in Clinical Psychology at the University of Edinburgh. The results of the research will also be disseminated through presentations to the outpatient Eating Disorders Service and other interested parties. It is also hoped that the results will be written up for a scientific article.

Complaints

If you have any concerns about any aspect of this study you should contact the researcher in the first instance who will do their best to answer any questions or queries that you may have. If you remain unsatisfied and wish to complain formally this can be done through the NHS complaints procedure or the University of Edinburgh, the details of which can be seen below:

NHS Grampian Complaints Team
Westholme
Woodend Hospital
Queens Road
Aberdeen
AB15 6LS
Telephone: 01224 556447

Dave Peck – Programme Director (D. Clin. Psychol.)
School of Health in Social Science
The University of Edinburgh
Medical School
Teviot Place
Edinburgh
EH8 9AG

Telephone: 0131 651 3972

Who has reviewed the research project?

The project has been reviewed by the University of Edinburgh and the North of

Scotland Research Ethics Service.

Contact details

Investigator:	Gwenllian Jenkins	Supervisor: Dr Susan Simpson
Job title:	Trainee Clinical Psychologist	Job title: Consultant Clinical Psychologist
Email:	g.jenkins@nhs.net	Telephone: 01224 557392
Telephone:	01224 557392	
Address:	The Eating Disorders Service The Fulton Clinic Royal Cornhill Hospital Aberdeen AB25 2ZH	Address: The Eating Disorders Service The FultonClinic Royal Cornhill Hospital Aberdeen AB25 2ZH

Thank you for considering participation in this research

Appendix 5 – Consent form for the clinical group

Project: An investigation into schema modes among people with eating problems

Investigator: Gwenllian Jenkins
Job title: Trainee Clinical Psychologist,
Address: The Eating Disorders Service
Fulton Clinic
Royal Cornhill Hospital
Aberdeen
AB25 2ZH

I confirm I have read the information sheet describing the above project (dated March 2009) and the purpose of the project has been fully explained to me. I have also been given the opportunity to contact the researcher and ask any questions that I may have regarding this project.

Please initial ☐

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

Please initial ☐

I am aware that this project is being completed as part fulfilment of the investigators doctorate in clinical psychology at the University of Edinburgh and has been designed to promote psychological knowledge. I understand that this project has been approved by the NHS Grampian's ethics committee and am aware that this committee may wish to inspect the anonymised data collected at any time as part of its monitoring activities.

Please initial ☐

I am aware that the researcher would like to contact my General Practitioner to inform them that I am taking part in this research project and will inform them if the screening measures indicate any areas of concern. Do you agree for the researcher to do so?

Please initial ☐

I hereby fully and freely consent to participate in the research project that has been explained to me.

Name of patient:_____ Date:_____

Signature:_____

Name of person taking consent:_____Date:_____
Signature:_____

If you are interested in receiving a summary of the results of this study please initial the box below:

☐

If so, would you like to receive this by email or post?

Email ☐ Post ☐

Email address: Postal address:

Appendix 4 – Consent form for the control group

Consent Form

Project: An investigation into schema modes among the eating disordered population.

Investigator: Gwenllian Jenkins

Job title: Trainee Clinical Psychologist

Address: The Eating Disorders Service

Fulton Clinic

Royal Cornhill Hospital

Aberdeen

AB25 2ZH

I confirm I have read the information sheet describing the above project (dated March 2009) and the purpose of the project has been fully explained to me. I have also been given the opportunity to contact the researcher and ask any questions that I have regarding this project. I understand my participation is voluntary and that I am free to withdraw at any time without giving any reasons. Please initial ☐

I am aware that this project is being completed as part fulfilment of the investigators doctorate in clinical psychology at the University of Edinburgh and has been designed to promote psychological knowledge. I understand that this project has been approved by the NHS Grampian's ethics committee and aware that this committee may wish to inspect the anonymised data collected at any time as part of its monitoring activities. Please initial ☐

I hereby fully and freely consent to participate in the research project that has been explained to me.

Name:_____Signature:_____ Date:_____

I am aware that the researcher would like to contact me if the questionnaires that I complete indicate symptoms of either depression, anxiety or an eating disorder. Do you agree for the researcher to do so?

Yes ☐ Email:

No ☐

If you are interested in receiving a summary of the results of this study please initial the box below: ☐

If so, would you like to receive this by email or post?

Email ☐ Post ☐

Email address: Postal address

Appendix 6 - Eating Disorders Examination Questionnaire (Fairburn & Beglin, 1994).

EATING DISORDER – EDE-Q

Name: Date:

Instructions: The following questions are concerned with the past four weeks (28 days) only.
Please read each item carefully. Please answer all of the questions. Thank you.

Questions 1 to 12: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days) only.

On how many of the past 28 days….	No Days	1-5 Days	6-12 Days	13-15 Days	16-22 Days	23-27 Days	Every Day
1. Have you been deliberately trying to limit the amount of food you eat to influence your shape and weight (whether or not you have succeeded?)	0	1	2	3	4	5	6
2.Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape and weight?	0	1	2	3	4	5	6
3. Have you tried to exclude from your diet any foods that you like in order to influence your shape or weight (Whether or not you have succeeded)?	0	1	2	3	4	5	6
4. Have you tried to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
5. Have you had a definite desire to have an empty stomach with the aim of influencing your shape or weight?	0	1	2	3	4	5	6
6. Have you had a definite desire to have a totally flat stomach?	0	1	2	3	4	5	6

12. Have you had a strong desire to lose weight?	0	1	2	3	4	5	6

7. Has thinking about food, eating or calories made it very difficult to concentrate on things you are interested in (For example, working, following a conversation, or reading)?	0	1	2	3	4	5	6
8. Has thinking about shape or weight made it very difficult to concentrate on things you are interested in (For example, working, following a conversation, or reading)?	0	1	2	3	4	5	6
9. Have you had a definite fear of losing control over eating?	0	1	2	3	4	5	6
10. Have you had a definite fear that you might gain weight?	0	1	2	3	4	5	6
11. Have you felt fat?	0	1	2	3	4	5	6

Questions 13-18: Please fill in the appropriate number in the boxes on the right. Remember that the questions only refer to the past four weeks (28 days).

13. Over the past 28 days, how many times have you eaten what other people would regard as an unusually large amount of food (given the circumstance) ?

……..

14. On how many of these times did you have a sense of having lost control over your eating (at the time that you were eating)?

……

15. Over the past 28 days, on how many DAYS have such episodes of overeating occurred (i.e., you have eaten an unusually large amount of food and had a sense of

loss of control at thetime)?.

……

16. Over the past 28 days, how many times have you made yourself sick (vomit) as a means of controlling your shape or weight?

……..

17. Over the past 28 days, how many times have you taken laxatives as a means of controlling your shape or weight?

……

18. Over the past 28 days, how many times have you exerciserd in a “driven” or “compulsive” way as a means of controlling your weight, shape or amount of fat, or to burn off calories?

……

Questions 19-21: Please circle the appropriate number. Please note that for these questions the term “binge-eating” means eating what others would regard as an unusually large amount of food for the circumstances, accompanied by a sensse of having lost control over eating.

	No Days	1-5 Days	6-12 Days	13-15 Days	16-22 Days	22-27 Days	Every day
19.Over the past 28 days, on how many days have you eaten in secret (ie, furtively) …….Do not count episodes of binge eating	0	1	2	3	4	5	6
	None of the times	A few times	Less than half	Half of the times	More than half	Most of the times	Every time
20. On what proportion of the times that you have eaten have you felt guilty (felt that you have done wrong) because of its effect on your shape or weight? …….Do not count episodes of binge eating.	0	1	2	3	4	5	6
	Not at all	Sligh	tly	Modera	tely	Mark	edly

21. Over the past 28 days, how concerned have you been about other people seeing what you eat? …..Do not count episodes of binge eating.	0	1	2	3	4	5	6

Questions 22 to 28: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days).

	Not at all	Sligh	tly	Modera	tely	Mark	edly
22.Has your weight influenced how you think about (judge) yourself as a person.	0	1	2	3	4	5	6
23. Has your shape influenced how think about (judge).	0	1	2	3	4	5	6
24 . How much would it have upset you if you had been asked to weigh yourself once a week (no more, or less often) for the next four weeks?	0	1	2	3	4	5	6
25. How dissatisfied have you been with your weight?	0	1	2	3	4	5	6
26. How dissatisfied have you been with your shape?	0	1	2	3	4	5	6
27. How uncomfortable have you felt seeing your body (for example, seeing your shape in the mirror, in a shop window reflection, while undressing or taking a bath or a shower)?	0	1	2	3	4	5	6
28. How uncomfortable have you felt about others seeing your shape or figure (For example, in communal changing rooms, when swimming, or wearing tight clothes)?	0	1	2	3	4	5	6

What is your weight at present (Please give your best estimate) ……..

What is your height? …….

If female: Over the past three-to-four months have you missed your menstrual periods?

…….

If so, how many? ……..

Have you been taking the “pill” ……..

THANK YOU

Appendix 7 – The Short Evaluation of Eating Disorders (Bauer, Winn, Schmidt & Kordy, 2005)

Short Evaluation of Eating Disorders (SEED)

Name: …….. Date: ……..

1. Present body weight in Kg (when undressed) ……..Kg
Height in metres: ……..M

2. Are you afraid of becoming fat or gaining weight?

- **Not at all**
- **Rarely**
- **Sometimes**
- **Frequently**
- **Constantly**

3. In what way do you perceive your body? Please put a cross in the appropriate box where, between the two poles, you see yourself)

3.1 much too thin	1	2	3	4	5	much too fat
3.2 attractive	1	2	3	4	5	unattractive
3.3 muscular	1	2	3	4	5	flabby
3.4 feminine (women)	1	2	3	4	5	lacking femininity
3.5 masculine (men)	1	2	3	4	5	much too fat

4. How often on average did you use the below mentioned measures over the previous four weeks? **(Please put a cross in each line)**

	Not at all	Up to once a week	Twice or more a week	Daily	Several times a day
4.1. bingeing	1	2	3	4	5
4.2. vomiting	1	2	3	4	5
4.3. laxatives	1	2	3	4	5
4.4. diet/low calorie food	1	2	3	4	5
4.5. excessive exercise	1	2	3	4	5

5. Have you missed your period over the previous 4 weeks

- no
- yes
- for males: does not apply

6. Do you take the pill at present?

- no
- yes

- for males: does not apply

Appendix 8- The Invalidating Childhood Environment Scale (Mountford, Corstorphine, Tomlinson, Waller, 2005)

Invalidating Childhood Environment Scale

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

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

• My mother would become angry if I disagreed with her.	1	2	3	4	5
• When I was anxious, my mother ignored this	1	2	3	4	5
• If I was happy, my mother would be sarcastic and say things like: “What are you smiling at?”	1	2	3	4	5
• If I was upset, my mother said things like: “I’ll give you something to really cry about!”.	1	2	3	4	5
• My mother made me feel OK if I told her I didn’t understand something difficult the first time.	1	2	3	4	5
• If I was pleased because I had done well at school, my mother would say things like: “Don’t get too confident”.	1	2	3	4	5
• If I said I couldn’t do something, my mother would say things like: “You’re being difficult on purpose”.	1	2	3	4	5
• My mother would understand and help me if I couldn’t do something straight away.	1	2	3	4	5
• My mother used to say things like: “Talking about worries just make them worse.”	1	2	3	4	5
• If I couldn’t do something however hard I tried, my mother told me I was lazy.	1	2	3	4	5
• My mother would explode with anger if I made decisions without asking her first.	1	2	3	4	5
• When I was miserable, my mother asked me what was upsetting me, so that she could help me.	1	2	3	4	5
• If I couldn’t solve a problem, my mother would say things like: “Don’t be so stupid – even an idiot could do that!”	1	2	3	4	5
• When I talked about my plans for the future, my mother listened to me and encouraged me.	1	2	3	4	5

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

• My father would become angry if I disagreed with him.	1	2	3	4	5
• When I was anxious, my father ignored this	1	2	3	4	5
• If I was happy, my father would be sarcastic and say things like: "What are you smiling at?"	1	2	3	4	5
• If I was upset, my father said things like: "I'll give you something to really cry about!".	1	2	3	4	5
• My father made me feel OK if I told them I didn't understand something difficult the first time.	1	2	3	4	5
• If I was pleased because I had done well at school, my father would say things like: "Don't get too confident".	1	2	3	4	5
• If I said I couldn't do something, my father would say things like: "You're being difficult on purpose".	1	2	3	4	5
• My father would understand and help me if I couldn't do something straight away.	1	2	3	4	5
• My father used to say things like: "Talking about worries just makes them worse."	1	2	3	4	5
• If I couldn't do something however hard I tried, my father told me I was lazy.	1	2	3	4	5
• My father would explode with anger if I made decisions without asking him first.	1	2	3	4	5
• When I was miserable, my father asked me what was upsetting me, so that he could help me.	1	2	3	4	5
• If I couldn't solve a problem, my father would say things like: "Don't be so stupid – even an idiot could do that!"	1	2	3	4	5
• When I talked about my plans for the future, my father listened to me and encouraged me.	1	2	3	4	5

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

1	2	3	4	5
Not like my family	A little like my family	Like my family some of the time	Like my family most of the time	Like my family all of the time

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

Thank you very much for answering these questions.

Appendix 9 -The Schema Mode Inventory (Young, Arntz, Atkinson,

Lobbestael, Weishaar, van Vreeswijk & Llockerman, 2008)

Date:

SMI (Version 1.1)

INSTRUCTION: Listed below are statements that people might use to describe themselves. Please rate each item based on **how often** you believe or feel each statement **in general** using the frequency scale.

FREQUENCY: In general	
1= Never or Almost Never	4= Frequently
2= Rarely	5= Most of the time
3= Occasionally	6= All of the time

Frequency	**In general...**
	1. I demand respect by not letting other people push me around.
	2. I feel loved and accepted.
	3. I deny myself pleasure because I don't deserve it.
	4. I feel fundamentally inadequate, flawed, or defective.
	5. I have impulses to punish myself by hurting myself (e.g., cutting myself).
	6. I feel lost.
	7. I'm hard on myself.
	8. I try very hard to please other people in order to avoid conflict, confrontation, or rejection.
	9. I can't forgive myself.
	10. I do things to make myself the center of attention.
	11. I get irritated when people don't do what I ask them to do.
	12. I have trouble controlling my impulses.
	13. If I can't reach a goal, I become easily frustrated and give up.
	14. I have rage outbursts.
	15. I act impulsively or express emotions that get me into trouble or hurt other people.

Frequency	**In general...**
	16. It’s my fault when something bad happens.
	17. I feel content and at ease.
	18. I change myself depending on the people I’m with, so they’ll like me or approve of me.
	19. I feel connected to other people.
	20. When there are problems, I try hard to solve them myself.
	21. I don’t discipline myself to complete routine or boring tasks.
	22. If I don’t fight, I will be abused or ignored.
	23. I have to take care of the people around me.
	24. If you let other people mock or bully you, you’re a loser.
	25. I physically attack people when I’m angry at them.
	26. Once I start to feel angry, I often don’t control it and lose my temper.
	27. It’s important for me to be Number One (e.g., the most popular, most successful, most wealthy, most powerful).
	28. I feel indifferent about most things.
	29. I can solve problems rationally without letting my emotions overwhelm me.
	30. It’s ridiculous to plan how you’ll handle situations.
	31. I won’t settle for second best.
	32. Attacking is the best defense.
	33. I feel cold and heartless toward other people.
	34. I feel detached (no contact with myself, my emotions or other people).
	35. I blindly follow my emotions.
	36. I feel desperate.
	37. I allow other people to criticize me or put me down.
	38. In relationships, I let the other person have the upper hand.
	39. I feel distant from other people.
	40. I don't think about what I say, and it gets me into trouble or hurts other people.
	41. I work or play sports intensively so that I don’t have to think about upsetting things.

Frequency	In general...
	42. I'm angry that people are trying to take away my freedom or independence.
	43. I feel nothing.
	44. I do what I want to do, regardless of other people's needs and feelings.
	45. I don't let myself relax or have fun until I've finished everything I'm supposed to do.
	46. I throw things around when I'm angry.
	47. I feel enraged toward other people.
	48. I feel that I fit in with other people.
	49. I have a lot of anger built up inside of me that I need to let out.
	50. I feel lonely.
	51. I try to do my best at everything.
	52. I like doing something exciting or soothing to avoid my feelings (e.g., working, gambling, eating, shopping, sexual activities, watching TV).
	53. Equality doesn't exist, so it's better to be superior to other people.
	54. When I'm angry, I often lose control and threaten other people.
	55. I let other people get their own way instead of expressing my own needs.
	56. If someone is not with me, he or she is against me.
	57. In order to be bothered less by my annoying thoughts or feelings, I make sure that I'm always busy.
	58. I'm a bad person if I get angry at other people.
	59. I don't want to get involved with people.
	60. I have been so angry that I have hurt someone or killed someone.
	61. I feel that I have plenty of stability and security in my life.
	62. I know when to express my emotions and when not to.
	63. I'm angry with someone for leaving me alone or abandoning me.
	64. I don't feel connected to other people.
	65. I can't bring myself to do things that I find unpleasant, even if I know it's for my own good.
	66. I break rules and regret it later.
	67. I feel humiliated.
	68. I trust most other people.
	69. I act first and think later.
Frequency	**In general...**
	70. I get bored easily and lose interest in things.
	71. Even if there are people around me, I feel lonely.
	72. I don't allow myself to do pleasurable things that other people do because I'm bad.
	73. I assert what I need without going overboard.
	74. I feel special and better than most other people.
	75. I don't care about anything; nothing matters to me.
	76. It makes me angry when someone tells me how I should feel or behave.
	77. If you don't dominate other people, they will dominate you.
	78. I say what I feel, or do things impulsively, without thinking of the consequences.
	79. I feel like telling people off for the way they have treated me.
	80. I'm capable of taking care of myself.
	81. I'm quite critical of other people.

	82. I’m under constant pressure to achieve and get things done.
	83. I’m trying not to make mistakes; otherwise, I’ll get down on myself.
	84. I deserve to be punished.
	85. I can learn, grow, and change.
	86. I want to distract myself from upsetting thoughts and feelings.
	87. I’m angry at myself.
	88. I feel flat.
	89. I have to be the best in whatever I do.
	90. I sacrifice pleasure, health, or happiness to meet my own standards.
	91. I’m demanding of other people.
	92. If I get angry, I can get so out of control that I injure other people.
	93. I am invulnerable.
	94. I’m a bad person.
	95. I feel safe.
	96. I feel listened to, understood, and validated.
	97. It is impossible for me to control my impulses.
	98. I destroy things when I’m angry.
Frequency	**In general...**
	99. By dominating other people, nothing can happen to you.
	100. I act in a passive way, even when I don’t like the way things are.
	101. My anger gets out of control.
	102. I mock or bully other people.
	103. I feel like lashing out or hurting someone for what he/she did to me.
	104. I know that there is a ‘right’ and a ‘wrong’ way to do things; I try hard to do things the right way, or else I start criticizing myself.
	105. I often feel alone in the world.
	106. I feel weak and helpless.
	107. I’m lazy.
	108. I can put up with anything from people who are important to me.
	109. I’ve been cheated or treated unfairly.
	110. If I feel the urge to do something, I just do it.
	111. I feel left out or excluded.
	112. I belittle others.
	113. I feel optimistic.
	114. I feel I shouldn’t have to follow the same rules that other people do.
	115. My life right now revolves around getting things done and doing them ‘right’.
	116. I’m pushing myself to be more responsible than most other people.
	117. I can stand up for myself when I feel unfairly criticized, abused, or taken advantage of.
	118. I don’t deserve sympathy when something bad happens to me.
	119. I feel that nobody loves me.
	120. I feel that I’m basically a good person.
	121. When necessary, I complete boring and routine tasks in order to accomplish things I value.
	122. I feel spontaneous and playful.
	123. I can become so angry that I feel capable of killing someone.
	124. I have a good sense of who I am and what I need to make myself happy.

Appendix 10 The Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983)

HADS

Name: Date:

Clinicians are aware that emotions play an important part in most illnesses. If your clinician knows about these feelings he or she will be able to help you more. This questionnaire is designed to help your clinician to know how you feel. Read each item below and **underline the reply** which comes closest to how you have been feeling in the past week.

Don't take too long over your replies, your immediate reaction to each item will probably be more accurate than a long, thought out response.

A	D		A	D
		I feel tense or wound up		
3		Most of the time		
2		A lot of the time		
1		From time to time, occasionally		
0		Not at all		
		I still enjoy the things I used to enjoy		
	0	Definitely as much		
	1	Not quite so much		
	2	Only a little		
	3	Hardly at all		
		I get a sort of frightened feeling as if something awful is about to happen		
3		Very definitely and quite badly		
2		Yes, but not too badly		
1		A little, but it doesn't worry me		
0		Not at all		
		I can laugh and see the funny side of things		
		As much as I always could		
	0	Not quite so much now		
	1	Definitely not so much now		
	2	Not at all		
	3			
		Worrying thoughts go through my mind		
3		A great deal of the time		
2		A lot of the time		
1		Not too often		
0		Very little		
		I feel cheerful		
	3	Never		
	2	Not often		
	1	Sometimes		
	0	Most of the time		
		I feel as if I am slowed down		
		Nearly all the time		3
		Very often		2
		Sometimes		1
		Not at all		0
		I get a sort of frightened feeling like 'butterflies' in the stomach		
		Not at all	0	
		Occasionally	1	
		Quite often	2	
		Very often	3	
		I have lost interest in my appearance		
		Definitely		3
		I don't take as much care as I should		2
		I may not take quite as much care		1
		I take just as much care as ever		0
		I feel restless as if I have to be on the move		
		Very much indeed	3	
		Quite a lot	2	
		Not very much	1	
		Not at all	0	
		I look forward with enjoyment to things		
		As much as I ever did		0
		Rather less than I used to		1
		Definitely less than I used to		2
		Hardly at all		3
		I get sudden feelings of panic		
		Very often indeed	3	
		Quite often	2	
		Not very often	1	
		Not at all	0	

	I can sit at ease and feel relaxed	I can enjoy a good book or radio or television program	
0	Definitely	Often	0
1	Usually	Sometimes	1
2	Not often	Not often	2
3	Not at all	Very seldom	3

Appendix 11 - The Young Schema Questionnaire – Short form (Young, 1998)

YSQ – S

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 there 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 nurture me, share him/herself with 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 sound advice or direction

when I'm not sure what to do.

*ed

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.

*ab

11. _____ I feel that people will take advantage of me.

12._____I feel that I cannot let my guard down in the presence of other people, or else they will intentionally hurt me.

13._____It is only a matter of time before someone betrays me.

14. _____ I am quite suspicious of other people's motives.

15. _____ I'm usually on the lookout for people's ulterior motives.

*ma

16. _____ I don't fit in.

17. _____ I'm fundamentally different from other people.

18. _____ I don't belong; I'm a loner.

19. _____ I feel alienated from other people.

20. _____ I always feel on the outside of groups.

*si

21. _____ No man/woman I desire could love me one he/she saw my defects.

22. _____ No one I desire would want to stay close to me if he/she knew the real me.

23. _____ I'm unworthy of the love, attention, and respect of others.

24. _____ I feel that I'm not lovable.

25. _____ I am too unacceptable in very basic ways to reveal myself to other people.

*ds

26. _____ Almost nothing I do at work (or school) is as good as other people can do.

27. _____ I'm incompetent when it comes to achievement.

28. _____ Most other people are more capable than I am in areas of work and achievement.

29. _____ I'm not as talented as most people are at their work.

30. _____ I'm not as intelligent as most people when it comes to work (or school).

*fa

31. _____ I do not feel capable of getting by on my own in everyday life.

32. _____ I think of myself as a dependent person, when it comes to everyday functioning.

33. _____ I lack common sense.

34. _____ My judgment cannot be relied upon in everyday situations.

35. _____ I don't feel confident about my ability to solve everyday problems that come up.

*di

36. _____ I can't seem to escape the feeling that something bad is about to happen.

37. _____ I feel that a disaster (natural, criminal, financial, or medical) could strike at any moment.

38. _____ I worry about being attacked.

39. _____ I worry that I'll lose all my money and become destitute.

40. _____ I worry that I'm developing a serious illness, even though nothing serious has been diagnosed by a physician.

*vh

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 overinvolved in each other's lives and problems.

43. _____ It is very difficult for my parent(s) and me to keep intimate details from each other, without feeling betrayed 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 parent(s) or partner.

*em

46. _____ I think that 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 people's wishes, or else they will retaliate 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.

*sb

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 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.

*ss

56. _____ I am too self-conscious to show positive feelings to others (e.g., affection, showing I care).

57. _____ I find it embarrassing to express my feelings to others.

58. _____ I find it hard to be warm and spontaneous.

59. _____ I control myself so much that people think I am unemotional.

60. _____ People see me as uptight emotionally.

*ei

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.

*us

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 constrained 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 the contributions of others.

*et

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 sacrificing immediate gratification to achieve a long-range goal.

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.

*is

Appendix 12 **Table of Kolmogorov- Smirnov Test of results for individual variables**

Tests Of Normality

	Gp	Kolmogorov- Smirnov(a) Sig.
HADA	1.00 2.00	.011 .200
HADD	1.00 2.00	.000 .130
HADtotal	1.00 2.00	.056 .164
SMIVC	1.00 2.00	.200 .172
SMIAC	1.00 2.00	.186 .200
SMIEC	1.00 2.00	.000 .078
SMIIC	1.00 2.00	.200 .104
SMIUC	1.00 2.00	.066 .075
SMIHC	1.00 2.00	.127 .200
SMICS	1.00 2.00	.096 .200
SMIDPro	1.00 2.00	.032 .200
SMIDSS	1.00 2.00	.200 .200
SMISA	1.00 2.00	.200 .200
SMIBA	1.00 2.00	.200 .200
SMIPP	1.00 2.00	.005 .200
SMIDP	1.00 2.00	.200 .200
SMIHA	1.00 2.00	.097 .035
SMItotal	1.00 2.00	.200 .068
YSQed	1.00 2.00	.001 .200
YSQab	1.00	.200

	2.00	.200
YSQma	1.00 2.00	.001 .200
YSQsi	1.00 2.00	.063 .200
YSQds	1.00 2.00	.000 .084
YSQfa	1.00 2.00	.005 .192
YSQdi	1.00 2.00	.017 .003
YSQvh	1.00 2.00	.127 .200
YSQem	1.00 2.00	.010 .081
YSQsb	1.00 2.00	.024 .200
YSQss	1.00 2.00	.200 .029
YSQei	1.00 2.00	.003 .119
YSQus	1.00 2.00	.200 .014
YSQet	1.00 2.00	.016 .200
YSQis	1.00 2.00	.004 .200
YSQtotal	1.00 2.00	.200 .006
ICESmat	1.00 2.00	.200 .019
ICESPat	1.00 2.00	.002 .049
ICESVal	1.00 2.00	.000 .032
ICEStyp	1.00 2.00	.037 .061
ICESSch	1.00 2.00	.000 .000
ICESSperf	1.00 2.00	.000 .200
Age	1.00 2.00	.000 .055