

Attachment and Sense of Coherence in Anorexia Nervosa

Calum Jackson, BSc. (Hon.), RMN.

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Declaration

This thesis has been composed by myself, the work contained herein is my own and is not being submitted as part of any other degree.

Signed

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Abstract

Introduction

Developmental theories of anorexia nervosa propose that both negative early childhood experiences and perceptions of poor self-efficacy and coping are important factors in the disorders aetiology. This study aimed to assess whether there were any styles of attachment or patterns of perceived self-efficacy and coping (sense of coherence) that are specific to anorexia nervosa. The study also aimed to assess whether there was a relationship between high insecure attachments, weak sense of coherence and high eating disordered belief and behaviours within anorexia nervosa.

Method

The study compared the differences between 42 anorexia nervosa patients (AN), 42 controls with psychological difficulties (PDC) and 45 normal controls (NC). The three groups were matched for age and sex. All participants completed the Eating Disorder Examination Questionnaire, the Hospital Anxiety and Depression Scale, the Attachment Style Questionnaire and the Sense of Coherence Scale. Additionally the AN group were assessed using the Eating Disordered Examination Interview.

Results

Analysis of variance found that the AN group had significantly higher levels of insecure attachment than the NC group and that *need for approval* insecure attachment style was significantly higher in the AN group than in the PDC or NC groups. Sense of coherence was significantly lower within the AN group than both the control groups but the subscales of the Sense of Coherence Scale showed no within group differences. Regression analysis found that weak sense of coherence significantly predicted high levels of eating disordered pathology and that high levels of insecure attachment predicted weak sense of coherence within the AN group.

Discussion

These results appear to add further support to aspects of developmental and cognitive theories of anorexia nervosa. The further development of cognitive and schema focused therapies used in the treatment of anorexia nervosa are proposed. The limitations of the study and the possible direction for future study are also discussed.

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Anorexia Nervosa

There have been descriptions of Anorexia Nervosa (AN) as a phenomenon for many years, however it is only since the early 1970s that the condition has begun to be studied within mainstream psychology. Since then a growing body of research has begun to reveal AN as a condition that is developed and maintained through complex interactions between psychological, somatic and cultural factors. The condition is typified by severely restrictive eating behaviour that has potentially severe physical and psychological consequences.

1.1 Phenomenology

The first key characteristic of AN is a persistent and pervasive over-concern about body shape, size and weight, which is associated with a distorted belief about being too fat or un-shapely. These exaggerated concerns and beliefs are associated with behaviours such as prolonged fasting and dietary restriction, self induced vomiting, excessive exercising or the use of laxatives and diuretics, which are aimed at minimising body weight and fat. The desire to lose weight appears to dominate the sufferer's thoughts, feelings and behaviour (Garfinkel 1995). Russell (1970) described AN as a morbid fear of fatness, while Bruch (1973) called the condition the relentless pursuit of thinness. Perversely, as weight decreases, the perception of being fat can often increase, with the sufferer denying the seriousness of their weight loss and continuing to try and reduce their body's size and shape (Jansen 1998).

The second key characteristic of the condition is its ego-syntonic nature. Often sufferers appear to embrace the condition as an integral part of their self-identity. Crisp (1970) described this as the development of an “anorexic identity”, which makes it difficult for sufferers to change their thoughts, feelings and behaviours about eating as these can be tied up with the definitions of themselves. This can lead to sufferers wishing to maintain their symptoms rather than wishing to change them. This makes AN appear distinct from other psychological conditions such as anxiety and depression, where the sufferer tends to have negative feelings toward the symptoms and a desire to be rid of them. This resistance to changing thoughts and behaviours in AN has obvious implications for all treatment approaches attempted (Garner and Needleman,1997).

Over the last decade, the definition of AN through the signs and symptoms exhibited by the sufferer has led to the condition being divided into two subgroups, the restrictive type and the binge/purging type (American Psychiatric Association, 1994). Most AN sufferers will start by simply restricting their food intake. Some will also initially increase the amount of calories the body uses, through increased exercising. The restriction and exercising become more extreme as the condition progresses. Once the anorexic condition has been established for an average of about 9 months, around half of the sufferers will begin to engage in bingeing and purging behaviours (Polivy and Herman, 1985; Wardle and Beinart, 1981). Here the restrictive eating is punctuated by an episode of binge eating, followed by purging in order to get the food out of the body as quickly as possible. Purging behaviours typically include self-induced vomiting and/or abusing laxatives and diuretics. For some sufferers however, the condition becomes particularly acute as the purging

behaviours appear to become habitual on the intake of any food and not just after binges. Although those with AN may move between subgroups, primarily from restrictive to bingeing/purging, all sufferers will still restrict their food intake for long periods of time (Garfinkle, 1995).

These characteristics and associated behaviours often lead to starvation, with the sufferer's body mass dropping persistently below an acceptable level to maintain good physical and mental health. Physical health problems include endocrine changes that have been associated with amenorrhoea (the abnormal suppression of menstruation), slowing of normal developmental growth, hypothyroidism and reduced insulin production. Other physical problems include reduced heart rate, low blood pressure and dizziness, anaemia, gastrointestinal disturbance, slowed metabolic rate and hypothermia. The persistent low body temperature can lead to the growth of a downy layer of hair over the body (Halmi, 2002). If starvation is prolonged enough, it will result in major organ failure and death. Mental problems include; reduced levels of concentration, obsessional thoughts about food, poor motivation and low mood. Many of the behaviours that appear commonly with starvation are similar to those seen in depressive disorder and may be due to disturbances in brain neurotransmitters. Kaye (1997) reported that some 91% of AN sufferers in the acute phases of the illness were suffering from depressive symptoms, with this reducing to between 15% and 58% amongst those who become weight recovered.

The onset of the condition is usually during adolescence. The progress of the condition can be very variable, with some people recovering after a short episode of AN. However, for around 25% the condition can become a chronic cycle of acute

episodes requiring hospitalisation followed by periods of remission. For those who do require hospitalisation, 10% will at some point die from their condition. The majority however manage to recover a relatively normal level of functioning by the time they reach their thirties (American Psychiatric Association, 1994; Jansen, 1998; Steinhausen, 1995).

1.2 Diagnostic Criteria

The American Psychiatric Association (1994) defines AN in the Diagnostic and Statistical Manual of Mental Disorders (4th edition) using the following criteria:

- A. Refusal to maintain body weight at or above a minimally normal 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 gains during periods 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 body weight.
- D. In postmenarcheal females, amenorrhoea i.e. the absence of at least 3 menstrual cycles (a woman is considered to have amenorrhoea if her periods occur only following hormone, e.g. estrogen administration).

Specific types:

Restrictive 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 misuse 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 behaviours (i.e., self-induced vomiting or the misuse of laxatives, diuretics or enemas).

1.3 Epidemiology

The phenomenon of AN appears to exist almost exclusively in the context of western cultures (Garner and Garfinkel, 1997). Epidemiological studies of western societies consistently report it to be far more prominent in females than in males, with the suggested proportion of males in clinical AN samples being less than 10% (Andersen, 2002). The incidence, based on new detected cases of AN in primary care practices, has been found at rates of 8.1 per 100 000 persons per year (Hoek, 1993). The overall prevalence however varies depending on the subgroup of the population sampled and the diagnostic criteria for AN being used. Studies using community samples with strict diagnostic criteria found that the prevalence of AN amongst women was about 0.3% over 1 year and the life time prevalence was estimated at 0.5-1% (Fairburn and Beglin 1990; Hoek, Bartelds, Bosveld, Graff, Limpens, Maiwald and Spaij, 1995). The occurrence of AN appears very low as compared to other conditions found in western societies. Major unipolar depression has an estimated lifetime prevalence rate between 4-8%, while generalised anxiety disorder has a lifetime prevalence of around 3.6-5.1% (Smith and Weissman, 1992).

As stated earlier, AN predominantly develops in childhood and adolescence (American Psychiatric Association, 1994). In a longitudinal study of age of onset in AN, Theander (1996) concluded that there are occasional cases where the onset is between 7-10 years old, but the number increases sharply between 11 and 12 years old, with most cases appearing in teenage years, between 13 and 19 years old. There is then a gradual decline, with few cases developing after the age of thirty. The average age of onset is 17 years old, with about 30% beginning at 14 years or younger (Theander, 1996). This contrasts with major unipolar depression, where the average age of onset is in the late twenties and general anxiety disorder, with an average onset in the early twenties (Barlow, 1985; Klerman and Weissman, 1989). Depression and anxiety can, however, certainly be found in childhood and adolescence, and may often have their genesis in early life experiences. Additionally, there is also notable comorbidity between AN and both anxiety and affective disorders.

1.4 Comorbidity

Depression is the most commonly reported comorbid disorder with AN. Studies have shown a range from 25% to 86% of lifetime prevalence of depression in women with AN (Halmi, Eckert, Marchi, Sampugnaro, Apple and Cohen, 1991; Herzog, Keller, Sacks, Yeh and Lavori, 1992; Rastam, 1992). Levy and Dixon (1985) report that in some cases depression is present prior to the onset of AN and that it can also be found when anorexic symptoms have subsided. It must, however, be considered that the data cited by Levy and Dixon (1985) relies on studies using differing diagnostic and sampling criteria. A more recent longitudinal study has found that although depression was much more prevalent in AN than in an age and sex

matched cohort, it did not tend to precede Anorexic symptoms (Rastam, 1992). Additionally, when those with AN were followed up over a six year period, any symptoms of depression tended to follow the course of the AN symptoms (Rastam, Gillberg and Gillberg, 1995).

There appears to be a causal role for starvation in the development of depressive symptoms in AN. Starvation is associated with neurochemical and hormonal changes, including the lowering of 5-HT functioning and the elevation of corticotrophin-releasing hormone, both of which are associated with depression (Altemus and Gold, 1992; Cowen, Clifford, Walsh, Williams and Fairburn, 1996). Evidence from studies of AN as well as starvation and dieting in normal populations indicates that both biological and cognitive changes associated with starvation relate to depressive symptoms (Keys, Brozek, Henschel, Mickelsen and Taylor, 1950; Laessle, Kittl, Fichter, Wittchen and Pyke, 1987). However, there appears to be no indication as to whether these changes are the main cause of depression in AN or whether they exacerbate any pre-existing sub clinical depression or predisposition to depression (O'Brien and Vincent, 2003).

It has been argued that anxiety plays a major role in the development and maintenance of AN, with high prevalence of anxiety within anorexic populations. Both social phobia and obsessive compulsive disorder (OCD) have a high lifetime prevalence with AN (Halmi, et al, 1991; Rastam, 1992; Rastam et al, 1995). Most attention has been paid to OCD, which appears to be more prevalent amongst AN populations than matched control populations. There is also some evidence that OCD symptoms may manifest themselves prior to the onset of AN (O'Brien and Vincent,

2003). Thorton and Russell (1997) found that, of the 37% of those within an AN sample who met criteria for an OCD diagnoses, the average onset for the OCD was 5 years prior to the development of AN. Those with the restrictive type of AN also appear more likely to receive a diagnosis of obsessive-compulsive personality disorder (OCPD). Wonderlich, Swift, Slotnick and Goodman (1990) found that 60% of restricting anorexic patients met criteria for OCPD, while 40% of those using bingeing and purging behaviours met the criteria for borderline personality disorder.

It must be considered, however, that starvation may play a role in the development of OCD symptoms and OCPD within AN. In their landmark study of starvation, Keys et al (1950) noted personality changes as a result of starvation, including those associated with OCD and OCPD such as perfectionism, rigidity of thinking style and preoccupation with details. There is evidence however that some OCD symptoms and OCPD traits can persist after re-feeding in AN. Rastam et al (1995) found high rates of OCPD traits in a follow up study of 51 AN patients who predominantly no longer met criteria for AN. There are also some similarities in the clinical presentations of OCPD and AN, not least the ego-syntonic nature of the illnesses and associated rigidity in accompanying belief patterns which make both conditions resistant to change and treatment. There appears to be tentative evidence that anxiety, particularly obsessional behaviour responses and traits, may be a predisposing risk factor for some of those who develop AN and may also be exacerbated by AN.

1.5 Aetiology and Maintenance

A number of aetiological theories of AN have developed since the 1970's. Over time these have evolved from single-factor causal theories to multi-determinant perceptions of how the condition is developed and maintained through exposure to, or the absence of, specific factors (Vitousek, 1996; Fairburn, Shafran and Cooper 1999).

1.5.1 Genetics Risk Factors

Treasure and Holland (1995) reviewed the concordance rates between monozygotic and dizygotic twins for anorexia and bulimia nervosa in a number of studies. From 100 twin pairs it was found that significantly more monozygotic twins (50%) were concordant for anorexia than dizygotic twins (10%). There was no significant difference found for bulimia nervosa. This would indicate that there is a genetic component to the development of AN. As the concordance rate for monozygotic twins was around half, it is unclear what exactly is inherited. Whether it is the specific disorder that is inherited, or a specific personality trait associated with AN, such as perfectionism, or a general predisposition to related psychopathology, is still unclear (Garner and Myerholtz, 1998). To further understand what factors may be inherited and distinguish between the roles genetic and environmental factors play in the development of AN, it would be necessary to study monozygotic twins that were brought up in distinctly different environments (Treasure and Holland, 1995).

1.5.2 Socio Cultural Risk Factors

In order to try and understand why AN is far more pervasive amongst females than males and why it is predominantly seen only in developed westernised societies, socio cultural factors have been pointed to in the aetiology of AN. It is generally agreed that there is an intense pressure placed upon women within western culture to achieve and maintain an unrealistic standard of thinness and a specific body shape through dieting and weight control (Davies and Furnham, 1986; Garner and Garfield, 1980).

In a recent meta-analysis of risk factors associated with anorexic and bulimic eating disorder pathology, Stice (2002) found one of the few factors that received consistent support was the internalisation of a “thin ideal” that overvalued the importance of appearance. This internalised thin ideal is believed to lead to dissatisfaction with body shape and weight and place the individual at risk of dieting, negative affect and eating disorder pathology (Pyle, Mitchell and Eckert, 1981; Streigel-Moore, Silberstein and Robin, 1986). The belief that the thin ideal is culturally specific comes from studies of immigrant populations. Here it has been found that first generation women migrating from less westernised into more westernised cultures have a lower prevalence of AN than the indigenous population, but that second generation migrant females are just as likely to develop AN as the indigenous population (Bryant-Waugh and Lask, 1991; Lake, Staiger and Glowinski, 2000).

Other support for the role of the westernised cultural ideal of female thinness comes from studies that considered gender roles within society. Here it was found that, where gender stereotypes were actively rejected, the prevalence of eating disorder pathology switched. That is, lesbians were less likely to develop eating disorders than heterosexual women and gay men were more likely to develop eating disorders than heterosexual men (Brand, Rothblum and Soloman, 1992).

If cultural exposure to unrealistic ideals of female thinness were, however, the only risk factor involved in AN, there would be an epidemic of eating disorder pathology. Although retrospective studies have highlighted that dieting usually precedes the onset of AN by a year to 18 months, it must be considered that more than 90% of women who diet do so without developing any form of eating disorder (Argas, 1990; Patton, Johnson-Sabine, Wood, Mahn and Wakeling, 1990). Exposure to western cultural ideas and related dieting behaviour may be necessary for the development of AN but does not appear sufficient for the onset and maintenance of AN. A number of studies point to the quality of the child-parent relationship as a moderating factor between cultural pressures and AN pathology (Haudek, Rorty and Henker, 1999; Gowen, Hayward, Killin, Robertson and Taylor, 1999).

1.5.3 Developmental Risk Factors

Many of the first aetiological theories of AN came from ideas regarding the disruption to the normal development of emotions, cognitions and behaviour, through disturbance of the parent-child relationship and family discordance.

The family systems approach has looked beyond the dyadic parent-child relationship and has emphasised the dynamics within the family system as a whole that appear to lead to and maintain AN behaviour (Palazzoli, 1974). A number of studies have found that families with anorexic children display dysfunctional interactions and communication, such as parental over-involvement, rigidity in boundaries and conflict avoidance (Kog and Vandereycken, 1988; Minchin, Roseman and Baker, 1978). Whether this dysfunction within the family system is a predisposing or precipitating factor is still unclear, as other studies have found similar dysfunction in families without anorexic children as well as families with few apparent systemic problems that have anorexic children (Bryant-Waugh and Lask, 1995; Rastam and Gilburge, 1991). It may be that dysfunction within the family system is a reaction of the family to the anorexic behaviour. It has even been proposed that the eating disordered symptoms are utilised and maintained by the family as a means of avoiding other difficult relationships or issues within the family (Dare, 1985).

The relationship between mother and daughter became the focus for other developmental theories. Bruch (1973) argues that where the mother often lacks responsiveness to the child's needs, the needs of the child are subsumed by the needs of the mother. Bruch argues that in order for trust to develop within the infant, the

mother must be responsive to the infant's needs from the start. The earliest needs are for nutrition, closeness and warmth. If the mother fails to respond to the child's need for nutrition when the child expresses this, the child becomes unsure about their own ability to discriminate their inner states. This leads to the misidentification of hunger and its confusion with emotional arousal and other bodily needs. The child then finds it difficult to fully trust the outer world or their inner self and is left with a feeling of lack of emotional containment. In order to feel more contained, the child seeks to maintain what they perceive to be a fragile connection with their prime caregiver through being utterly compliant to the perceived needs of the mother. Bruch (1982) points to the perfectionist, high achieving child as the characteristic pattern of behaviour that is seen in anorexic girls and which is intended to gain maternal approval. This unconditional pursuit of approval from the main caregiver, however, hinders the development of a sense of herself as independent from her mother. Inevitably the pursuit of this strategy fails to help get the child's needs met within the relationship and leaves her with a sense of ineffectiveness and having little control over her life. Ultimately the inability to disentangle hunger and emotional arousal, as well as the feelings of ineffectiveness and lack of control, leads to the regulation of emotional and interpersonal difficulties through restrictive eating behaviours.

In an attempt to understand possible precipitating factors within the anorexic patient's early experiences, some studies have examined early attachment to significant caregivers while others have attempted to examine perceived parental bonding throughout childhood (O'Kearney, 1996; Ward, Ramsay and Treasure, 2000). Within this field of study some have assessed the cross generational patterns of attachment (Ward, Ramsay, Turnbull, Steele, Steele and Treasure, 2001), while others

have examined the factors that may moderate or mediate the relationship between parental bonding or attachment and the anorexic child (Lueng, Thomas and Waller, 2000). A fuller review of the literature regarding this area is provided in Chapter 2.

Crisp (1980), like Bruch, also highlights perceived feelings of ineffectiveness and lack of control over the external and internal environment, but emphasises maturational development through puberty and adolescence and family discord as the main themes within the aetiology of AN. Crisp proposes that, within a family where disruption and conflict are frequent, some children fail to develop feelings of security within the family and themselves. This leaves them with low self-confidence and little sense of control over their unpredictable environment or lives, which negatively impacts upon their self-esteem. The approach of puberty entails a new set of biological and psychological changes, with further feelings of lack of control. In an attempt to develop or maintain a limited sense of control, some girls will restrict their food intake to the extent that they stop normal adolescent development. The newly found ability to control their eating, weight, shape and development, for some, relates to a sense of autonomy and effectiveness which may have previously been lacking. This sense of autonomy is, however, gained without the risk of physical growth and accompanying sexuality or real maturational independence. The idea of normal growth to an adult weight then becomes associated with a loss of control and the biological and psychological changes related to puberty become feared. The eating disorder becomes a way of avoiding the turmoil of adolescence and conflict within the family (Crisp, 1980).

Some limited support for this idea comes from studies that show a link between overvalued ideas about the personal significance of body weight and shape and self-esteem during adolescence. Importantly, self-esteem has been found to have a mediating role between overvalued ideas about body shape and weight and parental conflict. Where adolescents were exposed to conflict with or between parents, they were more likely to have low self-esteem, which appeared to correspond to increased overvalued ideas about the personal significance of their body weight and shape (Ackard and Peterson, 2001; Wade and Lowe, 2002). It must also be considered that adolescence is a time marked by a general rise in feelings of self-consciousness as well as unease and unhappiness with bodily appearance (Carr, 1999).

Other partial support for Crisp's theory comes from a study where it was found that the avoidance of sexual maturation appeared to be an aspect in the development and maintenance of AN pathology for those who had a previous history of abuse, but not for those who had no history of unwanted sexual experiences (Walsh and Burns, 2000). Childhood sexual abuse was, for some time, considered to be a major contributing factor in the development of the condition (Waller and Ruddock, 1995). The prevalence rate of sexual abuse amongst AN sufferers is, however, no greater than in other psychiatric populations, indicating that it is a factor in psychiatric pathology generally but not AN specifically (Stice, 2003).

The predominant theme of these and other developmental, psychodynamic theories (Kohut, 1971; Orbach, 1986) is that AN behaviour is a mechanism for gaining a sense of control over the self and the external environment, which in turn helps to provide a sense of self-efficacy and self-esteem. This need arises from the

inability to achieve a cohesive sense of self through the normal developmental routes, which stems from the failure of the primary caregivers to provide the essential functions for normal development of a cohesive self (Garner and Myerholtz, 1998). Aspects of this theme have been further expanded upon by other theorists to understand how AN is maintained through cognitive and behavioural sets.

1.5.4 Maintaining Factors.

Slade (1982) took a functional analysis approach to try and understand the behavioural reinforcing mechanisms which lay beneath Bruch's (1973) belief that control over eating in AN provided a general sense of control and self worth. Slade proposes that, in females where there is a perceived general lack of effectiveness and control, a sense of control is gained through restricting diet and is reinforced through three mechanisms. Firstly, positive reinforcement is gained through feelings of success in losing weight. Secondly, negative reinforcement is gained through reducing the fear of gaining weight. Thirdly, the severe dieting becomes increasingly important as it enables the avoidance of other underlying difficulties within the individual and the family, with this avoidance providing further reinforcement for the restrictive eating behaviour (Slade, 1982).

Vitousek and Manke (1994) and Vitousek (1996) examined the cognitive biases evident within thinking patterns associated with AN. Here it was proposed that the overvalued ideas about the importance of body shape and weight maintained AN behaviour. These cognitive biases, it was proposed, stem from the interaction between socio-cultural ideals of female appearance and individual traits such as perfectionism,

poor affect regulation and asceticism. Continued weight loss served to provide a positive self-representation for the sufferer while reinforcing the information processing biases surrounding weight, shape and positive self-image (Fairburn, Shafran and Cooper 1999). Fairburn et al (1999) further developed this idea by proposing that longstanding negative self-evaluation plays a major role in the development of cognitive biases that unduly influence self-evaluation in terms of body shape and weight.

Arguably the most comprehensive maintenance model for AN was formulated by Fairburn, Shafran and Cooper (1999). Here it is proposed that there is a need for self-control that derives from a sense of ineffectiveness and perfectionism, which interacts with longstanding low self-esteem. This need for self-control becomes focused on the need to control eating through a number of possible factors. Firstly, restricting eating provides direct and immediate evidence of self-control, as opposed to other areas of life where others may influence the potential for control. Secondly, controlling eating can have an effect on other immediate family members and an impact on possible pre-existing dysfunctional relationships within the family. Thirdly, the salience of eating as a behaviour may already be a pre-existing factor in family functioning, thus increasing the impact of changes in eating-related behaviours. Fourthly, restricting eating can prevent maturational development through adolescence and prevent further feelings of loss of control through this period of rapid physiological and psychological change. Lastly, socio-cultural norms within western culture encourage the idea of self-control through restrictive eating as a means of controlling body shape and weight.

It is then further proposed that once the link between self-control and control over eating is established within the individual, there are three main mechanisms for maintaining AN behaviours. The first is through the process of direct and immediate reinforcement outlined by Slade (1982). Here the ability to restrict food intake gives the individual the rewarding sense of being in control otherwise perceived as lacking in other areas of life. At the same time, the non-regulated eating and weight gain is associated with loss of control further reinforcing the need for AN behaviours.

Control over eating then increasingly becomes the main source of achievement and self-worth in life for the individual, as perfectionistic ideals are enacted and other interests dwindle. The longer this process continues, the more likely the individual is to define themselves in terms of AN. The second mechanism for maintaining AN behaviours is achieved as a result of a state of starvation. Here, physiological and psychological changes induced by starvation, such as impaired concentration and feelings of intense hunger, undermine the individual's sense of control. Additionally, starvation produces a preoccupation with food and eating, with associated loss of interest in other areas of life. This further exacerbates the feeling that control over eating is an index of self-control and self-worth. The third maintaining mechanism is cultural pressure to regard shape and weight as measures of self-worth. This helps to provide a confirmatory bias that any slight weight gain or body imperfection is undesirable and undermines the individual's sense of self-control and self-worth. Any perceived imperfection, or fluctuation in weight, increases arousal within the sufferer leading to further confirmatory bias and hyper-vigilant monitoring of weight and body shape (body checking). Over time, this in turn leads to further increases in arousal, to the point where it becomes intolerable and the individual actively avoids checking

their shape or weighing themselves. This inability to monitor weight and shape consequently leads to a feeling within the sufferer that they are failing to maintain control over their shape and weight and fuels further restriction of eating and/ or purging behaviours to try and re-establish the sense of control (Fairburn, et al. 1999).

Within this cognitive/ behavioural maintenance model, the role of self-perceptions of control, effectiveness and worth are seen as the motivating factors for the perpetuation of behaviours leading to and sustaining AN. The psychodynamic developmental models outlined earlier propose that these cognitive factors are mediated within the AN sufferer by their current and earlier relationship with their main caregivers (Bruch, 1973; Crisp, 1980). The evidence for the role these relationships may play in the development of AN is reviewed in Chapter 2. The evidence that low self-esteem, poor self-worth and self-efficacy underpin many of the motives for anorexic behaviour is reviewed in Chapter 3.

Parental Bonding and Attachment
in the Development of Anorexia Nervosa.

Within the study of factors leading to the development of anorexia nervosa (AN), the relationship between the child and caregiver has been assessed from the perspectives of attachment theory and parental bonding theory. Although there is some overlap within these two approaches, they can be seen as focusing on different aspects of the parent-child dynamic.

2.1 Parental Bonding

Parker (1994) argues that attachment refers to the instinctively determined behaviours of both the child and parent that are present from birth, while the child-parent bonding aspect is the less biologically driven development of the relationship. That is, following the initial attachment period within the child-parent relationship, there is the development of a more “goal corrected partnership.” This bonding process is directed by the responses to the caregiver and also modified by the caregiver’s actions and reactions to the child, as well as other environmental factors. The parental bond is then defined as how the child and the parent perceive, experience and judge the interaction with each other (Parker, 1994).

A number of factor analytical studies have attempted to identify the principal characteristics in parental behaviour and attitudes that are associated with pathological

and non pathological child development (Raskin, Boothe, Reatig, Schuler-Brandt and Odle, 1971; Roe and Seligman, 1963; Schaefer, 1965). From this, Parker, Tupling and Brown (1979) proposed that, from the child's perspective, care and protection are the two main dimensions that affect child-parent bonding. The care dimension extends from *caring* to *indifferent*, while the protection dimension extends from *overprotective* to *neglectful*. There is an assumption that parenting style and the level of care and control exhibited by the caregiver remain reasonably consistent through out childhood (Parker,1994).

The Parental Bonding Instrument (PBI, Parker, 1979) was designed to measure the level of care and protection that the subject perceived they received from their mother and father for the first 16 years of their life. The PBI has been used with a range of clinical populations, with the strongest findings coming from studies of depression. Low caring, overprotective parenting has been identified as an aetiological risk factor for depression (Gerlsma, Emmelkamp and Arrendell, 1990). It is proposed that exposure to uncaring parenting will directly undermine a child's self-esteem and make it harder for them to cope with negative life events, especially those leading to some form of rejection, and make them more prone to developing psychological difficulties in later life. It is argued that children exposed to overprotective parenting will develop limited and restricted social competencies. This in turn makes it harder to achieve independence from the parents and leads to a perception of social situations outside the family as risky, with resultant low self-confidence and self-esteem in the world outside the family (Parker, 1994). Within AN, self-esteem is also believed to play an important aetiological role (Yellowlees, 2001).

Some studies have found some evidence supporting a possible link between specific types of poor parental bonding and AN, but other studies have found evidence to the contrary. A North American population study of over 2165 female twins found that high levels of maternal overprotection were significantly associated with AN. Low self-esteem was also significantly associated with AN in this study, however a broad definition of AN was used and high comorbidity between AN and depression as well as anxiety disorders was found (Walters and Kendler, 1995). Other studies have also tended to find significantly higher rates of overprotection and ‘less caring’ parental style in AN clinical populations than in normal controls (Calam, Waller, Slade and Newton, 1990; Steinger, Van der Feen, Goldstein and Leichner, 1989). However, some studies have failed to find any consistent difference in parental bonding between AN and Bulimia Nervosa (BN) patients, or with female outpatients with non-eating disordered psychopathology (Berger, Ono, Saito, Tezuka, Takahashi, Uno, Ishikawa, Kuboki, Asai and Suematsu, 1995; Palmer, Oppenheimer and Marshal, 1988). Others have reported that parental bonding within AN is closer to the levels seen in normal populations than in other populations with psychopathology, including BN (Russell, Kopec-Schrader, Rey and Beumont, 1992; Sordelli, Fossati, Devoti, La Viola and Maffei, 1996).

These studies don’t consistently support the thesis proposed by Bruch (1974) that those with AN come from an overprotective family background. The variation in the levels of uncaring and overprotective parenting styles found in these studies, when compared with those found in other groups of patients or normal controls, makes it hard to conclude that this factor is specific to development of AN and suggests it may

be a more general risk factor for psychopathology (O’Kearney, 1995; Ward, Ramsay and Treasure, 2000). In a recent study, it was found that low parental care predicted dysfunctional core beliefs amongst women with AN. These dysfunctional core beliefs were around ideas of being unable to control their emotions and sacrificing their own needs as well as feelings of failure to achieve as much as others in life. Maternal overprotection, however, was not associated with any unhealthy core beliefs within the AN group (Leung, Thomas and Waller, 2000).

There may be some problems with using the Parental Bonding Instrument with AN patients. If there is a high level of enmeshment between the mother’s and the AN daughter’s needs, the perfectionist traits exhibited by AN patients may give rise to a desire to portray the bonding relationship as an idealistic one (Fonagy, Leigh, Steele, Steele, Kennedy, Mattoon, Target and Gerber, 1996). This may then make it hard for the AN patient to criticise their mother, particularly aspects of maternal care and protection. This appears to have been apparent in the study by Sordelli et al (1996), where the parents were perceived as totally good by the AN participants. Additionally, as stated earlier, there is an assumption that parenting styles remain constant over the first 16 years of life. This does not take into account other environmental factors, such as employment, illness or migration that may influence the style and availability of parenting at different points in the child’s development. Finally, it must also be considered that the effect the anorexic behaviour has on the family dynamics may influence how the AN patient perceives bonding with their parents and as such may not be a true reflection of bonding over childhood as a whole.

2. 2 Attachment

Other studies have looked more directly at attachment theory as a means of understanding developmental factors that may lead to AN. Attachment theory originally came from observations of infants separated from their mothers (Bowlby, 1953; Ainsworth, Blehar, Walters and Wall, 1978). From these observations the concept arose of a biologically driven set of behaviours that regulates the proximity of the infant to the main caregiver(s). The proximity seeking and maintaining behaviours exhibited by the infant are believed to help maintain feelings of safety and security while enabling the infant to begin to explore its world. Bowlby argues that this “attachment behavioural system” is an independent system, equivalent in function to other behavioural systems such as feeding and exploring (Bowlby, 1969, 1980). The attachment behaviours are activated when the infant realises that they are not in easy reach of their caregiver. These behaviours include crying, calling, gazing and seeking, amongst others, and, once proximity to the caregiver is achieved, the infant’s behaviour changes to hugging, clinging, cooing and smiling. The fundamental assumption of attachment theory is that in order for the infant to effectively use these attachment behaviours to gain feelings of security through proximity to the caregiver, the infant must develop an “internal working model” of the caregiver and him or her self as well as the interaction between them both (Bowlby, 1988).

In an environment where activation, reactivation and refinement of attachment behaviours leads to the set goal of gaining proximity and feeling safe, the child is described as having a “secure base” (Ainsworth et al, 1978). The vast majority of children manage to develop this secure base within the first 4 years of life, which

appears to be the critical period for this process. After this period, it appears that the child finds it particularly difficult to develop a secure base with existing or new caregivers (Bowlby, 1988). From the observations of infants' behaviour on being reunited with their mothers in the "strange situation" experiments, Ainsworth and her colleagues were able to identify those who had developed a secure base and those who had not (Ainsworth et al, 1978). Those with an apparent secure base were classified as securely attached and showed signs of distress when being left by the mother, sought out the mother on her return and held her for a period then returned to playing. Two other patterns of behaviour were identified, where the attachment to the mother appeared insecure. One group showed distress on separation from the mother but rejection or lack of acknowledgement of the mother on her return. Ainsworth described this as the avoidant style of attachment. The other group was characterised by high levels of distress at separation and mixed approach and rejection of the mother on reunion. Ainsworth described this as the anxious/ ambivalent attachment style, see table 1.

2.2.1 **Table 1.**

Ainsworth et al's (1978) Three Category Model of Childhood Attachment

<i>high</i>	ANXIOUS-AMBIVALENT: extremely distressed when separated from caregiver, hard to comfort upon return, doesn't explore in caregiver's presence	AVOIDANT: shows little distress when separated from caregiver, looks for little comfort upon return, focuses on environment rather than caregiver
	SECURE: distressed when separated from caregiver, easy to comfort upon return, explores confidently in caregiver's presence	
<i>low</i>	<i>low</i>	<i>high</i>
	<i>AVOIDANCE</i>	

Bowlby (1969), Ainsworth et al (1978) and Main, Kaplan and Cassidy (1985), amongst others, have argued that, as a result of early attachment experiences, the child develops knowledge and expectations that become their “internal working models” of themselves, significant others and the wider social world. These working models not only regulate attachment behaviour, but are also hard to change once established and are used as a framework for later attachment relationships with others (Bowlby, 1980). Bowlby states that attachment behaviour “characterises human beings from cradle to grave” (1979, pg 129) and “although most obvious in childhood it can be observed throughout the life cycle” (1989, pg 238). Stable patterns of attachment behaviour have been identified as existing throughout the course of childhood (Main et al, 1985). Children’s behaviour at home, school and other social situations at age 10 has been predicted from attachment behaviour at age 1 (Sroufe, Egeland and Kreutzer, 1990). Attachment styles appear to predict behaviours within adult relationships in that there is a positive correlation between security of attachment and interactions between married couples and perceived quality of the marital relationship (Kobak and Hazan, 1991). It was also found that the attachment style of one partner was predictive of whether they were more or less accepting of the other partner (Cohn, Silver, Cowan, Cowan and Pearson, 1992). Attachment style also appeared independent of life events in a test-retest study of a large sample of young adults over an 8-month period (Scharfe and Bartholomew, 1994).

Secure attachment styles of behaviour are found in around 70% of children and adults (Rothbard and Shaver, 1994). The assessment of insecure attachment styles in the remaining 30% of children and adults has led to an increase in the number of categorisations of insecure behaviour patterns. Bowlby (1980) has proposed that there

are four categories of insecure attachment in addition to the one category of secure attachment, these are: - *compulsive care giving*, *compulsive care seeking*, *compulsive self-reliance* and *angry withdrawn* styles. Most theorists have, however, adopted and adapted or extended Ainsworth's model of two insecure attachment behaviours, avoidant and anxious-ambivalent. Main et al (1985) identified a third set of insecure behaviours in the strange situation experiment which they labelled disorganised attachment style. Here the child would be highly distressed at the departure of the mother, then, on her return, would exhibit mixed behaviours such as approaching the mother with their head turned away or approaching then freezing or collapsing to the floor. When proposing adult variations of insecure infant attachment styles, Main and her colleagues adopted these three types of insecure behaviours. They proposed that within the transition from child to adult, avoidant became *dismissive* attachment style, anxious-ambivalent became *preoccupied* attachment style and disorganised became *unresolved* attachment style, while secure was described as autonomous (Main et al, 1985).

Bartholomew and Horowitz (1991) have proposed a slightly different four category model, emphasising the adult's representation of self and others as a determinant of close relationships with significant others. Here, in addition to the *autonomous/secure* and *preoccupied/anxious-ambivalent* style, they propose that the avoidant style is subdivided into those that fear closeness (*fearful*) and those that are dismissive and counter-dependant of relationships (*dismissing*) (see table 2).

2.2.2 **Table 2.**

Bartholomew and Horowitz's (1991) Four Category Model of Adult Attachment.

	Positive	INTERNAL MODEL OF SELF	negative
negative			
INTERNAL MODEL OF THE OTHER		PREOCCUPIED: (<i>high anxiety, low avoidance</i>)	FEARFUL: (<i>high anxiety, high avoidance</i>) avoid close relationships
		SECURE: (<i>low anxiety, low avoidance</i>)	DISMISSING: (<i>low anxiety, high avoidance</i>) emphasise independence
positive			

In order to assess attachment in various clinical and non clinical populations, the original Ainsworth categorisation and its adaptations have been adopted to form the basis for forced choice questionnaires (Bartholomew and Horowitz, 1991; Hazan and Shaver, 1987; Kenny, 1990) and ordinal self-rating questionnaires (Colins and Read, 1990; Hansburg, 1986; West, Sheldon and Reiffer, 1987), as well as semi-structured interviews for measuring type and degree of attachment style (Candelori and Ciocca, 1998; Salzman, 1997). Using principle component and cluster analyses on a range of existing measures, as well as some newly developed questions, Feeney, Noller and Hanrahan (1994) developed a 5-category model of adult attachment style. Here secure attachment was labelled *confidence*, while insecure attachment fell into four styles. The first two, *need for approval* and *preoccupation with relationships*, are related to anxious-ambivalent styles, while the second two, *discomfort with closeness* and *relationships as secondary to achievement*, are more similar to avoidant style, see table 3.

2.2.3 **Table 3.**

Feeney, Noller and Hanrahan's (1994) Five Category Model of Adult Attachment with Ainsworth et al's (1978) Three Category Model

<i>Secure</i>	Insecure Attachment			
	<i>Anxious / Ambivalent</i>		<i>Avoidant</i>	
Confidence	Preoccupation with Relationships	Need for Approval	Discomfort with Closeness	Relationships as Secondary to Achievement

A number of studies have used measures based on Bowlby's theory and Ainsworth et al's categories to assess attachment as a developmental factor in AN and BN. Some studies appear to support a general link between eating disorders and insecure anxious-ambivalent attachment style. Armstrong and Roth (1989) assessed 12 AN, 12 BN and 4 atypical eating disordered inpatients using the Adolescent Separation Anxiety Test (Hansburg, 1980). Here 96% of the sample showed anxious attachment styles and there was no difference in style or severity of insecure attachment between those with AN and those with other eating disorders. Compared to non-eating disordered normal controls, the eating disordered sample had significantly increased levels of insecure attachment generally and a highly significant level of anxious attachment style (Armstrong and Roth, 1989).

Friedberg and Lyddon (1996) used the forced choice Relationship Questionnaire (Bartholomew and Horowitz, 1991) to assess a small sample of 7 AN, 10 BN and 27 controls. Those within the eating disordered group were significantly more likely to place themselves within the preoccupied (anxious-ambivalent) attachment category than the control group, who predominantly chose the secure

attachment category (Friedberg and Lyddon, 1996). No assessment of the potential differences between AN and BN subgroups was made.

A study of 86 inpatients using the Adult Attachment Interview (AAI, George, Kaplan and Main, 1985) found that of the 14 who had an eating disorder diagnosis, 9 were categorised as having a preoccupied (anxious-ambivalent) attachment style while 4 were dismissive (avoidant) and 1 autonomous (secure) (Fonagy et al, 1996). AN and BN were not differentiated in this study. The small numbers of AN patients and lack of comparison between AN and BN diagnoses make it hard to establish which, if any, of the findings are specifically related to AN pathology.

Some studies have looked more specifically at AN pathology and attachment style. In a study primarily assessing insecure attachment using the Adolescent Attachment Interview (Salzman, 1996), those who were found to have anxious-ambivalent attachment styles were also likely to have experienced clinically significant AN. Within the 28 female students studied, 10 were securely attached and 7 were avoidant, while 11 were anxious-ambivalent. Of the 11 anxious-ambivalent students, 7 had received a diagnosis of AN from a family physician, while none of the secure or avoidant group had received a similar diagnosis (Salzman, 1997). A version of the AAI adapted for use with adolescents was administered by Candelori and Ciocca (1998) to 36 inpatients, 12 with restricting AN, 12 with binge-purge AN and 12 with BN. Within the total sample, 30 (86%) were insecurely attached, of which 15 (50%) were categorised as preoccupied (anxious-ambivalent), 9 (30%) were dismissive (avoidant) and 6 (20%) were as both dismissive and preoccupied. Those with restrictive AN tended to be classified more within the dismissive category than

the binge-purge AN and the BN group, who were generally classified as preoccupied (Candelori and Ciocca, 1998).

In a recent study, trans-generational patterns of attachment in AN patients and their mothers were also assessed using the AAI. The participants were 20 AN inpatients and 12 of their mothers. From the interviews, 19 (95%) of the daughters and 10 (83%) of the mothers were found to be insecurely attached, with dismissive (avoidant) attachment style being the prominent categorisation for both mother (58%) and daughters (75%). There was, however, no association between mother and daughter attachment style. Here there appeared to be no difference in attachment style between the restricting AN group (n=6) and binge-purge AN group (n=14) (Ward, Ramsay, Turnbull, Steele, Steele and Treasure, 2001).

A number of inferences can be drawn from the studies outlined here. It appears that studies based on Bowlby's and Ainsworth's attachment model of development have produced more consistent results than those studies that have used parental bonding and the PBI as means of understanding the development of AN. The studies measuring attachment style identify insecure attachment as a risk factor in the development of eating disorder pathology. The early studies were predominantly on patients who had BN and tended not to differentiate between AN and BN patients within their analysis. These studies pointed to anxious-ambivalent/preoccupied attachment styles being the dominant pattern of insecure attachment within general eating disordered populations (Armstrong and Roth, 1989; Fonagy et al, 1996; Friedberg and Lyddon, 1996). The two most recent studies, which have looked more specifically at attachment style within AN (Candelori and Ciocca, 1998, Ward et al,

2001) have shown that avoidant/dismissive attachment appears to be a feature of particularly restricting AN patients. These findings do not however support Salzman's (1997) earlier finding that anxious-ambivalent/ preoccupied attachment was associated with a history of AN.

Feeney et al (1994) suggest that there may be a degree of overlap across categories in the reporting of insecure attachment style in measures that do not use forced choice. They illustrate this in a study where a large community sample was divided into Ainsworth's three attachment styles using Hazan and Shaver's (1987) forced-choice measure. These groups then completed the ordinal version of Ainsworth's three factor attachment style measure, developed from Hazan and Shaver's (1987) measure by using a Likert-type format (Feeney and Noller, 1991). Here it was found that not all attachment style categories were mutually exclusive. As expected, the secure group scored highly on security and low on avoidance and anxious-ambivalence and the avoidant group scored high on avoidance and low on security and anxious-ambivalence. However the anxious-ambivalent group scored low on security but high on both avoidance and anxious-ambivalence. This would appear to highlight the role of ambivalence within the anxious-ambivalent group and possibly account for the findings of Canderlori and Ciocca (1998), Salzman (1997) and Ward et al (2001). That is, the predominant attachment style within AN may be anxious-ambivalent (preoccupied), but within this group there is also a high degree of avoidance.

Feeney et al (1994) have shown using principle component analysis that, Ainsworth's three category model of attachment, *secure*, *avoidant* and *anxious-*

ambivalent accounted for 35.7% of the total variance within a community sample of 470 participants. The degree of total variance accounted for by their own five categories, *confidence*, *discomfort with closeness*, *need for approval*, *preoccupation with relationships* and *relationships as secondary* was 43.3% within the same sample (Feeney et al, 1994). Feeney et al's (1994) model may then be useful in providing a clearer understanding of what style or styles of attachment are implicated in AN pathology. There have, to date, been no published studies that directly compare attachment style in AN with general psychopathology samples (Jacobi, Hayward, de Zwaan, Kraemer and Agras 2004). Additionally, the sample sizes within existing studies are small, making it difficult to come to any firm conclusions as to whether any patterns of insecure attachment are specific to AN, an aspect of eating disordered pathology or related to psychopathology generally.

Anorexia Nervosa as Control in the Face of Ineffectiveness**3.1 Self-Efficacy in Anorexia Nervosa**

The diagnostic criteria for AN in the 4th edition of the Diagnostic and Statistical Manual of mental disorders (American Psychiatric Association, 1994) recognise that self-evaluation is unduly influenced by body weight and shape. Within the aetiological and maintenance models of AN, outlined in Chapter 1, low self-esteem, feelings of ineffectiveness and negative self evaluation are seen as playing an important role in the internalisation of ideals about control over diet, weight, body shape and the drive for thinness. Bruch (1982) describes AN patients as suffering from “an overriding, all-pervasive sense of ineffectiveness” which is related to “underlying deficits in the sense of self identity and autonomy”. It is argued that stress leads to feelings of loss of control within AN sufferers, leading to attempts to reduce stress and regain a sense of control through further restriction of eating or other weight reducing behaviours (Hewitt, Flett and Ediger, 1995; Lask 2000). It is also believed that the perfectionist traits found within AN patients help maintain feelings of ineffectiveness and negative self-evaluation, through continued failure to meet unachievable levels of personal performance (Fairburn, Shafran and Cooper, 1999).

A large number of cross sectional studies have evaluated low self-esteem, negative self-concept and ineffectiveness within AN. A comprehensive review reported that AN patients exhibited lower self-esteem, more negative self-concepts or

higher levels of ineffectiveness than matched controls in 21 out of 24 studies reviewed (Jacobi, 2000). Only 7 of the 24 studies included control groups with psychopathology, of which 3 found no differences in levels of negative self-concept or ineffectiveness between groups, while 4 found higher levels of ineffectiveness or negative self-concept amongst the AN populations. It is noted by the authors that none of the studies controlled for patients' depressive symptoms, which could be significant confounding variables when considering the high comorbidity between AN and depression as well as the high correlation between depression and self-esteem (Jacobi, Hayward, de Zwaan, Kraemer and Agras, 2004).

A number of longitudinal studies have also assessed self-esteem, negative self-evaluations and ineffectiveness within the development of general eating disordered pathology. Button, Sonuga-Barke, Davies and Thompson (1996) found that girls with low self-esteem when aged 11-12 were more likely to develop disordered eating symptoms at age 15-16 than those with higher self-esteem. Low self-esteem scores at 11-12 also predicted the level of eating disordered pathology at age 15-16 better than concerns about weight or fatness. Similarly, Ghaderi and Scott (2001) found that adolescents who had significantly lower self-esteem were likely to have eating disordered pathology 2 years later. Another study of adolescents (Leon, Fulkerson, Perry, Keel and Klump, 1999) found that feelings of ineffectiveness, but not low self-esteem, predicted pathological disordered eating patterns at follow-up. A study by Calam and Waller (1998), however, did not find a significant relationship between self-esteem and subsequent disordered eating. On balance, there appears to be some evidence that self-esteem and feelings of ineffectiveness do play a role in the development of eating disordered pathology. These factors appear to be dominant

features of cognitive processing within AN, but this may also relate to comorbid depression.

3.2 The Development of Poor Self-Efficacy.

The developmental models outlined earlier propose not only that the low self-esteem and feelings of ineffectiveness are factors in the aetiology of AN, but that these factors arise from problems in attachment and bonding with significant others. Support for this comes from two studies of attachment, negative self-evaluation and eating disordered behaviour. In one study, 329 preadolescent and adolescent girls were categorised into secure and insecure (anxious/ambivalent and avoidant) attachment styles using a modified version of Hazan and Shaver's (1987) self report measure. Those who were insecurely attached were also significantly more likely to have low self-esteem and concerns about weight, but not concerns about their current body shape, than those who were securely attached. No analysis of differences between the two insecure attachment styles was reported (Sharpe, Killen, Bryson, Shissak, Estes, Gray, Cargo and Taylor, 1998).

Further evidence for the possible mediating role of perceptions of ineffectiveness and low self-esteem, between insecure attachment and the development of AN, comes from a second study that used qualitative rather than categorical assessment of attachment. Kenny and Hart (1992) used the Parental Attachment Questionnaire (Kenny, 1990) with 9 AN, 50 BN and 9 dually diagnosed inpatients, as well as 162 non-eating disordered normal controls. Here the perceived affective quality of attachment to parents was negatively associated with feelings of personal ineffectiveness, preoccupation with thinness and eating disordered

behaviour. Unfortunately no attempt was made to differentiate between the different types of eating disordered presentation (Kenny and Hart, 1992).

Within these studies, a wide range of measures of self-esteem, negative self-concept and ineffectiveness were used, including the Rosenberg self-esteem scale (Rosenberg, 1979) and the Eating Disorder Inventory subscale for Ineffectiveness (Garner, Olmsted and Polivy, 1983). There is an assumption behind the use of these measures that these factors are related, but separate, uni-dimensional constructs. This, however, may be a simplification of the relationship between these factors within AN. The relationship between feelings of ineffectiveness and self-esteem within the cognitive processing of AN patients was assessed by Butow, Buemont and Touyz (1993). This study compared 53 AN patients, 45 BN patients, 65 women who restrained their eating through dieting but were not eating disordered and 68 women who did not restrain their eating. Comparisons were made using standard questionnaires and the repertory grid technique (Kelly, 1955) to assess personal constructs and cognitions about eating situations, self-image and significant others.

From this study, what clearly differentiated AN patients from the other groups was that they evaluated self-worth almost entirely in terms of self-control. Additionally, the AN group were found to be self-isolating in their belief, in that they saw themselves as distinct from others within their perceptions of self and in the perceptions they believed others may have about them (Butow et al 1993). The first finding would indicate that perceptions of self-esteem within AN patients are strongly related to feelings of self-efficacy, where self-efficacy is the sense of being able to control the problems in one's life by engaging successful coping strategies (Bandura,

1977). The second finding would be indicative of interpersonal difficulties, described by Makhoulouf-Norris and Norris (1973) as social-isolation belief patterns, and may possibly be related to avoidant insecure attachment style.

3.3 Multidimensional Concepts of Self-Efficacy

Two recent studies have used two and three-dimensional constructs of self-evaluation, that incorporate Bandura's (1977) construct of self-efficacy, to assess the relationship between self-efficacy, coping with difficulties and eating disorder pathology. Patterson, Power, Swanson, Park, Taylor and Yellowlees (in press) used Tafarodi and Swann's (2001) model of self-evaluation, based on self-liking and self-competence, to assess the relationship between self-evaluation and problem solving within a group of eating disordered inpatients and normal controls. Self-liking is seen here as the perception of self as part of one's social environment, that is, how you perceive yourself in relation to others and how you believe others regard you. Self-competence is related to belief in ourselves as capable of using skills and abilities to reach desired outcomes, and is closely related to Bandura's (1977) concept of self-efficacy.

Here it was found that the combined self-liking and self-competence scores correlated with both eating disordered pathology and a negative orientation to problems within the eating disordered group but not the control group. Eating disordered pathology and negative orientation to problems were not, however, significantly correlated to each other within the eating disordered group. This appeared to indicate that self-competence/ self-liking might play a mediating role in

the relationship between the perception of problems as being manageable and eating disorder behaviour.

Further evidence for the role self-efficacy may play in AN pathology comes from studies using a tri-dimensional measure called the Sense of Coherence, 29 item, Scale, (SOC-29: Antonovsky, 1987). Aitcheson (2002) used the SOC-29 scale to examine differences between AN patients, depressed patients and normal controls. This measure is aimed at assessing “global orientation to one’s inner and outer environments which is hypothesised to be a significant determinant of location and movement on the health/disease continuum” (Antonovsky, 1993, pg. 730). The measure is constructed from three interrelated dimensions: *comprehensibility*, which is the extent of the belief that a problem is clearly understood: *meaningfulness*, which is the extent of the belief that dealing with a problem makes sense emotionally, that is, one wishes to cope with problems and *manageability*, which is formulated from Bandura’s (1977) construct of self-efficacy, that is, the extent of the belief that one can bring the required strategies and resources to bear in resolving problems and achieving desired outcomes (Antonovsky, 1998).

This study found that AN patients had a weaker sense of coherence than normal controls, but a stronger sense of coherence than depressed patients. The scores for the separate dimensions of the SOC- 29 showed differences between the groups that accounted for the AN group’s “healthier” score over the depressed group. The depressed group scored equally low on all three dimensions, while the normal group scored equally high on all three dimensions. The AN group scored low on the

comprehension and manageability subscale, but significantly higher on the meaningfulness subscale.

Aitcheson (2002) speculated that the low comprehension scores within AN may be a product of poor attachment in early life. As stated in Chapter 2, responses to attachment behaviours lead to the development of internal working models of self and others and these form the prototype for future relationships. If, through the failure to develop secure attachment, internal working models develop which view relationships and the social world as unpredictable, it becomes hard to develop the belief that the world and the numerous problems encountered in it are clearly comprehensible (Aitcheson, 2002). This, however, could apply to any psychopathological group where insecure attachment is a possible aetiological factor.

Low manageability scores within the AN group were also believed to be due to interpersonal difficulties that stem from insecure attachment. That is, the self-efficacy does not rely solely on using internal resources to deal effectively with problems, but also on the ability to recruit and engage external resources to cope effectively (Aitcheson, 2002). Many AN sufferers appear to have high internal resources, often driven by high internal expectation, that help them excel in some areas of life, such as academically. They may, unfortunately, often undermined their efforts to manage life stressors by their inability to engage successfully with others as a means of helping them cope effectively in areas where they may lack the necessary personal recourses. This would be supported by the socially-isolating belief patterns found by Butow et al (1993) and described earlier.

Meaningfulness combines elements of motivation and endeavour; essentially the ability to engage in goal-directed, productive behaviour. The high personal expectations and the desire to excel within AN, which is argued to be driven by the need for approval (Lask, 2000), may well be the reason why this group still managed to score relatively highly on the meaningfulness dimension in comparison to the depressed group (Aitcheson, 2002).

There were some shortcomings in Aitcheson's (2002) study, which the author acknowledged. The sample sizes for the groups were small, with AN group $n= 13$, depressed $n= 25$ and normal controls $n= 44$. There was also a degree of comorbid depression within the AN group, as 5 of 13 participants were within the clinical range for depression. This made it difficult to then attribute any observed effect strictly to the AN group. It was speculated that the manageability dimension might be closely related to depression rather than specifically to AN (Aitcheson, 2002).

A recent Polish study, assessed sense of coherence within adolescents receiving treatment within a psychiatric unit and their families. This study found that sense of coherence was significantly weaker for girls with eating disorders than for their siblings or their parents. There were, however, no differences in total score on the SOC-29 between eating disordered patients and psychotic or neurotic patients. There were also no reported differences on the subscales of the SOC- 29 between those with eating disorders and other psychiatric conditions, however, there were differences between the psychiatric group and the normal control group on all three subscales. Additionally, SOC-29 scores appeared to be independent of number of admissions to hospital (Baznska, Bronowska, Namyslowska and Zechowski, 2002).

3.4 Sense of Coherence

Sense of coherence appears to be an interesting concept when trying to understand the development of AN, especially when considering that striving for thinness and control over weight and shape can be viewed as a form of coping with underlying feelings of ineffectiveness.

Antonovsky's (1979) original theory of sense of coherence was, however, based not on a pathological model, i.e. what factors lead to ill health, but rather what factors are required to achieve good psychological and physical health. He proposed an approach to health research which focused on identifying factors that promoted health rather than those that led to illness, he called this "salutogenesis". This approach was based on the belief that health was as deviant as ill health and that living is always potentially pathogenic. To support this belief he drew on an array of health data. This included his own study of Central European women who had survived horrendous experiences in concentration camps during the Second World War and 25 years later presented with good overall physical and emotional health. From this he proposed that it was not low stress in life that maintained good health, as stress is omnipresent throughout life, rather it was how life stresses were understood, managed and seen as worth engaging with that enabled good health (Antonovsky 1987, 1998).

Sense of coherence as a concept relates to other individual factors such as locus of control (Rotter, 1966), hardiness (Kobasa, 1979) and self-efficacy (Bandura, 1977). It is argued that all these factors moderate the effects of life stresses (Lazarus 1993).

Antonovsky defines Sense of coherence as:-

A global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli deriving from one's internal environment in the course of living are structured, predictable and expected (comprehensibility); (2) the resources are available to one to meet the demands posed by these stimuli (manageability); and (3) these demands are challenges, worthy of investment and engagement (meaningfulness) (Antonovsky, 1987, pg. 19)

Antonovsky (1987) proposed that the strength of an individual's sense of coherence depended on a number of factors, which he described as general resistance resources. These included social support, ego strength, religious faith, cultural stability and financial security. He further proposed that strength of sense of coherence and the stressors we face in life come from within the social structures in which we live. These start, crucially, with the early childhood socialisation within the family and then extend to other social structures such as schools, church or other groups. These systems provide a set of fundamental principles and frameworks that reward and reinforce specific behaviours and beliefs (Antonovsky, 1987).

Sense of coherence is believed not to be a set of overt behaviours or personality traits that predispose individuals to engage in recurrent patterns of coping behaviour, but rather the perception and interpretation of events within their world as comprehensible, manageable and meaningful. This ability to hold these perceptions and interpretations then facilitates the selection of "culturally appropriate and

situationally efficacious resources and behaviours” in coping with life stressors (Antonovsky, 1998). Additionally, an individuals’ sense of coherence is not believed to have fully developed until they are about 30 years old (Antonovsky 1989). This belief, however, has not been directly tested. Strong sense of coherence, then, should enable the ability to engage in a range of appropriate and effective coping strategies and avoid ineffective and inappropriate ones, such as AN behaviours.

Despite Antonovsky’s development of the SOC-29 to measure people’s ability to stay well, the measure has been increasingly used in studies of development and change in psychopathology. The types of psychopathology studied using the SOC-29 include obsessional compulsive disorder (Joachim, Lyon and Farrell, 2003), schizophrenia (Eklund, Hansson and Bejerholm, 2001), unipolar and bipolar depression (Sariusz-Skapska, Czabala, Dudek and Zeiba, 2003), post-traumatic stress disorder (Schnyder, Moergeli, Klaghofer and Buddenberg, 2001) and borderline personality disorder (Wilkinson-Ryan and Westen, 2000).

Antonovsky (1998) argues that, as there are many routes to developing a strong sense of coherence, it would be short sighted to look at sense of coherence within a main effects model of psychopathology development. Indeed, investigators have increasingly tried to assess what mediating or moderating role sense of coherence plays between trauma and the development of psychopathology. A Russian study found that sense of coherence appeared to moderate the effects of exposure to community violence and the development of psychopathology within a sample of 159 juvenile delinquents, whose exposure to violence was very high (Koposov, Ruchkin and Eisemann, 2003). An earlier German study found that low

SOC appeared to mediate between the trauma of being in a serious road traffic accident and the development of post-traumatic stress disorder and other types of related psychopathology (Frommberger, Steiglitz, Straub, Nyberg, Schlickewei, Kuner and Berger, 1999).

From Aitchison's (2002) study, however, it could be speculated that patterns of general orientation to life within AN and the strength of SOC may be different than in other types of psychopathology. That is, low scores on the "meaningfulness" subscale are related to depression but not AN. Another study provides support for the link between 'meaningfulness' and depression. Carstens and Spangenberg (1997) found that low "meaningfulness" on the SOC-29 strongly predicted severity of depression in a sample of 50 patients with a diagnosis of major depression. However findings from these studies must be treated with some caution as a recent large population study of the psychometric properties of the SOC-29 scale found that the subscales significantly correlate with each other and principal component analysis did not clearly show the 3-factor structure of the SOC (Schumacher, Wilz, Gunzelman and Brahler, 2000).

3.5 Attachment and Sense of Coherence in Anorexia Nervosa

Despite the theoretical shortcomings in using sense of coherence within a psychopathological model, it does appear to be an interesting way of assessing the idea of self-efficacy within AN, as it provides a multi-dimensional model of coping that includes meaningfulness; a measure of the emotional drive to engage in attempts to have self-efficacy in one's life. This factor appears important in the development of

AN and may distinguish it from other types of psychopathology. Aitchison (2002) proposed that the relatively high levels of meaningfulness within generally a low sense of coherence differentiated anorexic from depressed patients.

There may also be differences in the patterns of insecure attachment within AN, as opposed to other types of psychopathology, when assessed using Feeney, Noller and Hanrahan's (1994) measure of adult attachment style (which appears more discriminating than other self-report measures used previously). Lask (2000) has pointed to the perfectionist traits within AN being driven by a need for approval from others but this ultimately leading to increasing feelings of failure, low self-esteem and low self-efficacy as the self-imposed standards are unattainable. If this were the case, it may be expected that the need for approval may be a significant feature of insecure attachment styles within AN. Additionally insecure attachment may be associated with low perceived ability to cope with stress and low self-efficacy. That is, insecure attachment may be predictive of weak sense of coherence within anorexia nervosa.

It might also be expected that failure to meet perfectionist self-expectation would undermine perceived self-efficacy and the perceived ability to cope with stress, or sense of coherence, within AN patients. As was proposed by Fairburn et al 1999 reduced perceived inability to cope can lead to an increase in eating disordered behaviour as a means of trying to maintain feelings of control and self efficacy, within AN patients. A weak sense of coherence may therefore be predictive of high eating disordered pathology within anorexia nervosa.

It is also important to control for the effects of depression when assessing these factors within an anorexic patient population. From these theoretical proposals and findings from earlier studies a number of testable hypotheses can be made regarding the role of insecure attachment and sense of coherence within anorexia nervosa.

3.6 Hypotheses

1. Anorexia nervosa patients will have significantly greater levels of insecure attachment than age and sex matched normal controls.
2. Anorexia nervosa patients will have significantly greater levels of need for approval as an insecure attachment style than age and sex matched patients with other psychological difficulties.
3. Anorexia nervosa patients will have a significantly weaker sense of coherence than age and sex matched normal controls.
4. Within the anorexia nervosa group, the meaningfulness subscale will be significantly higher than the other two sense of coherence subscales.
5. Weak sense of coherence within anorexia nervosa will be significantly predictive of high levels of eating disordered beliefs and behaviour.

6. Weak sense of coherence within anorexia nervosa will be significantly predicted by high levels of insecure attachment.

3.7 Null Hypotheses

1. There will be no significant differences in levels of insecure attachment between anorexia nervosa patients and age and sex matched normal controls.
2. There will be no significant differences in need for approval attachment style between anorexia nervosa patients and age and sex matched patients with other psychological difficulties.
3. There will be no significant difference in sense of coherence between anorexia nervosa patients and age and sex matched normal controls.
4. There will be no significant difference in meaningfulness and the other subscale of the sense of coherence within anorexia nervosa patients.
5. Sense of coherence will not have a significant predictive relationship with eating disordered pathology within anorexia nervosa patients.
6. Insecure attachment will not have a significant predictive relationship with sense of coherence within anorexia nervosa patients.

4.1 Design

This study was a quantitative cross sectional study, which compared differences between an index group of AN patients, a control group with psychopathology other than AN (psychological difficulties control group) and a control group with no psychopathology (normal control group). Additionally, within groups analyses of the relationship between specific variables were made.

4.2 Ethical Approval

Ethical approvals for this study were received from the NHS Tayside Medical Research Ethics Committee, University of Stirling Psychology Department Ethics Committee and the Directors of Priory Hospital Glasgow (Appendix I, II, III). As some of the questionnaires asked directly about depression, anxiety and eating disordered pathology there was a risk of some participants identifying psychological difficulties within themselves. In the event of this happening the patient group were informed that they could approach the clinician who was currently responsible for their treatment with any worries or issues that arose from completing the questionnaires. This possibility had been discussed with relevant clinicians prior to the start of the study and they were happy to facilitate this response to any potential difficulties that arose. The undergraduate sample was informed at the start that completion of the questionnaires might evoke issues about eating problems or anxiety and depression. They were provided with information about how to contact relevant statutory and voluntary agencies that could provide more information or specific help.

Interviews and questionnaire completion were conducted at times when it was convenient for the participants and importantly did not detract from any treatment session they may have been expected to attend. Confidentiality was paramount for all participants. For many of the anorexia nervosa participants it was their overriding concern. Despite reassurance that participation would not affect their treatment some of the AN patients were worried that disclosure about continuing restricting and purging behaviours would jeopardise their place in treatment. For additional reassurance interviews were conducted in a room away from the main treatment centre and the consent forms (Appendix IV) were sealed in envelopes separately from the response questionnaires in front of the participant.

4.3 Informed Consent

All potential participants were given a copy of a *participant's information sheet* and the consent form prior to participation in the study (Appendix V, VI, VII). Those in the index group were only approached after they had been identified as physically and mentally able by the care team in the Priory Hospital Glasgow. The clinician who was currently treating them approached those in the psychological difficulties control group and all approaches were made at the discretion of the clinician. Those in the normal control group were approached collectively in lectures at Stirling University and were provided with the relevant information prior to being asked to complete the self-rating questionnaires. All potential participants were informed that participation in the study was entirely voluntary and they could withdraw at any point. They were also informed that participation or non-participation

would not in any way affect the treatment they were currently receiving or influence the assessment of any university work they were engaged in.

4.4 Power and Sample Size Calculations

To assess the number of participants required for a statistically significant result, power calculations were carried out using effect sizes found in other similar studies using the same measures and Cohen's (1992) tables for power calculations.

The sample size required for a statistically significant finding when using the Attachment Style Questionnaire (ASQ) (Feeney et al, 1994) was calculated from the effect sizes from similar studies and Cohen's (1992) power calculation scales. Studies using the ASQ to assess the difference between psychiatric patient groups as well as normal controls have shown large effect sizes ($f = .45$ to $.72$) for differences in total levels of insecure attachment and on the four insecure attachment subscales (Murphy and Bates, 1997, Roberts Gotlib and Kassell, 1996). When using ANOVA with three groups, expecting a large effect size ($>.40$) for power .80 with $p = .05$, a sample size of 21 for each group is required (Cohen 1992). The number of participants required for each group to ensure enough power to minimise the risk of a type 2 error when testing the first and second hypotheses was therefore 21.

In two recent studies using the 29 item Sense Of Coherence (SOC-29) Scale (Antonovsky, 1987) large effect sizes ($f = .46$ to $.61$) were found between eating disordered samples and normal controls as well as between anorexia nervosa patients and depressed patients (Aitcheson, 2002; Baznska, Bronowska, Namyslowska and

Zechowski, 2002). When using an ANOVA with three groups, expecting a large effect size ($>.40$) for power .80 with $p = .05$, a sample size of 21 for each group is required (Cohen 1992). Again 21 participants per group were required to test the third and fourth hypotheses.

A number of studies have found large effect sizes with factors that correlate with SOC-29 total scores. Positive correlates include global well being (.62), self esteem (.49), locus of control (.44), hardiness (.50) and negative correlates include global perceived stress (-.56), psychiatric symptoms (-.59), psychosomatic symptoms (SCL90) (-.70) and trait anxiety (-.69) (Antonovsky, 1993). When using multiple regression analysis with five independent variables, expecting a large effect size ($f^2 >.35$) for power .80, with a p value significant at .05, a sample size of 42 participants for each of the three groups is required (Cohen, 1992).

Strobdl and Noller (2003) examined the relationship between the ASQ and self-efficacy as measured using the Self Efficacy Scale (Sherer, Maddux, Mercandte, Jacobs and Rodgers, 1982) within a sample of depressed patients, agoraphobic patients and normal controls. Here the effect sizes found using multiple and multiple partial correlations were from $f^2 = .37$ to .66. Again, using Cohen's (1992) tables, a sample size of 42 per group would be required if using five independent variables in a multiple regression analysis and expecting a large effect size ($f^2 >.35$) for power .80, with a p value significant at .05. Testing the fifth and sixth hypotheses therefore required a minimum of 42 participants for each group.

4.5 Participants

Data were obtained from 42 female patients with a DSM IV diagnosis of restricting or binging anorexia nervosa receiving treatment at the Priory Hospital Glasgow (the index group). Potential participants who were thought disordered or had a primary diagnosis other than that of anorexia nervosa or a body mass index above 21 were excluded from the study. Eating disorder diagnoses were made using the Eating Disorder Examination Interview (Fairburn and Cooper, 1993) and corroborated using the diagnosis given by the Consultant Psychiatrist responsible for the care of the participant.

Further data were obtained from a group of 42 age matched female participants who were receiving treatment for psychological difficulties but did not have an eating disorder (Psychological difficulties control group). These participants were receiving treatment in Clinical Psychology out patient clinics in Tayside. Those who were thought disordered, or had a diagnosis of anorexia or bulimia nervosa, or indicated eating disordered pathology on the Eating Disorder Examination Questionnaire (Fairburn and Beglin 1994) i.e. regular binging and /or purging behaviours, were excluded from the study.

Data were also obtained from 45 age matched female participants taken from the undergraduate population at Stirling University (normal control group). Individuals were excluded if they: had a diagnosis of anorexia or bulimia; or were currently receiving professional help for any other psychological difficulties; or had scores on the Hospital Anxiety and Depression Scale (Zigmond and Snaith 1983) within the upper mild, moderate or severe range. Additionally those whose responses

on the Eating Disordered Examination Questionnaire (Fairburn and Beglin 1994) indicated eating disordered pathology, i.e., regular restricting and / or bingeing and /or purging behaviours were excluded.

4.6 Procedure and Data Collection

All participants completed four self-rating questionnaires; the Sense of Coherence Scale (Antonovsky, 1987); the Attachment Style Questionnaire (Feeney et al, 1994); the Hospital Anxiety and Depression Scale (HADS) (Zigmond and Snail, 1983) and the Eating Disorders Examination Questionnaire (EDE Q) (Fairburn and Beglin, 1994). In addition, they were asked to complete a form providing demographic information as well as information about time in treatment and chronicity of psychological difficulties, where relevant. Those who had received a diagnosis of AN were asked to participate in the Eating Disorders Examination semi-structured interview (Fairburn et al, 1993). The self-rating questionnaires and the information form were coded and returned in a sealed envelope provided, while the consent form was returned in a separate sealed envelope to ensure confidentiality.

4.6.1 Index Group

Forty nine inpatients and outpatients receiving treatment in the Eating Disorders Unit at the Priory Hospital Glasgow were identified as suitable for inclusion in the study as they had a primary diagnosis of AN and did not meet any of the exclusion criteria. Of these, three did not wish to participate, three returned incomplete data forms and one was excluded after being found to have an eating

disorder classification more in line with BN than AN following assessment with diagnostic interview.

Of the 42 patients included in the sample, 21 completed the set of four self-rating questionnaires and information form 24 hours prior to being given a semi structured interview relating to their eating disorder. The following 21 completed the self-rating questionnaires and information form in the 24 hours following the interview to counterbalance any effects the interview may have had on the participant's responses. Participants had the option of returning the completed questionnaires either at the hospital or via post.

4.6.2 Psychological Difficulties Controls

Presentations of the proposed study were made at meetings with clinicians working within Tayside Primary Care Psychology Departments. The relevant clinicians identified and approached, at their discretion, patients receiving treatment who met the criterion for the psychopathology control group. Clinicians provided potential participants with written and verbal information about the study and the consent form before offering them the questionnaires, which they could then choose whether or not to complete. Participants were given the option to return the questionnaires either directly to the clinician or via post. Of the 150 sets of questionnaires distributed by clinicians, 44 were returned. Two participants were excluded as their responses on the EDE Q were indicative of eating disordered pathology, i.e., regular restricting and / or binge eating and / or purging behaviour.

4.6.3 Normal Controls

Third and fourth year female psychology undergraduates at the University of Stirling were provided with information about the study at the end of lectures and asked to participate. 150 sets of questionnaires were distributed to the students, of which 60 were returned either directly or through the post. In order to match the chronological age of the participants in this sample with that of the index group, a number of “mature students” were approached directly and asked to participate in the study. Of the 60 sets of questionnaires returned, two were incomplete and eight indicated eating disordered pathology on the EDE Q i.e. regular restricting and / or bingeing and / or purging behaviours. Additionally, two sets of data were excluded as the respondents had depression scores on the HADS within the clinical range of scores, i.e., above eight. Levels of anxiety within this undergraduate sample appeared unexpectedly elevated, which may have been due to situational stressors e.g. forthcoming exams and thesis deadlines. Consequently the cut off point for anxiety scores on the HADS was raised to 10, which is still within the clinically mild range of HADS anxiety scores. Three sets of data were excluded because they fell above this cut off score.

4.7 Measures

4.7.1 Eating Disorder Examination Interview

Eating Disorder Examination Interview 12th edition (EDE) (Fairburn and Cooper, 1993), see appendix (VIII)*. The EDE is a 38-item interview measure of eating disordered behaviour and psychopathology, which also generates eating disordered diagnoses according to DSM IV criteria (American Psychiatric Association, 1994). It assesses behaviours and attitudes relating to eating disorder that have been present primarily over the last 28 days. Behaviours and some attitudes are rated in terms of the number of episodes and the number of days they have been present over the last month. Other attitudes are measured by the average strength of feeling with which they have been felt over the last month. Some items are recordings of the total frequency with which a behaviour or attitude has occurred while other items are scores on seven point scales (0-6). Here, the number of days on which the item occurred over the last 28 days is divided *into not at all = 0, less than half the days of the month = 2, more than half the days of the month = 4 or every day of the month = 6*. A similar seven point scale (0-6) is used to assess the impact an attitude or belief has on the individual with *0 = no difficulty* and *6 = extremely severe*. The behaviour and attitude items scored on the EDE relate to four subscales, restraint in eating, shape concern, weight concern and eating concern.

** The EDE interview schedule but not the complete protocol was included in the appendix, because of the latter size.*

Reliability of the EDE Interview

The inter-rater reliability for the total scores, the subscales and individual items with eating disordered patients has been found to be at a kappa value above 0.70, with all correlation coefficients being above 0.95 and none of the *t* tests being significant (Beglin, 1990). Using both clinical and non-clinical populations the internal consistency of the EDE has been found to be robust, with Cronbach's alphas ranging from 0.68 to 0.90 for all subscales (Beumont, Koppee, Schrader and Talbot, 1994).

Validity of the EDE Interview

The discriminative validity of the EDE interview has been shown in studies by Cooper, Cooper and Fairburn (1989), Rosen, Vara, Wendt and Leitenberg, (1990) and Wilson and Smith (1989). Here, the EDE performed better than self-rating questionnaires in determining the difference between AN pathology, BN pathology, restrained eaters and non-dieters. It has also shown sensitivity in reporting individual eating disorder psychopathology in descriptive studies by Fairburn, Peveler, Davies, Mann and Mayou (1991) and Marcus, Smith, Santelli and Kaye (1992), amongst others. Additionally, it has been found to have good sensitivity in measuring change in AN psychopathology in treatment outcome studies when measured pre, during and post treatment and at 1 year follow up by Fairburn, Jones, Peveler, Hope and O'Connor (1993).

Rational for using the EDE Interview

The EDE interview is considered to be the gold standard for assessing eating disordered psychopathology (Wilson, 1993). It provides the capacity to confirm or reject earlier given diagnoses of AN and place the participant in the restrictive or binge/purge AN subgroup. It also provides an ordinal measure of AN psychopathology that has been found to be more reliable than self-rating questionnaires (Passi, Bryson and Lock, 2003).

4.7.2 Eating Disorder Examination Questionnaire

Eating Disorder Examination Questionnaire (EDE Q) (Fairburn and Beglin, 1994), see appendix (IX). The EDE Q is designed to be very similar to the EDE interview. It has 38 items pertaining to the same eating disordered behaviours and attitudes measured in the EDE interview. Again these are divided into four subscales; restraint, shape concern, weight concern and eating concern. The frequency or severity of behaviours and attitudes over the last 28 days are measured on a seven point (0-6) scale with 0 = *not present* and 6 = *present every day or extremely severe*.

Reliability of the EDE Q

The internal reliability and consistency of the EDE Q have been found to be highly consistent with that of the EDE interview, i.e., a kappa value above 0.70, with all correlation coefficients being above 0.95, when used with eating disordered and non eating disordered populations (Fairburn and Beglin, 1994; Black and Wilson, 1996).

Validity of the EDE Q

The validity of the EDE Q, in comparison with the EDE interview, has been tested in community populations and adolescent anorexic, adult bulimic and substance abusing clinical populations. It has generally been found that many specific features of eating disorder can be accurately assessed using the EDE Q. The measure is, however, less accurate than the EDE interview, on items where there can be more ambiguity in the question and in individuals where the eating disorder psychopathology is particularly severe (Wilfley, et al 1997; Fairburn and Beglin, 1994; Black and Wilson, 1996). In a study of adolescent anorexics where the EDE Q was administered prior to and following the EDE interview, it was found that participants tended to estimate their levels of AN psychopathology as being slightly higher on the EDE Q than on the EDE interview on both occasions, with the percentage of absolute agreement on the subscales ranging from 53.6% to 89.3%. There were, however, still high correlations on all subscales between the EDE interview and EDE Q, ranging from 0.70 to 0.85 (Passi, Bryson and Lock, 2003).

Rational for using the EDE Q

The EDE Q, as with the EDE interview, has the capacity to provide a categorical and ordinal assessment of eating disordered pathology. It is, however, quicker and easier to administer and provides a good means of screening for eating disordered pathology within normal controls, as well as those with other types of psychopathology. In addition it was intended to make comparisons between the EDE

Interview and EDE Questionnaire, as this had not been previously done within an anorexia nervosa, adult, inpatient population. This comparison is not, however, reported here as it was felt it might have detracted from the main findings.

4.7.3 Sense of Coherence Scale

Sense of Coherence Scale (SOC-29) (Antonovsky, 1987), see appendix (X).

The SOC-29 is a 29-item scale that uses seven point Likert-type scales to assess a global orientation to ones inner and outer environment and the perceptions of ones ability to cope effectively with life (Antonovsky, 1987). Items reflect the three components of sense of coherence: 11 items relate to the comprehensibility of the world; 10 items relate to the manageability of the world while 8 relate to the meaningfulness of the world. Items include; *How often do you have feelings that you're not sure you can keep under control*, *When you are faced with a difficult problem, the solution is always confusing and hard to find?*, *Do you have the feeling, that you are in unfamiliar situations and don't know what to do ?* and *Until now life has had very clear goals and purpose?*

Reliability of the SOC-29

The measure has been shown to have good internal reliability and consistency, with Cronbach's alphas ranging from 0.84 to 0.93. The measure has been used reliably with physical health and mental health clinical populations, as well as normal adult population samples in a variety of westernised countries (Flick and Homan 1998; Larson and Setterlind 1990; Mroziak, Czabala and Wojtowicz 1997; O'Carroll,

Ayling, O'Reilly and North 2003). Test-retest studies have been carried out, again on a variety of populations, and have shown good reliability, ranging from a correlation of $r = 0.97$ after 5 weeks in one study to $r = 0.56$ after 1 year in another for total SOC-29 scores (Antonovsky, 1993). There is some debate as to the reliability of the subscales as distinct, separate measures. Some studies have used the subscales as separate dependent variables (Aitcheson, 2002; Carstens and Spangenberg, 2002; Petrie and Brook, 1992). A recent large-scale study, however, found that the three subscales correlate strongly with each other ($r = 0.55 - 0.72$) and principal analysis of the separate questions on the scale failed to identify three separate factors corresponding to the subscales (Schmachler, Wilz, Gunzelmann and Braehler, 2000).

Validity of SOC-29

According to the theoretical basis for sense of coherence, the SOC-29 scales should correlate positively with related phenomena associated with health and negatively with phenomena related to ill health. Indeed, the SOC-29 scale was found to relate positively to self-esteem ($r = 0.63$), internal locus of control ($r = -0.44$) and hardiness ($r = -0.50$) and relating negatively with trait anxiety ($r = -0.61$ to -0.75), neuroticism ($r = -0.36$) and perceived stress ($r = -0.24$ to -0.67) (Carmel and Bernstein, 1989; Dahlin Cederblad, Antonovsky and Hagnell 1990; Margalit and Eysenck, 1990; Petrie and Azariah, 1990; Radmacher and Sheridan, 1989; Williams, 1990). These studies provide support for the validity of the SOC-29.

Rationale for using the SOC 29

The SOC-29 provides a multi-dimensional assessment of perceived ability to cope effectively with life (self-efficacy). It incorporates an assessment of beliefs about understanding and managing life, but also the willingness to engage in coping behaviour. This factor may be of specific significance to AN pathology and makes this measure distinct from other cognition based measures of coping.

4.7.4 Hospital Anxiety and Depression Scale

Hospital Anxiety and Depression Scale (HADS) (Zigmond and Snaith, 1983), see appendix (XI). The HADS self-report measure was designed to assess anxiety and depression within patient groups who had physical health problems. The items within the scale focus on subjective descriptions of mood, rather than physical signs, to distinguish psychiatric presentation from physical illness. There are seven items measuring depression and seven measuring anxiety. Items include: *I get sudden feelings of panic* and *I look forward with enjoyment to things*. All items are scored on a four point Likert-type scale with for example 0 = definitely, 1 = usually, 2 = not often, 3 = never.

Reliability of the HADS

The HADS has shown high internal consistency, with a Cronbach's alpha of 0.90 in a population of 575 recently diagnosed cancer patients (Moorey, Greer and Watson, 1991). In a group of outpatients with a mixture of physical diagnoses, Zigmond and Snaith (1983) found that the correlations (r) for each item ranged from

0.30 to 0.60, while the test-retest reliability in healthy respondents was 0.92 (Snaith and Zigmond, 1994).

Validity of the HADS

The HADS has been shown to have good construct validity. Factor analysis by Moorey et al (1991) found that two factors accounted for 53% of the scales total variance and that anxiety and depression items loaded separately onto these factors, except for one factor ("*I can't sit at ease and feel relaxed*"). Correlations with other self-rating scales and clinical interviews measuring depression and anxiety have been high within a range of populations. Correlations above $r = 0.70$ have been found with measures, including the Beck Depression Inventory, the Beck Anxiety Inventory and the Montgomery-Asberg Depression Rating Scale, with primary care outpatients with mood disorders and medical inpatients (Goldberg, 1985; Razavi, Delvaux and Farvacques, 1990; Silverstone 1994). In comparison with other measures of anxiety and depression, the HADS showed a sensitivity to change within a range of 56% to 100%. The subscales have, however, lacked specificity when used with more severe psychiatric patient groups (Aylard, Gooding and McKenna, 1987; Johnston, Pollard and Hennessey, 2000).

Rationale for using the HADS

It is necessary to assess levels of depression and anxiety within the AN population sampled, as these may be confounding factors in any results found relating to attachment style and Sense of Coherence. The HADS provides a measure of

anxiety and depression, with good validity and reliability, that can be used with anorexic patients where there are often confounding medical symptoms. It can also provide an ordinal measure of anxiety and depression within a mixed psychopathology outpatient population to establish levels of symptomatology, and provides a good screening measure for a non-psychopathology population. The HADS also has good utility and face validity, as it is short, the items appear non-threatening and are easy to understand.

4.7.5 Attachment Style Questionnaire

Attachment Style Questionnaire (ASQ) (Feeney, Noller and Hanrahan, 1994), see appendix (XII). The ASQ was developed as a measure of attachment in young adults with little or no experience of romantic relationships. The 40 items ask about feelings, behaviours and preferences towards relationships, and people in general, as a means of identifying current attachment styles developed from early life. The items delineate from secure and insecure attachment, with the insecure attachment being further subdivided into four categories: discomfort with closeness; need for approval; preoccupation with relationships and relationships as secondary to achievement. Items include: *It is important to me that others like me* and *I prefer to keep to myself*. All items are scored on a seven point Likert-type scale with 1 = totally disagree and 7 = totally agree.

Reliability of the ASQ

The ASQ's internal consistency, as measured by Cronbach's alpha, was 0.76 to 0.80. Test retest reliability over a 10-week period showed acceptable levels of stability, with the five subscales having reliability coefficients between $r = 0.67$ and 0.78. Cluster analysis indicates a clear distinction between secure and insecure groups. Additionally, the insecurely attached group was relatively distinctly identified according to the four subscales of insecure attachment, with 47% of the total variance being accounted for by these four factors. Test-retest reliability for the subscales over a 10 week period was found to be between $r = 0.64$ and 0.80 indicating good stability over time (Feeney et al, 1994).

Validity of the ASQ

In a series of validity assessments it was found that the subscales from the ASQ correlated positively with other related subscales and negatively with unrelated subscales from other ordinal measures of attachment. When participants were assessed on the ASQ following categorisation using a forced choice measure of attachment, the ASQ subgroups accounted for more of the internal variance than any of the other frequently used measures of adult attachment (Feeney, et al 1994). This measure has been found to be effective in assessing the attachment style within a number of clinical and non-clinical populations (Feeney, et al 1994; Fossati, Feeney, Donati, Donini, and Novella, 2003; Strodl and Noller, 2003).

Rationale for using ASQ

The ASQ provides the most refined self-rating assessment of different insecure attachment styles, that is still grounded in empirically supported theory. It provides both a categorical and an ordinal measure of attachment. Additionally, it has specific value in assessment with AN patients. As outlined in Chapter 2, due to perfectionist ideals, and possible over enmeshment, it may be difficult for AN patients to report honestly about intimate relationships with parents. It must also be considered that few AN patients have experience of engaging in close intimate relationships with non-parent significant others, e.g., sexual partners. Other measures of attachment in adults (outlined in chapter 2) ask direct questions about experiences in intimate relations either with parents or partners. The ASQ, however, was designed for use with adolescents or adults with limited experience of intimate relationships and, as such, does not ask direct questions about parental or other specific intimate relationships but instead asks about relationships with others generally. This appears more suitable for anorexic patients.

4.7.6 Body Mass Index, Treatment and Chronicity Effects.

Body Mass Index (BMI) was calculated for the participants with anorexia nervosa using measurements of height and weight taken as part of the EDE interview. In addition to the use of BMI in the inclusion / exclusion criteria it was to assess any impact a state of starvation had on perceptions of pathology, sense of coherence and insecure attachment. Time in treatment and chronicity of difficulties was also measured to assess any impact this may have had on perceived levels of pathology, sense of coherence and insecure attachment. Information about time in treatment and length of illness as well as demographic information was collected on a separate sheet

from the standard questionnaires for the purposes of matching, measuring and excluding potential participants (Appendix, XIII).

4.8 Interviewers Reliability with the EDE interview.

The reliability in using the EDE interview by the interviewer in this study was assessed through inter-rater reliability comparisons with three other clinicians' assessments. Each interviewer interviewed one patient with eating disordered psychopathology while the other three observed, each scoring the patient's responses on the EDE separately. In total four patients were interviewed, with four sets of scores for each patient and 16 sets of data in total. There was a range of 94% -98% absolute concordances between this study's interviewer and the other three clinicians.

4.9 Statistical Analysis

Following assessment of the distribution of data in the three groups, comparisons between the groups were made using t-tests and one-way ANOVAS with Scheffe post hoc analysis. Analyses of the relationships within the AN group were made using Pearson's Correlation Coefficients and stepwise multiple regressions. Effect sizes were calculated using formula and descriptions of small, medium and large effects from Cohen's (1992).

5.1 Examination of the Assumption of Normality of the Data

Exploratory analysis of the data from the self-report questionnaires and clinical interviews was undertaken to identify any abnormal distribution within the three populations sampled.

Within the Anorexia Nervosa group (AN), all measures and their subscales had Kurtosis within the limits expected for a normal distribution. The distribution of *Age* and three subscales of the main measures were abnormally skewed, these were, the *Shape Concern* subscale of the EDE Interview, the *Need for Approval* subscale of the ASQ and the *Manageability* subscale of the SOC-29, see Appendix (XIV, table 1). For the Psychological Difficulties Control (PDC) group, again all measures had Kurtosis within acceptable limits for a normal distribution. Three of the EDE Questionnaire subscales, however, were skewed beyond the limits of normal distribution, see Appendix (XIV, table 2). For the Normal Control (NC) group, two of the EDE Questionnaire subscales had Kurtosis beyond the limits for a normal distribution. The Depression subscale of the HADS, *Age* and one of the EDE Questionnaire subscales were also significantly skewed, see Appendix (XIV, table 3). The distributions for all the variables within all three groups were unimodal.

Logarithmic and square root transformations of the data were unable to improve the distribution of the subscales that had abnormal kurtosis or skewedness. As all groups had at least one skewed subscale of the EDE Interview or

Questionnaire, analysis of the data used total EDE Interview or Questionnaire scores and not the EDE subscales separately. The trimmed means were used in the analysis of differences between the groups to control for outliers within the data. All subscales that did not meet the assumptions of a normal distribution within the AN group were excluded from later regression analysis, as this may have increased the likelihood of a type 1 or type 2 error (Stevens,1997).

5.2 Demographic and Psychopathology Differences Between Groups

All participants were female. Independent samples t-tests were used to evaluate any differences in the trimmed mean ages of the three groups. This test was also used to identify any significant differences in length of current treatment episode and length of illness history between the AN and PDC groups (table 1).

5.2.1 **Table 1.**

Mean Differences in Age, Treatment Time and Illness History Between Groups.

Measure	Age	Length of Current Treatment Episode	Length of Illness History
Group			
Anorexia Nervosa (n = 42)	28.2 years (sd 10.6)	2.8 months* (sd 2.7)	83.8 months (sd 91.8)
Psychological Difficulties Control (n = 42)	30.9 years (sd 8.8)	7.1 months (sd 9.5)	72.8 months (sd 79.3)
Normal Control (n = 45)	29.3 years (sd 11.0)	-	-

* significant difference between groups at the 0.05 level for a two tailed test.

The mean ages of the three groups were sufficiently similar that there were no significant differences between groups. There was also no significant difference in the mean length of illness history of those in the AN and PDC groups. Those within the AN group had a significantly shorter length of current treatment episode than those in the PDC group at $t = 2.8$, $82\ df$, $p = 0.007$, 2- tailed test. The effect size here was a medium one at $d = 0.51$.

One-way Analysis of Variance was used to identify differences in levels of pathology between the three groups. Significant differences were found between the three groups. For eating disordered pathology (EDE Q) scores this was at $f(2, 126) = 76.4$, $p < 0.001$, 2- tailed, for HADS depression this was at $f(2, 126) = 28.0$, $p < 0.001$, 2- tailed, for HADS anxiety this was at $f(2, 126) = 90.9$, $p < 0.001$, 2- tailed and for HADS total scores this was at $f(2, 126) = 82.3$, $p < 0.001$, 2- tailed. The pairwise differences in the trimmed means of psychopathology scores between groups were assessed using the conservative Scheffe post hoc analysis, table 2.

From table 2, it can be seen that the significant pairwise differences between the groups are what were expected after screening the groups for eating disordered pathology, depression and anxiety. The AN group had significantly higher levels of eating pathology than the other two groups while the NC group had significantly less depression and anxiety than the other two groups. The magnitude of the differences found here is reflected in the very large effect sizes ($d = 2.1$ to 3.2). Interestingly, there were no significant differences between the AN group and the PDC group in levels of depression, anxiety and total HADS scores, despite the PDC group having, on average, been in treatment longer than the anorexic group.

5.2.2 Table 2.

Trimmed Means, Standard Deviation and Scheffe Pairwise Comparisons in Psychopathology Between Groups.

Measure	Eating Disorder Examination Q	HADS Anxiety	HADS Depression	HADS Total
Group				
Anorexia Nervosa (n = 42) Pairwise Comparison	4.0 (sd 1.2) AN vs PDC*	14.5 (sd 4.3) AN vs PDC	9.2 (sd 5.0) AN vs PDC	23.8 (sd 6.3) AN vs PDC
Psychological Difficulties Control (n = 42) Pairwise Comparison	1.7 (sd 1.2) PDC vs NC	14.3 (sd 5.0) PDC vs NC*	7.9 (sd 4.8) PDC vs NC*	22.2 (sd 6.6) PDC vs NC*
Normal Control (n = 45) Pairwise Comparison	1.3 (sd 0.8) NC vs AN	4.2 (sd 2.8) NC vs AN*	2.8 (sd 2.6) NC vs AN*	7.0 (sd 4.8) NC vs AN*

* significant difference between groups at the 0.001 level for a two tailed test.

Differences between the two types of anorexia nervosa were examined using *t* tests. There was only one notable difference between these diagnostic subtypes. The mean age for the restrictive group was 26.4 (sd 8.7) years old, which was significantly lower than the binge/purge groups at 28.9 (sd 12.0) years old, $t = 2.24, 40 \text{ df}, p = 0.04$, 2- tailed. The effect size here was however small at $d = 0.28$.

5.3 Testing Hypotheses 1 and 2, Differences in Attachment Style

Hypotheses

1. *Anorexia nervosa patients will have significantly greater levels of insecure attachment than age and sex matched normal controls.*
2. *Anorexia nervosa patients will have significantly greater levels of need for approval as an insecure attachment style than age and sex matched patients with other psychological difficulties.*

The Attachment Style Questionnaire provides both categorical and ordinal measures of the different attachment styles. The mean differences in ordinal measurements of the different attachment styles between the three groups were evaluated using One-way ANOVA. Significant differences, between all three groups, were found for each of the five subscales; *confidence* at $f(2, 126) = 41.8, p < 0.001$, 2- tailed; *discomfort with closeness* at $f(2, 126) = 36.5, p < 0.001$, 2- tailed; *relationships as secondary* at $f(2, 126) = 30.4, p < 0.001$, 2- tailed; *need for approval* at $f(2, 126) = 40.8, p < 0.001$, 2- tailed and *preoccupied with relationships* at $f(2, 126) = 29.8, p < 0.001$, 2- tailed. Again post hoc analyses with Scheffe test was used to identify pairwise differences (table 3).

5.3.1 Table 3.

Trimmed Means, Standard Deviations and Scheffe Pairwise Comparisons of Attachment Styles Between Groups.

Attachment Style	Secure Attachment	Insecure Attachment			
		Avoidant		Anxious / Ambivalent	
		Confidence	Discomfort with Closeness	Relationships as Secondary to Achievement	Need for Approval
Group					
Anorexia Nervosa (n = 42)	2.7 (sd 1.0)	4.3 (sd 1.1)	2.8 (sd 0.8)	4.8 (sd 1.1)	4.0 (sd 0.7)
Pairwise Comparison	AN vs PDC**	AN vs PDC	AN vs PDC	AN vs PDC**	AN vs PDC
Psychological Difficulties Control (n = 42)	3.6 (sd 0.9)	4.0 (sd 0.9)	2.5 (sd 0.8)	3.7 (sd 0.9)	3.8 (sd 0.7)
Pairwise Comparison	PDC vs NC**	PDC vs NC**	PDC vs NC*	PDC vs NC**	PDC vs NC*
Normal Control (n = 45)	4.5 (sd 0.8)	2.9 (sd 0.9)	1.9 (sd 0.5)	2.8 (sd 1.0)	3.2 (sd 0.7)
Pairwise Comparison	NC vs AN**	NC vs AN**	NC vs AN**	NC vs AN**	NC vs AN**

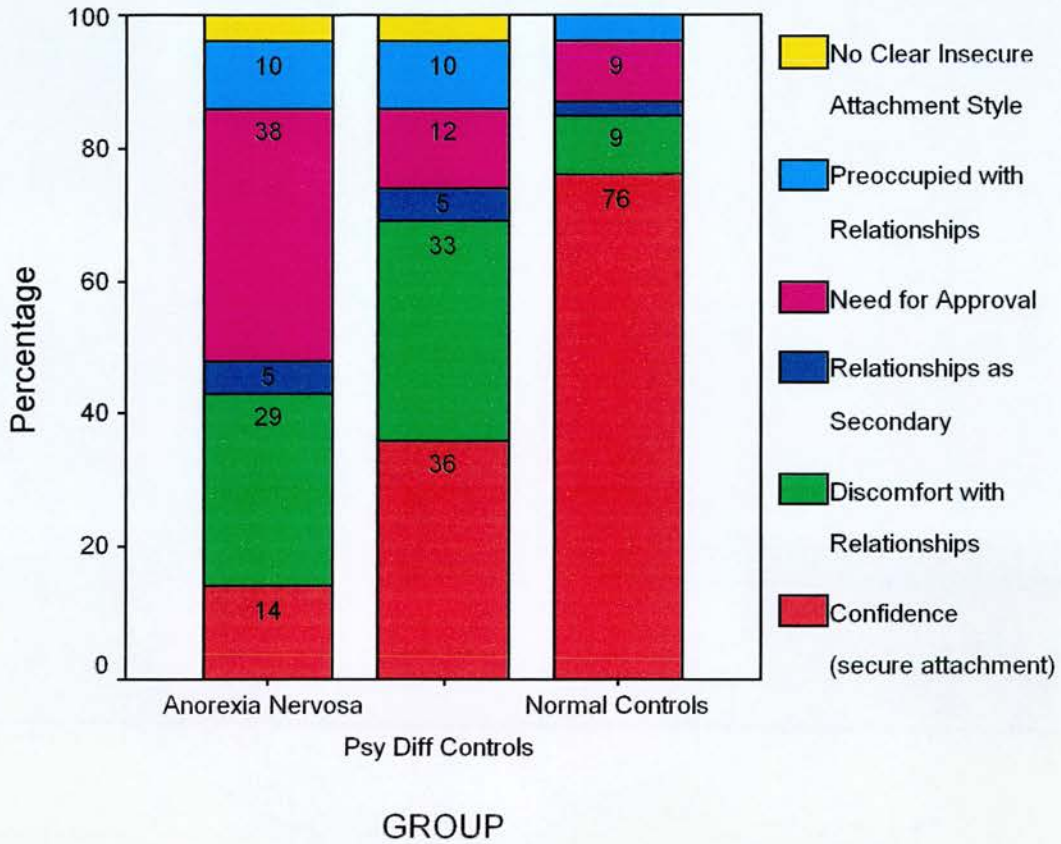
* significant at the 0.01 level for a two tailed test

** significant at the 0.001 level for a two tailed test.

Figure 1 illustrates the categorical distribution of attachment styles across the three groups.

5.3.2 **Figure 1.**

Distribution of Attachment Styles Across Groups.



From Table 3, it can be seen that there are significant pairwise differences between the three groups. The AN group had significantly lower *Confidence* (secure attachment) than both the control groups. The NC group had significantly higher *Confidence* (secure attachment) than the other two groups. The NC group also had significantly lower mean scores for all the insecure attachment styles than both the AN and the PDC groups. The difference between the AN and the NC group in the levels of the four insecure attachment styles had large effect sizes at, $d= 1.1$ for

preoccupation with relationships, $d = 2.0$ for *need for approval*, $d = 1.3$ for *discomfort with closeness* and $d = 1.9$ for *relationships as secondary*. The first null hypothesis can, therefore, be rejected as anorexia nervosa patients were found to have significantly higher levels of insecure attachment than age and sex matched normal controls.

There were no significant differences between the PDC and the AN groups for the mean levels of *Discomfort with Closeness*, *Preoccupied with Relationships* or *Relationships as Secondary* (Table 3). The AN group did, however, have a significantly higher mean level of *Need for Approval* than the PDC and NC groups, with a large effect size at $d = 1.2$. From Figure 1, it can be seen that the dominant categories of insecure attachment style within the AN group were *Need for Approval* (38%) and the *Discomfort with Closeness* (29%). The predominant insecure attachment style in the PDC group was *Discomfort with Closeness* (33%). These results support the second hypothesis as the *need for approval* insecure attachment style was significantly higher in the AN groups than the age and sex matched PDC group.

5.4 Testing Hypotheses 3 and 4; Differences in Sense of Coherence

Hypotheses

3. *Anorexia nervosa patients will have a significantly weaker sense of coherence than age and sex matched normal controls.*

4. *Within the anorexia nervosa group, the meaningfulness subscale will be significantly higher than the other two sense of coherence subscales.*

Differences in sense of coherence across the three groups were measured using One-way ANOVA with Scheffé post hoc analyses used for the pairwise comparisons. From the ANOVA, significant differences, were found for all three subscales; *manageability* at $f(2, 126) = 72.8, p < 0.001, -2$ tailed, *meaningfulness* at $f(2, 126) = 80.3, p < 0.001, -2$ tailed and *comprehensibility* at $f(2, 126) = 78.1, p < 0.001, -2$ tailed. The pairwise differences in the trimmed means between groups in SOC-29 total scores and the three subscales are shown in Table 4.

5.4.1 Table 4.

Means, Standard Deviations and Scheffe Pairwise Comparisons of Sense of Coherence Between Groups.

SOC-29 Scales	Comprehensibility	Manageability	Meaningfulness	Total SOC-29
Group				
Anorexia Nervosa (n = 42) Pairwise Comparison	2.6 (sd 0.7) AN vs PDC**	2.9 (sd 1.0) AN vs PDC**	3.3 (sd 1.2) AN vs PDC**	2.9 (sd 0.9) AN vs PDC**
Psychological Difficulties Controls (n = 42) Pairwise comparison	3.5 (sd 0.8) PDC vs NC**	3.8 (sd 0.9) PDC vs NC**	4.1 (sd 1.3) PDC vs NC**	3.8 (sd 0.9) PDC vs NC**
Normal Controls (n = 45) Pairwise comparison	4.5 (sd 0.7) NC vs AN**	5.1 (sd 0.9) NC vs AN**	5.5 (sd 0.7) NC vs AN**	5.0 (sd 0.7) NC vs AN**

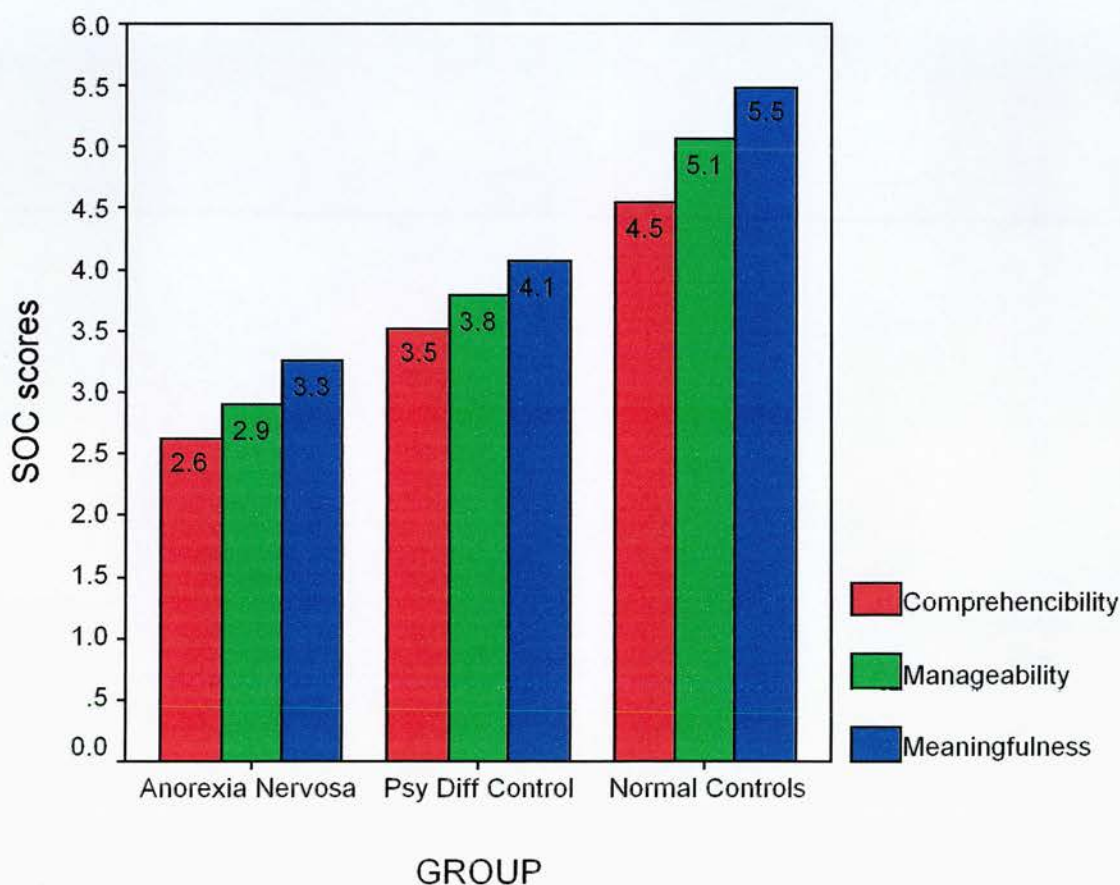
** significant at the 0.001 level for a two tailed test.

From Table 4, it can be seen that all three groups were significantly different on all three subscale mean scores and the total sense of coherence mean score. The NC group had the strongest sense of coherence, the AN group had the weakest sense of coherence and the PDC group lay between the other two groups. The anorexia nervosa patients had a significantly lower SOC-29 total score than age and sex matched normal controls, with a very large effect size at $d = 3.0$, thus providing support for the third hypothesis. Unexpectedly, the mean total SOC-29 score within the AN group was also significantly lower than the mean total SOC-29 score for the PDC group, with a medium effect size at $d = 0.62$.

Figure 2 illustrates the mean scores for the three SOC-29 subscales for the different groups. Here it can be seen that the mean subscale scores follow the same pattern for all three groups. That is, all three groups scored lowest on *comprehensibility* and highest on *meaningfulness*, with *manageability* scores lying between those of the other two subscales. When within groups differences were examined, using analysis of variance, there were no significant differences found between the subscales for any of the groups. The fourth null hypothesis cannot be rejected, as *meaningfulness* did not appear to be a different factor from *comprehensibility* or *manageability* for the AN group.

5.4.1 Figure 2.

Sense of Coherence Subscale Mean Scores for Anorexia Nervosa Group and Two Control Groups.



Pearson's Correlation Coefficients demonstrated significant correlations between all three SOC-29 subscales as shown in table 5. These strong correlations between the SOC-29 subscales indicate that the scales were all measuring a very similar or identical factor rather than independent factors. Consequently, further analysis of SOC-29 used only the SOC-29 total scores.

5.4.3 Table 5.

Pearson's Correlation Coefficients Between SOC Subscales.

Correlation Group	Between Manageability and Meaningfulness	Between Meaningfulness and Comprehensibility	Between Comprehensibility and Manageability
Anorexia Nervosa	.71*	.69*	.74*
Psychological Difficulties Controls	.77*	.75*	.70*
Normal Controls	.72*	.72*	.80*
Total Correlation Across All Three Groups	.84*	.78*	.88*

* significant at $p < 0,01$ for a two tailed test.

5.5 Correlations Between the Variables within the Anorexia Nervosa Group.

Prior to using multiple regression analysis, intercorrelations between the factors were examined. It was understood that examination of Pearson's Correlation Coefficients between this large number of variables the family wise alpha levels within correlations matrix would be reduced, giving a greater likelihood of a type 1 errors. However, it appeared necessary to keep the alpha level at 0.05 in order to avoid type 2 errors, as it was important to find any intercorrelations that may have affected the predictive strength of variables when used in the regression analysis, table 6.

From table 6, it was seen that there were a number of significant intercorrelations between the ASQ subscales, increasing the probability of the relationship between them affecting their predictive power within a stepwise regression analysis. To minimise this, the ASQ total score was used as a potential predictive measure, but not the ASQ subscales.

It was also seen that EDE interview scores had a significant negative correlation with Time in Treatment and a significant positive correlation with BMI. This would indicate that as treatment progressed BMI increased and eating disordered pathology decreased. Interestingly BMIs also had a significant positive relationship with anxiety suggesting that the nearer a healthy weight a patient was, the more anxious they were. It was also noted that *age* did have a negative significant correlation with need for approval indicating that as age increased within the AN group the need for approval as an attachment style diminished. As these correlations

were significant at the $p = 0.01$ level for a two tailed test the findings were less likely to be due to a type 1 error.

5.5.1 **Table 6.**

Anorexia Nervosa Group Bivariate Correlations Between Variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Body Mass Index	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Length of Illness History	-.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Time in Treatment	.62**	.21	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Age	-.01	.58**	.12	-	-	-	-	-	-	-	-	-	-	-	-
5. ASQ Confidence	.16	-.30	.03	.16	-	-	-	-	-	-	-	-	-	-	-
6. ASQ Discomfort with Closeness	-.19	-.03	.25	-.27	-.53**	-	-	-	-	-	-	-	-	-	-
7. ASQ Relationships as Secondary	-.18	.03	-.32*	-.20	-.44**	.44**	-	-	-	-	-	-	-	-	-
8. ASQ Need for Approval	-.14	.27	.04	-.46**	-.64**	.37*	.45**	-	-	-	-	-	-	-	-
9. ASQ Preoccupied with Relationships	-.01	.24	.11	-.13	-.65**	.18	.11	.63**	-	-	-	-	-	-	-
10. ASQ Total Secure/Insecure	-.18	.22	-.14	-.30	-.87**	.71**	.65**	.82**	.67**	-	-	-	-	-	-
11. SOC Total	.06	-.22	.02	.11	.78**	-.45**	-.45**	-.60**	-.57**	.76**	-	-	-	-	-
12. EDE Interview Total	-.11	.12	-.40*	-.01	-.23	.20	.18	.36*	.39*	.36*	-.69**	-	-	-	-
13. HADS Depression	.24	.35*	-.13	-.08	-.55**	.31*	.26	.58**	.61**	.61**	-.40*	.38*	-	-	-
14. HADS Anxiety	.45**	-.04	-.12	.08	.04	.17	.20	-.24	-.23	-.04	-.04	-.28	.35*	-	-
15. HADS Total	.27	.25	-.19	-.01	-.41**	.36*	.34*	.30*	.33*	.46**	-.42**	.12	.74**	.62**	-
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

* significant at the 0.05 level for a two tailed test.

** significant at the 0.01 level for a two tailed test.

5.6 Testing hypothesis 5, the relationship between sense of coherence and eating disordered pathology within the anorexia nervosa group.

Hypothesis

5. *Weak sense of coherence within anorexia nervosa will be significantly predictive of high levels of eating disordered beliefs and behaviour.*

The first stepwise multiple regression analysis aimed to assess whether weak sense of coherence predicted high eating disordered pathology. The strength of the potential predictive relationship between SOC-29 and EDE interview scores was compared with the relationship between other potential predictors and eating disordered pathology. The other potential predictors used were; chronicity of illness, insecure attachment as well as comorbid levels of depression and anxiety. Here EDE interview scores were entered as the dependent variable while SOC-29 total scores, length of illness history, ASQ total scores, HADS depression and HADS anxiety were entered as the independent variables. The regression model that had the greatest predictive power for EDE Interview scores is shown in table 7. The adjusted total R^2 for the regression equation was 0.31 with an overall significance at $f(39,2) = 13.12$, $p = 0.001$, 2-tailed. This had a large overall effect size with both predictor variables in regression equation, at $f^2 = 0.44$.

5.6.1 Table 7.

Stepwise Multiple Regression Analysis for AN Group, where Eating Disordered Pathology (EDE interview total score) is the Dependent Variable.

Predictor Variables	Adjusted R^2	<i>t</i>	Beta	Significance
SOC total scores	0.24	3.97	-0.52	0.001
HADS Anxiety	0.08	2.27	-0.30	0.03
Excluded Variables				
Length of Illness		-0.11	-0.02	0.91
HADS Depression		0.89	0.14	0.38
ASQ Total Score		-0.47	-0.10	0.64

SOC: Sense of Coherence; HADS: Hospital Anxiety and Depression Scale;
ASQ: Attachment Style Questionnaire

Table 7. shows that sense of coherence was the best predictor of eating disordered pathology in the AN group. The negative relationship indicates that low sense of coherence is predictive of high eating disordered pathology. HADS Anxiety also had some predictive value, with higher levels of anxiety associated with lower eating disordered pathology. As there was no intercorrelation between SOC-29 and Anxiety in table 6, it could be assumed that these variables are acting independently of each other. The adjusted R^2 for SOC-29 total scores within the regression equation was 0.23, giving a medium to large effect size ($f^2 = 0.30$) when predicting the variance in EDE Q scores. The adjusted R^2 for HADS anxiety within the equation was 0.08, giving it a small to medium effect size ($f^2 = 0.09$) in predicting the variance in EDE Q scores. Depression had only a modest significant correlation with EDE interview at $r = .38$ (table 6) and it did not significantly predict EDE interview scores in this regression equation.

ASQ total scores, depression scores and length of illness history did not contribute significantly to the model after SOC-29 and HADS Anxiety had been entered. HADS Anxiety appeared to be acting independently of SOC-29 total scores and had a noticeably smaller effect size on the variance of EDE interview scores than SOC-29 total scores. The fifth hypothesis was therefore supported as weak sense of coherence did significantly predict high levels of eating disordered beliefs and behaviours within anorexia nervosa.

Further analysis of the standardised residual and Leverage values for the data points used within the regression equation indicated that the results found were not due to outliers within the dependent or independent variables (Clark-Carter, 1997; Stevens 1996). The residual scatter plot also shows no obvious relationship, indicating that there was enough homogeneity of variance across the range of residual values to support the assumptions of the regression equation (appendix XV, table 1).

5.7 Testing hypothesis 5, the relationship between sense of coherence and insecure attachment within the anorexia nervosa group.

Hypothesis

6. *Weak sense of coherence within anorexia nervosa will be significantly predicted by high levels of insecure attachment.*

The second stepwise multiple regression analysis was to assess whether high levels of insecure attachment predicted weak sense of coherence. The strength of this potential predictive relationship was compared with other potential predictors of SOC-29, these were; chronicity of illness, treatment effects as well as comorbid levels of anxiety and depression. Here SOC-29 was entered as the dependent variable while ASQ total scores, length of illness history, time in treatment, HADS depression and HADS anxiety scores were entered as the independent variables. The regression model with the greatest predictive power for these variables, at $f(39,2) = 53.23$, $p < 0.001$, 2- tailed, is shown in table 8.

5.7.1 Table 8.

Stepwise multiple regression analysis within the AN group where Sense of Coherence (SOC-29 total score) is the dependent variable.

Predictor Variable	Adjusted Total R^2	t	Beta	Significance
ASQ Total Score	0.56	26.17	0.76	0.001
Excluded Variables				
HADS Depression		-0.44	-0.06	0.66
Length of Illness		-0.57	-0.06	0.57
HADS Anxiety		-0.70	-0.07	0.49
Time in Treatment		-0.82	-0.09	0.42

SOC: Sense of Coherence; HADS: Hospital Anxiety and Depression Scale, ASQ : Attachment Style Questionnaire.

As shown in table 8, the only significant predictor of sense of coherence was ASQ total score. The positive relationship indicates that, the greater the levels of insecure attachment, the weaker the sense of coherence within the AN group, with a large effect size ($f^2 = 1.27$). This supports the sixth hypothesis that the level of insecure attachment significantly predicted weak sense of coherence within anorexia nervosa. Depression had a significant correlation with SOC-29 at $r = -0.40$ (table 6), it was not, however, a significant predictor of SOC-29 in this regression equation.

Again further analysis of the standardised residual and Leverage values from the data used within the regression equation indicated that these findings were not due to outliers within the data (Clark-Carter, 1997; Stevens, 1996). The residual scatter plot again shows no obvious relationship, indicating that the assumptions of regression have not been violated, see appendix (XV, table 2)

The findings from this study are discussed and compared with those of other studies and existing theoretical models. The possible implications of the findings for treatment are also outlined. Finally, the limitations of the present study and possible future directions for research are discussed.

6.1 Differences in Attachment Style.

Hypotheses

1. *Anorexia nervosa patients will have significantly greater levels of insecure attachment than age and sex matched normal controls.*
2. *Anorexia nervosa patients will have significantly greater levels of need for approval as an insecure attachment style than age and sex matched patients with other psychological difficulties.*

The first part of the study assessed levels of insecure attachment amongst patients with anorexia nervosa and identified any styles of insecure attachment that were specific to that condition. As would be expected, there were significantly lower levels of secure attachment (*confidence*) within the Anorexia Nervosa (AN) group and the Psychological Difficulties Control (PDC) group as opposed to the Normal Control (NC) group, where 76% were categorised as confident. There was also a significant difference in secure attachment between the two patient groups, with only 14% of the AN group being categorised as *confident* while 36% of the PDC group fell into that category. These results would clearly support the first hypothesis and findings from

earlier studies that insecure attachment is very high amongst anorexic patients (Armstrong and Roth, 1989; Salzman, 1997).

When examining the types of insecure attachment within the two patient groups, both had high levels of *discomfort with closeness*, with 29% of the AN group and 33% of the PDC group falling into this category. Here, the difference between the patient groups was not significant. The AN group also scored highly on *need for approval* with 38% falling into this category as opposed to 12% for the PDC group and 9% for the NC group. The AN group had significantly higher scores for this category than both the control groups.

Two types of insecure attachment characterised the anorexia nervosa patients; *need for approval*, which is described as a subcategory of anxious / ambivalent attachment style, and *discomfort with closeness*, which is described as a subtype of avoidant attachment style. As outlined in chapter 2, there have been a number of contradictory findings when examining attachment within anorexia nervosa using three or four category models of attachment. Salzman (1997) found that anxious/ ambivalent insecure attachment was more prominent, while Candelori and Ciocca (1998) and Ward, Ramsay, Turnbull, Steele, Steele and Treasure (2001) found avoidance to be the dominant insecure attachment style. From the present study it can be seen that both avoidant and anxious / ambivalent attachment styles are highly represented within the AN sample but only the anxious/ ambivalent *need for approval* style distinguishes the AN population from patients with psychological difficulties other than an eating disorder. The second hypothesis was therefore supported as the

AN group had significantly higher levels of *need for approval* insecure attachment style.

The need for approval from others and particularly parents can be seen in a number of characteristics that have been associated with anorexia nervosa. Both Bruch (1973) and Crisp (1980) have given clinical descriptions of anorexic girls as high achieving. A number of studies have also found that levels of perfectionism are higher within anorexia nervosa than other types of psychiatric conditions and normal controls (Jacobi, Haywood, de Zwaan, Kraemar and Agras, 2004). It is argued by Lask (2000), that the drive for high achievement and perfectionism may come from the early development of a need for approval. These findings would appear to support this idea that the need for approval from others is an important underlying drive within some anorexic patients.

The high levels of *discomfort with closeness* within the AN group would be supported by the socially-isolating belief patterns found within other anorexic patients by Butow et al (1993). Levels of *discomfort with closeness* were also high amongst the patients with psychological difficulties other than eating disorders. This may indicate that this type of insecure attachment style is more generally associated with psychological difficulties rather than any specific type of condition. It could be speculated that discomfort with closeness as an insecure attachment style may make it harder to engage with social supports that buffer the effects of negative life events and stressors, which in turn may make it harder to maintain psychological health (Lazarus, 1993).

Within adult attachment theory, the need for approval has been associated with a negative internal model of self and a positive view of others, while a discomfort with closeness is associated more with a negative view of both self and others (Bartholomew and Horowitz, 1991; Feeney, Noller and Hanrahan, 1994). The difference between these two types of insecure attachment is either a negative or positive view of others. The constant for the two insecure attachment styles is the negative view of self, which has been frequently been associated with low self-esteem and feelings of ineffectiveness within anorexic nervosa patients (Jacobi, 2000).

It was noted in the results that older AN patients were less likely to score highly on *need for approval*. It may be that as they get older their view of themselves becomes less negative and their need for approval from others diminishes. Alternatively, as the AN patient gets older they may continue to feel unable to gain the approval they seek and consequently develop more negative views of others and become more avoidant of relationships. Whichever direction is taken may have implications for maintenance of the condition and response to treatment.

6.2 Differences in Sense of Coherence.

Hypotheses

3. *Anorexia nervosa patients will have a significantly weaker sense of coherence than age and sex matched normal controls.*

4. *Within the anorexia nervosa group, the meaningfulness subscale will be significantly higher than the other two sense of coherence subscales.*

The second part of the study assessed the extent to which anorexic patients sense of coherence differed from that of other women with or without psychological difficulties. Additionally, it was hoped that the subscales for the sense of coherence scale would illuminate any differences there may have been between those with anorexia nervosa and other women in their perceived self-efficacy, motivation and orientation towards engaging with life. However, there appeared to be no differences within any of the subscales for any of the groups. This would not support the finding from Atchison (2002). It was found that the three subscales of the SOC-29 had high intercorrelation. This would support Schumacher, Wilz, Gunzelman and Brahler's (2000) finding that the subscales are not sufficiently independent of each other to be used as separate measures and that the SOC-29 total scores alone should be used.

Within the AN group, the SOC-29 total scores were significantly lower than both the PDC and the NC groups. Previous studies have found that sense of coherence within AN groups is either no weaker than that of others with psychological difficulties (Baznska, Bronowska, Namyslowska and Zechowski, 2002) or stronger

than depressed patients (Aitchison 2002). There are a number of possible explanations for this difference between studies. The sample sizes of AN patients within the other studies may have been too small to have been representative; Aitchison (2002) had $n = 13$ in his AN group while Baznska et al (2002) had $n = 17$. The present study may have been more representative of anorexia nervosa as it used the data from 42 anorexic inpatients and relatively rigorous inclusion / exclusion criteria.

The difference may have been related to the age difference between the AN groups in the studies. In Baznska et al's (2002) study, all the psychiatric patients were adolescents under 18 years of age while in Aitchison's (2002) study, the mean age for the AN group was 21 years old and the depressed control group had a mean age of 30 years old. In the present study the mean age for the AN group was just over 28 years old and the PDC group was just under 31 years old. The difference of 7-10 years between the average age of the AN groups of the three studies may have made a difference in SOC-29 score, however, Antonovsky (1989) argues that an individual's sense of coherence is not fully developed until about 30 years old. If the differences in age were to be related to development of sense of coherence, then it would be expected that the AN group in the present study being older, would have higher levels of sense of coherence than the other AN groups from the previous studies. The opposite was, however, the case. Antonovsky's (1989) theory about age and the development of sense of coherence has, however, not been directly tested as yet.

Alternatively, the difference between the studies may be related to the high levels of pathology within the present AN group, who were ill enough to require

inpatient treatment for their eating disorder and also had levels of depression and anxiety which were not significantly different from the PDC outpatient group. For the AN group, there were also significant negative correlations between EDE score and SOC-29 score, as well as between HADS depression scores and SOC-29 scores, suggesting that as pathology increased sense of coherence declined. When treatment effects were considered, however, it did not appear that severity of pathology was affecting perceptions of sense of coherence. As time in treatment lengthened for the AN group, BMI's increased and EDE scores decreased, but SOC-29 scores showed no significant change. This would suggest that weak sense of coherence relates to high levels of pathology and that sense of coherence is more resistant to the effects of treatment than eating disordered symptoms.

Although there may have been little change in SOC-29 over treatment, there was still a very strong relationship between sense of coherence and eating disordered pathology within the present study. The relationship was not tested within Aitcheson's (2002) study and the measure he used for assessing levels of eating pathology were different. Despite this, it would be expected that as there was a higher mean age of the AN group within the current study than in that of Aitcheson (2002), the level of eating disorder chronicity and possibly severity would have been higher within the present study. If this were the case it might have explained why the lower SOC-29 scores were related to the higher levels of eating disordered pathology within the present study. However, the length of illness history within the AN group did not correlate significantly with SOC-29 within the present study. This would indicate that chronicity and by extension severity of illness may not account for the weaker sense

of coherence found in the AN group in the present study as compared with earlier studies.

Finally, it must be considered that the difference in the SOC-29 scores may be due to the levels of insecure and secure attachment between the AN and the PDC groups. Antonovsky (1989) argues that early socialisation within the family is crucial in the development of sense of coherence; those with more secure attachment would be more likely to have fostered a stronger sense of coherence than those with insecure attachment. If this were the case, the significantly lower levels of secure attachment within the AN group than in the PDC group may have had a direct bearing on the SOC-29 scores, where again the AN group had significantly lower levels than the PDC group.

It would appear that the significantly lower SOC-29 scores of the AN group, as compared with the PDC group may be as a result of either the comparatively high levels of pathology or more possibly the low levels of secure attachment found within the AN group. The strength of the relationship between sense of coherence and eating disordered pathology as well as sense of coherence and insecure attachment, within the AN group was examined in the last part of the study.

6.3 The Relationship Between Sense of Coherence and Eating Disordered Pathology within Anorexia Nervosa.

Hypothesis

5. *Weak sense of coherence within anorexia nervosa will be significantly predictive of high eating disordered beliefs and behaviour.*

The first regression analysis found that the best predictor of eating disordered beliefs and behaviours within the anorexia nervosa group was sense of coherence. HADS anxiety also contributed significantly to the regression model but depression did not. This would appear to support the idea that a weak sense of coherence is related to high levels of eating disordered pathology within anorexia nervosa. Theoretically, the causal relationship as proposed by Bruch (1973) and Fairburn et al (1999), amongst others, is that low self-efficacy (weak sense of coherence) leads to increases in eating disordered beliefs and behaviour. The regression analysis cannot, however, demonstrate the direction of the causal relationship and it could be argued that high levels of eating disordered pathology lead to a weak sense of coherence.

Studies have shown that sense of coherence, although predictive of psychopathology, appears to be an independent and relatively stable factor. A large longitudinal study of patients who had been in traumatic car accidents found that SOC-29 scores were predictive of psychopathology following the accident, but that they did not mirror changes in pathology over time (Schnyder, Buchi, Senky and

Klaghofer; 2000). Here, SOC-29 scores measured six times over the year following the accident correlated well with each other at $r > 0.7$ and these SOC-29 scores had moderate to high negative correlations with HADS depression and anxiety. Importantly, although levels of pathology dropped steadily over the year, the levels of SOC-29 remained relatively stable. The authors concluded that sense of coherence is a relatively stable trait measure of a person's world-view and their related ability to cope with life, and that is not merely a proxy measure of psychopathology.

In the present study, SOC-29 scores did not correlate significantly with time in treatment. This would also support the proposal that sense of coherence is relatively independent of changes in pathology. Additionally the regression model found a closer relationship between sense of coherence and eating disorder pathology than anxiety or depression and eating disordered pathology. It can therefore be argued that sense of coherence does not merely reflect levels of depression or anxiety within the AN group. This would suggest that a weaker sense of coherence leading to higher eating disordered behaviour rather than high psychopathology leading to a weak sense of coherence.

These findings of the present study would support earlier findings that low self-efficacy and perceived ability to cope are found within anorexia nervosa (Jacobi et al, 2004). Additionally, the present study appears to show that low self-efficacy and perceived ability to cope, as measured by the SOC-29 scale, are independent of depression and anxiety. This would then also support aspects of Bruch's (1973) theory that low self-efficacy leads to feelings of loss of control, which in turn drive the desire to engage in anorexic behaviours as a means of regaining a sense of control.

This study has illustrated the relationship between a more global sense of self-efficacy, as measured by sense of coherence, and eating disordered pathology, but it has not tested the function of feelings of loss of control within this relationship.

Fairburn, Shafran and Cooper (1999) have also argued within their cognitive behavioural model of anorexia nervosa, that poor self-efficacy maintains eating disordered behaviour. The findings from the present study would also appear to support some aspects of this model, as weak sense of coherence predicted more eating disordered beliefs and behaviour within the AN group. To more fully test the role weak sense of coherence may play in maintaining anorexic beliefs and behaviours, the relationships between these factors would be required to be measured over the course of the illness.

As stated earlier, anxiety significantly predicted eating disordered pathology within the AN group, but with a smaller effect than sense of coherence. The relationship here was the reverse to what might have been expected, in that eating disordered beliefs and behaviours decreased as levels of anxiety increased. This was found to be quite a small effect and there was no significant correlation evident within the earlier analysis. This relationship may have been the result of a possible ceiling effect within the anxiety data, which is discussed later. It was noted, however, that body mass index (BMI) also correlated in the same direction as eating disordered pathology. That is, as BMIs increased anxiety also increased.

From clinical experience it has been observed that as AN inpatients get closer to their “target weights”, usually around a BMI of 21, they can often appear more

worried and engage in compulsive behaviours unrelated to eating. It may be that movement toward a healthier BMI and possible discharge from hospital can be anxiety provoking. Additionally, eating disordered behaviour may be a way of controlling feelings of anxiety for some patients. As these eating disordered behaviours diminish, these patients may be left with residual feelings of anxious and few functional strategies for coping with these feelings.

6.4 The Relationship Between Sense of Coherence and Insecure Attachment Within Anorexia Nervosa Group.

Hypothesis

6. *Weak sense of coherence within anorexia nervosa will be significantly predicted by high levels of insecure attachment.*

Developmental models proposed that feelings of low self-efficacy within anorexia nervosa were a product of the early parent-child relationship (Bruch, 1973; Crisp, 1980). In the present study the second regression analysis found that the best and only significant predictor of sense of coherence was overall level of attachment. Chronicity of illness, time in treatment, depression and anxiety were not predictive of sense of coherence. Developmental theory would propose that low levels of secure attachment lead to a weak sense of coherence. However weak sense of coherence might affect the perception and reporting of the patients' current approaches to relationships with others. There is also, as yet, only limited empirical support for the belief that the approaches taken to current relationships are indicative of secure or insecure attachment in childhood.

When considering both the regression analysis within the AN group in the present study, it appears that insecure attachment had a larger effect size in predicting the variance of sense of coherence ($f^2 = 1.27$), while the relationship between eating disordered pathology and sense of coherence was not as strong ($f^2 = 0.30$). This would support the argument outlined earlier that the low level of sense of coherence within the AN group was more probably due to the high levels of insecure attachment than high levels of eating disordered pathology found for this group.

Despite the limitations of measuring attachment in childhood within a clinical adult population, it can be argued that the findings of the present study would support the earlier findings of Sharpe, Killen, Bryson, Shissak, Estes, Gray, Cargo and Taylor (1998) and Kenny and Hart (1992) that low self-efficacy appears to be related to insecure attachment and eating disordered beliefs and behaviour. These findings would also broadly concur with other studies that have attempted to assess developmental relationships within anorexia nervosa.

Leung, Thomas and Waller (2000) and Leung, Waller and Thomas (1999) examined the relationship between core beliefs using Young's (1994) Schema Questionnaire and parental bonding using the Parental Bonding Instrument (Parker, 1979) with anorexic patients. They found that poor parental bonding predicted the number and strength of maladaptive core beliefs (Leung, Thomas and Waller, 2000). Interestingly, one of the main maladaptive core beliefs strongly held by anorexic patients was the belief that they were failing to achieve in comparison to others. The strength with which this belief was held was positively predictive of frequency of

vomiting episodes within the 20 bulimic type anorexics in the study (Leung, Waller and Thomas, 1999). This core belief regarding failure to achieve may have parallels with the feelings of low self-efficacy within anorexia nervosa that have been found in this and other studies.

The present study and Leung et al's (1999), would appear supportive of a broad developmental model of anorexia nervosa as initially outlined by Bruch (1973) and Crisp (1980). Within this model, early difficulties in relationships with caregivers lead to feelings of low self-efficacy and lack of achievement, which in turn are predictive of eating disordered beliefs and behaviours. However the relationship between insecure attachment and low self-efficacy does not appear to be unique to anorexia nervosa. Stodl and Noller (2003) administered the Attachment Style Questionnaire (Feeney et al 1994) to a sample of outpatients with psychological difficulties and found that low self-efficacy appeared to mediate the relationship between insecure attachment and depression. When considering the multi-factorial nature of the developments of anorexia nervosa and depression, Stodl and Noller's (2003) findings illustrate that a number of aetiological factors may be necessary but not sufficient for the development of anorexia nervosa within an individual.

6.5 Possible Implications for Treatment.

The present findings could have implications for both engagement in treatment and treatment outcome. Engagement in treatment has long been an issue that has affected treatment outcome in anorexia and the condition's prognosis. A recent review of treatment outcome studies highlighted this issue and proposed that motivational interviewing and the development of readiness to change should be incorporated into the initial stages of treatment for anorexia nervosa (Kaplan, 2002). There is often little acknowledgement within the anorexic patient that their restricting and/or purging behaviours are a problem, let alone life threatening (Bruch, 1974; Crisp 1980; and Lask, 2000). This may often become a barrier in the therapeutic relationship that leads to staff becoming frustrated and demoralised, and patients dropping out of treatment.

Often initial efforts to engage the patient in changing their eating behaviour are met with resistance (Kaplan, 2002). Where the presence of anorexic eating behaviours is not immediately life threatening, it may be possible for the initial focus of treatment to be directed not at making immediate behavioural changes, but at helping the patient develop feelings of self-efficacy in non eating or body image areas of their life. This approach might have the effect of helping them develop a stronger sense of coherence, which may both help with the initial engagement in treatment and make the necessary behavioural changes in eating behaviours easier to attain later in treatment.

The perception of poor ability to cope and low self-efficacy can be seen in anorexic patients as a subjective set of beliefs borne from a cognitive bias relating to a perceived lack of achievement that is often unrepresentative of the objective reality of the situation. Cognitive Behavioural Therapy (CBT) has been employed within individual and group treatments to help patients change maladaptive cognitive biases. In describing a CBT treatment approach for anorexia nervosa Vitousek (2002, pg. 311), proposes that modifying views of self and characteristic poor self concepts of control, achievement and coping occurs as the focus of treatment moves on after the work has been done on the focal symptoms i.e. eating behaviours. It may be necessary to focus on immediate behavioural change when life threatening behaviours are placing the patient's health in imminent danger. Where there is not the same immediate threat, however, it may be more beneficial to facilitate change by addressing some of the cognitive biases relating to self-concept, earlier in treatment. Helping the AN patient develop the feelings of being able to cope with stress and have more control over their life, through helping them re-evaluate their self concept, would hopefully lead to a reduced need to use eating disordered behaviours for some sufferers.

These self-perceptions of poor ability to cope with stress and low self-efficacy were found within the current study to be related to attachment difficulties, especially where there was a need for approval from others. These insecure attachment styles are proposed to be a pervasive template for interactions with others that are not situation specific and work at primarily an unconscious level. It may be that these patterns of underlying beliefs and behaviours require to be changed before any lasting recovery from anorexia nervosa can be achieved. Fonagy (1998) has outlined an attachment

theory approach to treatment, which has parallels with Young's (1994) Schema Focused Therapy. Fonagy argues that the adoption of an insecure attachment style, although protective of painful emotions during childhood, has left the holder of this style unaware of how the continuation of this style affects the relationships that they have with others and themselves. For those with the need for approval, the subjugation of one's own needs in favour of other's in an attempt to gain their approval may be a dominant part of past and present relationships. In order to overcome this pattern of relationships, the anorexic patient will have to develop the ability to monitor their own metacognitions, what Fonagy describes as "mentalization". Fonagy (1998) points out that, although this can be taught within treatment, the patient will initially place all their energy into projecting their past pattern of relationship onto the therapeutic one.

Anorexic patients are often described as trying to please the therapist within sessions but failing to make changes outside the session (Magagna, 2002). This behaviour can be seen as an attempt to gain approval from the therapist while maintaining feelings of coping and control through holding onto the eating disordered behaviour. This can be seen as an attempt to re-enact the patient's standard maladaptive pattern of interpersonal interaction within the therapeutic relationship. Awareness and acknowledgement of this process should be a goal within therapy that can lead to a wider development of the patient's ability to become aware of and monitor their own meta-cognitions. The aim of this increased awareness would be to change the approval seeking behaviour and develop more balanced relationships with others by placing less perfectionistic demands on themselves. From a developmental perspective these changes may have an effect on current feelings of being unable to

cope and improve the patient's sense of control with a resulting reduction in the need for eating disordered behaviour.

Within the Schema Focused model those with a high need for approval would be said to have high levels of an "other-directedness maladaptive schema; that is, an excessive focus on the desires, feelings and responses of others, at the expense of their own needs, in order to gain love and approval (Young, 1994). McGinn and Young (1996) proposed a number of methods aimed at helping patients develop greater awareness of their underlying maladaptive schemas and enable ways of changing these. These include activation of the maladaptive schema within the safer environment of the treatment session, helping the patient conceptualise the schema, education about the protective and disruptive roles the schema may play, over learning of more adaptive behaviours within interpersonal relationships and changing behaviours within in vivo interpersonal relationships. These methods would appear to provide a systematic approach to helping AN patients overcome underlying problems. Firstly for those which stem from an insecure attachment style that is based on the need for approval. Secondly for the accompanying beliefs around an inability to cope and poor self-efficacy that appear to relate to the drive for anorexic behaviours.

6.6 Limitations of the Present Study.

Although there were a number of strengths within the present study including a relatively large sample size, the use of both normal and psychological difficulties control groups and efforts to control for comorbid pathology, there were also a number of limitations. Some of these limitations were identified during the planning

of the study, others came to light as the study progressed. The use of the HADS and EDE Q as screening measures is unlikely to have been as accurate as using a semi structured assessment interview when including and excluding participants from the study. The practicalities of extending interviews to potential participants for the normal and psychological difficulties control groups, however, made this option prohibitive. Within the PDC group there was also no indicator of the degree and type of psychological difficulty other than the HADS. The use of a diagnostic interview in selecting the PDC group, such as the Structured Clinical Interview for the DSM IV (SCID) (American Psychiatric Association, 1994), may have been advantageous to further divide the PDC group by diagnostic type for later analysis with the AN group. The use of the Symptom Checklist 90 (SCL 90) (Derogatis, Lipman and Covi, 1973) was also considered as a means of gathering diagnostic profiles for the control groups. The use of these diagnostic indicative measures was, however, rejected after concerns were raised that the extensive use of interviews and the excessive length of self-rating questionnaires might have had an adverse effect on response rates and the validity of the responses given.

For a number of methodological and practical reasons outlined earlier, the HADS was chosen as the means of assessing depression and anxiety within the groups. The results from all three groups showed higher levels of state anxiety than might have been expected. Within the AN and PDC groups; where the trimmed mean scores were within the upper third of the scale, there may well have been some ceiling effects from using the HADS anxiety scale, despite the distribution appearing to have been within normal limits for HADS anxiety within the two groups. The presence of ceiling effects for this measure may also explain why anxiety had few expected

correlations within the AN group. It may be advantageous in future studies to use a measure of anxiety such as Beck's Anxiety Scale (Beck, Epstein, Brown and Steer 1988), which allows for greater variance at the upper end of the scale. This scale does however contain somatic items that may affect the responses given by anorexic patients for reasons other than anxiety.

Additionally, the study did not assess trait anxiety, which has been found to relate to both sense of coherence and insecure attachment, as well as being associated with eating disorders (Carmel and Bernstein, 1989; Evans and Wertheim, 1998). It may be that the relationships found in the later part of the study may owe some of their presence to trait anxiety. Future studies into the aetiology of anorexia should consider this factor further.

The findings regarding the need for approval appear quite clear when looking at the differences between the groups. There was, however, a lack of a normal distribution within the AN group, which could not be transformed out. This would have reduced the strength of need for approval as a separate variable when used within regression analysis (Clark-Carter, 1997). The separate insecure attachment styles were therefore not examined within regression analysis. The use of the SOC - 29 also had its limitations, as the three subscales were not significantly different enough to be considered as independent factors. The SOC could then only be used as a global scale of self-efficacy and perceived coping rather than the more discrete concepts described by Antonovsky (1987).

6.7 Possible Directions for Future Study.

As was outlined in Chapter 2, there have been difficulties in replicating specific results found when assessing insecure attachment within anorexia nervosa. It would be expected that, due to the relatively large sample size within this study the effects found using the ASQ could be replicated. Studies should be undertaken to assess potential differences between the anorexia nervosa diagnostic subtypes in relation to insecure attachment and sense of coherence. The differences in sense of coherence between bulimic and anorexic patients may also give insight into the role self-efficacy plays in these two related conditions and may be an avenue for future research. Fairburn et al (1999), Lask (2000) and Hewitt, Flett and Ediger (1995), amongst others, have argued that stress, trait anxiety and perfectionism are related to low self-efficacy and poor perceived coping within the aetiology and maintenance of anorexia nervosa. It may be of value for future studies to consider the role trait anxiety, perfectionism and stress may play in the relationship between sense of coherence and eating disordered pathology.

6.8 Conclusions.

This study found that patients with anorexia nervosa (AN) were significantly less likely to have secure attachment than both a group of normal age and sex matched controls (NC) and a group of outpatient age and sex matched controls with psychological difficulties other than eating disorders (PDC). The dominant insecure attachment styles within the AN group were *need for approval* and *discomfort with closeness*. Higher *need for approval* distinguished the AN group from the PDC group. The level of sense of coherence within the AN group was also significantly lower than both the control groups. This may have been related to the high level of pathology within the AN group, but probably related more to the AN groups high levels of insecure attachment.

Regression analysis found that the best predictor of high eating disordered beliefs and behaviour within the AN group was low sense of coherence. Low sense of coherence within the AN group was significantly predicted by high levels of insecure attachment. These findings broadly support a developmental model of anorexic aetiology similar to those proposed by Bruch (1973) and Crisp (1980), as well as aspects of Fairburn et al's (1999) cognitive model for the maintenance of anorexia nervosa. These findings may have some potential implications for cognitive and schema-focused types of interventions in the treatment of anorexia nervosa. The role anxiety played in the relationship between insecure attachment, sense of coherence and eating disordered pathology within anorexia appeared not to have been fully assessed and may be a confounding factor in these relationships.

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Appendix 1

Ethical Approval from NHS Tayside

Mr Calum Jackson
Trainee Clinical Psychologist
Clinical Psychology Department
MURRAY ROYAL HOSPITAL

Date 15 October 2003
Your Ref
Our Ref NFB/FB/160/03
Enquiries to Mr Nigel F Brown
Extension 32701
Direct Line 01382 632701
Email nigel.brown@tuht.scot.nhs.uk
or
fiona.bain@tuht.scot.nhs.uk

Dear Mr Jackson

Ref: 160/03 The role of attachment and sense of coherence in anorexia nervosa

Thank you for your letter of 27 September 2003 with your comments on the points raised and version 2, dated 27/09/03 of the Tayside Participant Information Sheet and the other two Participant Information Sheets also version numbers 2 dated 27/09/03. I have also received a copy of Dr Daly's email to you of 3 October 2003 confirming that he is satisfied with the statistical approach. I am pleased to confirm approval on behalf of the Tayside Committee on Medical Research Ethics subject to the following conditions. Please note that some of these are relatively new conditions that reflect new Governance Arrangements.

Conditions of Approval:

- The research may proceed only when you are also in possession of a final approval letter from the NHS Tayside R & D Consortium to whom I am copying this letter.
- You should follow the protocol agreed and advise the Committee of any proposed amendments – no significant changes to the protocol should be made without Ethics Committee approval.
- You must promptly inform the Ethics Committee of deviations from or changes to the protocol which are made to eliminate immediate hazards to the research subject; of any changes that increase the risk to subjects and/or affect significantly the conduct of the research; all adverse events that are both serious and unexpected; new information that may adversely affect the safety of the subjects or the conduct of the research; if the research is abandoned for any reason.
- Each research proposal will be subject to a follow-up review and may be selected for a monitoring visit on behalf of the Tayside Trusts.
- You must start the project within three years of the date approval is given or the approval expires; extensions can be applied for.
- You are required to provide an annual update on the progress of the study and notify the Committee of its termination.

Yours sincerely

LREC ADMINISTRATOR

cc: Mrs K Coll, NHS Tayside R&D



Members: Dr J Davidson (Chairman); Mr P K Brown; Mrs D Campbell; Dr C Jackson; Dr F Daly; Mr A S Jain; Miss E S Macallan; Dr S MacAndrew; Mr A MacConnachie (Medical Advisor); Mr G MacLaren; Dr W Stevenson; Dr M A R Thomson; Mrs F Valentine; Mrs L Van Aalten.
Deputies: Dr D Cuthbertson; Dr E Mitchell; Ms M Paterson; Dr D Carson
Administrator: Mr N F Brown

Appendix II

Ethical Approval from University of Stirling

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Dr. Ranald R. Macdonald
Department of psychology
University of Stirling
Stirling
Scotland UK
FK9 4LA
Phone 01786 467655
Fax 01786 467641
Web page
www.stir.ac.uk/staff/psychology/rrm1

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Appendix III

Approval from Priory Hospital Directors

Proposed Research

From: Katy Park [KatyPark@prioryhealthcare.com]
Sent: 18 November 2003 10:33
To: 'calum@jackson2570.freereserve.co.uk.'
Subject: Research

Calum,

I am confirming that following your presentation of the proposed study "the role of attachment and sense of coherence in anorexia nervosa" the Directors of the Priory Hospital Glasgow are willing to let you proceed with the research. Alex Yelloweas received agreement from the other consultants for you to approach all the patients currently in the EDU.

I would also just like to confirm that you will be speaking to the EDU community meeting this Thursday. If you come about 1.30 rather than 1.15 (if possible) as there is some training thing on that finishes at 1.30. Lunch will be provided.

Katy Park (EDU manager)

The information in this email is confidential and may be legally privileged. It is intended solely for the addressee. Access to this email by anyone else is unauthorised. If you are not the intended recipient, any disclosure, copying, distribution or any action taken or omitted to be taken in reliance on it, is prohibited and may be unlawful.

Appendix IV

Consent Form

Attachment and Sense of Coherence in Anorexia Nervosa

Consent Form

NB. This form must be completed and signed by the research subject in the presence of someone with knowledge of the Principle Investigator. This may be a doctor, nurse, clinical research assistant or other member of the research team who must countersign the form as witness to the subject signature.

Please Circle The Appropriate Answer

Have you read and understood the subject information Sheet? Yes No

Have you been given the opportunity to ask questions
and further discuss this study? Yes No

Have you received satisfactory answers to your questions? Yes No

Have you received enough information about this study? Yes No

Do you understand that your participation is entirely voluntary Yes No

Do you understand that you are free to withdraw from this study:

At any time? Yes No

Without having to given a reason for withdrawing? Yes No

Without this affecting your present or future medical care? Yes No

Do you agree that the information you give in this study
can be made available for inspection by:

NHS Tayside monitors? Yes No

Regulatory authorities? Yes No

Do you agree to take part in this study? Yes No

Subject's Signature.....Date.....

Subject's name in block capital letters.....

Telephone contact (subject).....(home).....(work)

Signature witnessed by.....Date.....

Witness name in block capital letters.....

Appendix V

Information Form for Psychological Difficulties Control Group

Primary Care Division
NHS Tayside
Murray Royal Hospital
Muirhall Road
Perth PH2 7BH
Telephone Number 01738 562383
Fax Number 01738 562260
www.nhstayside.scot.nhs.uk

The Role of Attachment and Sense of Coherence in Anorexia Nervosa.

Tayside Participant Information Sheet

We invite you to participate in a research project. We believe it to be of potential importance. However, before you decide whether or not you wish to participate, we need to be sure that you understand firstly why we are doing it, and secondly what it would involve if you agreed. We are therefore providing you with the following information. Read it carefully and be sure to ask any questions you have, and, if you want, discuss it with outsiders. We will do our best to explain and to provide any further information you may ask for now or later. You do not have to make any immediate decision.

The Background To The Study

As part of the ongoing work at the Priory Hospital Glasgow, Stirling University and in NHS Tayside, we are conducting research into what factors may be important in developing and sustaining eating disorders. In this study we would like to measure attitudes about relationships with others and feelings of effectiveness in coping with life in a group of people who do not have eating disordered behaviour but are still experiencing some psychological difficulties.

What does the study entail?

As part of this study we would like to ask you to fill in some questionnaires relating to relationships with others and feelings of effectiveness. We would also like you to complete two other questionnaires one asking about any current symptoms of psychological difficulties you may have at present and another asking about any eating disordered behaviour you may have at present. Finally we need you to complete a form asking your age and length of time you have been in treatment and when you first sought help for any psychological problem. You can take the questionnaires home so you can take your time filling the questionnaires in as accurately as possible. You can then return them at your next regular treatment session, sealed in the envelope provided or post them to me directly.

What will happen to the information collected in the study?

If you are willing to take part in the study all information about you and the responses that you give on the questionnaire will be confidential with no names or personal information being used in the write up of the study. The information you give will be collated with other responses to assess whether there are any patterns in attitudes towards relationships and feelings of effectiveness in coping, and whether these are specific to eating disordered behaviour.



What are the possible discomforts or risks?

Some questions in the questionnaires may identify areas of difficulty that you had not fully considered before. If this happens and you are having difficulty coping with them you can speak to the psychologist who is currently treating you.

What are your rights?

Participation in the study is entirely voluntary and you are free to refuse to take part or to withdraw from the study at any time without having to give a reason. Whether you participate or not in the study will have no effect on your current or future medical or psychological care or your relationship with health care staff looking after you.

The Tayside Committee on Medical Research Ethics, which has responsibility for scrutinising all proposals for medical research on humans in Tayside, has examined the proposal and has raised no objections from the point of view of medical ethics. The committee will also receive regular reports from NHS Tayside Monitors who will examine the records of the research while it is in progress.

If you are willing to take part in this study please complete the consent form on the next page. This consent form will be kept separate from any information about you and the questionnaires you complete to protect your confidentiality. If you wish a copy of the overall results from the study you can get this on request from myself at the number below. The study will be completed by August 2004.

If you have any difficulties or further questions please contact me or leave a message for me to get back to you:-

Calum Jackson on telephone number 01738 621 151

Appendix VI

Information Form for Normal Control Group

Primary Care Division
NHS Tayside
Murray Royal Hospital
Muirhall Road
Perth PH2 7BH
Telephone Number 01738 562383
Fax Number 01738 562260
www.nhstayside.scot.nhs.uk

The Role of Attachment and Sense of Coherence in Anorexia Nervosa.

Stirling Undergraduate Participant Information Sheet

We invite you to participate in a research project. We believe it to be of potential importance. However, before you decide whether or not you wish to participate, we need to be sure that you understand firstly why we are doing it, and secondly what it would involve if you agreed. We are therefore providing you with the following information. Read it carefully and be sure to ask any questions you have, and, if you want, discuss it with outsiders. We will do our best to explain and to provide any further information you may ask for now or later. You do not have to make any immediate decision.

The Background To The Study

As part of the ongoing work at the University of Stirling, NHS Tayside and the Priory Hospital Glasgow, we are conducting research into what factors may be important in developing and sustaining eating disorders. As part of this study we would like to measure attitudes towards current relationships and feelings of effectiveness in coping with life, in people who do not have eating disordered behaviour or are not experiencing other psychological difficulties.

What does the study entail?

As part of this study we would like to ask you to fill in some questionnaires relating to relationships with others and how effectively you feel you cope with life. We would also like you to complete two other questionnaires one asking about symptoms of psychological difficulties and another asking about any eating disordered behaviour. Additionally there is a short form asking your, age, sex and whether you have had help for any psychological difficulties in the past. You should return the questionnaires separately from the consent form, sealed in the envelopes provide.

What will happen to the information collected in the study?

If you are willing to take part in the study all information about you and the responses that you give on the questionnaire will be confidential with no names or personal information being used in the write up of the study. The information you give will be collated with other responses to assess whether there are any patterns in current relationships and feelings of effectiveness in coping, and whether these are specific to eating disordered behaviour.



What are the possible discomforts or risks?

Some questions may identify areas of difficulty that you had not fully considered before. If this happens and you are having difficulty coping with them you can speak to myself or directly to some of the services listed over.

What are your rights?

Participation in the study is entirely voluntary and you are free to refuse to take part or to withdraw from the study at any time without having to give a reason. Whether or not you participate in the study will have no effect on your present or future studies or the relationship with any of the staff at the university. If you wish a copy of the overall results from the study you can get this on request from myself at the number below. The study will be completed by August 2004.

The University of Stirling Psychology Departments Ethics Committee, which has responsibility for scrutinising all proposals for research conducted in the department, has examined the proposal and has raised no objections from the point of view of medical ethics.

If you are willing to take part in this study please complete the consent form on the next page. This consent form will be kept separate from any information about you and the questionnaires you complete.

If you have any difficulties or further questions please contact me or leave a message for me to get back to you:-

Calum Jackson on telephone number 01738 621 151

Should any issues arise from completing the questionnaires there are a number of organisations which provide help with eating disorders and or other psychological difficulties. These include the Eating Disorders Association whose telephone help line is 01603 621414, Stirling University Student Support Services on 01786 467166 and Forth Valley Clinical Psychology services who can be contacted through your GP or directly on 01324 574370 .

Appendix VII
Information Form for Anorexia Nervosa Group

The Role of Attachment and Sense of Coherence in Anorexia Nervosa.

Priory Hospital Glasgow Participant Information Sheet

We invite you to participate in a research project. We believe it to be of potential importance. However, before you decide whether or not you wish to participate, we need to be sure that you understand firstly why we are doing it, and secondly what it would involve if you agreed. We are therefore providing you with the following information. Read it carefully and be sure to ask any questions you have, and, if you want, discuss it with outsiders. We will do our best to explain and to provide any further information you may ask for now or later. You do not have to make any immediate decision.

The Background To The Study

As part of the ongoing work at the Priory Hospital Glasgow, Stirling University and in NHS Tayside, we are conducting research into what factors may be important in developing and sustaining eating disorders. This study is asking how people with eating disorders feel about their current relationships with others and how effective they feel in coping with life.

What does the study entail?

As part of this study we would like to ask you to fill in two questionnaires relating to relationships with others and how effective you feel in coping with life. We would also like you to complete two other questionnaires, one asking about any current symptoms of psychological difficulties you may have at present while the other asking about eating disordered beliefs and behaviour you may have at present. In addition we would like you to take part in an interview about eating behaviour and beliefs, which will last between 20 minutes to 1 hour. Finally we need you to complete a form asking your age, length of time you have been in treatment and when your first received professional help for your eating disorder. You do not have to decide to participate just now. We can arrange to meet in 2 or 3 days time where you can tell me if you wish to take part. If you do wish to participate, when we meet again, I will conduct the interview with you and then ask you to complete the questionnaires or I may ask you to complete the questionnaires before the interview. In total this should take between 1 hour and 1hour 30 minutes and can be split into as many sessions as you need. You can return your completed questionnaires, sealed in the envelope provided, to the staff or myself in the Priory or you can send them to me at my office in Perth.

What will happen to the information collected in the study?

If you are willing to take part in the study all information about you and the responses that you give on the questionnaire will be confidential, with no names or personal information being used in the write up of the study. The information you give will be collated with other responses to assess whether there are any patterns in current relationships and feelings of effectiveness, which are specific to eating disordered behaviour.

What are the possible discomforts or risks?

Some of the questions about your attitude towards relationships with others as well as those about psychological distress might identify areas of difficulty that you had not fully considered before. If this happens and you are having difficulty coping with feelings about this, you can speak to the nursing staff who are currently treating you.

What are your rights?

Participation in the study is entirely voluntary and you are free to refuse to take part or to withdraw from the study at any time without having to give a reason. Whether you wish to participate or not will have no effecting on your future medical or psychological care or your relationship with health care staff looking after you.

The University of Stirling Psychology Department Ethic Committee, Tayside medical Ethics Committee and the management and senior care staff at the Langside Priory, have examined the proposal and has raised no objections from the point of view of ethics.

If you are willing to take part in this study please complete the consent form on the next page. This consent form will be kept separate from any information about you and the questionnaires you complete to protect your confidentiality. If you wish a copy of the overall results from the study you can get this on request from myself at the number below. The study will be completed by August 2004.

If you have any difficulties or further questions please contact me or leave a message for me to get back to you:-

Calum Jackson on telephone number 01738 621 151

Appendix VIII

Eating Disorder Examination Interview Schedule

THE EATING DISORDER EXAMINATION (EDE)

(Having oriented the subject to the specific time period being assessed, it is best to open the interview by asking a number of introductory questions designed to obtain a general picture of the subject's eating habits. Suitable questions are suggested below).

To begin with I should like to get a general picture of your eating habits over the last four weeks.

Have your eating habits varied much from day to day?

Have weekdays differed from weekends?

Have there been any days when you haven't eaten anything?

What about the previous two months?

Pattern of eating

I would like to ask you about your pattern of eating. Over the past four weeks which of these meals or snacks have you eaten on a regular basis?

- | | |
|---|--------------------------|
| Breakfast (meal eaten shortly after waking) | <input type="checkbox"/> |
| Mid-morning snack | <input type="checkbox"/> |
| Lunch (mid-day meal) | <input type="checkbox"/> |
| Mid-afternoon snack | <input type="checkbox"/> |
| Evening meal | <input type="checkbox"/> |
| Evening snack | <input type="checkbox"/> |
| Nocturnal snack (i.e., a snack eaten after the subject has been to sleep) | <input type="checkbox"/> |

(Rate each meal and snack separately, usually accepting the subject's classification (within the guidelines above). Ask about weekdays and weekends separately. Meals or snacks should be rated even if they lead on to a 'binge.' 'Brunch' should generally be classed as lunch. With this item, rate up (i.e., give a higher rating) if it is difficult to choose between two ratings. Rate 8 if meals or snacks are difficult to classify (e.g., due to shift work)).

- 0 – meal or snack not eaten
- 1 –
- 2 – meal or snack eaten on less than half the days
- 3 –
- 4 – meal or snack eaten on more than half the days
- 5 –
- 6 – meal or snack eaten every day

Restraint over eating (Restraint subscale)

Over the past four weeks have you been consciously trying to restrict what you eat, whether or not you have succeeded? Has this been to influence your shape or weight?

(Rate the number of days on which the subject has consciously attempted to restrict his or her food intake, whether or not he or she has succeeded. The restraint should have been intended to influence shape, weight or body composition, although this may not have been the sole or main reason. It should have consisted of planned attempts at restriction, rather than spur of the moment attempts such as the decision to resist a second helping).

- 0 – no attempt at restraint
- 1 –
- 2 – attempted to exercise restraint on less than half the days
- 3 –
- 4 – attempted to exercise restraint on more than half the days
- 5 –
- 6 – attempted to exercise restraint every day

Avoidance of eating (Restraint subscale)

Over the past four weeks have you gone for periods of eight or more waking hours without eating anything? Has this been to influence your shape or weight?

(Rate the number of days on which there has been at least eight hours abstinence from eating food (soup and milkshakes count as food, whereas drinks in general do not) during waking hours. It may be helpful to illustrate the length of time (e.g., 9am to 5pm). The abstinence must have been at least partly self-imposed rather than being due to force of circumstances. It should have been intended to influence shape, weight or body composition, although this may not have been the sole or main reason).

0 – no such days

1 –

2 – avoidance on less than half the days

3 –

4 – avoidance on more than half the days

5 –

6 – avoidance every day

Empty stomach (Restraint subscale)

Over the past four weeks have you wanted your stomach to be empty? Has this been to influence your shape or weight?

(Rate the number of days on which the subject has had a definite desire to have a completely empty stomach for reasons to do with dieting, shape or weight. This should not be confused with a desire for the stomach to feel empty or be flat).

0 – no definite desire to have an empty stomach

1 –

2 – definite desire to have an empty stomach on less than half the days

3 –

4 – definite desire to have an empty stomach on more than half the days

5 –

6 – definite desire to have an empty stomach every day

Food avoidance (Restraint subscale)

Over the past four weeks have you tried to avoid eating any foods that you like, whether or not you have succeeded? Has this been to influence your shape or weight?

(Rate the number of days on which the subject has actively attempted to avoid eating specific foods (which he or she likes) whether or not he or she succeeded. The goal should have been to avoid the foods altogether and not merely to restrict their consumption. Drinks do not count as food. The avoidance should have been intended to influence shape, weight or body composition, although this may not have been the sole or main reason).

0 – no attempts to avoid food

1 –

2 – attempted to avoid food on less than half the days

3 –

4 – attempted to avoid food on more than half the days

5 –

6 – attempted to avoid food every day

Dietary rules (Restraint subscale)

Over the past four weeks have you tried to follow certain definite rules regarding your eating, for example, a calorie limit, pre-set quantities of food or rules about what you should eat or when you should eat?

Have there been occasions when you have been aware that you have broken a dietary rule that you have set for yourself? How have you felt about breaking them?/How would you have felt if you had broken one of your dietary rules?

What are these rules? Why have you tried to follow them? Have they been designed to influence your shape or weight?

Have they been definite rules or general principles? Examples of definite rules would be 'I must not eat eggs' or 'I must not eat cake', whereas you could have the general principle 'I should try to eat healthy food.'

(Dietary rules should be rated as present if the subject has been attempting to follow 'definite' (i.e., specific) dietary rules regarding his or her food intake. The rules should have been self-imposed, although originally they may have been prescribed. They should have concerned what the subject should have eaten or when eating should have taken place. They might consist of a calorie limit (e.g., below 1,200 kcals), not eating before a certain time of day, not eating certain types of food or not eating at all. They should have been specific rules and not general guidelines and there may have been distress should they have been broken. If the subject is aware that he or she has occasionally broken a personal dietary rule, this suggests that one or more specific rules has been present. In such cases the interviewer should ask in detail about the transgression in an attempt to identify the underlying rule. The rules should have been intended to influence shape, weight or body composition, although this may not have been the sole or main reason. It should be noted that 'dietary rules' are regarded as having been present if there have been clear attempts to obey specific dietary rules. Rate 0 if no dietary rule can be identified. If there has been more than one rule straddling different time periods within the four weeks, these periods should be summated to make the rating).

0 – has not attempted to obey such rules

1 –

2 – attempted to obey such rules on less than half the days

3 –

4 – attempted to obey such rules on more than half the days

5 –

6 – attempted to obey such rules every day

□

Preoccupation with food, eating or calories (Eating Concern subscale)

Over the past four weeks have you spent much time between meals thinking about food, eating or calories?

Has thinking about food, eating or calories interfered with your ability to concentrate? How about concentrating on things that you are interested in, for example, reading, watching television or following a conversation?

(Concentration is regarded as impaired if there have been intrusive thoughts about food, eating or calories that have interfered with activities. Rate the number of days on which this has happened, whether or not bulimic episodes occurred).

0 – no concentration impairment

1 –

2 – concentration impairment on less than half the days

3 –

4 – concentration impairment on more than half the days

5 –

6 – concentration impairment every day

□

Fear of losing control over eating (Eating Concern subscale)

Over the past four weeks have you been afraid of losing control over eating?

(Rate the number of days on which definite fear has been present, irrespective of whether the subject feels he or she has been in control. 'Loss of control' involves a sense that one will not be able to resist or stop eating. If the subject feels unable to answer this question because he or she has already lost control, rate 9).

- 0 – no fear of losing control
- 1 –
- 2 – fear of losing control present on less than half the days
- 3 –
- 4 – fear of losing control present on more than half the days
- 5 –
- 6 – fear of losing control every day

□

Bulimic episodes and other episodes of overeating (Diagnostic item)

Guidelines for interviewers

(Four forms of episodic 'overeating' are distinguished. The distinction is based upon the presence or absence of two characteristics:

1. Loss of control (required for both types of 'bulimic episode')
2. The consumption of what would generally be regarded as a 'large' amount of food (required for 'objective bulimic episodes' and 'objective overeating')

Loss of control/ amount eaten	'Large' (EDE definition)	Not 'large', but viewed by subject as excessive
'Loss of control'	Objective bulimic episodes	Subjective bulimic episodes
No 'loss of control'	Objective overeating	Subjective overeating

The interviewer should ask about each form of overeating. It is important to note that the forms of overeating are not mutually exclusive: it is possible for subjects to have had several different forms over the preceding month. With some subjects it is helpful to explain the classificatory scheme. Then, using the probe questions given below, the number of each type of episode may be determined and checked back with the subject.

Definition of key terms

'Loss of control.' The interviewer should ask the subject whether he or she experienced a sense of loss of control over eating at the time that the episode occurred. If this is clearly described, loss of control should be rated as present. Loss of control may be rated positively even if the episode had been planned. If the subject uses terms such as 'driven to eat' or 'compelled to eat', loss of control should be rated as present.

For chronic cases only: if the subject reports no sense of loss of control yet describes having not been able to stop eating once eating had started or having not been able to prevent the episode from occurring, loss of control should be rated as present. If subjects report that they are no longer trying to control their eating because overeating is inevitable, loss of control should be rated as present.

If the interviewer is in doubt, loss of control should be rated as absent.

'Large amount of food.' The decision whether or not the amount eaten was large should be made by the interviewer and does not require the agreement of the subject. Large may be used to refer to the amount of any particular type of food or the overall quantity of food consumed. The interviewer should take into account what would be the usual amount eaten under the circumstances. This requires some knowledge of the eating habits of the subject's general (but not necessarily immediate) social group. What else was eaten during the day is not of relevance to this rating. The speed of eating and whether or not the subject subsequently spits out or vomits the food are not of relevance.

If the interviewer is in doubt, the amount should not be classified as large.

The number of episodes of overeating. When calculating the number of episodes of overeating, the subject's definition of separate episodes should be accepted unless (within a period of eating) there was an hour or more when the subject was not eating. In this case the initial episode should be regarded as having been completed. When estimating the length of any gap, do not count the time spent vomiting. Note that purging (self-induced vomiting or laxative misuse) is not used to define the end of individual episodes of overeating.

Guidelines for rating the overeating section

First, ask the asterisked questions to identify episodes of perceived or true overeating that have occurred over the previous 28 days. Note down all the forms of overeating on a blank sheet.

Second, obtain detailed information about each form of overeating to decide whether it involved eating large amounts of food and whether or not there was loss of control (as defined above). Then establish for each form of overeating the number of days on which it occurred and the total number of occasions. It is advisable to make comprehensive notes.

Finally, check with the subject to ensure that no misunderstandings have arisen).

Questions for rating items

(The asterisked questions must be asked in every case).

Main probe questions

- **I would like to ask you about any episodes of overeating that you may have had over the past four weeks.**
- **Different people mean different things by overeating. I would like you to describe any times when you have felt that you have eaten too much in one go.**
- **Have there been any times when you have felt that you have eaten too much, but others might not agree?**

(If there have been no such times, skip to 'social eating').

(N.B., for subjective bulimic episodes to be eligible, they must have been viewed as having involved eating an excessive amount of food).

Subsidiary probe questions

To assess the amount of food eaten:

Typically what have you eaten at these times?

What were others eating at the time?

To assess loss of control:

Did you have a sense of loss of control at the time?

For chronic cases only:

Could you have stopped eating once you had started?

Could you have prevented the episode from occurring?

(For objective bulimic episodes, subjective bulimic episodes and episodes of objective overeating make the following two ratings:

1. Number of days (rate 00 if none)

2. Number of episodes (rate 000 if none)

In general, it is best to calculate the number of days first and then the number of episodes. Rate 777 if the number of episodes is so great that their frequency cannot be calculated. Episodes of subjective overeating are not rated).

(Ask about the preceding two months).

For objective bulimic episodes, rate the number of episodes over the preceding two months and the number of days on which they occurred. (Rate 0 if none and 9 if not asked).

Days –

Month 2

Month 3

Episodes –

Month 2

Month 3

Also rate the longest continuous period in weeks free (not due to force of circumstances) from objective bulimic episodes over the past three months. (Rate 99 if not asked).

Dietary restriction outside bulimic episodes (Diagnostic item)

(Only rate this item if there have been objective bulimic episodes over the past three months).

Outside the times when you have lost control over eating (refer to objective and subjective bulimic episodes), how much have you been restricting the amount that you eat?

Typically, what have you eaten?

Has this been to influence your shape or weight?

(Ask about actual food intake outside the objective and subjective bulimic episodes. Rate the average degree of dietary restriction. This should have been intended to influence shape, weight or body composition, although this may not have been the sole or main reason. Rate each of the past three months separately whether or not it included a bulimic episode. Rate 9 if not asked).

0 – no extreme restriction outside objective bulimic episodes

1 – extreme restriction outside objective bulimic episodes (i.e., low energy intake (< 1,200kcal) due to infrequent eating and/or consumption of low-calorie foods)

2 – no eating outside objective bulimic episodes (i.e., fasting)

Month 1

Month 2

Month 3

Social eating (Eating Concern subscale)

Over the past four weeks have you been concerned about other people seeing you eat?

Have you avoided such occasions?

(Rate the degree of concern about eating normal or less than normal amounts of food in front of others (e.g., family) and whether this has led to avoidance. This should represent the average for the entire month. If the possibility of eating with others has not arisen, rate 9. Do not consider objective bulimic episodes or episodes of objective overeating).

0 – no concern about being seen eating by others and no avoidance of such occasions

1 –

2 – has felt slight concern at being seen eating but no avoidance

3 –

4 – has felt definite concern and has avoided some such occasions

5 –

6 – has felt definite concern and has avoided all such occasions

Eating in secret (Eating Concern subscale)

Over the past four weeks have you eaten in secret?

(Rate the number of days on which there has been at least one episode of secret eating. Secret eating refers to eating that is furtive and which the subject wishes to conceal. Avoidance of eating in front of others should be rated under 'social eating.' If the possibility of eating with others has not arisen, rate 9. Do not consider objective bulimic episodes).

- 0 – has not eaten in secret
- 1 –
- 2 – has eaten in secret on less than half the days
- 3 –
- 4 – has eaten in secret on more than half the days
- 5 –
- 6 – has eaten in secret every day

Guilt about eating (Eating Concern subscale)

Over the past four weeks have you felt guilty after eating?

Have you felt that you have done something wrong? Why?

On what proportion of the times that you have eaten have you felt guilty?

(Rate the proportion of times on which feelings of guilt have followed eating. These feelings of guilt should relate to the effects of eating on shape, weight or body composition. Do not consider objective bulimic episodes, but do consider other episodes of overeating. Distinguish guilt from regret: guilt refers to a feeling that one has done wrong. N.B., this rating is based on occasions).

- 0 – no guilt after eating
- 1 –
- 2 – has felt guilty after eating on less than half the occasions
- 3 –
- 4 – has felt guilty after eating on more than half the occasions
- 5 –
- 6 – has felt guilty after eating on every occasion

Self-induced vomiting (Diagnostic item)

Over the past four weeks have you made yourself sick as a means of controlling your shape or weight?

(Rate the number of days on which there has been one or more episodes of self-induced vomiting as a means of controlling shape, weight or body composition. Rate 00 if no vomiting).

(Rate the number of discrete episodes of self-induced vomiting. Accept the subject's definition of an episode. Rate 777 if the number is so great that it cannot be calculated. Rate 000 if no vomiting).

(Ask about the preceding two months if practising self-induced vomiting to influence shape, weight or body composition).

(Rate the number of discrete episodes of self-induced vomiting over each of the preceding two months. Rate 999 if not asked).

Month 2

Month 3

Laxative misuse (Diagnostic item)

Over the past four weeks have you taken laxatives as a means of controlling your shape or weight?

(Rate the number of days on which laxatives have been taken as a means of controlling shape, weight or body composition. This should have been the main reason, although it may not have been the sole reason. Rate 00 if there was no laxative use or there is doubt whether the laxative taking was primarily to influence shape, weight or body composition).

(Rate the number of individual episodes of laxative misuse (as defined above). Rate 777 if the number is so great that it cannot be calculated. Rate 000 if no such laxative misuse).

(Rate the average number of laxatives taken on each occasion. Rate 999 if not applicable. Rate 777 if not quantifiable, e.g., use of bran).

(Note the type of laxative taken).

(Ask about the preceding two months if taking laxatives to influence shape, weight or body composition). (Rate the number of discrete episodes of laxative misuse over each of the two preceding months. Rate 000 if no such laxative misuse. Rate 999 if not asked).

Month 2

Month 3

Diuretic misuse (Diagnostic item)

Over the past four weeks have you taken diuretics as a means of controlling your shape or weight?

(Rate the number of days on which diuretics have been taken as a means of controlling shape, weight or body composition. This should have been the main reason, although it may not have been the sole reason. Rate 00 if there was no diuretic use or there is doubt whether the diuretic taking was primarily to influence shape, weight or body composition).

(Rate the number of individual episodes of diuretic misuse (as defined above). Rate 777 if the number is so great that it cannot be calculated. Rate 000 if no such diuretic misuse).

(Rate the average number of diuretics taken on each occasion. Rate 999 if not applicable. Rate 777 if not quantifiable).

(Note the type of diuretic taken).

(Ask about the preceding two months if taking diuretics to influence shape, weight or body composition). (Rate the number of discrete episodes of diuretic misuse over each of the two preceding months. Rate 000 if no such diuretic misuse. Rate 999 if not asked).

Month 2

Month 3

Intense exercising to control shape or weight (Diagnostic item)

Over the past four weeks have you exercised as a means of controlling your weight, altering your shape or amount of fat or burning off calories?

Typically, what form of exercise have you taken?

(Rate the number of days on which the subject has engaged in intense exercise that was predominantly intended to use calories or change shape, weight or body composition. The decision whether the exercising was 'intense' should be made by the interviewer. If in doubt, the exercising should not be classed as intense. Rate 00 if no such exercising).

(Rate the average amount of time (in minutes) per day spent exercising in this way. Only consider days on which the subject exercised. Rate 999 if no such exercising).

(Ask about the preceding two months if there has been exercising of this type).

(Rate the number of days on which the subject has exercised in this manner over each of the preceding two months. If not asked, rate 99).

Month 2

Month 3

Abstinence from extreme weight-control behaviour (Diagnostic item)

(Only ask this question if at least one of the key forms of weight-control behaviour has been rated positively at the specified severity level over the past three months).

(The five forms of behaviour are as follows:

- fasting
- self-induced vomiting
- laxative misuse
- diuretic misuse
- excessive exercise).

Over the past three months has there been a period of two or more weeks when you have not...

(Ask as for individual items).

(Ascertain the number of consecutive weeks over the past three months 'free' (i.e., not above threshold levels) from all five forms of extreme weight-control behaviour. Do not rate abstinence due to force of circumstances. Rate 99 if not applicable).

Dissatisfaction with weight (Weight Concern subscale)

**Over the past four weeks have you been dissatisfied with your weight?
Have you been so dissatisfied that it has made you unhappy?**

(Only rate dissatisfaction due to weight being regarded as too high. Assess the subject's attitude to his or her weight and rate accordingly. This should represent the average for the entire month. Only rate 4, 5 or 6 if there has been distress. Do not prompt with the terms 'slight', 'moderate' or 'marked.' Rate 9 if the subject is unaware of his or her weight).

- 0 – no dissatisfaction
- 1 –
- 2 – slight dissatisfaction (no associated distress)
- 3 –
- 4 – moderate dissatisfaction (some associated distress)
- 5 –
- 6 – marked dissatisfaction (extreme concern and distress, weight totally unacceptable)

Desire to lose weight (Weight Concern subscale)

**Over the past four weeks have you wanted to lose weight?
Have you had a strong desire to lose weight?**

(Rate the number of days on which there has been a strong desire to lose weight).

- 0 – no strong desire to lose weight
- 1 –
- 2 – strong desire present on less than half the days
- 3 –
- 4 – strong desire present on more than half the days
- 5 –
- 6 – strong desire present every day

Desired weight

What weight would you like to be?

(Rate weight in kilograms. Rate 888 if the subject is not interested in his or her weight. Rate 777 if no specific weight would be low enough. Rate 666 if the subject is primarily interested in his or her shape but has some concern about weight (but not a specific weight)).

Reaction to prescribed weighing (Weight Concern subscale)

How would you feel if you were asked to weigh yourself once each week for the next four weeks?

(Rate the strength of reaction. Positive reactions should be rated 9. Check whether other aspects of the subject's life would be influenced. Ask the subject to describe in detail how he or she would react and rate accordingly. Do not prompt with the terms 'slight', 'moderate' or 'marked.' If the subject would not comply with prescribed weighing because it would be extremely disturbing rate 6).

0 – no reaction

1 –

2 – slight reaction

3 –

4 – moderate reaction (definite reaction, but manageable)

5 –

6 – marked reaction (pronounced reaction which would affect other aspects of the subject's life)

Dissatisfaction with shape (Shape Concern subscale)

Over the past four weeks have you been dissatisfied with your shape?

Have you been so dissatisfied that it has made you unhappy?

(Only rate dissatisfaction with shape and not that concerning body tone. Assess the subject's attitude to his or her shape and rate accordingly. This should represent the average for the entire month. Only rate 4, 5 or 6 if there has been associated distress. Do not prompt with the terms 'slight', 'moderate' or 'marked').

0 – no dissatisfaction with shape

1 –

2 – slight dissatisfaction with shape (no associated distress)

3 –

4 – moderate dissatisfaction with shape (extreme concern and distress, shape totally unacceptable)

5 –

6 – marked dissatisfaction with shape (extreme concern and distress, shape totally unacceptable)

Preoccupation with shape or weight (Shape Concern and Weight Concern subscales)

Over the past four weeks have you spent much time thinking about your shape or weight?

Has thinking about your shape or weight interfered with your ability to concentrate? How about concentrating on things you are interested in, for example, reading, watching television or following a conversation?

(Concentration is regarded as impaired if there have been intrusive thoughts about shape or weight that have interfered with activities. Rate the number of days on which this happened).

- 0 – no concentration impairment
- 1 –
- 2 – concentration impairment on less than half the days
- 3 –
- 4 – concentration impairment on more than half the days
- 5 –
- 6 – concentration impairment every day

Importance of shape (Diagnostic item/Shape Concern subscale)

Over the past four weeks has your shape been important in influencing how you feel about (judge, think, evaluate) yourself as a person?

If you imagine the things that influence how you feel about (judge, think, evaluate) yourself – such as (your performance at work, being a parent, your marriage, how you get on with other people) – and put these things in order of importance, where does your shape fit in?

If, over the past four weeks, your shape had changed in any way, would this have affected how you feel about yourself?

Is it important to you that your shape does not change?

(Rate the degree of importance the subject has placed on body shape and its position in his or her scheme for self-evaluation. To make this rating, comparisons may be made with other aspects of the subject's life that are of importance in his or her scheme for self-evaluation (e.g., quality of relationships, being a parent, performance at work or leisure activities). The rating should represent the average for the entire month. Do not prompt with the terms 'some', 'moderate' or 'supreme.' If the subject has regarded both shape and weight as being of equivalent supreme importance, rate 6 on this item and on 'importance of weight').

- 0 – no importance
- 1 –
- 2 – some importance (definitely an aspect of self-evaluation)
- 3 –
- 4 – moderate importance (definitely one of the main aspects of self-evaluation)
- 5 –
- 6 – supreme importance (nothing is more important in the subject's scheme for self-evaluation)

(Ask about the preceding two months).

(Rate preceding two months. Rate 9 if not asked).

Month 2

Month 3

Importance of weight (Diagnostic item/Weight Concern subscale)

Over the past four weeks has your weight been important in influencing how you feel about (judge, think, evaluate) yourself as a person?

If you imagine the things that influence how you feel about (judge, think, evaluate) yourself – such as (your performance at work, being a parent, your marriage, how you get on with other people) – and put these things in order of importance, where does your weight fit in?

If, over the past four weeks, your weight had changed in any way, would this have affected how you feel about yourself?

Is it important to you that your weight does not change?

(Rate the degree of importance the subject has placed on weight (i.e., actual or presumed weight) and its position in his or her scheme for self-evaluation. To make this rating, comparisons may be made with other aspects of the subject's life that are of importance in his or her scheme for self-evaluation (e.g., quality of relationships, being a parent, performance at work or leisure activities). The rating should represent the average for the entire month. Do not prompt with the terms 'some', 'moderate' or 'supreme.' If the subject has regarded both weight and shape as being of equivalent supreme importance, rate 6 on this item and on 'importance of shape').

0 – no importance

1 –

2 – some importance (definitely an aspect of self-evaluation)

3 –

4 – moderate importance (definitely one of the main aspects of self-evaluation)

5 –

6 – supreme importance (nothing is more important in the subject's scheme for self-evaluation)

(Ask about the preceding two months).

(Rate preceding two months. Rate 9 if not asked).

Month 2

Month 3

Fear of weight gain (Diagnostic item/Shape Concern subscale)

(Shorten the question if the subject is obviously overweight).

Over the past four weeks have you been afraid that you might gain weight (or become fat)?

(Rate the number of days on which a definite fear has been present. Exclude reactions to actual weight gain).

0 – no definite fear of fatness or weight gain

1 –

2 – definite fear of fatness or weight gain present on less than half the days

3 –

4 – definite fear of fatness or weight gain present on more than half the days

5 –

6 – definite fear of fatness or weight gain present every day

(Ask about the past two months).

(Rate preceding two months. Rate 9 if not asked).

Month 2

Month 3

Discomfort seeing body (Shape Concern subscale)

Over the past four weeks have you felt uncomfortable seeing your body, for example, in the mirror, in shop window reflections, while undressing or while taking a bath or shower?

Have you avoided seeing your body? Why?

(The discomfort should be due to the subject's sensitivity about the overall appearance of his or her shape or figure. It should not stem from sensitivity about specific aspects of appearance (e.g., acne) or from modesty).

- 0 – no discomfort about seeing body
- 1 –
- 2 – some discomfort about seeing body
- 3 –
- 4 – definite discomfort about seeing body
- 5 –
- 6 – definite discomfort about seeing body and has attempted to avoid all such occasions (i.e., the subject has attempted not to see his or her body at all even when washing).

Avoidance of exposure (Shape Concern subscale)

Over the past four weeks have you felt uncomfortable about others seeing your body, for example, in communal changing rooms, when swimming or when wearing clothes that show your shape? What about your partner or friends seeing your body? Have you avoided such situations? Why?

(The discomfort should be due to the subject's sensitivity about the overall appearance of his or her shape or figure. It should not stem from sensitivity about specific aspects of appearance (e.g., acne) or from modesty. If the possibility of 'exposure' has not arisen, rate 9).

- 0 – no discomfort about others seeing body
- 1 –
- 2 – some discomfort about others seeing body
- 3 –
- 4 – definite discomfort about others seeing body
- 5 –
- 6 – definite discomfort about others seeing body and has attempted to avoid all such occasions

Feelings of fatness (Diagnostic item/Shape Concern subscale)

(Omit this item if the subject is obviously overweight and rate 7).

Over the past four weeks have you felt fat?

(Rate the number of days on which the subject has 'felt fat' accepting his or her use of this expression. Distinguish feeling fat from feeling bloated premenstrually, unless this is experienced as feeling fat).

- 0 – has not felt fat
- 1 –
- 2 – has felt fat on less than half the days
- 3 –
- 4 – has felt fat on more than half the days
- 5 –
- 6 – has felt fat every day

(Ask about the preceding two months).

(Rate preceding two months. Rate 9 if not asked).

- Month 2
- Month 3

Flat stomach (Shape Concern subscale)

(Omit this item if the subject is obviously overweight and rate 7).

Over the past four weeks have you had a definite desire to have a flat stomach?

(Rate the number of days on which the subject has had a definite desire to have a flat or concave stomach. Do not rate simply the desire to have a flatter stomach).

0 – no definite desire to have a flat stomach

1 –

2 – definite desire to have a flat stomach on less than half the days

3 –

4 – definite desire to have a flat stomach on more than half the days

5 –

6 – definite desire to have a flat stomach every day

Weight and height

(The subject's weight and height should be measured).

Weight in kg

Height in cm

Maintained low weight (Diagnostic item)

(Rate for subjects who may be underweight).

Over the past three months have you been trying to lose weight?

(If no): Have you been trying to make sure that you do not gain weight?

(If weight is low, rate presence of attempts either to lose weight or to avoid weight gain. Rate 9 if not asked).

0 – no attempts either to lose weight or to avoid weight gain over the past three months

1 – attempts either to lose weight or to avoid weight gain over the past three months for reasons concerning shape or weight

2 – attempts either to lose weight or to avoid weight gain over the past three months for other reasons

Menstruation (Diagnostic item)

Have you missed any menstrual periods over the past few months?

How many periods have you had?

Are you taking an oral contraceptive (the 'pill')?

(With post-menarchal females, rate number of menstrual periods over the past three expected menstrual cycles. Rate 7 if the subject is pre-menarchal, if she has been taking an oral contraceptive or if she has been pregnant or breast-feeding).

Appendix IX
Eating Disorder Examination Questionnaire

EATING QUESTIONNAIRE

Instructions

The following questions are concerned with the PAST FOUR WEEKS ONLY (28 days). Please read each question carefully and circle the appropriate number on the right. Please answer all the questions.

ON HOW MANY DAYS OUT 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 <u>trying</u> to limit the amount of food you eat to influence your shape or weight?	0	1	2	3	4	5	6
2 Have you gone for long periods of time (8 hours or more) without eating anything in order to influence your shape weight?	0	1	2	3	4	5	6
3 Have you <u>tried</u> to avoid eating any foods which you like in order to influence your shape or weight?	0	1	2	3	4	5	6
4 Have you <u>tried</u> to follow definite rules regarding your eating in order to influence your shape or weight; for example, a calorie limit, a set amount of food, or rules about what or when you should eat?	0	1	2	3	4	5	6
5 Have you wanted your stomach to be empty?	0	1	2	3	4	5	6
6 Has thinking about food or its calorie content made it much more difficult to concentrate on things you are interested in; for example, read, watch TV, or follow a conversation?	0	1	2	3	4	5	6
7 Have you been afraid of losing control over eating?	0	1	2	3	4	5	6

ON HOW MANY DAYS OUT OF THE PAST 28 DAYS No days 1-5 days 6-12 days 13-15 days 16-22 days 23-27 days Every day

8 Have you had episodes of binge eating? 0 1 2 3 4 5 6

9 Have you eaten in secret? (Do not count binges.) 0 1 2 3 4 5 6

10 Have you definitely wanted your stomach to be flat? 0 1 2 3 4 5 6

11 Has thinking about shape or weight made it more difficult to concentrate on things you are interested in; for example read, watch TV or follow a conversation? 0 1 2 3 4 5 6

12 Have you had a definite fear that you might gain weight or become fat? 0 1 2 3 4 5 6

13 Have you felt fat? 0 1 2 3 4 5 6

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

OVER THE PAST FOUR WEEKS (28 DAYS)

15 On what proportion of times that you have eaten have you felt guilty because the effect on your shape or weight? (Do not count binges.) (Circle the number which applies.)

0 - None of the times
 1 - A few of the times
 2 - Less than half the times
 3 - Half the times
 4 - More than half the times
 5 - Most of the time
 6 - Every time

- 16 Over the past four weeks (28 days), have there been any times when you have felt that you have eaten what other people would regard as an unusually large amount of food given the circumstances? (Please put appropriate number in box.)
- 0 - No
1 - Yes []
- 17 How many such episodes have you had over the past four weeks?
- [][][]
- 18 During how many of these episodes of overeating did you have a sense of having lost control over your eating?
- [][][]
-
- 19 Have you had other episodes of eating in which you have had a sense of having lost control and eaten too much, but have not eaten an unusually large amount of food given the circumstances?
- 0 - No
1 - Yes []
- 20 How many such episodes have you had over the past four weeks?
- [][][]
-
- 21 Over the past four weeks have you made yourself sick (vomit) as a means of controlling your shape or weight?
- 0 - No
1 - Yes []
- 22 How many times have you done this over the past four weeks?
- [][][]
-
- 23 Have you taken laxatives as a means of controlling your shape or weight
- 0 - No
1 - Yes []
- 24 How many times have you done this over the past four weeks?
- [][][]
-
- 25 Have you taken diuretics (water tablets) as a means of controlling your shape or weight?
- 0 - No
1 - Yes []
- 26 How many times have you done this over the past four weeks?
- [][][]
-
- 27 Have you exercised hard as a means of controlling your shape or weight?
- 0 - No
1 - Yes []
- 28 How many times have you done this over the past four weeks?
- [][][]

OVER THE PAST FOUR WEEKS 28 DAYS) (Please circle the number which best describes your behaviour.)	NOT AT ALL		SLIGHTLY		MODERATELY		MARKEDLY
29 Has your weight influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6
30 Has your shape influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6
31 How much would it upset you if you had to weigh yourself once a week for the next four weeks?	0	1	2	3	4	5	6
32 How dissatisfied have you felt about your weight?	0	1	2	3	4	5	6
33 How dissatisfied have you felt about your shape?	0	1	2	3	4	5	6
34 How concerned have you been about other people seeing you eat?	0	1	2	3	4	5	6
35 How uncomfortable have you felt seeing your body; for example, in the mirror, in shop window reflections, while undressing or taking a bath or shower?	0	1	2	3	4	5	6
36 How uncomfortable have you felt about others seeing your body; for example, in communal changing rooms, when swimming or wearing tight clothes?	0	1	2	3	4	5	6

Appendix X
Sense of Coherence 29

Below are a series of questions relating to various aspects of our lives. Each question has seven possible answers. Please mark the number which best expresses your answer, with number 1 and 7 being the extreme answers. If the words under 1 are right for you, circle 1; if the words under 7 are right for you, circle 7. If you feel differently, circle the number which best expresses your feeling. You can choose any number between 1 and 7. Please give only one answer to each question.

1. When you talk to people do you have the feeling that they don't understand you?

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Never have this feeling

Always have this feeling

2. In the past when you had to do something which depended upon the cooperation of others, did you have the feeling that it:

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Surely wouldn't get done

Surely would get done

3. Thinking of the people with whom you come into contact daily, aside from the ones to whom you feel closest. How well do you know most of them.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

You feel that they're strangers

You know them very well

4. Do you have the feeling that you don't really care about what goes on around you?

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Very seldom or never

very often

5. Has it happened in the past that you were surprised by the behaviour of people whom you thought you knew well.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Never happened

Always happened

6. Has it happened that people whom you counted on disappointed you?

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Never happened

Always happened

7. Life is:

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Full of interest

completely routine

8. Until now your life has had:

1	2	3	4	5	6	7
---	---	---	---	---	---	---

No clear goals
or purpose at all

very clear goals
and purpose

9. Do you have the feeling that you're being treated unfairly?

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Very often

very seldom or never

10. In the past ten years your life has been:

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Full of changes
without your
knowing what
will happen next

completely
consistent
and clear

11. Most of the things you do in the future will probably be:

1	2	3	4	5	6	7
---	---	---	---	---	---	---

completely
fascinating

deadly
boring

12. Do you have the feeling that you are in unfamiliar situations and don't know what to do?

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Very often

very seldom or never

13. What best describes how you see life?

1	2	3	4	5	6	7
---	---	---	---	---	---	---

One can always
find a solution
to painful things in life

there is no solution
to painful things in life

14. When you think about life, you very often:

1	2	3	4	5	6	7
---	---	---	---	---	---	---

feel how good
it is to be alive

ask yourself why
you exist at all

15. When you face a difficult problem, the solution is:

1	2	3	4	5	6	7
---	---	---	---	---	---	---

always confusing
and hard to find

always completely
clear

16. Doing the things you do every day is:

1	2	3	4	5	6	7
---	---	---	---	---	---	---

a source of
deep pleasure
and satisfaction

a source of pain
and boredom

17. Your life in the future will probably be:

1	2	3	4	5	6	7
---	---	---	---	---	---	---

full of changes
without your
knowing what
will happen next

completely
consistent
and clear

18. When something unpleasant happened in the past your tendency was:

1	2	3	4	5	6	7
---	---	---	---	---	---	---

To feel very
upset about it

To say "OK, that's that,
I have to live with it"
and go on

19. Do you have very mixed up feelings and ideas?

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Very often

Very seldom or never

20. When you do something that gives you a good feeling:

1	2	3	4	5	6	7
---	---	---	---	---	---	---

It's certain that
you'll go on
feeling good

It's certain that something
will happen to spoil that feeling

21. Does it happen that you have feelings inside that you would rather not feel?

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Very often

Very seldom or never

22. You anticipate that your personal life in the future will be:

1	2	3	4	5	6	7
---	---	---	---	---	---	---

totally without
meaning and purpose

Full of meaning
and purpose

23. Do you think that there will always be people whom you'll be able to count on in the future?

1	2	3	4	5	6	7
---	---	---	---	---	---	---

You're certain
there will be

You doubt
there will be

24. Does it happen that you have the feeling that you don't know exactly what's about to happen?

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Very often Very seldom or never

25. Many people, even those with a strong character, sometimes feel like losers or blunderers in certain situations. How often have you felt this way in the past?

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Never Very often

26. When something happens, have you generally found that:

1	2	3	4	5	6	7
---	---	---	---	---	---	---

You overestimated or underestimated its importance? You saw things in the right proportion?

27. When you think about difficulties you are likely to face in important aspects of your life, do you have the feeling that:

1	2	3	4	5	6	7
---	---	---	---	---	---	---

You will always succeed in overcoming the difficulties You won't succeed in overcoming the difficulties

28. How often do you have the feeling that there's little meaning in the things you do in your daily life?

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Very often Very seldom or never

29. How often do you have feelings that you're not sure you can keep under control?

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Very often Very seldom or never

Appendix XI

Hospital Anxiety and Depression Scale

Hospital Anxiety and Depression Scale (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. Ignore the numbers printed at the edge of the questionnaire.

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

3
2
1
0

I feel tense or 'wound up'

- Most of the time
- A lot of the time
- From time to time, occasionally
- Not at all

I still enjoy the things I used to enjoy

- Definitely as much
- Not quite so much
- Only a little
- Hardly at all

I get a sort of frightened feeling as if something awful is about to happen

- Very definitely and quite badly
- Yes, but not too badly
- A little, but it doesn't worry me
- Not at all

I can laugh and see the funny side of things

- As much as I always could
- Not quite as much now
- Definitely not so much now
- Not at all

Worrying thoughts go through my mind

- A great deal of the time
- A lot of the time
- Not too often
- Very little

I feel cheerful

- Never
- Not often
- Sometimes
- Most of the time

I can sit at ease and feel relaxed

- Definitely
- Usually
- Not often
- Not at all

I feel as if I am slowed down

- Nearly all the time
- Very often
- Sometimes
- Not at all

I get a sort of frightened feeling like 'butterflies' in the stomach

- Not at all
- Occasionally
- Quite often
- Very often

I have lost interest in my appearance

- Definitely
- I don't take as much care as I should
- I may not take quite as much care
- I take just as much care as ever

I feel restless as if I have to be on the move

- Very much indeed
- Quite a lot
- Not very much
- Not at all

I look forward with enjoyment to things

- As much as I ever did
- Rather less than I used to
- Definitely less than I used to
- Hardly at all

I get sudden feelings of panic

- Very often indeed
- Quite often
- Not very often
- Not at all

I can enjoy a good book or radio or television programme

- Often
- Sometimes
- Not often
- Very seldom

FOLD HERE

A D

3
2
1
0

0
1
2
3

3
2
1
0

3
2
1
0

0
1
2
3

3
2
1
0

0
1
2
3

A D

Now check that you have answered all the questions.

TOTAL

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Appendix XII
Attachment Style Questionnaire

Attachment Style Questionnaire

Show how much you agree or disagree with the following items by circling one number from **1** *totally disagree* to **6** *totally agree* for each item.

		Disagree←			→Agree		
		1	2	3	4	5	6
		T	totally	strongly	mildly/	/mildly	strongly
		totally	strongly	mildly	strongly	totally	agree
1.	Overall, I am a worthwhile person.	1	2	3	4	5	6
2.	I am easier to get to know than most people.	1	2	3	4	5	6
3.	I feel confident that other people will be there for me when I need them	1	2	3	4	5	6
4.	I prefer to depend on myself rather than other people.	1	2	3	4	5	6
5.	I prefer to keep to myself.	1	2	3	4	5	6
6.	To ask for help is to admit you are a failure.	1	2	3	4	5	6
7.	People's worth should be judged by what they achieve.	1	2	3	4	5	6
8.	Achieving things is more important than relationships.	1	2	3	4	5	6
9.	Doing your best is more important than getting on with others.	1	2	3	4	5	6
10.	If you've got a job to do, you should do it no matter who gets hurt.	1	2	3	4	5	6
11.	It's important that other people like me.	1	2	3	4	5	6
12.	It's important to me to avoid doing things others don't like.	1	2	3	4	5	6
13.	I find it hard to make a decision unless I know what other people think.	1	2	3	4	5	6
14.	My relationships with others are generally superficial.	1	2	3	4	5	6
15.	Sometimes I think I am no good at all.	1	2	3	4	5	6
16.	I find it hard to trust other people.	1	2	3	4	5	6
17.	I find it difficult to depend on others.	1	2	3	4	5	6
18.	I find that others are reluctant to get as close as I would like.	1	2	3	4	5	6
19.	I find it relatively easy to get close to other people.	1	2	3	4	5	6
20.	I find it easy to trust others.	1	2	3	4	5	6
21.	I feel comfortable depending on other people.	1	2	3	4	5	6

		Disagree←			→Agree		
		totally	strongly	mildly/	/mildly	strongly	totally
		1	2	3	4	5	6
22.	I worry that others won't care about me as much as I care about them.	1	2	3	4	5	6
23.	I worry about people getting too close.	1	2	3	4	5	6
24.	I worry that I won't measure up to other people.	1	2	3	4	5	6
25.	I have mixed feelings about being close to others.	1	2	3	4	5	6
26.	While I want to get close to others, I feel uneasy about it.	1	2	3	4	5	6
27.	I wonder why people would want to be involved with me.	1	2	3	4	5	6
28.	It's very important to me to have a close relationship.	1	2	3	4	5	6
29.	I worry a lot about my relationships.	1	2	3	4	5	6
30.	I wonder how I would cope without someone to love me.	1	2	3	4	5	6
31.	I feel confident about relating to others.	1	2	3	4	5	6
32.	I often feel left out or alone.	1	2	3	4	5	6
33.	I often worry that I do not really fit in with other people.	1	2	3	4	5	6
34.	Other people have their own problems, so I don't bother them with mine.	1	2	3	4	5	6
35.	When I talk over my problems I generally feel ashamed or foolish.	1	2	3	4	5	6
36.	I am too busy with other activities to put much time into relationships.	1	2	3	4	5	6
37.	If something is bothering me, others are generally aware and concerned.	1	2	3	4	5	6
38.	I am confident that others will like and respect me.	1	2	3	4	5	6
39.	I get frustrated when others are not available when I need them.	1	2	3	4	5	6
40.	Other people often disappoint me.	1	2	3	4	5	6

Appendix XIII
Additional Information Forms

Ref. No. LP.....

1. Age.....

2. Sex.....

3. How long ago did you first come into contact with health professional regarding your eating related problems

Years.....Months.....

4. How long have you been receiving treated at the Langside Priory Hospital (on this occasion only)

MonthsWeeks.....

5. What is your current Body Mass Index (BMI).....

If you are unsure of your current BMI can I ask the nursing staff for this information?

Yes/No

Tayside Primary Care Psychology Department Control Patients

Ref. No. TCP.....

1. Age.....

2. Sex.....

3. How long have you been receiving treatment from clinical psychology for your current problem(s)

Years.....Months.....

4. How long ago did you first contact a health professional about any mental health problem you have experienced?

Years.....Months.....

University of Stirling Participant

Ref. No. SU.....

1. Age.....

2. Sex.....

3. Have you ever been in contact with a health professional about any psychological/mental health problem in the past?

Yes/No

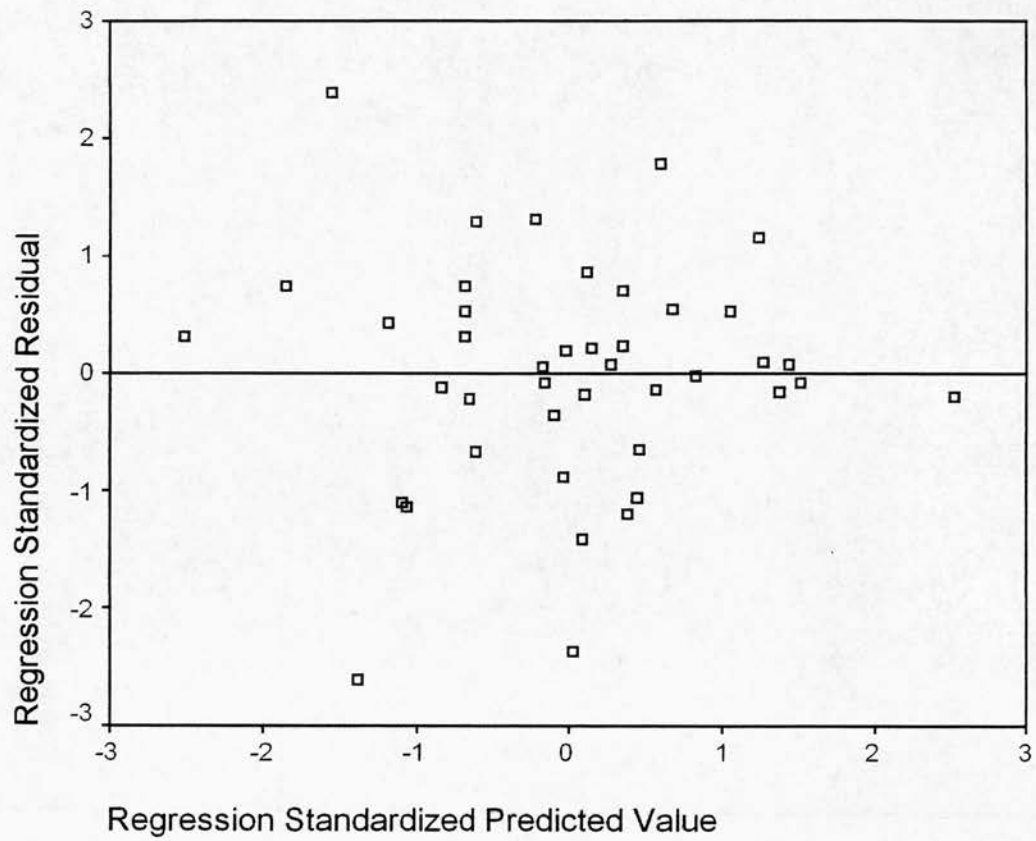
Appendix XIV
Description of Data Tables

Appendix XV
Regression Scatter Plots

Appendix

Figure 1.

Scatter Plot of residual plots from the regression Eating Disorder Examination (EDE) interview total scores and Sense of Coherence (SOC) total scores.



Appendix

Figure 2.

Scatter Plot for residual Plots from the regression Sense of Coherence (SOC) total scores and Attachment Style Questionnaire (ASQ) total scores.

