

Sense of Coherence in Anorexia Nervosa

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Declaration

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

Signed

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August 2002

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Abstract

Anorexia Nervosa (AN) is a well-documented but poorly understood psychological disorder. There is controversy over the conceptual clarity and efficacy of therapies for the condition and it continues to have one of the highest mortality rates of all psychiatric disorders.

Recent psychological conceptualisations of AN have viewed anorexic behaviour as a coping strategy to deal with underlying general psychopathology. The search for predictors of AN has been a frequent topic in eating disorders research and anorexics have often been identified as perfectionistic and valuing achievement as a means to self-worth. The eating disturbance associated with AN has also been viewed as a means to enhancing self-perception.

Research into coping has also achieved much attention. Antonovsky (1979; 1987) has posited the construct of Sense of Coherence which allows individuals to cope successfully with stress and avoid psychological ill-health. Part of this construct posits educational and vocational achievement as indicators of a strong Sense of Coherence.

This study hypothesised that anorexics, with their high achievement orientation, would exhibit different patterns of scores on the Sense of Coherence questionnaire when compared to a group of controls and a group of depressed individuals. Results indicated that anorexics' SOC scores were significantly lower than controls' but significantly higher than depressed individuals'. Concern was expressed regarding the validity of the clinically orientated SOC research literature given the tendency to use this salutogenic measure in pathogenic research designs.

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Chapter 1 – Anorexia Nervosa

1 – Introduction

Anorexia nervosa (AN) is a condition that remains enigmatic and perplexing for sufferers, carers and professionals. It continues to create professional debate at a conceptual level (Campbell 1995) and, to date, there is little to suggest that any consensus has been reached as to standardisation and effectiveness of treatments (UK Department of Health 2001). Garner (2002) writes that “there is no universally accepted assessment protocol for eating disorders”. Bemis Vitousek (2002) writes “best practice” standards for the treatment of AN continue to be defined by the “best guess” opinions of experts rather than the “best evidence”. The range of conceptual models and treatment strategies currently being employed, such as biomedical, cognitive-behavioural, socio-cultural, systemic, and psychoanalytic is evidence of this.

In addition, the relative lack of understanding of AN compounds the severity of the disorder. AN has among the highest mortality rates of any psychiatric disorder (Bell, Clare & Thorn 2001). Further research into the disorder would appear warranted for this finding alone.

AN has a range of comorbidities, with depression, anxiety and low self-esteem being common (Bell, Clare & Thorn 2001). Fairburn (1993) reports that depressed and labile mood are common comorbidities in AN.

Despite the physical, psychological, and social debilitation engendered by AN, and compounded by comorbidity, anorexics have been identified as high achievers (e.g.

Crisp 1980, Dura & Bornstein 1989, Fairburn 1993, Weeda-Mannak & Drop 1986). The ability of many anorexics to maintain high academic and vocational standards in spite of the effects starvation (Crisp 1980, Fairburn 1993), such as impaired concentration (Beumont 2002), emotional instability, and tiredness (Fichter & Pirke 1995) requires investigation and explanation.

This study aims to examine Antonovsky's (1979; 1987) concept of Sense of Coherence (SOC) in relation to two clinical disorders: AN and depression. Sense of Coherence seeks to explain why individuals remain healthy and function well despite being exposed to stressors which might be expected to compromise functioning. Although Sense of Coherence has been examined in relation to a variety of clinical disorders, such as post-traumatic stress disorder (Frommberger et al 1999), depression (Carstens & Spangenberg 1997), anxiety (Bernstein & Carmel 1987), and para-suicidal behaviour (Petrie & Brook 1992), it has not been examined in relation to AN. The study also aims to examine SOC in the two clinical groups against a non-clinical control group.

1.1 – Anorexia Nervosa

1.2 – Diagnostic Criteria

The World Health Organisation's International Classification of Diseases 10th Edition (World Health Organisation 1993) specifies five criteria as being necessary for a diagnosis of AN: Firstly, weight loss, or lack of weight gain in children, which leads to a body weight 15% or more below expected body weight for age and height. Secondly, weight loss is self-induced by avoidance of certain foods. Thirdly, there is a fear of becoming fat and a belief that one is too fat, leading to weight loss. Fourthly, amenorrhoea is present in females and loss of sexual interest and potency is present in males. Finally, the symptoms present do not satisfy diagnostic criteria A and B for Bulimia Nervosa.

The Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association 1994) 4th Edition (DSM-IV) proposes four criteria, three of which map closely to the first, second, and fourth ICD-10 criteria. DSM-IV proposes an additional criterion group: that there is disturbance of how the individual perceives their body weight/shape, that self-evaluation is contingent on body weight/shape, or the individual denies the seriousness of low body weight.

Additionally, DSM-IV specifies two sub-types of AN: Binge-eating/Purging Type involves regular episodes of binge-eating or purging through vomiting, laxatives or diuretics. Restricting Type does not involve the presence of binge-eating or purging

1.3 – Historical and Theoretical Perspectives

1.3.1 – Early Descriptions of Anorexia Nervosa

The origins of the current diagnostic criteria for AN (e.g. DSM-IV and ICD-10) lie in the 1870's, mainly through the work of two physicians – E Charles Lasègue and William Gull (Palmer 1980, Hepworth 1999). In 1873 both produced independent accounts of young women presenting with severe emaciation and amenorrhoea but without obvious physiological precipitants for their weight loss. Although Gull had described the disorder briefly in 1868 during an address to Oxford University, it was in 1873 that he described what he viewed were the central features of the disorder, these being based on clinical case histories he had himself seen. His description of Miss A. whom he saw in 1866, listed many of the features which are still taken as necessary conditions for a diagnosis of AN to be made. He described severe weight loss, long-standing amenorrhoea, and a desire to engage in physical exercise, with physical activity appearing “agreeable” to the patient despite her frailty. Gull’s understanding of the disorder took it to be “hysterical” in nature i.e. having a functional rather than an organic base, as in somatoform and conversion disorders. Gull also identified the loss of appetite as due to a “morbid mental state” and proposed that young women of Miss A’s age were prone to such states. Gull was aware that the disorder also affected males and this was a factor in his labelling of the disorder as anorexia nervosa (literally loss of appetite of a nervous origin), indicating its non-organic nature, rather than a term such as ‘anorexia hysterica’: the term hysteria was used primarily to reflect conditions affecting women at this period in time.

While Gull was describing AN in England, Lasègue was providing an independent

account of the disorder in France. Lasègue's description is perhaps more analytical than Gull's largely descriptive accounts, and conjectures at the subjective phenomenological aspects of the disorder, as well as the effects on not only the patient, but also those individuals close to the patient. Lasègue's writings emphasised the satisfaction achieved by patients at their weight loss, their reluctance to change, and the apparent obsession with food restriction. Lasègue also viewed the disorder as hysterical in nature, but he differed from Gull in providing a fuller account of the psychological factors present. Gull's description provided much of the basis for what could be regarded as early diagnostic criteria for AN while Lasègue's account can be seen as providing insights into the disorder which have informed psychological approaches to its understanding and treatment. Despite the differences between both writers' conceptualisations, the notion of psychological disturbance was at the centre of both accounts of AN. However, these authors' use of the term AN is, strictly speaking, a misnomer. Fairburn (1993) and Slade (1982) state that appetite is seldom absent in AN sufferers.

1.4 – Psychological Theories

1.4.1 – Psychodynamic Accounts

Sigmund Freud's descriptions of "hysterical" patients, such as the case of Frau Anna O., include a variety of non-organic symptoms, of which some are suggestive of what might now be thought of as AN. Freud, however, used the term 'anorexia' relatively sparingly, 'anorexia nervosa' even less so. In 1910 he described a patient originally seen by Josef Breuer as experiencing limb paralysis, visual disturbances and "an aversion to taking nourishment, and on one occasion she was for several

weeks unable to drink despite a tormenting thirst” (in Strachey, Freud, Strachey & Tyson 1955). In his 1893 case history of Frau Emmy von N. (in Strachey, Freud, Strachey & Tyson 1962) Freud states that, what he describes as “a combination of anorexia and vomiting” is easily explained. His explanation is couched in terms of repressed interpersonal conflict where “disgust” at another person present during a mealtime is transferred from the person to the meal. Freud also posited that some aversive or traumatic incident can predispose the patient to focus her disgust on food. In the Emmy von N. case history he states that, while still a child, her mother forced her to eat a meal that had become cold and congealed and this event had led her to develop an aversion to food and eating. Freud, in the same lecture on hysterical phenomena, describes a patient (Anna O.) refusing to drink, following seeing a dog drink from a glass of water, and a patient whose vomiting was precipitated by reading a “humiliating” letter shortly after eating. These accounts are indeed simple, perhaps simplistic, in that they stress only distressing or traumatic events and anorexic behaviour with little hypothesised between the two. The exception is the interpersonal conflict account which attempts to link events and behaviour. However, even this is unsatisfactory as it stands in that, in cognitive behavioural terms, it provides details only on the precipitant of the AN (the experience of disgust at another person) rather than the predisposition for AN (the factors behind the experience of disgust). It is possible to re-conceptualise Freud’s descriptions to provide a more inclusive account of the disorder by integrating the above into a format that includes predisposing factors – the experience of being forced to eat a ‘disgusting’ meal – and precipitating factors – the ‘disgust’ at another family member (which could be re-construed as familial conflict).

Freud's, and also Breuer's, case histories do provide some insights into the behaviour and characteristics of these 'hysterical' young women and their families which are in many ways similar to more recent descriptions: Breuer describes Anna O. as refusing nourishment, finding it impossible to drink, "existing" on fruit such as oranges and melons, being anaemic, being markedly intelligent, having an underdeveloped sexuality, and coming from a "puritanically-minded" family. Freud describes Emmy von N. as having a high level of education and intelligence, being brought up under "strict discipline" by a "severe" mother, being resistant to the suggestion of eating and reacting with anger and depression following being coerced to eat, and imposing rigid limits on her eating patterns. A variety of subsequent authors have identified similar characteristics as common in AN e.g. Slade (1982), Bemis Vitousek (2002), and Eisler (1995).

Freud's libido theory (Jones 1967; Nagera et al 1969) proposed that AN, and other hysterical symptoms affecting the mouth and throat, were related to oral-erotic fantasies, the patient being *fixated* at the oral stage of development. In AN Freud hypothesised that underdeveloped sexuality, and avoidance of, or attempts to control, sexuality, were symbolised by avoidance and restriction of eating.

Later psychodynamic theories specific to AN reinterpreted Freud's hypothesis as the rejection of sexual maturity via starvation, weight loss and cessation of menstruation, i.e. physical *and* psychical 'regression' (e.g. Beumont, Abraham & Simson 1981).

Other psychodynamic theories suggest rejection of food as symbolising the fear of oral impregnation (Scott 1988) and abstinence from food as a self-punitive measure

to deal with guilt feelings (Thoma 1967 – cit Scott 1988).

The notion of psycho-sexual factors as being pertinent to AN is common in psychodynamic theories of the disorder and there is some evidence to suggest that sexual behaviour differs between restricting anorexics and binge-purgers (Beumont et al 1981) with restricting anorexics having significantly less sexual contact than binge-purgers. Methodological difficulties make it difficult to be confident about these findings given that a common effect of starvation is reduced libido (Beumont 2002) and that many females will be restricting their food intake at ages prior to adolescence. For example, Chatoor, Ganiban, Hirsch, Borman-Spurrell and Mrazek (2000) highlight the presence of infantile AN. Also Steiner and Lock (1998) state that in epidemiological studies in the USA, 37% of elementary school children attempt some type of weight loss orientated behaviour, and that 6.9% of elementary school children score at a pathological level on an adapted version of the Eating Attitudes Test.

Object relations theory echoes the interpersonal conflict account provided by Freud. It suggests that human development involves the construction of a *self* and the development of an understanding of other individuals, and how the self relates to those others. Psychological disturbance, according to object relations theory, is the result of a failure to develop satisfying interpersonal relationships. Writers such as Horner (see Kearney-Cooke in Johnson 1991) have proposed that eating disordered patients' dysfunctional interpersonal relationships are displaced onto food and eating, and the denial of food mirrors the denial of others, whom the patient perceives as dangerous or hostile. The notion of interpersonal factors being relevant remains a

current theoretical and therapeutic theme in AN (see 1.4.3 below).

Bruch's writings on AN (e.g. 1970) could be considered a reinterpretation and extension of psychoanalytic thought, for example the oral component of AN as described above was seen as relevant in her accounts of the disorder. However, her understanding of AN was considerably more inclusive and integrated than previous accounts, and described, as will be discussed below, the relevance of family interactions in AN, and also an awareness of cognitive factors in the disorder.

1.4.2 – Behavioural and Cognitive Behavioural Theories

Behavioural theories explained AN as a learned behaviour which is maintained by reinforcement contingencies. Authors such as Crisp (1980) hypothesised that AN is a 'weight phobia' and anorexics' fear of becoming fat initiates dieting behaviour. Dieting functions as a negative reinforcer in that the anorexic is able to avoid the feared stimulus - weight gain - and thus reduce anxiety. Other forms of reinforcement are also relevant under a behavioural model: positive reinforcement may come from peer and social sources, where the anorexic may be complimented for weight loss or may identify with societal and media ideals of slimness. There are, however, significant inadequacies of simple behavioural accounts of AN such as those described above. One such failing is with regard to how the disorder develops. Behavioural accounts have good explanatory power as to how AN is maintained but are lacking in specificity regarding aetiology. Objections have also been raised as to how behavioural accounts of AN explain maintenance in the long term if the anorexic's weight continues to decline to the point where concern is expressed by

family and friends. This eventuality removes the positive social and peer reinforcement, however it has been argued (e.g. Garner & Bemis 1982) that the attention and concern provided by others is itself a positive reinforcer for the anorexic, thus the anorexic behaviour continues. This notion is central to family and systemic models of eating disorders (see 1.6.2 below). Garner and Bemis (1982) also assert that as the disorder progresses the restricting behaviour becomes 'functionally autonomous'. Although the mechanism for this is not clearly explicated, Fairburn, Shafran and Cooper (1999) suggest that anorexics' range of interests narrow as a result of starvation and the focus on food and eating becomes exclusive of other interests. Additional explanations of AN in terms of reinforcement have been posited e.g. AN as an addictive behaviour (see 1.4.4 below) and the sensation of starvation as being intrinsically rewarding to the anorexic (Crisp 1980) thus maintaining the restricting behaviour.

A major revision of the behavioural approach came with Peter Slade's (1982) functional analysis of the disorder. Slade's use of functional analysis was an attempt to systematically identify the antecedents and consequences of anorexic behaviour in order to understand both the maintenance of the disorder, and also the 'setting conditions' that make individuals vulnerable to AN. Under this conception, anorexic behaviour is secondary to other psychopathology. Slade (1982) suggested that certain characteristics of premorbid anorexics, such as perfectionism, low self-esteem and interpersonal difficulties, predispose these individuals to develop the disorder under certain circumstances. These features act as setting conditions i.e. a temperamental/personological context for the onset of the disorder. Dieting

behaviour begins as a result of psychosocial events which may include interpersonal conflict, family conflict or disruption, or negative life experiences such as failing an exam. These experiences exacerbate the feelings of low self-worth and also exacerbate perfectionistic tendencies to the point where the anorexic seeks to achieve feelings of success and to control one area of her life completely. It is necessary for the anorexic to exclude areas that involve others in order for her control to be complete; therefore she focuses on control over her body. Slade states that many areas of bodily control may be attempted aside from food and eating restriction, such as sleep, bowel function and sex drive. The positive consequences of weight loss in terms of increased self-esteem and feelings of competency/control reinforce the restricting behaviour.

AN may serve a further purpose for the patient in that she may be able to use it to avoid other problematic issues in her life, such as family relationship problems and interpersonal difficulties. This provides negative reinforcement for the disorder. Slade states that the combination of positive and negative reinforcement results in a 'downward spiralling' of weight loss and resistance to the resumption of 'normal' eating.

The cognitive revolution in clinical psychology inspired by Beck (1976; Beck, Rush, Shaw & Emery 1979) allowed a re-conceptualisation of AN where the 'pathological' focus turned to the cognitions held by anorexics. Slade's functional analysis above, leaves many gaps, for example, how peer approbation is translated in to restricting behaviour. The behaviourist 'stimulus – response' model of human behaviour has long since been superseded by, for example, 'stimulus – cognition – response'

models in which cognitions are seen as playing a vital role in influencing behaviour. Bruch (1970), as outlined above, had already described disturbed cognitive phenomena in anorexic patients which included a sense of ineffectiveness, 'delusions' regarding the proportions of the body, and disturbed appraisal of physiological phenomena such as hunger and satiety. Cognitive behavioural models further explicated the role of cognitions in AN.

Cognitive behavioural models of AN (e.g. Bemis Vitousek 2002, Cooper 1997, Garner & Bemis 1982), hypothesise, in line with Slade's description, that the pre-morbid anorexic has specific temperamental characteristics, such as being introverted, lacking self-confidence, having perfectionistic tendencies, and seeking external validation for self-worth, which predispose her to feelings of ineffectiveness, but also to having a high drive to achieve. General beliefs about her own ineffectiveness and introversion, combined with social and cultural influences, lead the pre-morbid anorexic to focus on achieving control over her own weight. Specific cognitions such as "if I gain any weight then I've lost all control" and "I can be perfect if I lose more weight" develop as a consequence of the anorexic's belief that self-worth is contingent on her weight. It is these negative cognitions (cognitive distortions, dysfunctional assumptions, schemata etc.), that influence dieting behaviour. The well-documented phenomenon of body image distortion in AN (see DSM-IV 1994) can also be conceptualised as a cognitive distortion (Beumont, Russell & Touyz 1995). The distorted cognitions in AN are hypothesised to initiate and maintain the disorder, although behavioural factors are also involved such as negative reinforcement through the avoidance of anxiety over weight gain. These

reports clearly emphasise the presence of psychopathology at two levels: *general* i.e. self-beliefs and attitudes such as low self-esteem and sense of ineffectiveness, and *specific* i.e. attitudes to weight, shape and eating.

Evidence to support this notion of general psychopathology comes from Leung, Waller and Thomas (1999) who examined anorexics' cognitions from a schema-focused perspective using Young's Schema Questionnaire (YSQ). These authors suggest that anorexics have significant maladaptive core beliefs as measured by the YSQ, and many of these beliefs are concordant with the characteristics of anorexics so far outlined in this paper. Leung et al found anorexics to score highly on YSQ items such as unrelenting standards, social undesirability, emotional inhibition, social isolation, mistrust of others, and failure to achieve (indicating excessive concern over failure).

Recent cognitive theorising with regard to eating disorders has produced increasingly specific accounts of the cognitive mechanisms involved. Guertin (1999) describes three specific cognitive mechanisms that have been applied to bulimia nervosa but which have relevance to AN – *restraint theory*, *the purge opportunity hypothesis*, and *the forbidden foods hypothesis*. All three are relevant to different degrees to AN, dependent upon whether bingeing/purging is present.

Restraint theory claims that individuals with eating disorders place cognitive limits on the amount of food they allow themselves to eat in order to maintain or reduce weight. In AN the drive for thinness involves the placing of extreme limits on intake with the goal of weight loss. Restraint theory emphasises black and white thinking in

eating disordered individuals, i.e. that food restriction is all-or-nothing, and this leads to any violation of the self-imposed intake limits, no matter how minor, as producing a disinhibited response and excessive amounts of food are consumed as a consequence. The result of this breakdown in restriction is to resume restriction with added resolve. This may involve the setting of more stringent restrictions on food intake, thus increasing the likelihood of further lapses. The setting of such cognitive limits often results in a cycle of restraint – binge – purge behaviour which may become bulimia nervosa or the binge-purge subtype of AN (Guertin 1999).

The purge opportunity hypothesis states that binge-purgers make cognitive evaluations of situations and modulate their eating patterns accordingly. This involves restriction of intake when the ability to purge is absent, while intake will increase when the opportunity to purge is present.

The forbidden foods hypothesis states that eating disordered individuals appraise and label foods according to how 'safe' or 'forbidden' they are. The distinguishing factor in the assessment of 'forbiddenness' is the ability of the food to produce weight gain. Foods with a high calorific value are typically labelled 'forbidden' and attempts are made to avoid these. The hypothesis suggests that binge-purgers will perceive their eating as out of control should they eat any forbidden foods (e.g. as the consequence of severe restriction) and will, as in restraint theory, experience disinhibition and go on to binge.

Evidence is being accumulated to support the existence of specific and general cognitive distortions in eating disorders and their role in aetiology and maintenance (e.g. Cooper 1997, Cooper & Fairburn 1992, Cooper & Turner 2000, Leung et al

1999). Cooper and Fairburn (1992) found evidence of specific negative cognitions regarding food and eating being more frequent among anorexic and bulimic patients than in healthy control subjects, who included non-eating disordered dieters. Cooper and Turner (2000) discuss the differences between non-eating disordered dieters and anorexic patients and suggest that assumptions about eating and negative self-beliefs are more evident in anorexics than in dieters. Cooper and Turner conclude that it appears to be anorexics' assumptions regarding eating and the presence of negative self-beliefs that distinguish them from non-eating disordered dieters. Again, the presence of *general* psychopathology appears crucial in AN.

As yet, the paucity of outcome studies has not permitted adequate testing of therapies derived from cognitive behavioural conceptualisations (nor any other model) of AN, despite the significant interest in cognitive factors in the aetiology and maintenance of the disorder. Cognitive behavioural therapy (CBT) has not, to this date, been shown to be more effective than other forms of individual therapy (Bemis Vitousek 2002). And, although several authors view cognitive factors as important in AN, this does not imply a consensus on the cognitive mechanisms hypothesised to be in operation. For example, different authors have placed different emphases on the relative importance of general versus specific cognitive factors, and consequently how therapies should be designed to address these (e.g. Guidano & Liotti - cit Cooper 1997). Additionally, opinions have been divided among cognitive theorists over whether cognitive distortions regarding weight and shape versus food and eating should be the focus of treatment. Some authors (e.g. Guidano & Liotti 1997) have suggested that neither of these are primary areas for intervention, instead the focus

should be on underlying schema or core beliefs. The need for further research to clarify the relevant attitudes and cognitions is evident.

1.4.3 – Interpersonal Factors

Freud's writings highlighted the role of relationship conflict in AN. Family systems theory and its proponents have described these relationships within the family (see 1.6.2 below) but anorexics' interpersonal difficulties also lead to relationship difficulties outside the family, for example peer relationships. Interpersonal Psychotherapy (IPT), originally devised by Klerman, Weissman, Rounsaville and Chevron (1984), posits that psychological well-being is a function of good quality interpersonal relationships. The more good quality interpersonal relationships one has, the more likely it is that one will have good mental health. Conversely, a paucity of such relationships increases the likelihood of psychological difficulties and distress, with poor social skills predisposing individuals to develop few/poor quality relationships. IPT has been shown to be effective in the treatment of depression (Fairburn 2002; Markowitz et al 1998), its means of effect being to enhance the quantity and/or quality of the patient's interpersonal relationships. Four problem areas or problem types are identified in IPT and three of these appear particularly pertinent to anorexics: *role disputes* (where an individual is in a situation that places them in two conflicting roles); *role transitions* (where a change of role is necessitated such as leaving home, getting married etc. and *interpersonal deficits* (where there is a shortage of good quality relationships).

Given that in AN, poor interpersonal relationships have been a noted feature it would seem, *a priori*, that an IPT approach would be a potentially valid treatment mode. As

yet there has been no completed research on IPT with anorexic patients although research trials are pending (Fairburn 2002).

1.4.4 – Substance Abuse and Addiction Theories

Wilson (1995) writes that patients with AN consistently show higher rates of present and past substance abuse than would be expected among the general population. Holderness, Brooks-Gunn and Warren (1994) suggest that substance abuse is more common in patients with bulimia nervosa or bulimic behaviours (i.e. bingeing and purging) than in restricting anorexics. It has been suggested that there are commonalities between the characteristics of women who have eating disorders and those who are substance abusers, one of the most common of those proposed is impulsivity (Garfinkel, Moldofsky & Garner 1980) which is particularly common in both bulimics and substance abusers.

Holderness et al (1994) describe the *self-medication hypothesis* which asserts that substance abuse is employed by eating disordered individuals in an attempt to cope with their eating difficulties. Alternative explanations have been offered which fit the coping-strategy model above such as substance abuse being used to deal with family conflict (see 1.6.2) (Holderness et al 1994). Although these accounts involve the abuse of substances, their hypothesised causal mechanisms do not suggest addiction as a primary motivator. Instead these are coping-strategy based models where it is hypothesised that substances are used to deal with psychological distress. Addiction *may* occur as a secondary feature or consequence of prolonged substance abuse, but it is not physiological or psychological dependency on the substance that is the primary reason for the substance abuse.

Wilson (1995; 2002) examines the notion of food and eating as addictive behaviours. Although similarities have been drawn between eating disorders and substance dependency, particularly with regard to bulimic behaviours where restriction is viewed as producing cravings, due to physiological withdrawal, which then leads to preoccupation with the substance and loss of control when presented with the substance, there are marked differences between the two. The addiction model of eating disorders focuses on bingeing behaviours, specifically the notion that food is an addictive substance. Wilson (1995) reports that the evidence for this assumption is scant and there is little to suggest that food produces effects similar to alcohol, drugs, or other addictive substances. Another major weakness in viewing eating disorders as addictions, writes Wilson, is the restricted focus on bingeing behaviour. Even as an attempt to explain bulimia nervosa this leaves many aspects of bulimia nervosa unaccounted for or ignored such as the importance of general psychopathology (e.g. poor self-worth), cognitive factors in the restrict-binge-purge cycle, and even the basic physiology of food restriction. AN as a purely addictive phenomenon would appear to be a difficult position to hold.

1.5 – The Medicalisation of Anorexia Nervosa

In the early 20th century, developments in medicine, anatomy, and physiology encouraged the re-conceptualisation of AN as having a physiological base. The German physician Simmonds, in 1914, proposed that the symptoms of AN, as outlined by Gull, were the result of a pituitary gland disorder. Although Simmonds' disease, also known as pituitary cachexia, is now recognised as a specific

neurological disorder, there appears to have been a period following Simmonds' discovery when AN and Simmonds' disease were confused and misdiagnosed (Palmer 1980; Butler 1988). The confusion between AN and Simmonds' disease remained for twenty years with AN being 'forgotten' during this time (Vandereycken 2002), until it was 'rediscovered' by psychiatry following the second world war (see 1.5.1 below).

1.5.1 - Biological Factors in Anorexia Nervosa

The studies focusing on biological aspects of AN have examined a range of potential explanations for the development and maintenance of anorexic behaviours. Genetic factors have been examined (Rastam 1990 – cit Szmukler et al 1995) and suggest the possibility that genetic factors predispose a variety of psychological features of AN such as trait perfectionism, body dissatisfaction (Treasure & Holland 1995) and depression (Wade, Bulik, Neale & Kendler, 2000). Additionally, specific neurochemical disturbances, such as abnormal levels of noradrenalin (Treasure & Holland 1995), have been posited as a feature of AN which may have a genetic origin. The primary difficulty in assessing the viability of these hypotheses is due to the retrospective nature of the enquiry. It is clear that the starvation syndrome seen in AN produces severe physiological disturbance at the neurochemical level (Herzog & Copeland, 1985) and there is a growing body of research to support a genetic link in the development of AN (Wade et al 2000) however, as many of these authors state (e.g. Treasure & Holland 1995), the mechanism(s) by which genetic predispositions lead to the development of AN are poorly understood and are likely to remain so in the immediate future. It is also hypothesised that genetic factors predispose more

general psychological disturbances which then lead to the development of AN. Again the mechanism(s) involved are not understood.

Fichter and Pirke (1995) challenge the notion of a causal pathway from physiology to behaviour by providing evidence that neurochemical changes in AN are the effects of starvation rather than the reverse, and suggest that hypothalamic and neurochemical abnormalities do not provide a predisposition to AN.

Other physiological accounts of the *maintenance* of AN would appear to have some validity such as delayed gastric emptying producing extended feelings of fullness after eating small amounts (Robinson & McHugh 1995). However, what appears to be crucial in the delayed gastric emptying hypothesis is the interaction between psychological and physiological states; therefore a purely physiological account of the disorder is insufficient.

The search for genetic theories, at present, provides the possibility of a means of predicting risk for developing AN, however such theories do not explain the psychological processes which are present in AN, or inform therapeutic practice. Similarly, the search for a purely physiological account of AN has not proven successful to date.

Following World War II psychiatry was heavily influenced by psychoanalytic thinking and the accounts of Freud and Breuer were revisited (Hepworth 1999). Anorexic symptoms were again seen as fears of sexual maturation and oral

impregnation, and AN was again seen as psychogenic. By the 1960s and 70s a wider focus was being adopted in accounts of AN. Social, cultural, and familial factors were being considered relevant to the disorder by a number of authors.

1.6 - Socio-Cultural, Feminist & Family Theories

1.6.1 – Socio-Cultural & Feminist Theories

AN has traditionally been viewed as a disorder of Western societies. Szmukler and Patton (1995) report that eating disorders are rare in non-Western and non-industrialised societies, and those cases that are present tend to be found in the most Westernised sections of these societies. Explanation for this phenomenon has been couched in terms of Western society's media idealisation of slimness in females. Hepworth (1999) describes how Western media representations of the ideal female form have changed over time, with thinness becoming identified with 'feminine' qualities of fragility and gentility among the middle classes during the late 19th and early 20th centuries. Hepworth suggests that the mass media 'explosion' in the 1960's in Western societies precipitated an increase in exposure to the fashion for thinness at this time. The market for dieting, slimming aids and monitoring body shape and size was quick to follow the trend set by slim female cultural icons, and this formed the basis of the culturally sanctioned behaviour which would become pathological for many young women. Thinness would soon be internalised and identified with femininity at a cultural level, but this would be particularly relevant and pernicious for vulnerable females such as those with a poor sense of self-worth.

MacSween (1993) has expounded sociological accounts of AN through analysis of

the writings of authors such as Bruch, Crisp and Roger Slade. She writes that Slade's view of AN as being precipitated by social forces is highly relevant. The notion that women experience social pressure to fulfil the 'ideal' female role, such as being attractive, nurturing, and subordinate to men, conflicts with particular Western social pressures to achieve success academically and vocationally. The conflict results in role confusion for the premorbid anorexic and this compromises her ability to undertake either role. A lack of clarity regarding appropriate role leads to a failure to develop a sense of self. This leads to a sense of ineffectiveness, but the desire to achieve remains. The anorexic may attempt control over a variety of areas over her life but it is food and eating that she is able to control completely without the involvement of others (Fairburn 1993). Control over food and eating provides the anorexic with a sense of achievement. In Slade's analysis it provides her with a sense of 'self'.

There is much in common between Slade's account and others previously outlined, particularly regarding the issues of sense of ineffectiveness and control. MacSween, writing from a feminist-sociological perspective, objects to Slade's suggestion that there is, at some level, a psychopathological element that interacts with social factors in the aetiology of AN. MacSween prefers to couch the disorder purely in terms of 'toxic' social and societal factors.

Socio-cultural factors appear to have relevance (e.g. Fairburn 1993); however such accounts leave significant issues unexplained. For example, despite the assertion from socio-cultural authors that the 'explosion' in mass media/cultural representations of slimness and femininity has been responsible for an increase in the

incidence of AN, the demographic information that exists does not point to any such ‘explosion’ in incidence or prevalence of the disorder (see 1.8.1 below). The influence of social factors does not appear to have a direct causal relationship between exposure to mass media and development of AN, as put forward by authors such as MacSween. Mediating factors, as posited by alternative theories, must modulate the effects of such exposure.

1.6.2 – Family Theories

Interpersonal interactions within families with an anorexic daughter have been viewed as important by several authors. Eisler (1995) notes how both Gull and Lasègue were aware of family interactions as ‘hindrances’ to recovery. Freud, as outlined above (in Strachey et al 1962), also suggested that the family was important in the aetiology of AN, highlighting ‘disgust’ as a feature of the relationships within the family.

Eisler (1995) suggests that there is general consensus among many authors regarding the existence of problematic family relationships which include over-involvement between family members, high expectations of children, and problems with individuation during adolescence. However, he argues that it is difficult to generalise with any certainty from the relationship dynamics within unique, idiosyncratic family environments and thus the status of these problematic relationships as ‘fact’ is questionable.

Family therapists and family systems theorists have attempted to identify the specific factors involved in the development of AN. Authors such as Carr (e.g. 1999), and

Minuchin (e.g. Minuchin et al 1975) view the family as a complex system of relationship dynamics in which the notion of causation is circular rather than linear. Eisler (1995) describes how simple linear models proposing the family as the cause for AN are oversimplified. The family functions as a *context* for the development of AN with the interactions between family members being too complex to allow linear cause and effect to be established. These interactions are hypothesised to reinforce each other and therefore to become circular and self-perpetuating. An example of such interactions might be parents' difficulty in providing their daughter with the experience of being independent. The daughter restricts her eating in an attempt to gain independence and control in her life. The parents become concerned over their daughter's weight loss and perceive this as an indication that they need to provide her with more support. The daughter perceives this as a further denial of her independence and focuses more on her food restriction.

Despite the theorising of family systems orientated authors, the research evidence in support of specific 'anorexogenic' families is inconclusive. Eisler (1995) reports that the search for such a family 'type' is likely to be "futile" but that the family interactions are important in AN. However, Vandereycken (2002) stresses the lack of firm empirical evidence for family models of eating disorders and states that much of the evidence put forward merely highlights a relationship between eating disorders and specific family interaction patterns. Causation cannot be established clearly given the cross-sectional designs of much family orientated research, and this weakens the conclusions that can be drawn from such research.

1.7 – Multifactorial Theories

The arguments presented above highlight several strengths and weaknesses of the theories and models outlined. In summary, there is evidence to support genetic factors in the aetiology of AN, although these factors are far from being elucidated at this point in time. Physiological factors, such as gastric emptying, are recognised as being relevant in the maintenance of the disorder. Additionally, the physical effects of starvation have been well established as affecting individuals at the cognitive and emotional level (e.g. Beumont 2002, Fichter & Pirke 1995). Psychological theories have provided valuable accounts of how anorexic behaviour is maintained, but these theories often have difficulty in accounting for the origin of the disorder. Socially orientated models such as socio-cultural, feminist, and family models make strong assertions regarding how AN develops but these claims do not always stand up to epidemiological data, as in the case of feminist socio-cultural theories, and may ignore or minimise established features in AN such as neurochemical and endocrinological changes, and the presence of general psychopathology.

It seems clear that none of the theories outlined is sufficient to provide an inclusive account of AN which explains all of the features of the disorder. Several authors (e.g. Russell 1995, Campbell 1995) have recognised the need for approaches to the understanding of AN that are fully integrative of the supported theories and models above. It is at this stage that research into AN currently stands.

1.8 – Epidemiological, Conceptual and Aetiological Issues

1.8.1 – Incidence and Prevalence

Reports of prevalence rates in eating disorders have often produced marked discrepancies, with prevalence rates for AN proving to be particularly difficult to estimate (Szmukler & Patton 1995). Rastam, Gillberg and Garton (cit Szmukler et al 1995) estimated prevalence rates for AN in Gothenburg, Sweden as being 0.7% in girls up to age 16.

Incidence rate estimates have shown even wider variation. Szmukler and Patton (1995) describe various estimates from 4 to 5 per 100,000 per year in the early 1980's to 14.2 per 100,000 during the same period.

Many authors have queried whether AN is becoming more common (e.g. Eagles, Easton, Nicoll, Johnston & Millar 1999, Russell 1995), however there are often major methodological difficulties in gathering this type of data. Szmukler and Patton (1995) suggest that the methodological shortcomings of many of the studies to date make it difficult to draw any conclusions regarding any increase in incidence. These authors do suggest, however, that an increase in incidence appears likely for women in their late teens over the past thirty years.

1.8.2 – Conceptual Issues in Diagnosing Anorexia Nervosa

Diagnostic models have been criticised in general (e.g. see MacSween 1993, and 2.1.1.2 & 2.1.1.5 below for a fuller discussion). Briefly, with specific regard to AN, ICD-10 and DSM-IV criteria have been questioned: for example, Butler (1988)

writes that fear of weight gain is common in many young women and that weight loss to 15% below expected weight may include many women without AN. Butler also states that amenorrhoea for 2 to 3 missed menstrual periods is also common for women under stress.

Russell (1995) presents a position he terms *pathoplasticity* in which he states that the symptomatology of AN (and bulimia nervosa) is influenced by socio-cultural factors and therefore is likely to change as socio-cultural factors change. Diagnostic criteria, writes Russell, may have a “false precision” and he proposes a need for a broader formulation of the psychopathology of the disorder. This position is consistent with the notion of specific and general psychopathology as outlined above in 1.4.2: the specific psychopathology is pathoplastic and reflects the cultural *zeitgeist*. As such, the general psychopathology will be expressed in different forms reflecting cultural changes. Such an interpretation reinforces the position put forward by Guidano and Liotti (1997) that treatment should focus on underlying general psychopathology.

1.8.3 – Aetiology: Anorexia Nervosa and Social Class

AN has been viewed as a disorder affecting the higher socioeconomic groups (Pope, Champoux & Hudson, 1987). Its prevalence among specific groups such as ballet dancers (Weeda-Mannak & Drop 1986) and students at private schools (Pope et al 1987) has been seen as providing evidence to support such views. More recent studies on this topic have produced differing results. Pope et al found AN to be more common in lower socioeconomic status women in a community based study while McClelland and Crisp (2000) found an over-representation of social groups 1 and 2 in a retrospective study of a clinical database of 33 years of AN referrals. Gard and

Freeman (1996) provide a review of articles written on AN, between the early 1970's and the early 1990's, which included details of socioeconomic class. These authors point to methodological problems, such as sampling bias, the use of different diagnostic methods to classify diagnoses, and differences in the methods used to classify socioeconomic groups, in studies that have reported AN as more prevalent in the higher socioeconomic groups.

It appears that the controversy in AN extends from the conceptual level to the demographic level also.

Chapter 2 – Sense of Coherence

2.1 – Theoretical Background to the Salutogenic Model

2.1.1 – The Medical Model of Disease & Mental Disorders

The medical model of disease holds that disease is attributable to abnormality or disruption of physiological processes (Davison & Neale 1994). An example of such would be diabetes as caused by pancreas dysfunction, which results in disrupted insulin levels being produced, and this produces the symptoms of diabetes.

The medical model of mental disorders adopts a similar stance and aims to establish causal links between physiological/somatic abnormality and the development of symptoms or groups of symptoms (syndromes) which define or identify classifications of mental illness. An example of this would be the dopamine activity theory of schizophrenia where symptoms of the disorder result directly from excess activity in dopamine nerve tracts (Davison & Neale 1994).

2.1.1.1 – Diagnosis and the Medical Model

The concept of diagnosis is central to the medical model. DSM-IV (American Psychiatric Association 1994) and ICD-10 (World Health Organisation 1993) provide details of symptoms, their presence and duration, which are necessary for the diagnosis of a disease to be made. These manuals are prescriptive in nature: the specified requirements must be fulfilled for any diagnosis to be made.

2.1.1.2 – Criticisms of the Diagnostic Approach

The diagnostic approach when applied to psychological/psychiatric disorders has several shortcomings. Some of these criticisms are as follows:

The diagnostic criteria for several psychological disorders appear largely arbitrary. Although many clinical features are undoubtedly relevant and often characterise and define disorders, the requirements for a set number of features, and the time frames for many of these symptoms, have been ‘constructed’ by professionals with the sole aim of aiding diagnosis. In the DSM-IV diagnosis of major depressive episode, for example, the stipulation that five of nine symptoms should be present during the same two week period is arbitrary. Why not six symptoms in any three week period, for example? These stipulations do not inhere in the disorder and the *experience* of depression makes no reference to them.

Additionally, the diagnostic approach focuses exclusively on symptomatology and this is often difficult for non-medical health professionals to understand and adapt to. There are clinical cases, such as survivors of childhood sexual abuse, where there may be a range of varied and ‘pan-diagnostic’ symptomatology that does not fulfil criteria for any single diagnosis, but which produces marked psychological distress and negative effects on functioning.

Also, the diagnostic approach dictates that a dichotomous state of healthy vs. diseased is omnipresent for all individuals based on whether an individual satisfies diagnostic criteria for any given disorder: if diagnostic criteria for a disorder are met then the individual has that disorder. If not met, then the individual is not suffering from the disorder, and according to the dichotomy, must therefore be seen as healthy.

The example of sexual abuse survivors, above, highlights serious deficiencies in diagnostic approaches whereby an individual with potentially marked compromised functioning and psychological distress would be regarded as healthy if not fulfilling specific diagnostic criteria.

2.1.1.3 – Conceptual Problems with the Medical Model

Two major difficulties are apparent with the medical model as described above: the focus on diagnosis as an indicator of disease, and the notion of direct causation from physiological abnormality.

2.1.1.4 – Conceptual Problems with Diagnosis

A major flaw regarding diagnosis in the medical model, which follows from the account outlined above, is the assumption that individuals are either healthy or diseased, or normal or abnormal, based on whether diagnostic criteria are fulfilled. The scenarios outlined above indicate the shortcomings of this dichotomy. Although there have been attempts to modify diagnostic criteria to account for such situations, examples being the use of ‘atypical’ diagnoses in eating disorders and the introduction of disorders ‘not otherwise specified’, the flaw in diagnosis lies at the *conceptual* rather than the practical level, i.e. by attempting to dichotomise human functioning into healthy vs. diseased, when perhaps a *continuum* approach appears most appropriate, where functioning may range from more to less adaptive.

A further example of a conceptual flaw in the diagnostic model is provided by Davison and Neale (1994) who write

Certain behaviours or symptoms are categorised as mental illnesses and given names, but then the name of the illness is often cited as an explanation or cause of these same symptoms. For example, a patient who is withdrawn and hallucinating is diagnosed as schizophrenic; however, when we ask why the patient is withdrawn and hallucinating we are often told that it is because the patient is schizophrenic. (Davison & Neale 1994 pp 30)

This indicates an obvious circularity of reasoning.

Bell (2002), discussing the diagnosis of Borderline Personality Disorder (BPD), makes a criticism of the diagnostic model in stating that DSM-IV requirements for this disorder specify the presence of five from nine symptoms. It is possible for two individuals to be diagnosed with this disorder even though they share only one common diagnostic feature, and, hence, may have markedly different presenting problems. Although a specific example, this illustrates the conceptual weaknesses of the diagnostic approach.

2.1.1.5 – Conceptual Problems with Causation

The medical model has assumed direct causal links between physiological abnormality and disease – if such abnormality is present then it is inevitable that this will result in the presence of the disease and also produce a deleterious effect on the functioning of the individual. An example of this would be a neurological disorder such as Parkinson's disease. A difficulty arises when this model is applied to psychological disorders. Although there is evidence to suggest that a variety of psychological disorders are, at least partly attributable to physiological factors, for example genetics (see also 1.5.1 above) and neurotransmitter function in depression

(Hammen 1997), purely physiological/biological accounts of psychological disorders have limited explanatory power (see 1.5.1 above, Davison & Neale 1994; Treasure & Holland 1995). Even in the case of a 'psychiatric illness' such as schizophrenia, the notion that physiological factors, such as genetics and dopamine activity, provide a sufficient condition for the development of the disorder is tenuous. Authors such as Tattan and TARRIER (2000) have highlighted the role of non-physiological factors in the development of schizophrenia, such as psycho-social factors in the form of expressed emotion (see also the arguments presented in 1.5.1, 1.6.1, and 1.6.2 above). Such accounts stress the importance of the interaction between individual and environment and suggest that psychiatric illness can be more accurately conceptualised according to a diathesis-stress model. Such models acknowledge the presence of underlying vulnerabilities, which may be biologically and/or experientially based. Often a biological vulnerability to the development of a disorder is postulated, such as a family history/genetic link for the disorder, which allows a specific 'trigger' event to lead to the development of the disorder. Trigger events have often been viewed as environmental changes or adverse circumstances; however, the importance of the individual's understanding and interpretation of these events has received more attention since the rise of CBT (Brewin 1988). The eponymous quote from Epictetus, which prefaces many CBT text books, states that "men are disturbed not by things, but by the views they take of them". It is therefore important to acknowledge that events do not, in themselves, lead to the development of a disorder such as schizophrenia: the mediating cognitive processes provide the 'trigger'.

2.2 – An Alternative Paradigm to the Medical Model: Salutogenesis

In *Health, Stress and Coping* (1979) and *Unraveling the Mystery of Health* (1987) Antonovsky examines the traditional medical model and medical research focus on disease, or pathogenesis, and challenges both of the assumptions of the medical model above. Criticising the medical model firstly in terms of causation, Antonovsky cites what he terms the “deviant case” scenario in which exposure to ‘risk factors’, i.e. events or situations that are purported to act as or produce ‘triggers’ for disease, leads, in many cases, to only a minority of individuals developing disease. He describes examples such as smoking and lung cancer, and Type A personality and heart disease to illustrate how causation can be neither demonstrated nor assumed between the two.

Additionally, the medical/pathogenic model according to Antonovsky, perceives all stressors as being deleterious to health. Antonovsky views the consequences of stressors on an organism as unpredictable and not as being consistently deleterious to the organism, with the exception of those stressors that directly destroy it. Antonovsky (1979) notes how the effects of adverse circumstances are often variable and subjective and highlights how different individuals respond to situations that would commonly be regarded as stressful and traumatic, in different ways.

With regard to the issue of diagnosis, the pathological model, states Antonovsky, “seeks to explain why people get sick, why they enter a given disease category” (1987). That is to say, the pathological model is concerned with assigning individuals to categories of illness and disease. Antonovsky objects to this:

pathogenesis pressures one to adopt a dichotomous classification of health and disease...salutogenesis, on the other hand, opens the way for a continuum

conceptualisation of what I have called health ease - dis-ease (Antonovsky 1987 pp 12).

This alternative view to the pathogenic model is encapsulated in the title of chapter one of Health, Stress and Coping - "Studying Health Instead of Disease". The essence of salutogenesis is the change of the dependent variable in medicine from disease in the medical/pathogenic model to health in the salutogenic model. Antonovsky's re-conceptualisation shifts the focus from health - disease as a dichotomous, either-or state to a continuum from more to less healthy. The details and implications of this view will be examined below.

2.2.1 – Origins of the Salutogenic Approach

2.2.1.1 – The Salutogenic Question

In Chapter one of Health Stress and Coping (1979) Antonovsky cites data on the prevalence of a variety of chronic and acute diseases in two areas of the United States. His conclusion from reviewing these data is that a greater proportion of the population is experiencing illness (i.e. warranting a diagnostic label, be it depression, influenza, cancer or the common cold) than would be expected *prima facie*. Antonovsky estimates that at least one third, and possibly a majority of any modern society's population will have a "morbid, pathological condition" (1979) i.e. a condition that would fit a clinical diagnosis under a pathogenic model. Despite this, and the abundance of a variety of pathogens in biological, physical, and psychosocial forms, people are able to stay alive and therefore must be to some extent healthy. The question of interest for Antonovsky is not why people develop diseases, but is rather how they remain healthy in the face of these risk factors. This is the Salutogenic

Question.

2.2.2 – Salutogenesis and Sense of Coherence

2.2.2.1 – The Concept and Mechanisms of Salutogenesis

Antonovsky states that the salutogenic approach is not merely “a semantic quibble” (Antonovsky 1984) i.e. the logical ‘flip-side’ of pathogenesis where avoidance of stressors or risk factors is the answer to the salutogenic question. Rather, as the avoidance of stressors is, for Antonovsky, an impossibility, the salutogenic approach highlights specific factors in successful coping with stressors. Antonovsky (1979; 1987) puts forward a complex interactional model involving the following mechanisms:

2.2.2.1.1 - Stressors

A stressor for Antonovsky is a demand made on an individual which may be internal or external to the individual, but which causes the homeostasis or functioning equilibrium of the individual to be challenged. Antonovsky eschews a direct causal relationship between stressor and compromised functioning by stating that the individual’s appraisal of the event is the determining factor in whether it is perceived, and responded to, as a stressor. However, he also writes (1979) that there is widespread cross-cultural agreement among human beings as to what would be perceived as a stressor, and that even if there are inconsistencies in how individuals perceive events, it is still the case that, due to their ubiquity, the vast majority of human beings will be, at any time, in the midst of confronting stressors. Stressors, by Antonovsky’s account, are ubiquitous and objective. But his account of this lacks

clarity as there is no mechanism or rationale put forward as to possible reasons for potential objectivity, such as biological preparedness, for example.

Antonovsky later redefined a stressor as

a characteristic that introduces entropy into a system – that is, a life experience characterised by inconsistency, under- or overload, and exclusion from participation in decision making (Antonovsky 1987 pp 27)

Stressors, therefore, are omnipresent and provide a potential challenge, or necessitate change, to an individual's current coping.

2.2.2.1.2 – Tension and Stress

Antonovsky (1987; 1979; 1984) also challenges the notion of a direct link between the presence of a stressor and a state of stress for the individual. Stressors "...by and large, are assumed to be bad" (1979). He puts forward three points to elucidate the inaccuracy of the stressor – stress link. Firstly, he suggests that his definition of stressor as

A demand made by the internal or external environment of an organism that upsets its homeostasis, restoration of which depends on a nonautomatic and not readily available energy-expending action (Antonovsky 1979 pp 72),

carries no implied judgement of a stressor as being positive, negative or neutral. Secondly, individuals' responses to a stressor result in a state of *tension* rather than stress, and which carries no implication of positive, negative or neutral emotional consequence. Thirdly, an individual's reaction to a state of tension can be positive,

negative or neutral. While stress is “a contributing factor in pathogenesis” (1979), tension has three potential effects: negative, neutral, or salutary.

Antonovsky’s choice of terminology, although no doubt constrained by the language conventions of the topic, is unfortunate in that he uses terms such as ‘tension’ and ‘stressor’, which, due to their negative connotations in everyday language, make it difficult to view them as neutral or salutary. However, again he emphasises the phenomenological aspects of perceived stress rather than a simplistic linear causality from event to disorder.

2.2.2.1.3 – Potentiation and Tension Management

Potentiation is described (Antonovsky 1979) as a possible consequence of tension which involves the summoning up or searching out and operationalisation of resources to facilitate enhanced coping in reaction to tension. This is, of course, a factor in the outcome of stress in that if resources are available and employed then the outcome for an individual is more likely to be neutral or salutary as the tension can be managed effectively and the experience of mustering resources can be perceived as a motivating factor. This account fits with cognitive behavioural theory in that such experiences would lead to positive expectations of dealing with future stressors, and an increased likelihood of engaging in attempts to deal with future stressors. If, alternatively, resources are unavailable, or unable to be employed, or an individual does not instigate potentiation then the outcome is more likely to be negative. The literature on learned helplessness (e.g. Seligman & Maier 1967) provides an example of the negative psychological consequences of the perceived

inability to deal with tension, which itself engenders negative future stress management strategies.

Potentialisation, therefore, is a strategy that individuals can employ to manage tension. But how is this strategy governed? What mechanisms are present to allow individuals to employ such strategies? Antonovsky puts forward the notion of *resistance resources* (e.g. 1979) of which potentialisation is one. Resistance resources permit effective tension management i.e. neutral or salutary reactions to stressors. But this argument leads to infinite regress – what permits or enhances the development of resistance resources?

Aware of this, Antonovsky posited the notion of *Generalised Resistance Resources* (GRRs) (1979; 1987) which he defined (1979) as “any characteristic of the person, the group, or the environment that can facilitate effective tension management”. His aim in espousing GRRs was to outline a concept which was not specific to individual coping styles and specific circumstances but, instead, could account for all stressors and the heterogeneity of individual reactions to these. Antonovsky (1987) provides a list of GRRs which includes wealth, ego-strength (although this is not defined), cultural stability, and social support. These GRRs allow the development of specific resistance resources, an example being wealth enhancing quality of education which then enhances ability to obtain a well-paid and rewarding job, which in turn increases social standing and social opportunities, which then leads to the development of a wide social network, which in turn enhances the availability of social support. The availability of such support will aid *potentialisation* – a specific resistance resource.

Interestingly, intelligence or intellectual functioning is not mentioned by Antonovsky as a GRR, although knowledge is. But knowledge and intelligence are clearly not the

same thing. It is possible that he views intelligence as a specific resistance resource, although this is not stated. Grigorenko and Sternberg (2001) report a link between increased intelligence and increased adaptive functioning and better mental health. These authors also summarise the findings of existing research literature linking increased intelligence with better adaptive functioning, and this would certainly imply that intelligence is a salutogenic factor. Although it is an open question whether intelligence is a specific or generalised resistance resource, and although Antonovsky may argue that intelligence is itself a product of GRRs such as wealth, the GRRs Antonovsky lists are themselves interactional: it is difficult to deny that ego-strength is likely to be a function of the quality of parental and social support (for example the literature on Early Maladaptive Schemas and the development of psychological disorders (Young 1999)), and perhaps also wealth and cultural factors. It is difficult to understand Antonovsky's reasoning for classifying ego-strength as a GRR when it appears to be a product of other GRRs, and therefore may be better conceptualised as a specific resistance resource. Although Antonovsky reconceptualised GRRs (1987) as continua from Generalised Resistance Resources to Resistance Deficits (GRR-RDs), the issue of how some of these GRR-RDs appear 'primary' in that they are not the product of other GRR-RDs, while ego-strength is 'secondary' was not resolved.

2.2.2.1.4 – Salutogenesis and Sense of Coherence

Antonovsky (1987) states that GRRs permit individuals to make sense out of the plethora of stressors that are constantly presented to them in their daily lives. By having repeated experiences of making sense of these stressors, this allows

individuals to develop a strong SOC.

2.3 – Sense Of Coherence

2.3.1 - Definitions

Antonovsky (1979) originally defined SOC as

A global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that one's internal and external environments are predictable and that there is a high probability that things will work out as well as can reasonably be expected" (Antonovsky 1979 pp 123)

Antonovsky takes the SOC to be the core of his salutogenic approach in that it allows individuals to make sense of their environment, and the stressors which inhere in that environment. His definition of SOC was developed by 1987 to the following:

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 and external environments in the course of living are structured, predictable, and explicable; (2) the resources are available to one to meet the demands posed by these stimuli; and (3) these demands are challenges worthy of investment and engagement" (Antonovsky 1987 pp 19)

Therefore, having such a disposition provides individuals with the ability to construe stressors as changes in their environment which are (i) explicable (ii) able to be dealt with and overcome effectively and (iii) worthy of attention. SOC can be viewed as a 'buffer' between stressors and their effects, but this suggestion implies that stressors are negative, which Antonovsky states he disagrees with (although there remains the confusion over the objectivity/subjectivity of stressors – see 2.2.2.1.1 above), again

emphasising that the appraisal of the stressor is the crucial factor determining its effects.

2.3.2 – The Origin of the SOC Concept

Antonovsky undertook unstructured interviews with 51 individuals who had experienced major trauma, in a variety of forms including previous concentration camp internment, but were reported to be coping well (Antonovsky 1987). Protocol analysis was used to extract themes from participants' comments regarding their views of their lives and their experiences.

2.3.3 – SOC Components

The analysis of the 51 interviews led Antonovsky to posit three components of the SOC which he termed Comprehensibility, Manageability and Meaningfulness.

2.3.3.1 – Comprehensibility

Allows an individual to perceive or to expect to perceive stimuli as predictable or explicable even if these stimuli are unexpected or undesirable. This involves the individual perceiving the stimuli as 'making sense' and fitting in with their world view. In terms of cognitive psychology, this either permits the individual to accommodate stimuli within existing schemas, or to adopt flexibility in schema content in order to allow the resolution of cognitive dissonance.

2.3.3.2 – Manageability

Reflects the degree to which an individual anticipates the ability to mobilise resources in order to deal with the demands that stimuli present. The resources to be drawn on can come from a variety of sources such as resources internal to the individual, from significant others such as family and friends, or from the wider social network such as medical practitioners or politicians. High, or strong, Manageability allows the individual to not only avoid being overwhelmed by these stimuli, but also to display effective means of dealing with them.

2.3.3.3 – Meaningfulness

The extent to which an individual is able to become involved in areas of life that are important to them and to see these areas as endeavours that are worthy of emotional, cognitive and physical investment. Meaningfulness has been viewed as the motivational element in SOC (Antonovsky 1987) and also encompasses the ability to see change as opportunity rather than threat.

2.3.4 – The Relationships between the SOC Components

The relationship between GRRs and SOC as outlined above would imply that all three SOC components would correlate highly: if GRRs enhance SOC then all three SOC components, if they are integral to the development of SOC, should be enhanced to a similar degree. Although Antonovsky found empirical evidence that correlations between the three components were “very high” (1987), he describes hypothetical scenarios where imbalance among the components could occur. The relative importance of each component is highlighted with Meaningfulness being

most crucial for successful coping, then Comprehensibility, and finally Manageability. Although each component is seen as having a relative importance, each is a component of the SOC and it is the SOC which determines coping ability, therefore each component is a necessary condition, but none is a sufficient condition for successful coping.

2.4 – SOC Components and Anorexia Nervosa

Each of the SOC components can be related to AN and predictions can be made regarding how each of the components is affected by the disorder.

2.4.1 – Anorexia Nervosa and Comprehensibility

Comprehensibility, i.e. the ability to see the world as predictable and understandable, would appear to be something particularly difficult for the anorexic. This is likely to be the case for the following reasons: interpersonal and intra-familial conflicts are often cited as aetiological factors in AN. If such conflict is present in the anorexic's family then it seems likely that this will have impacted on her ability to view her relationships with others as secure, stable or predictable. Attachment theory (see Gross 1987) posits that social and emotional functioning is compromised by impaired parent – infant interactions early in childhood as this relationship is essentially the 'prototype' for all future relationships: should this relationship be unstable then future relationships will also be unstable. A cognitive explanation of disrupted attachment has much in common with Comprehensibility i.e. the result being that the individual fails to develop the expectation of consistency in interpersonal interactions.

Additionally, Cochrane, Brewerton, Wilson, and Hodges (1993) report on comorbidity of alexithymia in AN i.e. the presence of a specific difficulty in the recognition, understanding and expression of emotions. The interpersonal realm appears difficult to understand for the anorexic, but the presence of alexithymia also suggests that the internal emotional world is confusing also.

Given these issues, it could be hypothesised that anorexics would score lower on the Comprehensibility subscale of the SOC questionnaire.

2.4.2 – Anorexia Nervosa and Manageability

Manageability, as the ability to mobilise coping resources, is less clear cut in its relation to AN than Comprehensibility. Anorexics' ability to achieve scholastically and vocationally (see 1.4.2 above) would suggest that their *internal* coping resources are considerable. However, as described in more detail in 2.6 below, this view may confound a *coping strategy* with genuine coping, which would involve a range of adaptive and goal-directed behaviours. Additionally, the anorexic's interpersonal difficulties will make it difficult for her to identify and mobilise *external* coping resources in the form of trusted others.

Anorexics' performance on Manageability may be similar or slightly higher than Comprehensibility given their difficulties with external coping resources and uncertainty over their internal coping resources.

2.4.3 – Anorexia Nervosa and Meaningfulness

Meaningfulness combines elements of motivation and endeavour: essentially the ability to engage in goal-directed, productive behaviour. The accounts of anorexics

outlined earlier in this paper would suggest that this is likely to be a particular strength for anorexics, given their tendency toward high academic and vocational achievement. The presence of attitudes consistent with high achievement orientation would suggest that anorexics should score highly on the Meaningfulness component of the SOC questionnaire.

2.5 – Similar Concepts to SOC

A detailed comparison of SOC to theories such as Kobasa's Hardiness (1979) and Rotter's Locus of Control (e.g. 1975, 1990) is beyond the scope of this paper; however there are undoubted similarities between aspects of SOC and these theories, which will be described briefly.

2.5.1 – Locus of Control

Rotter's concept of internal-external locus of control is based in learning theory. It posits that individuals internalise general ways of perceiving the world through learning experiences and this leads them to develop expectations of how their interactions will affect their environments. Rotter (1975) suggests that these expectations determine internal vs. external locus of control personality styles. Those individuals who expect events to be determined by their behaviour have an internal locus of control (i.e. that events are controlled by something internal – their own actions), and those individuals who have an external locus of control and expect events to be outwith the control of their behaviour. The two positions, in effect, reflect self-determinism vs. fatalism. There are clear similarities between Rotter's concept and Antonovsky's concept of Manageability.

2.5.2 - Hardiness

Kobasa's concept of hardiness (also known as the hardy personality) (1979) is a tripartite construct. Kobasa describes the three components of hardiness as *commitment*, *control*, and *challenge*. Commitment refers to personal involvement in activities, and a belief that these activities are worthwhile and worthy of effort. This concept has much in common with Meaningfulness as described above. Control is similar to Rotter's internal locus of control, i.e. that one's actions are effective in bringing about change in one's environment. Rotter's construct, as suggested above, has similarities with Manageability in that one views one's actions as effective in dealing with the demands posed by the environment. Challenge reflects the ability of an individual to perceive stressors as challenges to be faced rather than threats to be avoided. Antonovsky (1987) likens this to Comprehensibility where challenges are perceived as understandable rather than perplexing and overwhelming.

Antonovsky (1987) raises an objection to hardiness in that the concept of Challenge over-emphasises change, which, he states, suggests 'chaos' rather than stability and predictability, which is the cornerstone of his own concept of Comprehensibility.

A further distinction between SOC and hardiness is that Control presents a dichotomous position where the locus of control is either internal to the individual or external. The assumption, according to Antonovsky (1987), is that if control involves others (i.e. is not internal) then this represents external locus of control, and this is deleterious to successful coping. Antonovsky states that his concept of Manageability avoids this inaccurate dichotomy by recognising that *trusted* external agents such as parents, friends, health professionals etc. can be used as coping resources.

2.6 – Why Might a Salutogenic Model be Relevant to Anorexia Nervosa?

There are clear similarities between psychological approaches to mental health, particularly cognitive behavioural approaches, and the account provided by Antonovsky: psychological approaches to mental health also challenge the medical and diagnostic models. The awareness of psycho-social factors in mental health problems such as depression (e.g. Brown, Harris & Eales 1996), has highlighted the multifactorial nature of mental health problems, and, consequently, the need for multifactorial treatments. The notion that mental ‘illness’ is something that inheres in an individual is a position that is becoming increasingly less tenable. Both SOC and psychological approaches highlight the presence and function of mediating factors in the development (and prevention) of mental health problems. These mediating factors are largely cognitive in both CBT and SOC, and take the form of beliefs, attitudes, self-statements, and assumptions, as evidenced by the SOC Questionnaire items. Siegrist (1993) also notes the cognitive focus of the SOC questionnaire.

However, SOC and psychological approaches differ in one significant respect with regard to AN. Antonovsky (1987) explicitly postulates education/vocational achievement as indicative of a strong SOC. The psychological theories outlined above suggest that anorexic behaviour, including the high achievement orientation and behaviour, is a coping strategy to deal with underlying general psychopathology. Troop, Holbrey and Treasure (1998) report that women with eating disorders are more likely to use maladaptive rather than adaptive coping strategies. Slade (1982) notes how control and achievement are employed by anorexics to deal with negative

affect. Fairburn (1993) states how anorexics use external criteria, in the form of achievement, to prove self-worth. These behaviours, therefore, although being ostensibly productive, goal-orientated, and adaptive, are actually indicative of underlying psychopathology. Both SOC and the above psychological approaches, therefore, make distinctly different predictions regarding the psychological well-being of anorexics based on their behaviours.

2.7 – Aims of the Current Project and Hypotheses

With these issues in mind, the current project had the following aims:

- To examine the relationship between SOC and depression using a group of waiting list patients with depression.
- To examine the relationship between SOC and AN using a group of anorexic patients.
- To explore the relationship between the three SOC components for each of the two clinical groups.

Based on the premise that the SOC questionnaire would measure achievement orientated and perfectionistic attitudes in AN, the following hypotheses were to be tested:

- *Hypothesis 1* Anorexics will score close or equal to controls on Meaningfulness but lower on Manageability and Comprehensibility, reflecting their high achievement orientation.
- *Hypothesis 2* Anorexics should score higher on Meaningfulness than the depressed group.

- Hypothesis 3 Anorexics should score higher on SOC Meaningfulness than Manageability and Comprehensibility.

Chapter 3 – Method

3.1 – Participants

3.1.1 – Ethical Approval

Ethical approval for this project was granted by Grampian Research Ethics Committee in April 2002 (see Appendix 1). Some changes to the original proposal were recommended by the committee, the most important being that the request for anorexic participants' involvement should come from the consultant psychiatrist in the Eating Disorder Service for reasons of confidentiality. These amendments were made accordingly and the project was granted full approval later that month. A methodological change was required due to limited availability of anorexic participants (see 3.1.2 – Recruitment below) and ethical approval for this was sought. Approval for this methodological change was granted in June 2002 giving the project full approval (see Appendix 2).

3.1.2 – Recruitment

Participants in the project came from sources within and outwith the NHS. The Anorexic participants were recruited from the Eating Disorders Service (EDS) at Royal Cornhill Hospital. The depressed participants were recruited from the waiting list of the Clinical and Counselling Psychology Service (CCPS) at Royal Cornhill Hospital. Both of these services are part of NHS Grampian. The control group participants consisted of undergraduate students recruited from the psychology department at Aberdeen University. Ethical approval for the control group was sought from Aberdeen University's psychology department and was granted in February 2002 (Appendix 3). Following a request from Grampian Research Ethics



Committee, copies of the letter of invitation, the project information sheet, and the consent form to be used with the control group were submitted for approval.

The protocol for recruiting anorexic participants was discussed with the consultant psychiatrist in the EDS. The method used involved a letter of invitation, a project information sheet, the project questionnaires, and a consent form being sent to individuals on the EDS waiting list whom had been identified by a member of the EDS as having either an existing or a probable diagnosis of AN. As the author was not working in the EDS team at the time the project was undertaken, confidentiality issues dictated that referrals would have to be screened by appropriate EDS team members (an assistant psychologist and a clinical psychologist). The information sheet provided prospective participants with project details and also an email address in case any prospective participants wanted to ask further questions about the project. Participants were asked to return completed questionnaires within two weeks of receiving them. 14 potentially suitable participants were initially identified; however, due to service related issues only 6 of the 14 were sent questionnaire packs. Of the 6 questionnaire packs sent out, 4 (66.7%) were returned. To protect patients' confidentiality, the questionnaire packs were sent out by the assistant psychologist working in the EDS team. Completed questionnaires were returned to the assistant psychologist who was instructed to remove the completed consent forms before passing the completed questionnaires to the author. This prevented any identifiable information from being passed on to the author.

Due to the sharp decrease in the number of potentially suitable participants on the

EDS waiting list shortly before recruitment began, it was necessary to approach the EDS consultant psychiatrist to ascertain whether in-treatment anorexics could be approached regarding participation in the project. It was agreed that this would be appropriate and ethical approval was sought for the change in methodology. This was granted in June 2002 (see Appendix 1). However, the author was informed that another research project using in-treatment anorexics was being run in the service and that recruitment for the current study would have to be limited to anorexics who had presented to the service within the last two years. This was unfortunate as it limited the pool of potential participants for the project. However, due to the already limited number of anorexic participants, it was agreed that in-treatment anorexics whom had been referred within the last two years would have to be used to increase the anorexic sample size. The author met the EDS team members at a team meeting to brief them on the protocol for including in-treatment anorexics. EDS team members were asked to identify potential participants from their caseloads and to ask these individuals if they would be interested in taking part. EDS team members were provided with questionnaire packs which included an information sheet on the project. Individuals who agreed to take part were given a pack and asked to return the completed questionnaires in the return envelope provided. The completed questionnaires were received by an assistant psychologist and anonymised where necessary in accordance with confidentiality requirements. Of the 9 in-treatment anorexics who were provided with questionnaire packs, 9 (100%) returned completed questionnaires.

A similar method to the anorexic waiting list group, as described above, was used to

recruit depressed patients. The head of the Clinical and Counselling Psychology Service was approached regarding the proposed protocol and this was agreed as suitable. The CCPS is split into three geographical catchment areas known as 'sectors', each of which has a responsible consultant clinical psychologist. An introductory letter describing the project and inviting participation, an information sheet, the project questionnaires, and a consent form comprised the packs sent to prospective participants. Patients were recruited from all three sectors and the introductory letter that was sent out was signed by the responsible consultant clinical psychologist. As in the anorexic group, depressed participants were provided with an email address with which to be able to ask any specific questions regarding the project. The information sheet indicated that questionnaires should be returned within 14 days of receipt. As the author was currently working in the CCPS, there were no confidentiality issues preventing the author inspecting the waiting list for suitable prospective participants. Aside from this, the recruitment protocols for the depressed and waiting list anorexic groups were the same. Although the response rate to the initial batch of questionnaire packs was reasonably good (19 returned from 51 sent out), the process was repeated three weeks later to try to maximise numbers. A further 12 potential participants were identified. Of the 12 second phase questionnaire packs sent out 5 were returned. This resulted in a total of 24 completed questionnaires for the depressed group.

A different method was used to recruit control group subjects. Contact was initially made with the head of the psychology department at Aberdeen University to ascertain whether it would be possible to utilise psychology undergraduates in the

project as controls. Further contact was made with the chair of the psychology department ethics committee who asked for an application to be made for ethical approval. Following approval, contact was then made with a number of lecturers in the psychology department to ask whether it would be possible to address the students present at lectures in order to describe the project and distribute questionnaire packs. The author visited a first year psychology lecture to introduce the project. Students were told that participation was entirely voluntary and that it had no direct bearing on their appraisal, academic or otherwise, by lecturing staff. They would, however, receive a research participation course credit for participating in the project. Of the 100 questionnaire packs distributed, 73 (73%) were returned.

3.1.2.1 – Inclusion and Exclusion Criteria

Screening measures were applied to all three groups.

The anorexic participants were screened at two different stages by EDS staff as to the presence of AN, and therefore their suitability for inclusion in the project. EDS operational policy is to screen all new referrals weekly at a team meeting in order to highlight and redirect inappropriate referrals, prior to them being placed on the waiting list. All referrals examined for suitability for the project had passed this stage and been placed on the waiting list. The second stage involved members of the EDS (an assistant psychologist and a clinical psychologist) examining referral information for symptoms suggestive of AN. In order to verify diagnosis, the Eating Disorder Diagnostic Schedule (EDDS) (Stice, Telch & Rizvi 2000) was included in the questionnaire packs for this group (see Measures section below) rather than the EAT-26. The EAT-26, being a screening tool, and thus not able to yield a diagnosis, was

not seen as suitable. Although anorexic patients had not been formally diagnosed when participating in the project, it was felt that a diagnosis of AN was highly likely having been seen by a primary care health care professional (usually a GP), having had their referrals screened twice at the referral stage by EDS staff, and finally having scores on the EDDS which would categorise them as having a diagnosis of AN. Of the 4 returned completed questionnaires, all of these (100%) produced scores on the EDDS confirming a diagnosis of AN. Similarly, of the 9 in-treatment anorexics, all 9 (100%) produced EDDS scores confirming a diagnosis of AN. This information is summarised in Table 1.

| | Waiting List | % | In-Treatment | % | Total | % |
|-------------------|--------------|------|--------------|------|-------|------|
| Packs Sent Out | 6 | - | 9 | - | 15 | - |
| Packs Received | 4 | 66.7 | 9 | 100 | 13 | 86.7 |
| HADS \geq 11 | 1 | 25 | 4 | 44.4 | 5 | 38.5 |
| EDDS Indicates AN | 4 | 100 | 9 | 100 | 13 | 100 |

Table 1 – Anorexic Group Diagnostic Information

The depressed patients' referrals were screened by the author for the presence of depression from the waiting list. In order to maximise the number of suitable participants in this group, only referrals that mentioned an actual or probable diagnosis of depression were included. Identified comorbidity, of which examples were anxiety disorders and current/past substance abuse, were excluded. 27 of the 63 referrals (42.9%) deemed suitable for inclusion had an existing diagnosis of depression. The remaining 36 (57.1%) had a probable or tentative diagnosis. In order to validate the presence of depression, the Hospital Anxiety and Depression Scale

(Zigmond & Snaith 1983) (see Measures section below) was used. In line with the authors' recommendations, a cut-off score of 11 or more on the depression subscale was used for the purposes of the current project to indicate the presence of depression and suitability for participation in the project. Of the 51 phase 1 questionnaire packs sent out, 19 (37.3 %) were returned. Of those 19 returned, 16 (84.2 %) had a score of 11 or more on the HADS depression subscale. Of the 13 phase 2 packs sent out, 6 (46.2 %) were returned. Of these 6, 5 (83.3 %) scored 11 or greater on the HADS Depression subscale. The total number of suitably depressed participants used in the project was 21.

A summary of this data is presented in Table 2.

| | Phase 1 | % | Phase 2 | % | Total | % |
|------------------|---------|-------|---------|-------|-------|------|
| Packs Sent Out | 51 | - | 13 | - | 68 | - |
| Packs Received | 19 | 37.2% | 6 | 46.2% | 25 | 36.8 |
| HADS \geq 11 | 16 | 84.2% | 4 | 80% | 20 | 80 |
| EAT-26 \geq 20 | 4 | 25% | 1 | 25% | 5 | 20 |

Table 2 – Depressed Group Diagnostic Information

The depressed group were also screened for the presence of eating attitudes suggestive of an eating disorder using the Eating Attitudes Test - 26 Item Version (EAT-26) (Garner, Olmsted, Bohr & Garfinkel 1982). Of the 21 participants comprising the depressed group, 5 had EAT-26 scores of 20 or greater.

Due to the limited number of suitable participants in the depressed group, it was not possible to age and gender match to the anorexic group.

In order to provide approximate age and gender matching to the anorexic group, the control group was restricted to females between the ages of 18 and 25 (Palmer 1980). This group was screened for the presence of eating disorder pathology and for depression. The EAT-26 (see Measures section below) was used to screen for eating disturbance. 100 questionnaire packs were distributed. Of the 73 questionnaire packs returned, 28 (38.4%) were excluded due to the presence of attitudes consistent with eating disturbance. The HADS was also used to screen for depression. Of the 73 questionnaire packs returned, 0 (0%) were rejected due to depression scores of 11 or more. 45 (61.6%) of returned questionnaires were to be included in the data analysis.

3.1.2.2 – Demographics

Demographic information for all three groups is presented in Table 3 below

| | Anorexic Group | Depressed Group | Control Group |
|---------------------|----------------|-----------------|----------------|
| Age Range | 19 – 24 yrs | 19 – 43 yrs | 17 – 21 yrs |
| Mean Age | 21 yrs 46 days | 30 yrs 137 days | 19 yrs 66 days |
| Age S.D. | 1 yr 295 days | 8yrs 186 days | 318 days |
| Female Participants | 13 | 16 | 44 |
| % | 100 | 76.2 | 100 |
| Male Participants | 0 | 5 | 0 |
| % | 0 | 23.8 | 0 |

Table 3 – Demographic Information for All Groups

3.2 – Design

This project used a 2-factor mixed design to examine scores on the Sense of

Coherence components of Meaningfulness, Manageability and Comprehensibility (the dependent variables), both between the anorexic, depressed and control groups (the independent variables), and within the three groups. The three SOC components were treated as separate measures for the purposes of the within groups comparison, thus rendering this part of the design repeated measures.

3.3 – Measures

The Hospital Anxiety and Depression Scale is designed as a self-report measure of anxiety and depression originally designed to be used on hospital out-patients. It comprises 14 items each of which respondents complete on a scale of 0 to 3 with 3 indicating the highest symptom severity. The measure has two subscales: anxiety and depression, each of which comprises 7 items. This provides a maximum score of 21 for each subscale and a minimum score of 0. Scores on the HADS can be banded into ‘caseness’ where scores in the range of 0 to 7 indicate an absence of pathology (i.e. non-cases), scores between 8 and 10 are ‘doubtful’, and scores of 11 or greater indicate a definite presence of pathology i.e. ‘cases’ (Zigmond & Snaith 1983). Using scores of 11 or more as a cut-off is also consistent with Crawford, Henry, Crombie and Taylor (in press). The HADS is a brief item and can be self-administered very quickly and easily. It has been used in several clinical studies (see Herrmann 1997) and has good validity (Peck 1993). The HADS has been designed to avoid, as much as possible, the confounding effect of physical illness on responses to the questionnaire items (Snaith 1993). This was seen as an important factor in its selection as the measure of depression, in particular with regard to the increased possibility of somatic complaints among the anorexic group due to food restriction.

The Eating Attitudes Test – 26 Item Version is a 26-item self-report questionnaire used to screen for the presence of attitudes to eating which may indicate the presence of, or a prodromal phase of, an eating disorder. The EAT-26 is not a diagnostic instrument. It is often used as part of a two-stage screening process where a high score on the EAT-26 leads to a diagnostic interview with a medical or mental health professional. Scores of 20 or more on the EAT-26 are taken to be suggestive of current or possible future presence of an eating disorder. The Eat-26 has been used extensively in eating disorder research and is perhaps the most widely used eating disorder screening tool currently available (see Allison 1995). It is a standardised tool which has been found to be reliable. Carter and Moss (cit Allison 1995) found the test – retest reliability of the EAT-26 to be *kappa* (k) =.84 after a two to three week period. It is also able to distinguish between non-eating disordered controls and eating disordered patients suffering from AN, bulimia nervosa or binge-eating disorder (Garner & Garfinkel 1979).

The Eating Disorder Diagnostic Schedule (Stice & Telch 2000) is a relatively new measure which is claimed to be a diagnostic instrument for use in eating disorders (Stice et al 2000). Prior to its development, assessment and diagnosis of eating disorders had to be undertaken on the basis of clinical interviews. The reliability and validity of the EDDS is reported as follows. The one-week test-retest reliability of the scale was *kappa* (k) =.95 for AN. Criterion validity was established at k =.93 against clinician administered diagnostic interviews for AN. The authors suggest that these findings indicate the EDDS is a valid and reliable instrument for the diagnosis

of AN, having been shown by its authors to compare well with other validated eating disorders measures.

The Sense of Coherence Questionnaire (Orientation to Life Questionnaire) (Antonovsky 1987) is a 29 item self-report instrument which measures the three components of SOC – Meaningfulness, Manageability, and Comprehensibility. Several studies have reported that SOC is a valid measure when applied to clinical groups, in that it correlates negatively with clinical symptomatology measures (e.g. Frommberger et al 1999, Carstens & Spangenberg 1997) it has also been reported to be reliable over a variety of clinical presentations including post-traumatic stress disorder (Larsson, Michel & Lundin 2000), depression (Carstens & Spangenberg 1997), and anxiety (Bernstein & Carmel 1987).

Scores on the SOC questionnaire have been reported in different formats: Antonovsky (1987) suggests that only a total score should be reported i.e. the sum of all 29 questionnaire items. The majority of studies, such as Petrie and Brook (1992), have reported 'domain' scores i.e. the sum score for each of the three components, Comprehensibility, Manageability and Meaningfulness. Other studies (e.g. Gibson & Cook 1996, Kristenson et al 1998) have neglected to report how scores were calculated, and it is assumed that these studies used a global SOC score. Antonovsky (1987) advises that SOC is a unitary concept and therefore the scores on the SOC questionnaire should be treated as a global or total score rather than taken as 'domain' scores. Geyer (1997) queries this position, asking why Antonovsky should have postulated the three components, and described them, and their hypothesised mechanisms of operation, in considerable detail, if they cannot be considered

individually. Sandell, Blomberg and Lazar (1998) also question Antonovsky's position and suggest that their own investigation into the structure of the SOC questionnaire could not confirm Antonovsky's proposed factor structure of the questionnaire. These authors disagree with Antonovsky and propose that the use of individual SOC component scores has utility in the exploration of the SOC concept. As the goal of the current project was to compare responses on each of the SOC components, mean scores for Meaningfulness, Manageability and Comprehensibility were used. The SOC Questionnaire comprises 11 Comprehensibility, 10 Manageability, and 8 Meaningfulness items.

Copies of all questionnaire items used in this project are included in Appendices 8 – 11.

3.4 – Data Analysis

The Statistical Package for the Social Sciences (SPSS inc.) version 10 was used to perform all of the statistical analyses used in this study.

3.5 – Statistical Power

A small pilot study for the current project was undertaken shortly before the current project began in order to examine the relationship between AN and SOC components. The pilot data suggested a superiority effect for Meaningfulness was present for anorexics.

A repeated measures analysis of variance was run on the pilot data (n=8) to provide a rough indication of the effect size. This was found to be .377. The power tables

provided by Clark-Carter (1997) indicated that a sample size of 9 would be required to achieve a power of .84. Due to uncertainty over how many anorexic patients would have a comorbid disorder such as depression, it was seen as important to try to recruit a larger anorexic group to increase the likelihood of recruiting a sufficiently large 'pure' anorexic group. In order to attempt to balance group sizes, larger group sizes were also recruited for the depressed and control groups.

Chapter 4 – Results

4.1 – Exploratory Data Analysis

Exploratory analysis of the questionnaire data was undertaken to identify any abnormal or unexpected results.

Each of the SOC subscales and the HADS Depression distributions were examined and the distribution of the three SOC subscales indicated one control group participants' scores to be an outlier. This participant's scores were subsequently removed leaving 44 control group participants in the analyses.

A summary of descriptive statistics for these four variables is presented in Table 4 below.

| | N | Min | Max | Mean | Std. Dev. | Skewness | | Kurtosis | |
|--------------------|----|------|-------|------|-----------|-----------|------------|-----------|------------|
| | | | | | Statistic | Statistic | Std. Error | Statistic | Std. Error |
| HADS Depression | 78 | .00 | 19.00 | 7.13 | 6.21 | .45 | .27 | -1.27 | .54 |
| Comprehensibility | 78 | 1.18 | 6.00 | 3.58 | 1.19 | .19 | .27 | -.89 | .54 |
| Manageability | 78 | 1.00 | 6.60 | 4.03 | 1.43 | -.21 | .27 | -.98 | .54 |
| Meaningfulness | 78 | 1.00 | 6.75 | 4.11 | 1.65 | -.38 | .27 | -1.10 | .54 |
| Valid N (listwise) | 78 | | | | | | | | |

Table 4 – Descriptive Statistics for HADS Depression and SOC component distributions

The HADS Depression distribution showed significantly abnormal kurtosis values and the distribution appeared to be bimodal in nature. This was expected however, as the total sample included a significant number of non-depressed controls (44 of 78 (56.4%)) and also a significant number of depressed individuals (21 of 78 (26.9%)).

These two groups would have scores that were skewed towards the lower HADS Depression scores and skewed towards the higher HADS Depression scores respectively.

Additionally, the Mean Meaningfulness distribution appeared more bimodal than normal. Inspection of the dataset suggested that those individuals scoring lowest on Meaningfulness were those scoring highest on HADS Depression. HADS Depression and Meaningfulness was explored further. However, as this relationship was not part of the experimental hypotheses, it is considered as *a posteriori* and is discussed further in Appendix 12.

The issue of bimodality for HADS Depression and Meaningfulness suggested that the use of parametric analyses may not be valid given that the assumption of normality of distribution did not seem to hold (Howell 1992). However, depression was a between subjects factor and thus the overall distribution (n=78) would be broken down into the constituent non-depressed, depressed and anorexic groups. But despite this, the distributions for the depressed and non-depressed groups would still be skewed, although not bimodal. Thus, there were good theoretical reasons to assume that the individual HADS Depression distribution for each of the three groups would not be normal; it was unclear as to whether parametric or nonparametric analyses should be performed. Coolican (1994) states three assumptions are made regarding the appropriate use of parametric analyses. The first is that the data type is interval. The second is that the sample data are drawn from normally distributed populations. The third is that the variance of the samples is not significantly different. Assumption one had been met. Assumption three could be shown via a Levene test, and this test did in fact show that heterogeneity of variance

was not an issue in the current project (see Table 5 below). Assumption two was unclear, but, as Kinnear and Gray (2000) suggest, parametric tests have been shown to be robust against deviations from their assumptions therefore it was decided for the purposes of the statistical analyses in this project that parametric analyses would be used. However, for reasons of caution, nonparametric analyses would be used to verify the findings of the parametric analyses where possible and appropriate. This approach was thought to provide the best compromise of test power vs. risk in the testing of the hypotheses.

4.1.1 - Comorbidity

A concern was the five depressed group participants who had scores greater than 20 on the EAT-26, and that these individuals' eating disturbance might act as a confound on their HADS Depression scores. Due to the limited numbers in the depressed group it was decided that analyses would be performed both including and excluding the participants with elevated EAT-26 scores in order to establish whether the elevated EAT-26 scores affected the results significantly.

Inspection of the anorexic group scores also revealed some comorbidity with 5 of this group scoring above 13 on the HADS Depression subscale. It was recognised that subdividing this group into high and low depression scores would result in very small numbers in both sub-groups: n would be less than 9 for these sub-groups, which was the number identified from the power analysis as necessary to achieve statistical significance based on a large effect size. It was decided that, in order to avoid potentially misleading conclusions based on small numbers, the inferential

analyses involving the anorexic group should utilise the whole of the group data rather than the depressed and non-depressed subgroups. The implications of this are discussed in 5.6 below. However, a strong association between HADS Depression and Meaningfulness was also noted in the anorexic group. This issue is discussed further in Appendix 12.

4.2 – Inferential Analyses

A combination of between and within groups analyses of variance were required to test the three experimental hypotheses. Additionally, a Levene test for homogeneity of variance was run to test for the presence of heterogeneous variance between the three SOC components. The results of this test are presented in Table 5 below.

| | F | df1 | df2 | Sig. |
|-------------------|-------|-----|-----|------|
| Comprehensibility | 2.159 | 2 | 75 | .123 |
| Manageability | 1.241 | 2 | 75 | .295 |
| Meaningfulness | 2.943 | 2 | 75 | .059 |

Table 5 – Heterogeneity of Variance for SOC components

Table 5 demonstrates that none of the SOC variables displayed statistically significant heterogeneity of variance.

As mentioned in 4.1.1, above, comorbidity was noted in both the depressed and anorexic groups, although the small numbers in the anorexic group necessitated the inclusion of comorbidity in the statistical analyses. Analyses of variance including and excluding comorbidity among the depressed group did not show any significant

differences in the levels of significance obtained. Therefore, all analyses undertaken included the 5 depressed participants with elevated EAT-26 scores (n=21).

4.2.1 – Hypothesis 1

A series of one-way analyses of variance was used to compare between group effects on each of the SOC components in order to test hypothesis 1, that anorexics would score similarly to controls on Meaningfulness but lower on Manageability and Comprehensibility. These analyses indicated that Comprehensibility for the depressed and anorexic groups differed significantly from the control group ($p < .001$) but not with each other ($p = .523$). A similar pattern emerged for Manageability with depressed and anorexic participants scoring significantly differently from controls ($p < .001$) but not from each other ($p = .130$). Meaningfulness produced a different pattern of results with each of the three groups scoring significantly differently from the other two: depressed participants scored significantly differently from controls ($p < .001$) and anorexics ($p < .01$). Anorexic participants scored significantly differently from controls ($p < .001$). This finding provided only mixed support for hypothesis 1: anorexics did not score similarly to controls on Meaningfulness, however they did score lower than controls on Manageability and Comprehensibility. The pattern of scores between the anorexic and control groups was uniform rather than showing the hypothesised convergence on Meaningfulness and divergence on Manageability and Comprehensibility.

4.2.2 – Hypothesis 2

One-way analyses of variance provided full support for hypothesis 2, that anorexics would score higher than a depressed group on Meaningfulness. The pattern of Meaningfulness scores were shown to be significantly different among the three groups (see hypothesis 1 results above). Therefore, although not scoring at a similar level to controls, the anorexic group did score significantly higher than the depressed group ($p < .01$). Plotting marginal means for the control, anorexic and depressed groups demonstrates the divergent pattern of results found for the Meaningfulness component referred to above. This is shown in Figure 1 below.

Nonparametric analyses were used to verify the parametric results. The Kruskal-Wallis test was used with the experimental groups as the grouping factor and Meaningfulness as the test variable. The results of this test supported the findings of the parametric analysis and indicated a highly significant between group difference for Meaningfulness (Chi-square = 42.741, $p < .001$).

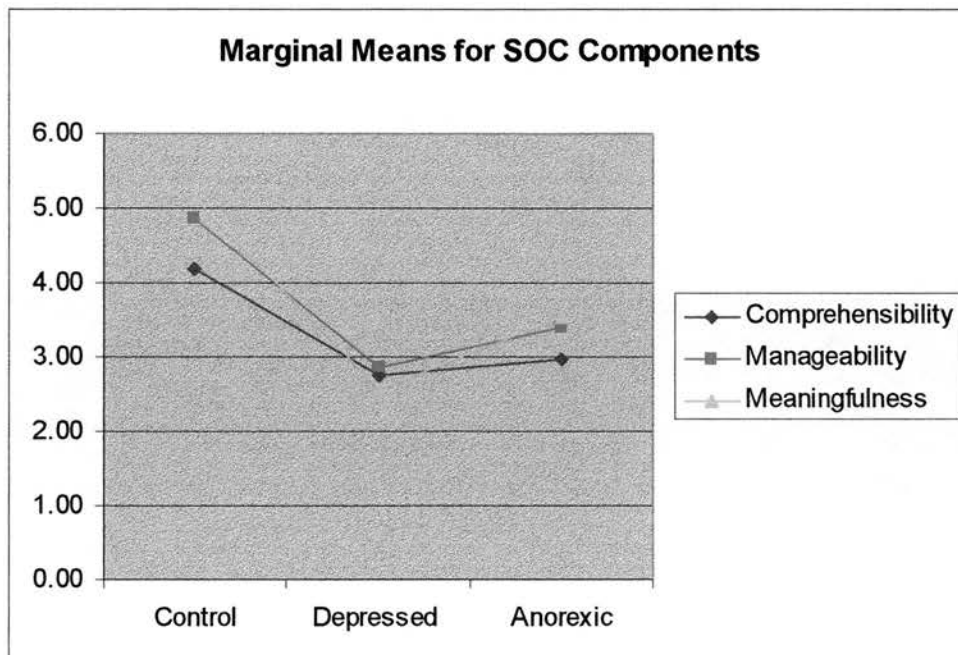


Figure 1 – Marginal Mean Scores on SOC Components – Control vs. Depressed vs. Anorexic

4.2.3 – Hypothesis 3

Hypothesis 3, that anorexics would score higher on Meaningfulness than Manageability and Comprehensibility concerned within subjects effects. A series of repeated measures analyses of variance to test within group differences for each group, found no significant differences between the three SOC components for the anorexic group ($p = .581$). Nor were any significant differences noted for the depressed group ($p = .229$), although Meaningfulness proved to be the lowest scoring SOC component in the depressed group, and this differed from the control and anorexic groups. A significant within-subjects difference was found for the control group ($p < .001$), with Meaningfulness, Manageability, and Comprehensibility all scoring significantly differently from each other (all $p < .01$). The lack of a within

subjects effect for the anorexic group meant that Hypothesis 3 was not supported to any level of statistical significance. Nonparametric analyses produced similar findings with a series of Friedman tests producing non-significant results for the depressed (Chi-square = 3.06, $p = .217$) and anorexic (Chi-square = 3.23, $p = .199$) groups, while a significant result was found for the control group (Chi-square = 40.263, $p < .001$).

4.3 – Summary of Results

Some support for the experimental hypotheses was found, namely full support for hypothesis 2 and partial support for hypothesis 1. No support for hypothesis 3 was found.

Chapter 5 – Discussion

The findings for each of the experimental hypotheses will be summarised in turn and discussed.

5.1 – Hypothesis 1 Summary

Only mixed support for this hypothesis was found. Anorexics did not score at similar levels on Meaningfulness to control participants but did score lower on Manageability and Comprehensibility. It was conjectured as to whether these findings may have been due to methodological difficulties. The smaller sample size in this group may have produced a non-representative sample of anorexics, therefore biasing the responses on the SOC questionnaire. Additionally, the inability to adequately control for depression among the anorexic group is a methodological flaw that may have biased responses for this group, given the relationship found, both in this study and in others, between Meaningfulness and depression.

An additional issue in hypothesis 1 is the comparison between the control group and the anorexic group. It is assumed that the control group in this project is representative of an age and gender-matched sample of the general population. As in much psychological research the control group consisted of undergraduate psychology students. An obvious objection can be raised as to how valid it is to assume that female undergraduate psychology students aged 17 to 21 represents the normal population of 17 to 21 year old females. It could be argued, in fact, that this group is a particularly poor control group in that it consists, of not only academically gifted, but also highly motivated individuals. It is likely that this group may have

SOC scores higher than those of the general age and gender-matched population, particularly regarding motivation and achievement (i.e. Meaningfulness) and therefore it might be expected that a clinical group, even if producing 'normal' level scores on Meaningfulness, would not score as highly as this control group. However, based on the demographic findings from previous studies on anorexics (e.g. Weeda-Mannak & Drop 1986; Dura & Bornstein 1989) a large proportion of the anorexic group are likely to have similar academic backgrounds to the control group in this project. Many of them will be or have been undergraduate university students, or will be or have been high achievers in some other endeavour; therefore it would be valid to compare such individuals with the current control group as this would provide age, gender, and education/achievement matched controls. This view would purport that the age, gender, and education/achievement matching would allow the SOC questionnaire to measure the effects of AN alone rather than obscuring the effects with spurious demographic confounds. However, it has to be borne in mind that the arguments presented in Chapter 2 above highlight the heterogeneity evident in accounts of AN and this suggests that caution must be employed in attributing global characteristics to AN sufferers. Given that only limited attempts to match the anorexic and control groups were employed in the current project, it can only be conjectured upon as to how good the matching was between the two groups. If any firm conclusions are to be drawn regarding comparisons between anorexics and other groups, particularly control groups comprising similarly aged and gender-matched controls, better attempts at sample matching must be implemented.

Additionally, it would have been potentially very useful to have been able to include

some demographic information regarding the anorexic participants, as the use of more qualitative information may have provided a richer picture of the other factors that may be related to SOC responses. In particular, information on academic and vocational background would have been useful in order to investigate Fairburn et al's (1997) suggestion that outside interests become less important to the anorexic as her condition progresses. It may have been possible to view this in the context of SOC responses if such information had been available. Unfortunately the confidentiality stipulations in this project prohibited this. The implications of this methodological difficulty are discussed further in 5.9.2 below.

It is also possible that hypothesis 1 may have been over-simplistic in expecting the anorexic group to demonstrate attitudes consistent with high achievement, given that the anorexic participants in the current project were either in-treatment or waiting for treatment. If Fairburn et al's (1997) position, above, is correct then it could be argued that the anorexics in the current sample had eating difficulties that were sufficiently advanced as to have resulted in this narrowing of interests and this may have been reflected in lowered SOC scores. This is a possibility; however it seems unlikely given the evidence for underlying general psychopathology in AN which posits that the presence of particular attitudes such as perfectionism and a poor sense of self-worth are fundamental antecedents for the aetiology of the disorder. It would seem, based on these arguments, that these attitudes are likely to be consistent throughout the course of the disorder, and should compromise effective coping, and therefore should be highlighted by the SOC questionnaire.

5.2 – Hypothesis 2 Summary

Hypothesis 2 received full support from the results with Meaningfulness being the only SOC component to be significantly different between the anorexic and depressed groups. This result is interesting in that, although 5 of the 13 participants (38.5 %) in the anorexic group scored above 11 on the HADS Depression subscale, Meaningfulness remained significantly different from the depressed group. This finding appears to challenge the notion that the SOC questionnaire simply measures depression, as has been proposed by Geyer (1997), and this issue is outlined further in Appendix 12. Despite this assertion, a relationship was found between HADS Depression and Meaningfulness for the anorexic group and this is also considered in Appendix 12.

Overall, the proportion of depressed anorexics may be an artefact of the small sample numbers in this group. Although the power analysis suggested nine participants would be sufficient to produce a statistically significant result if one was present, the anorexic group comprised eight non-depressed anorexics and five depressed anorexics. With depression being identified as a between groups factor, this produced a confound where the anorexic group could not be fully distinguished from the depressed group, at least from an *a priori* perspective. As detailed in 3.5 above, attempts were made to maximise subject numbers to allow for the presence of comorbidity but unfortunately it could not be anticipated how many of the anorexic participants would show comorbidity. The fact that less than nine anorexics without comorbidity were recruited means that sufficient numbers were not included to satisfy statistical power. This is an undeniable weakness and limits the confidence

with which conclusions can be made until these findings can be replicated. However, despite these concerns, the results found are roughly consistent with those found by Sandell et al (1998) and Carstens and Spangenberg (1997) with regard to the control and depressed groups' SOC component scores. Also, given the relationship between depression and Meaningfulness noted by Carstens and Spangenberg, the current results for the anorexic group are also concordant with the effects of depression despite the small sample size.

5.3 – Hypothesis 3 Summary

Hypothesis 3, that Meaningfulness would be significantly higher than both Manageability and Comprehensibility within the anorexic group, was not supported. Despite being the highest scoring of the SOC components, Meaningfulness was not shown to be different from the other two components to any level of statistical significance.

Many of the issues raised in 5.1 above are likely to be equally relevant to this hypothesis. For example, the small numbers may have limited the variability among the SOC component scores and this may have led to a misleading homogeneity among the components. Additionally, the prevalence of depression may have affected overall Meaningfulness scores among the anorexic group, as has been suggested above.

5.4 – Implications of Results

The finding that two of the three experimental hypotheses were provided with full or

partial support implies that the anorexic group were scoring significantly lower than control subjects, but significantly higher than the depressed group on a questionnaire that aims to measure health and effective coping. How are these findings to be understood?

The results clearly demonstrate that the anorexics scored significantly higher on the SOC questionnaire than the depressed individuals. This would suggest that they are healthier and/or display better coping than depressed individuals. This is a counter-intuitive finding for the following reasons. Firstly, in light of the arguments presented in the introduction in which psychological models of AN posit anorexic behaviours as a coping strategy, anorexics clearly are able to use coping strategies. However, the coping strategies they use – essentially self-starvation – are evidently *maladaptive* coping strategies. Concerns must be expressed over how the SOC questionnaire measures coping if it is unable to distinguish adaptive coping from potentially life-threatening maladaptive coping. Secondly, although the goal of this project was not to construct a ‘hierarchy’ of psychological disorders, or to propose that AN ‘usurps’ depression in terms of severity or complexity, there are issues of severity and complexity in AN that most clinicians who are familiar with the disorder will be aware of. The reported treatment resistance of anorexics (Yager 1995), denial of the seriousness of their predicament (DSM-IV), the risk to health and even life (Bell, Clare and Thorn 2001), and clinical complexity and comorbidity. These issues would certainly mark AN out as a complex and serious psychological disorder. Coupled with this is the relatively poor response to treatment modalities such as CBT (Bemis Vitousek 2002) compared to other clinical groups. These issues make it surprising, and concerning from Antonovsky’s point of view, that anorexics ‘out-

perform' depressed individuals on the SOC questionnaire.

An additional implication of the lack of support for hypothesis 3 is that the significant difference between the anorexic and depressed groups is not solely attributable to the anorexic group displaying higher Meaningfulness. That is to say, the anticipated superiority effect for Meaningfulness (due to high achievement orientation) was not responsible for the difference between these two groups. Given that the within subjects analyses for the three groups indicated that the anorexic and depressed groups showed no significant difference between any of the SOC components, it would have to be concluded that anorexics scored higher on all three components of the SOC questionnaire when compared to the depressed group. This implies that the SOC questionnaire is misrepresenting all of the SOC components for the anorexic group rather than the one, Meaningfulness, which was it was hypothesised to. However, the prediction that was made in the hypotheses was that the SOC questionnaire would report anorexics' Meaningfulness scores at a similar level to controls. This was not found, although the possible methodological reasons for this have been explicated in sections 5.1 to 5.3, and, hence the SOC questionnaire is detecting some pathology within the Meaningfulness component when it was not expected to do so. Despite this, it failed to detect a higher level of pathology in the other two components when this was expected. These findings are not encouraging for Antonovsky and question the utility of using the SOC questionnaire with clinical populations (see 5.10 below for further discussion on this topic).

The low SOC scores for the depressed group may be seen as providing more

encouraging reading for proponents of the SOC concept; however, this finding can be construed differently. The strength of the relationship between SOC, in particular Meaningfulness, and HADS Depression in this study (see Appendix 12) strongly suggests that the SOC questionnaire is providing a measure of depression, not only in the depressed group, but in all three groups. The fact that this relationship exists in all three groups, and that each group scores significantly differently from the others on SOC, suggests that it is more likely that the SOC questionnaire is detecting and reporting the presence of depression rather than anything else. The findings from this study would therefore support the findings of Carstens and Spangenberg (1997) and the position put forward by Geyer (1997).

5.5 – Methodological Problems

Several general methodological shortcomings were evident in the current project, and these will be briefly outlined before more specific problems will be considered.

Although attempts were made to age and gender match the control group to the anorexic group, due to the relatively limited numbers of potential participants for the depressed group, it was not possible to include age and gender matching in this group. Therefore there are potential confounds such as age and gender effects that limit the confidence with which conclusions can be drawn from the depressed group's results.

Objections could be levelled at the use of self-report measures in AN research given the capacity for denial among anorexics (Bruch 1985). The research evidence for

accuracy in self-report measures is mixed. The reliability and validity of questionnaires such as the Eating Attitudes Test and the Eating Disorder Diagnostic Schedule, both used in this project, would indicate that anorexics do provide sufficiently accurate information to allow questionnaires to provide concordance with clinical interviews regarding diagnosis. McCabe, McFarlane, Polivy and Olmsted (2000) state anorexics provide extremely accurate estimations of their body weight, while at the same time denying that their low weight is dangerous to their health. Despite this, Fairburn and Beglin (1994) suggest that self-report measures are less able to accurately assess subtler aspects of eating disorders, such as attitudes to eating. Whether this constitutes denial on the part of the anorexic is not clear. Cochrane et al (1993) report that alexithymia is common among eating disordered individuals and thus the difficulty that anorexics have in reporting internal states may be related to alexithymic difficulties rather than denial. Although this issue needs to be investigated further before any conclusions can be drawn, these difficulties may have impacted on the responses the anorexics made on the questionnaires in this project. It is possible to argue that the anorexic group's scores were higher than the depressed group due to either a denial of cognitive/emotional distress or to a difficulty in identifying and/or describing internal phenomena. However, this position would beg the question as to why anorexics' denial should not be complete denial, and thus why should they not score similar to the control group on SOC as well as HADS Depression? If denial is being employed by anorexics in the current study, its use is not clear based on the questionnaire results.

5.5.1 – Sample Size and Bias

Some of the difficulties with sample size and bias have already been discussed. However, additional problems were noted during the administration of this project.

5.5.1.1 – Anorexic Group

The waiting list group of anorexics had not been diagnosed at the point of participation in the project. As mentioned in 3.1.2.1 above, it was felt that the screening process that the waiting list anorexics went through made it highly likely that they would indeed satisfy diagnostic criteria for AN, however the fact remains that they had not been diagnosed as anorexic at the point of participation.

There were no such diagnostic concerns regarding the in-treatment anorexics, as all EDS patients are given an ICD-10 diagnosis, but there were different potential biases at play in this sub-group. For example, in-treatment anorexics may have been more likely to participate in the project if they had been better engaged in therapy. Also therapists' selection of clients, who were regarded as more likely to participate in the project, might have introduced a bias where the more treatment-responsive clients were selected. These two points may have skewed the in-treatment anorexic patient sample towards those who were more advanced in therapy and recovery. The use of in-treatment anorexics also raises a further potential difficulty as it could be argued that psychological therapy could improve SOC. Given the cognitive focus of the SOC questionnaire as outlined by Siegrist (1993), cognitive therapies such as CBT or schema focused therapy may be expected to improve SOC through the process of cognitive restructuring. Antonovsky (1979) originally stated that he felt SOC to be an enduring, largely immutable phenomenon. In 1987 he reappraised this position but

still purported that, barring major changes to an individual's life circumstances, SOC was unlikely to change significantly, even through psychological therapy. This is discussed further in 5.8 below.

5.5.1.2 – Depressed Group

Aside from the possibility of a self-selection bias where the dual focus of the current investigation encouraged individuals with both eating disturbance and depression to respond, a further potential selection bias for this group may have been operating whereby the most severely depressed individuals may have been sufficiently debilitated to have found difficulty in completing the questionnaires, and thus the respondents may have been the least severely depressed members of the prospective participants. The scores presented here may therefore be an overestimation of the depressed population's HADS Depression and SOC scores.

5.5.1.3 – Control Group

A major issue, as discussed above, is how representative a control group consisting of undergraduate students is to the general (age and gender matched) population. Aside from this issue, a further selection bias may have been in operation. The students forming the control group in this project were required to have participated in a number of research projects in order to receive enough research participation credits to satisfy their course requirements. It is possible that this may have biased participation in two possible ways: firstly, the students choosing to participate may have been those who had neglected to participate in sufficient research projects prior to the current project. As such, it is possible these may have been the students with

little interest in either undergraduate psychology or even in their studies as a whole. In SOC terms these individuals may have had particularly poor Meaningfulness. The SOC responses from this group do not support this suggestion however. Alternatively it is possible that those individuals most interested and most motivated to do well in psychology were self-selecting for participation as research participation credits were recorded on students' records, and thus these individuals' keenness would be recorded for course staff to be aware of. This counter-argument would imply that these individuals would have high Meaningfulness scores, although these scores were comparable to similar control groups in other studies.

The control group recruitment for this project took place shortly before the end of year examinations. It could be argued that extra pressure was on the student population due to this and, although this should not have affected SOC scores, it may have been responsible for increasing HADS Depression scores or responses to the EAT-26. The high proportion of control group participants who were excluded due to elevated EAT-26 scores may have been related to the specific timing of the recruitment for this group rather than reflecting a stable characteristic of the group.

5.6 – Scope of Hypotheses

In retrospect, the three hypotheses considered and tested were somewhat limited in their scope. The focus of these hypotheses was almost exclusively the Meaningfulness component of SOC in relation to AN. Although the importance of this component has been identified both *a priori*, by Antonovsky, and *a posteriori*, by the results of this and other experimental investigations, only limited hypothetical specificity was afforded the other two components from a conceptual viewpoint prior

to the commencement of the project (see 2.4.1 and 2.4.2 above). The results presented above suggest that Comprehensibility is the lowest scoring of the SOC components for the anorexic group, and that this score was significantly different from the Manageability score. Additionally, Manageability scores were close to those of Meaningfulness, which had not been anticipated. The lack of specificity of the experimental hypotheses regarding Manageability and Comprehensibility leaves explanations for the results as largely *a posteriori*. This is an unsatisfying position, however, the conceptual and clinical complexity of AN combined with some of the conceptual issues around using the SOC concept in this type of research (see 5.8 below), makes it difficult to hold high levels of specificity for hypotheses regarding one, let alone all three, SOC component scores for an anorexic group. Meaningfulness seemed the most obvious conceptual divergence between SOC and AN, and hence, the most worthy of exploration. While it may have been possible to have developed further hypotheses regarding specific relationships between AN and Comprehensibility and Manageability, it was felt that additional hypotheses may have reduced the clarity of the findings via inconsistencies in the results and conclusions. Therefore no specific predictions were made regarding Comprehensibility and Manageability. Instead some general predictions were made regarding how Comprehensibility and Manageability would score relative to Meaningfulness. In light of the limited numbers of participants, and thus the validity of conclusions based on the results, restricting the hypotheses to those most obvious theoretical divergences between SOC and AN allowed at least some clarity to be afforded the findings.

5.7 – Practical Difficulties

5.7.1 – Time Scale

The clinical complexity of AN means that clients are usually in long-term therapy and thus the ‘turn-over’ of clients is slow. This has obvious implications for service-based research in which the researcher will have limited access to new participants. This was a noted difficulty in the current project, particularly due to the relatively short time scale for the project’s completion. The limited numbers of participants was the determining factor in the low anorexic numbers as the response rate for this group was very high (86.7%) overall. The use of complex, long-term clinical groups may be a difficulty in time-limited research designs unless undertaken in large scale services or where a large number of potential participants can be guaranteed.

Additionally, the methodological change that was required also impacted on the time that was available to gather data for the project as this change had to be passed by the Grampian Research Ethics Committee, and, as can be seen in Appendices 1 and 2, although full approval was originally granted in April 2002, approval for the method change was not granted until June 2002. This left a very small time window for data collection.

5.7.2 – Administration Difficulties

A further difficulty in the administration of the project was the ethical constraints of undertaking service-based research while not being a member of that particular service. This required the involvement of service members to administer the project by proxy in order to maintain patient confidentiality. Although no fault of those service members who were involved, the eating disorder arm of the project was less

efficiently administered as a result. Discussion with EDS team members on the project highlighted lack of communication on the details of the project as being a difficulty. Although meetings were set up between the author and EDS team members to discuss the nature, purpose and pragmatics of the project, the lack of informal discussion between the author and EDS team members on the project appeared to be the aspect of communication that would have been most beneficial to easing the administration problems. The author not being physically based in the EDS limited opportunities for this type of informal communication and it is possible that, by increasing EDS team members awareness of the finer details of the project, more anorexic participants could have been identified as suitable, or identified earlier, which would have increased the sample number.

5.8 – Conceptual Problems Using SOC with Clinical Groups and Implications for Future Research

An obvious goal for future research on this topic would be to attempt to replicate the current project with larger sample sizes and an anorexic group without comorbidity. Additionally, the use of demographic information would allow more accurate sample matching, and may help to elucidate the relationship between SOC and clinical disorders. As it was argued in 5.1 above, that better sample matching, that goes beyond simplistic age and gender matching, would have been useful in helping to clarify some of the results by reducing confounding factors, it seems apparent that the use of additional information for participants in research involving SOC and clinical groups can help clarify the similarities and differences in the presentations of a clinical condition among participants, thus also allowing exploration of the

personological features that are relevant to SOC responses for different clinical groups rather than relying solely on diagnoses.

In 5.5.1.1 Antonovsky's position on SOC and psychological therapy is outlined. His position does seem somewhat surprising given its apparently fatalistic attitude within a concept that purportedly seeks to explain how individuals are able to cope despite adversity. The use of the SOC questionnaire in outcome research would seem a logical first step in evaluating whether SOC changes through psychological therapy. The efficacy of psychological therapies, such as CBT, for AN is equivocal (Bemis Vitousek 2002), however CBT has been established as the treatment of choice for depression given the outcome figures in the NIMH Treatment of Depression Collaborative Research Program (Hammen 1997). Therefore studies such as the present project, by comparing different clinical groups on SOC and introducing treatment outcome into the design, could provide an insight into whether Antonovsky's position regarding SOC change via psychological therapy is accurate.

Toner, Garfinkel and Garner (1988) report that, there are often methodological problems in the assessment of comorbidity in AN due to symptoms of depression and anxiety being a direct result of the physiological effects of starvation. Arguments such as these raise conceptual issues around the use of diagnostic categories, for example whether it is valid to view depression as a comorbidity if it is a recognised feature of AN. Not all of the anorexics in the current study reported clinical scores on HADS Depression. This was interpreted as suggesting that depression is a separate clinical entity, however the relationship between AN and depression could easily be

construed differently. For example, it is possible that more severe anorexic symptoms produce increased physical and social debilitation and these result in a mood disorder secondary to the AN. The view taken here is in line with the coping strategy accounts of AN outlined in 1.4.2 where depression is viewed as general psychopathology, i.e. a separate clinical condition which precipitates the onset of AN. Depression need not be the only form of general psychopathology however, and anxiety and personality disorders, for example, may constitute other potential forms of general psychopathology. The general psychopathology argument would suggest that all anorexics in the current study would have some general psychopathology, and those with clinical levels of depression certainly showed lowered scores on Meaningfulness (Appendix 12). Although no other general psychopathology was directly examined, this finding does appear to lend support to the hypothesis that SOC, and Meaningfulness in particular in the present study, is an indirect measure of depression.

Although the above points would have helped strengthen the conclusions made in this study, a caveat must be raised: there is an underlying weakness that is apparent in all SOC research on clinical populations that has been referred to in this paper. Given the theoretical differences between the salutogenic and pathogenic approaches outlined earlier, there is an apparent conceptual difficulty in taking a salutogenic approach and using it within a pathogenic research framework. This conceptual error appears to raise serious concerns regarding the concept and operationalisation of SOC. A specific example of this is the use of a student control group. This is a common means of comparing clinical groups to controls in pathogenically orientated

research; however, the objections raised in 5.1 above suggest that it is potentially misleading to simply assume that these individuals approximate the normal population. The assumptions that have been inherent in pathogenically orientated research may need to be re-examined if valid conclusions are to be drawn from such designs.

More serious concerns are evident. Despite the number of clinically orientated studies utilising the SOC questionnaire, it should not be forgotten that the SOC questionnaire is, in essence, a personality questionnaire and not a clinical instrument. Although there have been several studies undertaken using the SOC questionnaire with clinical populations, objections can be raised as to whether such studies are guilty of attempting to fit the SOC concept into a medical/pathogenic model. These studies, including the present project, have hypothesised, and some have claimed to demonstrate, that a relationship exists between SOC and clinical disorders. In such a view, SOC and clinical disorders such as depression, post-traumatic stress disorder, and AN fit within the same conceptual framework. At worst, this view posits a dichotomy between a strong SOC and the presence of a clinical diagnosis, which confuses the salutogenic and pathogenic models. At best, it views a continuum where a strong SOC and the presence of a clinical diagnosis are opposite ends. This view, although more sophisticated than a simplistic health – disease dichotomy, still assumes that the opposite of health is a disease classification as it uses clinical diagnostic categories as a means of classifying groups of individuals hypothesised to have specific SOC properties. This does not follow logically from Antonovsky's account of salutogenesis, as it focuses on disease as the dependent variable rather

than health. However, it could be counter-argued that raising such objections as these necessitates an *incompatibilist* view of research involving SOC and groups with clinical diagnoses, and that this risks marginalising the SOC concept and limiting the scope of a potentially useful theoretical construct. Antonovsky has clearly stated that salutogenesis is an *alternative* to the medical model, but also states that he does not wish to abandon the pathogenic concept. How this co-existence is to be achieved is not clear, neither from Antonovsky's arguments, nor from those presented above. Clinically orientated researchers have perhaps been over-eager to establish the utility of SOC with clinical populations without paying full consideration to the concepts of salutogenesis and pathogenesis, and whether they are, or can be, compatible.

It must be conceded that the lack of support for the SOC questionnaire found in this study may be the result of a basic conceptual error whereby the salutogenic and pathogenic models are being assumed compatible when, in fact, they are not. Of course, it then follows that if the current findings are invalid due to this conceptual error, then the findings of previous studies using SOC and clinical populations, of which several state the utility of the SOC questionnaire with clinical populations, must also be regarded with caution. Thus it seems from the present discussion that perhaps the safest position to take is to say that caution should be used regarding the use of the SOC questionnaire with clinical populations.

5.9 – Conclusions

This study sought to establish whether anorexics displayed differences in SOC compared to controls and depressed individuals. The results suggest that anorexics'

SOC is different from depressed individuals' and that anorexics' SOC lies somewhere between controls' and depressed individuals'. The issues of small numbers and comorbidity in the anorexic group have weakened the confidence with which these conclusions can be stated, however, there is good reason to suggest that, even with methodological problems considered, anorexics do score higher than depressed individuals, although their SOC scores may not fully approximate the normal population.

Questions can be raised as to the implications for the SOC questionnaire given the findings that anorexics are apparently 'healthier' or are 'better copers' than depressed individuals using this measure. This suggestion conflicts with current conceptualisations of AN and the recognised clinical complexity of the disorder. It is also surprising with regard to the clinical outcomes of AN vs. depression which would suggest that AN is a more difficult disorder to treat effectively. It appears therefore that the SOC questionnaire is measuring *coping strategy* rather than true coping in respect to AN. Although this is a fundamental concern for a questionnaire that purports to measure health and coping, a further worry for Antonovsky is that the SOC questionnaire also seems to indirectly measure depression. The SOC questionnaire, in particular the Meaningfulness component, appears to hold a strong negative association with depression. Given the results from this study, there is evidence to suggest that Meaningfulness, and perhaps SOC as a whole, serves as an indirect measure of depression rather than providing an indication of coping ability. Additionally, there are conceptual issues in the use of a salutogenic measure in pathogenically orientated research designs. Attention must be paid to these conceptual issues if research using SOC with clinical populations is to be regarded as

valid.

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Appendix 1 – Ethical Approval (NHS participants)

*NHS GRAMPPIAN
AND
UNIVERSITY OF ABERDEEN
GRAMPIAN RESEARCH ETHICS COMMITTEE*

Chairman
Dr John Dean
Consultant
Department of Medical Genetics
Medical School
Foresterhill
Aberdeen
AB25 2ZD

Tel: (01224) 552120
Fax: (01224) 559390

5th April 2002

Clerk to the Committee
Mrs Diane Murray
Dept of Public Health
NHS Grampian
Summerfield House
2 Eday Road
ABERDEEN, AB15 6RE

Email: diane.murray@ghb.grampian.scot.nhs.uk

Tel: (01224) 558503
Fax: (01224) 558609

Project No:02/0071

Mr Sam Aitcheson
Clinical Psychology Dept
Block A
Royal Cornhill Hospital
Cornhill Road
Aberdeen

Dear Mr Aitcheson

Sense of coherence in anorexia nervosa

The above project was considered at the Grampian Research Ethics Sub-Committee meeting of 3rd April 2002, and I am pleased to confirm that ethical approval for this project has now been granted subject to the following amendments.

- If the patients are not being seen by the researcher during their normal course of care, then the invitation to take part in the project should come from the consultant, not the supervisor or researcher.
- Please submit a copy of the information sheet and consent form for the control group you wish to recruit for review and approval.
- Please submit a copy of the poster used for recruiting volunteers for review and approval.

Patient Information Sheet

- The last sentence "I hope you will decide to take part" should be deleted.
- It should have a positive invitation to take part in the research study at the beginning of the sheet.
- It should state how they have identified the subjects to take part in the project.

I look forward to receiving clarification on the above, the information sheet and consent form for the control group, the poster and the revised patient information sheet. Thank you for bringing this study to the Committee's attention.

Yours sincerely

Mrs Jenny Godfrey-Brown
Scientific Officer – Grampian Research Ethics Committee

Please quote project number on all correspondence

Appendix 2 – Ethical Approval (NHS participants – amended protocol)

*NHS GRAMPIAN
AND
UNIVERSITY OF ABERDEEN*

GRAMPIAN RESEARCH ETHICS COMMITTEE

Chairman

Dr John Dean
Consultant
Department of Medical Genetics
Medical School
Foresterhill
Aberdeen
AB25 2ZD

Tel: (01224) 552120
Fax: (01224) 559390

7th June 2002

Clerk to the Committee

Mrs Diane Murray
Dept of Public Health
NHS Grampian
Summerfield House
2 Eday Road
ABERDEEN, AB15 6RE
Email: diane.murray@ghb.grampian.scot.nhs.uk

Tel: (01224) 558503
Fax: (01224) 558609

Project No: 02/0071

Mr Sam Aitcheson
Clinical Psychology Dept
Block A
Royal Cornhill Hospital
Cornhill Road
Aberdeen

Dear Mr Aitcheson

Sense of coherence in anorexia nervosa

Thank you for your recent email. I am pleased to confirm that ethical approval has been granted for the protocol amendment to use the Eating Disorder Diagnostic Schedule and also to recruit patients already being seen at the Eating Disorder Service, as well as those on the waiting list.

The Committee would appreciate you sending the revised covering letter, which you intend to send to anorexic patients to the Committee for approval.

Yours sincerely

Mrs Jenny Godfrey-Brown
Scientific Officer – Grampian Research Ethics Committee

Please quote project number in all correspondence

Appendix 3 – Ethical Approval (University participants)

Notification sheet

Please fill this sheet in, and it will be returned to you as soon as the study has received ethical approval.

Investigator: Sam Aitchison. 3rd year Trainee Clinical Psychologist, Royal Cornhill Hospital Aberdeen

Supervisor: Susan Simpson. Clinical Psychologist, Royal Cornhill Hospital Aberdeen

Project title: Sense of Coherence in Anorexia Nervosa

Please note:

If you intend to use the Student Research Participation Scheme, please enclose your completed Registration form (see WebPages)

If you intend to use the General Public Research Participation Scheme it is necessary to complete a request form. This form can be obtained from the Departmental Office and must be submitted to Dr. Teunisse at least one week before any money is needed.

The ethical permission for your project has

been approved

not been approved

approved subject to the following:

- please give me some examples of the sense of coherence questionnaire
- please change sentence in info form re. presence of eating disorder in: Please note - - - - - disorder or are concerned about this, we would like you not to participate as this might affect the results of the control group.

On behalf of the Ethics Committee

Date29.2.2.....

INFORMATION FORM

Name of Project: **Sense of Coherence in Anorexia Nervosa**

Name of Patient/Volunteer:

Principal Investigator: **Sam Aitcheson, Clinical Psychology Dept., Block A, Royal Cornhill Hospital**

Dear volunteer,

I am currently undertaking a research project looking at the attitudes of people with Anorexia Nervosa. I would like to invite you to participate to act as an age and gender matched control group. The information below is to help you decide whether or not you would like to do so. If you have any further questions regarding the project please feel free to contact me by telephone on 01224 557532 or by email at Sam.Aitcheson@gpct.grampian.scot.nhs.uk. It is hoped that your participation may, by increasing clinician's understanding of Anorexia Nervosa, be of benefit to Anorexia Sufferers in the future.

What will I have to do?

Three self-report questionnaires are attached. The questionnaires will ask you about your attitudes to life, your eating patterns, and about how you have been feeling recently. If you decide to participate it should take you approximately 20 minutes to complete all three questionnaires. No other requests, such as additional interviews, will be made of you regarding this project. If you decide to take part please complete the questionnaires, place them in the return envelope provided, and post it to me within 14 days. No stamp is required.

Do I have to do it?

No. You may choose not to participate or to opt out of the project at any stage. You will not be asked for a reason regarding your decision not to participate.

What will be done with the information I give?

The information you provide via the questionnaires will come directly to me and will be treated in the strictest confidence. Any personally identifiable information will be removed from the questionnaires before they are scored and I can therefore assure your confidentiality. Your responses will not be made available to any professional or member of course staff. In order to receive a research participation credit, your participation will be recorded but no information on your responses to the questionnaires will be made available to course staff.

If you decide to participate please keep this information sheet, sign and date the attached consent form and return it with the completed questionnaires using the pre-paid envelope.

Many thanks.

Sam Aitcheson
Trainee Clinical Psychologist.

CONSENT FORM

Name of Project: **Sense of Coherence in Anorexia Nervosa**

Principal Investigator: **Sam Aitcheson, Clinical Psychology Dept., Block A, Royal Cornhill Hospital**

I have read the volunteer information sheet on the above project and have been given the opportunity to contact the researcher and ask questions regarding the project. The nature and purpose of the project has been fully explained to me.

I have agreed to take part in the project as it has been outlined to me, but I understand that I am completely free to withdraw from the project or any part of the project at any time I wish and that this will not affect my continuing treatment in any way.

I understand that this project is part of a research project designed to promote psychological knowledge, which has been approved by the Grampian Research Ethics Committee, and may be of no benefit to me personally. The Grampian Research Ethics Committee may wish to inspect the data collected at any time as part of its monitoring activities.

I hereby fully and freely consent to participate in the study which has been fully explained to me.

Signature of Volunteer:

Date:

INFORMATION FORM

Name of Project: **Sense of Coherence in Anorexia Nervosa**

Name of Patient/Volunteer:

Principal Investigator: **Sam Aitcheson, Clinical Psychology Dept., Block A, Royal Cornhill Hospital**

Dear Volunteer,

I am currently undertaking a research project looking at the attitudes of people who suffer both anorexia nervosa and depression. I would like to invite you to participate in order to compare the attitudes of people who suffer depression with those of people who have both anorexia nervosa and depression. The information below is to help you decide whether or not you would like to participate. If you have any further questions regarding the project please feel free to contact me by telephone on 01224 557532 or by email at Sam.Aitcheson@gpct.grampian.scot.nhs.uk. Your participation may have no direct benefits for you but, by increasing clinician's understanding of how depression affects the attitudes of people in anorexia nervosa, may be of benefit to anorexia nervosa and depression sufferers in the future.

What will I have to do?

Three self-report questionnaires are attached. The questionnaires will ask you about your attitudes to life, your eating patterns, and about how you have been feeling lately. It should take you approximately 20 minutes to complete all three questionnaires. No other requests, such as additional interviews, will be made of you regarding this project. If you decide to take part please complete the questionnaires, place them in the return envelope provided, and post it to me within 14 days. No stamp is required.

Please note that one of the questionnaires, the Hospital Anxiety and Depression Scale, is routinely given to all patients referred to the Clinical and Counselling Psychology Service shortly before they are offered an appointment. In order to avoid you having to complete this questionnaire twice, your responses to the Hospital Anxiety and Depression Scale, as part of this project, can be kept within the Clinical and Counselling Psychology Service and passed on to the psychologist who you will be seeing. This is purely to save you the inconvenience of completing unnecessary questionnaires, however, if you have any questions regarding this please contact me by telephone or email.

Do I have to do it?

No. You may choose not to participate or to opt out of the project at any stage and this will in no way affect your ongoing or future treatment. You will not be asked for a reason regarding your decision not to participate.

What will be done with the information I give?

The information you provide will come directly to me and will be treated in the strictest confidence. A coding system has been used on the questionnaires in order to avoid having to use individuals' names and thus assure confidentiality. Your responses will not affect your treatment in any way. With the exception of the Hospital Anxiety and Depression Scale, your responses will not be made available to any professional you may be currently seeing or may see in the future. The Consultant Clinical Psychologist who covers your catchment area will be provided with the names of those people taking part in this project but your responses will not be made available to him/her.

If you decide to participate please keep this information sheet, sign and date the attached consent form and return it with the completed questionnaires using the pre-paid envelope.

Many thanks.

Sam Aitcheson
Trainee Clinical Psychologist.

CONSENT FORM

Name of Project: Sense of Coherence in Anorexia Nervosa

Principal Investigator: Sam Aitcheson, Clinical Psychology Dept., Block A, Royal Cornhill Hospital

I have read the volunteer information sheet on the above project and have been given the opportunity to contact the researcher and ask questions regarding the project. The nature and purpose of the project has been fully explained to me.

I have agreed to take part in the project as it has been outlined to me, but I understand that I am completely free to withdraw from the project or any part of the project at any time I wish and that this will not affect my continuing treatment in any way.

I understand that this project is part of a research project designed to promote psychological knowledge, which has been approved by the Grampian Research Ethics Committee, and may be of no benefit to me personally. The Grampian Research Ethics Committee may wish to inspect the data collected at any time as part of its monitoring activities.

I hereby fully and freely consent to participate in the study which has been fully explained to me.

Signature of Volunteer:

Date:

INFORMATION FORM

Name of Project: Sense of Coherence in Anorexia Nervosa

Name of Patient/Volunteer:

Principal Investigator: Sam Aitcheson, Clinical Psychology Dept., Block A, Royal Cornhill Hospital

Dear volunteer,

I am currently undertaking a research project looking at the attitudes of people with Anorexia Nervosa. As you are currently on the waiting list for the service, I would like to invite you to participate. The information below is to help you decide whether or not you would like to do so. If you have any further questions regarding the project please feel free to contact me by telephone on 01224 557532 or by email at Sam.Aitcheson@gpct.grampian.scot.nhs.uk. Your participation may have no direct benefits for you but may, by increasing clinician's understanding of Anorexia Nervosa, be of benefit to Anorexia Sufferers in the future.

What will I have to do?

Three self-report questionnaires are attached. The questionnaires will ask you about your attitudes to life, your eating patterns, and about how you have been feeling recently. If you decide to participate it should take you approximately 20 minutes to complete all three questionnaires. No other requests, such as additional interviews, will be made of you regarding this project. If you decide to take part please complete the questionnaires, place them in the return envelope provided, and post it to me within 14 days. No stamp is required.

Do I have to do it?

No. You may choose not to participate or to opt out of the project at any stage and this will in no way affect your ongoing or future treatment. You will not be asked for a reason regarding your decision not to participate.

What will be done with the information I give?

The information you provide via the questionnaires will come directly to me and will be treated in the strictest confidence. Any personally identifiable information will be removed from the questionnaires before they are scored and I can therefore assure your confidentiality. Your responses will not affect your treatment in any way. Your responses will not be made available to any professional you may be currently seeing or may see in the future. The Head of the Eating Disorders Service will be provided with the names of those people taking part in this project but your responses will not be made available to him.

If you decide to participate please keep this information sheet, sign and date the attached consent form and return it with the completed questionnaires using the pre-paid envelope.

Many thanks.

Sam Aitcheson
Trainee Clinical Psychologist.

CONSENT FORM

Name of Project: **Sense of Coherence in Anorexia Nervosa**

Name of Volunteer:

Principal Investigator: **Sam Aitcheson, Clinical Psychology Dept., Block A, Royal Cornhill Hospital**

I have read the volunteer information sheet on the above project and have been given the opportunity to contact the researcher and ask questions regarding the project. The nature and purpose of the project has been fully explained to me.

I have agreed to take part in the project as it has been outlined to me, but I understand that I am completely free to withdraw from the project or any part of the project at any time.

I hereby fully and freely consent to participate in the study which has been fully explained to me.

Signature of Volunteer:

Date:

INFORMATION FORM

Name of Project: **Sense of Coherence in Anorexia Nervosa**

Name of Patient/Volunteer:

Principal Investigator: **Sam Aitcheson, Clinical Psychology Dept., Block A, Royal Cornhill Hospital**

Dear volunteer,

I am currently undertaking a research project looking at the attitudes of people with Anorexia Nervosa. As you are currently being seen in the service, I would like to invite you to participate. The information below is to help you decide whether or not you would like to do so. If you have any further questions regarding the project please feel free to contact me by telephone on 01224 557532 or by email at Sam.Aitcheson@gpct.grampian.scot.nhs.uk. Your participation may have no direct benefits for you but may, by increasing clinician's understanding of Anorexia Nervosa, be of benefit to Anorexia Sufferers in the future.

What will I have to do?

Three self-report questionnaires are attached. The questionnaires will ask you about your attitudes to life, your eating patterns, and about how you have been feeling recently. If you decide to participate it should take you approximately 20 minutes to complete all three questionnaires. No other requests, such as additional interviews, will be made of you regarding this project. If you decide to take part please complete the questionnaires, place them in the return envelope provided, and post it to me within 14 days. No stamp is required.

Do I have to do it?

No. You may choose not to participate or to opt out of the project at any stage and this will in no way affect your ongoing or future treatment. You will not be asked for a reason regarding your decision not to participate.

What will be done with the information I give?

The information you provide via the questionnaires will come directly to me and will be treated in the strictest confidence. I do not need to know any personal information about you, such as your name or date of birth. Any personally identifiable information will be removed from the questionnaires before they are scored and I can therefore assure your confidentiality. Your responses will not affect your treatment in any way. Your responses will not be made available to any professional you may be currently seeing or may see in the future. The Head of the Eating Disorders Service will be provided with the names of those people taking part in this project but your responses will not be made available to him.

If you decide to participate please keep this information sheet, sign and date the attached consent form and return it with the completed questionnaires using the pre-paid envelope.

Many thanks.

Sam Aitcheson
Trainee Clinical Psychologist.

CONSENT FORM

Name of Project: **Sense of Coherence in Anorexia Nervosa**

Principal Investigator: **Sam Aitcheson, Clinical Psychology Dept., Block A, Royal Cornhill Hospital**

I have read the volunteer information sheet on the above project and have been given the opportunity to contact the researcher and ask questions regarding the project. The nature and purpose of the project has been fully explained to me.

I have agreed to take part in the project as it has been outlined to me, but I understand that I am completely free to withdraw from the project or any part of the project at any time I wish and that this will not affect my continuing treatment in any way.

I understand that this project is part of a research project designed to promote psychological knowledge, which has been approved by the Grampian Research Ethics Committee, and may be of no benefit to me personally. The Grampian Research Ethics Committee may wish to inspect the data collected at any time as part of its monitoring activities.

I hereby fully and freely consent to participate in the study which has been fully explained to me.

Signature of Volunteer:

Date:

Sense of Coherence Questionnaire

Here is a series of questions relating to various parts of our lives. Each question has seven possible answers. Please mark the number which expresses your answer, with numbers 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. 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?

Never have this feeling 1 2 3 4 5 6 7 Always have this feeling

2. In the past, when you had to do something which depended upon co-operation with others, did you have the feeling that it:

Surely wouldn't get done 1 2 3 4 5 6 7 Surely would get done

3. Think 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?

You feel that they're strangers 1 2 3 4 5 6 7 You know them very well

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

Very seldom or never 1 2 3 4 5 6 7 Very often

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

Never happened 1 2 3 4 5 6 7 Always happened

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

Never happened 1 2 3 4 5 6 7 Always happened

7. Life is:

Full of interest 1 2 3 4 5 6 7 Completely routine

8. Until now your life has had:*

No clear goals Or purpose at all 1 2 3 4 5 6 7 Very clear goals and purpose

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

| | | | | | | | | |
|-------------------------------------|---|---|---|---|---|---|---|---|
| “to eat yourself up” about it | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 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?*

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|-------------------------|
| Very often | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very seldom or never |
|------------|---|---|---|---|---|---|---|-------------------------|

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| It’s certain that you’ll go on feeling good | 1 | 2 | 3 | 4 | 5 | 6 | 7 | It’s certain that something will happen to spoil the feeling |
|---|---|---|---|---|---|---|---|---|

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

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|-------------------------|
| Very often | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very seldom or never |
|------------|---|---|---|---|---|---|---|-------------------------|

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

| | | | | | | | | |
|--|---|---|---|---|---|---|---|-----------------------------------|
| Totally without meaning or purpose | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Full of meaning and purpose |
|--|---|---|---|---|---|---|---|-----------------------------------|

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

| | | | | | | | | |
|------------------------------------|---|---|---|---|---|---|---|----------------------------|
| You’re certain there will be | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 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?

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|-------------------------|
| Very often | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very seldom or never |
|------------|---|---|---|---|---|---|---|-------------------------|

25. Many people – even those with a strong character – sometimes feel like sad sacks (losers) in certain situations. How often have you felt this way in the past?*

| | | | | | | | | |
|-------|---|---|---|---|---|---|---|------------|
| Never | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Very often |
|-------|---|---|---|---|---|---|---|------------|

26. When something happened have you generally found that:*

| | | | | | | | | |
|--|---|---|---|---|---|---|---|--|
| You over- estimated or under-estimated its importance | 1 | 2 | 3 | 4 | 5 | 6 | 7 | You saw things in the right proportion |
|--|---|---|---|---|---|---|---|--|

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|--|
| You will always succeed in overcoming difficulties | 1 | 2 | 3 | 4 | 5 | 6 | 7 | you won’t succeed in overcoming difficulties |
|---|---|---|---|---|---|---|---|--|

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

Very often 1 2 3 4 5 6 7 Very seldom
or never

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

Very often 1 2 3 4 5 6 7 Very seldom
or never

**End of questionnaire
Thank you.**

HAD Scale

Name: _____

Date: _____

Doctors are aware that emotions play an important part in most illnesses. If your doctor knows about these feelings he will be able to help you more.

This questionnaire is designed to help your doctor to know how you feel. Read each item and place a firm tick in the box opposite the reply which comes closest to how you have been feeling in the past week.

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

Tick only one box in each section

I feel tense or 'wound up':

- Most of the time
- A lot of the time
- Time to time, Occasionally
- Not at all

| | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

I feel as if I am slowed down:

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

| | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

I still enjoy the things I used to enjoy:

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

| | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

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

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

| | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

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

| | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

I have lost interest in my appearance:

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

| | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

I can laugh and see the funny side of things:

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

| | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

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

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

| | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

Worrying thoughts go through my mind:

- A great deal of the time
- A lot of the time
- From time to time but not too often...
- Only occasionally

| | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

I look forward with enjoyment to things:

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

| | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

I feel cheerful:

- Not at all
- Not often
- Sometimes
- Most of the time

| | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

I get sudden feelings of panic:

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

| | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

I can sit at ease and feel relaxed:

- Definitely
- Usually
- Not often
- Not at all

| | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

I can enjoy a good book or radio or TV programme:

- Often
- Sometimes
- Not often
- Very seldom

| | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

Do not write below this line

The Eating Attitudes Test

Instructions : Please circle the letter in the column which applies best to each of the numbered statements. Please answer each question carefully.

A = Always
S = Sometimes

U = Usually
R = Rarely

O = Often
N = Never

- | | | | | | | |
|---|---|---|---|---|---|---|
| A | U | O | S | R | N | 1) Am terrified about being overweight. |
| A | U | O | S | R | N | 2) Avoid eating when I am hungry. |
| A | U | O | S | R | N | 3) Find myself preoccupied with food. |
| A | U | O | S | R | N | 4) Have gone on eating binges where I feel I may not be able to stop. |
| A | U | O | S | R | N | 5) Cut my food into small pieces. |
| A | U | O | S | R | N | 6) Aware of the calorie content of the foods that I eat. |
| A | U | O | S | R | N | 7) Particularly avoid foods with a high carbohydrate content. |
| A | U | O | S | R | N | 8) Feel that others would prefer it if I ate more. |
| A | U | O | S | R | N | 9) Vomit after I have eaten. |
| A | U | O | S | R | N | 10) Feel extremely guilty after eating. |
| A | U | O | S | R | N | 11) Am preoccupied with a desire to be thinner. |
| A | U | O | S | R | N | 12) Think about burning up calories when I exercise. |
| A | U | O | S | R | N | 13) Other people think I am too thin. |
| A | U | O | S | R | N | 14) Am preoccupied with the thought of having fat on my body. |
| A | U | O | S | R | N | 15) Take longer than others to eat my meals. |
| A | U | O | S | R | N | 16) Avoid foods with sugar in them. |
| A | U | O | S | R | N | 17) Eat diet foods. |
| A | U | O | S | R | N | 18) Feel that food controls my life. |
| A | U | O | S | R | N | 19) Display self control around food. |
| A | U | O | S | R | N | 20) Feel that others pressure me to eat. |
| A | U | O | S | R | N | 21) Give too much time and thought to food. |
| A | U | O | S | R | N | 22) Feel uncomfortable after eating sweets. |
| A | U | O | S | R | N | 23) Engage in dieting behaviour. |
| A | U | O | S | R | N | 24) Like my stomach to be empty. |
| A | U | O | S | R | N | 25) Enjoy trying rich foods. |
| A | U | O | S | R | N | 26) Have the impulse to vomit after meals. |

Height _____

Current Weight _____

Highest Weight _____

Lowest Adult Weight _____

Please respond to the following questions by circling the appropriate answer:

1 - Have you gone on eating binges where you feel that you may not be able to stop?
(Eating much more than most people would eat under the same circumstances)

No

Yes

If yes, how many times in the last 6 months? _____

2 - Have you ever made yourself sick (vomited) to control your weight or shape?

No

Yes

If yes, how many times in the last 6 months? _____

3 - have you ever used laxatives, diet pills or diuretics (water pills) to control your weight or shape?

No

Yes

If yes, how many times in the last 6 months? _____

4 - Have you ever been treated for an eating disorder?

No

Yes

If yes, when? _____

Thank you for completing this questionnaire

EATING DISORDER DIAGNOSTIC SCALE

Please carefully complete all questions.

| Over the past 3 months . . . | Not at all | | Slightly | | Moderately | | Extremely |
|---|------------|---|----------|---|------------|---|-----------|
| 1. Have you felt fat? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 2. Have you had a definite fear that you might gain weight or become fat? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 3. Has your weight influenced how you think about (judge) yourself as a person? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 4. Has your shape influenced how you think about (judge) yourself as a person? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 5. During the past 6 months have there been times when you felt you have eaten what other people would regard as an unusually large amount of food (e.g., a quart of ice cream) given the circumstances? YES NO | | | | | | | |
| 6. During the times when you ate an unusually large amount of food, did you experience a loss of control (feel you couldn't stop eating or control what or how much you were eating)? YES NO | | | | | | | |
| 7. How many DAYS per week on average over the past 6 MONTHS have you eaten an unusually large amount of food and experienced a loss of control? 0 1 2 3 4 5 6 7 | | | | | | | |
| 8. How many TIMES per week on average over the past 3 MONTHS have you eaten an unusually large amount of food and experienced a loss of control? 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 | | | | | | | |

During these episodes of overeating and loss of control did you . . .

9. Eat much more rapidly than normal? YES NO
10. Eat until you felt uncomfortably full? YES NO
11. Eat large amounts of food when you didn't feel physically hungry? YES NO
12. Eat alone because you were embarrassed by how much you were eating? YES NO
13. Feel disgusted with yourself, depressed, or very guilty after overeating? YES NO
14. Feel very upset about your uncontrollable overeating or resulting weight gain? YES NO
15. How many times per week on average over the past 3 months have you made yourself vomit to prevent weight gain or counteract the effects of eating? 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
16. How many times per week on average over the past 3 months have you used laxatives or diuretics to prevent weight gain or counteract the effects of eating? 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
17. How many times per week on average over the past 3 months have you fasted (skipped at least 2 meals in a row) to prevent weight gain or counteract the effects of eating? 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
18. How many times per week on average over the past 3 months have you engaged in excessive exercise specifically to counteract the effects of overeating episodes? 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
19. How much do you weigh? If uncertain, please give your best estimate. ____lb
20. How tall are you? __ft __in.
21. Over the past 3 months, how many menstrual periods have you missed? 1 2 3 4 na
22. Have you been taking birth control pills during the past 3 months? YES NO

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Appendix 12

HADS Depression & Meaningfulness

The present study produced some unexpected findings relative to the hypotheses. One finding that was not part of the experimental hypotheses, but that came out strongly in the results, was the relationship between HADS Depression and Meaningfulness. Although the status of this relationship is *a posteriori*, it is included here as it is consistent with the positions and findings of other authors who have used the SOC questionnaire with clinical populations.

The relationship between HADS Depression and Meaningfulness was highly significant across the entire sample ($n=78$), $r = -.872$, $p < .001$. Similarly, each of the three groups showed a significant relationship between both variables: the control group ($r = -.657$, $p < .001$); the depressed group ($r = -.577$, $p < .01$); and the anorexic group ($r = -.678$, $p < .05$). Spearman correlations were also run on the individual groups due to the small sample numbers. These are detailed in Appendix 13 and show similar effect sizes and levels of significance.

It is difficult to make bold statements regarding the above findings given their *a posteriori* status and the analyses being correlational in nature. However, it does appear that a strong negative association between a measure of depression and Meaningfulness is evident, not only in this study, but as reported by several other authors such as Sandell et al (1998), Carstens and Spangenberg (1997), and Geyer (1997). It would certainly seem that the SOC questionnaire is providing an indirect

measure of depression given the results of these studies.

Appendix 13 – Spearman Correlations

| | | | HADS Depression | Meaningfulness |
|----------------|-----------------|-----------------|-----------------|----------------|
| Spearman's rho | HADS Depression | Correlation | 1.000 | -.690 |
| | | Coefficient | | |
| | | Sig. (2-tailed) | . | .000 |
| | | N | 44 | 44 |
| | Meaningfulness | Correlation | -.690 | 1.000 |
| | | Coefficient | | |
| | | Sig. (2-tailed) | .000 | . |
| | | N | 44 | 44 |

** Correlation is significant at the .01 level (2-tailed).

Table 8 – Control Group Meaningfulness and HADS Depression Spearman Correlation

| | | | HADS Depression | Meaningfulness |
|----------------|-----------------|-----------------|-----------------|----------------|
| Spearman's rho | HADS Depression | Correlation | 1.000 | -.588 |
| | | Coefficient | | |
| | | Sig. (2-tailed) | . | .005 |
| | | N | 21 | 21 |
| | Meaningfulness | Correlation | -.588 | 1.000 |
| | | Coefficient | | |
| | | Sig. (2-tailed) | .005 | . |
| | | Sig. (2-tailed) | .005 | . |
| | | N | 21 | 21 |
| | | N | 21 | 21 |

** Correlation is significant at the .01 level (2-tailed).

Table 9 – Depressed Group Meaningfulness and HADS Depression Spearman Correlation

| | | | HADS Depression | Meaningfulness |
|----------------|-----------------|-------------------------|-----------------|----------------|
| Spearman's rho | HADS Depression | Correlation Coefficient | 1.000 | -.654 |
| | | Sig. (2-tailed) | . | .015 |
| | | N | 13 | 13 |
| | Meaningfulness | Correlation Coefficient | -.654 | 1.000 |
| | | Sig. (2-tailed) | .015 | . |
| | | N | 13 | 13 |

* Correlation is significant at the .05 level (2-tailed).

Table 10 – Anorexic Group Meaningfulness and HADS Depression Spearman Correlation