PSYCHOMETRIC PROPERTIES OF THE CONCERNS ABOUT CHANGE SCALE: AN EXPLORATION OF CONCERNS ABOUT RECOVERY IN
EATING DISORDERS AND OBSESSIVE-COMPULSIVE DISORDER

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Abstract

The aim of the present research was to further refine the Concerns about Change Scale (CCS), a self-report instrument designed to assess a wide range of potential concerns that may interfere with changing dysfunctional attitudes and behaviors. Initial studies employing this measure in eating disorder (ED), anxiety disorder, and substance abuse samples have provided preliminary support for its reliability and validity, but use of the scale is limited without a more comprehensive examination of its psychometric properties. In the current study, two samples were assessed, the first comprised of 230 females diagnosed with EDs and the second of 30 individuals diagnosed with obsessive-compulsive disorder (OCD). Factor analysis of the CCS in the ED sample yielded eight factors, accounting for 57.71% of the variance. Strong support was found for the internal consistency of the CCS total scale (α=.96) and eight factor subscales (range α=.87-.92). Convergent validity was supported through significant correlations between the CCS and eating disorder symptoms (as measured by the EDI-2 Drive for Thinness and Body Dissatisfaction subscales). Significant correlations were also obtained between the CCS and measures of depression (i.e., Beck Depression Inventory-2; Brief Symptom Inventory-Depression subscale) and anxiety (i.e., Brief Symptom Inventory-Anxiety subscale). The newly derived factor analytic structure was applied to the OCD sample. Comparison of the OCD and ED groups demonstrated that the ED sample scored significantly higher than the OCD sample on every factor. The relationship between the CCS and OCD symptom severity was examined, but none of the 8 factors were
significantly correlated with OCD symptom severity (as measured by the Yale-Brown Obsessive Compulsive Disorder Scale). These findings suggest that the CCS has strong psychometric properties within an ED sample and may be a useful tool for the measurement of attitudes that may inhibit behavioral change. In addition, the CCS shows promise in differentiating concerns about change among various forms of psychopathology, as well as other behavioral patterns. Knowledge of the concerns about change held by individuals with different disorders may provide valuable insight about how to target these concerns effectively during interventions. Further research is needed to establish the validity and reliability of the instrument across other forms of psychopathology and to examine its ability to predict treatment response in patients with EDs.
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Psychometric Properties of the Concerns about Change Scale: An Exploration of Concerns about Recovery in Eating Disorders and Obsessive-Compulsive Disorder

Intervention in patients with eating disorders (EDs) is often hindered by their reluctance to seek treatment, ambivalence about therapeutic goals, and non-compliance with professional recommendations (Amettler, Castor, Serrano, Martinez, & Tor, 2004; Kaplan & Garfinkel, 1999; Orimoto & Vitousek, 1992; Vitousek, Watson, & Wilson, 1998). Treatment resistance in anorexia nervosa (AN) and bulimia nervosa (BN) is partially attributable to the shared core features of overvaluation of weight and shape and the pursuit of thinness. In AN, denial of illness, the egosyntonic nature of symptoms, and the adaptive function of symptoms contribute to maintenance of the disorder (Vitousek et al., 1998). In general, individuals with BN are more amenable to seeking treatment, as bingeing and purging are often experienced as egodystonic, distressing, and shameful (Hamburg, Herzog, & Brotman, 1996); however, secrecy and reluctance to adopt a normal eating pattern often create ambivalence.

The treatment efficacy literature illustrates the difficulties encountered in the treatment of these patient populations (see Berkman, Lohr, & Bulik, 2007 for a review). The few randomized controlled trials for AN have produced disappointing results, particularly for adult patients with established AN (Agras, et al., 2004; Bulik et al., 2007; Vitousek, 2002; Wilson, Grilo, & Vitousek, 2007). Although Cognitive-Behavioral Therapy (CBT) and Interpersonal Psychotherapy (IPT) approaches have demonstrated efficacy in the treatment of BN (Shapiro et al., 2007), approximately half to two-thirds of individuals continue to experience clinically significant symptoms following the conclusion of treatment (Thompson-Brenner, Glass, & Westen, 2003). Overall, data
from random control trials (RCTs) suggest that a substantial proportion of individuals with AN and BN fail to benefit from treatment.

The identification of factors that contribute to poor treatment outcome is essential to improving our understanding and treatment of these complex disorders. Recently, many clinicians and researchers have emphasized that patients' motivation to change ED attitudes and behaviors plays a critical role in the reduction of symptoms (Geller, 2002a; Mahon, 2000; Vitousek et al., 1998). In response, several assessment instruments have been adapted or developed to measure readiness and motivation to change in EDs (Cockell, 2000; Geller & Drab, 1999; Geller, Cockell, & Drab, 2001; Gusella, Butler, Nichols, & Bird, 2003; Rieger et al., 2000; Serpell, Teasdale, Troop, & Treasure, 2004).

The current investigation explored the psychometric properties of one such measure, the Concerns about Change Scale (CCS; Bemis, 1986; Vitousek, DeViva, Slay, & Manke, 1995). The CCS is designed to measure the degree to which various concerns interfere with changing dysfunctional attitudes and behaviors. A distinctive feature of the CCS is that it can be administered across diagnostic categories, making it possible to compare the pattern of concerns endorsed by individuals with a range of target problems. Exploratory factor analysis was employed to identify unique constructs associated with concerns about change in EDs. In addition, the internal consistency and convergent validity of the CCS were examined. The current study attempted to identify concerns about change that may be particularly salient to this population by comparing ED patients to obsessive-compulsive disorder (OCD) patients. The goal was to provide an assessment of concerns about change in OCD, as well as a means of examining potential differences in the pattern of concerns between ED and OCD patients.
Eating Disorders

AN and BN share a distinctive core psychopathology of overvaluation of body weight and shape (Fairburn & Harrison, 2003), but the disorders differ meaningfully in the behaviors employed to control weight. AN is characterized by extreme dietary restriction, which results in excessive weight loss. Additional diagnostic criteria include an intense fear of gaining weight or becoming fat, body image disturbance (e.g., disturbance in the way in which one’s body weight or shape is experienced), and amenorrhea. The Diagnostic and Statistical Manual of Mental Disorders, fourth edition—text revision (DSM-IV-TR; American Psychiatric Association, 2000) distinguishes between two subtypes of the disorder based on the absence or presence of binge-eating or purging behavior, labeled Restricting Type and Binge-Eating/Purging Type, respectively (see Appendix A). BN is characterized by recurrent binge eating episodes followed by inappropriate compensatory methods to prevent weight gain. The DSM-IV-TR specifies that such episodes must occur at least twice a week for 3 months. There are two BN subtypes: the Purging Type (in which the individual regularly self-induces vomiting or misuses laxatives, diuretics, or enemas) and the Nonpurg ing Type (in which fasting or excessive exercise are present without regular use of self-induced vomiting or misuse of laxatives, diuretics, or enemas; see Appendix B). The DSM-IV-TR also includes a residual category, Eating Disorder Not Otherwise Specified (EDNOS), which is a diagnostic category reserved for individuals with clinically significant ED symptoms who do not meet the criteria for AN or BN (American Psychiatric Association, 2000; see Appendix C).
AN and BN are most prevalent in females, with onset typically in adolescence or young adulthood. Lifetime prevalence rates are estimated to be .5% for AN and 1-3% for BN among females in the United States (Hoek, 1993; Nielsen, 2001). EDNOS appears to account for the majority of EDs in clinical practice (Button, Benson, Nollett, & Palmer, 2005; Fairburn et al., 2007; Turner & Bryant-Waugh, 2004), but research on prevalence rates and course of illness in EDNOS is lacking (Fairburn & Bohn, 2004; Fairburn et al., 2007). AN and BN are associated with substantial morbidity and mortality, with data suggesting that these disorders often follow a chronic course. In a 7.5 year follow-up study, full recovery was more likely in BN than AN (73% vs. 33%, respectively; Herzog et al., 1999). The strongest predictor of poor outcome was an intake diagnosis of AN. Other studies have found comparable results, with a large number of patients failing to achieve full recovery and high rates of relapse (Eckert et al., 1995; Keel & Mitchell, 1997; Lowe, Zipfel, Buchholz, Dupont, Reas, & Herzog, 2001; Strober, Freeman, & Morrell, 1997).

Motivation to Change in Eating Disorders

In EDs, motivation to change is often absent, or present only for a small number of behaviors that the person finds intolerable (e.g., bingeing, purging; Vitousek et al., 1998). Individuals with EDs often present for treatment stating that they do not perceive their symptoms as problematic. Thus, ED clinicians are faced with the arduous task of increasing motivation to change (Geller, Zaitsoff, & Srikameswaran, 2005).

The anorexic stance toward intervention is often characterized by denial of illness, which includes failure to acknowledge dietary restriction, low body weight, fear of weight gain, hunger, distress, and compensatory methods (Vitousek, Daly, & Heiser,
1991; Vitousek et al., 1998). Some of the earliest clinical writings on AN denote the presence of poor motivation for change and denial of illness. With reference to one anorexia patient, Lasegue (1873/1997) observed “not only does she not sigh for recovery, but she is not ill-pleased with her condition, notwithstanding all the unpleasantness it is attended with” (p. 495).

Denial of illness is not unique to AN (Dean, 1958); however, it is such a prevalent feature of the disorder that it has been incorporated into diagnostic criteria by including denial of the seriousness of low weight status as one option for meeting Criterion A (American Psychiatric Association, 2000). Denial of illness often leads AN patients to refuse or resist treatment intervention, even when their health is at risk. Under the best conditions, individuals with AN present as deeply ambivalent about change. In the rare event that a patient appears completely committed to recovery at initial assessment, barriers to treatment are likely to be encountered during the process of active behavioral and cognitive change (Geller & Drab, 1999). Much of the work of therapy is focused on developing and maintaining motivation to change throughout the course of treatment (Garner & Bemis, 1982, 1985; Garner, Vitousek, & Pike, 1997; Vitousek et al., 1998).

BN patients present with a different set of motivational issues from individuals with AN, in large part because most view binge eating and purging as problematic; indeed, the desire to discontinue these behaviors is a common impetus for seeking treatment. In general, BN patients are unlikely to express denial of illness (Garner et al., 1997). Other factors, however, can affect disposition to change and accuracy of self-report in BN. In earlier stages of the disorder, the secrecy and shame that typically accompany bingeing and purging prevent many patients from seeking treatment. Shame
about bingeing and purging causes many patients to conceal their symptoms from others or underreport the frequency and severity of binge eating and purging episodes (Vitousek et al., 1991). In addition, many patients initially consider purging as the perfect solution to their weight predicament, one that they are hesitant to give up. Once treatment is initiated, motivational issues often arise when treatment goals require patients to give up their thin ideal (Garner, 1986; Vitousek et al., 1998). In both CBT and IPT, reduction of bulimic symptomatology is preceded and predicted by a decrease in dietary restraint. For some patients, this means gaining weight, although the average weight increase is relatively modest; however, for almost all it means giving up the goal of being thinner than current weight.

In most of the psychiatric disorders, motivation to change dysfunctional thoughts and behaviors is an essential precondition for successful therapeutic intervention. Ryan, Plant, and O’Malley (1995) state that “lack of motivation is one of the most frequently cited reasons for patient dropout, failure to comply, relapse, and other negative treatment outcomes” (p. 279). Low motivation negatively impacts engagement in treatment and compliance with therapeutic activities. Studies have demonstrated a positive relationship between compliance with treatment and better outcome in AN inpatients (Rosenvinge & Mouland, 1990) and BN outpatients (Troop, Schmidt, Tiller, Todd, Keilen, & Treasure, 1996). Towell and colleagues (2001) found that in a sample of ED inpatients high compliance at admission was associated with lower levels of body image disturbance, fewer ED symptoms, and higher ratings of overall treatment success at treatment completion.
Factors Associated with Low Motivation for Change

A number of factors have been hypothesized to be associated with low motivation for change in EDs, including egosyntonic quality of symptoms, positive valuation of symptoms, and the positive and negative reinforcement associated with symptoms. Understanding the impact of these factors on readiness for change is dependent on knowledge of patients' subjective experience of ED symptoms. Improved identification of these factors is important to understanding why so many individuals with EDs find it difficult to change their behavior.

Egosyntonic nature of symptoms. Across forms of psychopathology, the egosyntonic nature of symptoms has been implicated as a factor that plays a role in low motivation for change (Nir & Cutler, 1978). In EDs, thinness is egosyntonic in that patients "ascribe multiple meanings to [the size and shape of their bodies], having built up a dense associative network between the construct 'thinness' and such constructs as 'self-control,' 'virtue,' 'beauty,' and 'intelligence' — and, conversely between the construct 'fatness' and a great variety of personal flaws and faults" (Vitousek & Hollon, 1990, p. 196).

In AN, dietary restriction and the weight loss it produces are experienced as consistent with personal goals and values (Bemis, 1983; Vitousek et al., 1998). Rather than being seen as external or alien to the person's sense of self, anorexic behaviors are viewed as a central part of the individual's identity. This is illustrated by the relative importance patients assign to weight control relative to other pursuits and interests:

It's awful to admit it, but in general it's [the anorexia nervosa] the most important thing in my life...In comparison with relationships, it's much more important than that, with university and work it's a difficult decision, but as it goes I can't say anything but that I did drop my university and I was in pursuit of thinness at the
time. And even now if given the opportunity to go back [to university] now but I’d have to be a lot heavier, I’d say no (anorexic patient quoted in Tan, Hope, & Stewart, 2003, p. 702).

The goal of achieving and maintaining a thin physique is also consistent with the personal goals and values of most individuals with BN. In contrast to AN, however, the majority of individuals with BN maintain a normal weight, often because they are unsuccessful in their efforts to reduce their weight further. Another important distinction is that the primary symptoms of BN (binge eating and purging) are typically experienced as egodystonic, or inconsistent with the individuals’ personal goals and values. By definition, binge eating violates the goal of maintaining dietary restriction and achieving a thin ideal. Purging is often experienced as shameful but viewed as a functional means of counteracting the effects of binge eating (Beumont, 2002). Individuals with BN are resistant to giving up their level of dietary restriction and use of compensatory methods for fear that they will gain weight.

In a series of studies investigating the relative contribution of the importance of body shape and weight to overall self-esteem, Geller and colleagues (1997; 1998; 2000) found that ED patients are more likely than non-symptomatic women to endorse body shape and weight as central to their identity. In these studies, participants were asked to select multiple personal attributes that were important to their self-concept (e.g., friendships, competence at school/work, body shape and weight) and rank order the attributes with respect to the degree each contributed to their view of self. Additionally, participants were asked to divide a circle into segments, with each piece representing how much a particular attribute contributed to their identity. In comparison to both psychiatric controls and undergraduate females, ED patients were more likely to rank body shape and
weight significantly higher than other attributes. In addition, ED patients assigned body shape and weight a greater proportion of the circle than did the control groups. These findings provide support for the authors’ contention that an inordinate influence of shape and weight on identity is characteristic of ED patients (Geller, Johnson, Madsen, Goldner, Remick, & Birmingham, 1998).

The centrality of thinness to the identity of ED patients fuels their resistance to intervention. Of course, reluctance to change is a notable feature of many disorders, sometimes related to positive reinforcement, sometimes to negative reinforcement, and sometimes to both. For example, substance abusers often deny or rationalize their behavior and are notorious for their attempts to maintain and defend their symptoms from interference by others (Royce, 1981). It is notable, however, that the majority of substance abusers tend to view drug use in negative terms, even if they do not see themselves as fitting the definition of an addict or alcoholic (Miller & Rollnick, 2002). In contrast, anorexics tend to view their disorder as an accomplishment and take pride in their achievement of thinness (Vitousek et al., 1998). The extreme level of thinness sought by AN patients is seen as a means of achieving “cherished values and goals” (Vitousek & Ewald, 1993, p. 222). In this way, extreme thinness is not merely a means to an end; it becomes the end itself (Kaplan & Garfinkel, 1999; Vitousek et al., 1991).

Positive valuation of symptoms. Personal narratives of ED patients reveal the high value placed on thinness, with weight loss and thinness described in exceedingly positive terms. Bruch (1985) observed of anorexics that “in their extreme thinness they feel have found the perfect solution to their deep-seated unhappiness...They do not complain about their skeleton-like appearance; on the contrary, they glory in it and
actively maintain it” (p. 13). It is not uncommon for individuals with AN to express views such as the following: “It’s like I never knew what self-respect was all about until now. The thinner I get, the better I feel...This has become the most important thing I’ve ever done” (Ciseaux, 1980, p. 1468).

In an attempt to study positive valuation of symptoms, Shafran and colleagues (2003) presented forty-four women with ED scenarios describing physiological symptoms associated with starvation and dietary restraint. Participant responses were rated as “positive”, “negative”, or “neutral/mixed”. Findings indicated that ED participants viewed symptoms of hunger, heightened satiety, and dizziness in positive terms. This result is consistent with the clinical observation that individuals with EDs disregard negative physiological symptoms (e.g., dizziness, hunger) associated with their disorder (Treasure & Ward, 1997). Bemis (1983) has argued that seemingly aversive consequences of EDs are often experienced as positive in that they serve to reinforce the resolve to restrict. In this way, the negative physical consequences of anorexic behavior are interpreted by some individuals as positive indicators that they are achieving their goal of extreme thinness. As stated by one AN patient:

I remember getting some tests back saying how my liver was really damaged...and I thought it was really rather good!...it felt like really quite an accomplishment! It was just I’d done something that I knew hardly anyone else could do! (patient quoted in Tan, Hope, & Stewart, 2003, p. 702).

In the Shafran and colleagues (2003) study, this phenomenon was illustrated by the finding that ED patients rated a control scenario of experiencing elevated heart rate following physical exercise as positive. Although unexpected (according to the authors), this finding is not surprising as ED patients frequently engage in excessive exercise as a compensatory method and elevated heart rate may be interpreted as a positive sign that
they have achieved the goal of burning calories. One interesting finding was that ED participants did not differ from controls in viewing symptoms of heightened satiety after consuming a small amount of food as positive. Given the pervasive concern about weight and shape in our society and the widespread practice of dietary restriction, it is not unexpected that women would view feeling full after eating a modest amount in a positive light. Despite some limitations in the control scenarios, this study provides supportive empirical evidence for the positive valuation of ED symptoms.

*Positive and negative reinforcement of symptoms.* Dietary restraint and compensatory behaviors associated with EDs come to serve a wide range of adaptive functions, which are positively and negatively reinforced (De Silva, 1995; Garner & Bemis, 1982; Vitousek et al., 1998; Slade, 1982). EDs are maintained by positive reinforcement derived from the successful achievement of thinness, which results in a sense of accomplishment, specialness, and self-worth (Bemis, 1983; Vitousek et al., 1998). Slade (1982) hypothesized that positive reinforcement from extreme dietary restriction takes on added significance in AN as a function of “successful behavior in the context of perceived failure in all other areas of functioning” (p. 173). Negative reinforcement is derived from avoidance of body fat, as well as avoidance of other situations and experiences that the person might perceive as negative, such as strong emotions, responsibility, and intimacy (Bemis, 1983; Slade, 1982). The combination of positive and negative reinforcement is described by one eating-disordered individual:

> When I was losing weight it was something I’d have a lot of comfort in. When everything was going bad, college was going bad, well at least I was losing weight; I’d get on the scales and I lost weight and that would put me on a high for the day (patient quoted in Tan, Hope, & Stewart, 2003, p. 702).
Two independent qualitative studies conducted by Serpell and colleagues sought to elucidate the perceived functions of ED symptomatology by identifying pros and cons associated with AN and BN (Serpell, Treasure, Teasdale, & Sullivan, 1999; Serpell & Treasure, 2002). Participants were asked to write two letters to their disorder, one addressing the disorder as a friend and the other as an enemy. Participants with AN described their disorder as a guardian or protector, a means of increasing attractiveness, a source of control and structure, a means of enhancing self-confidence, and a way of feeling different from or superior over others (Serpell et al., 1999). Additionally, AN was perceived as a means of avoiding negative emotions. In comparison to anorexics, bulimics characterized their disorder in less positive terms, with a greater number of cons than pros (Serpell & Treasure, 2002). Despite this difference, bulimics indicated that BN served to protect them and allowed them to avoid negative emotions and weight gain. These findings illustrate some key differences in the way in which anorexics and bulimics experience their ED symptoms, consistent with clinical observations about the distinction between these groups (Garner, 1987).

*Transtheoretical Model of Change*

Much of the existing research pertaining to assessment of the motivation to change in EDs employs the Transtheoretical Model of Change (TTM; Prochaska, 1979; Prochaska & DiClemente, 1983, 1986; Prochaska, DiClemente, & Norcross, 1992; Prochaska & Velicer, 1997). The TTM provides a conceptual framework for understanding readiness for change and the process that one goes through in order to adopt positive behaviors and discontinue negative behaviors (Prochaska & Velicer, 1997). The TTM, initially examined in the context of substance abuse and smoking
(Prochaska, 1979; Prochaska & DiClemente, 1983; Prochaska et al., 1992) has been applied to a broad variety of eating and weight concerns, including the reduction of dietary fat (Brug, Hospers, & Kok, 1997; Greene, Rossi, Reed, Wiley, & Prochaska, 1994), dieting behavior (Povey, Conner, Sparks, James, & Shephard, 1999), weight loss (Prochaska, Norcross, Fowler, Follick, & Abrams, 1992), exercise (Callaghan, Eves, Norman, Chang, & Lung, 2002; Marcus, Rossi, Selby, Niaura, & Abrams, 1992; Marcus, Eaton, Rossi, & Harlow, 1994), and EDs (Blake, Turnbull, & Treasure, 1997; Levy, 1997; Jordan, Redding, Troop, Treasure, & Serpell, 2002; Stanton, Rebert, & Zinn, 1986; Ward, Troop, Todd, & Treasure, 1996).

According to this model, individuals progress through a series of sequential, but often cyclical, stages—Precontemplation, Contemplation, Preparation, Action, and Maintenance—in their efforts to change their behavior (Prochaska, Redding, & Evers, 2002; Prochaska & Velicer, 1997). In Precontemplation there is no intent to change the problematic behavior within the next 6 months. In Contemplation, individuals directly acknowledge their intent to modify their behavior in the next 6 months and seriously consider the pros and cons of changing their behavior. Preparation is a transitional stage between Contemplation, in which individuals openly disclose their intent to change, and the Action stage, in which individuals actively change their behavior. In the Preparation stage, small steps toward change may be taken, but there is not an effective, organized plan of action. Action is characterized by overt behavioral changes that require a substantial amount of energy and commitment to change. In the Maintenance stage individuals attempt to consolidate their gains and maintain behavioral changes in order to prevent relapse. When applied to EDs, the Action and Maintenance stages are often
conceptualized as a single entity, as both stages involve active work and therefore may be indistinguishable (Geller & Drab, 1999). Across the 5 stages, the TTM describes 5 cognitive or experiential processes – consciousness raising, dramatic relief, environmental re-evaluation, social liberation, self-reevaluation – and 5 behavioral processes – stimulus control, helping relationships, counterconditioning, contingency management, self-liberation – that enable change.

TTM stages are assessed through the use of mathematical algorithms or self-report questionnaires, such as the University of Rhode Island Change Assessment Scale (URICA; McConnaughy, DiClemente, Prochaska, & Velicer, 1989). Both approaches have been employed in ED populations. Using a modified version of the URICA, Blake, Turnbull, & Treasure (1997) found that in a sample of 51 ANs, 23.5% were in the Precontemplation stage, 27.4% were in Contemplation, and 49% were in Action. This is in comparison to a sample of 58 BNs, in which 82.8% were in the Action stage. The findings of this investigation are consistent with the lower level of motivation for change observed in individuals with AN in contrast to BN. An exploration of algorithms specific to AN found that the most useful algorithm assessed readiness to cease symptomatic behaviors, such as dietary restriction, binge-eating, and purging (Jordan et al., 2002).

Despite its popularity, the TTM has a number of limitations that restrict its applicability to ED populations [see Wilson & Schlam (2004) for a review]. A fundamental limitation of all stage models is that the delineation of stages is artificial and that human behavior is too complex to be simplified into discrete categories (Davidson, 1998). Geller and Drab (1999) maintain that the stage of change model is particularly problematic when applied to EDs because it is impossible to capture fully the complex
multidimensional nature of ED symptoms. ED patients may qualify for a number of different stages of change depending on which symptomatic behavior is being assessed. To illustrate this phenomenon, Geller and Drab (1999) provide an example of an individual with AN, binge eating/purging subtype who recognizes purging as a problem (Contemplation), is actively attempting to control binge eating (Action), but does not consider dietary restriction problematic (Precontemplation) and views restriction as a means of compensating for binge eating and purging (Precontemplation). Another issue that limits the TTM’s applicability to EDs is that the model proposes that for change to occur the disadvantages of the problem behavior must outweigh the advantages. In the case of EDs, this condition would preclude change in the majority of patients, as for most the cons of their disorder do not outweigh the positive value of thinness. Further criticism of the TTM highlights flaws in the theory underlying the model, including problems with the definition of stages, arbitrary chronological cut-offs, and illogical staging algorithms (Davidson, 1998; Sutton, 2001; Wilson & Schlam, 2004). These criticisms may have important implications when the TTM is applied to EDs, as ambivalence about treatment goals may greatly impact readiness to change both within and between treatment sessions (Treasure & Schmidt, 2001).

**Measurement of Motivation to Change**

Several assessment instruments have been developed or adapted to measure readiness and motivation to change in EDs (Cockell, 2000; Geller & Drab, 1999; Gusella, Butler, Nichols, & Bird, 2003; Rieger et al., 2000; Serpell, Teasdale, Troop, & Treasure, in press). Due to the popularity of the TTM, many of these instruments incorporate the stages of change model. One example is the Anorexia Nervosa Stages of Change
Questionnaire (ANSOCQ; Rieger et al., 2000; Rieger & Touyz, 2006; Rieger, Touyz, & Beumont, 2002), which assesses ED symptomatology in the context of motivational constructs. The ANOSCQ consists of 20 self-report items, each of which contains five statements corresponding to the stages of precontemplation, contemplation, preparation, action, and maintenance. In the initial investigation of the ANOSCQ, Rieger et al. (2000) provided strong support for the internal consistency, test-retest reliability, and concurrent validity of the instrument with a sample of 71 inpatients with AN, as well as preliminary support for the predictive validity of using ANOSCQ scores to predict weight gain during treatment. Further psychometric validation of the ANOSCQ demonstrated good construct validity with instruments intended to measure constructs theoretically related to motivation to change (Rieger et al., 2002).

A second instrument based on the TTM framework, the Readiness and Motivation Interview (RMI; Geller & Drab, 1999; Geller, Cockell, & Drab, 2001), is a semi-structured interview designed to elicit information related to readiness and motivation to change ED behaviors. The RMI incorporates TTM and motivational interviewing principles and techniques, and is designed to be used in conjunction with the Eating Disorders Examination (EDE; Cooper & Fairburn, 1987), which is a standard interview schedule for the assessment of ED symptomatology. The RMI provides four scores for each symptom item of the EDE corresponding to the degree to which the individual is resistant to change, is contemplating change, is taking action to change, or is intrinsically motivated to change the symptom. RMI scores have been shown to predict similar questionnaire measures of readiness to change, treatment enrollment decisions, and dropout from treatment (Geller et al., 2001). Other instruments based on the TTM, such
as the Stages of Change Questionnaire, Processes of Change Questionnaire, and the URICA, have also been modified for use with EDs (Blake et al., 1997; Stanton et al., 1986; Ward et al., 1996).

The Decisional Balance scale (DB; Cockell, 2000; Cockell, Geller, & Linden, 2002, 2003) and the Pros and Cons of Anorexia Nervosa scale (P-CAN; Serpell et al., 2004) are designed to assess positive and negative aspects of AN. Psychometric evaluation of the DB scale provided support for the concurrent and divergent validity, as well as the test-retest reliability (Cockell, 2000; Cockell, Geller, & Linden, 2002, 2003). The P-CAN has demonstrated adequate interrater reliability, test-retest reliability, and construct validity (Serpell et al., 2004). The P-CAN has been validated using an adolescent sample (Serpell et al., 2003), but there is also a stages of change measure specifically designed for adolescents, the Motivational Stages of Change for Adolescents Recovering from an Eating Disorder (MSCARED; Gusella, Butler, Nicholas, & Bird, 2003).

Despite the number of recently developed instruments to assess motivation for change, these measures are limited in a number of ways. Many are based on the TTM framework (i.e., ANSOCQ, RMI, and MSCARED) and share the shortcomings of this model. Other instruments are specific to AN (i.e., Decisional Balance Scale, P-CAN) and may not address concerns relevant to individuals with BN or EDNOS, who comprise the majority of the ED population. Additionally, these instruments are designed specifically for EDs and do not allow for comparison of motivation for change between EDs and other forms of psychopathology.
A more subtle measurement issue arises from the ambivalence about treatment that results from the egosyntonic nature of ED symptoms. Throughout the course of treatment, AN patients often describe being of two minds about changing their behavior. On the one hand, they know they should change and that treatment requires eating more and gaining weight. On the other hand, they do not want to part with the positive reinforcers associated with the disorder by relinquishing their pursuit of thinness. As Orimoto and Vitousek (1992) have noted, lack of motivation for change “extends to a more basic rejection of average weight and a preference for extreme thinness that persist even after patients have acknowledged that they are underweight and may have some problems for which medical and psychiatric assistance are indicated” (p. 88). This predicament is seen in the following interaction, in which an interviewer is attempting to assess competency to make treatment decisions using a standardized instrument:

Interviewer: So there are two alternatives, really, the treatment package and not having treatment. Which of the two seems the best to you? (4 seconds silence) Which one are you most likely to want? (2 seconds silence)

Patient: I'm most likely to want nothing, but I don't think that would help.

Interviewer: Right, so they are two different questions, which is best and which do you want.

Patient: Mm. (Agreement)

Interviewer: So in the end... which would you choose, do you think?

Patient: Nothing.

Interviewer: No treatment.

Patient: No.

Interviewer: Okay. And which do you actually think is better?

Patient: The package, the treatment.

Interviewer: So that's a tricky one, isn't it? Because my questionnaire assumes is that what you think is better is what you want.


This interaction is illustrative of a critical problem in assessing motivation to change in this population. This patient is clearly torn between answering the question by stating
what she knows she **should** do (i.e., the better choice being the treatment package) and what she **wants** to do (i.e., “nothing”). The interviewer in this case astutely realizes that the interview procedure is flawed because it fails to capture the patient’s experience fully. Thus, it is important to consider how questions assessing motivation to change are phrased, depending on whether one is interested in what the patient intellectually thinks is the correct course or what she prefers to do and/or is actually doing with respect to behavioral change. In measuring motivation to change in EDs, assessment instruments must be able to address the complexity involved in an individual’s willingness to change her behavior that arises from the egosyntonic nature of ED symptomatology.

**Concerns about Change Scale**

The Concerns about Change Scale (CCS; Bemis, 1986; Vitousek et al., 1995) is a self-report questionnaire designed to overcome many of the limitations inherent in the previously described assessment instruments (see Appendix D). Rather than assessing motivation for change directly, the CCS does so indirectly by asking what individuals feel they would lose by giving up their disorder. This indirect means of questioning is intended to decrease defensiveness by asking what the person perceives as barriers to behavioral change. It also separates the individual’s thoughts about change from her behavioral steps toward change, and avoids the inherent problems associated with asking the person what she thinks she should do versus what she actually wants to do or intends to do. Many of the items are designed to tap the respondent’s perception of positive aspects of her symptoms in order to better understand egosyntonic aspects of her disorder.
A distinct feature of the CCS is that the items are written so that they are potentially applicable to all forms psychopathology, thus allowing for comparison with other disorders. Although written in general terms, the items are designed to tap some of the issues that are especially relevant to specific forms of psychopathology, such as the perception of uniqueness and specialness in AN patients, fear of risks in anxiety disorders, and peer group concerns in substance abuse patients. Thus, the CCS can be used to identify concerns about change that are particularly salient to individuals with EDs compared to other forms of psychopathology. Comparison with other disorders provides the opportunity to examine the contention that EDs (and specifically individuals with AN) are more reluctant to change than other psychiatric populations. In addition, it is potentially interesting to examine different content profiles with reference to the constructs that may contribute to reluctance to change in individuals with different disorders. In this way, one can learn about the degree to which individuals with specific disorders are reluctant to change their behavior, and also about the factors that contribute to that reluctance.

Previous studies of the Concerns about Change Scale. The original CCS (Bemis, 1986) was designed to assess concerns about change that were considered to be unique to or unusually salient in eating disorders, in an effort to distinguish the concerns of individuals with EDs from those observed in individuals with other forms of psychopathology, specifically anxiety disorders. As mentioned earlier, however, the items were written to be at least potentially applicable to a broad array of behavioral problems. The items are phrased in sufficiently general terms so that they could be endorsed by an individual with any form of psychopathology who considered the
construct to be relevant to his or her symptoms. Items that tapped the egosyntonic nature of ED symptoms were represented (i.e., Sense of Identity, Personal Loss subscales), along with items that addressed fears about the process of change, as well as the potential negative consequences of change. The original scale consisted of 8 subscales: Unable to Change, Unworthy of Change, Fear of Risks, Fear of Sexuality/Maturity, Fear of Interpersonal Loss, Fear of Personal Loss, Sense of Identity, and Failure to Recognize Irrationality.

The initial investigation by Bemis (1986) was conducted with individuals with AN, BN, agoraphobia (AP), and simple phobia (SP). The sample sizes were small, with between 12-16 participants per cell. Findings suggested that individuals with AN endorsed the greatest concerns about change, scoring significantly higher than those with BN, AP, and SP on 4 of 8 subscales and significantly higher than participants with either anxiety disorder on 3 additional subscales (Bemis, 1986). On all but one subscale, ANs scored the highest, followed in order by BN, AP, and SP. The exception was the Failure to Recognize Irrationality Scale where the ranking was AN, SP, BN, AP; again, however, the SP group scored significantly below the AN group.

Following this investigation the CCS was revised to include a wider array of concerns about change. The original eight subscales were expanded by separating the Fear of Sexuality/Maturity subscale into two distinct subscales and dividing the Fear of Personal Loss subscale into Fear of Personal Loss – Accomplishment and Fear of Personal Loss – Hedonic. In addition, seven new subscales were added: Fear of the Process of Change, Fear of Peer Group Loss, Problem Provides Disinhibition, Problem Allows Avoidance of Responsibility, Problem Provides a Means of Coping with Negative
Affect, Problem Provides a Means of Goal Attainment, Problem Reflects a Deeper Underlying Flaw. These additional subscales were added in an attempt to obtain a more complete picture of concerns about change and include domains hypothesized to be relevant to a wider spectrum of psychiatric disorders. For example, the original CCS did not assess concerns about losing valued social groups through giving up symptomatic behavior. An issue that may be especially relevant to individuals with substance abuse problems. Accordingly, the Fear of Peer Group Loss subscale was added to the measure. Again, this subscale was phrased in sufficiently general terms so that it could be endorsed across disorders by any individual who deemed it relevant to his or her concerns.

Employing the expanded version of the CCS in a mixed eating disorder sample, ANs were found to score significantly higher than BNs on 11 of 17 rational subscales and significantly higher than the EDNOS group on 14 (Vitousek et al., 1995). Internal reliability for the rationally-derived subscales was high, ranging from .80-.91. In the first attempt to factor analyze the CCS, the subscales were found to be strongly intercorrelated, with a preliminary factor analysis suggesting that an 8-factor solution provided the best fit (Vitousek et al., 1995).

Goodyear (1990) employed the CCS to investigate concerns about change in 24 male alcohol abusers and 24 male cocaine and amphetamine abusers. Overall, substance abusers demonstrated significant elevations on the rational subscales Fear of Maturity, Fear of Peer Group Loss, and Avoidance of Responsibility. Cocaine and amphetamine abusers scored slightly higher than alcohol abusers on many subscales, but the only significant difference between the substance abuse groups was on the Fear of Peer Group Loss scale. Although this study did not include any other comparison groups, the
concerns of substance abusers appear to be different from those identified in previous studies with eating and anxiety disorder participants (Bemis, 1986). These findings suggest that different psychiatric groups of patients who may be ambivalent about changing their behaviors do not necessarily yield the same profiles of concerns about change.

Further support for the validity of the CCS comes from several studies that have employed the measure in conjunction with other measures of motivation. A study by Rieger and colleagues (2002) found that the correlation between the Anorexia Nervosa Stages of Change Questionnaire (ANSOCQ), an assessment of readiness to recover, was significantly and negatively correlated with all of the subscales of the CCS (with the exception of the Sexuality subscale). In an evaluation of the effects of a pretreatment motivational enhancement therapy on motivation to change behavior in 19 ED outpatients, Feld and colleagues (2001) found that the CCS Failure to Recognize Irrationality of the Problem subscale decreased significantly following the intervention. There were trends toward a decrease in the CCS Fear of the Process of Change and Unable to Change subscales following intervention, but these failed to reach statistical significance. Although this study is limited by a small sample and lack of a control group, these findings suggest that the CCS may be useful in determining the effectiveness of motivational interventions.

The current study sought to further validate the CCS through the employment of exploratory factor analysis to identify separate dimensions of the CCS that represent concerns about change in ED patients. One of the advantages of the CCS, in comparison to other assessment instruments, is the ability to employ it across different diagnostic
categories. Thus, an additional goal was to potentially identify concerns that may be particularly salient in the EDs by comparing concerns about change in individuals with EDs to individuals with OCD. OCD provides a particularly interesting comparison group as research suggests that there is significant comorbidity between OCD and EDs (see Bulik, 1995; Godart, Flament, Perdereau, & Jeammet, 2002; O’Brien & Vincent, 2003; Pearlstein, 2002; Serpell, Livingston, Neiderman, & Lask, 2002 for reviews). In addition, individuals with EDs and OCD share many symptom and personality features (Bulik, 1995; Rubenstein, Altemus, Pigott, Hess, & Murphy, 1995). Further, there is a paucity of empirical research investigating motivational issues in OCD. Identification of factors that may inhibit treatment seeking or adherence in OCD may be helpful to improving treatment outcomes, particularly in individuals with poor insight.

**Clinical Features of Obsessive-Compulsive Disorder**

OCD is characterized by the presence of obsessions or compulsions that cause marked distress and impairment and are excessively time consuming. Obsessions are defined as recurrent and persistent thoughts, impulses, or images that are experienced as intrusive and inappropriate and result in significant distress. Obsessional content includes preoccupations with contamination, pathological uncertainty, and concerns with symmetry and order, and may contain violent, religious, or sexual themes (Jenike, 2001). Compulsions are intended to prevent distress and often manifest as rituals, repetitive behaviors, or mental acts (American Psychiatric Association, 2000). Common compulsions include washing, cleaning, counting, checking, repeating, and arranging behaviors (Jenike, 2001). The majority of individuals with OCD present with multiple obsessions and compulsions that cause marked distress, significantly interfere with
functioning, and negatively impact their quality of life (Bystritsky et al., 2001; Calvocoressi et al., 1995; Hollander et al., 1997; Koran, 2000; Leon, Portera, & Weissman, 1995).

OCD is a rare disorder, affecting 1-3% of the population (McElroy, Phillips, & Keck, 1994; Kamo & Golding, 1991; Kamo et al., 1988; Samuels & Nestadt, 1997). The majority of studies suggest that OCD may be slightly more prevalent among females (Kamo et al., 1988). Age of onset appears to be most common in late adolescence and early adulthood, with earlier onset of illness in males compared to females (Burke, Burke, Regier, & Rae, 1990; Castle, Deale, & Marks, 1995). There is a paucity of prospective empirical evidence on the course of OCD or the factors that may affect course over time. There is some evidence that childhood onset may be associated with greater clinical severity and poor prognosis (Hanna, 1995; Rasmussen & Tsuang, 1986), but retrospective recall and prospective follow-up studies indicate high variability in the periodicity, duration, and severity of OCD symptoms (Clark, 2004).

Relationship between Eating Disorders and Obsessive-Compulsive Disorder

Early theorists proposed a potential connection between EDs and OCD (DuBois, 1949; Palmer & Jones, 1939), which continues to receive attention in contemporary accounts of these disorders (Bellodi, et al, 2001; Holden, 1990; Hsu, Kaye, & Weltzin, 1993; Jimenez-Murcia et al., 2007; McElroy, Phillips, & Keck, 1994; Rothenberg, 1986). McElroy and colleagues (1994) suggest that AN and BN represent phenotypic variants of OCD and are most accurately conceptualized as belonging to the obsessive-compulsive spectrum disorders. This perspective is based on clinical observations and empirical studies that indicate that ED symptoms may reflect obsessive and compulsive features.
Clinically, ED patients demonstrate extreme preoccupation with food, weight, and shape that resembles the obsessive preoccupations and pathological doubt in OCD (Bulik, 1995). Ritualistic eating behaviors, repetitive checking of weight, and compulsive exercise often parallel the repetitive and ritualistic compulsions found in OCD. Furthermore, ED patients have been noted to have a number of traits in common with their OCD counterparts, including cleanliness, orderliness, perfectionism, rigidity, miserliness, and scrupulosity (Rubenstein, Altemus, Pigott, Hess, & Murphy, 1995).

Both individuals with EDs and individuals with OCD exhibit a cognitive style characterized by dysfunctional thinking that serves to perpetuate their symptomatology [see Frost & Steketee (2002) for a review of cognitive processes in OCD; see Vitousek & Hollon (1990) for a review of cognitive processes in EDs].

**Comorbidity.** Supporting a relationship between EDs and OCD, high rates of comorbidity have been found within each of the disorders (Fornari et al., 1992; Godart et al., 2000; Halmi et al., 1991; Kaye et al., 2004; Milos et al., 2002; Swinbourne & Touyz, 2007). In order for an ED to be diagnosed comorbid with OCD, obsessions and compulsions related to ED thoughts and behavior are excluded from the OCD criteria. In reference to AN, the DSM-IV-TR advises that “an additional diagnosis of Obsessive-Compulsive Disorder should be considered only if the individual exhibits obsessions and compulsions unrelated to food” (American Psychiatric Association, 2000, p. 588). Comorbidity rates between EDs and OCD range widely, dependent on diagnostic criteria, method of assessment (structured clinical interview vs. self-report questionnaires), type of population (clinical vs. epidemiological), and ED subtype (O’Brien & Vincent, 2003; Serpell et al., 2002; Shafran, 2003). Additional variance in comorbidity rates may be due
to poor methodology, such as the use of small sample sizes and lack of comparison group data. Regardless of the exact rates of co-occurrence, it is clear that there is significant comorbidity within the disorders.

OCD has been reported to occur in 11–69% of individuals with AN (Bellodi, Cavallini, Bertelli, Chiapparino, Riboldi, & Smeraldi, 2001; Braun, Sunday, & Halmi, 1994; Halmi, Eckert, Marchi, Sampugnaro, Apple, & Cohen, 1991; Iwasaki, Matsunaga, Kiriike, Tanaka, & Matsui, 2000; Lilienfeld et al., 1998; Rastam, Gillberg, & Gillberg, 1995), and in 3–43% of individuals with BN (Albert, Venturello, Maina, Ravizza, & Bogetto, 2001; Bellodi et al., 2001; Iwasaki et al., 2000; Lilienfeld et al., 1998). These prevalence rates are impressive in contrast to the 1-3% lifetime prevalence of OCD in the general population (McElroy et al., 1994; Karno & Golding, 1991; Karna et al., 1988; Samuels & Nestadt, 1997). The lifetime prevalence rate of EDs in individuals with OCD has been found to range from 8-17%, which is significantly higher than rates of EDs in the general population (Fahy, Osacar, & Marks, 1993; Halmi et al., 1991; Kasvikis, Tsakiris, Marks, Başoğlu, & Noshirvani, 1986; Rubenstein, Pigott, L’Heureux, Hill, & Murphy, 1992). Higher rates of irregular eating patterns and symptoms of AN and BN have been found in individuals with OCD (O’Rourke, Wurtman, Wurtman, Tsay, Gleason, Baer, & Jenike, 1994)

Some studies have found an association between the presence of OCD symptoms in ED patients and greater severity of ED symptoms and general psychopathology (Albert et al., 2001; Lennkh, Strnad, Bailer, Biener, Fodor, & deZwaan, 1998; Thiel, Broocks, Ohlmeier, Jacoby, & Schüßler, 1995; Zubieta, Demitrack, Fenick, & Krahn, 1995). Other studies have reported no differences in the severity of ED symptoms between ED
patients with or without concomitant OCD (Thiel, Züger, Jacoby, & Schüßler, 1998). Additionally, this study found that improvement in ED symptoms was correlated with improvement in obsessive-compulsive symptoms (Thiel et al., 1998).

**Similarities between Eating Disorders and Obsessive-Compulsive Disorder**

EDs and OCD share many common clinical and personality characteristics, including overvalued ideation, pathological doubt, reassurance seeking, generalized anxiety, obsessive and compulsive tendencies, and perfectionism (Lavender, Shubert, de Silva, & Treasure, 2006; Milos, Spindler, Ruggiero, Klaghofer, & Schnyder, 2002). A thorough exploration of these commonalities is beyond the scope of this review; however, the construct of overvalued ideation will be highlighted as especially relevant to the current research. Because few empirical studies have directly compared individuals with EDs and OCD, the following discussion is based primarily on independent studies of the two populations.

**Overvalued ideas.** The clinical picture in both AN and OCD is dominated by overvalued ideas (McKenna, 1984). The DSM-IV-TR defines an overvalued idea as “an unreasonable and sustained belief that is maintained with less than delusional intensity” (American Psychiatric Association, 2000). The DSM-IV-TR definition has a number of qualifiers, including the specification that the person is able to acknowledge that the belief may or may not be true and that other people do not ordinarily accept the belief as true. In AN, overvalued ideas center around body shape and weight and degree of self-control, as well as the meaning of these constructs for the individual (Vitousek, 2003). The diagnostic criteria for AN include overvalued ideas regarding weight and shape and
the importance of thinness as one of the key features of the disorder (American Psychological Association, 2000).

Individuals with OCD who evidence overvalued ideation are most closely matched to individuals with AN (McKenna, 1984; Orimoto & Vitousek, 1992; Veale, 2002). For OCD, the DSM-IV-TR classifies the presence of overvalued ideas under the category of “poor insight”. The poor insight specifier is used to denote individuals with overvalued ideation who lack recognition that their obsessions and compulsions are excessive and unreasonable (American Psychiatric Association, 2000). Traditionally, the diagnosis of OCD required that the individual display insight, or recognition of the senselessness of their obsessions, and demonstrate resistance to performing compulsions. In fact, the presence of insight has been employed as a marker to differentiate the obsessions present in OCD from delusions in psychosis; however, the clinical literature contains numerous examples of individuals with OCD who strongly believe their obsessions to be reasonable and their compulsive behaviors to be necessary (Kozac & Foa, 1994). Insel and Akiskal (1986) proposed that insight in OCD exists on a continuum ranging from good insight, in which patients clearly recognize the excessiveness and senselessness of their concerns, to delusional conviction, in which the obsessions are considered realistic and reasonable.

Research has explored variation in the degree of insight about obsessions and resistance to compulsions in OCD. Turksoy and colleagues (2002) found that 31% of 94 patients with OCD evidenced poor insight according to DSM-IV criteria. Ito and colleagues (1995) reported that even though 62% of their sample of 56 OCD patients recognized their obsessions as “absurd”, the majority firmly believed in the negative
consequences associated with not performing compulsions. In addition, 6 (11%) participants never tried to resist engaging in compulsions, and 30 (53%) believed they had little to no control over compulsive urges. The DSM-IV-TR field trials found that only a quarter of individuals with OCD believed that abstaining from their chosen compulsion would not result in negative consequences; the remaining 75% were either uncertain or believed that their fears were valid (Foa, Kozak, Goodman, Jenike, Hollander, & Rasmussen, 1995). More recently, Marazziti and colleagues (2002) found that approximately 15% of 117 individuals with OCD presented with poor to absent insight.

It has been hypothesized that poor insight may have negative implications for treatment, due to decreased motivation for modifying threat-related beliefs, as well as decreased willingness to participate in exposure to modify behavior (Foa, 1979; Foa, Abramowitz, Franklin, & Kozak, 1999; Tolin, Abramowitz, Kozak, & Foa, 2001). In exploring treatment response to exposure and response prevention, Foa (1979) reported that individuals with overvalued ideas about their obsessive fears failed to benefit from treatment, due to lack of generalization of anxiety reduction across sessions. Consistent with this observation, Solyom and colleagues (1985) found that irrational beliefs about obsessions, which they labeled “obsessional psychosis”, were associated with poor response to behavior therapy. Several large-scale studies, however, have not found overvalued ideation predictive of treatment outcome (Başoğlu, Lax, Kasvikis, & Marks, 1988; Foa, Grayson, Steketee, Doppelt, Turner, & Latimer, 1983; Hoogduin & Duivenvoorden, 1988).
Differences between Anorexia Nervosa and Obsessive-Compulsive Disorder

Despite the clinical and personality similarities between EDs and OCD, there are a number of important differences. Although individuals with AN and OCD score similarly on the Yale-Brown Obsessive Compulsive Scale (Y-BOCS; Goodman & Price, 1992), there is some evidence that the content of obsessive and compulsive symptoms may differ. Bastiani and colleagues (1996) found that in comparison to individuals with OCD, AN patients were less likely to endorse sexual, aggressive, or somatic symptoms. Symptoms concerning symmetry, exactness, ordering and arranging were experienced most commonly. Consistent with this finding, Matsunaga and colleagues (1999) found that individuals with AN and OCD had similar levels of OCD symptomatology on the Y-BOCS, but anorexics were more likely to have symptoms associated with symmetry and exactness.

Egosyntonic (AN) vs. egodystonic (OCD) nature of symptoms. An important distinction between AN and OCD is the egosyntonic nature of symptoms in AN and the egodystonic nature of obsessions and compulsions in OCD (Holden, 1990; Pearlstein, 2002). Obsessions and compulsions associated with OCD are reported to be egodystonic because the content of the obsession is contrary to or inconsistent with the individual’s sense of self (Clark, 2004). The intrusive thoughts associated with obsessions typically conflict with the individual’s values, ideals, and moral attributes, and thus constitute a threat to the individual’s self-view (Purdon, 2001; Purdon & Clark, 1999). The egodystonic nature of obsessions is exemplified by individuals with obsessions about harming another person, when in actuality they have no history or intention of acting in an aggressive or violent manner. Another example is individuals who are conscientious
and perfectionistic, but who are plagued by obsessive doubts about their actions (Clark, 2004).

Motivation for Treatment in Obsessive-Compulsive Disorder

Effective treatments for OCD, such as exposure and response prevention and selective-serotonin reuptake inhibitors, have been well-established (Abramowitz, 1997). Surprisingly few data are available regarding motivation for treatment in OCD. In the few studies that have investigated motivation to change, the findings are unclear about the impact of motivation on treatment engagement and response, with some studies suggesting that motivation impacts outcome (Hoogduin & Duivenvoorden, 1988; Keijsers, Hoogduin, & Schapp, 1994) and others failing to demonstrate such an effect (Lax, Başoğlu, & Marks, 1992; O’Sullivan, Noshirvani, Marks, Monteiro, & Lelliott, 1991). More data are needed on the specific concerns about change among OCD patients that may impact treatment motivation.

Present Investigation

The present investigation sought to refine the CCS (Vitousek et al., 1995) and examine its psychometric properties in an ED sample, as well as collect new data from an OCD population. Previous studies employing different versions of the CCS in ED, anxiety disorder, and substance abuse samples provide preliminary support for the reliability and validity of the measure (Bemis, 1986; Feld et al., 2001; Goodyear, 1990; Reiger et al., 2002; Vitousek et al., 1995). Further refinement and examination of construct validity are necessary to establish the utility of the CCS.

Consistent with this goal, the construct validity of the CCS was examined through the use of factor analysis. Principal components analysis with Promax rotation was
employed to identify an appropriate factor solution. Additionally, the internal consistency of the empirically-derived factors was examined. Specific hypotheses were:

1. Factor analysis would yield fewer factors than the 17 rationally-derived subscales that comprise the CCS. As noted, the CCS was purposely designed to be overinclusive in order to assess a wide range of concerns that individuals may hold when considering the impact of changing their behavior. The previous factor analysis performed with 85 ED participants yielded an eight-factor solution, in which 2 of the 17 rational subscales replicated precisely (i.e., Fear of Sexuality, Fear of Peer Group Loss). The other six empirically-derived factors consisted of items that combined to form meaningful factors. For example, items from the Fear of Maturity and Problem Allows Avoidance of Responsibility rational subscales combined to form a factor denoting fears about becoming an adult and taking on additional responsibility for behavior and choices. Based on these data it was expected that some of the rational subscales would replicate precisely as factors, while others would combine to form factors that represent combinations of rational subscale items.

2. Based on previous research that showed high internal consistency among both the rational subscales and the preliminary 8-factor empirically-derived subscales (Cronbach alphas ranged from .80 to .91), it was expected that the internal consistency of the newly derived empirically-derived factors would be high.

In the eating disorder sample, convergent validity of the CCS was examined by investigating the relationship between the CCS total and factor subscale scores and other
theoretically related constructs, including severity of eating disorder symptoms and the presence of general psychopathology. The three different ED specialty treatment programs in which data were collected employed different assessment instruments (as will be further discussed in the methods section), so that the available data set provided several different means of examining aspects of convergent validity. Specific hypotheses were:

3. It was hypothesized that there would be a relationship between the severity of ED symptoms as measured by the Eating Disorder Inventory – 2 symptom subscales (EDI-2; Garner, 1991) and concerns about change as measured by the CCS. Specifically, a significant positive relationship was expected between the ED participants’ scores on the EDI-2 Drive for Thinness and Body Dissatisfaction subscales and the CCS empirically-derived subscales. The relationship between the EDI-2 Bulimia subscale and the CCS was also examined, although it was expected that higher endorsement of bulimic behavior may be associated with lower concerns about change, as higher levels of bingeing and purging are more likely to be associated with a desire to change behavior. These predictions could be examined in the entire ED sample (N=230) because data from both instruments were available for all cases.

4. Based on the results of the previous factor analysis of the CCS (Vitousek et al., 1995), it was expected that convergent validity could be further established through examining the relationship between specific empirically-derived CCS factors and relevant EDI-2 subscales. For example, it was
hypothesized in advance that should items of the CCS Fear of Sexuality or Fear of Maturity/Problem Allows Avoidance of Responsibility replicate as factors, these scales were predicted to be significantly and positively correlated with the EDI-2 Maturity Fears subscale.

5. It was hypothesized that there would be a relationship between the severity of symptoms of general psychopathology, as measured by the Beck Depression Inventory – 2 (BDI-2; Beck & Steer, 1996) and the Brief Symptom Inventory (BSI) – Depression and Anxiety subscales (Derogatis & Melisaratos, 1983; Derogatis, 1993) and concerns about change, as measured by the CCS. Specifically, a significant positive relationship was expected between the ED participants' scores on the BDI-2 (N=120), BSI-Depression (N=102), and BSI-Anxiety subscales (N =101), and total and subscale scores on the CCS empirically-derived subscales.

A second aim of this study was to investigate differences between concerns about change in individuals with EDs compared to those with OCD. The CCS was specifically designed to allow for comparisons between concerns about change in various forms of psychopathology. OCD is a particularly interesting comparison group as it is a disorder in which symptoms are largely perceived as egodystonic, in sharp contrast with the egosyntonic nature of ED symptoms. Little empirical evidence exists on the concerns that OCD patients may have when they are contemplating change. In order to better understand the concerns about change held by individuals with OCD, and how these might be similar to or different from those endorsed by individuals with eating disorders, the identified factor subscales will be applied to the OCD sample. Use of the CCS in an
OCD sample will provide an opportunity to further examine validity indices of the CCS by examining group differences between the ED and OCD samples.

6. Consistent with previous data comparing CCS scores among individuals with EDs and anxiety disorders (i.e., Specific Phobia, Agoraphobia), it is hypothesized that the ED group will endorse greater concerns about change overall than the OCD group. Specifically, ED participants are expected to score significantly higher on empirically-derived subscales that are most closely related to the egosyntonic nature of ED symptoms, such as Fear of Personal Loss-Accomplishment, Problem Provides Personal Identity, Problem Provides a Means of Goal Achievement, and Problem is Not Recognized as Irrational. A somewhat different pattern may be seen on items that tap anxiety-related domains, such as those comprising the rationally-derived subscale Fear of Risk. Consistent with previous research with individuals with anxiety disorders (Vitousek et al., 1995), it was expected that OCD participants' scores would be elevated on anxiety-related items, but might not differ significantly from those with EDs (who share these concerns).

7. In addition, the relationship between concerns about change (i.e., CCS empirically-derived factors) and the severity of OCD symptoms (i.e., Yale-Brown Obsessive-Compulsive Scale; Y-BOCS; Goodman & Price, 1992) will be examined. Specific hypotheses were not made because it is not clear whether a relationship should be expected. Based on previous research with anxiety disorders, as well as general knowledge of the nature of OCD, OCD participants are not expected to endorse high concerns about change; thus, a
strong relationship between symptom severity and concerns about change would not necessarily be anticipated.

8. A related area of interest was the relationship between the presence of low levels of insight and high degree of overvalued ideation on concerns about change. While OCD participants are not expected to endorse high levels of concerns about change overall, a subset of individuals with OCD does appear to have limited insight into the irrationality of their symptoms. In order to investigate a possible relationship between insight and concerns about change in the OCD sample, the correlation between the single item assessment of insight from the Y-BOCS (item 11) and the empirically-derived factor that consists of items from the CCS Problem is Not Viewed as Irrational rationally-derived subscale was examined. It was hypothesized that level of insight would have a positive relationship to concerns about change, with lower levels of insight (which is represented by a higher score on item 11 of the Y-BOCS) associated with higher concerns about change (represented by the CCS Problem is Not Viewed as Irrational subscale). To examine the relationship with overvalued ideation, correlations between the total score on the OVIS and the empirically-derived factor that consists of items from the Problem is Not Viewed as Irrational rationally-derived subscale were analyzed. It was hypothesized that the presence of higher levels of overvalued ideation (i.e., higher scores on the OVIS) would be positively correlated with greater scores on the CCS Problem is Not Viewed as Irrational subscale.
Method

Participants

Eating disorder participants. The ED sample consisted of 230 females diagnosed with AN, BN, or EDNOS. Data were obtained from three different specialty eating disorder treatment programs, due to the low prevalence rate of EDs and the large number of subjects required to conduct the factor analysis of the CCS. Eighty-five (85) of the women were receiving treatment at Kapiolani Medical Center in Honolulu, Hawaii, 35 presented for an assessment at the Center for Cognitive Behavior Therapy in Honolulu and 110 were participating in outpatient assessment or treatment at St. Paul’s Hospital in Vancouver, Canada. All participants were administered the CCS as part of the established clinical or research protocol. Diagnostic assessment procedures varied by site. At the Center for Cognitive Behavior Therapy and St. Paul’s Hospital, the Eating Disorder Examination – version 12.0D (EDE-12.0D; Fairburn & Cooper, 1993), a semi-structured interview, was employed. The EDE is considered the gold-standard assessment for eating disorders, and has demonstrated good to excellent psychometric properties (for reviews see Williamson, Anderson, Jackman, & Jackson, 1995; Fairburn & Cooper, 1993). At Kapiolani Medical Center, diagnoses were based on information obtained during unstructured clinical interviews. Based on these varied assessment procedures, 96 participants (41.7%) met criteria for AN, 52 participants (22.6%) met criteria for BN, and 82 participants (35.7%) met criteria for EDNOS. Table 1 presents the diagnostic breakdown for each site.
Table 1.

Eating Disorder Diagnoses for Each Treatment Site and Total Sample

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>CCBT Honolulu, HI</th>
<th>Kapiolani Honolulu, HI</th>
<th>St. Paul's Vancouver, Canada</th>
<th>Total Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Anorexia Nervosa</td>
<td>18</td>
<td>51.4</td>
<td>24</td>
<td>28.2</td>
</tr>
<tr>
<td>Bulimia Nervosa</td>
<td>2</td>
<td>5.7</td>
<td>37</td>
<td>43.5</td>
</tr>
<tr>
<td>Eating Disorder Not Otherwise Specified</td>
<td>15</td>
<td>42.9</td>
<td>24</td>
<td>28.2</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100</td>
<td>85</td>
<td>100</td>
</tr>
</tbody>
</table>

Participants ranged in age from 13 to 55, with a mean age of 26.73 years (SD=9.69). Illness characteristics, such as Body Mass Index (BMI), age of onset, and duration of eating disorder, are presented in Table 2. BMI varied by diagnostic group, with a mean of 16.83 (SD=1.33) for the AN group, 23.04 (SD=3.64) for the BN group, and 22.77 (SD=5.40) for the EDNOS group. There was a significant difference between the AN group and the BN and EDNOS groups with respect to BMI [F(2, 222)=70.22, p=.00], with the AN group having significantly lower BMIs than both the BN and the EDNOS groups, which did not significantly differ from each other.
Table 2.

Illness Characteristics of the ED Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>AN (N=96)</th>
<th>BN (N=52)</th>
<th>EDNOS (N=82)</th>
<th>Total Sample (N=230)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>24.96 (8.76)</td>
<td>27.44 (9.36)</td>
<td>26.34 (10.65)</td>
<td>26.73 (9.69)</td>
</tr>
<tr>
<td>BMI</td>
<td>16.83 (1.33)</td>
<td>23.04 (3.64)</td>
<td>22.77 (5.40)</td>
<td>20.37 (4.80)</td>
</tr>
<tr>
<td>Age of onset</td>
<td>16.68 (4.38)</td>
<td>17.98 (7.16)</td>
<td>17.29 (5.75)</td>
<td>17.22 (5.64)</td>
</tr>
<tr>
<td>Duration of illness (years)</td>
<td>7.82 (7.78)</td>
<td>9.20 (8.17)</td>
<td>12.14 (9.66)</td>
<td>9.62 (8.71)</td>
</tr>
</tbody>
</table>

*Obsessive-Compulsive disorder participants.* The OCD sample consisted of 10 males and 20 females, recruited through outpatient clinics at the University of California, Los Angeles. All participants were in the process of seeking or receiving treatment for OCD. Participants ranged in age from 14 to 54, with a mean age of 30.67 years (SD=10.18). Demographic characteristics for the OCD sample are presented in Appendix E. The majority of the participants were Caucasian (83.3%), single (53.3%), and college educated (33.3%).

Diagnoses of OCD were made through semi-structured diagnostic interviews, which consisted of either the Anxiety Disorder Interview Schedule, the OCD section of the Structured Clinical Interview for DSM-IV, or the Yale-Brown Obsessive Compulsive Scale (Y-BOCS), employed according to the clinic’s standard clinical and research protocols. While this information could not be accessed by the investigator for reasons of confidentiality, all participants self-reported that they had a clinical diagnosis of OCD and were being seen in an outpatient therapy clinic for their disorder. To further verify their OCD symptoms, all OCD participants were administered the Y-BOCS as part of their participation in this study.

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All participants reported both obsessions and compulsions. The majority of participants reported more than one primary obsession (82%) and compulsion (93%), most of which spanned different symptom categories. The most frequent obsessions centered around themes of contamination and symmetry, whereas the most frequent compulsions fell into the categories of cleanliness, checking, and ordering. The frequency of reported obsessions and compulsions are presented in Figures 1 and 2.

Figure 1.
Frequency of Obsessions in the OCD Sample Endorsed on the Y-BOCS.
Illness characteristics of the OCD sample are presented in Table 3. In comparison, to the ED sample, the OCD sample had an older age of onset (i.e., total ED sample M=17.22 years vs. OCD sample M=21.30 years), but comparable duration of illness (i.e., total ED sample M=9.62 years vs. OCD sample M=9.37 years).

Table 3.

Illness Characteristics of the OCD Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of onset</td>
<td>30</td>
<td>21.30</td>
<td>7.59</td>
<td>4-30</td>
</tr>
<tr>
<td>Duration of illness (years)</td>
<td>30</td>
<td>9.37</td>
<td>7.55</td>
<td>1-37</td>
</tr>
<tr>
<td>Age at first treatment</td>
<td>30</td>
<td>25.17</td>
<td>8.50</td>
<td>9-42</td>
</tr>
</tbody>
</table>
Materials

Eating Disorder Sample. The three ED specialty programs differed with respect to the assessment instruments employed. Thus, the sample size for each assessment measure used in subsequent analyses will vary. At the Center for Cognitive Behavior Therapy, participants (maximum N=35) were administered a battery of questionnaires, which included the CCS (Vitousek et al., 1995), EDI-2 (Garner, 1991), and the BDI-2 (Beck, Rush, Shaw, & Emery, 1979; Beck & Steer, 1996). Similarly, Kapiolani Medical Center participants (maximum N=85) were administered the CCS (Vitousek et al., 1995), EDI-2 (Garner, 1991), and the BDI-2 (Beck, Rush, Shaw, & Emery, 1979; Beck & Steer, 1996). At St. Paul's Hospital participants (maximum N=110) were administered the CCS (Vitousek et al., 1995), EDI-2 (Garner, 1991), and the Brief Symptom Inventory - Depression and Anxiety Scales (Derogatis & Melisaratos, 1983; Derogatis, 1993).

Obsessive-Compulsive Disorder Sample. The OCD sample was administered the Y-BOCS (Goodman & Price, 1992) and the OVIS (Neziroglu, McKay, Yaryura-Tobias, Stevens, & Todaro, 1999) in interview form and completed the CCS (Vitousek et al., 1995), EDI-2 (Garner, 1991), and the BDI-2 (Beck, Rush, Shaw, & Emery, 1979; Beck & Steer, 1996) in questionnaire form.

Measurement of Participant Characteristics

Demographic Questionnaire – Eating Disorder Sample. The collection of demographic information varied by treatment site. Basic demographic information, such as age, gender, and BMI were collected at all three sites. The Center for Cognitive Behavior Therapy employed a lengthy background information form, which includes additional demographic information, such as ethnicity, marital status, employment,
religion, parents level of education and occupation, and family composition. This form also includes extensive information about ED symptoms, weight history, onset of ED symptoms, physical complications, and treatment history. St. Paul’s Hospital uses a background form that includes much of the information obtained at The Center for Cognitive Behavior Therapy, with the notable exception of ethnicity data. For participants at Kapiolani Medical Center only basic demographic data were available.

Demographic Questionnaire - Obsessive-Compulsive Disorder Sample. OCD participants were administered a demographic information form that included age, gender, ethnicity, marital status, educational status, socioeconomic status, and family composition. In addition, it included questions about illness characteristics, including age of onset of OCD symptoms, symptom history, comorbid diagnoses, and treatment history. All information was self-reported, as patient charts could not be accessed for confidentiality reasons.

Measurement of Concerns about Change

Concerns about Change Scale (CCS; Vitousek, DeViva, Slay, & Manke, 1995). The CCS is designed to assess the degree to which individuals hold various fears and concerns that might interfere with changing dysfunctional attitudes and behaviors. The full questionnaire is contained in Appendix A. The items of the CCS are applicable to issues associated with change for individuals across different forms of psychopathology. The CCS consists of a total of 112 items, 10 of which are not scored and do not contribute to any of the rational subscales. These items were a part of the original CCS but were dropped from rational subscales on the revised version; however, they were retained on the scale in order to make comparisons with the original CCS scale. The 102
remaining items are grouped into 17 rationally-derived subscales. Each subscale is comprised of 6 items, which are intended to reflect a particular construct related to concerns about change. Participants are asked to rate each item on a 5-point scale according to the degree to which the statement reflects their current level of concern about changing their attitudes and behaviors, ranging from one ("does not reflect my concerns at all") to five ("very strongly reflects my concerns"). Scores are tallied for each of the subscales in order to create a profile of concerns; higher scores are indicative of greater concerns in that construct area. The subscales are:

1. Unable to Change
2. Unworthy of Change
3. Fear of Risks
4. Fear of Maturity
5. Fear of Sexuality
6. Fear of the Process of Change
7. Fear of Personal Loss – Accomplishment
8. Fear of Personal Loss – Hedonic
9. Fear of Interpersonal Loss
10. Fear of Peer Group Loss
11. Problem Provides Personal Identity
12. Problem Provides Disinhibition
13. Problem Allows Avoidance of Responsibility
14. Problem Provides a Means of Coping with Negative Affect
15. Problem Provides a Means of Goal Attainment
16. Problem Reflects a Deeper Underlying Flaw
17. Problem is Not Recognized as Irrational

Psychometric analyses lend initial support for the reliability and validity of the CCS. Studies of the CCS with ED samples indicate that the internal consistency of the rationally-derived subscales is high, ranging from .80-.91 (Vitousek et al., 1995). In research using an earlier version of the CCS that contained only eight subscales, individuals with AN were found to score higher than individuals with BN on four of eight subscales (Bemis, 1986), consistent with the clinical view and other quantitative data.
suggesting that individuals with AN are more reluctant to modify their symptoms than individuals with BN. Additionally, anorexics were found to score higher than individuals with agoraphobia and individuals with specific phobia on seven of eight subscales. A study by Rieger and colleagues (2002) found significant negative correlations between the ANSOCQ, a measure of readiness to recover, and all of the subscales of the CCS (with the exception of the Sexuality subscale). In the first attempt to factor analyze the subscales of the CCS, the subscales were found to be strongly intercorrelated, with a preliminary factor analysis suggesting that an 8-factor solution provided the best fit (Vitousek et al., 1995).

Measurement of Eating Disorder Symptoms

Eating Disorders Inventory–2 (EDI-2; Garner, 1991). The EDI-2 is a revision of the EDI (Garner, Olmstead, & Polivy, 1983), designed to assess the psychological characteristics and symptoms associated with AN and BN. The EDI-2 expands upon its predecessor by retaining the original 64 items of the EDI and adding 27 new items that make up 3 additional subscales. Thus, the EDI-2 is comprised of 91 items that represent 11 subscales. Three subscales assess attitudes, cognitions, and behaviors regarding eating, weight, and body shape concerns: Drive for Thinness, Bulimia, and Body Dissatisfaction. The additional eight subscales measure general psychological characteristics associated with eating disorder concerns: Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness, Maturity Fears, Asceticism, Impulse Regulation, and Social Insecurity. Items are rated using a 6-point, forced choice format with each item rated as occurring “always,” “usually,” “often,” “sometimes,” “rarely,” or “never.” Items are scored on a scale from 0-3, with the item that signifies the most eating
disorder pathology earning a score of 3, the next adjacent response a score of 2, the next response a score of 1, and the other three responses a score of zero (0). Subscale scores are derived from the summation of all items corresponding to the particular scale. The EDI-2 is a commonly used measure of eating, weight and body shape psychopathology, and has demonstrated adequate reliability and validity in clinical and non-clinical samples (Garner, 1991). Norms for the original EDI subscales and the three additional subscales of the EDI-2 are available for individuals with AN and bulimia, as well as non-patient college females and males (Crowther, Lilly, Crawford, & Shepherd 1992; Garner, 1991).

*Measurement of Obsessive-Compulsive Disorder Symptoms*

*Yale-Brown Obsessive Compulsive Scale (Y-BOCS) (Goodman & Price, 1992).* OCD participants were administered the Y-BOCS to provide a measure of the severity of OCD symptoms. The Y-BOCS is a clinician-rated scale, in which obsessions and compulsions are rated with respect to how much they occupy the patient’s time, interfere with functioning, cause subjective distress, are resisted by the patient, and can be controlled by the patient. An advantage of this scale is that, unlike other OCD assessment instruments, the severity of symptoms is independent of the type or number of obsessions and compulsions (Goodman, Price, Rasmussen, et al., 1989b). Additionally, the Y-BOCS assesses obsessions (sum of items 1-5) and compulsions (sum of items 6-10) separately, permitting comparison and separate analyses of these constructs. The Y-BOCS consists of a 10-item scale, each item rated on a 4-point scale from 0 (“no symptoms”) to 4 (“severe symptoms”), with a range of 40 points. In addition to the primary scale items, the supplemental item measuring insight (item 11) was administered.
A total score greater than 17 is generally indicative of clinically significant OCD (Goodman, Price, Rasmussen, et al., 1989b). Factor analysis of the scale has led some researchers to suggest that the Y-BOCS may be best regarded as a two-dimensional scale, assessing obsessions and compulsions as separate but related factors (Amir, Foa, & Kozak, 1997; McKay, Danyko, Neziroglu, & Yaryura-Tobias, 1995; McKay, Neziroglu, Stevens, & Yaryura-Tobias, 1998).

Administration of the Y-BOCS begins with a definition of obsessions and compulsions. The patient and rater then work together to identify a comprehensive list of the patient’s current obsessions and compulsions. This process is facilitated by the use of the Y-BOCS Symptom Checklist, which includes more than 70 examples of obsessions and compulsions. Goodman and colleagues (1989a) found that the Y-BOCS demonstrated excellent interrater reliability among 4 independent raters in a sample of 40 individuals with OCD, with item correlation coefficients ranging from .86 to .97. Obsession and compulsion subtotals were .97 and .96 respectively, with a total score correlation of .98 (Goodman, Price, Rasmussen, et al., 1989a). In addition, internal consistency of the items was high, with average Cronbach $\alpha = .89$ across independent raters (range $\alpha = .88$ to .91). With respect to convergent validity, in a sample of 3 cohorts of OCD ($n = 81$), the Y-BOCS demonstrated significant correlations with the NIMH-Global Obsessive Compulsive Scale and CGI-OCS, two independent measures of OCD (Goodman, Price, Rasmussen, 1989a).

Measurement of Symptoms of Depression

*Beck Depression Inventory-2 (BDI; Beck, Rush, Shaw, & Emery, 1979; Beck & Steer, 1996).* The BDI-2 contains 21 items designed to assess cognitive, affective, and
behavioral symptoms of depression. The respondent is asked to indicate the severity of each symptom by identifying the statement that best describes his/her experience in the past week. Items are rated from “0” (symptom not present) to “3” (symptom is severe), resulting in a total score based on the summation of all items. Scores range from 0 to 63, with higher scores indicative of greater levels of depression. A meta-analysis of 25 years of research studies employing the BDI found that the measure demonstrated high internal consistency, high construct validity, good test-retest reliability and high convergent validity with other measures of depression (Beck, Steer, & Garbin, 1988).

**Brief Symptom Inventory – Depression subscale (BSI; Derogatis & Melisaratos, 1983; Derogatis, 1993).** The BSI is a brief form of the Symptom Checklist-90-R (SCL-90-R; Derogatis, 1994), a self-report measure of current psychological distress and symptoms. The BSI was designed to measure 9 symptom dimensions, including depression and anxiety. In addition, three global indices of distress may be obtained (i.e., Global Severity Index, Positive Symptom Distress Index, Positive Symptom Total). Items are rated on a 5-point scale, ranging from 0 (not at all) to 4 (extremely). Participants are asked to indicate the extent to which each symptom caused them distress during the past 7 days, including the day of the test. The depression subscale consists of 6 symptoms that reflect a range of symptoms of clinical depression, including dysphoric affect, anhedonia, and hopelessness. In general psychiatric populations, the BSI depression subscale has demonstrated adequate to strong reliability and validity. Internal consistency of the depression subscale is high with an alpha coefficient of .85 (Derogatis & Melisaratos, 1983; Piersma, Boes, & Rheaume, 1994). The depression subscale has demonstrated a moderate correlation (r=.50) with the Minnesota Multiphasic Personality
Inventory (MMPI; Hathaway & McKinley, 1983) depression scale (Boulet & Boss, 1991).

Measurement of Symptoms of General Anxiety

*Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983; Derogatis, 1993)*

- *Anxiety subscale.* The anxiety subscale of the BSI consists of 6 items that represent symptoms associated with high manifest anxiety. Internal consistency for the anxiety subscale is high with alpha coefficients ranging from .81-.86 (Boulet & Boss, 1991; Derogatis & Melisaratos, 1983; Piersma, Boes, & Rheume, 1994). The BSI anxiety subscale has demonstrated adequate validity, with correlation coefficients of .48 with the MMPI Psychasthenia scale (Hathaway & McKinley, 1983) and .57 with the Tryon Cluster Scores (Tryon, 1966).

Measurement of Overvalued Ideation and Insight

*Overvalued Ideas Scale (OVIS; Neziroglu, McKay, Yaryura-Tobias, Stevens, & Todaro, 1999).* The OVIS is a clinician-rated interview designed to assess levels of overvalued ideas quantitatively in individuals with OCD. The OVIS consists of 11 items that are rated on a 10-point scale, with the exception of 1 item that measures the time duration of the belief. Neziroglu and colleagues (1999) found that the OVIS demonstrated adequate internal consistency reliability (coefficient α = 0.88), test-retest reliability (r = 0.86), and inter-rater reliability (r = 0.88) in a sample of individuals with OCD. The OVIS has demonstrated moderate to high levels of convergent validity with the Y-BOCS obsession and compulsion subscales and the Y-BOCS insight item (#11). In addition, in a study of 20 OCD inpatients who participated in a one-month intensive
behavioral program, the OVIS was shown to be predictive of treatment outcome (Neziroglu, Stevens, McKay, & Yaryura-Tobias, 2001).

Yale-Brown Obsessive Compulsive Scale – Insight Item (Y-BOCS; Goodman & Price, 1992). General information on the Y-BOCS was provided in the previous section on measurement of OCD symptoms. Item 11 of the Y-BOCS was used as a single-item assessment of degree of insight. Item 11 states “Do you think your concerns or behaviors are reasonable? What do you think would happen if you did not perform the compulsion(s)? Are you convinced that something would really happen?” This item is rated by the interviewer from “0” (excellent insight, fully rational) to “4” (lacks insight, delusional). This item is commonly used as a single-item assessment of insight, and had been found to be significantly correlated with other more comprehensive measures of insight (Neziroglu et al., 1999).

Procedure

Eating Disorder Sample. As noted earlier, the three eating disorder specialty programs varied in their assessment procedures. All participants completed the CCS and accompanying assessment instruments as part of initial evaluation. Most of the participants were seeking treatment or had been brought to the clinic by a family member who wanted them to receive treatment; a minority completed the measures as part of an assessment-only contact. At the Center for Cognitive Behavioral Therapy and St. Paul’s Hospital, participants’ eating disorder behaviors and history were assessed through a combination of unstructured and semi-structured interviews. Participants were then provided a battery of assessment instruments that included the CCS, EDI-2, and the BDI-
2, which they completed independently. At Kapiolani Medical Center, participants were provided the CCS, EDI-2, and the BDI-2 as part of their initial intake packet.

**Obsessive Compulsive Disorder Sample.** All OCD participants were administered the Y-BOCS and OVIS in interview format. Following the OVIS interview, participants were administered the CCS. This order was necessary to ensure that participants would be responding to the CCS items with respect to their OCD symptoms. Prior to being administered the CCS, participants were asked to report the main problem that brought them to treatment. All participants reported that their OCD symptoms were their main concern and thus, were administered the CCS without further instructions. This procedure prohibited counterbalancing of the interviews and assessment measures. Following the CCS, participants were administered the demographics form, EDI-2, and the BDI-2.

**Results**

*Concerns about Change Scale Rational Subscales*

Prior to conducting the factor analysis, participants’ scores on the rational subscales of the CCS were reviewed. This was done in order to examine whether the CCS findings in this study were comparable to past investigations using the CCS. While it is inappropriate to make direct comparisons between different studies of the CCS due to different populations and different contexts of assessment, it is notable that the rational subscale scores in the present investigation were generally consistent with other studies. Table 4 presents the diagnostic breakdown of scores for AN, BN, and EDNOS participants across the three treatment sites, and Table 5 further delineates the data by
treatment site. The small sample sizes within the different diagnostic categories prohibited by-diagnosis analysis of differences between treatment sites.

Analysis of variance was conducted to examine differences between the three ED diagnostic groups on each of the 17 rational subscales, as well as on the total score. Significant differences were found between the diagnostic groups on 10 of the rational subscales: Unworthy of Change \([F(2, 227)=3.20, p=.043]\), Fear of Risks \([F(2, 227)=5.11, p=.007]\), Fear of Maturity \([F(2, 227)=3.15, p=.037]\), Fear of the Process of Change \([F(2, 227)=5.89, p=.003]\), Fear of Personal Loss — Accomplishment \([F(2, 227)=19.24, p=.001]\), Fear of Interpersonal Loss \([F(2, 227)=3.88, p=.022]\), Problem Provides Personal Identity \([F(2, 227)=8.62, p=.001]\), Problem Provides Disinhibition \([F(2, 227)=4.39, p=.013]\), Problem Provides a Means of Goal Attainment \([F(2, 227)=6.63, p=.002]\), and the Problem is Not Recognized as Irrational \([F(2, 227)=8.61, p=.001]\) subscales.

Post-hoc testing using the Bonferroni correction revealed that the AN group scored significantly higher than the BN group on each of these 10 rational subscales. In addition, the AN group scored significantly higher than the EDNOS group on 3 subscales: Fear of Personal Loss — Accomplishment, Problem Provides Personal Identity, and the Problem is Not Recognized as Irrational subscale. The means for the EDNOS group were typically higher than those of the BN group, but differed significantly only on the Fear of Personal Loss — Accomplishment subscale. For the total CCS score, the AN group scored significantly higher than the BN and EDNOS groups, \([F(2, 227)=6.48, p=.002]\). It is notable that the EDNOS group did not differ significantly from the AN group on 14 of the 17 rational subscales. The typical rank order of scores from highest to lowest was AN, EDNOS, BN, with the exception of 4 scales in which the differences
between the scales were minimal (i.e., Fear of Sexuality, Fear of Loss of Peer Group, Problem Allows Avoidance of Responsibility, and Problem Reflects a Deeper Underlying Flaw).

Table 4.

CCS Rational Subscale Scores for AN, BN, and EDNOS Participants across the Three Treatment Sites.

<table>
<thead>
<tr>
<th>CCS Rational Subscales</th>
<th>Anorexia Nervosa (N=96)</th>
<th>Bulimia Nervosa (N=52)</th>
<th>EDNOS (N=82)</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unable</td>
<td>14.83 (6.07)</td>
<td>13.00 (5.74)</td>
<td>14.54 (5.90)</td>
<td>1.70</td>
<td>.185</td>
</tr>
<tr>
<td>Unworthy</td>
<td>14.64 (6.74)</td>
<td>11.94 (5.82)</td>
<td>12.99 (6.62)</td>
<td>3.20</td>
<td>.043</td>
</tr>
<tr>
<td>Risks</td>
<td>13.33 (5.24)</td>
<td>10.69 (5.33)</td>
<td>11.61 (4.85)</td>
<td>5.11</td>
<td>.007</td>
</tr>
<tr>
<td>Maturity</td>
<td>14.46 (7.04)</td>
<td>11.83 (5.42)</td>
<td>12.48 (6.78)</td>
<td>3.35</td>
<td>.037</td>
</tr>
<tr>
<td>Sexuality</td>
<td>11.67 (6.17)</td>
<td>11.19 (6.63)</td>
<td>12.50 (7.14)</td>
<td>6.86</td>
<td>.505</td>
</tr>
<tr>
<td>Process</td>
<td>17.69 (6.46)</td>
<td>14.00 (6.46)</td>
<td>15.63 (6.41)</td>
<td>5.89</td>
<td>.003</td>
</tr>
<tr>
<td>Accomplishment</td>
<td>18.53 (6.88)</td>
<td>11.38 (5.65)</td>
<td>14.67 (7.54)</td>
<td>19.24</td>
<td>.001</td>
</tr>
<tr>
<td>Hedonic</td>
<td>11.01 (5.11)</td>
<td>9.92 (5.42)</td>
<td>9.95 (4.82)</td>
<td>1.24</td>
<td>.291</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>13.05 (5.66)</td>
<td>10.21 (5.70)</td>
<td>11.72 (6.51)</td>
<td>3.88</td>
<td>.022</td>
</tr>
<tr>
<td>Peer Group</td>
<td>7.96 (3.51)</td>
<td>8.08 (3.95)</td>
<td>7.62 (2.87)</td>
<td>.35</td>
<td>.708</td>
</tr>
<tr>
<td>Identity</td>
<td>16.28 (6.48)</td>
<td>12.23 (4.57)</td>
<td>13.83 (6.05)</td>
<td>8.62</td>
<td>.001</td>
</tr>
<tr>
<td>Disinhibition</td>
<td>12.93 (5.42)</td>
<td>10.56 (4.95)</td>
<td>11.13 (5.12)</td>
<td>4.39</td>
<td>.013</td>
</tr>
<tr>
<td>Responsibility</td>
<td>14.99 (5.69)</td>
<td>14.33 (6.76)</td>
<td>13.35 (6.42)</td>
<td>1.54</td>
<td>.216</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>16.70 (7.22)</td>
<td>14.75 (6.64)</td>
<td>15.10 (6.86)</td>
<td>1.78</td>
<td>.172</td>
</tr>
<tr>
<td>Flaw</td>
<td>16.67 (6.48)</td>
<td>14.85 (6.32)</td>
<td>14.80 (6.27)</td>
<td>2.35</td>
<td>.098</td>
</tr>
<tr>
<td>Irrational</td>
<td>13.28 (6.08)</td>
<td>9.38 (4.00)</td>
<td>11.21 (5.85)</td>
<td>8.61</td>
<td>.001</td>
</tr>
<tr>
<td>Total</td>
<td>242.39 (72.34)</td>
<td>199.08 (70.05)</td>
<td>215.72 (77.32)</td>
<td>6.48</td>
<td>.002</td>
</tr>
</tbody>
</table>

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Table 5.

Means and Standard Deviations for CCS Rational Subscales by Diagnosis by Treatment Site

<table>
<thead>
<tr>
<th>CCS Rational Subscales</th>
<th>Anorexia Nervosa</th>
<th>Bulimia Nervosa</th>
<th>EDNOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unable</td>
<td>14.50 (7.38)</td>
<td>14.54 (6.05)</td>
<td>15.75 (5.15)</td>
</tr>
<tr>
<td>Unworthy</td>
<td>11.28 (5.75)</td>
<td>16.17 (6.96)</td>
<td>13.71 (6.05)</td>
</tr>
<tr>
<td>Risks</td>
<td>11.89 (5.55)</td>
<td>13.26 (4.41)</td>
<td>14.58 (6.52)</td>
</tr>
<tr>
<td>Maturity</td>
<td>12.67 (6.78)</td>
<td>16.09 (7.65)</td>
<td>12.13 (4.60)</td>
</tr>
<tr>
<td>Sexuality</td>
<td>9.89 (5.51)</td>
<td>12.13 (6.74)</td>
<td>11.96 (5.22)</td>
</tr>
<tr>
<td>Process</td>
<td>16.78 (7.91)</td>
<td>16.89 (3.68)</td>
<td>20.08 (6.73)</td>
</tr>
<tr>
<td>Accomplishment</td>
<td>16.39 (7.30)</td>
<td>18.69 (6.15)</td>
<td>19.79 (7.98)</td>
</tr>
<tr>
<td>Hedonic</td>
<td>10.11 (4.11)</td>
<td>10.24 (4.43)</td>
<td>13.42 (6.47)</td>
</tr>
<tr>
<td>Peer Group</td>
<td>7.39 (1.91)</td>
<td>7.48 (2.63)</td>
<td>9.46 (5.39)</td>
</tr>
<tr>
<td>Identity</td>
<td>14.39 (6.67)</td>
<td>16.81 (6.27)</td>
<td>16.50 (6.80)</td>
</tr>
<tr>
<td>Disinhibition</td>
<td>10.22 (4.75)</td>
<td>13.46 (5.07)</td>
<td>13.75 (6.18)</td>
</tr>
</tbody>
</table>
Table 5. (Continued)

Means and Standard Deviations for CCS Rational Subscales by Diagnosis by Treatment Site

<table>
<thead>
<tr>
<th>CCS Rational Subscales</th>
<th>Anorexia Nervosa</th>
<th>Bulimia Nervosa</th>
<th>EDNOS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CCBT (N=18)</td>
<td>St. Paul's Kapio (N=54)</td>
<td>CCBT (N=2)</td>
</tr>
<tr>
<td>Responsibility</td>
<td>12.50 (6.80)</td>
<td>16.20 (5.22)</td>
<td>14.13 (5.25)</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>14.72 (7.90)</td>
<td>17.48 (6.77)</td>
<td>16.42 (7.69)</td>
</tr>
<tr>
<td>Goal</td>
<td>13.78 (6.57)</td>
<td>13.89 (5.32)</td>
<td>16.00 (7.43)</td>
</tr>
<tr>
<td>Flaw</td>
<td>13.33 (6.90)</td>
<td>16.61 (5.91)</td>
<td>19.29 (6.45)</td>
</tr>
<tr>
<td>Irrational</td>
<td>12.78 (6.48)</td>
<td>11.56 (4.44)</td>
<td>17.54 (7.07)</td>
</tr>
<tr>
<td>Total</td>
<td>213.44 (79.63)</td>
<td>245.11 (63.76)</td>
<td>257.96 (81.46)</td>
</tr>
</tbody>
</table>
Item Analysis

For each item of the CCS, the range and standard deviation of responses were examined. On each of the 102 items, the full range of responses from 1-6 were endorsed. Standard deviations demonstrated acceptable range (greater than 1.0) for all but 8 items. Five of these items came from the Peer Group rational subscale (10. I’d have to give up all my friends if I change; 43. My friends wouldn’t accept me if I change; 69. I wouldn’t have anything in common with my friends if I change; 71. My friends wouldn’t have anything to do with me if I change; 94. My friends would give me a hard time if I change). The remaining 3 items were assigned to the Fear of Risks subscale (I may be at greater risk of physical injury if I change), the Fear of Personal Loss – Hedonic (Life would be boring if I change), and the Problem Provides Disinhibition (I couldn’t say what’s on my mind if I change). These items were deleted due to restricted range, resulting in a reduction to 94 CCS items.

Factor Analysis

In an effort to further refine the instrument and examine the construct validity of the CCS, an exploratory factor analysis was conducted. For this purpose, CCS item responses from the entire eating disorder sample (N=230) were used. The “Factor” procedure of SPSS Version 13 (SPSS Inc., 2004) was employed to determine the factor structure of the 94 CCS items.

Principal components analysis was selected because the primary goal of the factor analysis was to reduce the number of items of the CCS in an effort to identify optimal weightings of the items (Floyd & Widaman, 1995). This procedure allows for reduction to a subset of items that demonstrate maximum reliability and validity. Promax was
selected as the method of rotation because factors were expected to be correlated. Thus, an oblique rather than orthogonal method of rotation appeared to be a more appropriate method of rotation. Prior to conducting the factor analysis the correlations between the items were examined. Correlations between the CCS items were generally above .30 (Tabachnick & Fidell, 1989), supporting the use of factor analysis in this sample.

Applying this procedure to the CCS data yielded 8 factors, accounting for 57.71% of the variance overall. The factors in order from 1 to 8, accounted for 33.3%, 7.8%, 4.6%, 2.9%, 2.6%, 2.4%, 2.2% and 2.0% of the variance. The majority of the variance was accounted for by Factor 1. Factor loadings are presented in Table 6 (items are grouped by factors and then ordered by size of loading to facilitate interpretation).

Loadings equal to or greater than .50 are included on the factors. Items that loaded less than .50 and those that loaded on more than one item (> .30 on both items) were omitted.

Table 6.
Principal Components Analysis with Promax Rotation Factor Loadings

<table>
<thead>
<tr>
<th>Item</th>
<th>Loading</th>
<th>Rational Subscale</th>
<th>Item Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>58</td>
<td>.93</td>
<td>Unable to Change</td>
<td>Deep down, I just don't think it's possible for me to change.</td>
</tr>
<tr>
<td>20</td>
<td>.83</td>
<td>Process of Change</td>
<td>The process of change would be too painful for me to bear.</td>
</tr>
<tr>
<td>74</td>
<td>.77</td>
<td>Unable to Change</td>
<td>I believe that my attempts to change are doomed to failure.</td>
</tr>
<tr>
<td>93</td>
<td>.73</td>
<td>Process of Change</td>
<td>The things I'd have to go through in order to change are too unpleasant.</td>
</tr>
<tr>
<td>60</td>
<td>.73</td>
<td>Process of Change</td>
<td>I don't want to experience the suffering that would be involved in trying to change.</td>
</tr>
<tr>
<td>63</td>
<td>.71</td>
<td>Unable to Change</td>
<td>I may not be strong enough to change.</td>
</tr>
<tr>
<td>22</td>
<td>.69</td>
<td>Unable to Change</td>
<td>Nothing can help me, so there's no point in trying.</td>
</tr>
<tr>
<td>79</td>
<td>.59</td>
<td>Fear of Risks</td>
<td>I'm just too frightened of change.</td>
</tr>
<tr>
<td>27</td>
<td>.50</td>
<td>Unable to Change</td>
<td>I don't have the skills I need to change.</td>
</tr>
</tbody>
</table>
Table 6. (Continued)

Principal Components Analysis with Promax Rotation Factor Loadings

<table>
<thead>
<tr>
<th>Item</th>
<th>Loading</th>
<th>Rational Subscale</th>
<th>Item Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>.92</td>
<td>Accomplishment</td>
<td>I may lose a feeling of pride in myself if I change.</td>
</tr>
<tr>
<td>73</td>
<td>.79</td>
<td>Accomplishment</td>
<td>I would be giving up something that I worked hard for if I change.</td>
</tr>
<tr>
<td>52</td>
<td>.77</td>
<td>Accomplishment</td>
<td>I may lose some self-respect if I change.</td>
</tr>
<tr>
<td>99</td>
<td>.67</td>
<td>Goal Attainment</td>
<td>If I change, I will be giving up my chance to succeed in meeting my goals.</td>
</tr>
<tr>
<td>64</td>
<td>.64</td>
<td>Accomplishment</td>
<td>I may lose everything I have accomplished if I change.</td>
</tr>
<tr>
<td>39</td>
<td>.58</td>
<td>Hedonic</td>
<td>I may not have anything else to feel good about if I change.</td>
</tr>
<tr>
<td>2</td>
<td>.56</td>
<td>Accomplishment</td>
<td>I may lose a sense of self control if I change.</td>
</tr>
<tr>
<td>Factor 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>.95</td>
<td>Negative Affect</td>
<td>Without this problem, I wouldn't have any other ways of coping with stress.</td>
</tr>
<tr>
<td>96</td>
<td>.84</td>
<td>Negative Affect</td>
<td>Without this problem, I wouldn't be able to deal with all the pressures I have in my life.</td>
</tr>
<tr>
<td>83</td>
<td>.83</td>
<td>Disinhibition</td>
<td>I wouldn't have any way of blowing off steam if I change.</td>
</tr>
<tr>
<td>35</td>
<td>.81</td>
<td>Disinhibition</td>
<td>I wouldn't have any outlet for my feelings if I change.</td>
</tr>
<tr>
<td>47</td>
<td>.79</td>
<td>Negative Affect</td>
<td>I'd have nothing to take away the pain if I change.</td>
</tr>
<tr>
<td>14</td>
<td>.69</td>
<td>Negative Affect</td>
<td>I wouldn't have anything else to help me forget my problems if I change.</td>
</tr>
<tr>
<td>Factor 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>.89</td>
<td>Maturity</td>
<td>My problem shelters me from all the complications of being an adult.</td>
</tr>
<tr>
<td>88</td>
<td>.74</td>
<td>Maturity</td>
<td>My problem allows me to hold on to the safety and security of childhood.</td>
</tr>
<tr>
<td>42</td>
<td>.72</td>
<td>Maturity</td>
<td>I may have to give up being a little girl/little boy if I change.</td>
</tr>
<tr>
<td>77</td>
<td>.65</td>
<td>Maturity</td>
<td>I would prefer to remain childlike.</td>
</tr>
<tr>
<td>4</td>
<td>.65</td>
<td>Maturity</td>
<td>In many ways, this problem simplifies the difficulties of adult life.</td>
</tr>
<tr>
<td>98</td>
<td>.64</td>
<td>Maturity</td>
<td>I may have to grow up if I change.</td>
</tr>
</tbody>
</table>
Table 6. (Continued)

Principal Components Analysis with Promax Rotation Factor Loadings

<table>
<thead>
<tr>
<th>Item</th>
<th>Loading</th>
<th>Rational Subscale</th>
<th>Item Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>.96</td>
<td>Irrationality</td>
<td>In spite of what other people think, I really don't see this issue as a major problem.</td>
</tr>
<tr>
<td>86</td>
<td>.86</td>
<td>Irrationality</td>
<td>I think that this &quot;problem&quot; is a reasonable and valid choice.</td>
</tr>
<tr>
<td>23</td>
<td>.82</td>
<td>Irrationality</td>
<td>I'm not convinced that I really need to change.</td>
</tr>
<tr>
<td>59</td>
<td>.78</td>
<td>Irrationality</td>
<td>If everyone would stop bothering me about this, I'd be fine.</td>
</tr>
<tr>
<td>54</td>
<td>.67</td>
<td>Goal Attainment</td>
<td>This problem is useful to me now, and I can't worry about how it may affect me later.</td>
</tr>
<tr>
<td>13</td>
<td>.54</td>
<td>Irrationality</td>
<td>It's just a question of individual preference for me to be the way I am right now.</td>
</tr>
<tr>
<td>5</td>
<td>.51</td>
<td>Irrationality</td>
<td>I don't want to change this part of my life.</td>
</tr>
<tr>
<td>Factor 6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>.92</td>
<td>Sexuality</td>
<td>If I change, the opposite sex may pay too much attention to me.</td>
</tr>
<tr>
<td>56</td>
<td>.88</td>
<td>Sexuality</td>
<td>I may receive unwelcome sexual advances if I change.</td>
</tr>
<tr>
<td>15</td>
<td>.73</td>
<td>Sexuality</td>
<td>I may have to deal with my sexuality if I change.</td>
</tr>
<tr>
<td>26</td>
<td>.69</td>
<td>Sexuality</td>
<td>My problem reduces sexual conflicts.</td>
</tr>
<tr>
<td>68</td>
<td>.67</td>
<td>Sexuality</td>
<td>My problem helps me avoid intimate adult relationships.</td>
</tr>
<tr>
<td>91</td>
<td>.59</td>
<td>Sexuality</td>
<td>I may lose control over my sexual impulses if I change.</td>
</tr>
<tr>
<td>Factor 7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>.69</td>
<td>Unworthy</td>
<td>I have no right to expect anything better.</td>
</tr>
<tr>
<td>55</td>
<td>.66</td>
<td>Unworthy</td>
<td>I don't deserve to be different.</td>
</tr>
<tr>
<td>85</td>
<td>.65</td>
<td>Unworthy</td>
<td>I'm not worthy of change.</td>
</tr>
<tr>
<td>40</td>
<td>.61</td>
<td>Unworthy</td>
<td>I think that this problem is a punishment for my mistakes.</td>
</tr>
<tr>
<td>1</td>
<td>.57</td>
<td>Unworthy</td>
<td>I think I need this problem to punish myself.</td>
</tr>
</tbody>
</table>
Table 6. (Continued)

Principal Components Analysis with Promax Rotation Factor Loadings

<table>
<thead>
<tr>
<th>Item</th>
<th>Loading</th>
<th>Rational Subscale</th>
<th>Item Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>.79</td>
<td>Identity</td>
<td>I like being identified as someone with a problem.</td>
</tr>
<tr>
<td>37</td>
<td>.78</td>
<td>Interpersonal Loss</td>
<td>I'm afraid that people will stop worrying about me if I change.</td>
</tr>
<tr>
<td>76</td>
<td>.66</td>
<td>Interpersonal Loss</td>
<td>I may get less attention from others if I change.</td>
</tr>
<tr>
<td>92</td>
<td>.69</td>
<td>Interpersonal Loss</td>
<td>Some people may stop taking care of me if I change.</td>
</tr>
</tbody>
</table>

Interpretation of factor loadings. Factor 1 is comprised of items that center around the theme of the difficulty involved in change. Items that loaded on this factor were originally assigned to the rational subscales of Unable to Change, Fear of the Process of Change, and Fear of Risks. This factor appears to be a global indicator of the individual's resistance to change their behavior. The items with the highest loadings on this factor include item 58 (“Deep down, I just don't think it's possible for me to change”), item 20 (“The process of change would be too painful for me to bear”), and item 74 (“I believe that my attempts to change are doomed to failure”). This factor is labeled “Difficulty of Change” and is comprised of items 58, 20, 74, 93, 60, 63, 22, 27, and 79.

Factor 2 consists of items pertaining to losing a sense of personal accomplishment (i.e., positive feelings about the self) and goal attainment. Items that loaded on this factor came from the rational subscales Fear of Personal Loss – Accomplishment, Fear of Personal Loss – Hedonic, and Problem Provides a Means of Goal Attainment. Items with the highest loadings on this factor include item 34 (“I may lose a feeling of pride in myself if I change”), item 73 (“I would be giving up something that I worked hard for if I
change”), and item 52 (“I may lose some self-respect if I change”). This factor is labeled “Loss of Accomplishment” and is comprised of items 34, 73, 52, 99, 64, 39, and 2.

Factor 3 contains items that center around the loss of a strategy for coping with negative emotions. This factor represents a combination of items from the Problem Provides a Means of Coping with Negative Affect and Problem Provides Disinhibition rational subscales. Items with the most salient loadings on this factor included item 29 (“Without this problem, I wouldn’t have any other way of coping with stress”), item 96 (“Without this problem, I wouldn’t be able to deal with all the pressures I have in my life”), and item 83 (“I wouldn’t have any way of blowing off steam if I change”). Because the items on this factor relate to the loss of a means of coping with stress and negative emotions, this factor is labeled “Loss of Coping Strategy” and consists of items 29, 96, 83, 35, 47, and 14.

The item loadings on Factor 4 perfectly replicated the Fear of Maturity rational subscale. All six items from this subscale (items 11, 88, 42, 77, 4, and 98) loaded highly on this factor. These items are associated with fears of growing up and avoidance of assuming an adult role and thus, this factor is labeled “Fear of Maturity”.

Factor 5 consists of items that are associated with failure to recognize the behavior as problematic and denial of the seriousness of the problem. This factor is comprised of all of the items from the rational subscale titled Problem is Not Recognized as Irrational, plus one item from the Problem Provides a Means of Goal Attainment rational subscale. Items with the highest loadings on this factor included item 45 (“In spite of what other people think I really don’t see this issue as a major problem”), item 86 (“I think this ‘problem’ is a reasonable and valid choice”), and item 23 (“I’m not
convinced that I really need to change”). This factor is labeled “Minimization/Denial of Symptoms” and is comprised of items 45, 86, 23, 59, 54, 13, and 5.

The item loadings on Factor 6 replicated the Fear of Sexuality rational subscale. All six items from this subscale (items 33, 56, 15, 26, 68, and 91) loaded highly on this factor. These items are associated with fears of being perceived or treated as a sexual being, thus this factor is labeled “Fear of Sexuality”.

Factor 7 is comprised of 5 items of the Unworthy of Change rational subscale. This subscale consists of items associated with feeling that one does not deserve to change or that this problem is in some way a form of punishment. Items from this subscale include items 75, 55, 85, 40, and 1. These items are associated with feelings of unworthiness, and thus this factor is labeled “Unworthy of Change”.

Factor 8 is comprised of 4 items, 3 of which were originally assigned to the Fear of Interpersonal Loss rational subscale (items 37, 76, and 92), with the remaining item coming from the Fear of Loss of Identity rational subscale (item 18). These items represent concerns about losing attention and caretaking from others, as well as an item concerning not being identified as a person with a problem. Item 18 (“I like being identified as someone with a problem”) had the highest factor loading. Because this scale consists of items concerning the potential social consequences of change, it is labeled “Loss of Concern/Attention from Others”.

Correlations between the Factors

The correlation matrix for the 8 factors is depicted in Table 7. Cohen’s (1977) definition of small (.10-.29), medium (.30-.49), and large (.50-1.00) was used to interpret the magnitude of the correlation. The majority of the factors fell in the medium to large
range. The highest correlations were found between Factors 4 (Fear of Maturity) and 8 (Loss of Concern/Attention from Others), Factors 2 (Loss of Accomplishment) and 5 (Minimization/Denial of Symptoms), and Factors 3 (Loss of Coping Strategy) and 7 (Unworthy of Change). Two exceptions were the low correlations between Factors 4 (Fear of Maturity) and 5 (Minimization/Denial of Symptoms) and Factors 5 (Minimization/Denial of Symptoms) and 6 (Fear of Sexuality).

Table 7.
Correlations between the 8 Factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<td></td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>.59**</td>
<td>---</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>3</td>
<td>.59**</td>
<td>.55**</td>
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<td>4</td>
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<td>.57**</td>
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<tr>
<td>5</td>
<td>.49**</td>
<td>.62**</td>
<td>.31**</td>
<td>.13</td>
<td>---</td>
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<td></td>
</tr>
<tr>
<td>6</td>
<td>.31**</td>
<td>.24**</td>
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<td>.53**</td>
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<td>7</td>
<td>.57**</td>
<td>.51**</td>
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<td>.43**</td>
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<tr>
<td>8</td>
<td>.35**</td>
<td>.53**</td>
<td>.43**</td>
<td>.65**</td>
<td>.30**</td>
<td>.36**</td>
<td>.48**</td>
<td>---</td>
</tr>
</tbody>
</table>

Descriptive Statistics

The mean and standard deviation for the 8 empirically-derived factors and the total score of the CCS by diagnosis and for the total sample are presented in Table 8. Empirically-derived subscale scores were calculated by linear summation of the scores on
the items comprising each of the 8 factors. Because the factors consist of different numbers of items, it is not possible to compare subscale elevations across factors. The possible range for each of the factors is as follows: Factor 1 9-45, Factor 2 7-35, Factor 3 6-30, Factor 4 6-30, Factor 5 7-35, Factor 6 6-30, Factor 7 5-25, and Factor 8 4-20. The total CCS score was obtained by summing all items that made up the 8 factors (range 50-250).

Analysis of variance was conducted to examine differences between the three diagnostic groups on each of the 8 factors, as well as on the total score. On Factor 1 (Difficulty of Change) the AN group scored significantly higher than the BN group, F(2, 227)=3.84, p=.023. On Factor 2 (Loss of Accomplishment) the AN group scored significantly higher than the BN and EDNOS groups, and the BN Group scored significantly higher than the EDNOS group, F(2, 227)=15.93, p=.001. On Factor 4 (Fear of Maturity) the AN group scored significantly higher than the BN group, F(2, 227)=3.35, p=.037. On Factor 5 (Minimization/Denial of Symptoms) the AN Group scored significantly higher than both the BN and EDNOS groups, F(2, 227)=8.87, p=.001. On Factor 8 (Loss of Concern/Attention from Others) the AN group scored significantly higher than the BN group, F(2, 227)=5.18, p=.006. There were no significant differences among the three diagnostic groups on Factors 3 (Loss of Coping Strategy), 4 (Fear of Maturity), 6 (Fear of Sexuality), and 7 (Unworthy of Change). For the total score, derived from summing all 8 factors, the AN group scored significantly higher than both the BN and EDNOS groups, F(2, 227)=7.75, p=.001.
Table 8.
CCS Factor Means and Standard Deviations by Disorder

<table>
<thead>
<tr>
<th>CCS Factor</th>
<th>Anorexia Nervosa (N=96)</th>
<th>Bulimia Nervosa (N=52)</th>
<th>Eating Disorder Not Otherwise Specified (N=82)</th>
<th>Total Sample (N=230)</th>
<th>F</th>
<th>p</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Factor 1</td>
<td>Difficulty of Change</td>
<td>24.91</td>
<td>9.33</td>
<td>20.63</td>
<td>9.31</td>
<td>22.71</td>
<td>8.80</td>
</tr>
<tr>
<td>Factor 2</td>
<td>Loss of Accomplishment</td>
<td>20.26</td>
<td>7.72</td>
<td>12.88</td>
<td>5.40</td>
<td>16.45</td>
<td>8.36</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor 4</td>
<td>Fear of Maturity</td>
<td>14.46</td>
<td>7.04</td>
<td>11.83</td>
<td>5.11</td>
<td>12.48</td>
<td>6.78</td>
</tr>
<tr>
<td>Factor 5</td>
<td>Minimization/Denial of Symptoms</td>
<td>15.63</td>
<td>7.04</td>
<td>11.02</td>
<td>5.87</td>
<td>13.12</td>
<td>6.84</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor 7</td>
<td>Unworthy of Change</td>
<td>12.10</td>
<td>5.84</td>
<td>10.02</td>
<td>7.20</td>
<td>10.73</td>
<td>5.77</td>
</tr>
<tr>
<td>Factor 8</td>
<td>Loss of Care/Attention from Others</td>
<td>8.80</td>
<td>4.62</td>
<td>6.33</td>
<td>5.23</td>
<td>7.68</td>
<td>4.81</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>123.42</td>
<td>38.04</td>
<td>98.15</td>
<td>34.97</td>
<td>109.70</td>
<td>40.59</td>
</tr>
</tbody>
</table>
Reliability

Internal consistency. Following factor analysis, tests of internal consistency were conducted for each of the 8 empirically-derived subscales of the CCS using Cronbach’s alpha (Cronbach, 1951). The internal consistency of the CCS total scale and 8 subscales was calculated based on the item scores of the total sample. The coefficient alpha for the total scale was .96, with coefficient alphas for the factors ranging from .87-.92. Specifically, the coefficient alpha was .91 for Factor 1, .90 for Factor 2, .92 for Factor 3, .90 for Factor 4, .89 for factor 5, .89 for Factor 6, .88 for Factor 7, and .87 for Factor 8. This is consistent with recommendations that coefficient alphas should fall in the range of .70 to .90 (Streiner & Norman, 1995). These coefficients suggest that the 8 factors are homogeneous, containing items that are related but not redundant.

Convergent Validity

Convergent validity constitutes another aspect of construct validity. Convergent validity of the CCS was examined through the associations between the empirically-derived subscale and total scores on the CCS and instruments assessing theoretically related constructs. Specifically, correlations were performed between total and subscale scores on the CCS and eating disorder symptoms (as assessed by the Drive for Thinness, Bulimia and Body Dissatisfaction subscales of the EDI-2), depressive symptoms (as assessed by the BDI – 2 and the BSI – Depression subscale), and anxiety symptoms (as assessed by the BSI – Anxiety subscale). Table 9 presents the mean, standard deviation, and range of scores obtained on the questionnaires used to assess the convergent validity of the CCS.
Table 9.
Means, Standard Deviations, and Range of Scores for ED Participants on the EDI-2, BDI-2, BSI-Depression Scale, and BSI-Anxiety Scale

<table>
<thead>
<tr>
<th>Instrument</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDI-2 Drive for Thinness</td>
<td>225</td>
<td>13.88</td>
<td>5.66</td>
<td>0-21</td>
</tr>
<tr>
<td>EDI-2 Bulimia</td>
<td>225</td>
<td>6.94</td>
<td>6.98</td>
<td>0-60</td>
</tr>
<tr>
<td>EDI-2 Body Dissatisfaction</td>
<td>225</td>
<td>17.61</td>
<td>7.96</td>
<td>0-27</td>
</tr>
<tr>
<td>BDI-2</td>
<td>112</td>
<td>21.66</td>
<td>10.44</td>
<td>1-52</td>
</tr>
<tr>
<td>BSI – Depression Subscale</td>
<td>102</td>
<td>2.45</td>
<td>1.04</td>
<td>0-4</td>
</tr>
<tr>
<td>BSI – Anxiety Subscale</td>
<td>101</td>
<td>2.34</td>
<td>.96</td>
<td>0-4</td>
</tr>
</tbody>
</table>

*Eating disorder symptoms.* ED symptoms were assessed using the Drive for Thinness (DT), Bulimia, (BUL), and Body Dissatisfaction (BD) subscales of the EDI-2. Higher scores on each of these subscales indicate greater symptomatology. Participants’ scores on the EDI are consistent with published norms for ED samples, with the exception of the Bulimia scale which was lower in this sample than would be expected (Garner, 1991). The average BDI score indicated moderate to severe depression (i.e., 19-29; Beck, Steer, & Garbin, 1988), which is consistent with previous findings in ED samples (Garfinkel et al, 1983; Williamson, Kelley, Davis, Ruggiero, & Blouin, 1985). The BSI Depression and Anxiety subscales are not commonly employed in ED samples, but the scores of ED participants are consistent with observations that individuals with EDS are likely to endorse higher levels of depression and anxiety than the general population. It was predicted that positive correlations would be found between scores on
the CCS and scores on the EDI-2 Drive for Thinness and Body Dissatisfaction symptom subscales.

As shown in Table 10, most of the correlations between the CCS subscale and total scores were positive and significant. As predicted, the results indicate that higher levels of concerns about change as assessed by the CCS are associated with higher ED symptoms, particularly on the EDI-2 Drive for Thinness and Body Dissatisfaction subscales. On the EDI-2 Bulimia subscale only Factor 3 (Loss of Coping Strategy) was significantly positively correlated. Factor 5 (Minimization/Denial of Symptoms) and Factor 8 (Loss of Care/Attention from Others) were significantly negatively correlated with the Bulimia subscale.

In addition, convergent validity was examined through the association between specific CCS empirically-derived subscales and theoretically similar subscales of the EDI-2. It was hypothesized that the CCS empirically-derived subscales would be significantly and positively correlated with such subscales. Correlations were examined between Factor 1 (Difficulty of Change) and the EDI Ineffectiveness subscale (r=.51, p<.05) and Factor 4 (Fear of Maturity) and the EDI Maturity Fears subscale (r=.42, p<.05).
Table 10.

Correlations between CCS Factors and Total Score and EDI-2 Subscales

<table>
<thead>
<tr>
<th>CCS Factor</th>
<th>EDI-2 Drive for Thinness (N=225)</th>
<th>EDI-2 Bulimia (N=225)</th>
<th>EDI-2 Body Dissatisfaction (N=225)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1 Difficulty of Change</td>
<td>.23**</td>
<td>.06</td>
<td>.24**</td>
</tr>
<tr>
<td>Factor 2 Loss of Accomplishment</td>
<td>.25**</td>
<td>-.12</td>
<td>.15*</td>
</tr>
<tr>
<td>Factor 3 Loss of Coping Strategy</td>
<td>.27**</td>
<td>.19**</td>
<td>.22**</td>
</tr>
<tr>
<td>Factor 4 Fear of Maturity</td>
<td>.18**</td>
<td>-.04</td>
<td>.16*</td>
</tr>
<tr>
<td>Factor 5 Minimization/Denial</td>
<td>.11</td>
<td>-.15*</td>
<td>.10</td>
</tr>
<tr>
<td>Factor 6 Fear of Sexuality</td>
<td>.09</td>
<td>.02</td>
<td>.19**</td>
</tr>
<tr>
<td>Factor 7 Unworthy of Change</td>
<td>.29**</td>
<td>.02</td>
<td>.22**</td>
</tr>
<tr>
<td>Factor 8 Loss of Care/Attention</td>
<td>.18**</td>
<td>-.20**</td>
<td>.17**</td>
</tr>
<tr>
<td>Total Score</td>
<td>.27**</td>
<td>-.03</td>
<td>.26**</td>
</tr>
</tbody>
</table>

*Depressive Symptoms.* Symptoms of depression were assessed using the BDI-2 and the BSI-Depression Scale. It was hypothesized that depression may lead to low motivation to change, and therefore possibly increase concerns about change, by creating a sense of hopelessness and lack of self-efficacy. It was expected that positive correlations would be found between scores on the CCS and scores on the BDI-2 and the BSI-Depression subscale.

Correlations between the CCS total and subscale scores and the BDI-2 and the BSI-Depression scores are provided in Table 11. As predicted, all of the correlations
between the CCS scores and the BDI-2 and BSI-Depression total and subscale scores were significant and positive.

Table 11.

Correlations between the CCS Empirically-derived Factors and Measures of Depression

<table>
<thead>
<tr>
<th>CCS Factor</th>
<th>BDI-2</th>
<th>BSI – Depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1 Difficulty of Change</td>
<td>.49**</td>
<td>.48**</td>
</tr>
<tr>
<td>Factor 2 Loss of Accomplishment</td>
<td>.30**</td>
<td>.33**</td>
</tr>
<tr>
<td>Factor 3 Loss of Coping Strategy</td>
<td>.38**</td>
<td>.33**</td>
</tr>
<tr>
<td>Factor 4 Fear of Maturity</td>
<td>.27**</td>
<td>.37**</td>
</tr>
<tr>
<td>Factor 5 Minimization/Denial of Symptoms</td>
<td>.23*</td>
<td>.24*</td>
</tr>
<tr>
<td>Factor 6 Fear of Sexuality</td>
<td>.24*</td>
<td>.27**</td>
</tr>
<tr>
<td>Factor 7 Unworthy of Change</td>
<td>.47**</td>
<td>.55**</td>
</tr>
<tr>
<td>Factor 8 Loss of Care/Attention from Others</td>
<td>.30**</td>
<td>.28**</td>
</tr>
<tr>
<td>Total Score</td>
<td>.47**</td>
<td>.53**</td>
</tr>
</tbody>
</table>

Anxiety symptoms. Symptoms of anxiety were assessed using the BSI-Anxiety Scale. As presented in Table 12, the majority of the factors were significantly and positively correlated with the BSI-Anxiety subscale. The correlations between the BSI-Anxiety subscale and Factor 5 (Failure to Recognize the Problem) and Factor 8 (Loss of Social Support) were not significant.
Table 12.

Correlations between the CCS Empirically-derived Factors and the BSI-Anxiety Subscale

<table>
<thead>
<tr>
<th>CCS Factor</th>
<th>BSI – Anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1 Difficulty of Change</td>
<td>.23*</td>
</tr>
<tr>
<td>Factor 2 Loss of Accomplishment</td>
<td>.22*</td>
</tr>
<tr>
<td>Factor 3 Loss of Coping Strategy</td>
<td>.36**</td>
</tr>
<tr>
<td>Factor 4 Fear of Maturity</td>
<td>.27**</td>
</tr>
<tr>
<td>Factor 5 Minimization/Denial of Symptoms</td>
<td>.04</td>
</tr>
<tr>
<td>Factor 6 Fear of Sexuality</td>
<td>.26*</td>
</tr>
<tr>
<td>Factor 7 Unworthy of Change</td>
<td>.36**</td>
</tr>
<tr>
<td>Factor 8 Loss of Care/Attention from Others</td>
<td>.15</td>
</tr>
<tr>
<td>Total Score</td>
<td>.36**</td>
</tr>
</tbody>
</table>

Comparison of Eating Disorder and Obsessive-Compulsive Disorder Samples

While the primary goal of the current investigation was to examine the psychometric properties of the CCS in an ED sample, a second goal was to investigate differences between concerns about change in individuals with EDs compared to those with OCD. Table 13 presents the mean, standard deviation, and range of scores obtained in the OCD sample on the EDI-2 subscales, BDI-2, Y-BOCS, and OVIS.
Table 13.


<table>
<thead>
<tr>
<th>Instrument</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y-BOCS – Obsession Scale</td>
<td>30</td>
<td>11.33</td>
<td>2.71</td>
<td>7-18</td>
</tr>
<tr>
<td>Y-BOCS – Compulsion Scale</td>
<td>30</td>
<td>11.67</td>
<td>2.26</td>
<td>9-18</td>
</tr>
<tr>
<td>Y-BOCS – Total Score</td>
<td>30</td>
<td>23.00</td>
<td>4.58</td>
<td>17-36</td>
</tr>
<tr>
<td>OVIS Total Score</td>
<td>30</td>
<td>4.93</td>
<td>1.49</td>
<td>2.33-8.44</td>
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<tr>
<td>EDI-2 Drive for Thinness</td>
<td>30</td>
<td>5.94</td>
<td>3.97</td>
<td>1-18</td>
</tr>
<tr>
<td>EDI-2 Bulimia</td>
<td>30</td>
<td>1.79</td>
<td>2.14</td>
<td>1-12</td>
</tr>
<tr>
<td>EDI-2 Body Dissatisfaction</td>
<td>30</td>
<td>10.53</td>
<td>4.67</td>
<td>1-22</td>
</tr>
<tr>
<td>BDI-2</td>
<td>30</td>
<td>9.73</td>
<td>6.14</td>
<td>3-25</td>
</tr>
</tbody>
</table>

The Y-BOCS total score mean was well above the clinical cut-off of 16, which is commonly used in clinical treatment outcome studies. The mean total score and the Obsession and Compulsion scales scores were similar to those found in other studies (McKay, Danyko, Neziroglu, & Yaryura-Tobias, 1995; Steketee, Frost, & Bogart, 1996). It should be noted that the Y-BOCS has been shown to be sensitive to treatment effects (Taylor, 1995), and that all of the OCD participants were currently receiving OCD treatment. Unfortunately, participants completed the study at different stages of treatment, and it is not clear what effect this may have had on their self-report of current obsessions and compulsions on the Y-BOCS.

The OCD participants’ total score on the OVIS were similar to that obtained by the 102 OCD participants who were apart of the original validation study of this measure.
(Neziroglu et al., 1999). Scores on the 3 main subscales of the EDI were consistent with those typically found in control groups of mixed males and females, but lower than that found in some studies of eating disorder symptoms in OCD samples (Grabe, Thiel, & Freyberger, 2000; Pigott et al., 1991). Scores on the BDI-2 were in the minimal depression range (Beck et al., 1996), and appeared to be lower than what would be expected given the high rates of comorbidity between OCD and mood disorders (Hong et al., 2004; Nedstad et al., 2001).

Rational Concerns about Change Scale subscales. For comparison purposes, the CCS rational subscales for the OCD sample are presented in Table 14. The OCD group’s scores on the CCS rational subscales suggested overall low concerns about change. The highest rational subscale scores were found for Fear of the Process of Change ($M = 12.40, SD = 3.76$), Fear of Risks ($M = 11.07, SD = 2.85$), and Unable to Change ($M = 10.33, SD = 3.45$). Elevated scores (in comparison to other subscales) on the Process of Change and Unable to Change rational subscales are not surprising given that individuals with OCD often express fearfulness about the process and consequences of not acting on obsessive thoughts through their compulsive rituals, and express doubts about their ability to do so. Consistent with the hypothesis that the OCD sample would score high on the Fear of Risks scale, this subscale was also elevated. Fear of risks or of doing something wrong/making a mistake is a common underlying context to many obsessions. Clearly some of the constructs tapped by the CCS were not relevant to the change-related concerns or beliefs reported by this OCD sample. None of the individuals with OCD endorsed items that comprised the Hedonic rational subscale, and very low scores were
obtained on the Fear of Maturity, Fear of Sexuality, Fear of Peer Group Loss, Problem Provides Disinhibition, and Problem is Not Recognized as Irrational subscales.

Table 14.

Comparison of CCS Rational Subscale Scores for OCD Participants versus ED Participants

<table>
<thead>
<tr>
<th>CCS Rational Subscales</th>
<th>OCD Sample (N=30)</th>
<th>ED Sample (N=230)</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Unable</td>
<td>10.33</td>
<td>3.45</td>
<td>14.31</td>
<td>5.95</td>
</tr>
<tr>
<td>Unworthy</td>
<td>7.83</td>
<td>2.52</td>
<td>13.44</td>
<td>6.56</td>
</tr>
<tr>
<td>Risks</td>
<td>11.07</td>
<td>2.85</td>
<td>12.12</td>
<td>5.22</td>
</tr>
<tr>
<td>Maturity</td>
<td>6.70</td>
<td>1.24</td>
<td>13.16</td>
<td>6.68</td>
</tr>
<tr>
<td>Sexuality</td>
<td>6.67</td>
<td>1.32</td>
<td>11.86</td>
<td>6.63</td>
</tr>
<tr>
<td>Process</td>
<td>12.40</td>
<td>3.76</td>
<td>16.11</td>
<td>6.60</td>
</tr>
<tr>
<td>Accomplishment</td>
<td>7.27</td>
<td>0.87</td>
<td>15.54</td>
<td>7.40</td>
</tr>
<tr>
<td>Hedonic</td>
<td>6.00</td>
<td>0.00</td>
<td>10.39</td>
<td>5.08</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>7.50</td>
<td>2.29</td>
<td>11.93</td>
<td>6.06</td>
</tr>
<tr>
<td>Peer Group</td>
<td>6.30</td>
<td>0.99</td>
<td>7.87</td>
<td>3.40</td>
</tr>
<tr>
<td>Identity</td>
<td>9.10</td>
<td>2.58</td>
<td>14.49</td>
<td>6.14</td>
</tr>
<tr>
<td>Disinhibition</td>
<td>6.30</td>
<td>.79</td>
<td>11.75</td>
<td>5.28</td>
</tr>
<tr>
<td>Responsibility</td>
<td>8.50</td>
<td>1.25</td>
<td>14.26</td>
<td>6.22</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>8.13</td>
<td>1.31</td>
<td>15.69</td>
<td>6.99</td>
</tr>
<tr>
<td>Goal Attainment</td>
<td>7.77</td>
<td>1.59</td>
<td>12.93</td>
<td>6.08</td>
</tr>
<tr>
<td>Flaw</td>
<td>7.17</td>
<td>1.23</td>
<td>15.59</td>
<td>6.40</td>
</tr>
<tr>
<td>Irrational</td>
<td>6.90</td>
<td>1.58</td>
<td>11.66</td>
<td>5.77</td>
</tr>
<tr>
<td>Total Score</td>
<td>135.93</td>
<td>12.55</td>
<td>223.09</td>
<td>75.40</td>
</tr>
</tbody>
</table>

Comparison of the rational subscales for the OCD and ED samples revealed significant differences on 16 of the 17 subscales, with the ED group scoring higher in all
cases. The only exception was on the Fear of Risks subscale, which was specifically designed to tap anxiety-related concerns about the prospect of behavior change.

Eight-factor Concerns about Change Scale solution. The empirically-derived eight factor solution was applied to the OCD sample in order to examine differences in the concerns about change held by these different diagnostic groups. Table 15 presents the means and standard deviations of the ED (total sample) and OCD groups.

Table 15.

CCS Factor Means and Standard Deviations for the ED and OCD Samples.

<table>
<thead>
<tr>
<th>CCS Factor</th>
<th>Eating Disorder Total Sample</th>
<th>Obsessive Compulsive Disorder</th>
<th>F Value</th>
<th>Sig. Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1 Difficulty of Change</td>
<td>23.16 9.25</td>
<td>16.73 4.94</td>
<td>7.53</td>
<td>.00</td>
</tr>
<tr>
<td>Factor 2 Loss of Accomplishment</td>
<td>17.23 8.24</td>
<td>8.27 .87</td>
<td>25.30</td>
<td>.00</td>
</tr>
<tr>
<td>Factor 3 Loss of Coping Strategy</td>
<td>14.73 7.13</td>
<td>7.37 1.22</td>
<td>11.54</td>
<td>.00</td>
</tr>
<tr>
<td>Factor 4 Fear of Maturity</td>
<td>13.16 6.68</td>
<td>6.70 1.24</td>
<td>11.98</td>
<td>.00</td>
</tr>
<tr>
<td>Factor 5 Minimization/Denial of Symptoms</td>
<td>13.69 6.75</td>
<td>8.47 1.61</td>
<td>12.96</td>
<td>.00</td>
</tr>
<tr>
<td>Factor 6 Fear of Sexuality</td>
<td>11.86 6.63</td>
<td>6.67 1.32</td>
<td>6.59</td>
<td>.00</td>
</tr>
<tr>
<td>Factor 7 Unworthy of Change</td>
<td>11.14 5.69</td>
<td>6.83 2.52</td>
<td>7.60</td>
<td>.00</td>
</tr>
<tr>
<td>Factor 8 Loss of Care/Attention from Others</td>
<td>7.84 4.58</td>
<td>5.47 1.91</td>
<td>6.53</td>
<td>.00</td>
</tr>
<tr>
<td>Total Score</td>
<td>112.81 39.43</td>
<td>66.50 7.68</td>
<td>20.30</td>
<td>.00</td>
</tr>
</tbody>
</table>

The ED group scored significantly higher than the OCD group on every empirically-derived factor, with F values (3, 256) ranging from 6.53 to 25.30, p<.05.

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With the exception of Factor 1 (Difficulty of Change), the OCD group endorsed very few concerns about change. It had been hypothesized that individuals with OCD would endorse a high number of concerns about change on items that tapped the Fear of Risks rationally-derived subscale; however, these items did not compose one of the empirically-derived factors and therefore could not be examined.

Relationship between the Concerns about Change Scale and Severity of Symptoms within the Obsessive-Compulsive Disorder Sample

Examination of the relationship between the CCS and the severity of symptoms (as endorsed on the Y-BOCS) was examined in an attempt to explore whether higher levels of symptoms would be related to elevated concerns about change. No specific hypotheses were made, however, as the nature of OCD is egodystonic and resistance to change is not thought to be a core component of the disorder. Thus, it was not clear whether a relationship would exist between symptom severity and concerns about change. The correlations between the CCS and the Y-BOCS are presented in Table 16. The correlations between the CCS empirically derived subscales and the Y-BOCS total score were low and not statistically significant, ranging from -.21 to .31. The highest correlation was found between the total scores on the CCS and Y-BOCS, but the correlation was modest.
Table 16.

Correlations between the Y-BOCS and CCS

<table>
<thead>
<tr>
<th>CCS Factor</th>
<th>Y-BOCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1: Difficulty of Change</td>
<td>.21</td>
</tr>
<tr>
<td>Factor 2: Loss of Accomplishment</td>
<td>.14</td>
</tr>
<tr>
<td>Factor 3: Loss of Coping Strategy</td>
<td>.00</td>
</tr>
<tr>
<td>Factor 4: Fear of Maturity</td>
<td>.30</td>
</tr>
<tr>
<td>Factor 5: Minimization/Denial of Symptoms</td>
<td>.29</td>
</tr>
<tr>
<td>Factor 6: Fear of Sexuality</td>
<td>-.21</td>
</tr>
<tr>
<td>Factor 7: Unworthy of Change</td>
<td>.15</td>
</tr>
<tr>
<td>Factor 8: Loss of Care/Attention from Others</td>
<td>.18</td>
</tr>
<tr>
<td>Total Score</td>
<td>.31</td>
</tr>
</tbody>
</table>

Relationship between the Concerns about Change Scale and Level of Insight and Overvalued Ideation

An additional interest was the relationship between concerns about change as measured by the CCS and level of insight about the disorder and overvalued ideation of symptoms. It was hypothesized that scores on the CCS items that make up the Problem is Not Viewed as Irrational subscale would be significantly positively correlated with low insight (as measured by higher scores on item #11 on the Y-BOCS) and higher levels of overvalued ideation (as measured by a higher total score on the OVIS). Consistent with this hypothesis, Factor 5 (Minimization/Denial of Symptoms) was significantly and positively correlated with the Y-BOCS Insight Item #11 (r=.42, p<.05). Overvalued
ideation as measured by the OVIS total score was not significantly correlated with Factor 5 ($r=.28$, $p=.13$).

Discussion

Motivational issues play a paramount role in treatment seeking and participation in EDs. Assessment measures are needed to identify the potential barriers to seeking and profiting from treatment in this population. The CCS represents one such measure designed to provide an indicator of various concerns about change that may be held by an individual with an ED. The primary objective of this study was to further refine and validate the CCS in an ED sample. To this end, the construct validity of the CCS was explored through factor analysis. In addition, convergent validity was examined through the association between the CCS and theoretically related measures. A secondary objective was to compare concerns about change in EDs to those held by individuals with OCD. OCD provided an interesting comparison group in that it is another example of a group in which recognition of irrationality may affect willingness to change. In addition, little is known about concerns about change in this population. Thus, the OCD sample provided an additional means of examining the psychometric properties of the CCS. This section will discuss major findings of the study, highlight the methodological strengths and limitations of the study, and propose future directions for research.

Summary and Integration of Findings

Overall, the findings of the present investigation suggest that the CCS may be a useful means of identifying factors that may interfere with behavioral change. Most predictions received partial to full support, providing further evidence of the construct validity of the instrument.
This study is the first to examine the properties of the CCS in a large ED population that included individuals with AN, BN, and EDNOS. The scores on the CCS rational subscales and the total score were consistent with other studies that have employed the CCS with AN (Rieger, 2000) or mixed ED (Vitousek et al., 1995) samples. In the current study, individuals with AN generally scored the highest on the CCS, followed by the EDNOS group and the BN group. Consistent with the current study's predictions, individuals with AN scored significantly higher than those with BN on 10 of the 17 rational subscales. Surprisingly, the EDNOS group differed significantly from the AN group on only 3 of the 17 subscales. The EDNOS group scored higher than the BN group on the majority of subscales, and significantly higher than the BN group on the Fear of Personal Loss-Accomplishment subscale.

Few studies of ED populations include EDNOS samples in addition to AN and BN; however, the available research suggests that EDNOS shows significant symptom overlap with AN and BN and is comparable to these disorders in clinical severity (Fairburn & Bohn, 2005). In addition, EDNOS commonly precedes and/or follows the diagnoses of AN and BN (Fairburn & Bohn, 2005). In studies examining the stability of diagnoses over time, the EDNOS category has been shown to be highly transitional, in that individuals often cross over into other diagnostic categories (Milos, Spindler, Schnyder, & Fairburn, 2005).

Closer examination of the current EDNOS sample revealed that more than one-third (N=29; 35%) fit the pattern of subclinical AN, showing symptoms characteristic of the disorder without meeting the full set of criteria required for an AN diagnosis. Specific information from diagnostic interviews was available only for the subset of
study participants assessed at the CCBT site. On the basis of available data on subclinical AN, however, it is probable that most of these cases missed the full syndrome diagnosis because they weighed more than 85% of normal weight and/or were not amenorrheic. With respect to the weight criterion, it is possible that subclinical AN participants may have been partially weight restored after previously fulfilling all criteria or may have been losing weight actively at the point of assessment while still just above threshold. The DSM-IV requirement of amenorrhea in AN is controversial, in that this criteria cannot always be assessed (e.g., individuals who take oral contraceptives or who are too young for menstruation), is primarily an indicator of low body weight and/or excessive exercise, is not relevant to males, and is not useful in planning or initiating treatment (Abraham, Pettigrew, Boyd, Russell, & Taylor, 2005; Watson & Anderson, 2003). Ricca and colleagues (2001) found no differences between EDNOS, AN, and BN patients in terms of their general and specific psychopathology; however, they noted that there were differences between bulimic-like and anorexic-like EDNOS patients. This finding led these authors to suggest that EDNOS patients should be further divided into two groups consisting of those who are anorectic-like (similar to AN) and those who are bulimic-like (similar to BN). In the current study, the pattern and magnitude of concerns endorsed by the subclinical AN participants looked more like the AN diagnostic group than the BN group.

Due to small sample sizes, differences in CCS subscale and total scores among the 3 treatment sites could not be analyzed; however, it is notable that there appeared to be variability among the different diagnostic groups by site. Specifically, mean scores from the CCBT appear to be lower than the other two sites, and overall lower than what
would be expected based on previous studies (Rieger, 2000; Vitousek et al., 1995). A myriad of variables could have resulted in lower scores at a particular site. It is likely that the 3 treatment centers contained differences in the composition of samples. Due to limited access to treatment providers in Honolulu, the CCBT clinic had a high number of referred individuals who had just been in treatment elsewhere, in which they had not been successful at reducing or eliminating eating disorder symptoms. This may have impacted participants' willingness to endorse concerns about change in different ways. Some individuals who had multiple failed attempts at treatment may have minimized symptoms due to concerns that they would not be accepted at the CCBT. Other participants may have minimized concerns about change as a way of denying that they had a problem at all.

Construct validity of the CCS was supported by establishing the factor structure of the instrument in an ED sample. Consistent with the previous preliminary factor analysis conducted by Vitousek and colleagues (1995), an eight factor solution provided the best fit; however, although some factors replicated precisely, the composition of others varied substantially. The items of the CCS formed meaningful clusters, representing specific constructs of concerns about change that have been hypothesized to be relevant to eating disorders. Unsurprisingly, the factors were highly correlated, suggesting a higher-order construct of concerns about change.

As predicted, the empirically-derived factors demonstrated considerable overlap with the rationally-derived subscales. Given that the rational subscales were designed to correspond with well-documented concerns about change, this is not unexpected.
Two rational subscales, Fear of Maturity and Fear of Sexuality, replicated precisely (i.e., Factor 4 and 6, respectively). Some prominent theoretical models conceptualize AN as a means of circumventing the demands associated with becoming an adult by retarding physical and sexual maturation and avoiding the challenges of adulthood (Crisp, 1967, 1980, 1997; Strober, 1991); however, there appear to be substantial individual differences in subgroups of AN patients with regard to these concerns. There is a subset of patients for whom these concerns are salient clinically (as well as on the CCS), and others for whom these issues appear to play little to no role in the onset or maintenance of symptoms. It should be noted that fears of maturity and sexuality are not unique to the population of eating disorders. These issues have been addressed as possible contributors to other psychiatric symptoms, such as self-mutilation (Favazza & Favazza, 1987; Lane, 2002).

Factor 7 consisted of all but one item from the Unworthy of Change rational subscale. This factor reflects patients' perception that they are not worthy of changing their behavior and leading a different life. The presence of low self-esteem has been consistently documented in individuals with eating disorders, and has been hypothesized to precede the onset of symptoms (Yellowlees, 1997). Low self-esteem has been implicated as a contributing variable in models of both AN and BN. In an analysis of potential risk factors, Fairburn and colleagues (1999) found that negative self-evaluation was a common personality feature that preceded the onset of anorexic symptoms. In AN, low self-esteem serves to perpetuate the disorder by contributing to the importance of weight and shape as the primary criteria for evaluating one's self-worth. AN patients are not unique among psychiatric patients for low self-esteem, but they are particularly likely
to endorse feelings of being “unworthy.” According to cognitive-behavioral models of
BN, low self-esteem contributes to extreme concerns about weight and shape, which
leads to strict dieting, binge-eating and self-induced vomiting, which further exacerbate
problems of low self-esteem (Fairburn, Marcus, & Wilson, 1993). Two of the items on
this factor represent the view that the problem constitutes a type of “punishment”,
implying that the person has done something wrong and deserves his or her current
predicament. The idea that food restriction is a form of self-punishment has been
espoused by Greben and Kaplan (1995), who propose that individuals are purposely
punishing themselves as a way to alleviate negative self-evaluations.

The remaining five factors consisted of combinations of items that formed
meaningful clusters representing domains of concern about change. Factor 1 consisted of
items centered around the difficulty associated with changing one’s behavior. The items
focused on lacking the skills or personal strength to change, feeling helpless to change,
being fearful about the process of change, and holding beliefs that attempts to change
would not be successful. This factor represents the hopelessness that many individuals
feel when contemplating changing an ingrained behavioral pattern. Hopelessness about
change has been documented across psychiatric disorders. In eating disorders, both
individuals with AN and BN have been shown to be have significantly more negative
future-oriented cognitions than controls, particularly as they relate to their potential to
recover (Godley, Tchanturia, MacLeod, & Schmidt, 2001).

Factor 2 focused on concerns about losing a sense of accomplishment or positive
aspects of the self. Items that comprise this factor are centered around the positive
reinforcement that an individual receives as a result of his or her behavior. For
individuals with AN, positive reinforcement centers around feeling “a sense of triumph, mastery, self-control and superiority” as a result of successful weight loss (Garner, Vitousek, & Pike, 1997, p. 105). This positive valuation of symptoms is egosyntonic in nature, and is highly distinctive to the EDs relative to other forms of psychopathology (Orimoto & Vitousek, 1992).

Factor 3 addressed concerns about losing a key coping mechanism for modulating emotions and dealing with difficult life situations. EDs have been conceptualized as a means to cope with negative affect and distress. In addition, individuals with EDs have been shown to have difficulty processing negative emotions (Bydlowski et al., 2005). Whiteside and colleagues (2007) have shown that binge eating among undergraduate students is strongly associated with difficulties regulating emotions, even when accounting for sex, food-restriction, and over-evaluation of weight and shape.

The items that comprise Factor 5 refer to the failure to recognize psychological symptoms of the disorder, or the disorder itself, as a problem. These items suggest that the individual is not viewing his or her symptoms or behavior as something in need of change. This view of symptoms is more likely to be endorsed by individuals with AN and stems from the egosyntonic nature of the disorder, in which extreme thinness is seen as positive rather than problematic.

Factor 8 consisted of concerns about no longer being identified as someone with an ED and the potential social consequences of recovery. Specifically, these items address concerns about losing attention and sympathy from other people. In the initial stages of weight loss, individuals with EDs often receive positive feedback from others about their changed appearance (e.g., “you look great”, “I’m so jealous”). As weight loss
progresses, the positive commentary often turns to concern (e.g., “are you all right?”, “you look too thin”). In the context of therapy, many patients express concerns about forfeiting both their distinctive appearance and the caretaking responses they elicit from others.

At least potentially, the constructs represented in the eight factors of the CCS could be relevant to concerns about changing a wide range of problematic behavior patterns. Concerns about the difficulty of change and perceived inability to accomplish it are common among patients who are seeking psychopathology. It is evident from the small OCD sample assessed here, however, from earlier data (as well as from other anxiety disorder and substance abuse samples) that not all factors are viewed as relevant across diagnostic groups. It is notable that none of the OCD participants endorsed items that tapped the construct of Fear of Personal Loss – Hedonic.

Examination of the CCS factor scores suggest that the AN group endorsed significantly higher concerns about change than the BN and EDNOS groups. The AN sample evidenced the highest concerns about change across 7 of the 8 factors, with 5 factors showing significant differences between the AN and the other two ED groups. The EDNOS group obtained the highest score on Factor 6 (Sexuality Fears), but the difference between groups on this factor was not significant. The AN group scored significantly higher than the BN group on Factor 1 (Difficulty of Change), Factor 2 (Loss of Accomplishment), Factor 4 (Fear of Maturity), Factor 5 (Minimization/Denial of Symptoms), and Factor 8 (Loss of Care/Attention from Others). In addition, significant differences were found between the AN and EDNOS groups and BN and EDNOS groups on Factor 2 (Loss of Accomplishment) and between the AN and EDNOS groups on
Factor 5 (Minimization/Denial of Symptoms). The AN group had significantly higher total scores on the CCS when looking at the items that make up the factors when compared to the BN and EDNOS groups.

Consistent with hypothesis 2, internal consistency among the 8 factors was high with coefficients ranging from .87-.92. Coefficients of .80 or greater indicate acceptable internal consistency (Anastasi, 1988). This finding suggests that the items within each factor of the CCS were highly correlated with each other. Examination of the correlations between factors suggests that the majority of the correlations were medium to large in size (range =.05-.65). Taken together, these findings suggest that the constructs behind the factors are closely related, but that the CCS is a multidimensional measure of concerns about change.

Convergent validity was examined through the relationship between the CCS factors and the EDI-2 Drive for Thinness and Body Dissatisfaction subscales. It was hypothesized that the CCS would be strongly related to these indicators of ED symptom severity. The rationale behind this particular hypothesis was that greater severity of ED symptomatology would be related to higher resistance to change as indicated by the endorsement of greater concerns about changing one’s behavior. The correlations between the CCS and the EDI-2 subscales was modest, with correlations ranging from -.20 to .29. Significant correlations were in the small range of magnitude (Cohen, 1977). It is possible that some dimensions of ED symptom severity may impact concerns about change in an opposite direction from that predicted. Individuals with higher levels of ED severity, particularly the loss of dietary control often represented by bulimic symptoms,
are experiencing the costs of the disorder in ways that reduce their reservations about the prospect of change.

Examination of specific EDI subscales that shared content with the CCS factors (Hypothesis 4) demonstrated much higher correlations than the general EDI-2 symptom subscales. The correlation between the CCS Fear of Maturity and the EDI Maturity Fears subscale was medium (r = .42, p<.05). The correlation between the CCS Difficulty of Change and the EDI Ineffectiveness scale was large (r = .51, p<.05). These findings support the construct validity of these specific subscales, by suggesting that they are measuring similar variables.

Limitations associated with using data collected at different sites at different time periods meant it was not possible to administer measures that would be able to potentially validate factors that evolved from the factor analysis. The two constructs above, concerns about the difficulty involved in change and fears of developmental maturation, overlapped with measures administered as part of the study. Future research should attempt to validate the individual factors that comprise the CCS by examining their relationship with established measures of related constructs.

Hypothesis 5 received partial support in that measures of depression (i.e., BDI-2, BSI – Depression subscale) demonstrated small to large correlations with the factors of the CCS. The findings were similar between the two measures of depression. The highest correlations were found between the two depression measures and Factor 1 – Difficulty of Change (BDI r = .49, p < .01, and BSI-Depression r = .48, p < .01) and Factor 7 – Unworthy of Change (BDI r = .47, p < .01, and BSI-Depression r = .55, p < .01). This is not surprising given the themes of personal failure, low self-esteem, and
hopelessness that characterize many of the items on these factors. The lowest
correlations were found for Factor 5 – Fear of Maturity (BDI r = .23, p < .05, and BSI-
Depression r = .24, p < .05) and Factor 6 – Fear of Sexuality (BDI r = .24, p < .05 and
BSI-Depression r = .27, p < .05). The relationship between the 8 factors and the BSI –
Anxiety subscale was not as strong as those with the depression measures. The majority
of the correlations were low, ranging from .04 to .36; the strongest relationships were to
Factor 3 – Loss of Coping Strategy (r = .36, p < .001) and Factor 7 – Unworthy of Change
(r = .36, p < .001).

In addition to the primary goal of examining the psychometric properties of the
CCS in an ED sample, a secondary goal was to examine the profile of OCD patients on
the newly derived factors of this instrument. Based on previous research with other
anxiety disorders (Bemis, 1986), it was hypothesized that the ED group would
consistently endorse higher concerns about change than the OCD sample. One possible
noted exception was on items from the Fear of Risks rational subscale; however, this
subscale failed to replicate as a factor. Consistent with predictions, the ED group scored
significantly higher on all 8 factors, as well as the total scale score, in comparison to the
OCD group. This finding suggests that concerns about change are greater in the ED
sample in the domains assessed by the CCS factors.

None of the correlations between the 8 CCS factors or the total CCS score were
significantly correlated with the Y-BOCS total score. While this analysis was
exploratory in nature, it was not wholly unexpected that no relationship emerged.
Resistance to change is not a prototypic feature of individuals with OCD, and there is little
reason to anticipate that symptom severity (as measured by the Y-BOCS) would be
associated with higher levels of concerns about change (as measured by the CCS).
Individuals with OCD may have concerns about the process of change, particularly
exposure to stimuli that are anxiety provoking while resisting the impulse to engage in
compulsions, but typically desire the outcome of symptomatic recovery. In fact, the
OCD sample scored highest on Factor 1, Difficulty of Change, which contains items
centered around difficulties involved in the process of modifying one’s behavior. The
elevated mean score on Factor 1 contrasted with the low scores on all 7 other factors.

A final area of interest was whether greater levels of overvalued ideation among
the OCD participants would be associated with Factor 5 – Minimization/Denial of
Symptoms. Factor 5 was significantly correlated with the single-item assessment of
insight on the Y-BOCS, but not with the total score on the OVIS. Item 11 on the Y-
BOCS is a well-established measure of insight, which has been employed in numerous
studies. The OVIS was only recently developed as a measure of this construct and has
less empirical support.

Methodological Limitations

A number of limitations should be considered when interpreting the findings of
the current investigation. Although the size of the ED sample (N = 230) was substantial
in comparison to other studies of this nature, the low prevalence of EDs makes it difficult
to recruit the number of participants typically required to establish the psychometric
properties of an instrument. Examination of construct validity through the use of factor
analysis requires large samples, which poses logistical difficulties when studying rare
disorders (Bowden, 2004). Specifically, recruitment of the number of participants
recommended for factor analysis of an instrument the size of the CCS is not feasible in
the span of several years, even when recruiting from multiple treatment sites.

Psychometric evaluations of measures of comparable sizes (100+ items) have used split-half factor analysis procedures (Serpell, 2004); however, this variation on the procedure requires the division of items into hypothetically related clusters. Clearly, this technique is most appropriate for assessment instruments for which there is a strong hypothesis about the way in which items will cluster.

Although small according to factor analysis standards, the sample employed in this study was quite respectable in the context of ED research, with a high number of diagnosed AN and BN cases. The sample also included a fairly large EDNOS group, which is often omitted from psychometric studies. All patients were recruited from treatment facilities, and were diagnosed by trained clinicians experienced with EDs. Many studies that seek to recruit large ED samples have utilized self-reported ED symptoms endorsed through websites as a means of obtaining participants (Serpell, 2004). This potential solution comes with a variety of other methodological problems, the most salient of which is the validity of the diagnosis based on self-report.

In order to increase sample size in the present study, data were collected from different treatment sites. A number of limitations followed from this decision, including less control and increased variability in the way measures were introduced and administered. This limitation is reduced by the fact that the measures were self-report instruments, and thus somewhat less likely than other types of measures (e.g., interviews) to be influenced by the context of administration. The reliance on different clinics for data meant that the assessment battery varied by treatment site, resulting in restrictions in the choice of measures available for examination of the CCS. Due to low numbers of
participants in some diagnostic groups at specific treatment sites, differences between the AN, BN, and EDNOS groups by site could not be analyzed. This was problematic in that there appeared to be differences between the sites that could not be analyzed or accounted for. For example, the mean scores on the CCS rational subscales obtained from the CCBT sample appear to be lower than the other two sites, and overall lower than what would be expected based on previous studies (Rieger, 2000; Vitousek et al., 1995).

Because it was the CCBT group that had lower scores, we were able to look at the individual CCS profiles of patients whom we had assessed and, in many cases, subsequently treated. Based on clinical knowledge of these patients, which included extensive discussion of their personal concerns about change, it was apparent that many underreported their reservations about giving up their ED symptoms when completing the CCS. Self-presentation motives are well-documented across numerous behaviors, and have been shown to be particularly salient to individuals in treatment for EDs (Mack, Strong, Kowalski, & Crocker, 2007). Self-presentation motives are, of course, an issue with any self-assessment device, and it is unclear as to the magnitude of the effect they might have played in accounting for the lower reporting of concerns about change in this sample.

Another limitation concerns the decision to use an all ED sample to examine the factor structure of the CCS. As stated previously, a unique aspect of the CCS is that the items are written so that they are potentially relevant to a wide range of behavioral/psychiatric problems. Because the factor structure of the instrument was examined in an ED sample, however, it reflects the clusters of concerns most relevant to this population. Constructs that may be more relevant to other psychiatric problems may
not be represented in the factors that emerged. This effect can be seen in the current study, in that items that comprised the rational Loss of Peer Group subscale did not load significantly as a factor, although the rational subscale produced some of the highest scores when the CCS was administered to substance abuse populations (Goodyear, 1990).

In the end, the sample chosen to evaluate the factor structure depends on the question being asked. The intent of this study was to identify the factors that are most salient to individuals with EDs when they are contemplating changing their behavior. An additional focus was to evaluate differences in concerns about change between individuals with OCD versus EDs. Employing this factor structure in an OCD sample allows for the comparison of these two psychiatric populations.

Another limitation of the study was the reliance on self-report for the presence of other psychiatric disorders in both samples. Due to time constraints and the sampling of different treatment centers, it was not possible to administer a complete psychiatric interview. All of the participants were administered clinical interviews at the time of intake to the treatment facilities they attended in order to establish diagnostic status; however, these records could not be accessed for two of the sites due to confidentiality issues. It is possible that some of the individuals in the ED group also had comorbid OCD diagnoses and that OCD participants had comorbid ED diagnoses, which may impact their responses to interviews and questionnaires in this study. The effects of this possibility are minimized by the instructions to answer the CCS in reference to one’s primary diagnosis.
Future Directions

The findings of this study suggest that the CCS shows promise as an instrument to assess concerns that individuals may have about changing their attitudes and behaviors. Obtaining diagnostic-specific profiles of concerns about change for different diagnostic groups provides valuable information about the nature of the disorder being examined. These profiles may then be instrumental in identifying potential barriers to treatment, and may increase the efficacy of interventions.

Further examination of the validity and reliability of the CCS is necessary. The current factor structure should be evaluated with confirmatory factor analytic techniques in a large AN, BN, and EDNOS sample in order to determine whether it can be replicated. In addition, the convergent validity of the CCS should be examined through comparisons with other measures of treatment motivation, such as the ANOSQ, DB Scale, or RMI. An additional area of interest is change in concerns about treatment over time. Future research should determine the way in which concerns about change are modified over the course of treatment and may impact treatment outcome. Geller and colleagues (2004) have found that a lack of readiness to change level of dietary restriction (as measured by the RMI) predicted short-term treatment outcomes.

The structure of the CCS lends itself to a variety of uses. It was specifically designed so that it would be applicable to different diagnostic groups. Examination of change-related beliefs in different psychiatric populations provides information about the magnitude and profile of concerns about giving up symptomatic behavior. The findings of this and previous studies suggests that reluctance to modify symptoms may indeed
distinguish the EDs, and most particularly AN, from many other maladaptive behavior patterns. Further examination of other forms of psychopathology appears warranted.
Appendix A


A. Refusal to maintain body weight at or above a minimally normal weight for age and height (e.g., weight loss leading to maintenance of body weight less than 85% of that expected; or failure to make expected weight gain during period of growth, leading to body weight less than 85% of that expected).

B. Intense fear of gaining weight or becoming fat, even though underweight.

C. Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight.

D. In postmenarchal females, amenorrhea, i.e., the absence of at least three consecutive menstrual cycles. (A woman is considered to have amenorrhea if her periods occur only following hormone, e.g., estrogen, administration.)

Specify type:

Restricting Type: During the current episode of Anorexia Nervosa, the person has not regularly engaged in binge-eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas).

Binge-Eating/Purging Type: During the current episode of Anorexia Nervosa, the person has regularly engaged in binge-eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas).
Appendix B


A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:

(1) Eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances.

(2) A sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating).

B. Recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas or other medications; fasting; or excessive exercise.

C. The binge eating and inappropriate compensatory behaviors both occur, on average, at least twice a week for 3 months.

D. Self-evaluation is unduly influenced by body shape and weight.

E. The disturbance does not occur exclusively during episodes of AN.

Specify type:

Purging type: During the current episode of BN, the person has regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics or enemas.

Nonpurging type: During the current episode of BN, the person has used inappropriate compensatory behaviors, such as fasting or excessive exercise, but has not regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics or enemas.
Appendix C

DSM-IV-TR Eating Disorder Not Otherwise Specified (EDNOS) criteria (American Psychiatric Association, 2000)

The Eating Disorder Not Otherwise Specified category is for disorders of eating that do not meet the criteria for any specific Eating Disorder. Examples include:

1. For females, all of the criteria for Anorexia Nervosa are met except that the individual has regular menses.

2. All of the criteria for Anorexia Nervosa are met except that, despite significant weight loss, the individual’s current weight is in the normal range.

3. All of the criteria for Bulimia Nervosa are met except that the binge eating and inappropriate compensatory mechanisms occur at a frequency
Appendix D  
Concerns about Change Scale 

Even after entering treatment for a problem, many people are aware of some issues that they think might make it difficult for them to overcome the problem. Some of the concerns that different clients have expressed about changing (that is, getting over the main problem that has brought them to treatment) are listed below.

Please indicate how much each statement applies to you, using the following scale in making your responses:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>the statement does not reflect my concerns at all</td>
<td>the statement slightly reflects my concerns</td>
<td>the statement reflects my concerns to a moderate extent</td>
<td>the statement reflects my concerns to a considerable extent</td>
<td>the statement very strongly reflects my concerns</td>
</tr>
</tbody>
</table>

1. I think I need this problem to punish myself.  
2. I may lose a sense of self-control if I change.  
3. This problem is an important part of my identity.  
4. In many ways, this problem simplifies the difficulties of adult life.  
5. I don’t want to change this part of my life.  
6. I wouldn’t be able to express how I feel if I change.  
7. I’d have no excuse for my failures if I change.  
8. It is not within my power to change.  
9. I may go crazy if I try to change.  
10. I’d have to give up all my friends if I change.  
11. My problem shelters me from all the complications of being an adult.  
12. I may be at greater risk of physical injury if I change.  
13. It’s just a question of individual preference for me to be the way I am right now.  
14. I wouldn’t have anything to help me forget my problems if I change.  
15. I may have to deal with my sexuality if I change.  
16. I may not have as much fun if I change.  
17. I think I like to suffer.  
18. I like being identified as someone with this problem.  
19. This problem is just covering up a deeper, more serious problem.  
20. The process of change would be too painful for me to bear.
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>not at all</td>
<td>Slightly</td>
<td>moderately</td>
<td>considerably</td>
<td>very strongly</td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>The real meaning of this problem is too terrible for me to face.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>22.</td>
<td>Nothing can help me, so there's no point in trying.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>23.</td>
<td>I'm not convinced that I really need to change.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>24.</td>
<td>I'd have to start making definite plans for the future if I change.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>25.</td>
<td>This problem gets me things I want.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>26.</td>
<td>My problem reduces sexual conflicts.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>27.</td>
<td>I don't have the skills I need to change.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>28.</td>
<td>Life would be boring if I change.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>29.</td>
<td>Without this problem, I wouldn't have any other ways of coping with stress.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>30.</td>
<td>I may be exposed to more real dangers if I change.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>31.</td>
<td>Attempting to change will make my life more difficult.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>32.</td>
<td>I'd have a hard time talking to people if I change.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>33.</td>
<td>If I change, the opposite sex may pay too much attention to me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>34.</td>
<td>I may lose a feeling of pride in myself if I change.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>35.</td>
<td>I wouldn't have any outlet for my feelings if I change.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>36.</td>
<td>I may feel less intense and alive if I change.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>37.</td>
<td>I'm afraid that people will stop worrying about me if I change.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>38.</td>
<td>If I get rid of this problem, my sickness would just get expressed in some other form.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>39.</td>
<td>I may not have anything else to feel good about if I change.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>40.</td>
<td>I think that this problem is a punishment for my mistakes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>41.</td>
<td>Change is just too risky for me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>42.</td>
<td>I may have to give up being a little girl/little boy if I change.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>43.</td>
<td>My friends wouldn't accept me if I change.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>44.</td>
<td>I'd have to take responsibility for my mistakes if I change.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>45.</td>
<td>In spite of what other people think, I really don't see this issue as a major problem.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
46. This problem helps me obtain an immediate goal. 1 2 3 4 5
47. I’d have nothing to take away the pain if I change. 1 2 3 4 5
48. My problem gives me a way to deal with unpleasant situations. 1 2 3 4 5
49. I may risk making a fool of myself if I change. 1 2 3 4 5
50. I may lose some control over others if I change. 1 2 3 4 5
51. Even though other people say that they want me to change, I’m not sure that they really do. 1 2 3 4 5
52. I may lose some self-respect if I change. 1 2 3 4 5
53. I wouldn’t know how to define myself any more if I change. 1 2 3 4 5
54. This problem is useful to me now, and I can’t worry about how it may affect me later. 1 2 3 4 5
55. I don’t deserve to be different. 1 2 3 4 5
56. I may receive unwelcome sexual advances if I change. 1 2 3 4 5
57. I’d have to quit goofing off if I change. 1 2 3 4 5
58. Deep down, I just don’t think it’s possible for me to change. 1 2 3 4 5
59. If everyone would stop bothering me about this, I’d be fine. 1 2 3 4 5
60. I don’t want to experience the suffering that would be involved in trying to change. 1 2 3 4 5
61. Attempting to change may make me feel worse than I do now. 1 2 3 4 5
62. Changing this symptom won’t get to the root of my problem. 1 2 3 4 5
63. I may not be strong enough to change. 1 2 3 4 5
64. I may lose everything I have accomplished if I change. 1 2 3 4 5
65. This problem may cause difficulties for me in the future, but it helps me now. 1 2 3 4 5
66. If I change, I may become just like everyone else. 1 2 3 4 5
67. I’m scared to find out what’s really wrong with me. 1 2 3 4 5
68. My problem helps me to avoid intimate adult relationships. 1 2 3 4 5
69. I wouldn’t have anything in common with my friends if I change. 1 2 3 4 5
70. I may miss out on a lot of pleasure if I change. 1 2 3 4 5
71. My friends wouldn't have anything to do with me if I change. 1 2 3 4 5
72. The process of changing just requires too much effort. 1 2 3 4 5
73. I would be giving up something I've worked hard for if I change. 1 2 3 4 5
74. I believe that my attempts to change are doomed to failure. 1 2 3 4 5
75. I have no right to expect anything better. 1 2 3 4 5
76. I may get less attention from others if I change. 1 2 3 4 5
77. I would prefer to remain childlike. 1 2 3 4 5
78. I need this problem to accomplish an important objective. 1 2 3 4 5
79. I'm just too frightened of change. 1 2 3 4 5
80. I may lose someone I love if I change. 1 2 3 4 5
81. My problem gives me some relief from unpleasant emotions. 1 2 3 4 5
82. I'd have to develop a new peer group if I change. 1 2 3 4 5
83. I wouldn't have any way of blowing off steam if I change. 1 2 3 4 5
84. Changing this problem won't help solve the deeper problems I have within me. 1 2 3 4 5
85. I'm not worthy of change. 1 2 3 4 5
86. I think this "problem" is a reasonable and valid choice. 1 2 3 4 5
87. This problem is part of what makes me unique and special. 1 2 3 4 5
88. My problem allows me to hold on to some of the safety and security of childhood. 1 2 3 4 5
89. I'd have to face the fact that I haven't done much with my life if I change. 1 2 3 4 5
90. I couldn't say what's on my mind if I change. 1 2 3 4 5
91. I may lose control over my sexual impulses if I change. 1 2 3 4 5
92. Some people may stop taking care of me if I change. 1 2 3 4 5
93. The things I'd have to go through in order to change are too unpleasant. 1 2 3 4 5
94. My friends would give me a hard time if I change. 1 2 3 4 5
95. There would be no excitement in my life if I change. 1 2 3 4 5
96. Without this problem, I wouldn't be able to deal with all the pressures I have in my life. 1 2 3 4 5
97. I wouldn't have anything else to make me feel powerful if I change. 1 2 3 4 5
98. I may have to grow up if I change. 1 2 3 4 5
99. If I change, I will be giving up my chance to succeed in meeting my goals. 1 2 3 4 5
100. I'd have a hard time telling other people what I think if I change. 1 2 3 4 5

101. This problem is so much a part of me that I can't imagine myself any other way. 1 2 3 4 5
102. I'd really have to start taking responsibility for my life if I change. 1 2 3 4 5
103. I may feel less energetic and healthy if I change. 1 2 3 4 5
104. My behavior in the "problem" situation is rational and deliberate. 1 2 3 4 5
105. I want to get rid of my problem so badly that I'll try anything I can to get over it. 1 2 3 4 5

106. My problem gives me an excuse to get out of unpleasant situations that I'd really prefer to avoid anyway. 1 2 3 4 5
107. This problem is the means to an end that I want to achieve. 1 2 3 4 5
108. I wouldn't be able to relax if I change. 1 2 3 4 5
109. Attempting to change will disrupt my life. 1 2 3 4 5
110. This whole issue is part of my identity. 1 2 3 4 5

111. In many ways, this problem really simplifies my life. 1 2 3 4 5
112. I was born this way, so there's no point in trying to fight it. 1 2 3 4 5

You may have some concerns about other issues that might make it difficult for you to overcome the problem for which you have entered treatment. If you have any additional concerns not covered in the questionnaire, please write them on the lines below, and rate them just as you rated the other items. Thank you very much.

113. ___________________________________________ 1 2 3 4 5
114. ___________________________________________ 1 2 3 4 5
115. ___________________________________________ 1 2 3 4 5
Appendix E

Participant Demographic Characteristics for the Obsessive-Compulsive Disorder Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>25</td>
<td>83.3</td>
</tr>
<tr>
<td>Chinese</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Japanese</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Persian</td>
<td>2</td>
<td>6.7</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>16</td>
<td>53.3</td>
</tr>
<tr>
<td>Married</td>
<td>10</td>
<td>33.3</td>
</tr>
<tr>
<td>Separated</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Divorced</td>
<td>3</td>
<td>10.0</td>
</tr>
<tr>
<td><strong>Educational Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school (current or diploma)</td>
<td>7</td>
<td>23.3</td>
</tr>
<tr>
<td>Some college/AA</td>
<td>6</td>
<td>20.0</td>
</tr>
<tr>
<td>College degree</td>
<td>10</td>
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<tr>
<td>Some graduate school</td>
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<tr>
<td>Graduate degree</td>
<td>5</td>
<td>16.7</td>
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</tbody>
</table>
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