ASPECTS OF SELF-CONCEPT AND EATING DISORDER RECOVERY: WHAT DOES THE SENSE OF SELF LOOK LIKE WHEN AN INDIVIDUAL RECOVERS FROM AN EATING DISORDER?

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This research examined the relations between aspects of self-concept and various stages of eating disorder recovery. Individuals formerly seen for an eating disorder at a Midwestern clinic were categorized as having an active eating disorder (n = 53) or as partially recovered (n = 15) or as fully recovered (n = 20) using a comprehensive recovery definition whereby full recovery included physical, behavioral, and psychological recovery and partial recovery included only physical and behavioral recovery. The self-concepts of these groups were compared to each other and to 67 controls. The fully recovered group had higher self-esteem, higher

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self-directedness, and lower levels of the imposter phenomenon than individuals who were partially recovered or those who met criteria for an eating disorder, as well as higher self-efficacy than the active eating disorder group. Fully recovered individuals also looked better in terms of specific domains of self-concept (e.g., intimacy, sociability, etc.) when compared to the active eating disorder group. Results provide evidence that fully recovered individuals were comparable to controls on all measures of self-concept. Partially recovered individuals, however, were more similar to active eating disorder cases, suggesting that improved self-concept may be an integral part of full eating disorder recovery. Additionally, these results provide further support for a more comprehensive definition of recovery which acknowledges the psychological aspects of an eating disorder.

Self-concept disturbances have been theoretically posited as core vulnerabilities for the development and maintenance of eating disorders, as well as for relapse (Bruch, 1981; Daley, Jimerson, Heatherton, Metzger, & Wolfe, 2008; Stein & Corte, 2003). For example, researchers have found that the presence of relatively few positive and more negative self-schemas may be predictive of eating pathology (Stein & Corte, 2007); further, low self-esteem has been associated with poor outcome and relapse in a one-year follow-up of individuals with bulimia nervosa (Fairburn, Peveler, Jones, Hope, & Doll, 1993). Qualitative work also supports an important relation between self-concept and disordered eating, with women in recovery from an eating disorder describing reaching self-acceptance, as well as cultivating and maintaining a sense of self-worth, as critical to attaining and maintaining recovery (Federici & Kaplan, 2008; Patching & Lawler, 2009; Vanderlinden, Buis, Pieters, & Probst, 2007). Those who relapsed identified self-criticism and a pervasive sense of worthlessness as factors hindering their recovery (Federici & Kaplan, 2008). Thus, it appears that a more sustained recovery is more likely among individuals with improved self-concept. Conversely, if self-concept disturbances, such as low self-esteem, persist following recovery of an eating disorder, risk for relapse may be heightened (Daley et al., 2008).

How might ongoing self-concept disturbances contribute to relapse? Those no longer meeting criteria for an eating disorder but with low self-esteem may be at risk for returning to a focus on appearance (and concomitant behaviors, such as dietary restriction for weight loss) as a way to boost self-esteem (Anderson & Maloney, 2001). And recovery with a lingering sense of ineffectiveness (low self-efficacy) may result in small slips via eating disordered behav-
iors or thoughts snowballing into a more serious return of eating pathology because the individual lacks confidence in her abilities to maintain recovery. Also, given that one’s self-image guides behaviors in social interactions and can elicit behaviors that confirm the self-image (Birgegard, Bjorck, Norring, Sohlberg, & Clinton, 2009; Jones, 1986), a poor self-image may generate behaviors that reinforce the negative view of the self, resulting in negative affect which is a robust risk factor for eating pathology (Stice, 2002). In the current study, we investigate what the self-concept looks like at different stages of an eating disorder, with particular interest in how those fully recovered from an eating disorder experience the self.

COMPONENTS OF SELF-CONCEPT

From a cognitive perspective, self-concept can be defined as “a set of knowledge structures about the self” (Stein & Corte, 2007, p. 59) and encompasses a wide range of constructs (Baumeister, 1999). While these sets of structures may come together to reflect one underlying self-concept, it is informative to look at various aspects of self-concept separately given that they have conceptual differences and that there may be different ways to target these aspects in intervention and prevention approaches. According to Markus and Wurf (1987), self-concept represents a dynamic multifaceted construct, rather than a unitary undifferentiated structure. Self-representations that comprise the self-concept are not all alike; some may be more positive, more negative, more salient, more predictive of future behaviors, or more accurate than others (Markus & Wurf, 1987). Indeed, researchers and clinicians alike have found great utility in parsing out various aspects of self-concept to further elucidate their significance in both the etiology and treatment of eating disorders (Fairburn, 2008; Halvorsen & Heyerdahl, 2006; Jacobi, Paul, de Zwaan, Nutzinger, & Dahme, 2004; Wilson, Fairburn, Agras, Walsh, & Kraemer, 2002; Wonderlich et al., 2008).

The particular aspects of self-concept chosen for examination in this study are those with support for therapeutic relevance in the eating disorders (self-esteem, self-efficacy, and self-directedness) as well as the imposter phenomenon, which is a conceptually compelling, but understudied, way to look at the self. In brief, self-esteem involves an evaluative element and sense of worth, and can be measured globally (e.g., overall, I think I am a pretty good person), as
well as in specific domains (e.g., I think I’m a good worker). Self-efficacy is the aspect of self-concept that links the self to agency and control (Bandura, 1977; Baumeister, 1999), with individuals high in self-efficacy feeling confident in their abilities to do what is necessary to attain their goals. Relatedly, the concept of self-directedness refers to self-determination and the ability to control, regulate, and alter behavior as needed in pursuing goals (Cloninger, Svrakic, & Przybeck, 1993). Self-directedness also reflects self-acceptance, personal responsibility, resourcefulness, and the perception of the self as integrated and autonomous (Cloninger et al., 1993). Yet another way of studying self-concept is to examine the degree to which individuals experience the self as false, in particular feeling that others see them as competent (exterior self), while they themselves feel inadequate (interior self). This construct has been referred to as the “imposter phenomenon” and “perceived fraudulence” (Kolligan & Sternberg, 1991).

These self-concept constructs have been implicated in therapeutic change in the eating disorders. For example, Fairburn’s (2008) “enhanced” version of cognitive behavioral therapy for eating disorders (CBT-E) includes a module targeting low self-esteem, conceptualized as an obstacle to recovery. Additionally, there is evidence that self-efficacy mid-treatment is a mediator of change in eating disorder symptomatology (Wilson et al., 2002) and that increases in self-directedness from pre- to post-CBT are associated with improved eating psychopathology (Grave, Calugi, Brambilla, Abbate-Daga, Fassino, & Marchesini, 2007).

**RESEARCH ON THE SELF AND EATING DISORDERS**

There is substantial support for eating disorders being associated with low self-esteem (Gual et al., 2002; Jacobi et al., 2004; Peck & Lightsey, 2008). Regarding the recovery process and self-esteem, there is some support for individuals in remission from bulimia nervosa (BN), defined as the absence of eating disorder symptoms (e.g., binge eating, purging) for six months, having self-esteem scores that are significantly higher than those with current BN, but significantly lower than healthy controls (Daley et al., 2008). In contrast, Blaase and Elklit (2001) found that individuals recovered from an eating disorder were comparable to healthy controls on measures of self-esteem. While little work has examined domain-specific self-esteem
in relation to eating disorder recovery, there is some evidence that compared to symptomatic individuals, those recovered from BN at an 18-month post-treatment assessment reported greater social self-esteem (Troop, Schmidt, Turnbull, & Treasure, 2000).

Self-efficacy also has a long-standing relationship with eating disorders, with historical reports identifying low levels of self-efficacy as a striking feature of eating disorder patients (e.g., “paralyzing sense of ineffectiveness;” Bruch, 1962, p. 191) and research finding that eating disorder individuals report greater levels of personal ineffectiveness and lower general efficacy compared to healthy controls (Etringer, Altmair, & Bowers, 1989; Jacobi et al., 2004; Peck & Lightsey, 2008; Wagner, Halmi, & Maguire, 1987). Studies assessing ineffectiveness and eating disorder recovery have yielded mixed results with some studies finding no differences between individuals recovered from an eating disorder and controls (Brambilla et al., 2003; Lilenfeld et al., 2000) and other studies finding that recovered individuals reported a greater sense of ineffectiveness than controls (Kaye et al., 1998; Stein et al., 2002). There is also some evidence for the prognostic value of ineffectiveness; high initial ineffectiveness has been associated with poor prognosis for patients with anorexia nervosa (AN; Bizeul, Sadowsky, & Rigaud, 2001).

Self-directedness appears to be low across all eating disorder types (Cassin & von Ranson, 2005). Klump et al. (2004) found that women with current eating disorders and women recovered from an eating disorder scored significantly lower on self-directedness than controls. However, other work has found that individuals fully recovered from an eating disorder have significantly higher levels of self-directedness when compared to those partially recovered or with an active eating disorder (Bloks, Hoek, Callewaert, & van Furth, 2004; Bulik, Sullivan, Fear, & Pickering, 2000). From a prediction perspective, pre-treatment and end-of-treatment self-directedness appear to predict symptomatology in AN patients (Bloks, Hoek et al., 2004).

Although minimal research exists on the imposter phenomenon and eating disorders, this construct is conceptually compelling since individuals with eating disorders often strive to conceal their disordered eating behaviors (e.g., binge eating, vomiting, extreme restriction), which may contribute to a disconnect between their public and private selves. Striegel-Moore, Silberstein, and Rodin (1993) found that women with BN reported greater perceived fraudulence than a nonclinical group with elevated eating disorder symptoms,
who in turn reported more perceived fraudulence than controls. To our knowledge, no research has examined the imposter phenomenon across stages of recovery.

DEFINING EATING DISORDER RECOVERY

The findings reviewed related to recovery must be understood within the context of how recovery from eating disorders has been defined. Until recently, the established norm has been to define recovery based on physical measures (e.g., weight, menses) and behavioral measures (e.g., no binge eating) with no explicit assessment of psychological aspects related to eating disorders (e.g., how individuals think about food, eating, and their bodies). Indeed, most of the work reviewed that included a recovery group did not include a psychological piece of recovery. Not assessing psychological recovery may produce a pseudorecovery state (Keski-Rahkonen & Tozzi, 2005) where individuals are walking the walk but internally talking the same eating disordered talk. The presence of lingering eating disorder attitudes is not trivial, since elevated anorexic attitudes and residual concerns about weight and shape predict relapse (Carter, Blackmore, Sutandar-Pinnock, & Woodside, 2004; Channon and deSilva, 1985; Federici & Kaplan, 2008). Indeed, some researchers note that presence of residual symptoms, including body image disturbance, among those “recovered” from an eating disorder may reflect an inadequate definition of recovery (Keel, Dorer, Franko, Jackson, & Herzog, 2005).

Building on work by Couturier and Lock (2006) and Bachner-Melman, Zohar, and Ebstein (2006), we propose a definition of eating disorder recovery that uses physical, behavioral, and psychological criteria, and that has been validated using other disordered eating measures (Bardone-Cone et al., 2010). According to our definition, individuals who no longer meet criteria for an eating disorder are fully recovered if they have a body mass index of at least 18.5 kg/m², exhibit no binge eating, purging, or fasting in the past three months, and score within 1 SD of age-matched community norms on all subscales of the Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 1994). In contrast, a partially recovered group will be defined as exhibiting physical (BMI) and behavioral (no binge eating, etc.) recovery, but not psychological recovery (one
or more subscale of the EDE-Q greater than 1 SD of community norms). The current study uses this comprehensive definition of recovery for the first time in examining how one’s view of oneself may differ across stages of an eating disorder.

THE CURRENT STUDY

In the current study, we examined aspects of the self in relation to eating disorder recovery. We focused on measures of self-esteem, self-efficacy, self-directedness, and the imposter phenomenon and defined recovery using physical, behavioral, and psychological indices in order to produce both fully recovered and partially recovered groups. We hypothesized that individuals fully recovered from an eating disorder would have higher self-esteem, higher self-efficacy, higher self-directedness, and lower levels of the imposter phenomenon than either individuals partially recovered from an eating disorder or those meeting criteria for an eating disorder.

METHODS

PARTICIPANTS AND RECRUITMENT

Attempts were made to contact all current and former female eating disorder patients (ages 16 and older) seen at the University of Missouri Pediatric and Adolescent Specialty Clinic (N = 273) between 1996 and 2007, the year of data collection. This clinic is a primary care and referral clinic specializing in the care of children and adolescents (ages 10-25 years) that has physicians with expertise in eating disorders. Of the 273 eating disorder patients, 96 (35.2%) were successfully contacted and recruited. Fifty-five (20.1%) of the 273 were contacted but did not participate due to other time commitments or lack of interest. Of the remaining patients, four (1.5%) were deceased and 118 patients (43.2%) could not be contacted due to absent or incorrect mailing addresses or inability to make phone contact. These rates are fairly comparable to those of other studies doing a first follow-up of eating disorder patients over a range of about 10 years (Reas, Williamson, Martin, & Zucker, 2000). In sum, of the 151 eating disorder patients we were able to contact, 63.6%
participated. Healthy controls were recruited from two sources: the clinic from which the eating disorder patients were recruited \((n = 17)\) and the university campus \((n = 50)\). Eligible controls were females ages 16 and older with no current or past eating disorder symptoms.

For all participants recruited from the clinic (former and current eating disorder patients and healthy controls), current contact information was sought via patient records, public records such as whitepages.com, court records, and marriage records, and paid tracking searches. Eligible participants were mailed a cover letter that described the study and included the lead researcher’s phone number for requesting more information or expressing interest. Up to two mailings were sent out and if there was no response at that point, then attempts were made to contact the eligible participant via phone to describe the study and solicit participation. Recruitment for the healthy controls outside of the clinic occurred through fliers and introductory psychology courses. Those who responded to the flier, which noted inclusion criteria of no current or past eating disorder symptoms, called the lead researcher at which point the inclusion criteria were reiterated and the study was described. Those who were recruited from introductory psychology classes were contacted via phone if they met inclusion criteria based on screening measures administered at the start of the semester.

**STUDY PROCEDURES**

After providing written consent, all participants first completed a set of questionnaires and then, on a separate date, an interview. (For participants under the age of 18, we obtained written assent from the minor and written consent from a parent.) For the majority of the participants, the time between questionnaires and interview was within one week. Most participants completed the questionnaires \((71.2\%)\) and interview \((82.9\%)\) in person. Those who lived too far away to travel to the study site completed the questionnaires via mail and did a phone interview. Interviews were privately conducted by one of three extensively trained individuals who participated in over 50 hours of training videos, role plays, and discussions about interviewing. Participants were provided financial remuneration af-
ter completing the interview, except for the controls from psychology classes who received course credit. All aspects of this study were approved by the university’s institutional review board.

MEASURES USED FOR DEFINING EATING DISORDER STATUS GROUPS

Structured Clinical Interview for DSM-IV, Patient Edition (SCID; First, Spitzer, Gibbon, & Williams, 1995). The SCID is a widely used semi-structured interview that has well-established reliability and validity (Segal, Hersen, & Van Hasselt, 1994). Axis I modules for eating disorders, AN, BN, and eating disorder not otherwise specified (EDNOS), were administered to determine lifetime and current diagnoses. EDNOS cases were those that met the SCID’s guidelines for EDNOS (e.g., subthreshold AN, subthreshold BN, regular use of inappropriate compensatory behaviors, and binge eating disorder). A random subset (approximately 5%) of the audiotaped interviews was examined for inter-rater reliability, yielding absolute agreement between the lead author and the other two interviewers for current AN, BN, and EDNOS.

Eating Disorders Longitudinal Interval Follow-Up Evaluation Interview (LIFE EAT II; Herzog et al., 1993). We used portions of the LIFE EAT II asking about the presence of binge eating, vomiting, laxative use, and fasting over the past three months.

Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 1994). The EDE-Q assesses disordered eating thoughts and behaviors over the past four weeks, yielding four subscales: Restraint (attempts to restrict food intake), Eating Concern (feeling guilty and concerned about eating), Weight Concern (dissatisfaction with and overvaluation of weight), and Shape Concern (dissatisfaction with and overvaluation of shape). The EDE-Q is one of the most commonly used measures of disordered eating attitudes and behaviors in clinical and community populations (Anderson & Williamson, 2002) and its subscales have good internal consistency (alphas of .78-.93; Luce & Crowther, 1999) and convergent validity (Fairburn & Beglin, 1994; Grilo, Masheb, & Wilson, 2001). This questionnaire is derived from the Eating Disorder Examination (EDE) interview (Fairburn & Cooper, 1993), which was used in prior work in
defining recovery from AN (Couturier & Lock, 2006). In the current study, coefficient alpha was .85 for Restraint, .85 for Eating Concern, .88 for Weight Concern, and .94 for Shape Concern.

**Body Mass Index.** Weight and height were measured after the interview for all in-person interviewees and used to compute body mass index (BMI). For those who completed the interview over the phone, we used self-reported height and weight in the BMI computations.

**MEASURES OF SELF-CONCEPT**

**Self-Esteem.** Global self-esteem was assessed via the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). The RSES is a reliable and well-validated 10-item scale and is the most widely used measure of overall self-esteem (Heatherton & Wyland, 2003). In the current sample, a 5-point response scale was used and $\alpha$ was .94.

Domain-specific self-esteem was obtained via the Adult Self-Perception Profile (ASPP; Messer & Harter, 1986), which is a 50-item measure tapping into individuals’ self-perception in a variety of conceptually labeled domains: sociability, job competence, nurturance, athletic abilities, physical appearance, adequate provider, morality, household management, intimate relationships, intelligence, and sense of humor. Participants rated each statement on a 4-point scale with higher scores reflecting more positive evaluations. The ASPP has adequate psychometrics, including internal consistencies ranging from .65 to .90 in a sample of women (Messer & Harter, 1986), and in the current sample, $\alpha$’s for the subscales ranged from .74 to .90. Since the ASPP focuses on adult competencies and has been validated specifically on adults, analyses involving this measure were limited to those ages 18 and older ($n = 145$).

**Self-Efficacy.** Self-efficacy was assessed via the General Self-Efficacy subscale (GSES) of the Self-Efficacy Scale developed by Sherer et al. (1982). The GSES uses a 5-point response scale and is composed of 17 items not tied to specific situations or behavior (e.g., When I make plans, I am certain I can make them work). The GSES has adequate reliability ($\alpha = .86$) and validity (Bosscher & Smit, 1998; Sherer et al., 1982). In the current sample, $\alpha$ was .90.

**Self-Directedness.** Self-directedness was assessed with the Self-Directedness subscale of the short form of the Temperament and
Character Inventory (TCI-R-140; Cloninger, 1999), which contains 20 items rated using a 5-point response scale. Self-directedness is a dimension of character capturing the traits of purposefulness toward goals, personal responsibility, and self-acceptance (Cloninger et al., 1993). The Self-Directedness subscale of the TCI-R-140 has good internal consistency in prior work ($\alpha = .88$), and in the current sample, $\alpha$ was .91.

Imposter Phenomenon. The imposter phenomenon was assessed with the 20-item Clance Imposter Phenomenon Scale (CIPS; Clance, 1985) which uses a 5-point response scale. The CIPS has evidence for good reliability ($\alpha = .96$) and convergent validity, and it distinguishes between individuals independently identified as imposters and nonimposters (Chrisman, Pieper, Clance, Holland, & Glickauf-Hughes, 1995; Holmes, Kertay, Adamson, Holland, & Clance, 1993). In the current sample, $\alpha$ was .94.

ANALYTIC PROCEDURE

Given that the self-concept variables of self-esteem, self-efficacy, self-directedness, and the imposter phenomenon were highly correlated, with correlations ranging from -.57 for self-efficacy and the imposter phenomenon to .82 for self-esteem and self-directedness (all correlations significant at $p < .001$), a multivariate analysis of variance (MANOVA) was first performed for these four global self-concept variables. A significant multivariate effect was followed up with univariate analyses and then pair-wise comparisons (Tukey’s test) in order to see what was driving the effect. A separate MANOVA was performed for the domain-specific self-esteem subscales of the ASPP, with follow-up ANOVAs and pairwise comparisons (Tukey’s test). In the univariate analyses, the assumption of homogeneity of variance across groups was not met for self-esteem and self-efficacy from the global constructs (i.e., significant Levene’s tests of equality of variances) and also was not met for sociability, intimate relationships, morality, and adequate provider from the domain-specific constructs. While ANOVA is robust to violations of the homogeneity of variance assumption, this is not so when sample sizes are unequal, as is the case in this study. Thus, for the analyses involving the variables where the homogeneity assumption was violated, we
report Welch’s F-test and use the Games-Howell test for pairwise comparisons, as recommended by Field (2009).1

RESULTS

ATTRITION ANALYSES

In order to examine whether the individuals who participated differed from those who did not, we used clinic chart data to make comparisons. The participants were not significantly different from the nonparticipants (those with whom contact was never made or who declined to participate but agreed to let us use limited chart information) in terms of current age, age at first clinic visit, BMI at first clinic visit, eating disorder diagnoses, and number of years since last clinic visit. These findings provide confidence that, at least on these measures, study participants were representative of the larger eating disorder patient population at this clinic.

DESCRIPTIVE STATISTICS

The participants were categorized into one of four groups: healthy controls, active eating disorder, partially recovered eating disorder, and fully recovered eating disorder. Healthy controls (n = 67) had no history of an eating disorder, and active eating disorder cases (n = 53) had a current eating disorder diagnosis (AN, BN, or EDNOS). Individuals who met criteria for an eating disorder in the past but not currently were divided into two groups by combining a weight index, an assessment of eating disorder behaviors, and scores on the EDE-Q subscales to derive greater nuances in recovery.

The fully recovered group (n = 20) comprised women without a current eating disorder who had a BMI of at least 18.5, reported

1. For the MANOVAs, Box’s M Test of equality of variance-covariance matrices was significant, suggesting that the assumption that these matrices were equal across groups had been violated, with this violation being more meaningful given the unequal sample sizes. Rather than randomly removing data from the larger groups to equalize the sample sizes (which would have reduced power), we proceeded to follow-up the findings of significant multivariate effects with the univariate analyses given that the pattern and magnitude of the means suggested robust group differences and given that for the univariate tests we were able to report an alternative F-statistic (i.e., Welch’s F) in cases where the univariate homogeneity of variance assumption was violated.
no binge eating, purging, or fasting in the prior three months, and scored within 1 SD of community norms on each of the EDE-Q subscales. The partially recovered group (n = 15) met all of the criteria for full recovery except for the psychological recovery criteria (i.e., at least one EDE-Q subscale was greater than 1 SD of age-matched norms). The BMI cut-off of 18.5 was chosen since the range of 18.5-24.9 is considered normal weight by the World Health Organization (Bjorntorp, 2002). The norms used for determining fully and partially recovered status were the age-banded community norms reported by Mond, Hay, Rodgers, and Owen (2006), so that for a given eating disorder patient, her EDE-Q scores were compared to those of women of a similar age. We chose to use 1 SD from norms rather than 2 SD from norms because 2 SD from norms on the EDE-Q subscales often included scores of 4 or higher, which are considered clinically significant (Mond et al., 2006).

Table 1 includes descriptive statistics of the four groups in terms of age, ethnicity, and socio-economic status. The groups did not differ in terms of ethnicity and socio-economic status, but did differ in age, $F(3, 151)=15.44, p < .001$, with healthy controls significantly younger than the eating disorder groups. Controlling for age did not change the pattern of significance, so results without age as a covariate are presented for parsimony. The fully recovered, partially recovered, and Table 1. Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>Active ED (n = 53)</th>
<th>Partially Recovered ED (n = 15)</th>
<th>Fully Recovered ED (n = 20)</th>
<th>Healthy Controls (n = 67)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>23.18 years</td>
<td>23.53 years</td>
<td>24.55 years</td>
<td>19.46 years</td>
</tr>
<tr>
<td>(4.39)</td>
<td>(5.80)</td>
<td>(4.89)</td>
<td>(1.88)</td>
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</tr>
<tr>
<td>Ethnicity</td>
<td>92.5%</td>
<td>93.3%</td>
<td>95.0%</td>
<td>89.6%</td>
</tr>
<tr>
<td>Caucasian</td>
<td>Caucasian</td>
<td>Caucasian</td>
<td>Caucasian</td>
<td>Caucasian</td>
</tr>
<tr>
<td>Socio-Economic Status</td>
<td>16.68 years</td>
<td>16.63 years</td>
<td>16.60 years</td>
<td>16.52 years</td>
</tr>
<tr>
<td>(2.79)</td>
<td>(2.52)</td>
<td>(3.14)</td>
<td>(2.65)</td>
<td></td>
</tr>
</tbody>
</table>

Note. ED = eating disorder. Means and standard deviations are reported for age and socio-economic status, with socio-economic status reflecting parents’ highest level of education attained.

2. Eight of the 96 current and former eating disorder patients did not meet criteria for a current eating disorder or either definition of recovery (i.e., partial recovery of physical and behavioral recovery, but not psychological recovery, or full recovery of physical, behavioral, and psychological recovery). These were primarily individuals who had reported some (though minimal) binge eating or purging, typically once or twice in the past three months. When analyses were run including these eight individuals in the partial recovery group, the same pattern of results emerged as presented in this work using the stricter definition of partial recovery.
and active eating disorder groups did not differ in their pattern of lifetime eating disorder diagnoses (e.g., no significant differences in the percentage with a lifetime diagnosis of AN), the number of years since the emergence of the eating disorder symptoms, or age or BMI at start of treatment. Of the active eating disorder group, 17% currently had AN, 6% had BN, and 77% had EDNOS.

GROUP DIFFERENCES IN SELF-CONCEPT

Both MANOVAs were significant (see Table 2) and were followed up with univariate analyses to determine which self-concept constructs were driving the effects and to determine the pattern of differences between groups. The results presented below reflect the findings from the follow-up ANOVAs and pairwise comparisons, with the statistics presented in Table 2.

The healthy controls and fully recovered group did not differ significantly in global self-esteem, self-efficacy, self-directedness, or the imposter phenomenon. Furthermore, inspection of the means for these two groups revealed remarkably similar scores on these measures of self-concept. The fully recovered group was significantly different from the partially recovered group and the active eating disorder group in terms of having higher self-esteem, higher self-directedness, and lower imposter phenomenon scores. In terms of self-efficacy, the fully recovered group had significantly higher self-efficacy than the active eating disorder group, but did not differ significantly from the partially recovered group. Lastly, it is notable that the partially recovered group and the active eating disorder group looked similar in terms of global self-esteem, self-efficacy, self-directedness, and the imposter phenomenon. Effect sizes for the univariate analyses for these global self-concept constructs ranged from $\eta^2 = .21$ to $\eta^2 = .48$; for most constructs, eating disorder status accounted for almost half of the variance in the global self-concept measures.

Analyses involving domain-specific self-esteem found significant group differences in sociability, intimate relationships, morality, intelligence, sense of humor, physical appearance, job competence, and being an adequate provider. Of note, these differences were significant even when using a conservative $p$-value based on a Bonferroni correction for the 11 comparisons following the significant multivariate effect (.05/11 = .005). The fully recovered group was
comparable to the healthy controls and better off than the active eating disorder group in all of these domains of difference. When compared with the partially recovered group, the fully recovered group had significantly higher self-esteem only in the area of appearance. The partially recovered group was not significantly different from the active eating disorder group, although there was a marginally significant difference ($p = .06$) for intimate relationships. Effect sizes for the significant domain-specific self-esteem findings ranged from $\eta^2 = .17$ to $\eta^2 = .46$; for most constructs, eating disorder status accounted for about one-fourth of the variance in the domain-specific self-esteem subscales.\(^3\)

**DISCUSSION**

With full eating disorder recovery defined comprehensively, using psychological, behavioral, and physical indices, very clear self-concept differences emerged between the fully recovered group and those with an active eating disorder or those partially recovered from an eating disorder, with our hypotheses largely confirmed. Given the interrelatedness of these constructs, it may be that these findings reflect the operation of a single underlying factor of self-concept. In that sense, the findings indicate that positive self-concept is present among those recovered from an eating disorder on physical, behavioral, and psychological levels, to the degree that

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3. While some would argue that controlling for depression in an ANCOVA framework in examining the relation between eating disorder status and self-esteem is warranted, there is strong support against using depression as a covariate in this context (Miller & Chapman, 2001). In particular, given that depression is generally not seen as an independent, confounding factor in the eating disorders, but rather as substantively related to eating disorders, statistical methods cannot remove the effect of depression from eating disorder symptomatology. Using depression as a covariate in this context would produce a residualized eating disorder grouping that is a “much-diminished representation” of the construct that the eating disorder grouping measures (Miller & Chapman, 2001, p. 45). That said, when depressive symptomatology was included as a covariate, a similar pattern of results emerged for self-directedness and the imposter phenomenon, but there were no longer group differences in self-efficacy and the pairwise comparisons for self-esteem indicated that the healthy controls and fully recovered groups were no longer significantly different from the partially recovered group. Whereas there was still a multivariate effect for the domains of self-esteem after controlling for depression, there were fewer significant pairwise comparisons.
<table>
<thead>
<tr>
<th>Status</th>
<th>Active ED</th>
<th>Partially Recovered</th>
<th>Fully Recovered</th>
<th>Healthy Controls</th>
<th>Significance</th>
<th>Pair-Wise Comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Self-Esteem</td>
<td>30.32 (8.41)</td>
<td>35.13 (8.34)</td>
<td>44.13 (5.86)</td>
<td>44.80 (4.01)</td>
<td>F(3, 151) = 41.02; p &lt; .001; η² = .48</td>
<td>HC &gt; PRED, AED</td>
</tr>
<tr>
<td>Global Self-Efficacy</td>
<td>60.47 (12.47)</td>
<td>63.33 (9.53)</td>
<td>66.25 (5.78)</td>
<td>67.81 (9.79)</td>
<td>F(3, 151) = 11.63; p &lt; .001; η² = .42</td>
<td>HC &gt; PRED, AED</td>
</tr>
<tr>
<td>Self-Directedness</td>
<td>60.47 (12.47)</td>
<td>63.33 (9.53)</td>
<td>84.10 (7.00)</td>
<td>81.00 (10.63)</td>
<td>F(3, 149) = 42.13; p &lt; .001; η² = .46</td>
<td>FRED &gt; AED</td>
</tr>
<tr>
<td>Imposter Phenomenon</td>
<td>68.98 (11.71)</td>
<td>63.27 (16.56)</td>
<td>47.21 (12.56)</td>
<td>45.55 (11.77)</td>
<td>F(3, 146) = 38.74; p &lt; .001; η² = .44</td>
<td>FRED &gt; AED</td>
</tr>
<tr>
<td>Sociability</td>
<td>2.58 (.79)</td>
<td>2.95 (.71)</td>
<td>3.16 (.39)</td>
<td>3.40 (.64)</td>
<td>F(3, 141) = 11.32; p &lt; .001; η² = .23</td>
<td>HC &gt; AED</td>
</tr>
<tr>
<td>Intimate Relations</td>
<td>2.54 (1.77)</td>
<td>3.22 (1.87)</td>
<td>3.50 (1.53)</td>
<td>3.39 (1.62)</td>
<td>F(3, 141) = 15.22; p &lt; .001; η² = .16</td>
<td>FRED &gt; AED</td>
</tr>
<tr>
<td>Nurturance</td>
<td>3.37 (.60)</td>
<td>3.22 (1.69)</td>
<td>3.55 (.52)</td>
<td>3.48 (.52)</td>
<td>F(3, 141) = 1.32; p = .271; η² = .03</td>
<td>HC &gt; AED</td>
</tr>
<tr>
<td>Morality</td>
<td>2.91 (1.76)</td>
<td>2.95 (1.76)</td>
<td>3.40 (1.47)</td>
<td>3.52 (1.57)</td>
<td>F(3, 141) = 8.25; p &lt; .001; η² = .17</td>
<td>FRED &gt; AED</td>
</tr>
</tbody>
</table>
Intelligence 2.49 (.66)  2.63 (.71)  3.18 (.56)  3.27 (.72)  $F(3, 141) = 13.50; \ p < .001; \ \eta^2 = .22$  HC > PRED, AED  FRED > AED

Sense of Humor 2.82 (.72)  2.84 (.71)  3.29 (.54)  3.51 (.54)  $F(3, 141) = 13.17; \ p < .001; \ \eta^2 = .22$  HC > PRED, AED  FRED > AED

Physical Appearance 1.85 (.62)  2.23 (.79)  3.09 (.49)  3.13 (.67)  $F(3, 141) = 40.10; \ p < .001; \ \eta^2 = .46$  HC > PRED, AED  FRED > PRED, AED

Athletic Abilities 2.24 (.79)  2.22 (1.05)  2.26 (.60)  2.61 (.81)  $F(3, 141) = 2.48; \ p = .064; \ \eta^2 = .05$  —

Job Competence 2.65 (.62)  2.90 (.61)  3.18 (.46)  3.41 (.57)  $F(3, 141) = 16.40; \ p < .001; \ \eta^2 = .26$  HC > PRED, AED  FRED > AED

Household Management 2.93 (.75)  2.90 (.80)  3.12 (.56)  3.18 (.61)  $F(3, 141) = 1.60; \ p = .193; \ \eta^2 = .03$  —

Adequate Provider 2.41 (.80)  2.68 (.74)  3.25 (.37)  3.31 (.57)  $F(3, 141) = 16.77; \ p < .001; \ \eta^2 = .29$  HC > PRED, AED  FRED > AED

Note. ED = eating disorder; AED = active eating disorder; PRED = partially recovered eating disorder; FRED = fully recovered eating disorder; HC = healthy controls. For all measures, higher scores reflect higher levels of the construct. For global self-esteem, self-efficacy, sociability, intimate relationships, morality, and adequate provider, Welch’s F-statistic is reported and pairwise comparisons were performed using the Games-Howell test, as recommended in cases where the homogeneity of variance assumption has been violated in the context of unequal sample sizes (Field, 2009). For all other self-concept variables, the homogeneity of variance assumption was met and the standard F-statistic and results from Tukey’s tests are presented. Pairwise comparisons listed were significant at least at $p < .05$. 

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SELF-CONCEPT AND EATING DISORDER RECOVERY
they are indistinguishable from healthy controls, and that those partially recovered (only physical and behavioral recovery) have self-concepts more similar to those with an active eating disorder. While the individual constructs of the self coalesce to form one’s overall self-concept, identifying and targeting, through both research and therapeutic treatment, those aspects of the self associated with a particular pathology carries merit. In relation to eating disorders, those facets of self-concept that tap into individual experiences of worth (self-esteem), ability to affect change (self-efficacy), purposefulness toward goals (self-directedness), and the feeling of disjunction between one’s interior and exterior self may represent specific areas of self-concept pertinent to achieving and maintaining recovery.

In terms of domain-specific self-esteem, the trend for the partially recovered group to have higher self-esteem in the area of intimate relationships than the active eating disorder group is encouraging, since social support has been identified as contributing to eating disorder recovery (Bloks, van Furth, Callewaert, & Hoek, 2004; Cockell, Zaitsoff, & Geller, 2004; Tozzi, Sullivan, Fear, McKenzie, & Bulik, 2003). Given the relatively young age of the sample (75% were less than 25 years old), there are domains of life that they still may be negotiating or may be new to experiencing (e.g., adequate provider, intimate relationships), and it will be important to see what their self-evaluations in these domains look like as they mature.

The finding that the fully recovered and partially recovered groups were similar in their levels of self-efficacy but the fully recovered group had higher self-directedness deserves mention. One interpretation may be that improved self-efficacy, that is, an increase in confidence in one’s ability to affect change, serves as an important springboard that begins the road to recovery, and that the broader elements captured by self-directedness, such as resourcefulness, personal responsibility and self-acceptance, are important for continuing the recovery process. Given that low self-directedness is associated with the presence of a personality disorder (Cloninger et al., 1993; de la Rie, Duijssens, & Cloninger, 1998), it may also be that the partially recovered group has higher rates of personality disorder, which may impede recovery, but a thorough assessment of personality pathology would be required to determine this.

Finally, findings related to the imposter phenomenon make intuitive sense. To the outsider, the partially recovered individual may seem fully recovered since she is not too thin and is not exhibiting any disordered eating; however, this is not her experience of
herself as she has not yet attained psychological recovery, with this mismatch translating into greater feelings of being an imposter. Interestingly, Smart and Wegner (1999) tested the effects of concealing a stigma, including an eating disorder, and reported that while the women keeping their eating disorder a secret did not exhibit any social impairment in an experimental interaction, they reported inner struggles in the form of thought intrusion and efforts at thought suppression.

Of note, while the self-concept measures utilized in this study are correlated with the EDE-Q subscales used to define recovery status, the content of these measures is not equivalent: the EDE-Q subscales are specific to body weight, shape, and eating, while the self-concept measures assess the individual’s feelings about herself in more general terms. Thus, findings from this study indicate that in addition to variations in eating disordered cognitions, feelings about the self in general differed across stages of eating disorder recovery.

This study contributes to the existing literature by using a more comprehensive definition of eating disorder recovery, which acknowledges the importance of psychological functioning and allows for delineation between fully recovered and partially recovered individuals. Thus, unlike most recovery research, we were able to examine self-concept variables across various stages of an eating disorder: active, partially recovered, and fully recovered. Also, unlike most prior research, we assessed a variety of constructs related to the self and thus provided a broader and more robust picture of the self and eating disorder recovery. Additional strengths include the use of a diagnostic interview, the recruitment through a primary care facility, and the criteria used for healthy controls. By sampling from a facility other than an eating disorders clinic, we were able to examine a broader range of eating disorder severity, which contributes to the generalizability of these findings. Also, by only screening for the absence of a past or current eating disorder in the controls, rather than the absence of any psychopathology, we were able to use a representative healthy control group rather than a “super healthy” and likely unrepresentative group (Klump et al., 2004).

One limitation of the current study is that we were unable to contact a significant minority of individuals for a variety of reasons, which included last name changes after marriage and the now widespread use of cellular phones with numbers that are not recorded in a public registry. While no significant differences were found be-
 tween participants and nonparticipants on relevant eating disorder measures from clinic charts, the groups could have differed in other unmeasured variables that may have introduced bias. Additional limitations are the cross-sectional design and the younger age of the healthy controls, although controlling for age yielded the same pattern of results. While the current study examined a wide range of self-concept constructs, additional constructs related to the self that might affect risk for relapse would be important to consider, including ones specifically related to eating disorders (e.g., Eating Disorder Recovery Self-Efficacy Questionnaire; Pinto, Heinberg, Coughlin, Fava, & Guarda, 2008). Finally, the grouping together of AN, BN, and EDNOS is a limitation, with the current sample size precluding the separate examination of these diagnostic groups. Therefore, we were unable to examine whether patterns of self-concept and recovery relations differed for these different expressions of eating pathology. However, given that eating disorder diagnostic migration is common (Tozzi et al., 2005) and that eating disorders share a common core pathology that makes them more similar than dissimilar (Fairburn, 2008), examining self-concept and recovery across all eating disorders may be conceptually appropriate.

Regarding clinical implications, these findings support prior work indicating a relation between changes in self-concept and eating disorder outcome (e.g., Bizeul et al., 2001; Bloks, Hoek et al., 2004) and highlight that the development of new, positive self-schemas may be important in the pathway to recovery (Stein & Corte, 2003). It remains to be seen whether change in self-concept predicts full recovery or if this predicts a level of eating disorder recovery that, if it continues to full recovery, then permits a greater change in self-concept. Regardless, addressing factors such as self-esteem, self-efficacy, and self-directedness in treatment should be fruitful (e.g., CBT-Enhanced; Fairburn, 2008); future research should determine if targeting one aspect influences other aspects, as would be expected if these are all components of a single underlying factor of self-concept. It may also be beneficial for health professionals to communicate to their patients that full recovery is broadly associated with improved sense of self, given that, especially for AN, there is often resistance to treatment due to individuals feeling that they would lose their sense of self and identity if they lost the disorder (Costin, 1999; Hornbacher, 1998). Another clinical implication is that the partially recovered group with their poorer views of their
self-worth and abilities may be hindered from fuller recovery and may be at increased risk for relapse, making this a group that deserves attention in treatment. Lastly, given the less dramatic differences between fully and partially recovered individuals in specific domains of self-esteem, it may be important to determine which domains play an integral role in the client’s life, and then to target improving self-esteem in these areas, perhaps as a way to bolster overall self-esteem.

One key future direction involves longitudinal work to elucidate the temporal ordering of self-concept changes and recovery. Most likely, improvements in aspects of self-concept both contribute to and are a result of decreased eating disorder symptoms via a reciprocal relationship. For example, as an individual with BN experiences more control over urges to binge, she may feel more efficacy related to combating the eating disorder, which in turn may produce further decreases in eating disorder symptomatology. However, it could also be that some unmeasured factor, such as social support or decreases in comorbid psychopathology, contributes to both improved self-concept and recovery. Longitudinal work would also permit the examination of which partially recovered individuals proceed to full recovery, which stay partially recovered, and which relapse, and whether self-concept is connected to these various trajectories. Finally, future research should examine how milestones with implications for the self (e.g., going to college, getting married, having a baby) affect the self-concept of someone recovering or recovered from an eating disorder, and in particular, whether individuals become more reliant on identifying with the disorder during these periods of change.

In sum, the fully recovered group was indistinguishable from healthy controls on all measures of self-concept, while the partially recovered group tended to look more like the active eating disorder group on these measures. Despite the general sense of eating disorders being chronic and with symptoms persisting into recovery, our results indicate that for some women, physical, behavioral, and psychological recovery is possible and that this level of recovery is associated with a sense of self similar to those who have never had an eating disorder. Given that the eating disorder often becomes part of one’s identity, it is heartening to find that a history of an eating disorder does not necessarily scar the sense of self as assessed in this study.
REFERENCES


