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Perfectionism Across Stages of Recovery from Eating Disorders

Anna M. Bardone-Cone, PhD^{1,*}, Katrina Sturm, BA¹, Melissa A. Lawson, MD², D. Paul Robinson, MD², and Roma Smith, LPN²

¹ Department of Psychological Sciences, University of Missouri, Columbia, Missouri

² University of Missouri School of Medicine, Columbia, Missouri

Abstract

Objective—This study examined perfectionism in relation to recovery from eating disorders by comparing different conceptualizations of perfectionism across healthy controls and fully recovered, partially recovered, and active eating disorder cases, where full recovery was defined using physical, behavioral, and psychological indices.

Method—Participants were primarily young adult females; 53 active eating disorder cases, 15 partially recovered cases, 20 fully recovered cases, and 67 healthy controls. Participants completed questionnaires assessing trait perfectionism, perfectionistic self-presentation style, and frequency of perfectionism cognitions, as well as a diagnostic interview to determine lifetime and current eating disorder diagnoses.

Results—A robust pattern emerged whereby the fully recovered eating disorder individuals and healthy controls had similar levels of perfectionism that were significantly lower than the perfectionism levels of the partially recovered and active eating disorder individuals, who were comparable to each other.

Conclusion—These findings have implications for more clearly defining eating disorder recovery and for the role perfectionism may play in achieving full recovery.

Keywords

perfectionism; eating disorders; recovery

Perfectionism has been linked both conceptually and empirically to eating disorders. Hilde Bruch, a pioneer in the field of eating disorders, noted that eating disorder patients demonstrate “superperfection,”¹ and perfectionism related to the body is implied in a criterion common to both anorexia nervosa (AN) and bulimia nervosa (BN), namely, that self-evaluation is overly reliant on [perfect] weight/shape.² Empirically, there is evidence that perfectionism is elevated among those with eating disorders compared to healthy controls,^{3–9} is a risk and maintenance factor for bulimic symptoms,¹⁰ and prospectively predicts AN.¹¹ Furthermore, recent intervention work in the area of eating disorders has focused on reducing perfectionism given its conceptualization as a maintenance factor.^{12,13} Thus, perfectionism appears to play a role in the etiology, maintenance, and treatment of eating disorders.

*Correspondence to: Anna M. Bardone-Cone, PhD, Department of Psychological Sciences, 210 McAlester Hall, University of Missouri, Columbia, MO 65211. bardonecone@missouri.edu.

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But what happens to perfectionism when individuals recover from eating disorders? Does perfectionism decrease or does it remain elevated and, thus, possibly increase risk for relapse? A review of the perfectionism and eating disorder literature concluded that, in general, individuals recovered from an eating disorder maintain elevated levels of perfectionism.¹⁴ Several studies found that individuals recovered from AN, generally defined by absence of an eating disorder diagnosis, the return of menses, and normal weight, were more perfectionistic than healthy controls and similarly perfectionistic to individuals who met criteria for AN.^{3,7,15} Similarly, studies have generally reported that individuals recovered from BN, typically defined by absence of an eating disorder diagnosis, stable weight, regular menses, and absence of binge eating and purging, are more perfectionistic than healthy controls and comparable to those with current BN.^{5,16,17} Furthermore, a study using a mixed eating disorder group found that those recovered from BN and/or AN had higher perfectionism scores than healthy controls.¹⁸ This pattern of results provides support for perfectionism not being a state effect, solely associated with the active phase of an eating disorder, and bolsters its role as a risk factor or possible “scar.”¹⁹

Despite the convergence of the findings related to perfectionism and eating disorder recovery, there are two significant limitations to this body of work: 1) constraints related to how recovery from an eating disorder is defined, and 2) a focus on unidimensional perfectionism. The current study addresses these limitations by comparing different stages of eating disorders (including a more nuanced definition of recovery, delineating partially recovered and fully recovered groups) along different dimensions/manifestations of perfectionism.

Defining Recovery from an Eating Disorder

Researchers and clinicians have highlighted the need to identify and agree upon meaningful definitions of eating disorder recovery.^{20,21} A perusal of studies where authors included a recovered eating disorder group demonstrates that most studies have defined recovery based on physical measures (e.g., weight, menses) and behavioral measures (e.g., no binge eating) with no mention of cognitive aspects related to eating disorders (e.g., body image concerns). And yet, clinicians readily can provide examples of clients who are “recovered” via physical and behavioral measures, but still engaging in extreme eating disorder thinking about their bodies and food. By not considering these broader psychological elements of recovery, a “recovered” group is likely quite heterogeneous so that findings using this grouping may be misleading.

Recent work examining recovery from AN has highlighted the importance of defining recovery in a more in-depth way, to separate those who retain residual disordered eating attitudes and behaviors from those who do not. Bachner-Melman and colleagues compared two groups of women recovered from AN with a group of healthy controls on a variety of symptoms and personality features.²² Women who were behaviorally, but not cognitively, recovered from AN (defined as BMI ≥ 19 , regular menstruation for at least three months, and absence of binge eating and purging for at least eight consecutive weeks) had significantly higher levels of general symptomatology and perfectionism (Perfectionism subscale of the Eating Disorder Inventory; EDI²³) than women who were recovered both behaviorally and cognitively, with cognitive recovery indexed by no fear of weight gain or body image distortion. Furthermore, the behaviorally and cognitively recovered group was indistinguishable from healthy controls in symptomatology and perfectionism. These findings suggest that regression to the population mean in perfectionism is possible in a sample of individuals recovered from AN, but only if recovery is operationalized using both cognitive and behavioral criteria.

Couturier and Lock explored various ways to define remission and recovery from AN, noting that many who no longer meet AN criteria still have lingering weight or eating-related psychopathology, and stressed the importance of using a combination of weight gain and psychological change related to eating disordered behaviors and attitudes to best define true recovery.^{24,25} One way of assessing psychological aspects of eating disorders involves examining scores on the Eating Disorder Examination interview (EDE).²⁶ In particular, Couturier and Lock recommend that absence of an eating disorder, a weight threshold, and EDE subscales within 1 or 2 SDs of normal be combined to identify recovery.²⁴

In the current study, we consider individuals who no longer meet criteria for an eating disorder “fully recovered” if they have a body mass index of at least 18.5, exhibit no binge eating, purging, or fasting in the past three months, and score within 1 SD of community norms on all subscales of the Eating Disorder Examination-Questionnaire (EDEQ),²⁷ which is derived from the EDE. This operationalization of full recovery has been validated using multiple other eating disorder measures, including ones focused on eating disordered thinking and body image.²⁸

Assessing Perfectionism

Most of the research on perfectionism and eating disorder recovery assessed perfectionism as a unidimensional construct, using the Perfectionism subscale of the EDI,²³ despite perfectionism generally being conceptualized as multidimensional (e.g., normal and neurotic perfectionism²⁹). At the forefront of the development of multidimensional assessments of trait perfectionism were the Hewitt and Flett Multidimensional Perfectionism Scale (Hewitt & Flett MPS)³⁰ and the Frost Multidimensional Perfectionism Scale (Frost MPS).³¹ Factor analyses of these two measures have yielded two underlying factors, often referred to as maladaptive perfectionism and adaptive perfectionism.^{32,33} Of the limited recovery research that has used multidimensional measures of perfectionism (either the Hewitt & Flett MPS or the Frost MPS), results indicate that individuals recovered from AN and BN are elevated in both maladaptive and adaptive perfectionism compared to healthy controls.^{3,5,34} However, these findings relied on definitions of recovery that did not capture important cognitive components of eating disorder recovery.

Unknown is how recovered individuals compare to healthy controls and active eating disorder cases on different conceptualizations of perfectionism. For example, Hewitt and colleagues developed a measure of perfectionistic self-presentation style which refers to the degree to which individuals hide their mistakes and imperfections (Perfectionistic Self-Presentation Scale),³⁵ finding associations with this style and eating disorder symptoms.^{36,37} Another line of research has examined the frequency of perfectionistic automatic thoughts (Perfectionism Cognitions Inventory), with this measure accounting for unique variance in distress beyond that accounted for by trait perfectionism dimensions.³⁸ While these different conceptualizations of perfectionism are related to trait perfectionism (e.g., MPS subscales), they are not redundant with them and merit separate investigation.^{35,38}

The Current Study

In the current study we revisit the topic of perfectionism in relation to recovery from eating disorders by building on prior work and addressing limitations. We define eating disorder recovery using physical, behavioral, and psychological indices to produce a group that is “fully recovered” and one that is “partially recovered” (i.e., physically and behaviorally, but not psychologically, recovered). These two groups in different stages of recovery are compared to individuals currently diagnosed with eating disorders and a healthy control group with no history of an eating disorder on a variety of conceptualizations of

perfectionism including dimensions of trait perfectionism, perfectionistic self-presentation styles, and perfectionism cognitions. We hypothesize that, when recovery is defined in this more comprehensive way, individuals who are fully recovered will have lower levels of perfectionism compared to active eating disorder cases, but perfectionism levels in partially recovered individuals will be comparable to the levels of active eating disorder cases.

Method

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.³⁹ 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 finding out 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 the same 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 after 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).40—The SCID was administered to determine lifetime and current eating disorder diagnoses (AN, BN, Eating Disorder Not Otherwise Specified (EDNOS)).FN-1 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 (about 5%) of the audiotaped interviews was examined for inter-rater reliability, yielding absolute agreement for current AN, BN, and EDNOS.

Eating Disorders Longitudinal Interval Follow-up Evaluation interview (LIFE EAT II).41—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).27—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 populations⁴² and its subscales have good internal consistency (alphas of .78–.93)⁴³ and convergent validity.^{27,44} This questionnaire is derived from the EDE interview, 26 which was used in prior work in defining eating disorder recovery.²⁴ In the current study, coefficient alphas were $\geq .85$ for all subscales.

Body mass index—Weight and height were measured after the interview 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.

Perfectionism Measures

Multidimensional Perfectionism Scale (MPS).30—The MPS was developed to reflect intrapersonal and interpersonal dimensions of trait perfectionism. Self-Oriented Perfectionism, the intrapersonal dimension, reflects having very high standards for oneself (e.g., “I strive to be as perfect as I can be”). Socially Prescribed Perfectionism, one of the interpersonal dimensions, reflects feeling that others hold excessively high standards for oneself; e.g., “The better I do, the better I am expected to do”). The other interpersonal dimension, Other-Oriented Perfectionism, focuses on having high standards for other people and was not included because it is unrelated to eating behavior.^{45,46} The MPS is one of the most commonly used measures of multidimensional perfectionism, with well-established reliability (subscale alphas = .74–.89 in patient and non-patient samples) and convergent validity.³⁰ In the current study, coefficient alpha was .92 for Self-Oriented Perfectionism and .89 for Socially Prescribed Perfectionism.

Perfectionistic Self-Presentation Scale (PSPS).35—The PSPS focuses on an individual's outward expression of perfectionism. The measure includes three subscales: Perfectionistic Self-Promotion reflects declarations and demonstrations about one's perfectionism (e.g., “I need to be seen as perfectly capable in everything I do”); Nondisplay of Imperfection reflects behavioral efforts to hide flaws (e.g., “I will do almost anything to

¹A diagnosis of AN was given whether or not the amenorrhea criterion was met. Although return of menses is an important index of recovery, its use is problematic because it does not apply to boys or premenstrual girls, and it is not meaningful among women taking oral contraceptives. Other researchers have expressed these concerns²⁵ and have not required the presence of amenorrhea for a diagnosis of AN.¹⁸

cover up a mistake”); and Nondisclosure of Imperfection reflects avoiding verbal confirmation of one’s flaws (e.g., “I try to keep my faults to myself”). The subscales have a high degree of internal consistency (alphas = .84–.89).³⁷ They also have adequate construct and discriminant validity; for example, perfectionistic self-presentation accounted for unique variance in depressive symptoms above and beyond dimensions of trait perfectionism from the MPS.³⁵ In the current study, coefficient alpha was .93 for Perfectionistic Self-Promotion, .91 for Nondisplay of Imperfection, and .86 for Nondisclosure of Imperfection.

Perfectionism Cognitions Inventory (PCI).³⁸—The PCI assesses the frequency of perfectionism-related thoughts and, thus, captures the degree to which perfectionism is experienced as obsessive or ruminative. In contrast to the PSPS which focuses on the outward expression of perfectionism, the PCI can be thought of as reflecting perfectionism experienced internally. Participants report on how often they have thoughts such as “I have to be the best” and “I am too much of a perfectionist.” The scale is best represented with one factor with a high level of internal consistency (coefficient alpha = .96) and good validity.³⁸ Across several clinical and non-clinical samples, the PCI explained unique variance in depressive symptoms over and above trait perfectionism.³⁸ In the current study, coefficient alpha for the PCI was .95.

Data Analytic Strategy

Participants were categorized into four eating disorder status groups in the following way. 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). In order to provide a more nuanced definition of recovery, individuals who had a history of an eating disorder (AN, BN, or EDNOS) but did not currently meet eating disorder criteria were divided into two groups: fully recovered and partially recovered. Following the general recommendations of Couturier and Lock,²⁴ we combined a weight threshold and scores on the EDE-Q subscales to comprehensively assess recovery. The fully recovered group ($n=20$) comprised women without a current eating disorder who had a BMI of at least 18.5, reported no binge eating, purging, or fasting in the prior three months, and scored within 1 *SD* of age-matched community norms on each of the EDE-Q subscales. The partially recovered group ($n=15$) included women without a current eating disorder who were recovered physically (BMI ≥ 18.5) and behaviorally (no binge eating, purging, or fasting in the past three months) but not psychologically (at least one EDE-Q subscale greater than 1 *SD* of age-matched norms).^{FN-2} 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.⁴⁷ The norms used for determining fully and partially recovered status were the age-banded norms reported by Mond and colleagues,⁴⁸ 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.⁴⁸

Given the intercorrelations among the various perfectionism variables ($r = .52$ to $.80$), we first performed a multivariate analysis of variance (MANOVA) in order to see if there was a difference in perfectionism across groups (active eating disorder, partially recovered, fully

²Eight 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. We excluded these individuals from analyses in order to produce “cleaner” recovery groups and in order to include a recovery group more typical of what is seen in the literature (i.e., physical and behavioral recovery). However, 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.

recovered, and healthy controls) larger than would be expected by chance. A significant multivariate effect was followed up with univariate analyses via analysis of variance (ANOVA) and Tukey HSD tests for pair-wise comparisons.

Results

Descriptive Statistics and Attrition Analyses

The four groups did not differ in terms of socio-economic status, with the following highest levels of parental education attained reported: active eating disorder ($M=16.68$ years, $SD=2.79$), partially recovered ($M=16.63$ years, $SD=2.52$), fully recovered ($M=16.60$ years, $SD=3.14$), and controls ($M=16.52$ years, $SD=2.65$). They also did not differ in terms of ethnicity, with the vast majority identifying as Caucasian (90–95% across the groups). However, the groups did differ in age ($F(3, 151)=15.44, p<.001$), with healthy controls ($M=19.46$ years, $SD=1.88$) significantly younger than all other groups: active eating disorder ($M=23.18$ years, $SD=4.39$), partially recovered ($M=23.53$ years, $SD=5.80$), and fully recovered ($M=24.55$ years, $SD=4.89$). Controlling for age did not change the pattern of significance, so results without age as a covariate are presented for parsimony.

The eating disorder groups did not differ in their pattern of lifetime eating disorder diagnoses. For example, a similar percentile from each group, fully recovered, partially recovered, and active eating disorder, had experienced a lifetime diagnosis of AN (55%, 73%, and 64%, respectively; $\chi^2(2, N=88)=1.26, p=.524$) and a lifetime diagnosis of BN (35%, 27%, and 38%, respectively; $\chi^2(2, N=88)=.63, p=.741$). The eating disorder groups also did not differ significantly in the number of years since the emergence of the eating disorder symptoms, or age or BMI at start of treatment. In the active eating disorder group, 17% currently had AN, 6% had BN, and 77% had EDNOS.

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 non-participants (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.

Group Differences in Perfectionism

The MANOVA was significant, $F(18, 405)=7.04, p<.001$, Wilks' Lambda = .46, partial $\eta^2=.23$. In order to see which perfectionism measures were driving the difference and to identify the pattern of difference among groups, ANOVA and Tukey HSD tests were performed.

Multidimensional Perfectionism Scale

Groups differed in both dimensions of trait perfectionism (see Table 1). For both the self-oriented and socially prescribed dimensions of perfectionism, the healthy controls and fully recovered cases were not significantly different from each other, but each had significantly lower perfectionism scores than both the partially recovered and active eating disorder cases. The partially recovered and active eating disorder cases did not differ on self-oriented or socially prescribed perfectionism.

Perfectionistic Self-Presentation Scale

Groups differed in each aspect of perfectionistic self-presentation (see Table 1). For perfectionistic self-promotion and nondisclosure of imperfection, the healthy controls and fully recovered cases were not significantly different from each other, but each had significantly lower perfectionism scores than both the partially recovered and active eating disorder cases. The partially recovered and active eating disorder cases did not differ on perfectionistic self-promotion or nondisclosure of imperfection. For nondisplay of imperfection, the same pattern emerged with one difference: the fully recovered group did not differ significantly from the partially recovered group, although the pattern of the means was in the expected direction.

Perfectionism Cognitions Inventory

Healthy controls and fully recovered cases were not significantly different from each other in terms of frequency of perfectionism cognitions, but each had significantly lower perfectionism scores than both the partially recovered and active eating disorder cases (see Table 1). The partially recovered and active eating disorder cases did not differ on frequency of perfectionism cognitions. FN-3

Discussion

The findings of this study are counter to those of prior work on perfectionism and eating disorder recovery, and shed light on important issues related to defining recovery and the role of perfectionism in eating disorders. Consensus from past research has been that individuals recovered from AN or BN have levels of perfectionism comparable to active eating disorder cases and significantly higher than healthy controls.¹⁴ However, when recovery is defined in a way to ensure physical, behavioral, and psychological recovery, as done in this study, a different pattern of findings emerges. Individuals fully recovered from an eating disorder had perfectionism levels comparable to healthy controls and generally significantly lower than partially recovered (physical and behavioral, but not psychological, recovery) and active eating disorder cases, which were groups with comparable perfectionism levels. This occurred across all conceptualizations of perfectionism – that is, trait perfectionism (setting very high standards for oneself and feeling that others expect perfectionism from oneself), perfectionism related to self-presentation (e.g., trying to present as flawless to others), and frequency of perfectionism-related thoughts. Interestingly, the findings based on the active eating disorder group, the partially recovered group, and the healthy controls mirror the earlier findings regarding recovery and perfectionism.

Perfectionism is considered a risk factor for eating disorders,¹⁰ and one piece of support for this has been the finding that individuals recovered from eating disorders still have elevated levels of perfectionism. The current results do not undermine the role of perfectionism as a risk factor, but they do call into question the notion that recovered individuals maintain elevated perfectionism when recovery is defined comprehensively to include psychological aspects (e.g., weight and shape concern). What might the current findings tell us regarding the role of perfectionism in eating disorder recovery?

It may be that the fully recovered individuals experienced decreases in perfectionism over time which permitted their attaining a more comprehensive recovery state. This possibility is bolstered by evidence for perfectionism being a negative predictor of outcome for eating disorders (more so for AN than BN)¹⁴ and by support for Cognitive Behavior Therapy-

³A Bonferroni correction for the six univariate tests would set a significant p -value at $.05/6 = .008$. Since all p -values for the omnibus F for these univariate analyses were $<.001$, the findings remain significant even with this conservative approach.

Enhanced (CBT-E; Fairburn, 2008), which includes a module for tackling perfectionism which is conceptualized as a maintenance factor for eating disorders. From this perspective, interventions and/or experiences that help decrease perfectionism may be key to making full recovery attainable. However, it could also be that the temporal ordering is reversed, with attaining full eating disorder recovery (with eating disorder symptomatology at levels comparable to those with no history of an eating disorder) being what permitted the relaxation of perfectionistic standards and attitudes.

It is possible that the fully recovered group had lower levels of premorbid perfectionism than the partially recovered group and that the recovery differences are due to the discrepancy in initial levels of perfectionism that have not necessarily changed over time. As noted, there is some support for perfectionism impeding recovery, especially among those with AN.¹⁴

It may be that perfectionism does not predict outcome per se but rather the process of time to recovery. In particular, differences in earlier perfectionism may have permitted the fully recovered group to attain a good outcome sooner. Individuals who are currently “partially recovered” may eventually attain full recovery, but via a slower process due to perfectionism.

Might different levels of recovery be attributable to different initial severities of eating disorder pathology rather than to perfectionism differences? The current data indicate that the groups did not differ in several indices reflecting severity. For example, there were no significant group differences in terms of the distribution of a lifetime history of AN, the more severe eating disorder from a mortality standpoint. Furthermore, the percentiles that met criteria for both AN and BN at some point in their lives were comparable (10% of the fully recovered group and 13% of the partially recovered group). Also, age of onset of symptoms and both age and BMI at start of treatment did not differ across groups. That said, there could have been eating disorder severity differences that were not measured, such as the lowest BMI attained, which might have been responsible for poorer outcomes.

It could also be that the different levels of recovery were due in part to differences in comorbid psychopathology, in particular depression and anxiety, that covary with perfectionism levels. There is some support for this being a possibility in that more of the partially recovered group currently met criteria for a mood disorder, mainly major depressive disorder, than the fully recovered group (20% vs. 0%), but the partially and fully recovered groups looked fairly similar in terms of percentiles with a current anxiety disorder (33% vs. 28%, respectively).²⁸

The cross-sectional nature of the data limits what we can conclude regarding the role of perfectionism in eating disorder recovery. Future work requires longitudinal naturalistic research, ideally with the assessment of premorbid perfectionism and with perfectionism, eating disorder symptomatology, and comorbid psychopathology being assessed prospectively. Additionally, treatment outcome studies where perfectionism is targeted would help determine this personality factor’s causal role in recovery. Case studies illustrate how targeting perfectionism can reduce both perfectionism and disordered eating,⁴⁹⁻⁵⁰ and a cognitive-behavioral intervention for clinical perfectionism has been found to reduce perfectionism and maintain these changes.⁵¹ To the degree that reductions in perfectionism precede and contribute to full eating disorder recovery, or quicker time to recovery, continued efforts in assessing and treating perfectionism among individuals with eating disorders will be important.

This study contributes to the literature with its assessment of eating disorder recovery to include fully recovered and partially recovered individuals and its broad coverage of the

perfectionism construct. To our knowledge, this is the first time perfectionism has been examined across groups of active, partially recovered, and fully recovered eating disorder cases and healthy controls and one of a limited number of studies assessing multidimensional perfectionism in 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 disorder clinic we were able to study a group with greater variability of severity, which should contribute to generalizability. It is also a strength that the healthy controls were determined only by absence of an eating disorder history, rather than by the absence of any past psychopathology which would create “super healthy” controls that are less representative and against which it would be easier to find group differences.⁵²

In terms of limitations, all data were self-report and cross-sectional and the sample size was relatively small. We note that we were not able to contact a significant minority of individuals. Some of the particular challenges in locating young women for follow-up included women who married and changed their last name as well as the now widespread use of mobile phones for which numbers are not recorded in any accessible registry. While no significant differences were found between participants and non-participants on relevant measures such as eating disorder diagnosis or age of onset of symptoms, the groups could have differed in other unmeasured variables that may have introduced bias. Future research on course and outcome will be best served by prospective research with a sample at the start of treatment so that a commitment to research participation can be built and the sample can be more easily tracked. Another limitation is the use of the EDE-Q rather than the EDE, which has been used in prior work to define recovery.²⁴ However, since the EDE-Q is derived from the EDE²⁷ and more practical to administer, including the EDE-Q is a logistically appropriate step in developing ways to define recovery. It is a limitation that the healthy controls were younger than the other three groups, and future work should ensure that comparison groups are age-matched. Of note, analyses controlling for age yielded the same pattern of results. Finally, grouping together AN, BN, and EDNOS is a limitation. While there appear to be no differences in perfectionism, maladaptive or adaptive, across the diagnostic groups of AN, BN, and EDNOS,¹⁴⁻⁵³⁻⁵⁵ there may be differences in the associations between perfectionism and recovery across type of eating disorder and larger samples would be needed in order to investigate this. Interestingly, some lines of research would promote grouping together eating disorders arguing that eating disorder diagnostic migration is common,⁵⁶ that eating disorders share a common core pathology making them more similar than dissimilar (the transdiagnostic view of eating disorders),¹² and that finding a parsimonious way to define recovery regardless of eating disorder presentation is practical and important.²⁸

These findings highlight the importance of considering stages of eating disorder recovery and better understanding the relation between perfectionism and recovery. For at least some individuals, physical, behavioral, and psychological recovery is possible and appears to be associated with perfectionism levels comparable to healthy controls. A concern for the partially recovered group is that their elevated perfectionism may increase their risk for relapse or may impede their progress toward full recovery. Future research examining perfectionism and eating disorder recovery should include prospective study designs and treatment outcome studies and should consider other constructs, such as social support, that may mediate both recovery and change in perfectionism.

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References

1. Bruch, H. The golden cage: The enigma of anorexia nervosa. Cambridge, MA: Harvard University Press; 1978.
2. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 4. Washington, DC: American Psychiatric Association; 2000. text revision
3. Bastiani AM, Rao R, Weltzin T, Kaye WH. Perfectionism in anorexia nervosa. *Int J Eat Disord*. 1995; 17:147–152. [PubMed: 7757095]
4. Halmi KA, Sunday SR, Strober M, Kaplan A, Woodside DB, Fichter M, et al. Perfectionism in anorexia nervosa: Variation by clinical subtype, obsessiveness, and pathological eating behavior. *Am J Psychiatry*. 2000; 157:1799–1805. [PubMed: 11058477]
5. Lilenfeld LR, Stein D, Bulik CM, Strober M, Plotnicov K, Pollice C, et al. Personality traits among currently eating disordered, recovered and never ill first-degree female relatives of bulimic and control women. *Psychol Med*. 2000; 30:1399–1410. [PubMed: 11097080]
6. Moor S, Vartanian LR, Touyz SW, Beumont PJV. Psychopathology of EDNOS patients: To whom do they compare? *Clin Psychologist*. 2004; 8:70–75.
7. Niv N, Kaplan Z, Mitrani E, Shiang J. Validity study of the EDI-2 in Israeli population. *Isr J Psychiatry Relat Sci*. 1998; 35:287–292. [PubMed: 9988986]
8. Sutandar-Pinnock K, Woodside DB, Carter JC, Olmsted MP, Kaplan AS. Perfectionism in anorexia nervosa: A 6–24-month follow-up study. *Int J Eat Disord*. 2003; 33:225–229. [PubMed: 12616589]
9. Tachikawa H, Yamaguchi N, Hatanaka K, Kobayashi J, Sato S, Mizukami K, et al. The Eating Disorder Inventory-2 in Japanese clinical and non-clinical samples: Psychometric properties and cross-cultural implications. *Eat Weight Disord*. 2004; 9:107–113. [PubMed: 15330077]
10. Stice E. Risk and maintenance factors for eating pathology: A meta-analytic review. *Psychol Bull*. 2002; 128:825–848. [PubMed: 12206196]
11. Tyrka AR, Waldron I, Graber JA, Brooks-Gunn J. Prospective predictors of the onset of anorexic and bulimic syndromes. *Int J Eat Disord*. 2002; 32:282–290. [PubMed: 12210642]
12. Fairburn, CG. Cognitive behavior therapy and eating disorders. New York: Guilford Press; 2008.
13. Fairburn CG, Cooper Z, Shafran R. Cognitive behaviour therapy for eating disorders: A “transdiagnostic” theory and treatment. *Behav Res Ther*. 2003; 41:509–528. [PubMed: 12711261]
14. Bardone-Cone AM, Wonderlich SA, Frost RO, Bulik CM, Mitchell JE, Uppala S, et al. Perfectionism and eating disorders: Current status and future directions. *Clin Psychol Rev*. 2007; 27:384–405. [PubMed: 17267086]
15. Ward A, Brown N, Lightman S, Campbell IC, Treasure J. Neuroendocrine, appetitive and behavioural responses to d-fenfluramine in women recovered from anorexia nervosa. *Br J Psychiatry*. 1998; 172:351–358. [PubMed: 9715339]
16. Kaye WH, Greeno CG, Moss H, Fernstrom J, Fernstrom M, Lilenfeld LR, et al. Alterations in serotonin activity and psychiatric symptoms after recovery from bulimia nervosa. *Arch Gen Psychiatry*. 1998; 55:927–935. [PubMed: 9783564]
17. Stein D, Kaye WH, Matsunaga H, Orbach I, Har-Even D, Frank G, et al. Eating-related concerns, mood, and personality traits in recovered bulimia nervosa subjects: A replication study. *Int J Eat Disord*. 2002; 32:225–229. [PubMed: 12210666]
18. Kaye WH, Bulik CM, Thornton L, Barbarich N, Masters K. Price Foundation Collaborative Group. Comorbidity of anxiety disorders with anorexia and bulimia nervosa. *Am J Psychiatry*. 2004; 161:2215–221. [PubMed: 15569892]
19. Lilenfeld LRR, Wonderlich S, Riso LP, Crosby R, Mitchell J. Eating disorders and personality: A methodological and empirical review. *Clin Psychol Rev*. 2006; 26:299–320. [PubMed: 16330138]
20. Quadflieg N, Fichter MM. The course and outcome of bulimia nervosa. *Eur Child Adolesc Psychiatry*. 2003; 12:99–109.
21. Steinhausen HC. The outcome of anorexia nervosa in the 20th century. *Am J Psychiatry*. 2002; 159:1284–1293. [PubMed: 12153817]

22. Bachner-Melman R, Zohar AH, Ebstein RP. An examination of cognitive versus behavioral components of recovery from anorexia nervosa. *J Nerv Ment Dis.* 2006; 194:697–703. [PubMed: 16971822]
23. Garner DM, Olmsted MP, Polivy J. Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *Int J Eat Disord.* 1983; 2:15–34.
24. Couturier J, Lock J. What is recovery in adolescent anorexia nervosa? *Int J Eat Disord.* 2006; 39:550–555. [PubMed: 16791851]
25. Couturier J, Lock J. What is remission in adolescent anorexia nervosa? A review of various conceptualizations and quantitative analysis. *Int J Eat Disord.* 2006; 39:175–183. [PubMed: 16485268]
26. Fairburn, CG.; Cooper, Z. The eating disorder examination. In: Fairburn, CG.; Wilson, GT., editors. *Binge eating: Nature, assessment, and treatment.* 12. New York: Guilford Press; 1993. p. 317–332.
27. Fairburn CG, Beglin SJ. Assessment of eating disorders: Interview or self-report questionnaire? *Int J Eat Disord.* 1994; 16:363–370. [PubMed: 7866415]
28. Bardone-Cone AM, Harney MB, Maldonado CR, Robinson DP, Lawson M, Smith R, et al. Defining recovery from an eating disorder: Conceptualization, validation, and examination of psychosocial functioning and psychiatric comorbidity. Manuscript submitted for publication.
29. Hamachek DE. Psychodynamics of normal and neurotic perfectionism. *Psychol.* 1978; 15:27– 33.
30. Hewitt PL, Flett GL. Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *J Pers Soc Psychol.* 1991; 60:456–470. [PubMed: 2027080]
31. Frost RO, Marten P, Lahart C, Rosenblate R. The dimensions of perfectionism. *Cognitive Ther Res.* 1990; 14:449–468.
32. Bieling PJ, Israeli AL, Antony MM. Is perfectionism good, bad, or both? Examining models of the perfectionism construct. *Pers Indiv Diff.* 2004; 36:1373–1385.
33. Frost RO, Heimberg RG, Holt CS, Mattia JJ, Neubauer AL. A comparison of two measures of perfectionism. *Pers Indiv Diff.* 1993; 14:119–126.
34. Srinivasagam NM, Kaye WH, Plotnicov KH, Greeno C, Weltzin TE, Rao R. Persistent perfectionism, symmetry, and exactness after long-term recovery from anorexia nervosa. *Am J Psychiatry.* 1995; 152:1630–1634. [PubMed: 7485626]
35. Hewitt PL, Flett GL, Sherry SB, Habke M, Parkin M, Lam RW, et al. The interpersonal expression of perfection: Perfectionistic self-presentation and psychological distress. *J Pers Soc Psychol.* 2003; 84:1303–1325. [PubMed: 12793591]
36. Cockell SJ, Hewitt PL, Seal B, Sherry S, Goldner EM, Flett GL, et al. Trait and self-presentational dimensions of perfectionism among women with anorexia nervosa. *Cogn Ther Res.* 2002; 26:745–758.
37. McGee BJ, Hewitt PL, Sherry SB, Parkin M, Flett GL. Perfectionistic self-presentation, body image, and eating disorder symptoms. *Body Image.* 2005; 2:29–40. [PubMed: 18089172]
38. Flett GL, Hewitt PL, Blankstein KR, Gray L. Psychological distress and the frequency of perfectionistic thinking. *J Pers Soc Psychol.* 1998; 75:1363–1381. [PubMed: 9866193]
39. Reas DL, Williamson DA, Martin CK, Zucker NL. Duration of illness predicts outcome for bulimia nervosa: A long-term follow-up study. *Int J Eat Disord.* 2000; 27:428–434. [PubMed: 10744849]
40. First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JBW. *Structured Clinical Interview for DSM-IV Axis I Disorders - patient edition (SCID, version 2).* New York, NY: New York State Psychiatric Institute, Biometrics Research; 1995.
41. Herzog DB, Sacks NR, Keller MB, Lavori PW, von Ranson KB, Gray HM. Patterns and predictors of recovery in anorexia nervosa and bulimia nervosa. *J Am Acad Child Adolesc Psychiatry.* 1993; 32:835–842. [PubMed: 8340307]
42. Anderson, DA.; Williamson, DA. Outcome measurement in eating disorders. In: Ishak, WW.; Burt, T.; Sederer, LL., editors. *Outcome measurement in psychiatry: A critical review.* Washington, DC: American Psychiatric Press; 2002. p. 289–301.
43. Luce KH, Crowther JH. The reliability of the Eating Disorder Examination – Self-report questionnaire version (EDE-Q). *Int J Eat Disord.* 1999; 25:349–351. [PubMed: 10192002]

44. Grilo CM, Masheb RM, Wilson GT. A comparison of different methods for assessing the features of eating disorders in patients with binge eating disorder. *J Consult Clin Psychol.* 2001; 69:317–322. [PubMed: 11393608]
45. Hewitt PL, Flett GL, Ediger E. Perfectionism traits and perfectionistic self-presentation in eating disorder attitudes, characteristics, and symptoms. *Int J Eat Disord.* 1995; 18:317–326. [PubMed: 8580917]
46. McLaren L, Gauvin L, White D. The role of perfectionism and excessive commitment to exercise in explaining dietary restraint: Replication and extension. *Int J Eat Disord.* 2001; 29:307–313. [PubMed: 11262510]
47. Bjorntorp, P. Definition and classification of obesity. In: Fairburn, CG.; Brownell, KD., editors. *Eating disorders and obesity.* 2. New York: Guilford Press; 2002. p. 377-381.
48. Mond JM, Hay PJ, Rodgers B, Owen C. Eating Disorder Examination Questionnaire (EDE-Q): Norms for young adult women. *Behav Res Ther.* 2006; 44:53–62. [PubMed: 16301014]
49. Glover DS, Brown GP, Fairburn CG, Shafran R. A preliminary evaluation of cognitive-behaviour therapy for clinical perfectionism: A case series. *Br J Clin Psychol.* 2007; 46:85–94. [PubMed: 17472203]
50. Shafran R, Lee M, Fairburn CG. Clinical perfectionism: A case report. *Behav Cogn Psychother.* 2004; 32:353–357.
51. Riley C, Lee M, Cooper Z, Fairburn CG, Shafran R. A randomized controlled trial of cognitive-behaviour therapy for clinical perfectionism: A preliminary study. *Behav Res Ther.* 2007; 45:2221–2231. [PubMed: 17275781]
52. Klump KL, Strober M, Bulik CM, Thornton L, Johnson C, Devlin B, et al. Personality characteristics of women before and after recovery from an eating disorder. *Psychol Med.* 2004; 34:1407–1418. [PubMed: 15724872]
53. Davis C. Normal and neurotic perfectionism in eating disorders: An interactive model. *Int J Eat Disord.* 1997; 22:421–426. [PubMed: 9356890]
54. le Grange D, Binford RB, Peterson CB, Crow SJ, Crosby RD, Klein MH, et al. DSM-IV threshold versus sub-threshold bulimia nervosa. *Int J Eat Disord.* 2006; 39:462–467. [PubMed: 16715488]
55. Pratt EM, Telch CF, Labouvie EW, Wilson GT, Agras WS. Perfectionism in women with binge eating disorder. *Int J Eat Disord.* 2001; 29:177–186. [PubMed: 11429980]
56. Tozzi F, Thornton LM, Klump KL, Fichter MM, Halmi KA, Kaplan AS, et al. Symptom fluctuation in eating disorders: Correlates of diagnostic crossover. *Am J Psychiatry.* 2005; 162:732–740. [PubMed: 15800146]

TABLE 1

Comparison of perfectionism across eating disorder status groups

	Active ED	Partially Recovered	Fully Recovered	Healthy Controls	Significance	Pair-wise Comparisons
Self-Oriented (MPS)	78.81 (19.84)	79.93 (15.47)	64.28 (14.59)	61.72 (12.66)	$F(3, 149) = 14.07; p < .001$; partial $\eta^2 = .22$	HC < PRED, AED FRED < PRED, AED
Socially Prescribed (MPS)	60.21 (14.20)	63.03 (16.62)	42.94 (12.37)	45.69 (11.97)	$F(3, 149) = 17.95; p < .001$; partial $\eta^2 = .27$	HC < PRED, AED FRED < PRED, AED
Perfectionistic Self-Promotion (PSPS)	51.42 (12.94)	47.67 (13.36)	37.00 (11.69)	33.01 (9.25)	$F(3, 151) = 28.47; p < .001$; partial $\eta^2 = .36$	HC < PRED, AED FRED < PRED, AED
Nondisplay of Imperfection (PSPS)	50.92 (10.35)	46.67 (14.41)	39.65 (10.88)	35.39 (10.61)	$F(3, 151) = 20.98; p < .001$; partial $\eta^2 = .29$	HC < PRED, AED FRED < AED
Nondisclosure of Imperfection (PSPS)	28.75 (8.98)	27.00 (9.33)	18.85 (5.14)	17.46 (5.09)	$F(3, 151) = 28.69; p < .001$; partial $\eta^2 = .36$	HC < PRED, AED FRED < PRED, AED
PCI	59.34 (21.35)	52.00 (22.09)	29.10 (13.92)	30.28 (14.41)	$F(3, 151) = 31.46; p < .001$; partial $\eta^2 = .39$	HC < PRED, AED FRED < PRED, AED

Note. ED = eating disorder; AED = active eating disorder; PRED = partially recovered eating disorder; FRED = fully recovered eating disorder; HC = healthy controls; MPS = Multidimensional Perfectionism Scale; PSPS = Perfectionistic Self-Presentation Scale; PCI = Perfectionism Cognitions Inventory. Pair-wise comparisons come from Tukey HSD tests and are significant at least at $p < .05$.