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The Eating Disorder Recovery Self-Efficacy Questionnaire (EDRSQ): Change with treatment and prediction of outcome

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Abstract

The purpose of this study was to examine the predictive validity of the Eating Disorder Recovery Self-Efficacy Questionnaire (EDRSQ), an empirically-derived self-report instrument that assesses confidence to eat without engaging in eating disordered behavior or experiencing undue emotional distress (Normative Eating Self-Efficacy) and confidence to maintain a realistic body image that is not dominated by pursuit of thinness (Body Image Self-Efficacy). Participants were 104 female inpatients with anorexia nervosa (AN), subthreshold AN, or underweight bulimia nervosa who were treated at a specialized eating disorder clinic and completed the EDRSQ and Eating Disorder Inventory-2 (EDI-2) Drive for Thinness (DT) and Body Dissatisfaction (BD) subscales upon admission. A subset of patients completed the EDRSQ ($n=81$) and EDI-2 subscales ($n=70$) following inpatient treatment. Self-efficacy increased significantly during treatment. EDRSQ scores at admission were inversely related to length of hospital stay and posttreatment DT and BD subscales and positively related to partial hospital weight gain rate. The EDRSQ significantly predicted length of hospital stay and posttreatment BD above and beyond clinical indicators and eating disorder psychopathology at inpatient admission. Findings support the validity of the EDRSQ and suggest it is a useful predictor of short-term hospital treatment outcome in underweight eating disorder patients.

Keywords: Self-efficacy; Eating disorders; Anorexia nervosa; Bulimia nervosa; EDRSQ; Treatment outcome

Self-efficacy, defined as an individual's perceived ability to successfully perform a particular behavior (Bandura, 1977), has been identified as an important predictor of behavior change and treatment outcome across a variety of behavioral disorders, including smoking, alcohol use, and weight management (Clark, Abrams, Niaura, Eaton, & Rossi, 1991; Delahanty, Conroy, & Nathan, 2006; DiClemente, Fairhurst, & Piotrowski, 1995; Linde et al., 2004; Maisto, Connors, & Zywiak, 2000; O'Hea et al., 2004; Prochaska, DiClemente, Velicer, Ginpil, &

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Norcross, 1985; Roach et al., 2003; Stanton, Garcia, & Green, 1990; Wamsteker et al., 2005). Findings from these studies indicate that self-efficacy increases during treatment and that baseline levels of self-efficacy predict positive behavioral change.

Self-efficacy has received limited attention in the eating disorders literature. Recent studies of obese binge eaters suggest that eating self-efficacy (confidence to resist eating across various situations) increases with treatment and that short-term increases in self-efficacy predict long-term reductions in binge eating (Goodrick et al., 1999; Wolff & Clark, 2001). However, there has been little investigation of how perceived self-efficacy impacts treatment outcome and recovery in patients with anorexia nervosa (AN) and bulimia nervosa (BN). AN and BN are chronic psychiatric disorders with high rates of relapse (American Psychiatric Association, 2000; Carter, Blackmore, Sutandar-Pinnock, & Woodside, 2004; Keel, Dorer, Franko, Jackson, & Herzog, 2005). Moreover, AN is frequently associated with poor motivation for treatment, treatment resistance, and high mortality rates (Fichter, Quadflieg, & Hedlund, 2006; Herzog et al., 1999; Vitousek, Watson, & Wilson, 1998). Despite the severity of these disorders, clinicians face strong pressures to transition patients from inpatient care to partial hospital and ultimately to discharge them from hospital treatment (Stewart & Williamson, 2004; Wiseman, Sunday, Klapper, Harris, & Halmi, 2001). Yet beyond clinical indices, few measures have been shown to predict success in partial hospital following inpatient care, or duration of hospital treatment (Howard, Evans, Quintero-Howard, Bowers, & Andersen, 1999; Maguire, Surgenor, Abraham, & Beumont, 2003). In the context of these challenges, a greater understanding of how cognitive factors, such as self-efficacy, impact treatment adherence and outcome may be of clinical benefit.

Recently, Pinto, Guarda, Heinberg, and DiClemente (2006) developed the Eating Disorder Recovery Self-Efficacy Questionnaire (EDRSQ), a two-factor self-report instrument that assesses confidence to eat without engaging in eating disordered behavior or experiencing undue emotional distress and confidence to maintain a realistic body image that is not dominated by pursuit of thinness. This measure is unique in that it assesses self-efficacy to engage in specific behaviors associated with normalizing eating and body image concerns. Findings from the initial validation study demonstrated excellent psychometric properties of the EDRSQ. The association between the EDRSQ and validated measures of eating disorder psychopathology such as Drive for Thinness and Body Dissatisfaction (Eating Disorder Inventory-2 (EDI-2); Garner, 1991; Garner & Olmstead, 1984) and the Cognitive Restraint subscale of the Eating Inventory (Stunkard & Messick, 1985, 1988) indicated that the EDRSQ was conceptually consistent with these constructs but not redundant with them. Specifically, these associations revealed that greater self-efficacy to manage eating disorder symptoms was related to lower eating restraint and body shape and weight concerns. The EDRSQ also demonstrated theoretically consistent associations with constructs related to but distinct from self-efficacy, such as motivation for change.

The purpose of the present study was to offer further evidence of the validity and clinical utility of the EDRSQ by examining change in self-efficacy during treatment and the relation between self-efficacy at inpatient admission and short-term outcome among underweight eating disorder patients. First, we hypothesized that EDRSQ subscale scores would increase during hospital treatment. Second, we hypothesized that self-efficacy would be related to objective and self-report measures of treatment outcome. Specifically, we predicted that EDRSQ scores would be inversely associated with length of hospital stay and posttreatment eating disorder psychopathology and positively associated with weight gain rate during partial hospital. We did not expect that self-efficacy would be related to inpatient weight gain since the highly structured inpatient setting typically results in uniform weight gains with low variability relative to partial hospital weight gains (Guarda & Heinberg, 2003). Finally, we hypothesized that the EDRSQ, administered at inpatient admission, would predict length of hospital stay, partial hospital weight gain rate, and self-reported eating disorder psychopathology following inpatient treatment above and beyond clinical indicators and eating disorder psychopathology at admission.

1. Method

1.1. Participants

Participants were 104 underweight female patients who were admitted to the inpatient unit of a behavioral eating disorders program between August 2002 and June 2006 and transitioned to partial hospital for a minimum of 7 days. All patients were at least 4 lb below the bottom of the range for a healthy weight adjusted for age, gender, and height and were placed on a weight gain protocol upon admission. Normal-weight and overweight eating disorder patients

were excluded since weight gain achieved during treatment was a primary outcome measure. The mean age of the sample was 26.3±11.1 years. Overall, 78% of participants were adults, 88% were Caucasian, 83% were never married, and 69% had attended some college or completed a college or graduate level degree. Eating disorder diagnoses were made by trained clinicians using the eating disorders module of the Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders (SCID) (First, Spitzer, Gibbon, & Williams, 1997). Of the 104 patients, 67% met Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (American Psychiatric Association, 1994) criteria for AN, 7% for underweight BN (BMI range=18.2–20.0), and the remaining 26% carried significant eating pathology consistent with a diagnosis of eating disorder not otherwise specified (EDNOS) and were classified as subthreshold AN. Mean body mass index (BMI; kg/m^2) at inpatient admission, step-down (transition from inpatient to partial hospital), and partial hospital discharge was 16.6±2.1, 19.0±1.7, and 20.5±1.3, respectively. The average length of hospital stay was 51.8±24.2 days, with approximately 40% of days spent inpatient and 60% spent in partial hospital. Mean weight gain rate during inpatient treatment was 5.0±2.1 lb/week; mean weight gain rate during partial hospital was 2.6±1.9 lb/week. Demographic and clinical characteristics of the study sample were comparable to those of underweight inpatients treated in the eating disorders program as a whole (Guarda & Heinberg, 2003).

Patients in the current study were discharged from treatment for the following reasons: clinical improvement (87%), patient/family initiated due to financial difficulty (5%), patient/family initiated for other reasons (5%), nonadherence to treatment protocol (2%), and elopement (1%).

1.2. Measures

1.2.1. Demographic information

Basic demographic information was collected for each participant, including gender, age, race, education, and marital status.

1.2.2. Clinical assessment

Clinical indices were assessed by eating disorder program staff and were collected from participants' clinical charts. These included inpatient admission BMI, step-down BMI, partial hospital discharge BMI, inpatient and partial hospital weight gain rate (pounds gained per week while on weight gain protocol), and length of inpatient and partial hospital stays.

1.2.3. Eating Disorder Inventory-2 (EDI-2)

Eating disorder psychopathology was assessed using the EDI-2, a widely used self-report scale that assesses symptoms commonly associated with AN and BN (Garner, 1991; Garner & Olmstead, 1984). Participants completed the Drive for Thinness (DT) and Body Dissatisfaction (BD) subscales, which measure attitudes and behaviors toward eating, weight, and body shape. The psychometric properties of the EDI-2 subscales have been well established (Garner, 1991). In the present study, internal consistency reliability was .90 for DT and .92 for BD.

1.2.4. Eating Disorder Recovery Self-Efficacy Questionnaire (EDRSQ)

The EDRSQ (Appendix A) is an empirically validated 23-item self-report instrument that assesses self-efficacy to cope with eating disordered behaviors and attitudes. Factor analysis confirmed that two hypothesized theoretical constructs fell into two subscales: Normative Eating Self-Efficacy (14 items) and Body Image Self-Efficacy (9 items) (Pinto et al., 2006). Normative Eating Self-Efficacy assesses confidence to eat and perform eating-related activities without engaging in eating disordered behavior (e.g., restricting, binge eating, purging, or excessive exercise) or experiencing undue emotional distress (e.g., guilt, anxiety) (sample item: I can eat lunch without thinking about how many calories I'm consuming). Body Image Self-Efficacy assesses confidence to maintain a realistic body image that is not dominated by pursuit of thinness and does not place undue influence of body shape and weight on self-esteem (sample item: I can look in a full-length mirror without thinking about where I want to lose weight.). Items are scored on a 5-point scale from 1 (not at all confident) to 5 (extremely confident). For this study, subscale and total score means were calculated so that scores range from 1 to 5. The EDRSQ subscales possess excellent internal consistency reliability. In this sample, Cronbach alpha coefficients for Normative Eating Self-Efficacy and Body Image Self-Efficacy were .97 and .94, respectively. Internal consistency of the total scale (23 items) was .98. A previous study examined the validity of the EDRSQ in a diagnostically heterogeneous sample of eating disorder patients (Pinto et al.,

2006). Both subscales demonstrated good convergent validity with other measures of eating disorder pathology, discriminant validity with measures of general psychological characteristics associated with eating disorder patients, and overall construct validity as a measure of self-efficacy.

1.3. Procedure

The present investigation was conducted at a tertiary-care specialty eating disorders program as part of a larger longitudinal study on the efficacy of inpatient treatment for eating disorders and was approved by the Institutional Review Board of this institution. Adult patients provided signed informed consent. Patients under age 18 provided verbal assent and written informed consent was obtained from a parent or guardian. For all participants, consent was obtained following inpatient admission.

All study participants were initially admitted to the inpatient unit and transitioned to partial hospital. The treatment program is behaviorally based with an emphasis on group therapy that utilizes both cognitive-behavioral and dialectical behavior therapy principles (Guarda & Heinberg, 2003). For adolescent patients, family therapy and parent training are also important components of treatment. The treatment team determined step-down to partial hospital based on patient progress in three principal areas: 1) blocking eating disordered behaviors, 2) normalizing food choices, and 3) rate of weight gain.

Participants completed the EDRSQ and EDI-2 DT and BD subscales at two time points, within 3–4 days of inpatient admission (admission) and two weeks following step-down to partial hospital, which was considered to be the best estimate of a uniform discharge time point (posttreatment). The mean number of days between administrations was 34.0±15.2. These measures were administered and collected by research staff and the clinical team was not informed of patients' scores at any point during treatment.

1.4. Statistical analyses

Data were analyzed using SPSS for Windows version 13.0 (SPSS, 2004). Group differences on continuous and categorical variables were evaluated using independent samples *t*-tests and chi square tests, respectively. Where unequal variances were detected, Welch's robust *t*-test was used. Bivariate associations between continuous variables were assessed using Pearson product moment correlations. To test the hypothesis that Normative Eating Self-Efficacy and Body Image Self-Efficacy would increase during treatment, paired samples *t*-tests were conducted on the subsample of participants who completed both administrations of the EDRSQ. To test the hypotheses that admission EDRSQ scores were inversely associated with length of hospital stay and posttreatment eating disorder psychopathology and positively associated with partial hospital weight gain rate, Pearson product moment correlations and partial correlations (controlling for BMI) were conducted. To determine whether the EDRSQ significantly predicted length of hospital stay, posttreatment eating disorder psychopathology, and partial hospital weight gain rate above and beyond clinical indices and eating disorder psychopathology at admission, separate hierarchical linear regressions were conducted for each dependent variable. Age (dichotomized into minor vs. adult), eating disorder diagnosis (dichotomized into restricting type (AN-R and subthreshold AN-R) vs. binge eating/purging type (AN-P, subthreshold AN-P, underweight BN-P)), and inpatient admission BMI were entered as predictors in the first step, eating disorder psychopathology at inpatient admission was entered in the second step, and EDRSQ score was entered in the final step. The total EDRSQ score based on the full 23-item measure was used in regression analyses. All tests of significance were based on alpha set at .05.

2. Results

2.1. Change in EDRSQ during treatment

All 104 participants in the current study completed the EDRSQ at inpatient admission. Of these, 81 (78%) also completed the EDRSQ two weeks following step-down to partial hospital. Of the 23 patients who did not complete the EDRSQ two weeks after step-down to partial hospital, seven were discharged in less than two weeks and were therefore not eligible to complete the second administration. The remaining 16 patients either declined to complete the EDRSQ again or were missed by research staff. The majority of these 23 patients (74%) were discharged based on clinical improvement (including six of the seven with partial hospital stays of less than two weeks).

Table 1
Intercorrelations between inpatient admission EDRSQ scores, clinical indices, and eating disorder psychopathology (N=104)

	Normative Eating Self-Efficacy	Body Image Self-Efficacy	EDRSQ Total Score
IP admission BMI	−.02	−.03	−.03
PH admission BMI	−.27**	−.26**	−.28**
PH discharge BMI	−.29**	−.27**	−.29**
Length of hospital stay	−.38***	−.30**	−.36***
IP weight gain rate	.04	.02	.04
PH weight gain rate	.32**	.30**	.32**
EDI-2 DT (IP admission)	−.78***	−.74***	−.79***
EDI-2 BD (IP admission) [a]	−.62***	−.73***	−.69***
EDI-2 DT (posttreatment) [b]	−.61***	−.60***	−.63***
EDI-2 BD (posttreatment) [c]	−.64***	−.65***	−.67***

Note: IP = inpatient; BMI = body mass index; PH = partial hospital; EDI-2 DT = Eating Disorder Inventory-2 Drive for Thinness; BD = Body Dissatisfaction.
* p<.05, ** p<.01, *** p<.001.
[a] 1 case had missing data on BD subscale at admission (N=103).
[b] Patients who completed DT subscale posttreatment (n=70).
[c] Patients who completed BD subscale posttreatment (n=69).

Patients who completed the EDRSQ at both time points and those who were missed or declined the second administration were compared on the following key variables with no significant differences between groups: age, BMI at admission, step-down, and discharge, length of dieting history, eating disorder diagnosis, inpatient and partial hospital rates of weight gain, and EDRSQ subscale scores at admission.

Change in self-efficacy during treatment was assessed for patients who completed the EDRSQ at both time points. Consistent with study hypotheses, there were significant increases in both Normative Eating Self-Efficacy, t(80)=8.54, p<.001 and Body Image Self-Efficacy, t(80)=3.13, p=.002. Specifically, mean Normative Eating Self-Efficacy scores increased from 1.9±1.0 at inpatient admission to 2.7±1.2 two weeks following step-down to partial hospital and Body Image Self-Efficacy increased from 1.9±0.9 to 2.1±1.0.

2.2. Relation between EDRSQ, clinical indices, and eating disorder psychopathology

Bivariate correlations between EDRSQ scores at admission and length of hospital stay, weight gain rate, BMI and DT and BD subscales are presented in Table 1. Consistent with hypotheses, both Normative Eating Self-Efficacy and Body Image Self-Efficacy were inversely related to length of hospital stay, DT, and BD, such that greater self-efficacy at admission was related to shorter duration of hospitalization and less self-reported eating disorder psychopathology. As predicted, EDRSQ scores were positively correlated with partial hospital weekly weight gain rate, indicating that higher levels of self-efficacy at entry to inpatient treatment were associated with greater rate of weight gain during partial hospital in this sample of underweight patients. EDRSQ subscales were not related to inpatient rate of weight gain or inpatient admission BMI. However, they were negatively correlated with step-down and discharge BMI, indicating that greater self-efficacy at admission was associated with lower BMI at the time of transition to partial hospital and discharge from treatment.

Because the EDRSQ was negatively related to BMI at admission to partial hospital, we examined the association between self-efficacy and length of hospital stay and weight gain rate controlling for step-down BMI to determine whether the favorable associations between self-efficacy and these outcomes were accounted for by patients with greater self-efficacy having more weight to gain during partial hospital. The partial correlations between self-efficacy and length of stay (r_p(101)=−.41, p<.001) and rate of weight gain (r_p(101)=.22, p=.025) were significant, indicating that patients with high self-efficacy at inpatient admission had a shorter hospital stay and achieved a greater rate of weight gain independent of their BMI when they transitioned to partial hospital.

2.3. Predictive validity of the EDRSQ

Separate hierarchical linear regressions were conducted to examine whether the EDRSQ significantly predicted length of hospital stay, posttreatment eating disorder psychopathology, and partial hospital weight gain rate above

Table 2
Hierarchical regression model predicting length of hospital stay and partial hospital weight gain rate ($N=103$)[a]

	β	t	Adj R^2	p
Length of hospital stay				
Step 1				
Age[b]	−.28	−3.34		
ED diagnosis[c]	.00	−.02		
IP admission BMI	−.66	−8.13		
			.39	<.001
Step 2				
EDI-2 Drive for Thinness (IP admission)	.25	2.56		
EDI-2 Body Dissatisfaction (IP admission)	.03	.27		
			.46	.002
Step 3				
EDRSQ Total Score (IP admission)	−.38	−3.09	.50	.003
Partial hospital weight gain rate (lb/week)				
Step 1				
Age[b]	−.08	−.78		
ED diagnosis[c]	.01	.05		
IP admission BMI	−.34	−3.37		
			.08	.011
Step 2				
EDI-2 Drive for Thinness (IP admission)	−.18	−1.43		
EDI-2 Body Dissatisfaction (IP admission)	−.18	−1.41		
			.16	.003
Step 3				
EDRSQ Total Score (IP admission)	.22	1.38	.17	.17

Note: EDI-2 = Eating Disorder Inventory-2; ED = eating disorder; IP = inpatient; EDRSQ = Eating Disorder Recovery Self-Efficacy Questionnaire.
[a] 1 case was missing due to missing data on the Body Dissatisfaction subscale.
[b] Age dichotomized into minor vs. adult.
[c] Eating disorder diagnosis dichotomized into restricting type (AN-R, subthreshold AN-R) vs. binge eating/purging type (AN-P, subthreshold AN-P, BN-P).

and beyond age, eating disorder diagnosis, inpatient admission BMI, and eating disorder psychopathology at admission. Regressions for posttreatment eating disorder psychopathology included participants who completed EDI-2 DT ($n=70$) and BD ($n=68$) subscales posttreatment. No significant differences were found between patients who completed these subscales at both time points and those who were missed by research staff or declined to complete both administrations on: age, BMI at admission, step-down, and discharge, length of dieting history, eating disorder diagnosis, rates of inpatient and partial hospital weight gain, and EDRSQ and DT and BD scale scores at admission.

Regression models for length of hospital stay and weight gain rate are presented in Table 2; models for posttreatment DT and BD are presented in Table 3. These results show that the EDRSQ at inpatient admission significantly predicted length of hospital stay ($p=.003$) and Body Dissatisfaction ($p<.001$) over and above covariates, and a statistical trend was found for the EDRSQ to predict Drive for Thinness ($p=.09$). The EDRSQ was not a significant predictor of partial hospital weight gain rate after controlling for clinical indices and eating disorder psychopathology at admission.

3. Discussion

Results from the current study provide support for the predictive validity and clinical utility of the Eating Disorder Recovery Self-Efficacy Questionnaire. As expected, both Normative Eating Self-Efficacy and Body Image Self-Efficacy improved significantly during hospital treatment in this sample of underweight female inpatients. This is consistent with reports of increased weight control self-efficacy among binge eating disorder patients following cognitive-behavioral therapy (Wolff & Clark, 2001) and among overweight individuals following weight loss treatment

Table 3
Hierarchical regression model predicting posttreatment eating disorder psychopathology ($n=70$) [a]

	β	t	Adj R^2	p
EDI-2 Drive for Thinness (posttreatment)				
Step 1				
Age [b]	−.04	−.27		
ED diagnosis [c]	−.02	−.15		
IP admission BMI	.12	.94		
			−.02	.678
Step 2				
EDI-2 Drive for Thinness (IP admission)	.67	7.22	.42	<.001
Step 3				
EDRSQ Total Score (IP admission)	−.26	−1.72	.44	.09
EDI-2 Body Dissatisfaction (posttreatment)				
Step 1				
Age [b]	−.15	−1.06		
ED diagnosis [c]	−.11	−.78		
IP admission BMI	.00	.03		
			.01	.338
Step 2				
EDI-2 Body Dissatisfaction (IP admission)	.64	6.31	.38	<.001
Step 3				
EDRSQ Total Score (IP admission)	−.43	−3.86	.49	<.001

Note: EDI-2 = Eating Disorder Inventory-2; ED = eating disorder; IP = inpatient; EDRSQ = Eating Disorder Recovery Self-Efficacy Questionnaire.
[a] Regression models include patients who completed both administrations of the EDI-2; 2 cases were missing for the Body Dissatisfaction analysis ($n=68$).
[b] Age dichotomized into minor vs. adult.
[c] Eating disorder diagnosis dichotomized into restricting type (AN-R, subthreshold AN-R) vs. binge eating/purging type (AN-P, subthreshold AN-P, BN-P).

(Clark et al., 1991; Clark, Cargill, Medeiros, & Pera, 1996; Glynn & Ruderman, 1986). The larger increase in Normative Eating Self-Efficacy in this study is likely related to the behavioral nature of the treatment program, which focuses on normalizing eating patterns and emphasizes consumption of regular, varied, and nutritionally balanced meals. Change in Body Image Self-Efficacy was more modest, consistent with clinical observation that improvement in body dissatisfaction often lags behind eating-related behavioral change in recovery from eating disorders. When self-efficacy was re-assessed in partial hospital, both Body Image Self-Efficacy and Normative Eating Self-Efficacy scores continued to be rather low, ranging from 2.1 (somewhat confident) to 2.7 (moderately confident). However, this level of self-efficacy is commensurate with that reported by a separate sample of 23 eating disorder outpatients in treatment, whose mean scores ranged from 2.0 for Body Image Self-Efficacy to 2.5 for Normative Eating Self-Efficacy. Overall, the increase in EDRSQ scores from inpatient admission through step-down to partial hospital suggests that this measure is clinically useful for assessing changes in eating- and body image-related self-efficacy during treatment. Additional research is needed to examine the magnitude of change in EDRSQ scores beyond hospital treatment (e.g., during and following outpatient treatment).

Previous research established the psychometric properties of the EDRSQ through its relations with validated self-report measures of eating disorder psychopathology and correlates of self-efficacy (Pinto et al., 2006). Importantly, the current study further supports the construct validity of the EDRSQ through its association with objective measures of short-term treatment outcome. Specifically, EDRSQ scores were inversely related to length of hospital stay and positively related to partial hospital weight gain rate over and above BMI. Since partial hospital is less structured and restrictive than inpatient treatment, patients have increasing amounts of time off the unit during which they may continue to follow the goals of their treatment plan or re-engage in eating disordered behavior. These findings indicate that underweight patients, who at admission to inpatient treatment reported greater confidence in their ability to cope effectively with eating disordered behavior and body image concerns, demonstrated superior weight gains under decreasing amounts of supervision and were discharged from treatment sooner than patients with lower confidence. The relation between eating disorder recovery self-efficacy and weight gain parallels findings in the obesity treatment

literature which has shown that greater weight control self-efficacy at the start of a weight loss program is associated with better weight losses posttreatment (Linde et al., 2004; Stanton et al., 1990).

In the current study, patients with higher admission self-efficacy ratings were transitioned to partial hospital and discharged from treatment at lower BMIs. At first glance, this finding appears counterintuitive. However, while BMI is an important factor in determining appropriateness for step-down and discharge, the treatment team also considers progress with behavioral changes, including patients' ability to resist eating disordered behavior and normalize food choices, participation in treatment, and rate of weight gain. Since the majority of patients were discharged based on clinical improvement and not for other reasons such as nonadherence, the inverse association between EDRSQ scores and BMI may suggest that patients who reported greater self-efficacy at admission exhibited more positive behavioral changes during treatment (reflected in greater rate of weekly weight gain) that supported the team's decision for transition to less structured treatment relative to patients with lower admission self-efficacy. Beyond weight gain, further research is needed to clarify how self-efficacy is related to observable changes in eating disordered behavior such as frequency of restricting, fasting, purging, and body checking as well as rituals such as dicing food and eating slowly.

The findings of this study provide initial support for the ability of the EDRSQ to predict outcome of hospital treatment. Greater confidence to change eating disordered behavior at inpatient admission predicted shorter length of hospital stay over and above clinical indicators (i.e., age, diagnosis, BMI) and existing self-report measures of eating disorder psychopathology at admission. In the current U.S. health care climate, powerful real world pressure is exerted on clinicians to reduce the length of costly hospital stays and transition patients to lower levels of care (Wiseman et al., 2001). The present findings demonstrate that the EDRSQ appears to be a useful tool for informing predictions about length of hospital treatment in underweight patients. In terms of eating disorder psychopathology, we found that the EDRSQ significantly predicted posttreatment Body Dissatisfaction and showed a trend to predict Drive for Thinness above and beyond clinical indices and eating disorder psychopathology at admission. Specifically, higher self-efficacy at inpatient admission was associated with lower posttreatment eating disorder psychopathology, suggesting that the EDRSQ may be valuable in identifying who will improve during hospital treatment. While the EDRSQ significantly predicted partial hospital weight gain rate over and above clinical indices (data not shown), it did not add predictive ability over and above EDI-2 DT and BD subscales.

The chronic and severe nature of AN and BN, combined with characteristic treatment resistance, particularly among individuals with AN, has given rise to increased interest among clinicians and researchers for gaining a better understanding of the process of behavior change in these patients. Researchers have used the transtheoretical model of behavior change (TTM; (DiClemente & Prochaska, 1998) as a framework to conceptualize dimensions of the change process and as a model to guide instrument development. For example, measures of motivation for change have been developed for eating disorders in both self-report (Rieger et al., 2000; Rieger, Touyz, & Beumont, 2002) and interview format (Geller, Cockell, & Drab, 2001). In addition, Cockell, Geller, and Linden (2002) developed a decisional balance measure to assess cognitive shifts in patients with AN as they prepare for and engage in change. The current and previous investigations (Pinto et al., 2006) on the development of the EDRSQ contribute to this literature and support the utility of measuring self-efficacy as a dimension of behavior change in eating disorder patients.

There are several limitations to this study. First, it examined only short-term outcome of hospital treatment. Future investigations should evaluate the relation between EDRSQ subscales and longer-term outcome. For instance, such studies may examine whether self-efficacy measured at the end of hospital treatment is a reliable predictor of relapse and whether short-term increases in self-efficacy predict later clinical improvement. In addition, research on the utility of the EDRSQ in outpatient settings to evaluate treatment progress and outcome would be an important contribution. Second, only underweight patients were included in this study. Future research that examines the relation between self-efficacy and treatment outcome in normal-weight patients with bulimia nervosa is needed. Third, this study included only female patients. Investigation of how self-efficacy impacts treatment and recovery for boys and men with AN and BN would involve modifications to the EDRSQ that address gender-specific concerns and behaviors.

The present investigation reveals that the EDRSQ is sensitive to change during hospital treatment and that greater self-efficacy at inpatient admission is associated with a shorter hospital stay, increased rate of weight gain in partial hospital, and lower posttreatment eating disorder psychopathology in underweight female patients. These findings provide support for the validity and clinical utility of the EDRSQ as an instrument for measuring self-efficacy to recover from an eating disorder.

Appendix A. EDRSQ

Instructions: The following items describe behaviors, thoughts, and feelings that individuals with eating disorders may face. The phrase "balanced meal" refers to the amount and type of food that a typical normal-weight person who is not a dieter might eat. Please rate ***how confident you feel right now*** about your ability to do the following. *If you are currently in the hospital (day hospital or inpatient)*, please rate ***how confident you feel right now*** about your ability to do the following ***if you were discharged today***.

Circle the number that best describes your confidence level. Use the following scale:

1 = Not At All Confident
2 = Somewhat Confident
3 = Moderately Confident
4 = Very Confident
5 = Extremely Confident

	Not At All Confident	Somewhat Confident	Moderately Confident	Very Confident	Extremely Confident
1) I can eat a family meal at a normal rate.	1	2	3	4	5
2) I can feel proud of how I look.	1	2	3	4	5
3) I can look at my stomach or thighs without wondering if I've gained or lost weight.	1	2	3	4	5
4) I can look in a full-length mirror without thinking about where I want to lose weight.	1	2	3	4	5
5) I can try new foods without feeling anxious.	1	2	3	4	5
6) I can eat a cheeseburger without compensating by restricting, exercising excessively, or purging.	1	2	3	4	5
7) I can eat when I feel hungry and stop eating when I feel satisfied.	1	2	3	4	5
8) I can eat holiday desserts this year and not compensate by purging, exercising excessively, or restricting.	1	2	3	4	5
9) I can feel that my body is attractive.	1	2	3	4	5
10) I can eat one serving of ice cream without feeling guilty or anxious.	1	2	3	4	5
11) I can eat from a buffet without feeling anxious.	1	2	3	4	5
12) I can buy food based on what I feel like eating, not because it is low fat and/or low calorie.	1	2	3	4	5
13) I can eat a high fat/high calorie food without worrying that I will gain weight.	1	2	3	4	5
14) I can wear a swimsuit in public.	1	2	3	4	5
15) I can accept my "figure flaws".	1	2	3	4	5
16) I can feel OK about myself if my stomach is not flat.	1	2	3	4	5
17) I can eat lunch without thinking about how many calories I'm consuming.	1	2	3	4	5
18) I can eat 3 balanced meals a day without bingeing, purging, exercising excessively, or taking diuretics or laxatives.	1	2	3	4	5
19) I can accept a dinner invitation to somebody's house and eat without restricting, bingeing, or purging.	1	2	3	4	5
20) I won't compare my body shape to other thin/attractive females I see.	1	2	3	4	5
21) I can eat high fat/high calorie foods in moderation without bingeing, purging, taking laxatives or diuretics, or exercising excessively.	1	2	3	4	5
22) I can see that my weight is not the most important part of me as a person.	1	2	3	4	5
23) I can go to a restaurant with friends who are not dieters and eat a normal, balanced meal.	1	2	3	4	5

EDRSQ Scoring Information

Factor 1 Normative Eating Self-Efficacy (14 items)
Items: 1, 5, 6, 7, 8, 10, 11, 12, 13, 17, 18, 19, 21, 23
Factor 2 Body Image Self-Efficacy (9 items)
Items: 2, 3, 4, 9, 14, 15, 16, 20, 22

To obtain a subscale (factor) mean that ranges from 1 to 5, sum item scores for each subscale and divide by the number of items in that subscale.

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