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Perfectionism, Emotion Dysregulation, and Affective Disturbance in Relation to Clinical Impairment in College-Age Women at High Risk for or With Eating Disorders

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Abstract

Individuals with eating disorders (EDs) demonstrate impaired quality of life; however, less than one-third *report* severe clinical impairment. Thus, it is important to determine factors that may identify those who are most likely to report marked impairment. Perfectionism, emotion dysregulation, and aspects of affective disturbance, such as anxiety and depression, are independently associated with eating pathology and clinical impairment in eating and other disorders. However, little research has explored these three factors concurrently in relation to eating pathology. It is possible that the combined interaction effect of these constructs could be especially harmful. The current study examined the influence of these constructs and their interactions on clinical impairment in college-aged women at high risk for or with a DSM-5 clinical or subclinical ED. Although the three-way interaction of perfectionism, emotion dysregulation, and affective disturbance (i.e., anxiety or depression) was not significant, the two-way interaction between perfectionism and emotion dysregulation was significant such that those who were high in both perfectionism and emotion dysregulation reported the highest levels of clinical impairment. This suggests that the combination of perfectionism and emotion dysregulation may be especially problematic for those with or at high risk for EDs. Interestingly, perfectionism alone was not a predictor of clinical impairment when accounting for the other

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constructs, implying that perfectionism may have a greater impact when in conjunction with emotion dysregulation. Understanding the impact of combined perfectionistic tendencies and emotion dysregulation on clinical impairment may better inform treatment and more directly target contributors to impaired quality of life.

Keywords

eating disorders; clinical impairment; emotion regulation; perfectionism; anxiety; depression

1. Introduction

Individuals with clinical/subclinical eating disorders (EDs) demonstrate markedly impaired quality of life compared to those with low ED psychopathology (DeJong et al., 2013; Hay 2003; Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011). EDs are highly comorbid with affective disorders such as depression and anxiety (Hudson, Hirpi, Pope, & Kessler, 2007), and impairment in psychosocial functioning tends to persist after treatment even after ED symptoms have remitted (Keel, Mitchell, Miller, Davis, & Crow, 2000; Sullivan, Bulik, Fear, & Pickering, 1998). Students at high risk for eating disorders also exhibit high levels of impairment (Hay, 2003; Vannucci et al., 2012) and comorbidity (Aspen et al., 2014). Clinical impairment refers to the clinically significant distress and disability that an individual may experience as the result of behavioral or psychological patterns (American Psychiatric Association [APA], 2000; APA, 2010). Domains affected may include occupational, academic, social, or role functioning (Stein et al., 2010). Experiencing distress is a key reason for seeking treatment, and reducing clinical impairment is a primary target of effective treatment (Fairburn, 2008). The assessment of clinical impairment is a critically important treatment outcome measure in ED patients, and the factors contributing to marked impairment need to be better understood in order to more effectively target treatment efforts.

However, not all individuals with EDs report high levels of ED-related impairment. In fact, Mond, Hay, Rodgers, and Owen (2012) found that less than one-third of women with EDs report severe clinical impairment. Many features of ED psychopathology, such as intrusive thoughts about shape and weight, can be ego-syntonic in nature (Polivy & Herman, 2002), thus some individuals with EDs may not perceive or report as much impairment, as these thoughts align with their ideal self-image. ED behaviors such as rigid dietary control or the use of extreme weight-loss behaviors may even provide enhanced positive emotions such as a sense of pride or accomplishment in some individuals (Selby et al., 2014). Thus, due to the ego-syntonic nature of certain features of ED psychopathology, some individuals may not experience impairment, or alternatively, some may experience but not identify it as such.

Seeking treatment is closely tied to perceived impairment in quality of life; however, only about half of individuals who report severe impairment receive treatment for an eating problem, and less than one in five with severe impairment seek such treatment from a mental health professional (Mond, Hay, Rodgers, & Owen, 2007). Higher levels of clinical impairment have been shown to be associated with greater ED symptom severity (Reas, Rø,

Kapstad, & Lask, 2010; DeJong et al., 2013). Therefore, it is important to determine factors that may identify those who are most likely to report marked ED-related impairment. Furthermore, it is of value to identify these factors not only among those with clinical EDs but also among those at high risk for developing EDs, given that these individuals demonstrate similar levels of functional impairment as women with full-spectrum EDs (Aspen et al., 2014; Celio Doyle, Le Grange, Goldschmidt, & Wilfley, 2007; Vannucci et al., 2012).

This study focused on college-aged women, as they are an ideal population given that this age group has elevated rates of EDs and is at high risk for the development of EDs (Striegel-Moore et al., 2003; Taylor et al., 2006). College represents a pivotal time in one's life. Impairment in role functioning during college could cause one to have difficulty in classes, trouble finding a social group for support, or maladjustment to the college environment. Thus, it is important to understand the factors that make individuals particularly vulnerable to impairment during this critical transition period.

Several studies have examined the contributions of individual ED symptoms and body mass index on impairment (Bamford & Sly, 2010; Hovrud & De Young 2015; Mond, Hay, Rodgers, Owen, & Mitchell, 2006); however, few studies have closely evaluated the impact of psychosocial factors on clinical impairment in ED samples. It is crucial to identify which factors are contributing to the most severe distress, as well as examine the specific combinations of psychosocial factors that may be particularly impairing to those with EDs. Perfectionism, emotion dysregulation, and aspects of affective disturbance, such as anxiety and depression, have been found to be independently associated with eating pathology (Bardone-Cone et al., 2007; Hudson et al., 2007; Lavender et al., 2015; Pallister & Waller, 2008) and clinical impairment in eating and other disorders (e.g., ADHD) (Egan, Wade, & Shafran, 2011; Henning, Turk, Mennin, Fresco, & Heimberg, 2007; Stice & Agras, 1999; Stice & Agras, 2001; Wehmeier, Schacht, & Barkley, 2010). However, little research has looked at these three factors concurrently in relation to EDs. It is possible that the combined interaction effect of these constructs could be especially harmful, and consequently, especially predictive of ED-related clinical impairment. That is, if an anxious or depressed individual is also highly perfectionistic and has difficulty regulating emotions, the level of distress due to ED symptoms may be exacerbated. For example, an individual may avoid eating out with family or friends, feel excessively self-critical or like a failure for avoiding this scenario, and then experience overwhelming, out of control emotions, which could result a particularly distressing cycle. As such, in the current study, we examined the influence of these three constructs, as well as their interactions, to investigate the influence of perfectionism, emotion dysregulation, and aspects of affective disturbance, specifically anxiety and depression, on ED-related clinical impairment in college-aged women with or at high risk for EDs. In order to differentiate the effects of anxiety and depression, these constructs were analyzed in separate models. We hypothesized that perfectionism, emotion dysregulation, and aspects of affective disturbance (i.e., anxiety and depression) would each significantly predict ED-related clinical impairment and that the combined three-way interaction effect of these constructs would be associated with the highest levels of impairment in our sample. In order to provide an even more stringent test of the effect of

these constructs on ED-related clinical impairment, results were re-ran controlling for global eating pathology.

2. Methods

2.1 Participants

Participants were 453 women ages 18-25 at high risk for ($n = 346$) or with a DSM-5 clinical or subclinical ED ($n = 107$) recruited as part of a larger randomized controlled trial (Taylor et al., 2016). ED diagnosis was determined according to DSM-5 criteria using the Eating Disorder Examination (EDE) (Cooper & Fairburn, 1987). High risk for an ED was determined by a score of ≥ 47 on the Weight Concerns Scale (WCS) (Killen et al., 1994; Jacobi, Abascal, & Taylor, 2004). The sample had a mean age of 20.7 ($SD = 1.97$) and roughly half were Caucasian (55.4%). Other races/ethnicities reported were Asian/Asian Indian (19.9%), Latino/Hispanic (9.5%), African-American/Black (9.1%), Multiracial (3.5%), and Other (2.6%).

2.2 Measures

The Eating Disorder Inventory-2 – Perfectionism Subscale (EDI-P) (Garner, 1991) is a 6-item self-report subscale of the EDI-2 that assesses excessively high personal expectations. Items are rated on a 6-point scale and item responses are weighted from 0 to 3 (“Always” = 3; “Usually” = 2; “Often” = 1; and “Sometimes”, “Rarely”, or “Never” = 0). Scores can range from 0-18. The EDI-P has demonstrated strong internal consistency and construct validity (Eberenz & Gleaves, 1994; Garner, 1991). In the current study, Cronbach's alpha was 0.86.

The Beck Depression Inventory-II (BDI-II) (Beck, Steer, & Brown, 1996) is a self-report measure consisting of 21 depression-related statements rated on a 4-point scale ranging from 0 (symptom not present) to 3 (symptom very intense). Scores can range from 0-63. The BDI-II has demonstrated good construct validity. In the current study, Cronbach's alpha was 0.92.

The Difficulties in Emotion Regulation Scale (DERS) (Gratz & Roemer, 2004) is a 36-item self-report scale assessing clinically relevant difficulties in emotion regulation. Items are rated on a 5-point scale ranging from “Almost Never” = 1 to “Almost Always” = 5, and scores can range from 36-180. The DERS has demonstrated strong internal consistency and construct validity in both clinical and nonclinical populations (Gratz & Roemer, 2004). In the current study, Cronbach's alpha was 0.94.

The State Trait Anxiety Inventory – Trait Subscale (STAI-T) (Spielberger & Gorsuch, 1983) is a 20-item self-report subscale of the STAI used to assess trait levels of anxiety. Spielberger (1972) defined trait anxiety as a personality trait related to individual differences in the likelihood an individual would experience anxiety across different situations, in contrast to state anxiety, which is a transitory emotional response to a specific situation. Items are rated on a 4-point scale ranging from “Almost Never” = 1 to “Almost Always” = 4, and scores can range from 20-80. The STAI-T has demonstrated good reliability,

concurrent validity, and construct validity (Spielberger, 1989). In the current study, Cronbach's alpha was 0.93.

The Eating Disorder Examination Questionnaire – Global (EDE-Q global) (Fairburn & Beglin, 2008), derived from the EDE interview (Cooper & Fairburn, 1987), is a self-report questionnaire that assesses for disordered eating behaviors and attitudes over the past 28 days. The measure consists of a Global score and four subscales: Restraint, Eating Concern, Shape Concern, and Weight Concern. Items are rated on a 7-point scale ranging from “No days” = 0 to “Every day” = 6. The EDE-Q has demonstrated good internal consistency, convergent and discriminant validity. In the current study, Cronbach's alpha for EDE-Q global was 0.86.

The Clinical Impairment Assessment (CIA) (Bohn & Fairburn, 2008) is a 16-item self-report measure designed to assess clinical impairment due to ED symptoms, including impairment in personal, cognitive, and social domains. Items are rated on a 4-point scale with responses ranging from “Not at all” = 0 to “A lot” = 3, and scores can range from 0-48. The cut-off point that best determines ED clinical case status is a global score of 16 (Bohn et al., 2008). The CIA has shown high internal consistency and good criterion and construct validity among women at high risk for an ED (Vannucci et al., 2012). In the current study, Cronbach's alpha was 0.94.

2.3 Procedures

Recruitment methods included flyers, emails to listservs, social media, research volunteer databases, and word of mouth. After an initial online or phone screen (which included the WCS), eligible participants were invited to complete an in-person visit, during which self-report questionnaires and the EDE were administered.

All participants provided informed consent, and the Institutional Review Boards of all participating sites approved this study.

2.4 Data Analytic Plan

Separate regression models were first conducted to examine the influence of each construct (i.e., perfectionism, emotion dysregulation, anxiety, depression) on ED-related clinical impairment individually. Next, regression models were analyzed to simultaneously examine the influence of perfectionism, emotion dysregulation, and affective disturbance on ED-related clinical impairment while controlling for the other two constructs. Notably, in order to differentiate the effects of the different aspects of affective disturbance (i.e., anxiety and depression), these measures were analyzed in separate models. Then, hierarchical multiple regression was used to examine the influence of the two- and three-way interactions between the constructs on clinical impairment. All variables were mean-centered for this model. Finally, all study analyses were re-run controlling for global eating pathology in order to ascertain whether these factors influenced ED-related impairment over and above the effect of eating pathology.

3. Results

The overall level of ED-related clinical impairment in the sample was moderate ($M = 12.56$, $SD = 9.66$; scores ranging 0-48). Participants had an average EDI-P score of 4.16 ($SD = 1.16$; scores ranging 1.33-6.0), average DERS score of 80.84 ($SD = 21.80$; scores ranging 40-144), average BDI-II score of 10.74 ($SD = 9.06$; scores ranging 0-48), and an average STAI-T score of 42.93 ($SD = 11.51$; scores ranging 21-77). Correlations between the study measures are displayed in Table 1.

Individually, all the constructs predicted clinical impairment (EDI-P $\beta = .18$, DERS $\beta = .52$, STAI $\beta = .55$, BDI-II $\beta = .48$; $ps < .001$). Next, when perfectionism, emotion dysregulation, and anxiety were examined concurrently, emotion dysregulation ($\beta = .23$) and anxiety ($\beta = .36$) remained significant ($ps < .001$), but perfectionism was no longer a significant predictor of clinical impairment ($\beta = .06$, $p = .168$). Likewise, when perfectionism, emotion dysregulation, and depression were examined concurrently, emotion dysregulation ($\beta = .16$) and depression ($\beta = .49$) remained significant ($ps < .01$), but perfectionism was no longer a significant predictor of clinical impairment ($\beta = .05$, $p = .251$). Finally, Tables 2 and 3 present the results from the hierarchical multiple regressions used to examine the influence of the two- and three-way interactions between the constructs on clinical impairment.

Although the three-way interaction was not significant in either the model including depression or the model including anxiety, the two-way interaction between perfectionism and emotion dysregulation was significant in both models. In the model including anxiety, those who were categorized as high (at least 1 SD above the sample mean) in both perfectionism and emotion dysregulation reported the highest levels of clinical impairment (above the CIA clinical cutoff of 16.) In contrast, those who were high in only one of these two constructs reported much lower levels of impairment. The model including depression symptoms as a measure of affective disturbance showed a similar interaction pattern, with the exception that the CIA scores for those high in both perfectionism and emotion dysregulation were just slightly under the clinical cutoff of 16 ($= 15.56$) (See Figure 1).

Follow-up analyses were conducted, re-running all study models controlling for global eating pathology, a strong correlate of ED-related clinical impairment with a correlation between these two constructs of .75 ($p < .001$) in the current study. Individually, most of the constructs continued to predict clinical impairment when controlling for eating pathology (DERS $\beta = .26$, $p < .001$; STAI $\beta = .26$, $p < .001$; BDI-II $\beta = .31$, $p < .001$), with the exception of perfectionism (EDI-P $\beta = .03$, $p = .414$). Similarly, when perfectionism, emotion dysregulation, and depression were examined together controlling for eating pathology, emotion dysregulation ($\beta = .13$, $p = .002$) and depression ($\beta = .23$, $p < .001$) remained significant, but perfectionism was not significant ($\beta = -.02$, $p = .586$). Likewise, when perfectionism, emotion dysregulation, and anxiety were examined together controlling for eating pathology, emotion dysregulation ($\beta = .17$, $p < .001$) and anxiety ($\beta = .14$, $p = .002$) remained significant, but perfectionism was not significant ($\beta = -.01$, $p = .643$). Finally, in our interaction models controlling for eating pathology, the main findings are approaching significance. The two-way interaction between perfectionism and emotion dysregulation in

both the models including anxiety ($\beta = .07, p = .085$) and depression ($\beta = .08, p = .053$) approaches significance when controlling for eating pathology.

4. Discussion

As hypothesized, each of our constructs significantly predicted ED-related clinical impairment independently. However, when the constructs were examined concurrently, only the aspects of affective disturbance (i.e., anxiety and depression) and emotion dysregulation remained significant. Our hypothesis that the three-way interaction of perfectionism, emotion dysregulation, and affective disturbance would predict impairment was not supported. However, we found that perfectionism and emotion dysregulation significantly interacted to predict clinical impairment; this interaction effect held true in both the model including depression and the model including anxiety as measures of affective disturbance. The other two-way interactions were not significant. This finding suggests that the combination of perfectionism and emotion dysregulation may be especially problematic for those with or at high risk for EDs, as the interaction was predictive of clinically significant levels of impairment. Moreover, although perfectionism was predictive of impairment individually, it was not a significant predictor of clinical impairment when accounting for the other constructs in the concurrent model. This implies that perfectionism alone may not have much influence on clinical impairment in those with or at high risk for EDs; it may have a greater impact when in conjunction with emotion dysregulation. Perhaps some individuals who struggle with regulating emotions may use perfectionism as a maladaptive attempt of emotional control. Alternately, it may be that individuals with perfectionistic tendencies set very high standards for themselves and accordingly, it is likely that at some point they may fail to meet those expectations. When perfectionistic individuals fail to meet their high standards and also have difficulties regulating emotions (i.e., cannot tolerate when a perceived failure occurs), this may result in a particularly impairing experience.

Notably, we conducted follow-up analyses controlling for global eating pathology. While many of our findings remained consistent, perfectionism was not a significant individual predictor of clinical impairment when controlling for eating pathology. Our measure of perfectionism may have been limited in that the EDI-P examines perfectionism unidimensionally, while some research suggests that perfectionism should be examined multidimensionally (e.g., adaptive vs. maladaptive) (Bardone-Cone et al., 2007). It is possible that using a different measure of multidimensional perfectionism may have resulted in a significant relationship with clinical impairment when controlling for eating pathology. Our main finding, the interaction between perfectionism and emotion dysregulation, was no longer significant below the $p < .05$ level when controlling for eating pathology. However, the interaction was approaching significance. This suggests that although not below the cutoff level, the interaction of perfectionism and emotion dysregulation still shows indication that it may be important in influencing eating related clinical impairment even when controlling for eating pathology, a construct highly correlated with clinical impairment.. However, because our results were not significant below the cutoff of $p < .05$, it may be that this interaction is not contributing significantly to clinical impairment over and above eating pathology. Future research should be conducted to reexamine the effects of

these constructs in other samples and determine whether these factors influence impairment over and above the influence of eating pathology.

Consistent with past research (Hudson et al., 2007; Pallister & Waller, 2008), the aspects of affective disturbance (i.e., anxiety and depression) independently predicted levels of ED related clinical impairment on their own as well as in the concurrent regression models. However, we did not find that anxiety or depression had interactive effects with the other constructs examined in this study. Perhaps the interaction of other psychosocial factors with affective disturbance, such as appearance-contingent self-worth, plays a more important role in clinical impairment in an ED sample (Bardone-Cone, Brownstone, Higgins, Fitzsimmons-Craft, & Harney, 2013).

A primary strength of this study was the large sample of college-aged women with or at high risk for EDs. Several limitations should also be considered. First was the use of cross-sectional data, limiting our ability to draw causal inferences. It would be ideal to examine the interactive effects of these constructs over time, with multiple assessment time-points, to examine whether the interaction of perfectionism and emotion dysregulation plays a role in the maintenance of clinical impairment over time. We also concentrated on young adult women ages 18-25 in our sample; therefore, we cannot generalize these findings to men or younger or middle-aged females. Future research should examine these interactive effects in a broader sample including males and a wider age range. Finally, as discussed earlier, our measure of perfectionism may have been limited as a unidimensional measure, and a multidimensional measure of perfectionism (e.g. adaptive vs. maladaptive) may have resulted in a different outcome. In fact, previous work has suggested that adaptive perfectionism is associated with lower scores of emotional dysregulation and in turn less psychological distress (Aldea & Rice, 2006).

ED-related impairment has a significant impact on psychological well-being and quality of life, with the degree of impairment increasing incrementally with increases in the degree of ED symptomatology. The findings from this study may have important implications for treatment and future research, suggesting that the combination of perfectionistic tendencies with emotion dysregulation may be a key to understanding which individuals at high risk for or with EDs may experience the highest levels of clinical impairment. It is just as important to identify these factors among those at high risk for developing EDs as for those meeting clinical criteria. Identifying which factors lead to marked impairment early on can facilitate targeted efforts to reduce impairment, which may prevent progression to a clinical ED. It is imperative for clinicians to look for the combination of perfectionistic tendencies and emotion dysregulation and address these symptoms in ED patients. Both of these components can be addressed with enhanced cognitive behaviors therapy (CBT-E) (Fairburn, 2008).

Future research should continue to examine psychosocial factors that may be especially harmful to the degree of impairment experienced by ED patients. Specifically, research should determine whether individuals at high risk for an ED who exhibit both perfectionism and emotion dysregulation qualities are at greater risk of developing a clinical ED diagnosis later in life. Understanding the impact of these psychosocial combinations on clinical

impairment may better inform treatment and more directly target contributors to impaired quality of life.

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Highlights

- Understanding clinical impairment (CI) related to eating disorders is essential
- Perfectionism, dysregulated emotion and affective disturbance separately impact CI
- Emotion dysregulation and affective disturbance concurrently predicted CI
- The three-way interaction did not significantly predict CI
- The only interaction to predict CI was perfectionism and emotion dysregulation

Figure 1. Interaction between perfectionism and emotion dysregulation predicting levels of clinical impairment in (a) the model including anxiety and (b) the model including depression. The interaction of high levels of emotion regulation difficulties and high levels of perfectionism result in the highest amounts of clinical impairment. *Note:* High and low levels determined by 1 SD above and below the mean, respectively.

Table 1

Zero-order correlations between the study measures

	BDI-II	STAI-T	DERS	EDI-P	EDE-Q	CIA
BDI-II	-					
STAI-T	.712**	-				
DERS	.699**	.752**	-			
EDI-P	.227**	.208**	.226**	-		
EDE-Q	.493**	.450**	.392**	.203**	-	
CIA	.606**	.545**	.517**	.177*	.751**	-

**
p < .01

Table 2
Hierarchical linear regression model; anxiety, emotion dysregulation, and perfectionism

Model		B	SE	β
1	STAI-T	.301	.050	.358***
	DERS	.102	.027	.230***
	EDI-P	.467	.339	.056
2	STAI-T	.307	.050	.365***
	DERS	.089	.028	.200***
	EDI-P	.547	.340	.065
	EDI-P $\times$ STAI-T	-.042	.043	-.055
	EDI-P $\times$ DERS	.050	.022	.126*
	STAI-T $\times$ DERS	.001	.001	.028
3	STAI-T	.309	.051	.367***
	DERS	.089	.028	.199***
	EDI-P	.596	.419	.071
	EDI-P $\times$ STAI-T	-.042	.043	-.056
	EDI-P $\times$ DERS	.051	.023	.129*
	STAI-T $\times$ DERS	.001	.001	.029
	STAI-T $\times$ EDI-P $\times$ DERS	.000	.001	-.010

* $p < .05$;

***
 $p < .001$

Table 3
Hierarchical linear regression model; depression, emotion dysregulation, and perfectionism

Model		B	SE	β
1	BDI-II	.509	.056	.478***
	DERS	.075	.023	.170***
	EDI-P	.311	.324	.037
2	BDI-II	.523	.061	.491***
	DERS	.069	.023	.156**
	EDI-P	.373	.325	.045
	EDI-P $\times$ BDI-II	-.056	.047	-.062
	EDI-P $\times$ DERS	.047	.020	.119*
	BDI-II $\times$ DERS	-.001	.002	-.019
3	BDI-II	.521	.062	.489***
	DERS	.069	.023	.157**
	EDI-P	.328	.394	.039
	EDI-P $\times$ BDI-II	-.060	.050	-.066
	EDI-P $\times$ DERS	.047	.020	.118*
	BDI-II $\times$ DERS	-.001	.002	-.020
	BDI-II $\times$ EDI-P $\times$ DERS	.000	.002	.011

* $p < .05$;

** $p < .01$;

*** $p < .001$