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The roles of adolescent attentional bias and parental invalidation of sadness in significant illness: A comparison between eating disorders and chronic pain

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ABSTRACT

Biopsychosocial conceptualizations of eating disorders (EDs) suggest the combination of an individual's emotional vulnerability and invalidating environment increases the likelihood of developing pervasive emotion dysregulation, and subsequent use of ED behaviors to regulate emotion (Haynos & Fruzetti, 2011; Safer, Telch, & Chen, 2009). The current study aimed to provide initial support for this model in adolescent EDs, through examining the interaction between an adolescent's emotional vulnerability, indexed by attentional biases for emotions, and an invalidating family environment. Specifically, we examined the ability of this interaction to discriminate youth with EDs from a comparison group of youth with chronic pain diagnoses, who were used to control for the presence of non-specific effects of having any illness. Fifty adolescent girls (25 with EDs and 25 with chronic pain) completed an emotional dot-probe task assessing attentional biases for emotional faces, and parents completed the Emotions as a Child Scale (Magai, 1996; Klimes-Dougan et al., 2007) to assess response to teen emotion. Results showed that teen angry attentional bias moderated the relationship between parental response to sadness and teen ED status: for teens with high attention bias towards angry faces, maladaptive parental response to sadness predicted increased odds of ED status versus chronic pain status.

1. Introduction

Eating disorders (EDs) are a significant source of psychological impairment for young women, and adolescence constitutes a time of particular risk for the onset of EDs (Wilson, Becker, & Heffernan, 2003). Previously offered theoretical models of EDs have suggested that the over-evaluation of eating, shape, and weight control is the primary maintaining factor for ED behaviors such as dietary restraint, misuse of laxatives, purging, and over-exercising (Fairburn, Cooper, & Shafran, 2003). Previous models have also indirectly discussed emotional processing difficulties in this population, acknowledging that ED behaviors can serve as a distraction from negative emotions (Cooper, Wells, & Todd, 2004; Crisp, 1997; Vitousek & Orimoto, 1993) and that individuals with EDs often present with extreme negative mood intolerance (Fairburn et al., 2003). Recently, researchers have applied a transactional model of emotion regulation to the conceptualization of both anorexia nervosa (Haynos & Fruzzetti, 2011) and bulimia nervosa (Safer, Telch, & Chen, 2009). Compared to other existing models that attempt to explain ED behaviors, this transactional model references emotion regulation difficulty as a key determinant of ED pathology. According to this model, individuals with EDs experience heightened sensitivity and intensity of responses to emotional stimuli, and a slow return to baseline following emotional responses (Haynos & Fruzzetti, 2011). Such reactions are coupled with invalidating responses from their environment, particularly around experiences involving emotions, hunger, satiety, and body image (Haynos & Fruzzetti, 2011).

In this transactional model of EDs (Haynos & Fruzzetti, 2011; Safer et al., 2009), eating disordered behaviors such as restriction and overexercise serve to regulate emotional arousal in the immediate context (e.g., restriction reduces the experience of anxiety, shame, etc., through a variety of processes, including emotional numbing). However, over time, the pervasive pattern of eating disordered behaviors increases the likelihood of invalidation, in terms of invalidating responses (e.g., "Why can't you just eat"), invalidation of valid emotions (e.g., criticizing the person's primary emotional experience, such as anxiety over eating), and validation of invalid behaviors and experiences (e.g., "I wish I could be as skinny as you"). As the individual becomes more involved in his or her eating disorder (e.g., selectively attending to food and body stimuli while avoiding emotional stimuli), he or she also becomes more emotionally sensitive across *all* emotionally relevant situations.

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1.1. Empirical support for emotional sensitivity in individuals with EDs

Research on the presence of emotional sensitivity in individuals with EDs is in its infancy. However, Oldershaw et al. (2011) recently developed a model of ED risk that places specific emotion processing skills in the context of social functioning. This model outlines five constructs of core socio-emotional abilities. The first construct, labeled "Acquisition of Social–Affective Values and Responses," involves learning and responding to conditioned social stimuli, and distinguishing those stimuli that will lead to aversive versus appetitive outcomes. In particular, biased processing of social stimuli is a key component of socio-emotional processing that may be central to ED risk. As defined by Posner and Petersen (1990), attention bias refers to an individual's propensity to look for, and be attentive to, certain information in the environment.

Maladaptive attention biases towards emotional stimuli have been implicated in the onset and maintenance of a variety of disorders, including clinical and sub-clinical depression (Gotlib et al., 2004; Leyman, De Raedt, Schacht, & Koster, 2007), and a wide range of anxious populations, including individuals with PTSD, social phobia, and generalized anxiety disorder; high-anxious non-clinical individuals; and anxious children and adolescents (Bar-Haim, Lamy, Pergamin, Bakermans-Kranenburg, & van Ijzendoorn, 2007). Similarly, recent research has begun to elucidate the possible role of attentional biases in the context of EDs.

For instance, Harrison, Sullivan, Tchanturia, and Treasure (2010) investigated attentional bias towards emotional stimuli across three different groups: women with AN (50), women with BN (50), and healthy control subjects (90). This study used a pictorial Stroop task that included both social stimuli (human faces) and nonsocial stimuli (chairs), and found that those with EDs showed increased attentional bias towards faces in general, but specifically to angry faces over neutral faces compared to healthy controls. Another investigation of attentional bias towards emotions in monozygotic and dizygotic twins found that twins with EDs showed greater attentional bias towards social threat stimuli compared to non-ED twins, and that this attentional bias was positively associated with the duration of bingeing, vomiting, and laxative use (Kanakam, Krug, Raoult, Collier, & Treasure, 2013). These studies support assertions that anger is a highly salient and threatening emotion for individuals with EDs, and that anger may be experienced as 'dissociated' from the sense of self in ED populations (Ioannou & Fox, 2009).

1.2. Empirical support for the presence of invalidating environments for individuals with EDs

Multiple levels of environmental invalidation may be related to ED risk, including cultural and peer contexts. However, invalidating family environments are of particular importance for youth with EDs because the family is often the most salient interpersonal context for adolescents, and removal of oneself from one's family is often not feasible during this stage of the lifespan (Eshbaugh, 2008). Further, familial factors have been shown to influence treatment response in adolescents with EDs. For example, high parental criticism was a robust predictor of poor treatment outcome for teens with anorexia nervosa who received Family Based Treatment, both at the end of treatment (Eisler et al., 2000) and five years later (Eisler, Simic, Russell, & Dare, 2007). In addition, family characteristics of criticism, irritability, over-involvement, and lack of emotional support have been found to predict longer duration and slower gains in inpatient ED treatment, increased dropout from outpatient ED treatment, and less reduction of interpersonal distrust and perfectionism following intensive outpatient ED treatment (van Furth et al., 1996; Moulds et al., 2000; Szmukler, Eisler, Russell, & Dare, 1985).

Although familial invalidation has only recently received attention in empirical literature regarding EDs, a substantial body of research shows significant differences in emotional functioning in families of individuals with EDs compared to healthy control families. In particular, families of individuals with EDs are more likely to be over-involved, intrusive, hostile, coercive, and critical (Kyriacou, Treasure, & Schmidt, 2008; Polivy & Herman, 2002).

Only a handful of studies have specifically investigated parental reaction to emotion or parental invalidation of emotion in individuals with EDs, and all studies have used adult samples and retrospective self-report to examine perceptions of childhood experiences (Buckholdt, Parra, & Jobe-Shields, 2010; Haslam, Mountford, Meyer, & Waller, 2008; Mountford, Corstophine, Tomlinson, & Waller, 2007). Two studies that used the Invalidating Childhood Environment Scale (Mountford et al., 2007) to investigate parental invalidation found that individuals with EDs reported more invalidation from their parents during childhood compared to healthy controls (Mountford et al., 2007) and that vomiting and excessive exercise were associated with recollections of an invalidating parental environment (Haslam et al., 2008). However, difficulties in tolerating distress partially mediated the relationship between perceived invalidation and eating pathology (Haslam, Arcelus, Farrow, & Meyer, 2012). Similarly, Buckholdt et al. (2010) used the Emotion Socialization scale of the Emotions as a Child Scale (ECS; Magai, 1996; Klimes-Dougan et al., 2007) and found that parent sadness magnification was associated with higher levels of binge eating and lower perceived control of eating behaviors in a sample of female college students. However, difficulties regulating emotion partially mediated this relationship: parental sadness magnification was found to have both a direct and indirect effect (through participant emotion dysregulation) on disordered eating behaviors. Together, these partial mediation findings suggest it is the interaction between parental invalidating environment and individual emotion processing difficulties that results in ED pathology.

Overall, findings regarding emotional sensitivity and invalidating responses in the family environment provide preliminary support for biopsychosocial conceptualizations of EDs. However, these initial studies have a number of limitations that restrict their generalizability to adolescent ED populations. Most importantly, past studies have exclusively used adult samples and retrospective report, so research with younger samples is needed. Further, no studies to date have investigated parental reaction to emotion from the perspective of parents themselves. Finally, past studies examining the role of emotions in EDs have often compared ED populations with control samples that are free of any psychiatric disturbance (e.g., Harrison et al., 2010), which makes it difficult to determine whether emotional deficits detected in EDs can be attributed to the ED itself, or other comorbid psychological issues (e.g., depression).

1.3. The current study

The current study focused on the use of emotion regulation models in conceptualizing adolescents with EDs by examining the interaction between an adolescent's emotional vulnerability, indexed by attentional biases for emotions (as this construct is the most robustly supported socio-emotional processing deficit in adult ED literature; Oldershaw et al., 2011), and an invalidating family environment. Specifically, we examined the ability of this interaction to discriminate youth with EDs from a comparison group of youth with chronic pain diagnoses.

Using a comparison sample of adolescents with chronic pain allowed us to address several limitations in the current literature. It was important to examine whether significant findings in the current study were specific to EDs or related to more general illness-related processes. As such, it was necessary to have a comparison group in which ED pathology was absent, but significant impairment and familial distress were present, as it has been well documented that parent–youth relationships and parent functioning are qualitatively different when the youth has a significant illness