Appetite 107 (2016) 38–46

Contents lists available at ScienceDirect

Appetite

journal homepage: www.elsevier.com/locate/appet

Clarifying the prospective relationships between social anxiety and eating disorder symptoms and underlying vulnerabilities

Cheri A. Levinson [a, b, *], Thomas L. Rodebaugh [b]

[a] University of Louisville, Department of Psychological and Brain Sciences, USA
[b] Washington University in St. Louis, USA

ARTICLE INFO

Article history:
Received 11 March 2016
Received in revised form
7 July 2016
Accepted 18 July 2016
Available online 19 July 2016

Keywords:
Eating disorders
Social anxiety
Longitudinal data
Social appearance anxiety
Fear of negative evaluation
Perfectionism
Comorbidity

ABSTRACT

Social anxiety and eating disorders are highly comorbid. Several explanations for these high levels of comorbidity have been theorized. First, social anxiety might be a vulnerability factor for eating disorders. Second, eating disorders might be a vulnerability factor for social anxiety. Third, the two kinds of disorders may have common, shared psychological vulnerabilities. The current study (N = 300 undergraduate women) investigates a model of social anxiety and eating disorder symptoms that examines each of these possibilities across two time points (Time 1 and six months later). We do not find support for either social anxiety or eating disorder symptoms per se predicting each other across time. Instead, we find that some underlying vulnerabilities prospectively predict symptoms of both disorders, whereas other vulnerabilities are specific to symptoms of one disorder. Specifically we find that maladaptive perfectionism is a shared prospective vulnerability for social anxiety and eating disorder symptoms. Alternatively, we find that social appearance anxiety is specific for eating disorder symptoms, whereas high standards is specific for social anxiety symptoms. These data help clarify our understanding of how and why social anxiety and eating disorder symptoms frequently co-occur.

Eating and anxiety disorders are highly comorbid, with some studies reporting that up to 83 percent of individuals with an eating disorder also meet criteria for an anxiety disorder (e.g., Godart, Flament, Lecrubier, & Jeammet, 2000; Pallister & Waller, 2008). Social anxiety disorder (SAD) has the highest occurrence of all anxiety disorders in individuals with eating disorders and is significantly more common among individuals with eating disorders than in control groups (Godart et al., 2000, 2003). Further, individuals with SAD are more likely to report disordered eating than controls, and, in individuals with SAD, it has been reported that 20% meet criteria for an eating disorder (Becker, Deviva, & Zayfert, 2004; Godart et al., 2003). We clearly need more research identifying how and why these disorders so frequently co-occur.

Some researchers propose that SAD itself (i.e., a categorical diagnosis of SAD) may create risk for eating disorders, based primarily on retrospective reports showing that SAD may develop earlier than eating disorders (Godart et al., 2003; Kaye et al., 2004; Swinbourne & Touyz, 2007). However, we are aware of only one study that has tested the prospective relationships between SAD and eating disorders. These researchers found the opposite of what has typically been hypothesized to occur. Instead of finding that SAD increased risk for eating disorders, these researchers found that a diagnosis of bulimia nervosa increased risk to receive a later diagnosis of SAD (Buckner, Silgado, & Lewinsohn, 2010).

Alternatively, it may be that neither set of symptoms (eating disorder or social anxiety) create vulnerability for each other. Instead, it has been suggested that shared underlying psychological factors create vulnerability for both disorders (Godart et al., 2003; Pallister & Waller, 2008). This idea has been proposed and supported in other models of comorbidity, such as models explaining why internalizing disorders (depression and anxiety) may co-occur frequently (e.g., Mineka, Watson, & Clark, 1998). These three potential explanations of why SAD and ED co-occur (SAD leading to eating disorders, eating disorders leading to SAD, or shared vulnerabilities leading to both disorders) bring up several important research questions. Namely, (a) do eating disorder symptoms create vulnerability for social anxiety symptoms? (b) do social anxiety symptoms create vulnerability for eating disorder symptoms, or (c) are there shared underlying psychological vulnerabilities that

* Corresponding author. Department of Psychological and Brain Sciences, University of Louisville, Louisville, KY 40292, USA. Tel.: +1 502 852 7710.
E-mail address: cheri.levinson@louisville.edu (C.A. Levinson).

http://dx.doi.org/10.1016/j.appet.2016.07.024
0195-6663/

contribute to symptoms of both disorders? Indeed, researchers are beginning to test both (a) if social anxiety and disordered eating symptoms confer vulnerability for each other and (b) if shared vulnerability factors contribute to both disorders (Buckner et al., 2010; Levinson & Rodebaugh, 2012; Levinson et al., 2013).

Several underlying vulnerabilities have been proposed to contribute to both social anxiety and eating disorders, and those that have received the most attention to date are perfectionism (e.g., Shafran, Cooper, & Fairburn, 2002), fear of negative evaluation (e.g., DeBoer et al., 2013), and social appearance anxiety (e.g., Levinson et al., 2013). We will briefly outline each of the proposed vulnerability factors below and the existing research that has tested these factors in a combined model of shared vulnerability (Levinson & Rodebaugh, 2012, 2015; Levinson et al., 2013).

1. Perfectionism

Perfectionism is elevated in both socially anxious individuals and those with eating disorders as compared to controls (Antony, Purdon, Huta, & Swinson, 1998; Bardone-Cone et al. 2007; Bastiani, Rao, Weltzin, & Kaye, 1995) and has been posited to be a risk factor for the development of these disorders (e.g., Bardone-Cone et al., 2007; Heimberg, Juster, Hope, & Mattia, 1995; Hope, Heimberg, & Klein, 1990; Jacobi, Hayward, De Zwaan, Kraemer, & Agras, 2004; Stice, 2002). Research suggests that there are two dimensional aspects of perfectionism (Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991): An adaptive type (e.g., *high standards*), related to healthy functioning (Dibartolo, Frost, Chang, Lasota, & Grills, 2004) and a maladaptive type (e.g., evaluative perfectionism in which the individual is highly concerned with making mistakes), related to negative outcomes such as anxiety and depression (Dibartolo, Li, & Frost, 2008). Research has found that maladaptive perfectionism has a strong positive relationship with social anxiety, whereas high standards have a weaker, inverse relationship with social anxiety (Shumaker & Rodebaugh, 2009). In contrast, elevated levels of high standards are often seen within individuals with eating disorders (Bardone-Cone et al., 2007; Bastiani et al., 1995; Boone, Soenens, Braet, & Goossens, 2010).

2. Fear of negative evaluation

Fear of negative evaluation is the fear that one's self will be judged negatively. Clinical samples of women with eating disorders report higher levels of fear of negative evaluation than controls (Hinrichsen, Wright, Waller, & Meyer, 2003). Additionally, in a non-clinical sample, Gilbert and Meyer (2003) found that, in a cross-sectional dataset, fear of negative evaluation was associated with drive for thinness over and above depression. Further, it was found that inclusion of fear of negative evaluation (or fear of social rejection) improves the predictive validity of the dual pathway model (e.g., Duemm, Adams, & Keating, 2003; Utschig, Presnell, Madeley, & Smits, 2010). In the SAD literature, fear of negative evaluation is considered a cognitive risk factor for SAD (Haikal & Hong, 2010) and is included, in some fashion, in each of the cognitive models of SAD (Clark & Wells, 1995, pp. 69–93; Heimberg, Brozovich, & Rapee, 2010; Hofmann, 2007).

3. Social appearance anxiety

Social appearance anxiety is the fear that one will be negatively evaluated because of one's *appearance* (Hart et al., 2008). Social appearance anxiety is positively correlated with measures of social anxiety and negative body image (Claes et al., 2012), but does not represent mere overlap among these other constructs. Instead, social appearance anxiety taps into a unique proportion of variability in social anxiety beyond negative body image, depression, personality, and affect (Hart et al., 2008; Levinson & Rodebaugh, 2011). In a clinical sample, Koskina, Van Den Eynde, Meisel, Campbell, and Schmidt (2011) found that individuals with a diagnosis of bulimia nervosa had significantly higher levels of social appearance anxiety than healthy controls, and Claes and colleagues (2012) found that social appearance anxiety was positively related to body mass index (BMI), drive for thinness, and body dissatisfaction in women diagnosed with an eating disorder.

4. Combined vulnerability model

Researchers have sought to delineate if each of these vulnerability factors are shared between SAD and eating disorders. Given strong but incomplete comorbidity between these disorders (i.e., not every individual with an eating disorder has SAD), it seems plausible that there are both specific vulnerability factors (i.e., factors that contribute to only one disorder) and shared vulnerability factors between the disorders. Each of these factors (perfectionism, fear of negative evaluation, and social appearance anxiety) had previously been tested independently as risk factors for social anxiety and eating disorders, but not in one combined model. To this end, perfectionism, fear of negative evaluation, and social appearance anxiety were tested in a cross-sectional shared vulnerability model in three independent samples to test the unique relationships between these constructs and eating disorder and social anxiety symptoms (Levinson & Rodebaugh, 2012; Levinson et al., 2013). In these models, fear of negative evaluation and high standards (inversely) were associated with social anxiety, whereas maladaptive perfectionism was associated with eating disorder symptoms. Social appearance anxiety was associated with symptoms of both disorders. These relationships held over and above BMI, negative affect, and depression. These relationships were tested further in an experimental paradigm and it was found that social appearance anxiety created risk for body dissatisfaction and social anxiety, whereas fear of negative evaluation increased food intake (Levinson & Rodebaugh, 2015). From this research, it is unclear if these factors are merely correlates of social anxiety and eating disorder symptoms, or if these vulnerability factors are predictive across time. Prospective research is needed to clarify this question and is a specific aim of this study. We expect that these factors may serve as either shared or specific prospective vulnerability factors for eating disorder and social anxiety symptoms. In other words, it seems likely that social appearance anxiety and perfectionism may be shared vulnerability factors, whereas fear of negative evaluation may be a specific vulnerability factor for social anxiety only, based on prior cross-sectional work testing this model (Levinson et al., 2013).

5. Prospective findings

One major limitation of the existing literature on vulnerability for social anxiety and eating disorders, including work on a shared vulnerability model, is that most research has been cross-sectional. Cole and Maxwell (2003) discuss the many benefits of using longitudinal analyses. Further, to appropriately test causal models in observational data it is necessary to include previous iterations of the construct under study combined with the passage of time (Cole & Maxwell, 2003; Maxwell & Cole, 2007; Selig & Preacher, 2009). Failing to do so raises the possibility that the apparent prospective relationship only establishes that the predicted variable correlates with itself across time. Clearly, data from true experiments would be preferable, but when only observational data are feasible (e.g., it would be unethical to attempt to manipulate sustained social anxiety), repeated measurement is crucial to forming reasonable