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It depends: Perfectionism as a moderator of experimentally induced stress

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ABSTRACT

Specific diathesis stress models assume that perfectionistic strivings (PS) and perfectionistic concerns (PC) are differentially associated with stress responses. The present study expanded existing research by investigating the incremental validity of interactive effects of PS and PC beyond their main effects on affective and endocrine (cortisol) stress responses. We also applied an experimental between-subjects design to standardize and systematically vary situational demand. We divided 84 participants between two experimental conditions (high vs. low situational demand). Moderated regression analyses on the affective stress response revealed a significant three-way interaction of PS, PC, and situational demand. This result affirms that the effects of PS, PC, and situational demand must not be interpreted independently of each other. For the endocrine stress response, the analyses revealed only a main effect of situational demand but no main or interactive effects of PS and PC.

1. Introduction

According to the latest representative population surveys, more than 80% of the German population suffer from stress (Techniker Krankenkasse, 2009), and approximately 22% of Americans report experiencing extreme stress (APA, 2011). As a consequence, increases in a wide range of physical (e.g., cardiovascular and respiratory diseases) and mental health problems (e.g., affective and anxiety disorders) have been observed (see Everly & Lating, 2013, for an overview).

1.1. Diathesis stress models

To deal with the problems that are associated with the experience of stress, it is essential to understand the processes that mediate or moderate the effects of potential stressors on psychological and physiological outcome variables. Diathesis stress models are primarily concerned with this issue. These models assume that potential stressors result in affective and physiological stress responses only if an individual is vulnerable to a stressor in a given situation (Lazarus, 2006). Broader dimensions of personality such as extraversion and neuroticism (Bolger & Zuckerman, 1995; Hemenover & Dienstbier, 1996) and lower order personality traits such as dependency and self-criticism (Zuroff, Mongrain, & Santor, 2004) have been identified as vulnerability factors.

1.2. Perfectionism

One important vulnerability factor in socio-evaluative achievement situations is perfectionism (Dunkley, Zuroff, & Blankstein, 2003; Flett, Hewitt, & Dyck, 1989). Perfectionism is defined as setting and striving for exceedingly high standards combined with a critical evaluation of one's own behavior and concerns about the consequences of not living up to those standards (see Stoeber & Otto, 2006, for an overview). The different facets that comprise the construct of perfectionism can be represented by two broader dimensions. The first dimension—perfectionistic concerns (PC)—has consistently been found to be associated with negative psychosocial adjustment (e.g., DiBartolo, Li, & Frost, 2008; Flett & Hewitt, 2002). By contrast, the second dimension—perfectionistic strivings (PS)—is associated with some positive psychological and performance outcomes (e.g., Frost, Marten, Lahart, & Rosenblate, 1990; Gilman & Ashby, 2003).

Perfectionism-specific diathesis stress models view PC as a core vulnerability factor. Empirical evidence has confirmed this assumption (e.g., Blankstein, Lumley, & Crawford, 2007; Chang & Rand, 2000) although studies on perfectionism-specific diathesis stress models have applied different measures of PS and PC and

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thus somewhat different conceptualizations of the two dimensions. By contrast, empirical findings for PS as a vulnerability factor have not been as consistent. Whereas some studies have confirmed PS as a vulnerability factor (Hewitt, Flett, & Ediger, 1996), others have found no effects (Chang, Watkins, & Banks, 2004; Dunkley et al., 2003), whilst others found that PS acts as a resiliency factor (Enns, Cox, & Clara, 2005).

The present study investigated two possible explanations for these inconsistent results: First, inconsistencies concerning PS as a diathesis factor might be—at least partially—explained by the correlation and interaction of PS and PC. Stoeber and Otto (2006) addressed effects of an often-found substantial correlation between PS and PC; thus, this overlap has resulted in inflated correlations between PS and negative outcome variables. Depending on whether or not this overlap is statistically controlled for, the direction and significance of the effects of PS might differ markedly. Furthermore, Gaudreau and Thompson (2010) postulate that beyond statistically controlled main effects, potential interactive effects should be analyzed. Based on the combination of high/low scores on PS with high/low scores on PC, Gaudreau and Thompson extracted four types of perfectionism and found evidence for different levels of psychological adjustment for the different combinations (e.g., Douilliez & Lefèvre, 2011; Gaudreau & Verner-Filion, 2012). Taken together, inconsistent results concerning perfectionism-specific diathesis stress models might be attributable to differences in statistical approaches implied by different assumptions about the interplay of PS and PC. Hierarchical moderated regression analyses allow to control shared variance and test for main effects and interaction effects. Therefore, we applied this approach to test and compare different models of the interaction between PC and PS.

Second, with only a few exceptions (Altstötter-Gleich, Gerstenberg, & Brand, 2012; Wirtz et al., 2007), stress has mostly been assessed with self-report measures of daily hassles, stressful life events, or stress questionnaires, resulting in shared method variance and response biases. Additionally, this approach does not permit situation-specific aspects to be separated from personality-specific aspects of the individual stress response. To investigate the moderating effects of personality on stress responses postulated by diathesis stress models, it is important that each participant objectively experiences the same situation. Therefore, we choose a well-established paradigm to induce achievement-related stress: the Trier Social Stress Test (TSST; Kirschbaum, Pirke, & Hellhammer, 1993). Wirtz et al. (2007) implemented the TSST to examine the relations between PC and stress responses. We extended her research by including PS and examining perfectionism-specific effects not only in the highly demanding TSST but also in a less demanding placebo condition (see description below).

Our third aim was to examine the incremental validity of perfectionism beyond the variance explained by the higher order trait neuroticism, which has been found to be strongly associated with PC (e.g., Stumpf & Parker, 2000). Also, empirical evidence has questioned the incremental validity of PC beyond neuroticism as a vulnerability factor (see Enns et al., 2005).

Based on these restrictions of previous research on perfectionism-specific diathesis stress models, we aimed to:

1) Test perfectionism as a vulnerability factor under two experimentally controlled conditions, characterized by high vs. low situational demand.
2) Evaluate the incremental validity of interaction effects beyond the main effects of PS and PC.
3) Evaluate the incremental validity of perfectionism as a vulnerability factor beyond neuroticism.

2. Method

2.1. Participants

Participants were 84 students (21 men; 63 women; M_{age} = 23.94, SD_{age} = 4.81) with a variety of majors at the University of Koblenz-Landau (Germany). They were offered the opportunity to participate in a lottery to win cinema and book vouchers.

2.2. Design and procedure

In order to control for baseline group differences, participants completed a perfectionism questionnaire before the actual testing session. Using a between-subjects design, participants were matched according to their PS and PC scores between highly demanding (TSST, n = 42) and less demanding (placebo TSST, n = 41) experimental conditions. The two groups were comparable in age, gender, and their field of study. Individual experimental sessions took about 90 min. The experimental manipulation of situational demand followed the standard protocol of the TSST (Kirschbaum et al., 1993) and its placebo version (Het, Rohleder, Schoofs, Kirschbaum, & Wolf, 2009).

The TSST consists of a period of preparation time (5 min), a simulated job interview (5 min), and a highly demanding arithmetic task (5 min) in front of a two-person committee, a video-camera, and a microphone. This procedure is quite effective at activating the Hypothalamus Pituitary Adrenal (HPA) axis and the sympathetic nervous system (Kirschbaum et al., 1993) and was thus implemented as the highly demanding condition. The Placebo TSST consists of a period of preparation time (5 min), a talk about a recent leisure experience (5 min), and a less demanding arithmetic task (5 min) while alone in the experimental room. This procedure does not activate the HPA axis and has been shown to successfully provide a less demanding control condition (Het et al., 2009).

Immediately before the experimental manipulation, baseline values for HPA and affective stress responses were assessed (t_1). The post (stressor) measures of HPA and affective stress response were assessed directly after the manipulation (t_2). The HPA response was additionally assessed 15 and 30 min after the experimental manipulation. These additional measurements served to control for the slow activation of our specific indicator of HPA response and its convalescence (e.g., Schoofs, Preuss, & Wolf, 2008). At the end of each testing session, participants were fully debriefed.

2.3. Measures

2.3.1. Perfectionism

PS and PC were measured by the Personal Standards and Concern over Mistakes subscales of the Frost Multidimensional Perfectionism Scale (MPS-F; Frost et al., 1990; German version: Altstötter-Gleich & Bergemann, 2006). Items are scored on a 6-point scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). The seven Personal Standards items capture the tendency to set very high standards for performance. By contrast, the nine Concern over Mistakes items cover a tendency to react negatively to mistakes, to interpret mistakes as equivalent to failure, and to believe that one will lose the respect of others following failure. These two subscales are considered to be reliable and valid indicators of PS and PC (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993). Internal consistencies from our study are presented in Table 1.

2.3.2. Neuroticism

Neuroticism was assessed via the corresponding subscale of the short version of the Big Five Inventory (BFI-K; Rammstedt & John,