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Short Communication

Perfectionism, rumination, and gender are related to symptoms of eating disorders: A moderated mediation model

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ABSTRACT

Introduction: Perfectionism and rumination both seem to be involved in the development and maintenance of eating disorders (ED), but the underlying studies have been performed almost exclusively in females. The aims of this study were to examine whether rumination is a potential mediator of the link between perfectionism and ED symptoms, and whether gender is a moderator of the link between perfectionism and ED symptoms and/or between perfectionism and brooding rumination.
Method: 390 participants (269 women, 121 men), aged between 18 and 25, completed three questionnaires: the Ruminative Response Scale for Eating Disorders, the Eating Attitudes Test, and the Frost Multidimensional Perfectionism Scale.
Results: Results showed that maladaptive evaluative-concerns perfectionism and positive strivings perfectionism both had indirect effects on ED symptoms via brooding rumination. Gender moderated only the direct effect between maladaptive evaluative-concerns perfectionism and ED symptoms.
Conclusions: These results highlighted gender differences, and support the literature on the importance of including rumination and perfectionism in the treatment and the prevention of eating disorders.

1. Introduction

Recently, the prevalence of anorexia nervosa has been estimated to range from 0.3 to 0.9%; for bulimia nervosa, 0.9 to 1.5%; for binge eating disorder, 1.9 to 3.5%; and for eating disorders not otherwise specified, 2.0 to 5% (Smink, Van Hoeken, & Hoek, 2012). An increasing number of studies have focused on psychological factors involved in the development and maintenance of eating disorders (ED) symptoms in order to better prevent and treat them. Several studies suggest that perfectionism and rumination are two major processes involved in ED symptoms.

1.1. The role of perfectionism in eating disorders

Fairburn, Cooper, and Shafran's (2003) model postulated that perfectionism is a maintaining mechanism for eating disorders, with perfectionism predicting an over-evaluation of eating, shape and weight and their control in the evaluation of the self, which in turn leads to strict dieting and other weight-control behaviors. Perfectionism can be defined as the tendency to establish and pursue very high personal goals, along with other features such a strong tendency to self-criticism (Burns, 1980). A large body of literature portrays perfectionism as a multidimensional construct with two higher-order dimensions (Cox, Enns, & Clara, 2002; Frost, Heimberg, Holt, Mattia, & Neubauer, 1993). These two dimensions, Maladaptive Evaluation Concerns (MEC) and positive strivings (PS), have been highlighted as predictors of eating disorder symptoms in several studies (e.g., Bardone-Cone et al., 2007; Boone, Claes, & Luyten, 2014; Boone, Soenens, & Braet, 2011). Two lower-order dimensions contributing to MEC (doubt about actions, and concerns over mistakes) come from the Frost Multidimensional Perfectionism Scale (FMPS; Frost, Marten, Lahart, & Rosenblate, 1990) and have been highlighted as the strongest predictors of ED symptoms (Bardone-Cone et al., 2007; Bulik et al., 2003).

Relationships between perfectionism and eating disorders have customarily be studied exclusively with females; however, some few studies have shown a gender difference in the relationship between perfectionism and eating disorders: This relationship was stronger for women than for men (Forbush, Heatherton, & Keel, 2007; Haase, Prapavessis, & Owens, 1999), or even non-existent for men (Downey, Reinking, Gibson, Cloud, & Chang, 2014; Shanmugam & Davies, 2015). However, given the paucity of research that includes both genders, it seems crucial to pursue the moderating role of gender on relationships between aspects of perfectionism and ED symptoms.

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1.2. The role of rumination in eating disorders

Rumination can be defined as an inadequate style of coping, corresponding to an involuntary process of repetitive and passive thoughts about negative emotions, as well as focusing on depressive symptoms and their implications (Lyubomirsky & Nolen-Hoeksema, 1995). While rumination was originally studied for its role in depression, recent research suggests that rumination can also be involved in disorders such as addictions, anxiety disorders, post-traumatic stress disorder, obsessive-compulsive disorder, and eating disorders (Watkins, 2008). Although rumination has been highlighted as a predictor of ED symptoms in many studies (Etu & Gray, 2010; Holm-Denoma & Hankin, 2010; Gordon, Holm-Denoma, Troop-Gordon, & Sand, 2012; Keel, Mitchell, Davis, & Crow, 2001; Naumann, Tuschen-Caffier, Voderholzer, Caffier, & Svaldi, 2015; Nolen-Hoeksema, Stice, Wade, & Bohon, 2007; Rawal, Park, & Williams, 2010), a general limitation of these works is that only depressive rumination was measured, even though it has been suggested that people with eating disorders are concerned about their eating, weight and shape and could ruminate on these topics (Fairburn & Harrison, 2003). Cowdrey and Park (2011) showed that rumination that is focused on concerns related to the body— measured by the Ruminative Response Scale for Eating-Disorders (RRS-ED)—is a better predictor of ED symptoms than depressive rumination. In addition, although small gender differences had been evidenced in depressive rumination (Johnson & Whisman, 2013), only one recent study examined gender differences in rumination related to ED symptoms (Opwis, Schmidt, Martin, & Salewski, 2017).

1.3. The link between rumination and perfectionism

Previous research has suggested that people with high concerns over mistakes are prone to ruminate following perceived failures (Harris, Pepper, & Maack, 2008). In addition, it is clear that depressive rumination is a mediator of the relationship between perfectionism and distress (Flett, Madorsky, Hewitt, & Heisel, 2002) and depressive symptoms (Harris et al., 2008). Based on those results, we anticipated that ED-related rumination could also play a hitherto untested role in the relationship between perfectionism and ED symptoms.

1.4. Objectives and hypotheses

The primary goal of this study was to examine whether ED-related rumination mediates relationships between ED symptoms and either PS or MEC perfectionism in a non-clinical sample, which has evidently never been investigated. As stated previously, there are gender differences in rumination and perfectionism processes and in ED symptoms. However, little is known about how gender moderates the relationships among those variables. Therefore, a secondary goal was to examine whether gender moderates the prediction of ED symptoms by PS or MEC perfectionism, and possible links between rumination and PS and/or MEC perfectionism. As displayed in Fig. 1, we hypothesized a moderated mediation model (by ED-related rumination) of the relation between perfectionism and ED symptoms, with gender moderating both direct and indirect effects. More specifically, we hypothesized that both direct and indirect effects would be stronger for women than for men.

2. Method

2.1. Participants

The sample consisted of 390 participants (269 women, 121 men) between 18 and 25 years of age ($M = 22.00$, $SD = 3.16$), mostly students. Based on self-reported height and weight, the mean Body Mass Index (BMI) was 22.08 ($SD = 4.27$). Table 1 shows the gender breakdown for all variables.

2.2. Measures and procedure

Participants were recruited by e-mail or via a message posted on social websites, and received no compensation for their participation. Instructions lead them to the Survey-Monkey platform to complete the study questionnaires.

2.2.1. Rumination

The Ruminative Response Scale for Eating Disorders (RRS-ED; Cowdrey & Park, 2011; French validation: Douilliez, Rivière, & Rousseau, 2016) is a 9-item questionnaire that assesses ruminative concerns related to eating, shape and weight. Participants answer on a 4 point-scale from 1 (almost never) to 4 (almost always). The brooding subscale (6 items) reflects the passive comparison between the current state and the ideal state, whereas the reflection subscale (3 items) captures an intentional introspection focused on problem-solving. In the current study, we found satisfactory internal consistency for the "brooding" subscale (Cronbach's $\alpha = 0.84$). The "reflection" subscale was not used in the present study because it had poor internal consistency (Cronbach's $\alpha = 0.58$).

2.2.2. Eating disorder symptoms

The Eating Attitudes Test (EAT; Garner & Garfinkel, 1979; French version: Leichner, Steiger, Puentes-Neuman, Perreault, & Gottheil, 1994) is a 26-item questionnaire that measures symptoms and concerns characteristic of eating disorders. Items were answered on a 6-point scale from 1 (*never*) to 6 (*always*). In the present study internal consistency was satisfactory (Cronbach's $\alpha = 0.83$).

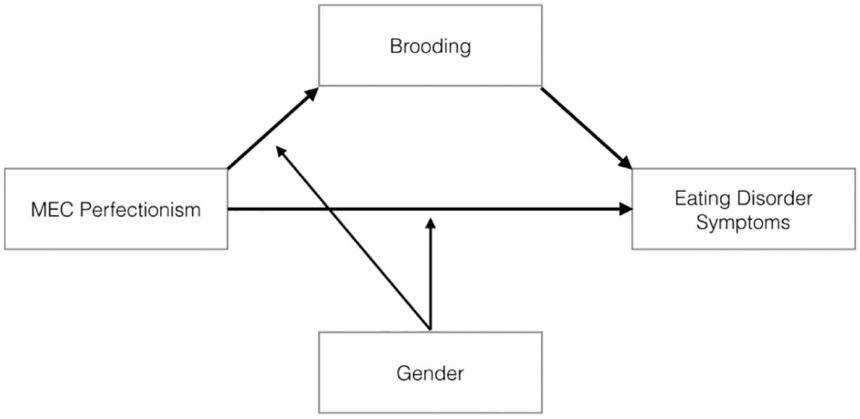

Fig. 1. Graphic representation of the moderated mediational model.