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# Examining the relationship of perfectionism, depression, and optimism: Testing for mediation and moderation

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#### ABSTRACT

The present study investigated the relationship between perfectionism and depression, and the mediation/moderation effects of optimism. Participants were 126 adults (78% women, mean age = 27 years) who completed an online survey that included the Multidimensional Perfectionism Scale (Frost, Marten, Lahart, & Rosenblate, 1990), the Revised Life Orientation Test (Scheier, Carver, & Bridges, 1994), and the Hamilton Depression Inventory (Reynolds & Kobak, 1995). Maladaptive, adaptive and total perfectionism were examined in separate analyses. In most analyses, the data fit a mediation model. Optimism limited the effect (relationship) of total and maladaptive perfectionism on depression. Adaptive perfectionism was related to depression only through optimism. There was a small gender difference, with indirect effects greater for men. These results are consistent with past research and support the notion that correlations between perfectionism, as a trait, and affective variables must be examined using multivariate models that allow for the determination of complex relationships.

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#### 1. Introduction

Perfectionism has been generally understood to be associated with negative psychological outcomes (Frost et al., 1990; Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991), although some degree of pursuit of excellence is a necessary component of achievement. Beginning with Hamachek (1978), researchers have sought to identify correlates of perfectionism (Slade & Owens, 1998). Hamachek distinguished between normal and neurotic perfectionism in terms of satisfaction and control: the normal perfectionist derives pleasure from striving for perfection yet knows when to relax standards, while the neurotic perfectionist is driven by fear of failure. Slade and Owens (1998) defined what they called a "dual-process model of positive and negative perfectionism," according to which positive perfectionism and negative perfectionism can be explained in terms of striving and trying to avoid undesirable results.

In a meta-analysis of 15 studies that had used a dualist approach, Stoeber and Otto (2006) concluded that striving was a positive form of perfectionism. They contrasted it with perfectionist concerns, such as an inability to live up to perceived expectations. Research by Stoeber, Uphill, and Hotham (2009) partially clarified the connection between striving and outcome: triathlon participants who scored high on perfectionism and reported high

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achievement goals performed better in their races than those with low achievement goals. Stoeber et al. found that differences between performance approach and avoidance mediated the perfectionism–performance relationship.

Researchers have found that correlates of perfectionism are often mediated by other variables, Harris, Pepper, and Maack (2008) used the Multidimensional Perfectionism Scale by Frost and colleagues (MPS; 1990) to examine rumination as a mediator between maladaptive perfectionism and depression. The MPS was designed with six factors; "personal standards" has been used to assess positive perfectionism, while "concern over mistakes" and "doubts about actions" together can reflect negative perfectionism (cf. Harris et al., 2008; Park, Heppner, & Lee, 2010; Sturman, Flett, Hewitt, & Rudolph, 2009). Harris et al. found that rumination mediated the relationship between maladaptive perfectionism and depression, using the MPS subscales of concern over mistakes and doubts about actions. Park et al. (2010) used the same MPS subscales as a measure of maladaptive perfectionism and found that maladaptive coping mediated the relationship between maladaptive perfectionism and distress. This was especially true for men, for whom coping increased more strongly with greater perfectionism than it did for women.

Ashby, Dickinson, Gnilka, and Noble (2011) reported that hope mediated the relationship between maladaptive perfectionism and depression in middle school students. Adaptive perfectionism was not significantly correlated to depression, and although it was not considered a mediator, it did lend itself to a statistically significant indirect effects model, as determined by bootstrapping techniques.

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Ashby et al. also tested a moderation model, but found that it did not fit their data on perfectionism, hope, and depression.

Hope is closely related to optimism, which is often predictive of positive psychological outcomes (Peterson, 2000). Optimism appears related to perfectionism in that the belief that high goals can be attained is part of seeking their attainment. Peterson proposed two dimensions of optimism, big and little. He associated big optimism with what Scheier and Carver (1992) call dispositional optimism, which their scale, the Revised Life Orientation Test (R-LOT; Scheier et al., 1994), measures. Chang, Chang, and Sanna (2009) outline the complexities of optimism, suggesting that it may have realistic (adaptive) and unrealistic (maladaptive) dimensions.

Both optimism and perfectionism have been connected with striving, hope, and depression. Fry and Debats (2009), in a study of predictors of mortality in older adults found perfectionism associated with increased risk of death and dispositional optimism with decreased mortality. Other research (e.g. Bergman, Nyland, & Burns, 2007) implies that adaptive optimism should facilitate striving, encouraging perfectionists to focus on the possibility of achieving excellence rather than on the need to avoid censure for failing to do so. Chang (2009) reported that positive performance perfectionism meant more optimism (r(244) = .22), while negative performance perfectionism meant less optimism (r(244) = -.26). We did not, however, find any mediational analysis of the relationship between perfectionism and optimism in the literature.

Baron and Kenny (1986) define moderation and mediation models used to test ways in which the relationship between two variables can be affected by third variables. Moderation would indicate an interaction between the independent variable, in this case perfectionism, and the moderator, optimism. Mediation occurs when the relationship between the independent variable and the dependent variable is different when a third variable is included in the model. According to the Baron and Kenny criteria, the direct relationship between two variables, significant when considered alone, approaches zero when measured in the presence of the mediator. An indirect effect can occur even when there is no direct effect (Preacher & Haves, 2004). In this case, the relationship between independent and dependent variables depends entirely upon the mediator. The measurement of mediation and indirect effects allows some inference of causation, as the independent variable is assumed to cause the mediator, which in turn affects the dependent variable. A moderator, on the other hand, exists independently of the focal predictor, which varies at different levels of the moderator.

The current research investigated the degree to which optimism acts as a mediator and/or moderator of the relationship between perfectionism and depressive symptomatology. Because of the possible dual nature of optimism (Chang et al., 2009), we predicted a moderation model. Flett, Blankstein, Hewitt, and Koledin (1992) found gender differences in the correlations between perfectionism and procrastination. In view of Park et al.'s (2010) similar results in a mediation model, we examined potential gender differences in our sample by testing separate models for women and men. We used maladaptive and adaptive perfectionism domains as well as overall perfectionism. Our goal was to better understand the potential role of optimism in the relationship between perfectionism and depression.

#### 2. Method

#### 2.1. Participants

Participants were 126 adults (98 women, 28 men) with a mean age of 27.7 (*SD* = 13.9). Of these participants, 57 were students who

completed an online survey through the Psychology Department Research Pool, and 69 were adults who completed the same questionnaire using Survey Monkey.

#### 2.2. Instrumentation

The Multidimensional Perfectionism Scale (Frost et al., 1990) is a 35-item questionnaire intended to reflect six aspects underlying the construct. It is considered a reliable measure of general perfectionism (Chang, 2000). In the current investigation the 6-item organization subscale was omitted, resulting in a 29-item scale with an internal consistency reliability of  $r_{\alpha}$  = .88. Consistent with previous research (Kawamura, Hunt, Frost, & DiBartolo, 2001; Sturman et al., 2009) we used the concern over mistakes and doubts about actions subscales as a measure of maladaptive perfectionism ( $r_{\alpha}$  = .84) and the Personal Standards subscale to represent adaptive perfectionism ( $r_{\alpha}$  = .76).

The Revised Life Orientation Test (Scheier et al., 1994) was used to assess optimism; its test–retest reliability has proven moderately high (.79 at 28 months), and it has shown acceptable internal consistency. Of the ten statements evaluated on a zero-to-four point scale, three are reverse-coded and four are fillers ( $r_{\alpha}$  = .77 for this study).

The Hamilton Depression Inventory (HDI; Reynolds & Kobak, 1995) was developed to provide a paper–pencil analog measure to the Hamilton Depression Rating Scale (Hamilton, 1960, 1967) clinical interview. Reynolds and Kobak provided strong evidence for the reliability and validity of three versions of the HDI based on clinical and nonclinical samples. The HDI Short Form, which consists of 15 items, was used in the current study. Reynolds and Kobak reported an internal consistency of .93 for the HDI Short Form in a mixed clinical and nonclinical sample of 357 adults. In the current study  $r_{\alpha}$  = .91.

#### 2.3. Procedure

An anonymous survey was conducted online through the HSU Psychology Department Research Pool and through Survey Monkey for a total of 2 months. Links to the survey were sent in emails and posted on social networking sites. Participants' identities were protected by disabling IP address and email tracking features on Survey Monkey. No reward was offered other than class credit available to students responding through the psychology department participation pool; participants were allowed to withdraw at any time without losing credit.

#### 2.4. Data analysis

The criteria outlined by Baron and Kenny (1986) provide a conceptual framework to facilitate examination of mediation, but does not include a test of statistical significance for the indirect effect of the mediator (a\*b; see Fig. 1). Baron and Kenny suggested the Sobel (1982) test as appropriate: it tests the null hypothesis that the indirect effect is zero. However, the Sobel test assumes the distribution of ab is normal, which is seldom the case (Hayes, 2009). Bootstrapping, or the nonparametric resampling of the data set in order to make repeated estimates, makes no such assumptions (Preacher & Hayes, 2008). We present regression statistics as well as results of the Sobel test. We also used bootstrapping (10,000 resamples) to provide bias corrected and accelerated confidence intervals as a test of statistical significance.

Following the recommendations of Preacher and Kelley (2011), we present kappa squared,  $\kappa^2$ , as an effect size that is both standardized and insensitive to sample size.  $\kappa^2$  is the ratio of the indirect effect to the maximum indirect possible given the constraints of the design and data. The problem of determining when an effect

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