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The Existential Model of Perfectionism and Depressive Symptoms:

Tests of Unique Contributions and Mediating Mechanisms in a Sample of Depressed Individuals

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Abstract

The Existential Model of Perfectionism and Depressive Symptoms (EMPDS) is a promising integrative model. According to the EMPDS, self-oriented perfectionism and socially prescribed perfectionism indirectly influence depressive symptoms through rumination and difficulty accepting the past. Yet, the extent to which self-oriented perfectionism, socially prescribed perfectionism, rumination, and difficulty accepting the past uniquely and collectively influence depressive symptoms is unestablished. Likewise, supporting evidence derives from relatively healthy university students, rendering the generalizability of the EMPDS to more distressed individuals unclear. Our study addressed these important limitations. Data were obtained from 393 depressed individuals. Congruent with the EMPDS, bias-corrected bootstrapped tests of mediation indicated that socially prescribed perfectionism indirectly predicted depressive symptoms through rumination and difficulty accepting the past. In contrast, self-oriented perfectionism indirectly predicted depressive symptoms through rumination, but not difficulty accepting the past. Overall, our findings underscore the different ways in which people with high self-oriented perfectionism and people with high socially prescribed perfectionism experience depression.

Keywords: perfectionism, rumination, acceptance, depression, mediation, existential

1. Introduction

Depression is a widespread, costly, and significant public health problem manifesting in a range of symptoms, including sadness, anhedonia, guilt, irritability, and sleep disturbance (American Psychiatric Association, 2013). Worldwide, the depression rate increased by 18.4% from 2005 to 2015 (Vos et al., 2016). By 2030, depression will rank first in disease burden in high-income countries (Mathers & Loncar, 2006). Depression also costs the global economy \$1.15 (US) trillion annually (Chisholm et al., 2016), is associated with a substantial loss of quality of life (Saarni et al., 2007), higher service use (Smit et al., 2006), and increased risk of all-cause mortality (Lépine & Briley, 2011). As such, research evaluating explanatory models of depression to identify contributing factors to support prevention and intervention efforts is urgently needed. Though depression is seldom attributable to any single factor, personality traits play an important role (Kotov, Gamez, Schmidt, & Watson, 2010). Our study tested and supported one such trait—perfectionism—through the lens of the Existential Model of Perfectionism and Depressive Symptoms (EMPDS; Graham et al., 2010; Sherry, Sherry, Hewitt, Mushquash, & Flett, 2015) in a large sample of depressed individuals.

1.1. Perfectionism and depressive symptoms

Perfectionism, according to Hewitt and Flett (1991), is a personality trait with three dimensions: self-oriented perfectionism, other-oriented perfectionism, and socially prescribed perfectionism. Self-oriented perfectionism characterizes a tendency to require perfection of the self. Other-oriented perfectionism characterizes a tendency to require perfection from other people. Socially prescribed perfectionism characterizes a tendency to believe other people require perfection. And a wealth of evidence has established that self-oriented and socially prescribed perfectionism contribute to the onset, maintenance, and severity of depressive

symptoms across clinical (Limburg, Watson, Hagger, & Eggan, 2017) and non-clinical samples (Smith et al., 2016).

Indeed, congruent with the stress-diathesis model (Hewitt, Flett, & Ediger, 1996), self-oriented perfectionism confers risk for depressive symptoms in the presence of achievement-related stressors; socially prescribed perfectionism confers risk for depressive symptoms in the presence of achievement-related and interpersonally-related stressors (e.g., Békés et al., 2015). Likewise, self-oriented perfectionism and socially prescribed perfectionism predict increased depressive symptoms—even after taking into account covariates such as neuroticism (Smith et al., 2016). Accordingly, it is clear that self-oriented and socially prescribed perfectionism are related to depressive symptoms. However, the reasons *why* self-oriented and socially prescribed perfectionism are related to depressive symptoms are less clear.

1.2. The mediating role of rumination

For people with high self-oriented perfectionism, their self-worth is contingent on attaining perfection (Struman, Flett, Hewitt, & Rudolph, 2009). Yet, perfection is the exception in life—not the rule. Thus, people with high self-oriented perfectionism frequently encounter and subsequently ruminate about circumstances in which they have failed to live up to their self-imposed perfectionistic goals (Flett, Nepon, & Hewitt, 2016). Likewise, people with high self-oriented perfectionism often have an excessive preoccupation with productivity, leaving them prone to ruminations about events inhibiting their ability to attain perfect outcomes efficiently (Young, Klosko, & Weishaar, 2003).

Similarly, for people with high socially prescribed perfectionism, a sense that other people are overly critical, excessively judgmental, and chronically disappointed is commonplace (Sherry, Mackinnon, Macneil, & Fitzpatrick, 2013). Indeed, people with high socially prescribed

perfectionism see their social world as a malevolent place in which approval and acceptance are conditional on them being perfect (Hewitt, Flett, Sherry, & Caelian, 2006). This leaves people with high socially prescribed perfectionism susceptible to ruminations about how they have fallen short of the perfection they believe others require and the negative feedback they anticipate receiving because of it (Flett et al., 2016). To make matters worse, people with high socially prescribed perfectionism are often “defective detectives” when navigating their social world and are prone to misinterpreting and ruminating about events signaling the self is less than perfect (e.g., unflattering comparisons; Sherry et al., 2013). In support, self-oriented and socially prescribed perfectionism correlate positively with rumination in undergraduate (e.g., Short & Mazmanian, 2013) and adolescent samples (Flett, Coulter, Hewitt, & Nepon, 2011). As well, meta-analytic findings imply that rumination mediates the effect of self-oriented and socially prescribed perfectionism on depressive symptoms (Xie, Kong, Yang, & Chen, 2019).

1.3. The mediating role of difficulty accepting the past

As with rumination, viewing past experiences as incoherent, unacceptable, dissatisfying, and meaningless is fundamental to understanding why self-oriented and socially prescribed perfectionism are tied to depressive symptoms. In particular, for people with high self-oriented perfectionism, a narrow pursuit of achievement at the expense of communal goals may lead to a limited range of experiences wherein chances for personal growth, social relationships, and meaning making are missed or avoided (Sherry, Mackinnon, & Gaudreau, 2016). Put differently, people with high self-oriented perfectionism often struggle to accept their past due to a legitimate lack of meaningful experiences.

Likewise, people with high socially prescribed perfectionism regularly feel like they have lived their lives at the whim of others, leading them to see their experiences as inauthentic and

difficult to accept (Graham et al., 2010). People with high socially prescribed perfectionism are also susceptible to harsh self-criticism and often adopt an unforgiving stance towards the self which impedes a healthy view of past experiences (Sherry et al., 2015). And, congruent with existential theorists such as Frankl (1984), people who view their past experiences as meaningless and unacceptable are at risk for depressive symptoms as a consequence of their bleak view of existence (Graham et al., 2010). Thus, as with rumination, difficulty accepting the past is a promising putative mediator of the self-oriented perfectionism-depressive symptom link and the socially prescribed perfectionism-depressive symptoms link.

1.4. Advancing understanding of the perfectionism-depressive symptoms link

Notable advances in our understanding of perfectionism and depressive symptoms occurred over the past three decades (e.g., Flett et al., 1995; Graham et al., 2010; Hewitt et al., 2015). Yet there are areas for improvement. Most research on perfectionism and depressive symptoms focus on models that explain *when* self-oriented perfectionism and socially prescribed perfectionism are tied to depressive symptoms (e.g., Békés et al., 2015), but few models explain *why* self-oriented and socially prescribed perfectionism are tied to depressive symptoms. Additionally, mediational tests of the perfectionism-depressive symptoms link generally test mediators individually—without reference to a unifying integrative model (e.g., Harris, Pepper, & Maack, 2008). Doing so prevents evaluation of unique contributions. And testing mediational models that include both self-oriented and socially prescribed perfectionism is important, as not controlling for overlap among perfectionism dimensions can obscure distinct relationships (Stoeber & Gaudreau, 2017). Likewise, most research on perfectionism and depressive symptoms uses one measure per construct (e.g., Sherry et al., 2015). However, assessing constructs as latent variables composed of multiple indicators provides more accurate estimates

that are less influenced by the idiosyncratic properties of individual measures (Kline, 2015).

Research on perfectionism and depressive symptoms is also skewed towards college-aged participants (Smith et al., 2016). As such our understanding of how perfectionism impacts depressive symptoms in older individuals is comparatively limited. Similarly, though evidence supports the EMPDS (Graham et al., 2010; Sherry et al., 2015), the EMPDS remains to be evaluated in depressed individuals. Specifically, Graham et al. (2015) evaluated the EMPDS in undergraduates who averaged 20.0 years of age ($SD = 3.23$); the majority of participants scored below the Center for Epidemiological Studies Depression Scale's (CES-D; Radloff, 1977) cutoff for depressive symptoms (Vilagut, Forero, Barbagliam, & Alonso, 2016). Similarly, Sherry et al. (2015) evaluated the EMPDS in undergraduates who averaged 19.3 years of age; again most participants scored below the Beck Depression Inventory's threshold for depressive symptoms (Beck, Steer, & Brown, 1996).

Our study addressed these limitations by testing the EMPDS in a sample of middle-aged depressed individuals using structural equation modeling. We refer to our sample as depressed individuals because, on average, participants scored 53.53 ($SD = 13.8$) on the Center for Epidemiological Studies Depression scale (CES-D; Radloff, 1977). A CES-D score greater than 20 is indicative of depression (Vilagut et al., 2016) and scores between 24-to-60 are indicative of severe depressive symptomology (Radloff, 1977).

1.5. Present study

Drawing on the EMPDS, we posited that self-oriented and socially prescribed perfectionism generate depressive symptoms through two mediational pathways: rumination and difficulty accepting the past. Building on theory (Flett et al., 2016) and evidence (Graham et al., 2010; Sherry et al., 2015), we anticipated our results would support the hypothesized structure of

the EMPDS. In particular, we expected both rumination and difficulty accepting the past would mediate the effect of self-oriented and socially prescribed perfectionism on depressive symptoms. Due to a lack of evidence, tests of the extent to which self-oriented perfectionism, socially prescribed perfectionism, rumination, and difficulty accepting the past contribute uniquely to depressive symptoms were considered exploratory. Given that other-oriented perfectionism is a weak predictor of depressive symptoms (Chen, Hewitt, & Flett, 2017), other-oriented perfectionism was excluded from our study.

2. Method

2.1. Participants

We recruited 363 participants (294 women) from websites featuring message boards with depression-related content. Participants had a mean age of 34.5 years ($SD = 11.4$). Most participants were Caucasian (89.0%) and reported living in America (55.1%), the United Kingdom (19.2%), Canada (12.4%), or Australia (7.7%). Additionally, participants reported being married (35.3%), single (32.5%), separated/divorced (13.5%), cohabiting (12.9%), or other (5.8%). Overall, 34.2% of participants were employed full-time, 16.8% were students, 11.8% were unemployed, 11.3% were homemakers, 5.0% were retired, 8.8% reported 'other' (e.g., on disability), and 1.1% did not specify.

2.2. Measures

2.2.1. Socially prescribed perfectionism

Socially prescribed perfectionism was measured as a latent variable using three indicators: the 5-item short-form socially prescribed perfectionism subscale of Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (HFMPSS-SPP; "The better I do, the better I am expected to do;" Hewitt, Habke, Lee-Baggley, Sherry, & Flett, 2008), the 4-item interpersonal

perfectionism subscale of Frost, Marten, Lahart, and Rosenblate's (1990) Multidimensional Perfectionism Inventory (FMPS-IP; "I never feel like I can meet others' expectations;" Sherry & Hall, 2009), and the 3-item socially prescribed perfectionism subscale of Garner, Olmsted, & Polivy's (1983) Eating Disorder Inventory (EDI-SPP; "It often feels as if people make excessive demands of me;" Sherry & Hall, 2009). The HFMP-SPP uses a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*), the FMPS-IP uses a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*), and the EDI-SPP uses a 6-point scale from 1 (*never*) to 6 (*always*). Following Sherry and Hall (2009, p. 695), the FMPS-IP and EDI-SPP were modified to reduce recall bias and to reflect broader interpersonal content. Research suggests these measures have adequate reliability and validity (e.g., Hewitt et al., 2008) and evidence supports the use of these subscales to measure socially prescribed perfectionism (Sherry & Hall, 2009).

2.2.2. *Self-oriented perfectionism*

Self-oriented perfectionism was measured as a latent variable using three indicators: the 5-item short-form self-oriented perfectionism subscale of Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (HFMP-SOP; "One of my goals is to be perfect in everything I do;" Hewitt et al., 2008), the 4-item short-form personal standards subscale of Frost et al.'s (1990) Multidimensional Perfectionism Scale (FMPS-PS, "I expect higher performance in my tasks than most people"; see Sherry, 2006), and the 3-item self-oriented perfectionism subscale of Garner et al.'s (1983) Eating Disorder Inventory (EDI-SOP; "I must do things perfectly or not do them at all"). The HFMP-SOP uses a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*), the FMPS-PS uses a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*), and the EDI-SOP uses a 6-point scale from 1 (*never*) to 6 (*always*). Following Sherry (2006), we removed one item from the FMPS-PS that also appeared in the EDI-SOP We

selected these subscales given evidence they are reliable and valid measures of self-oriented perfectionism (e.g., McGrath et al., 2012).

2.2.3. *Rumination*

Rumination was measured as a latent variable with three indicators: the 3-item emotionality subscale of Scott and McIntosh's (1999) Scott-McIntosh Rumination Inventory (SMRI-E; "I become angry when I think about goals that I have not yet reached"), the 12-item rumination subscale of Trapnell and Campbell's (1999) Rumination-Reflection Questionnaire (RRQ-Rum; "I often find myself re-evaluating something I've done"), and the 14-item rehearsal subscale of Roger and Najarian's (1989) Emotion Control Questionnaire (ECQ-R; "I often find myself thinking over and over about things that have made me angry"). The SMRI-E uses a 7-point scale ranging from 1 (*extremely uncharacteristic of me*) to 7 (*extremely characteristic of me*), the RRQ-R uses a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), and the ECQ-R uses a 2-point scale ranging from 0 (*uncharacteristic of me*) to 1 (*characteristic of me*). We selected these measures given evidence suggesting they are reliable and valid indicators of rumination (e.g., Smith and Alloy, 2009).

2.2.4. *Accepting the past*

Accepting the past was measured as a latent variable with three indicators: the 5-item past satisfaction subscale of Pavot, Diener, and Suh's (1998) Temporal Satisfaction With Life Scale (TSWLS-Past; "I am satisfied with my life in the past"), the 10-item past negative subscale of Zimbardo and Boyd's (1999) Zimbardo Time Perspective Inventory (TPI-PN; "I think about the bad things that have happened to me in the past"), and Santor and Zuroff's (1994) 16-item Accepting the Past Scale (ATPS; "Sometimes I had the feeling that I've never had the chance to live." The TSWLS-Past uses a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*), the

TPI-PN uses a 5-point scale from 1 (*very uncharacteristic*) to 5 (*very characteristic*), and the ATPS uses a 5-point scale from 1 (*disagree strongly*) to 5 (*agree strongly*). These measures have demonstrated adequate reliability and validity (Graham et al., 2010; Zimbardo & Boyd, 1999).

2.2.5. *Depressive symptoms*

Depressive symptoms were measured as a latent variable with four indicators: the 7-item depressive affect subscale (CESD-DEP; “I felt depressed”), the 7-item somatic symptoms subscale (CESD-SOM; “My sleep was restless”), the 5-item wellness subscale (CESD-WELL; “I was happy”), and the 2-item interpersonal subscale (CESD-INTER; “I felt that people disliked me”) of the Center for Epidemiological Studies depression scale (CESD; Radloff, 1977). The CESD used a 4-point scale ranging from 0 (*rarely or none of the time*) to 3 (*most or all of the time*). Evidence support the reliability and validity of the CESD in online samples (e.g., Donker, van Straten, Marks, & Cuijpers, 2010). Following Klein, Shankman, and Rose’s (2008) recommendations, our study conceptualized depressive symptoms as a dimensional construct where symptoms lie along a continuum of severity from mild-to-severe. Measuring depressive symptoms in this way allowed us to focus on the entire spectrum of depressive symptoms rather than just diagnosable disorders.

2.3. *Procedure*

XXX University’s research ethics board approved our study. We recruited participants from websites featuring message boards with depression-related content (e.g., support groups for depressed individuals). Participants responded to online advertisements.

2.4. *Data analytic strategy*

We conducted confirmatory factor analysis (CFA) and structural equation modeling (SEM) using Mplus (Muthén & Muthén, 2012) with full information maximum likelihood

estimation. The following approximate fit indices were used for model evaluation: the comparative fit index (CFI), the Tucker-Lewis fit index (TFI), and the root-mean-square error of approximation (RMSEA). CFI and TFI values above .95 suggest good fit and values between .90 and .95 suggest acceptable fit (Kline, 2005). The RMSEA is an indicator of the level of misfit per degrees of freedom, with values of .08 or below being acceptable and values of .05 or less indicating good fit (Kline, 2005). The fit of our measurement model was evaluated using CFA and our structural model was tested using SEM. Additionally, consistent with Shrout and Bolger (2002), we determined the significance of indirect effects using bias-corrected bootstrapping with 20,000 resamples. If the 95% confidence interval for an indirect effect does not contain 0 within its lower and upper bounds, it suggests mediation (Shrout & Bolger, 2002). Lastly, we interpreted standardized betas following Cohen's (1992) guidelines for small, medium, and large effects ($r = .10, .30, \text{ and } .50$).

3. Results

3.1. Descriptive statistics and preliminary analysis

Less than 5% of our data points were missing. Alpha reliabilities, bivariate correlations, and descriptive statistics are in Table 1. Alpha reliabilities were generally acceptable and ranged from .64 to .94. Turning to bivariate correlations, indicators comprising self-oriented and socially prescribed perfectionism had small-to-moderate correlations with indicators comprising rumination, difficulty accepting the past, and depressive symptoms. And indicators comprising rumination and accepting the past had small-to-moderate correlations with indicators comprising depressive symptoms. This suggests there was merit in testing the structural model for, and the mediational hypothesis in, the EPMDS. In contrast, relationships between demographic variables

(e.g., gender) and all variables of interest were non-significant. As such, demographics were excluded from our EMPDS.

3.2. Measurement model

Our measurement model is in Figure 1 and had adequate fit: $\chi^2(94) = 323.48, p < .001$, RMSEA = .08 90% CI [.07, .09], CFI = .94, and TLI = .92. Standardized factor loadings for indicators were significant ($p < .001$) and large ($> .40$), implying that our indicators were adequately measuring their corresponding latent variables.

3.3. Structural model for the EMPDS

Our structural model is in Figure 2 and had the same fit as our measurement model. The anticipated indirect effects of socially prescribed perfectionism on depressive symptoms through accepting the past ($B = 0.07, \beta = .08$ [95% CI: .033, .169], $SE = .03$) and through rumination ($B = .08, \beta = .09$ [95% CI: .023, .165], $SE = .04$) were significant. Likewise, the expected indirect effect of self-oriented perfectionism on depressive symptoms through rumination ($B = .06, \beta = .09$ [95% CI: .025, .204], $SE = .05$) was significant. However, unexpectedly, the indirect effect of self-oriented perfectionism on depressive symptoms through accepting the past ($B = -0.02, \beta = -.03$ [95% CI: -.08, .017], $SE = .03$) was non-significant. Accordingly, results imply the socially prescribed perfectionism-depression link is mediated by both rumination and accepting the past, whereas the self-oriented perfectionism-depression link is mediated by rumination, but not difficulty accepting the past.

4. Discussion

Why are self-oriented and socially prescribed perfectionism tied to depressive symptoms? The Existential Model of Perfectionism and Depressive Symptoms (EMPDS) offers one compelling explanation—self-oriented and socially prescribed perfectionism predict depressive

symptoms through rumination and difficulty accepting the past (Graham et al., 2010). However, these constructs remained to be integrated, leaving open to question their unique and collective influence on depressive symptoms. Moreover, evidence supporting the EMPDS derives from relatively healthy university samples (Graham et al., 2010; Sherry et al., 2015), rendering the generalizability of the EMPDS to depressed individuals suspect. Our study addressed these important limitations by conducting a methodologically rigorous test of the mediating role of rumination and difficulty accepting the past in the perfectionism-depressive symptoms link in a large sample of depressed individuals. Overall, results supported the hypothesized structure of the EMPDS. Indeed, bootstrapped tests of mediation imply that self-oriented and socially prescribed perfectionism indirectly predict depressive symptoms through rumination. In contrast, results also revealed difficulty accepting the past mediates the socially prescribed perfectionism-depressive symptoms link, but not the self-oriented perfectionism-depressive symptoms link.

4.1. An improved understanding of the perfectionism-depressive symptom link

Consistent with the literature (Xie et al., 2019), self-oriented and socially prescribed perfectionism were unique positive predictors of rumination in depressed individuals. This result lends credence to Flett and colleagues' (2016) observation that people with high self-oriented perfectionism and people with high socially prescribed perfectionism are "chronic over-thinkers" prone to rumination. Likewise, congruent with decades of evidence (see Limburg et al., 2017 and Smith et al., 2016 for reviews) self-oriented and socially prescribed perfectionism had unique positive relationships with depressive symptoms. And our results imply that rumination mediates the effect of self-oriented perfectionism and socially prescribed perfectionism on depressive symptoms. Accordingly, findings suggest negative and repetitive self-focused cognitions are fundamental to understanding why self-oriented perfectionism and why socially prescribed

perfectionism are related to depressive symptoms.

Results also supported the mediating role of difficulty accepting the past in the relationship between socially prescribed perfectionism and depressive symptoms. We speculate this reflects the tendency for people with high socially prescribed perfectionism to live their lives according to the wishes of others, and subsequently feel that their past experiences are meaningless and inauthentic—feelings that are depressogenic (Graham et al., 2010). Conversely, results imply difficulty accepting does not mediate self-oriented perfectionism's relationship with depressive symptom. Hence, rumination, rather than difficulty accepting the past, appears more relevant to our understanding of the self-oriented perfectionism–depressive symptom link.

Lastly, findings dovetail with the growing consensus that labeling to self-oriented perfectionism as adaptive or healthy is inappropriate (e.g., Hill, 2014; Molnar, Sadava, Flett, & Colautti, 2012; Smith et al., 2016). We found no evidence that self-oriented perfectionism protects against depressive symptoms (Stoeber & Otto, 2006). We also found no evidence that socially prescribed perfectionism suppresses self-oriented perfectionism's adaptive effects (Hill, Huelsman, & Araujo, 2010). We did, however, find evidence that after controlling for socially prescribed perfectionism, depressed individuals high on self-oriented perfectionism were more likely to ruminate and, in turn, to experience greater depressive symptoms—neither of which suggests self-generated pressure to be perfect are conducive to mental health.

4.2. Clinical implications

Rumination is a promising target for developing more effective treatments for depressed perfectionists. Treatments specifically targeting unconstructive and repetitive self-focused cognitions, such as rumination-focused cognitive-behavioural therapy (Watkins et al., 2007) may be especially effective for people high on self-oriented perfectionism. Indeed, such people would

likely benefit from learning alternatives to habitual and dysfunctional thinking patterns, as well as from learning proactive problem-solving strategies that address the source of their rumination. Given our findings, we also maintain treatment efforts for depressed people with high socially prescribed perfectionism might be enhanced through treatments that promote a more coherent and accepting view of past experiences, such as schema-therapy (Young et al., 2003).

Additionally, Hewitt, Flett, & Mikail's (2017) psychodynamic treatment that focuses on the deeply ingrained aspects of perfectionism is well-poised for reducing depressive symptoms for distressed perfectionists. Hewitt et al. (2015) reported that short-term psychodynamic treatment for perfectionism resulted in significant improvements in self-oriented perfectionism, socially prescribed perfectionism, perfectionistic cognitions (ruminations about not being perfect) and acceptance of the self in the past—at both the conclusion of treatment and 4-months follow-up.

4.3. Limitations and future directions

Self-oriented perfectionism, socially prescribed perfectionism, rumination, difficulty accepting the past and depressive symptoms were temporally confounded. Research is needed to determine whether findings replicate when predictors (self-oriented perfectionism and socially prescribed perfectionism), mediators (rumination and difficulty accepting the past), and depressive symptoms are measured at separate time points. We also tested a specific sequence of events based on theory (Flett et al., 2016) and evidence (Graham et al., 2010; Sherry et al., 2015). But, different sequences are possible. For instance, difficulty accepting the past may be an antecedent of, rather than a consequence of, rumination. We also adopted a unidimensional conceptualization of rumination. Future research would benefit from a more fine grain analysis that distinguishes between reflective rumination and brooding rumination (Treynor, Gonzalez, & Nolen-Hoeksema, 2003). Additionally, future research should test whether the presence of stress

moderator of the relationship between self-oriented perfectionism and difficulty accepting the past. Lastly, though participants had elevated depressive symptoms, we did not screen for diagnosable disorders (e.g., major depressive disorder).

4.4. Concluding remarks

We conducted a theory-driven test of the EMPDS in a large sample of depressed individuals. Results implied rumination mediated the effect of self-oriented perfectionism and socially prescribed perfectionism on depressive symptoms. Findings also revealed that difficulty accepting the past mediated the effect of socially prescribed perfectionism on depressive symptom, but not the effect of self-oriented perfectionism on depressive symptoms. We encourage researchers and clinicians to consider specifically targeting ruminations when treating people with high self-oriented perfectionism and people with high socially prescribed perfectionism. We also encourage researchers and clinicians to consider that depressed individuals with high socially prescribed perfectionism would likely benefit from learning to view their past as more meaningful, satisfying, and coherent.

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Table 1

Bivariate correlations, means, standard deviations, alpha reliabilities

Manifest variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Socially prescribed perfectionism																
1. HFMPs-SPP	—															
2. FMPS-IP	.62***	—														
3. EDI-SPP	.63***	.62***	—													
Self-oriented perfectionism																
4. HFMPs-SOP	.53***	.37***	.46***	—												
5. FMPS-PS	.40***	.15**	.35***	.66***	—											
6. EDI-SOP	.45***	.27***	.45***	.75***	.72***	—										
Rumination																
7. SMRI-E	.32***	.28***	.23***	.30***	.29***	.36***	—									
8. RRQ-Rum	.30***	.34***	.27***	.35***	.21***	.36***	.49***	—								
9. ECQ-R	.28***	.29***	.25***	.29***	.16**	.34***	.43***	.69***	—							
Accepting the Past																
10. TSWLS-PS	-.24***	-.24***	-.26***	-.21***	-.18**	-.25***	-.34***	-.37***	-.33***	—						
11. TPI-PN	-.34***	-.43***	-.34***	-.35***	-.21***	-.36***	-.47***	-.69***	-.59***	.61***	—					
12. ATPS	-.39***	-.46***	-.33***	-.32***	-.18**	-.34***	-.50***	-.60***	-.52***	.66***	.84***	—				
Depression																
13. CESD-DEP	.34***	.41***	.23***	.33***	.15**	.28***	.47***	.52***	.37***	-.28***	-.54***	-.61***	—			
14. CESD-WELL	.40***	.42***	.30***	.27***	.12*	.22***	.46***	.48***	.37***	-.34***	-.51***	-.62***	.75***	—		
15. CESD-SOM	.34***	.33***	.23***	.30***	.17**	.25***	.42***	.49***	.35***	-.27***	-.45***	-.53***	.74***	.66***	—	
16. CESD-INT	.33***	.36***	.24***	.25***	.09	.27***	.30***	.41***	.35***	-.26***	-.38***	-.47***	.56***	.50***	.47***	—
Mean	4.7	3.0	4.0	4.5	3.0	4.0	4.7	4.0	0.6	2.3	2.2	2.5	2.7	2.4	2.7	2.1
Standard deviation	1.5	1.1	1.2	1.8	0.8	1.3	1.2	0.8	0.3	1.3	0.8	0.8	0.8	0.7	0.7	0.9
Cronbach's Alpha (α)	.84	.79	.70	.94	.87	.82	.64	.93	.75	.83	.89	.92	.90	.85	.79	.73

Note. **HFMPs-SPP** = Hewitt and Flett's (1991) Multidimensional Perfectionism Scale socially prescribed perfectionism subscale; **FMPS-IP** = Frost et al.'s (1990) Multidimensional Perfectionism Scale interpersonal perceptions subscale; **EDI-SPP** = Garner et al.'s (1983) Eating Disorder Inventory socially prescribed perfectionism subscale; **HFMPs-SOP** = Hewitt and Flett's (1991) Multidimensional Perfectionism Scale self-oriented perfectionism subscale; **FMPS-PS** = Frost et al.'s (1990) Multidimensional Perfectionism Scale personal standards subscale; **EDI-SOP** = Garner et al.'s (1983) Eating Disorder Inventory self-oriented perfectionism subscale; **SMRI-E** = Scott and McIntosh's (1999) Scott-McIntosh Rumination Inventory rumination subscale; **RRQ-R** = Trapnell and Campbell's (1999) Rumination-Reflection Questionnaire rumination subscale; **ECQ-R** = Roger and Najarian's (1989) Emotion Control Questionnaire rehearsal subscale; **TSWL-PS** = Pavot, Diener, and Suh's (1998) Temporal Satisfaction With Life Scale past satisfaction subscale; **TPI-N** = Zimbardo and Boyd's (1999) Zimbardo Time Perspective Inventory past negative subscale; **ATPS** = Santor and Zuroff's (1994) Accepting the Past Scale; **CESD-DEP** = Radloff's (1977) Centre for Epidemiological Studies Depression scale depression subscale; **CESD-WELL** = Radloff's (1977) Centre for Epidemiological Studies Depression scale wellness subscale; **CESD-SOM** = Radloff's (1977) Centre for Epidemiological Studies Depression scale somatic subscale; **CESD-INT** = Radloff's (1977) Centre for Epidemiological Studies Depression scale interpersonal subscale.

* $p < .05$; ** $p < .01$; *** $p < .001$.

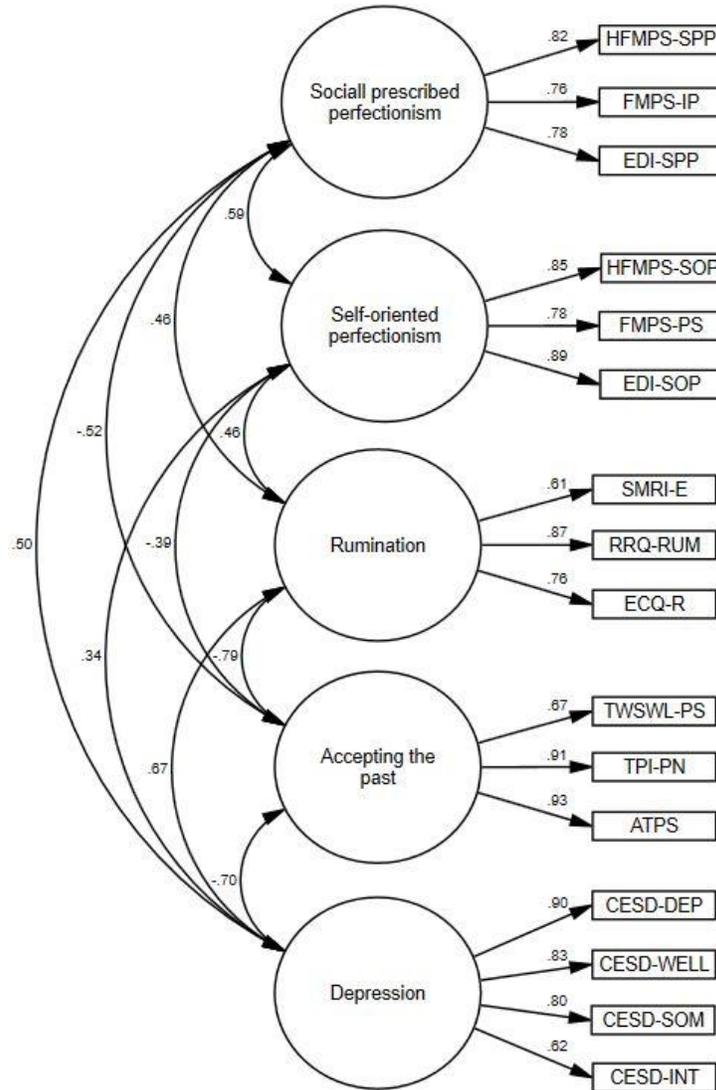


Figure 1. Measurement model. Ovals represent latent variables. Rectangles represent observed indicators. Estimates are standardized. Double-headed black arrows represent significant correlations ($p < .05$). Single-headed black arrows represent significant loadings ($p < .05$). **HFMPS-SPP** = Hewitt and Flett's (1991) Multidimensional Perfectionism Scale socially prescribed perfectionism subscale; **FMPS-IP** = Frost et al.'s (1990) Multidimensional Perfectionism Scale interpersonal perceptions subscale; **EDI-SPP** = Garner et al.'s (1983) Eating Disorder Inventory socially prescribed perfectionism subscale; **HFMPS-SOP** = Hewitt and Flett's (1991) Multidimensional Perfectionism Scale self-oriented perfectionism subscale; **FMPS-PS** = Frost et al.'s (1990) Multidimensional Perfectionism Scale personal standards subscale; **EDI-SOP** = Garner et al.'s (1983) Eating Disorder Inventory self-oriented perfectionism subscale; **SMRI-E** = Scott and McIntosh's (1999) Scott-McIntosh Rumination Inventory rumination subscale; **RRQ-R** = Trapnell and Campbell's (1999) Rumination-Reflection Questionnaire rumination subscale; **ECQ-R** = Roger and Najarian's (1989) Emotion Control Questionnaire rehearsal subscale; **TSWL-PS** = Pavot, Diener, and Suh's (1998) Temporal Satisfaction With Life Scale past satisfaction subscale; **TPI-N** = Zimbardo and Boyd's (1999) Zimbardo Time Perspective Inventory past negative subscale; **ATPS** = Santor and Zuroff's (1994) Accepting the Past Scale; **CESD-DEP** = Radloff's (1977) Centre for Epidemiological Studies Depression scale depression subscale; **CESD-WELL** = Radloff's (1977) Centre for Epidemiological Studies Depression scale wellness subscale; **CESD-SOM** = Radloff's (1977) Centre for Epidemiological Studies Depression scale somatic subscale; **CESD-INT** = Radloff's (1977) Centre for Epidemiological Studies Depression scale interpersonal subscale.

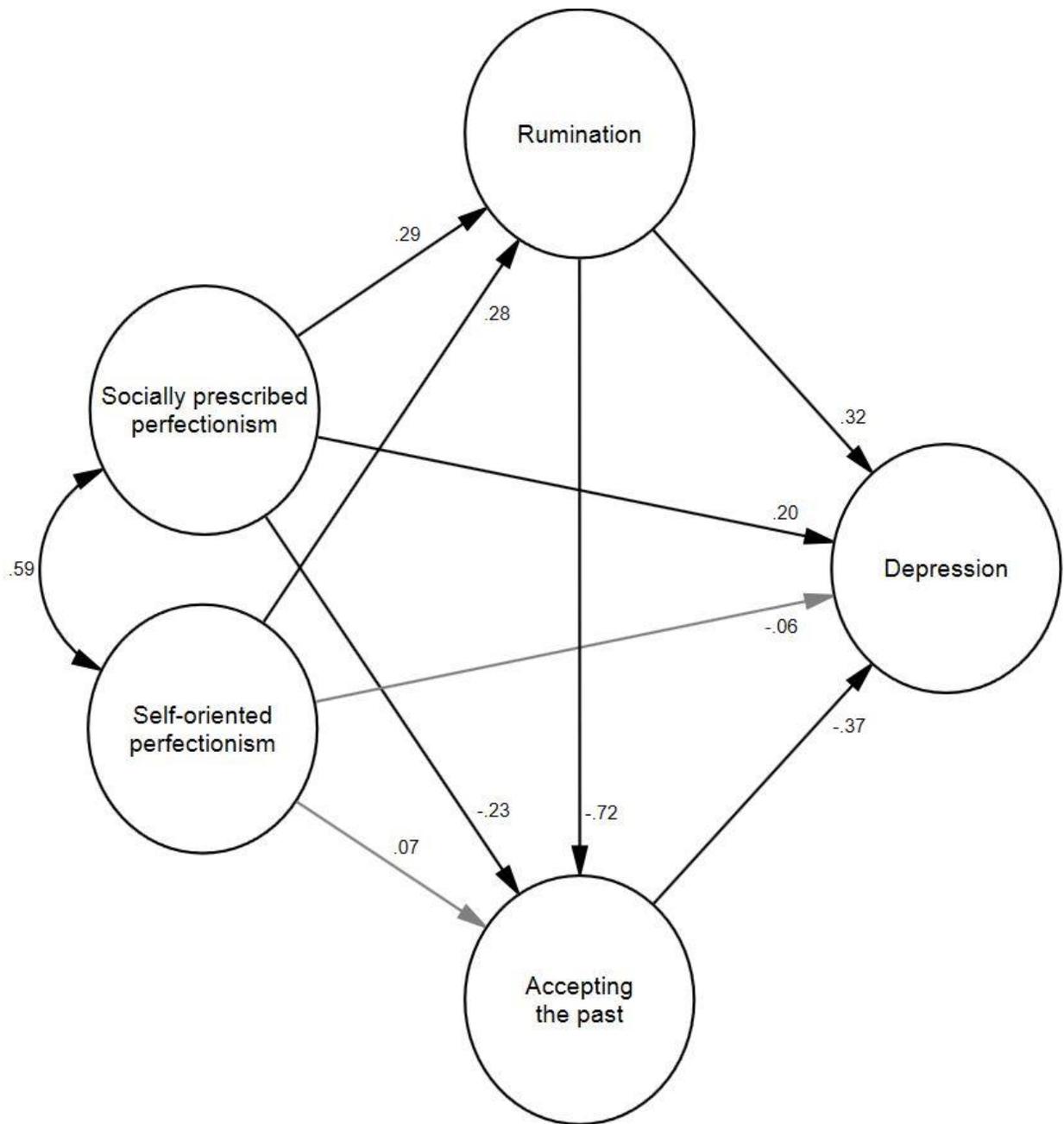


Figure 2. Structural model. Ovals represent latent variables. Estimates are standardized. Error terms are not displayed. The double-headed black arrow indicates a significant correlation ($p < .05$). Single-headed black arrows represent significant paths ($p < .05$). Single-headed grey arrows represent non-significant paths ($p > .05$). The structural model explained 28.3% of the variance in depression.