

Reciprocal Relations Between Self-Critical Perfectionism and Depressive Symptoms: Evidence From a Short-Term, Four-Wave Longitudinal Study

Daniel S. McGrath, Simon B. Sherry,
Sherry H. Stewart, Aislin R. Mushquash,
Stephanie L. Allen, and Logan J. Nealis
Dalhousie University

Dayna L. Sherry
Queen Elizabeth II Health Sciences Centre, Halifax,
Nova Scotia

Is self-critical perfectionism an antecedent of depressive symptoms, a consequence of depressive symptoms, or both? In the present study, self-critical perfectionism (i.e., harsh criticism of one's actions, negative reactions to perceived failures, and extreme concerns over others' evaluations) and depressive symptoms were conceptualised as a unified, interlocking syndrome wherein self-critical perfectionism and depressive symptoms reciprocally influence each other over time. This reciprocal relations model was tested in 240 undergraduates studied using a four-wave, 4-week longitudinal design. As hypothesised, reciprocal relations were observed between self-critical perfectionism and depressive symptoms, with self-critical perfectionism predicting changes in depressive symptoms and vice versa. Results suggest persons high in self-critical perfectionism may find themselves entangled in an escalating pattern where self-critical perfectionism both leads to, and results from, depressive symptoms. Research focused exclusively on unidirectional relations between self-critical perfectionism and depressive symptoms may ignore information critical to accurately understanding self-critical perfectionism, depressive symptoms, and their interrelation. Instead of assuming unidirectional relations between self-critical perfectionism and depressive symptoms, researchers are encouraged to test for reciprocal relations between these two variables.

Keywords: perfectionism, self-criticism, depression, cross-lagged analysis

Depressive symptoms among people who do not meet diagnostic criteria for depressive disorders are common and tied to considerable impairment (Judd, Schettler, & Akiskal, 2002). Evidence also indicates that such subsyndromal depressive symptoms persist over time (Tram & Cole, 2006) and serve as a predisposing factor for future depressive disorders (Judd et al., 2002). In the present research, we studied a sample of undergraduates whose depressive levels may be understood as lying, on average, at the subsyndromal end of the depression continuum. Studies have indicated that

subsyndromal depressive symptoms in undergraduates are related to various problems, including risky sexual behaviour, illicit substance use, and poorer academic performance (Judd et al., 2002). Thus, there is a clear need to understand why undergraduates experience subsyndromal depressive symptoms (which we refer to as *depressive symptoms*).

Perfectionism and Depressive Symptoms

Perfectionism is consistently implicated in the onset and the maintenance of depressive symptoms (e.g., Bieling, Israeli, & Antony, 2004; Enns, Cox, Sareen, & Freeman, 2001; Stoeber & Rambow, 2007). Studies indicate perfectionism adds incrementally to our understanding of depressive symptoms over and above other established contributors to depressive symptoms such as aversive parenting styles (Soenens et al., 2008) and stress (O'Connor, Rasmussen, & Hawton, 2010). Although research points toward a robust link between perfectionism and depressive symptoms, there is still much to learn about the interrelation of these two variables.

Two central dimensions of perfectionism exist. Self-critical perfectionism involves harsh criticism of one's actions, negative reactions to perceived failures, and extreme concerns over others' evaluations (Dunkley & Blankstein, 2000; Dunkley, Zuroff, & Blankstein, 2003). Research (Clara, Cox, & Enns, 2007; Dunkley et al., 2003) has indicated that self-critical perfectionism involves a family of traits including self-criticism (Blatt, D'Afflitti, & Quinlan, 1976), concern over mistakes (Frost, Marten, Lahart, & Rosenblate, 1990), and socially prescribed perfectionism (Hewitt

This article was published Online First April 16, 2012.

Daniel S. McGrath, Aislin R. Mushquash, Stephanie L. Allen, and Logan J. Nealis, Department of Psychology, Dalhousie University; Simon B. Sherry and Sherry H. Stewart, Departments of Psychology and Psychiatry, Dalhousie University; Dayna L. Sherry, Department of Psychology, Queen Elizabeth II Health Sciences Centre, Halifax, Nova Scotia.

This research was supported by a grant from the Dalhousie University Department of Psychiatry Research Fund awarded to Simon B. Sherry, Sherry H. Stewart, and Dayna L. Sherry. Sherry H. Stewart was funded by a Killam Research Professorship from the Faculty of Science at Dalhousie University. We thank Ellen K. Breen, Anna MacKinnon, and Jillian Tonet for their research assistance. This article is based on data collected and published in Graham et al. (2010). Daniel S. McGrath completed this article as part of his comprehensive examinations in the Department of Psychology at Dalhousie University. Daniel S. McGrath was supervised by Simon B. Sherry.

Correspondence concerning this article should be addressed to Simon B. Sherry, Department of Psychology, Dalhousie University, Life Sciences Centre, 1355 Oxford Street, Halifax NS B3H 4R2, Canada. E-mail: simon.sherry@dal.ca

& Flett, 1991). Perfectionistic strivings are exemplified by rigidly and ceaselessly demanding perfection of oneself (Hewitt & Flett, 1991; Stoeber & Otto, 2006). Studies (Dunkley et al., 2003) have indicated that perfectionistic strivings involve a family of traits including self-oriented perfectionism (Hewitt & Flett, 1991) and personal standards (Frost et al., 1990).

We used this two-dimensional model because it offers an empirically based synthesis of several key perfectionism models (Dunkley et al., 2003; Frost et al., 1990; Hewitt & Flett, 1991). Studies have also indicated that traits in the self-critical perfectionism family and traits in the perfectionistic strivings family are differentially related to depressive symptoms (Hewitt & Flett, 1991). Self-critical perfectionism is most strongly and robustly tied to depressive symptoms (Soenens et al., 2008); whereas perfectionistic strivings are often weakly or inconsistently related to depressive symptoms and may, at times, be negatively related to depressive symptoms (Stoeber & Rambow, 2007). In this study, we use the term *perfectionism* to refer to both self-critical perfectionism and perfectionistic strivings, when it is not necessary to refer to each variable separately.

Vulnerability Model of Perfectionism and Depressive Symptoms

Several models purport to explain the perfectionism–depressive symptoms relationship. According to the vulnerability model, personality traits such as self-critical perfectionism place people at risk for increases in depressive symptoms over time (Bagby, Quilty, & Ryder, 2008). High interindividual stability, where levels of personality traits are strongly correlated over time (Caspi, Roberts, & Shiner, 2005), is also a central tenet of the vulnerability model. Specifically, in the vulnerability model, self-critical perfectionism is seen as a stable trait that persists before, during, and after periods of depressive symptoms (Rice & Aldea, 2006).

The vulnerability model is a commonly studied model in the perfectionism literature (Hewitt & Flett, 2002). Consistent with this model, studies have indicated that self-critical perfectionism is involved in subsequent increases in depressive symptoms (Chang & Rand, 2000; Cox, Clara, & Enns, 2009; Dunkley, Sanislow, Grilo, & McGlashan, 2009; Hawley, Ho, Zuroff, & Blatt, 2006; Hewitt, Flett, & Ediger, 1996; Zuroff, Mongrain, & Santor, 2004).

Because perfectionism research is often conceptualised through a vulnerability lens, and its related designs and statistics, competing models of perfectionism and depressive symptoms (e.g., complication or scar models) are sometimes overlooked, despite promising initial support for such models (e.g., Zuroff, Blatt, Sanislow, Bondi, & Pilkonis, 1999).

Complication or Scar Model of Perfectionism and Depressive Symptoms

The complication or scar model asserts that depressive symptoms come before and contribute to changes in personality traits (Bagby et al., 2008). Personality traits are thus conceptualised as a consequence of depressive symptoms rather than a vulnerability factor for depressive symptoms. Depressive symptoms involve alterations to and impairments in central domains of functioning (e.g., biological, social, and psychological domains; Judd et al.,

2002), and these symptoms may change characteristic, personality-linked patterns of thinking, behaving, perceiving, and relating.

A distinction is made between transient changes in personality traits (the complication model) and permanent changes in personality traits (the scar model) as a result of depressive symptoms (Bagby et al., 2008). Depressive symptoms are believed to alter personality traits in both models; however, in the complication model these alterations subside when depressive symptoms resolve (Bagby et al., 2008). We view the present study in terms of the complication model (i.e., changes seen over a period of weeks), because our research design involves a four-wave, 4-week longitudinal study that does not permit assessment of long-term changes in personality.

Studies testing the complication or scar model in relation to perfectionism and depressive symptoms are rare and have shown mixed results. Some studies have indicated that depressive symptoms predict increases in self-critical perfectionism over time (Cox & Enns, 2003; Zuroff et al., 1999); whereas other studies did not find support for such complication or scar effects (e.g., Hawley et al., 2006). More research on the complication or scar model is needed to more fully characterise the perfectionism–depressive symptoms relationship.

Reciprocal Relations Model of Perfectionism and Depressive Symptoms

Several authors have asserted that the vulnerability and the complication or scar model are not mutually exclusive; instead, they have argued that personality traits and depressive symptoms are reciprocally related (e.g., Hawley et al., 2006; Zuroff et al., 1999). In the reciprocal relations model, personality traits and depressive symptoms are seen as co-occurring variables where changes in personality traits contribute to changes in depressive symptoms and vice versa. Instead of foreclosing on the presence of just unidirectional links between variables (e.g., self-critical perfectionism → depressive symptoms), the reciprocal relations model tests whether personality traits and depressive symptoms reciprocally influence each other over time (see Figure 1).

The reciprocal relations model is seldom investigated using perfectionism and depressive symptoms. In one of few tests of this model, Hawley et al. (2006) did not find clear support for the reciprocal relations model. In a 16-week, five-wave longitudinal study of depressed individuals receiving treatment, these authors found that perfectionism predicted depressive symptoms over time, without an opposite pattern occurring.

Two other studies, however, have tested the reciprocal relations model using depressive symptoms and self-criticism, a central component of self-critical perfectionism (Dunkley et al., 2003). In a 12-month, two-wave longitudinal study of undergraduates, Zuroff, Igreja, and Mongrain (1990) reported that self-criticism predicted later depressive symptoms and vice versa. Shahar, Blatt, Zuroff, Kuperminc, and Leadbetter (2004) also found reciprocal relations between self-criticism and depressive symptoms in a 12-month, two-wave longitudinal study of adolescents; however, this effect was found only in girls.

Discrepant findings among these three tests of the reciprocal relations model may be a result of various factors, including use of different samples (e.g., clinical vs. student), age groups (e.g., adolescent vs. adult), timeframes (e.g., 12 months vs. 16 weeks),

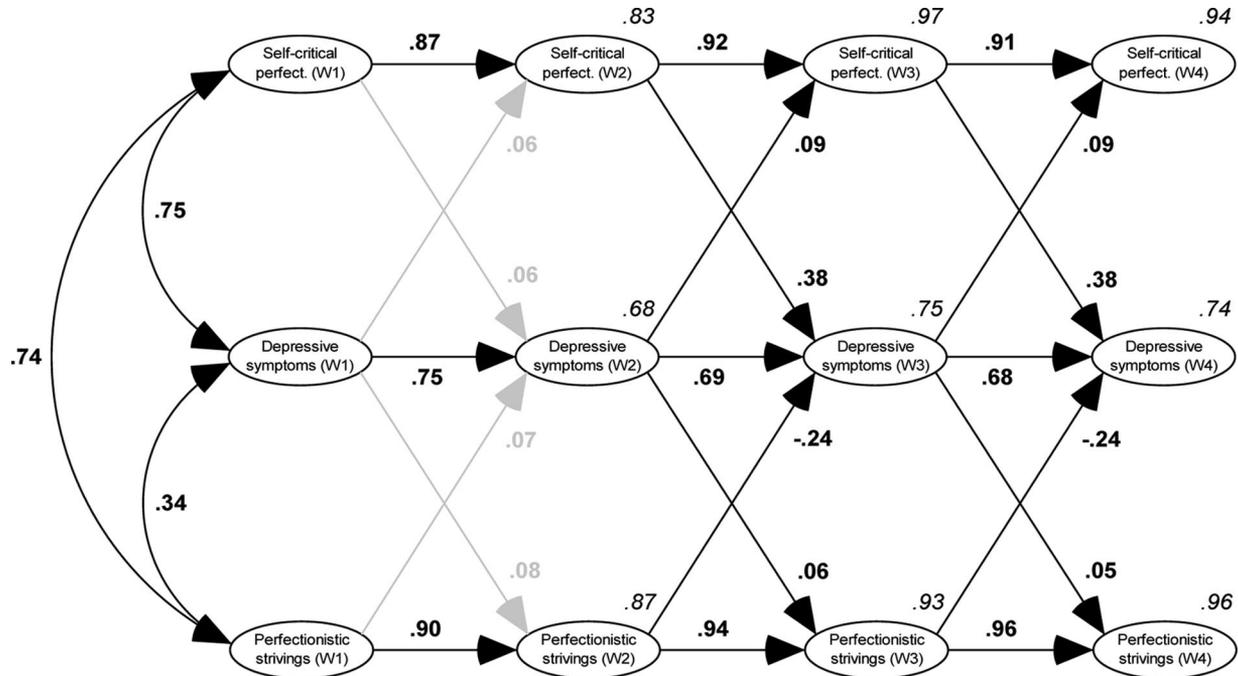


Figure 1. Cross-lagged analyses involving self-critical perfectionism, perfectionistic strivings, and depressive symptoms. Perfect. = perfectionism; W1 = Wave 1; W2 = Wave 2; W3 = Wave 3; W4 = Wave 4. Ovals represent latent variables; black arrows represent significant paths (i.e., $p < .001$); grey arrows represent nonsignificant paths (i.e., $p > .001$). Correlations between exogenous variables are significant (i.e., $p < .001$) and represented by double-headed arrows. Autoregressive paths and cross-lagged paths are represented by diagonal arrows. Standardized path coefficients appear in bold. The proportion of variance accounted for by associated exogenous variables is represented by italicized numbers appearing in the upper right hand of endogenous variables (e.g., Depressive Symptoms [W2] = .68). In the interest of clarity, manifest variables, error terms, and disturbance terms are not shown.

measurement schedules (e.g., two waves vs. five waves), and measures (e.g., self-criticism vs. perfectionism). In sum, the reciprocal relations model has some partial and preliminary support, but more research is needed to test this model and to resolve equivocal findings.

Advancing the Literature on Perfectionism and Depressive Symptoms

Many recent studies in the perfectionism–depressive symptoms literature have focused on identifying moderators and mediators of the relationship between perfectionism and depressive symptoms (e.g., Graham et al., 2010). However, basic questions remain unanswered about the perfectionism–depressive symptoms connection. For example, knowing if perfectionism is an antecedent of depressive symptoms, a complication of depressive symptoms, or both is key to understanding and to helping persons struggling with perfectionism and depression. Although evidence indicates that self-critical perfectionism is a vulnerability factor for depressive symptoms (e.g., Hewitt et al., 1996), other models—such as the reciprocal relations model (e.g., Zuroff et al., 1990)—are plausible, but remain largely untested and need further investigation.

Substantive improvements in methods used to test the reciprocal relations model of perfectionism and depressive symptoms are also needed. Previous studies involve mostly two-wave longitudinal

designs (e.g., Zuroff et al., 1990; see Hawley et al., 2006, for an exception). However, three or more waves of data are recommended when testing cross-lagged, reciprocal relations models, and researchers are encouraged to focus only on interpreting lags between Wave 2 and Wave 3, Wave 3 and Wave 4, and so forth (Burkholder & Harlow, 2003). This is because variables measured at Wave 1 (unlike those measured in subsequent waves) do not take into account preexisting levels of perfectionism or depressive symptoms.

Past studies of reciprocal relations between perfectionism and depressive symptoms also rely mainly on long-term longitudinal designs (see Hawley et al., 2006, for an exception). Both Shahar et al. (2004) and Zuroff et al. (1990) used 12-month time lags. Although such long-term longitudinal studies make notable contributions, 12-month time lags may overlook meaningful shorter-term changes in perfectionism or depressive symptoms. In reviewing the literature on complication or scar effects, Wichers, Geschwind, van Os, and Peeters (2010) called for research designs that allow for short-term transactions to occur between personality traits and depressive symptoms. Short-term, multiwave longitudinal designs also diminish recall bias by assessing events closer to their actual occurrence (Sherry & Hall, 2009).

Moreover, initial tests of the reciprocal relations model of perfectionism and depressive symptoms are based mostly on manifest

variables (e.g., Shahar et al., 2004). However, evidence has suggested that latent variables provide more accurate estimates of model parameters (Kline, 2005). Latent variables also explicitly take measurement error into account, thus helping to disentangle meaningful change from measurement error (Kline, 2005).

Finally, a multiwave longitudinal design combined with a cross-lagged data analysis strategy (see Figure 1) allows for stronger causal inferences (Burkholder & Harlow, 2003). This design and analysis take into account temporal precedence (e.g., testing if self-critical perfectionism precedes and produces depressive symptoms) while helping to rule out competing explanations (e.g., testing if the link between self-critical perfectionism at Wave 2 and depressive symptoms at Wave 3 is explained by a third variable such as depressive symptoms at Wave 2). Despite the considerable strengths of this design and analysis (e.g., permitting stronger causal inferences), existing tests of reciprocal relations between perfectionism and depressive symptoms seldom use this rigorous approach (e.g., Cox & Enns, 2003; Zuroff et al., 1990).

To begin addressing the aforementioned limitations, we conducted a four-wave, 4-week longitudinal study that tested reciprocal relations between (latent) self-critical perfectionism and (latent) depressive symptoms using a cross-lagged data analysis strategy (see Figure 1). The present study thus represents a needed contribution and one of the most comprehensive tests to date of the reciprocal relations model of perfectionism and depressive symptoms.

Hypotheses

Reciprocal relations between perfectionism and depressive symptoms are often discussed, but seldom tested, in perfectionism research (e.g., Sherry & Hall, 2009). In the present study, we focussed on the reciprocal relations model, because it synthesizes the vulnerability model (self-critical perfectionism → depressive symptoms) and the complication model (depressive symptoms → self-critical perfectionism) in a manner consistent with our hypotheses (see below).

Based on past research (Shahar et al., 2004; Zuroff et al., 1990), we hypothesised that self-critical perfectionism and depressive symptoms reciprocally influence each other (see Figure 1). Self-critical perfectionism encapsulates core attributes of (e.g., harsh self-criticism), and key concerns for (e.g., unrealistic expectations), persons vulnerable to depressive symptoms. The need for approval and the sensitivity to others accompanying self-critical perfectionism are also consistent with the social preoccupations and the evaluative fears that are seen as a key part of the premorbid personality structure of persons vulnerable to depressive symptoms (Hewitt & Flett, 1991). Drawing on this research, we hypothesised that self-critical perfectionism is both an antecedent of and a contributor to depressive symptoms, as shown in Figure 1.

We also hypothesised that self-critical perfectionism is a complication of depressive symptoms (see Figure 1). Depressive symptoms involve a constellation of affect, motivation, behaviour, self-evaluation, cognition, and relatedness that we believe exacerbate self-critical perfectionism. For example, depressive symptoms involve motivational problems that impede goal striving (Beck, Rush, Shaw, & Emery, 1979), thus generating opportunities among persons high in self-critical perfectionism to chastise themselves (e.g., "I am lazy and I should work harder!"). Behavioural

avoidance also characterizes depressive symptoms (Beck et al., 1979) and such avoidance (e.g., not going to class) predisposes additional self-rebuke among persons high in self-critical perfectionism. Indeed, behavioural avoidance may play a role in actually generating the failures and the mistakes persons high in self-critical perfectionism report and fear (Frost et al., 1990). Cognitive and self-evaluative processes typical of depressive symptoms, including a negative, ruminative self-focus (Beck et al., 1979), may also encourage detection of perceived flaws and a harsh, unfavorable stance toward the self among persons high in self-critical perfectionism. Moreover, depressive symptoms involve impaired functioning in academic, occupational, and social roles (Judd et al., 2002). Struggling to function effectively in these roles may intensify a chronic, nagging concern among persons high in self-critical perfectionism: namely, a sense others are disappointed with them (Sherry & Hall, 2009). In sum, we hypothesised that self-critical perfectionism and depressive symptoms reciprocally influence one another over time, with vulnerability effects and complication effects operating simultaneously as seen in Figure 1.

Although our study focussed on self-critical perfectionism and depressive symptoms, we also explored reciprocal relations between perfectionistic strivings and depressive symptoms. Because there is too little evidence to propose that perfectionistic strivings predict depressive symptoms or vice versa, no a priori hypotheses involving perfectionistic strivings were made, and we viewed our analyses involving perfectionistic strivings as exploratory (see Figure 1). Recent research by Hill, Huelsman, and Araujo (2010) has also suggested that it is important to simultaneously include self-critical perfectionism and perfectionistic strivings in statistical models such as Figure 1. Hill et al. cautioned that perfectionistic strivings may suppress variance in maladaptive perfectionism (e.g., self-critical perfectionism) or vice versa. For example, because perfectionistic strivings and self-critical perfectionism strongly overlap (Dunkley et al., 2003), perfectionistic strivings may exert a differential effect on depressive symptoms once self-critical perfectionism is controlled.

Method

Participants

A sample of 240 undergraduates (83.3% women; $M_{\text{age}} = 20.00$ years, $SD = 3.23$) enrolled in psychology courses at Dalhousie University was recruited. Psychology was the most commonly declared major (23.8%), and the majority of participants were enrolled in either their first (42.9%) or their second (20.4%) year of university. Most participants (86.7%) reported their ethnic heritage as White, and most participants were long-term residents of Canada ($M = 18.37$ years, $SD = 5.84$). Roughly half of participants (47.5%) reported they were single, followed by 40.8% reporting they were in a dating relationship.

Measures

Three manifest indicators were used to represent each latent variable, as recommended for research using structural equation modelling (SEM; Kline, 2005). As in previous repeated-measures designs (e.g., Sherry & Hall, 2009), certain measures, noted below,

were slightly modified to match our 7-day timeframe and/or shortened to decrease participant burden.¹

Self-critical perfectionism. Self-critical perfectionism was measured using a short form of Bagby, Parker, Joffe, and Buis's (1994) Depressive Experiences Questionnaire (DEQ-SF; see also Blatt et al., 1976) Self-Criticism scale; a short form of Frost et al.'s (1990) Multidimensional Perfectionism Scale Concern Over Mistakes (FMPS-SF-COM) dimension; and a modified form of Garner, Olmstead, and Polivy's (1983) Eating Disorder Inventory Socially Prescribed Perfectionism (EDI-SPP) dimension.

The version of the DEQ-SF we used in our study contains five items measuring self-criticism (e.g., "I find that I don't live up to my ideals"). The DEQ-SF was modified into a five-item scale by selecting the five highest factor loadings from the nine-item, original DEQ (see Bagby et al., 1994, p. 63, for further details). Desmet et al. (2007) found evidence suggesting that Bagby et al.'s (1994) DEQ provides a reliable and valid representation of the self-criticism construct. Thus, we based the DEQ-SF on Bagby et al.'s DEQ. Sherry (2010) found that the nine-item, original DEQ may be reduced to five items without diminishing its psychometric properties. The DEQ-SF uses a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*); scores range from 5–35. Higher scores denote higher levels for all variables. The reliability and validity of the DEQ is supported by research. Sherry (2010) found that (a) the DEQ and the DEQ-SF were strongly correlated ($r = .86$) and (b) the alpha reliability for the DEQ-SF was .83.

The FMPS-SF-COM, as used in our study, involves five items measuring concern over mistakes (e.g., "The fewer mistakes I make, the more people will like me"). The FMPS-SF-COM was changed into a five-item scale by Cox, Enns, and Clara (2002) by selecting the five highest factor loadings from the nine-item, original FMPS-COM (see p. 368 for details). These authors also found that the psychometric properties of the FMPS-COM improved once it was reduced from nine items to five items (Cox et al., 2002). The FMPS-SF-COM uses a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), meaning that scores range from 5–25. Evidence supports both the reliability and the validity of the FMPS-SF-COM (Cox et al., 2002). Sherry (2010) found that the FMPS-COM and the FMPS-SF-COM were strongly linked ($r = .82$). The alpha reliability for the FMPS-SF-COM was .81 in Sherry (2010).

Finally, the version of the EDI-SPP used in our study (Garner et al., 1983; see also Sherry & Hall, 2009) contains four items measuring socially prescribed perfectionism (e.g., "My parents expect perfection of me"). The EDI-SPP was originally constructed as a three-item scale (Garner et al., 1983; Joiner & Schmidt, 1995) and alpha reliabilities for this scale are low (i.e., $< .70$; Sherry & Hall, 2009). We added one item to the EDI-SPP (i.e., "It feels as if people make excessive demands of me"). This item comes from Mitzman, Slade, and Dewey (1994, p. 521) and contains item content similar to Hewitt and Flett's (1991) concept of socially prescribed perfectionism. Sherry (2010) found that the alpha reliability for the four-item EDI-SPP was improved (i.e., .82). The four-item EDI-SPP uses a 6-point scale ranging from 1 (*never*) to 6 (*always*); scores thus range from 4–24. Studies provide support for the reliability and validity of the four-item EDI-SPP (Sherry & Hall, 2009). There is a strong link between the three-item EDI-SPP and the four-item EDI-SPP ($r = .85$; Sherry, 2010).

Perfectionistic strivings. Perfectionistic strivings were measured with a short form of Hewitt and Flett's (1991) Multidimensional Perfectionism Scale Self-Oriented Perfectionism subscale (HFMPs-SF-SOP); a short form of Frost et al.'s (1990) Multidimensional Perfectionism Scale Personal Standards (FMPS-SF-PS) dimension; and a modified form of Garner et al.'s (1983) Eating Disorder Inventory Self-Oriented Perfectionism (EDI-SOP) dimension.

The HFMPs-SF-SOP, as used in our study, involves five items measuring self-oriented perfectionism (e.g., "I require nothing less than perfection of myself"). Studies have indicated that it is possible to reduce the 15-item, original HFMPs-SOP to five items without compromising the psychometrics of the HFMPs-SOP (Hewitt, Habke, Lee-Baggle, Sherry, & Flett, 2008; Sherry, Hewitt, Sherry, Flett, & Graham, 2010). The HFMPs-SF-SOP uses a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), so that scores range from 5–35. Studies have supported the reliability and validity of the HFMPs-SF-SOP (Hewitt et al., 2008; Sherry et al., 2010). Correlations between the HFMPs-SOP and the HFMPs-SF-SOP are strong, r range: .70–.91 (Hewitt et al., 2008; Sherry et al., 2010). In Sherry (2010), the alpha reliability for the HFMPs-SF-SOP was .84.

The version of the EDI-SOP we used in our study contains four items that measure self-oriented perfectionism (e.g., "I feel that I must do things perfectly or not do them at all"). Garner et al. (1983; see also Joiner & Schmidt, 1995) initially designed the EDI-SOP as a three-item scale; however, evidence has shown that alpha reliabilities for this scale are low (i.e., $< .70$; Sherry & Hall, 2009). To address this shortcoming, we added an item to the EDI-SOP (i.e., "I set impossibly high standards for myself"). This item involves item content comparable to Hewitt and Flett's (1991) concept of self-oriented perfectionism and comes from Mitzman et al. (1994, p. 521). Evidence from Sherry (2010) has shown that the alpha reliability for the four-item EDI-SOP was improved to .81. The four-item EDI-SOP uses a 6-point scale ranging from 1 (*never*) to 6 (*always*), meaning that scores range from 4–24. There is support for the reliability and validity of the four-item EDI-SOP, including research by Sherry (2010) that has shown a strong link between the three-item EDI-SOP and the 4-item EDI-SOP ($r = .87$).

Lastly, the FMPS-SF-PS, as used in our study, involves four items measuring personal standards (e.g., "I set higher goals than most people"). Cox et al. (2002) created the FMPS-SF-PS by selecting the four highest factor loadings from the seven-item, original FMPS-PS (see p. 368 for more details). According to Cox et al., the psychometric properties of the FMPS-PS were improved after changing from a seven-item scale to a four-item scale. The FMPS-SF-PS uses a 5-point scale ranging from 1 (*strongly dis-*

¹ A supplementary study was also conducted to examine the psychometric properties of these modified measures (e.g., the five-item short-form Depressive Experiences Questionnaire) and their correlation with the original measures (e.g., the nine-item Depressive Experiences Questionnaire). We included all measures in this cross-sectional study. A sample of 94 undergraduates (85.1% women) was recruited from Dalhousie University using recruitment methods similar to those in our main study. These participants averaged 20.05 years of age ($SD = 2.82$) and 2.26 years of university education ($SD = 1.18$). We reference results from this unpublished supplementary study as Sherry (2010).

agree) to 5 (*strongly agree*), so that scores range from 4–20. Several investigations have supported the reliability and validity of the FMPS-SF-PS (Cox et al., 2002). Sherry (2010) observed a strong link between the FMPS-PS and the FMPS-SF-PS ($r = .86$); Sherry (2010) also found the alpha reliability for the FMPS-SF-PS was .87.

Depressive symptoms. Depressive symptoms were measured using a short form of Radloff's (1977) Center for Epidemiological Studies Depression scale (CES-D-SF); a short form of Lubin's (1965) Depression Adjective Checklist Form G (DACL-G-SF); and an unmodified version of Derogatis's (1994) Symptom Checklist–Revised depression subscale (SCL-R-D).

The version of the CES-D-SF used in our study contains 10 items measuring depressive symptoms (e.g., "I felt lonely"). Evidence has shown that shortening the 20-item, original CES-D to 10 items improves psychometric properties (Cole, Rabin, Smith, & Kaufman, 2004). The CES-D-SF uses a 4-point scale ranging from 0 (*rarely or none of the time*) to 3 (*most or all of the time*); scores therefore range from 0–30. Research has supported the reliability and validity of the CES-D-SF (e.g., Cole et al., 2004). There is a strong link between the CES-D and the CES-D-SF ($r = .94$; Sherry, 2010). The alpha reliability for the CES-D-SF was .84 in Sherry (2010).

The DACL-G-SF involves four items measuring depressive symptoms (e.g., "feeling depressed"). The DACL-G-SF was adapted into a four-item scale by Sherry and Hall (2009) based on the four highest factor loadings from the 34-item, original DACL-G (Van Whitlock, Lubin, & Noble, 1995). Research has suggested that the 34-item, original DACL-G may be shortened to four items without compromising the psychometrics of the DACL-G (Sherry & Hall, 2009). The DACL-G-SF uses a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely*), with scores ranging from 0–16. Studies have supported the reliability and validity of the DACL-G-SF (Sherry & Hall, 2009). Sherry (2010) found that the DACL-G and the DACL-G-SF were strongly related ($r = .87$); Sherry (2010) also observed the alpha reliability for the DACL-G-SF was .88.

Finally, the version of the SCL-R-D used in our study contains 13 items measuring depressive symptoms (e.g., "feeling no interest in things"). The SCL-R-D uses a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely*); scores thus range from 0–52. Studies have provided evidence of the reliability and validity of the SCL-R-D (Derogatis, 1994). Barker-Collo (2003), for instance, showed a strong correlation between the SCL-R-D and the depression subscale of the Profile of Mood States ($r = .86$; McNair, Lorr, & Droppleman, 1992). In Sherry (2010), the alpha reliability for the SCL-R-D was .91.

Procedure

Our study was approved by Dalhousie University's Research Ethics Board. Participants were recruited from the Department of Psychology participant pool at Dalhousie University. Before participating, undergraduates were invited to ask questions about participating and to read and sign a consent form. Our study consisted of a total of four assessments (i.e., waves) conducted once a week over 4 consecutive weeks. Participants completed questionnaires in a lab at each assessment point. After the first assessment, participants were also scheduled to return for subse-

quent assessments that happened 1, 2, and 3 weeks after the first assessment. Participants received an email reminder to finish assessments as scheduled. Across all four waves, questionnaires were identical to those given in the first assessment (except demographics were collected only during the first assessment). After completion of the fourth assessment, participants were debriefed and compensated with three bonus credits and \$10.

Retention rates across assessments were high: 240 participants (100%) completed Wave 1; 238 participants (96.7%) completed Wave 2; 230 participants (95.4%) completed Wave 3; and 232 participants (93.4%) completed Wave 4. Congruent with research design, Wave 2 took place an average of 7.04 ($SD = 0.44$) days after Wave 1; Wave 3 took place an average of 14.13 ($SD = 0.66$) days after Wave 1; and Wave 4 took place an average of 21.20 ($SD = 1.23$) days after Wave 1. Only weekly reports completed up to two days before or after scheduled assessments were retained for our analyses; 0.6% (6 of 940) weekly reports were dropped because they did not fit within this timeframe. The final sample included 934 weekly reports.

Data Analysis Strategy

Descriptive statistics were calculated for manifest variables, and bivariate correlations were used to examine associations between manifest variables. Confirmatory factor analysis (CFA) tested measurement models. SEM was used to conduct cross-lagged analyses testing reciprocal relations between (a) self-critical perfectionism and depressive symptoms and (b) perfectionistic strivings and depressive symptoms.

Results

Descriptive Statistics

Means for manifest variables appear in Table 1. These means are for individual scales (e.g., the DEQ-SF at Wave 1). Means fell within 1 SD of means from earlier studies involving undergraduates (e.g., Sherry, 2010). This suggests that our means are consistent with previous research involving comparable samples. Alpha reliabilities for individual scales were also adequate ($\alpha > .77$) across all four waves (see Table 1).

In addition, individual scales for manifest variables were standardized and summed before running correlations. For instance, self-critical perfectionism at Wave 1 was comprised of standardized and summed values for the DEQ-SF at Wave 1, FMPS-SF-COM at Wave 1, and EDI-SPP at Wave 1. Alpha reliabilities for these standardized and summed manifest variables were adequate across all four waves: self-critical perfectionism (.89–.93), perfectionistic strivings (.93–.95), and depressive symptoms (.94–.95).

Bivariate Correlations

Across all four waves, self-critical perfectionism correlated with depressive symptoms (see Table 2). These results suggest merit in testing our hypothesized cross-lagged analyses. We also found that self-critical perfectionism and perfectionistic strivings were inter-correlated. Finally, correlations between perfectionistic strivings and depressive symptoms were lower in magnitude and sometimes nonsignificant. Such results suggest a need to further examine the

Table 1
Means, Standard Deviations, and Alpha Reliabilities for Manifest Variables

| | Wave 1 | | | Wave 2 | | | Wave 3 | | | Wave 4 | | |
|-----------------------------|--------|-------|-------------------|--------|------|-------------------|--------|------|-------------------|--------|-------|-------------------|
| | M | SD | α [95% CI] | M | SD | α [95% CI] | M | SD | α [95% CI] | M | SD | α [95% CI] |
| Self-critical perfectionism | | | | | | | | | | | | |
| DEQ-SF-SC | 17.99 | 6.77 | .85 [.82, .88] | 17.08 | 7.00 | .89 [.86, .91] | 16.35 | 6.96 | .86 [.82, .88] | 16.10 | 7.21 | .86 [.83, .89] |
| FMPS-SF-COM | 11.12 | 5.00 | .87 [.84, .90] | 10.18 | 4.77 | .88 [.86, .91] | 9.50 | 4.68 | .88 [.86, .91] | 9.24 | 4.80 | .89 [.87, .91] |
| EDI-SPP | 13.82 | 4.27 | .77 [.72, .82] | 13.04 | 4.61 | .84 [.81, .87] | 12.12 | 4.91 | .86 [.82, .89] | 11.86 | 4.97 | .84 [.81, .87] |
| Perfectionistic strivings | | | | | | | | | | | | |
| HFMP-SF-SOP | 23.40 | 6.64 | .90 [.88, .92] | 21.52 | 7.37 | .91 [.89, .93] | 20.02 | 8.09 | .92 [.90, .94] | 20.09 | 8.42 | .92 [.90, .93] |
| FMPS-SF-PS | 13.34 | 3.96 | .87 [.84, .89] | 13.14 | 4.10 | .87 [.84, .90] | 12.59 | 4.52 | .89 [.86, .91] | 12.67 | 4.51 | .89 [.87, .91] |
| EDI-SOP | 14.84 | 4.45 | .81 [.77, .85] | 14.25 | 4.77 | .83 [.80, .87] | 13.67 | 5.13 | .86 [.82, .88] | 13.41 | 5.16 | .84 [.80, .87] |
| Depressive symptoms | | | | | | | | | | | | |
| CES-D-SF | 16.92 | 4.90 | .80 [.76, .83] | 16.30 | 4.72 | .80 [.76, .84] | 15.92 | 4.60 | .81 [.77, .84] | 15.97 | 4.87 | .82 [.79, .86] |
| DACL-G-SF | 2.33 | 3.19 | .85 [.82, .88] | 1.95 | 2.75 | .82 [.77, .85] | 1.66 | 2.80 | .85 [.81, .88] | 1.79 | 3.01 | .85 [.81, .88] |
| SCL-R-D | 13.14 | 10.16 | .90 [.88, .92] | 11.32 | 9.36 | .90 [.88, .92] | 10.49 | 9.65 | .91 [.90, .93] | 10.36 | 10.08 | .92 [.90, .93] |

Note. CI = confidence interval; DEQ-SF-SC = Depressive Experiences Questionnaire Short Form Self-Criticism scale; FMPS-SF-COM = Frost et al.'s Multidimensional Perfectionism Scale Short Form Concern Over Mistakes dimension; EDI-SPP = Eating Disorder Inventory Socially Prescribed Perfectionism dimension; HFMP-SF-SOP = Hewitt and Flett's Multidimensional Perfectionism Scale Self-Oriented Perfectionism subscale; FMPS-SF-PS = Frost et al.'s Multidimensional Perfectionism Scale Short Form Personal Standards dimension; EDI-SOP = Eating Disorder Inventory Self-Oriented Perfectionism dimension; CES-D-SF = Center for Epidemiological Studies Depression scale Short Form; DACL-G-SF = Depression Adjective Checklist Form G Short Form; SCL-R-D = Symptom Checklist-Revised depression subscale.

perfectionistic strivings—depressive symptoms link in our exploratory cross-lagged analyses (see Cross-Lagged Analyses).

Across all four waves, test–retest correlations were high (see Table 2), ranging from .83–.93 for self-critical perfectionism, .84–.95 for perfectionistic strivings, and .72–.81 for depressive symptoms. These correlations support the reliability of our scales. In addition, self-critical perfectionism, perfectionistic strivings, and depressive symptoms did not correlate with demographics (e.g., sex or ethnicity). Demographics were thus not used as covariates. Given our relatively homogenous sample, it is possible that study variables (e.g., self-critical perfectionism) and demographic variables were unrelated due to range restriction.

Criteria Used in Evaluating Model Fit

CFA and SEM were conducted with AMOS, Version 7.0. Missing data were minimal (< 3% for any scale). A nonsignificant Little's missing completely at random test, $\chi^2(81) = 97.57, p = .10$, suggested our missing data were missing completely at random (Little, 1988). Full information maximum likelihood estimation was used to handle missing data. Adequate model fit is suggested by a χ^2/df ratio in the range of 2, a comparative fit index (CFI) and an incremental fit index (IFI) in the range of .95, and a root mean square error of approximation (RMSEA) in the range of .05 (Kline, 2005). RMSEA values are reported with 90% confidence intervals (CIs).

CFA

CFA was used to test the validity of our measurement model. This measurement model involved self-critical perfectionism, perfectionistic strivings, and depressive symptoms. Latent variables in our measurement models were allowed to covary and no structural relations were specified. This measurement model involved 12 latent variables (i.e., self-critical perfectionism at four waves, perfectionistic strivings at four waves, and depressive symptoms at four waves). Each latent variable involved three manifest variables (e.g., the depressive symptoms latent variable at Wave 1 included the CES-D-SF at Wave 1, DACL-G-SF at Wave 1, and SCL-R-D at Wave 1). Manifest variables were required to load onto their corresponding latent variables.

We tested whether variation occurred in factor loadings across waves by comparing two different measurement models. In the first model, all factor loadings were freely estimated. In the second model, equality constraints were imposed on factor loadings for like indicators of self-critical perfectionism, perfectionistic strivings, and depressive symptoms (Cole & Maxwell, 2003). For instance, factor loadings for the FMPS-SF-COM were held constant across Waves 1, 2, 3, and 4. If the fit of the first model (the constrained model) does not differ significantly from the fit of the second model (the unconstrained model), equality constraints are justified on empirical grounds. Both ΔCFI values and $\Delta RMSEA$ values were used when evaluating model comparisons. Models differ significantly from each other when the ΔCFI is greater than .01 and the $\Delta RMSEA$ is greater than .007 (Cheung & Rensvold, 2002; Meade, Johnson, & Braddy, 2008).

The fit of the first model was acceptable: $\chi^2(474, N = 240) = 776.42, p < .001; \chi^2/df = 1.64, CFI = .974, IFI = .974, RMSEA = .054, 90\% CI [.05, .06]$. In addition, the fit of the second

Table 2
Bivariate Correlations

| Manifest variables | Wave 1 | | | Wave 2 | | | Wave 3 | | | Wave 4 | | |
|---------------------------------|--------|-----|-----|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Wave 1 | | | | | | | | | | | | |
| 1. Self-critical perfectionism | — | .56 | .58 | .87 | .57 | .54 | .84 | .59 | .45 | .83 | .58 | .47 |
| 2. Perfectionistic strivings | | — | .29 | .51 | .88 | .28 | .53 | .88 | .15 | .52 | .84 | .22 |
| 3. Depressive symptoms | | | — | .57 | .34 | .77 | .55 | .33 | .74 | .61 | .38 | .72 |
| Wave 2 | | | | | | | | | | | | |
| 4. Self-critical perfectionism | | | | — | .63 | .56 | .93 | .63 | .48 | .90 | .63 | .51 |
| 5. Perfectionistic strivings | | | | | — | .34 | .63 | .93 | .19 | .63 | .92 | .28 |
| 6. Depressive symptoms | | | | | | — | .58 | .33 | .80 | .61 | .39 | .77 |
| Wave 3 | | | | | | | | | | | | |
| 7. Self-critical perfectionism | | | | | | | — | .67 | .51 | .93 | .67 | .50 |
| 8. Perfectionistic strivings | | | | | | | | — | .21 | .65 | .95 | .26 |
| 9. Depressive symptoms | | | | | | | | | — | .54 | .27 | .81 |
| Wave 4 | | | | | | | | | | | | |
| 10. Self-critical perfectionism | | | | | | | | | | — | .69 | .59 |
| 11. Perfectionistic strivings | | | | | | | | | | | — | .32 |
| 12. Depressive symptoms | | | | | | | | | | | | — |

Note. Test-retest correlations appear in bold. A bivariate correlation in the range of .10 signifies a small effect size; a bivariate correlation in the range of .30 signifies a medium effect size; a bivariate correlation in the range of .50 signifies a large effect size. In Table 2, bivariate correlations greater than or equal to .26 are significant at $p < .001$.

model was acceptable: $\chi^2(492, N = 240) = 838.62, p < .001, \chi^2/df = 1.71, CFI = .970, IFI = .971, RMSEA = .052, 90\% CI [.05, .06]$. In comparing the first model to the second, the ΔCFI was less than .01 (i.e., .004) and the $\Delta RMSEA$ was less than .007 (i.e., .002), suggesting that our equality constraints were empirically justified and that our latent variables were measured similarly across Waves 1, 2, 3, and 4.

In the unconstrained model, standardized factor loadings for manifest indicators of latent variables across all four waves were significant ($p < .001$). For self-critical perfectionism, these loadings ranged from .77–.84 for the DEQ-SF, from .74–.81 for the FMPS-SF-COM, and from .59–.76 for the EDI-SPP (see Table 3). For perfectionistic strivings, these loadings ranged from .76–.86 for the HFMP-SF-SOP, from .86–.89 for the FMPS-SF-PS, and from .85–.93 for the EDI-SOP. For depressive symptoms, these loadings ranged from .88–.90 for the CES-D-SF, from .85–.91 for the DACL-G-SF, and from .95–.97 for the SCL-R-D. Overall, CFA suggested latent variables were adequately measured by their respective manifest indicators.

Cross-Lagged Analyses

Cross-lagged analyses tested reciprocal relations between (a) self-critical perfectionism and depressive symptoms and (b) perfectionistic strivings and depressive symptoms (see Figure 1). Drawing on Burkholder and Harlow (2003), we used autoregressive paths (e.g., self-critical perfectionism at Wave 1 to self-critical perfectionism at Wave 2) to test interindividual stability; and we used cross-lagged paths to test whether a change in one variable (e.g., self-critical perfectionism at Wave 3) was related to a change in another variable (e.g., depressive symptoms at Wave 4).

As Figure 1 shows, initial variables in cross-lagged analyses correlated with one another. Initial variables in cross-lagged analyses, unlike those in subsequent waves, did not control for variables from earlier waves. Because initial variables failed to assess

change occurring over time, we do not discuss these variables in any further detail.

We tested whether variation occurred in autoregressive paths across waves (excluding initial variables) and in cross-lagged paths across waves (excluding initial variables) by comparing two measurement models. In the first model, autoregressive paths and

Table 3
Standardized Factor Loadings for Manifest Indicators of Latent Variables in the Unconstrained Measurement Model

| | Wave 1 | Wave 2 | Wave 3 | Wave 4 |
|-----------------------------|--------|--------|--------|--------|
| Self-critical perfectionism | | | | |
| DEQ-SF SC | .77 | .79 | .84 | .84 |
| FMPS-SF-COM | .80 | .81 | .74 | .75 |
| EDI-SPP | .59 | .70 | .71 | .76 |
| Perfectionistic strivings | | | | |
| HFMP-SF SOP | .76 | .79 | .86 | .85 |
| FMPS-SF-PS | .87 | .86 | .89 | .86 |
| EDI-SOP | .85 | .90 | .92 | .93 |
| Depressive symptoms | | | | |
| CES-D-SF | .89 | .90 | .90 | .88 |
| DACL-G-SF | .86 | .85 | .91 | .90 |
| SCL-R-D | .95 | .96 | .96 | .97 |

Note. All standardized factor loadings for manifest indicators of latent variables were significant ($p < .001$). DEQ-SF-SC = Depressive Experiences Questionnaire Short Form Self-Criticism scale; FMPS-SF-COM = Frost et al.'s Multidimensional Perfectionism Scale Short Form Concern Over Mistakes dimension; EDI-SPP = Eating Disorder Inventory Socially Prescribed Perfectionism dimension; HFMP-SF-SOP = Hewitt and Flett's Multidimensional Perfectionism Scale Self-Oriented Perfectionism subscale; FMPS-SF-PS = Frost et al.'s Multidimensional Perfectionism Scale Short Form Personal Standards dimension; EDI-SOP = Eating Disorder Inventory Self-Oriented Perfectionism dimension; CES-D-SF = Center for Epidemiological Studies Depression scale Short Form; DACL-G-SF = Depression Adjective Checklist Form G Short Form; SCL-R-D = Symptom Checklist-Revised depression subscale.

cross-lagged paths were freely estimated. In the second model, equality constraints were imposed on similar autoregressive paths and on similar cross-lagged paths. For example, the autoregressive path from self-critical perfectionism at Wave 2 to self-critical perfectionism at Wave 3 and the autoregressive path from self-critical perfectionism at Wave 3 to self-critical perfectionism at Wave 4 were held constant. If the fit of the first model did not differ significantly from the fit of the second model, equality constraints are empirically justified. Disturbance terms correlated within each wave and corresponding errors correlated across each wave (Cole & Maxwell, 2003).

The fit of the first model was acceptable: $\chi^2(507, N = 240) = 828.28, p < .001, \chi^2/df = 1.63, CFI = .972, IFI = .973, RMSEA = .051, 90\% CI [.05, .06]$. Furthermore, the fit of the second model was acceptable: $\chi^2(535, N = 240) = 914.07, p < .001, \chi^2/df = 1.71, CFI = .967, IFI = .968, RMSEA = .054, 90\% CI [.05, .06]$. In comparing the first model to the second, the ΔCFI was less than .01 (i.e., .005) and the $\Delta RMSEA$ was less than .007 (i.e., .003), suggesting that our equality constraints were justified on empirical grounds and that our autoregressive paths and cross-lagged paths were similar across waves.²

As Figure 1 displays, autoregressive paths for self-critical perfectionism, perfectionistic strivings, and depressive symptoms were highly stable. Though unstandardized path coefficients were constrained to equality, standardized path coefficients may still slightly vary (see Figure 1; Burkholder & Harlow, 2003). The hypothesised pattern of reciprocal relations was found where self-critical perfectionism predicted increases in depressive symptoms and depressive symptoms predicted increases in self-critical perfectionism. Exploratory cross-lagged analyses involving perfectionistic strivings and depressive symptoms showed (a) perfectionistic strivings predicted decreases in depressive symptoms and (b) depressive symptoms predicted increases in perfectionistic strivings (see Figure 1).

Discussion

Results from the present study indicated that our measurement model involving self-critical perfectionism, perfectionistic strivings, and depressive symptoms fit the data well. As hypothesised, cross-lagged analyses (see Figure 1) showed reciprocal relations between self-critical perfectionism and depressive symptoms over time. Exploratory cross-lagged analyses (see Figure 1) revealed that perfectionistic strivings predicted decreases in depressive symptoms, whereas depressive symptoms predicted increases in perfectionistic strivings. These results, along with their strengths and limitations, are elaborated on below.

Reciprocal Relations Model of Perfectionism and Depressive Symptoms

Interindividual stability. Interindividual stability is the degree to which the relative ordering of individuals on a personality trait is maintained over time (Caspi et al., 2005). Test–retest correlations and cross-lagged analyses indicated that perfectionism and depressive symptoms exhibit high interindividual stability (see also Rice & Dellwo, 2001). In using latent variables that explicitly account for measurement error, autoregressive paths in Figure 1 provide more precise estimates of interindividual stability relative

to estimates involving manifest variables, which typically underestimate interindividual stability (Kline, 2005). Because most estimates of the interindividual stability of perfectionism rely on manifest variables (e.g., Rice & Dellwo, 2001), our study offers novel evidence consistent with the notion of perfectionism as a stable trait.

By controlling for the high interindividual stability of self-critical perfectionism and depressive symptoms (see Figure 1), our hypothesised reciprocal relations model helps to rule out preexisting levels of each variable as a competing (third variable) explanation for our findings. For example, our data suggest the relation between self-critical perfectionism at Wave 2 and depressive symptoms at Wave 3 is not solely explained by preexisting levels of depressive symptoms at Wave 2. Our four-wave longitudinal design thus provides one of the most stringent tests of reciprocal relations between perfectionism and depressive symptoms to date.

Reciprocal relations. Perfectionism is often conceptualised as a vulnerability factor that leaves individuals at risk for increases in depressive symptoms over time (e.g., Dunkley et al., 2009). Alternatively, other models suggest that depressive symptoms complicate perfectionism, with depressive symptoms contributing to increases in perfectionism over time (e.g., Zuroff et al., 1999). Although some empirical support exists for vulnerability and complication models, both models focus on unidirectional relations between perfectionism and depressive symptoms, and neither model fully explains the reciprocal relations we observed in the present study.

Our study integrates vulnerability and complication effects using a reciprocal relations model. This reciprocal relations model (see Figure 1) stringently and simultaneously tests propositions from both vulnerability and complication models. As hypothesised, reciprocal relations were found between self-critical perfectionism and depressive symptoms, with self-critical perfectionism predicting changes in depressive symptoms and vice versa. These results, considered along with other studies (e.g., Shahar et al., 2004), suggest the reciprocal relations model offers one viable way of conceptualising the link between self-critical perfectionism and depressive symptoms. Our study also extends prior studies (e.g., Zuroff et al., 1990) by providing evidence of reciprocal relations using a short-term, multiwave longitudinal design that captures week-to-week transactions between self-critical perfectionism and depressive symptoms.

² Historically, chi-square difference tests were used in testing whether equality constraints are empirically justified. Evidence indicates that chi-square difference tests are highly sensitive and unduly strict, especially when samples sizes are large (e.g., $N = 240$; Chen et al., 2005; Cheung & Rensvold, 2002; Meade et al., 2008). Not surprisingly, in our study, chi-square difference tests indicated that (a) the constrained measurement model and the unconstrained measurement model differed significantly, $\Delta\chi^2(18, N = 240) = 62.20, p < .001$, and (b) the constrained structural model and the unconstrained structural model differed significantly, $\Delta\chi^2(28, N = 240) = 85.79, p < .001$. Given the above-noted and the well-known limitations of chi-square difference tests, we did not focus on the results of these chi-square difference tests; instead, we followed recommendations to use ΔCFI values and $\Delta RMSEA$ values in testing if equality constraints were empirically justified (see Chen et al., 2005; Cheung & Rensvold, 2002; Meade et al., 2008).

Many longitudinal studies of perfectionism and depression only assessed perfectionism once at baseline (e.g., Chang & Rand, 2000), thereby precluding tests of either complication effects or reciprocal relations. We encourage researchers to test for reciprocal relations—rather than to assume a unidirectional pattern of influence. Though paths from depressive symptoms to self-critical perfectionism are not strong enough to suggest that self-critical perfectionism is merely a characterological variant of depressive symptoms (see Figure 1), self-critical perfectionism appears to be influenced by depressive symptoms. With our study and several others (Cox & Enns, 2003; Shahar et al., 2004) suggesting that depressive symptoms contribute to increases in perfectionism over time, we believe such complication effects warrant attention in future studies.

Though paths from self-critical perfectionism to depressive symptoms in Figure 1 are generally congruent with the vulnerability model, a more encompassing conceptual framework is needed to account for our results. The link between self-critical perfectionism and depressive symptoms may be understood with reference to a “complex syndrome” (Millon, 2002). A complex syndrome is composed of “distinct symptom constellations that are enmeshed within a complex network of problematic personality traits” (p. 212). From this perspective, self-critical perfectionism and depressive symptoms form a unified, interlocking syndrome with self-critical perfectionism and depressive symptoms reciprocally influencing one another over time.

Persons high in self-critical perfectionism have traits that increase their vulnerability to depressive symptoms: They fear others’ criticism, react strongly to perceived failures and mistakes, engage in harsh self-criticism, and possess rigid, unrealistic expectations (Dunkley et al., 2003). Motivational problems, behavioural avoidance, ruminative self-focus, and functional deficits accompanying depressive symptoms (Beck et al., 1979) also appear to exacerbate self-critical perfectionism. Depressive symptoms may intensify core attributes of, and key concerns for, persons high in self-critical perfectionism by generating negative performance evaluations from others, encouraging perceived failures and actual mistakes, and creating opportunities for self-criticism. Persons high in self-critical perfectionism may find themselves in an escalating pattern where self-critical perfectionism leads to, and results from, depressive symptoms.

Perfectionistic strivings, however, exhibited a different pattern. Bivariate correlations indicated that perfectionistic strivings and depressive symptoms correlated positively, with r values ranging from .15–.39. In contrast, after controlling for self-critical perfectionism, cross-lagged analyses indicated that perfectionistic strivings predicted decreases in depressive symptoms (see Figure 1). As Table 2 shows, self-critical perfectionism and perfectionistic strivings correlated strongly. Self-critical perfectionism may suppress variance in perfectionistic strivings such that, once self-critical perfectionism is taken into account, perfectionistic strivings have a differential effect on depressive symptoms. Hill et al. (2010) found a similar suppressor effect, and warned researchers to include both self-critical perfectionism and perfectionistic strivings in predictive equations.

Depressive symptoms also predicted increases in perfectionistic strivings (see Figure 1), suggesting that depressive symptoms exacerbate perfectionistic strivings in a manner suggestive of a complication effect. A broadly similar outcome was also observed

by Cox and Enns (2003), who found that depressive symptoms predicted increased perfectionistic strivings in their two-wave, 12-month longitudinal study. However, in testing the depressive symptoms–perfectionistic strivings connection, Cox and Enns did not control for maladaptive perfectionism, which may lead some to question whether the seeming link between depressive symptoms and perfectionistic strivings is an artifact of the overlap between perfectionistic strivings and maladaptive perfectionism.

Study Limitations and Future Directions

Our study used only one method: self-report questionnaires. If participants lack insight, or have self-serving biases (e.g., defensiveness), their responses to self-report questionnaires may be inaccurate. Future studies might collect self- and informant reports to obtain a more thorough assessment of perfectionism and depressive symptoms. It is also possible that our participants experienced fatigue when repeatedly completing self-report questionnaires. Instructions for our perfectionism measures also referred to “personal characteristics and traits.” Some participants may have interpreted these instructions as indicating that we were asking about fixed characteristics, resulting in overestimation of stability effects and underestimation of complication effects.

Coyne (1994) claimed that self-reported depressive symptoms are qualitatively distinct from a clinical diagnosis of depression. It is unclear whether our results generalise to patients with a clinical depression. That said, we note evidence suggesting continuity between self-reported depressive symptoms and a clinical diagnosis of depression (Haslam, 2003). Moreover, self-report scales and dimensional models are both valid ways of studying depressive symptoms (Haslam, 2003). Our study also involved undergraduates who were mostly young, female, and White. It remains to be seen whether our results generalise to other populations (e.g., men). It will be important to test whether our results extend to clinical samples with more extreme and impairing perfectionism.

In our study, participants were assessed once a week for 4 consecutive weeks. This means the time lags between the waves in our study were shorter than other studies testing reciprocal relations between perfectionism and depressive symptoms (e.g., Shahar et al., 2004). Time lags between waves (e.g., 1 week vs. 1 year) may affect observed results (Cole & Maxwell, 2003). Long-term longitudinal designs involving three or more waves of data are thus a key future direction for testing reciprocal relations between perfectionism and depressive symptoms.

The suppressor effect in Figure 1 is notable. However, there is also a potential downside to including self-critical perfectionism and perfectionistic strivings in the same predictive model. As Coyne and Gottlieb (1996) argued, using statistical controls, such testing of the influence of perfectionistic strivings on depressive symptoms when controlling for self-critical perfectionism, may create variables of unclear meaning that are unlikely to be found in real life. In addition, our approach to testing invariance involved a reliance on Δ CFI and Δ RMSEA values. These values are not infallible arbiters of whether equality constraints are empirically justified; some authors view Δ CFI and Δ RMSEA values as potentially liberal tests of invariance (Chen, Sousa, & West, 2005).

To complement our 7-day timeframe and to reduce participant burden, we also used modified versions of several scales, representing a serious limitation of our study. Although evidence from

our study and an additional psychometrics study (see Footnote 1) indicated that alpha reliabilities and test–retest reliabilities for our modified scales were acceptable, these modified scales may be lacking in other important ways. For example, the DEQ-SF appears to underrepresent the motivational and the interpersonal referents of the self-criticism construct and to overrepresent the affective referents of the self-criticism construct (see Zuroff et al., 2004). The affectively laden item content of the DEQ-SF may inflate the degree to which self-critical perfectionism and depressive symptoms overlap in the present study. More research is also needed to test whether the FMPS-SF-COM provides an adequate representation of the FMPS-COM. Overall, there is much to learn about the psychometric properties of our modified scales, and our use of these scales limits the generalisability of our results to other studies.

Clinical Implications

Our study suggests depressive symptoms complicate the assessment of perfectionism, with temporally proximal depressive symptoms inflating scores on perfectionism measures, as shown in Figure 1. Clinicians are advised to consider whether scores on perfectionism measures are altered or distorted by prior levels of depressive symptoms. Clinicians may also need to consider whether scores on perfectionism measures are influenced by an extended prodrome of, or a residual phase of, depression (Widiger, 2003), though such considerations are speculative at this point.

With respect to treatment, our results suggest that a reduction in self-critical perfectionism may contribute to a corresponding reduction in depressive symptoms and vice versa. Given evidence that co-occurring self-critical perfectionism and depressive symptoms are treatment refractory (i.e., difficult to change through intervention; Zuroff et al., 2000), this suggestion is perhaps unduly optimistic. During the treatment process, reciprocal relations between self-critical perfectionism and depressive symptoms may involve moderators or mediators not measured in our study. For example, the amotivation and the hopelessness accompanying depressive symptoms may undermine a patient's preparedness to change her or his self-critical perfectionism during treatment, whereas self-critical perfectionism may lead to experiences during treatment (e.g., a weaker therapeutic alliance) that maintain or exacerbate depressive symptoms (Zuroff et al., 2000). Finally, we concede that our points about treatment go beyond the data collected in the present study and should therefore be viewed cautiously.

Conclusion

Our reciprocal relations model (see Figure 1) synthesizes vulnerability effects and complication effects into a single conceptual framework that brings greater clarity and coherence to our understanding of the link between self-critical perfectionism and depressive symptoms. As hypothesised, results from our multiwave longitudinal study indicate that changes in self-critical perfectionism at one point in time contribute to changes in depressive symptoms at a later point in time and vice versa. Research focusing only on unidirectional relations between self-critical perfectionism and depressive symptoms may neglect information critical to accurately

conceptualising self-critical perfectionism, depressive symptoms, and their interrelation.

Résumé

Le perfectionnisme autocritique est-il un antécédent de symptômes dépressifs, une conséquence de symptômes dépressifs ou les deux ? Dans la présente étude, le perfectionnisme autocritique (c.-à-d., critique sévère de ses actions, réactions négatives aux perceptions d'échec et soucis extrêmes à propos de l'évaluation des autres) et les symptômes dépressifs ont été conceptualisés comme étant un syndrome unifié et emboîté à l'intérieur duquel le perfectionnisme autocritique et les symptômes dépressifs s'influencent de façon réciproque au fil du temps. Ce modèle de relations réciproques a été testé auprès de 240 étudiants de premier cycle universitaire à l'aide d'un paradigme longitudinal de 4 semaines, en quatre vagues. Conformément aux hypothèses, des relations réciproques ont été observées entre le perfectionnisme autocritique et les symptômes dépressifs, le perfectionnisme autocritique prédisant les changements dans les symptômes dépressifs et vice versa. Les résultats suggèrent que les personnes avec un perfectionnisme autocritique élevé peuvent se retrouver coincés dans un processus d'escalade où le perfectionnisme autocritique mène à, et résulte des symptômes dépressifs. Les recherches mettant un accent exclusif sur les relations unidirectionnelles entre le perfectionnisme autocritique et les symptômes dépressifs peuvent ignorer de l'information critique afin de bien comprendre le perfectionnisme autocritique, les symptômes dépressifs et leur interrelation. Plutôt que d'assumer des relations unidirectionnelles entre le perfectionnisme autocritique et les symptômes dépressifs, les chercheurs sont encouragés à tester les relations réciproques entre ces deux variables.

Mots-clés : perfectionnisme, autocritique, dépression, analyse à décalage croisé.

References

- Bagby, R. M., Parker, J. D. A., Joffe, R. T., & Buis, T. (1994). Reconstruction and validation of the Depressive Experiences Questionnaire. *Assessment, 1*, 59–68. doi:10.1177/1073191194001001009
- Bagby, R. M., Quilty, L. C., & Ryder, A. C. (2008). Personality and depression. *The Canadian Journal of Psychiatry/Le Revue Canadienne de Psychiatrie, 53*, 14–25.
- Barker-Collo, S. L. (2003). Culture and validity of the Symptom Checklist-90-Revised and Profile of Mood States in a New Zealand student sample. *Cultural Diversity & Ethnic Minority Psychology, 9*, 185–196. doi:10.1037/1099-9809.9.2.185
- Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression*. New York, NY: Guilford Press.
- Bieling, P. J., Israeli, A. L., & Antony, M. M. (2004). Is perfectionism good, bad, or both? *Personality and Individual Differences, 36*, 1373–1385. doi:10.1016/S0191-8869(03)00235-6
- Blatt, S. J., D'Afflitti, J. P., & Quinlan, D. M. (1976). Experiences of depression in normal young adults. *Journal of Abnormal Psychology, 95*, 383–389. doi:10.1037/0021-843X.85.4.383
- Burkholder, G. J., & Harlow, L. L. (2003). An illustration of a longitudinal cross-lagged design for larger structural equation models. *Structural Equation Modeling, 10*, 465–486. doi:10.1207/S15328007SEM1003_8
- Caspi, A., Roberts, B. W., & Shiner, R. L. (2005). Personality development: Stability and change. *Annual Review of Psychology, 56*, 453–484. doi:10.1146/annurev.psych.55.090

- Chang, E. C., & Rand, K. L. (2000). Perfectionism as a predictor of subsequent adjustment: Evidence for a specific diathesis–stress mechanism among college students. *Journal of Counseling Psychology, 47*, 129–137. doi:10.1037/0022-0167.47.1.129
- Chen, F. F., Sousa, K. H., & West, S. G. (2005). Testing measurement invariance of second-order factor models. *Structural Equation Modeling, 12*, 471–492. doi:10.1207/s15328007sem1203_7
- Cheung, G., & Rensvold, R. (2002). Evaluating goodness-of-fit indices for testing measurement invariance. *Structural Equation Modeling, 9*, 233–255.
- Clara, I. P., Cox, B. J., & Enns, M. W. (2007). Assessing self-critical perfectionism in clinical depression. *Journal of Personality Assessment, 88*, 309–316.
- Cole, D. C., & Maxwell, S. E. (2003). Testing mediational models with longitudinal data: Questions and tips in the use of structural equation modeling. *Journal of Abnormal Psychology, 112*, 558–577. doi:10.1037/0021-843X.112.4.558
- Cole, J. C., Rabin, A. S., Smith, T. L., & Kaufman, A. S. (2004). Development and validation of a Rasch-derived CES-D short form. *Psychological Assessment, 16*, 360–372. doi:10.1037/1040-3590.16.4.360
- Cox, B. J., Clara, I. P., & Enns, M. W. (2009). Self-criticism, maladaptive perfectionism, and depression symptoms in a community sample: A longitudinal test of the mediating effects of person-dependent stressful life events. *Journal of Cognitive Psychotherapy, 23*, 336–349. doi:10.1891/0889-8391.23.4.336
- Cox, B. J., & Enns, M. W. (2003). Relative stability of dimensions of perfectionism in depression. *Canadian Journal of Behavioural Science, 35*, 124–132. doi:10.1037/h0087194
- Cox, B. J., Enns, M. W., & Clara, I. P. (2002). The multidimensional structure of perfectionism in clinically distressed and college student samples. *Psychological Assessment, 14*, 365–373. doi:10.1037/1040-3590.14.3.365
- Coyne, J. C. (1994). Self-reported distress: Analog or ersatz depression? *Psychological Bulletin, 116*, 29–45. doi:10.1037/0033-2909.116.1.29
- Coyne, J. C., & Gottlieb, B. H. (1996). The mismeasure of coping by checklist. *Journal of Personality, 64*, 959–991. doi:10.1111/j.1467-6494.1996.tb00950.x
- Derogatis, L. R. (1994). *Symptom Checklist-90-R: Administration, scoring, and procedures manual*. Minneapolis, MN: NCS Pearson.
- Desmet, M., Vanheule, S., Groenvynck, H., Verhaeghe, P., Vogel, J., & Bogaerts, S. (2007). The Depressive Experiences Questionnaire: An inquiry into the different scoring procedures. *European Journal of Psychological Assessment, 23*, 89–98. doi:10.1027/1015-5759.23.2.89
- Dunkley, D. M., & Blankstein, K. R. (2000). Self-critical perfectionism, coping, hassles, and current distress: A structural equation modeling approach. *Cognitive Therapy and Research, 24*, 713–730. doi:10.1023/A:1005543529245
- Dunkley, D. M., Sanislow, C. A., Grilo, C. M., & McGlashan, T. H. (2009). Self-criticism versus neuroticism in predicting depression and psychosocial impairment for 4 years in a clinical sample. *Comprehensive Psychiatry, 50*, 335–346. doi:10.1016/j.comppsy.2008.09.004
- Dunkley, D. M., Zuroff, D. C., & Blankstein, K. R. (2003). Self-critical perfectionism and daily affect: Dispositional and situational influences on stress and coping. *Journal of Personality and Social Psychology, 84*, 234–252. doi:10.1037/0022-3514.84.1.234
- Enns, M. W., Cox, B. J., Sareen, J., & Freeman, P. (2001). Adaptive and maladaptive perfectionism in medical students. *Medical Education, 35*, 1034–1042. doi:10.1046/j.1365-2923.2001.01044.x
- Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research, 14*, 449–468. doi:10.1007/BF01172967
- Garner, D. M., Olmstead, M. P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders, 2*, 15–34. doi:10.1002/1098-108X(198321)2:2<15::AID-EAT2260020203>3.0.CO;2-6
- Graham, A. R., Sherry, S. B., Stewart, S. H., Sherry, D. L., McGrath, D., Fossum, K., & Allen, S. L. (2010). The existential model of perfectionism and depressive symptoms: A short-term, four-wave longitudinal study. *Journal of Counseling Psychology, 57*, 423–438. doi:10.1037/a0020667
- Haslam, N. (2003). Categorical versus dimensional models of mental disorder: The taxometric evidence. *Australian and New Zealand Journal of Psychiatry, 37*, 696–704. doi:10.1111/j.1440-1614.2003.01258.x
- Hawley, L. L., Ho, M.-H. R., Zuroff, D. C., & Blatt, S. J. (2006). The relationship of perfectionism, depression, and therapeutic alliance during treatment for depression: Latent difference score analysis. *Journal of Consulting and Clinical Psychology, 74*, 930–942. doi:10.1037/0022-006X.74.5.930
- Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology, 60*, 456–470. doi:10.1037/0022-3514.60.3.456
- Hewitt, P. L., & Flett, G. L. (2002). Perfectionism and stress processes in psychopathology. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 255–284). Washington, DC: American Psychological Association.
- Hewitt, P. L., Flett, G. L., & Ediger, E. (1996). Perfectionism and depression: Longitudinal assessment of a specific vulnerability hypothesis. *Journal of Abnormal Psychology, 105*, 276–280. doi:10.1037/0021-843X.105.2.276
- Hewitt, P. L., Habke, A. M., Lee-Baggeley, D. L., Sherry, S. B., & Flett, G. L. (2008). The impact of perfectionistic self-presentation on the cognitive, affective, and physiological experience of a clinical interview. *Psychiatry: Interpersonal & Biological Processes, 71*, 93–122. doi:10.1521/psyc.2008.71.2.93
- Hill, R. W., Huelsman, T. J., & Araujo, G. (2010). Perfectionistic concerns suppress associations between perfectionistic strivings and positive life outcomes. *Personality and Individual Differences, 48*, 584–589. doi:10.1016/j.paid.2009.12.011
- Joiner, T. E., & Schmidt, N. B. (1995). Dimensions of perfectionism, life stress, and depressed and anxious symptoms. *Journal of Social and Clinical Psychology, 14*, 165–183.
- Judd, L. L., Schettler, P. J., & Akiskal, H. S. (2002). The prevalence, clinical relevance, and public health significance of subthreshold depressions. *Psychiatric Clinics of North America, 25*, 685–698. doi:10.1016/S0193-953X(02)00026-6
- Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York, NY: Guilford Press.
- Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association, 83*, 1198–1202.
- Lubin, B. (1965). Adjective checklists for measurement of depression. *Archives of General Psychiatry, 12*, 57–62.
- McNair, D. M., Lorr, M., & Droppleman, L. F. (1992). *EdITS manual for the Profile of Mood States*. San Diego, CA: EdITS.
- Meade, A. W., Johnson, E. C., & Braddy, P. W. (2008). Power and sensitivity of alternative fit indices in tests of measurement invariance. *Journal of Applied Psychology, 93*, 568–592. doi:10.1037/0021-9010.93.3.568
- Millon, T. (2002). Assessment is not enough: The SPA should participate in constructing a comprehensive clinical science of personality. *Journal of Personality Assessment, 78*, 209–218. doi:10.1207/S15327752JPA7802_02
- Mitzman, S. F., Slade, P., & Dewey, M. E. (1994). Preliminary development of a questionnaire designed to measure neurotic perfectionism in the eating

- disorders. *Journal of Clinical Psychology*, 50, 516–528. doi:10.1002/1097-4679(199407)50:4<516::AID-JCLP2270500406>3.0.CO;2-0
- O'Connor, R. C., Rasmussen, S., & Hawton, K. (2010). Predicting depression, anxiety and self-harm in adolescents: The role of perfectionism and acute life stress. *Behaviour Research and Therapy*, 48, 52–59. doi:10.1016/j.brat.2009.09.008
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385–401. doi:10.1177/014662167700100306
- Rice, K. G., & Aldea, M. A. (2006). State dependence and trait stability of perfectionism: A short-term longitudinal study. *Journal of Counseling Psychology*, 53, 205–213. doi:10.1037/0022-0167.53.2.205
- Rice, K. G., & Dellwo, J. P. (2001). Within-semester stability and adjustment correlates of the Multidimensional Perfectionism Scale. *Measurement and Evaluation in Counseling and Development*, 34, 146–156.
- Shahar, G., Blatt, S. J., Zuroff, D. C., Kuperminc, G. P., & Leadbeater, B. J. (2004). Reciprocal relations between depressive symptoms and self-criticism (but not dependency) among early adolescent girls (but not boys). *Cognitive Therapy and Research*, 28, 85–103. doi:10.1023/B:COTR.0000016932.82038.d0
- Sherry, S. B. (2010). [Psychometric data]. Unpublished raw data.
- Sherry, S. B., & Hall, P. A. (2009). The perfectionism model of binge eating: Tests of an integrative model. *Journal of Personality and Social Psychology*, 96, 690–709. doi:10.1037/a0014528
- Sherry, S. B., Hewitt, P. L., Sherry, D. L., Flett, G. L., & Graham, A. R. (2010). Perfectionism dimensions and research productivity in psychology professors. *Canadian Journal of Behavioural Science*, 42, 273–283. doi:10.1037/a0020466
- Soenens, B., Luyckx, K., Vansteenkiste, M., Lyuten, P., Duriez, B., & Goossens, L. (2008). Maladaptive perfectionism as an intervening variable between psychological control and adolescent depressive symptoms. *Journal of Family Psychology*, 22, 465–474. doi:10.1037/0893-3200.22.3.465
- Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: Approaches, evidence, challenges. *Personality and Social Psychology Review*, 10, 295–319. doi:10.1207/s15327957pspr1004_2
- Stoeber, J., & Rambow, A. (2007). Perfectionism in adolescent school students: Relations with motivation, achievement, and well-being. *Personality and Individual Differences*, 42, 1379–1389. doi:10.1016/j.paid.2006.10.015
- Tram, J. M., & Cole, D. A. (2006). A multimethod examination of the stability of depressive symptoms in childhood and adolescence. *Journal of Abnormal Psychology*, 115, 674–686. doi:10.1037/0021-843X.115.4.674
- Van Whitlock, R., Lubin, B., & Noble, E. (1995). Factor structure of the state and trait versions of the Depression Adjective Checklists. *Journal of Clinical Psychology*, 51, 614–625.
- Wichers, M., Geschwind, N., van Os, J., & Peeters, F. (2010). Scars in depression: Is a conceptual shift necessary to solve the puzzle? *Psychological Medicine: A Journal of Research in Psychiatry and the Allied Sciences*, 40, 359–365. doi:10.1017/S0033291709990420
- Widiger, T. A. (2003). Personality disorder and Axis I psychopathology: The problematic boundary of Axis I and Axis II. *Journal of Personality Disorders*, 17, 90–108. doi:10.1521/pedi.17.2.90.23987
- Zuroff, D. C., Blatt, S., Sanislow, C., Bondi, C., & Pilkonis, P. (1999). Vulnerability to depression: Reexamining state dependence and relative stability. *Journal of Abnormal Psychology*, 108, 76–89. doi:10.1037/0021-843X.108.1.76
- Zuroff, D. C., Blatt, S. J., Sotsky, S. M., Krupnick, J. L., Martin, D. J., Sanislow III, C. A., & Simmens, S. (2000). Relation of therapeutic alliance and perfectionism to outcome in brief outpatient treatment of depression. *Journal of Consulting and Clinical Psychology*, 68, 114–124. doi:10.1037/0022-006X.68.1.114
- Zuroff, D. C., Igeja, I., & Mongrain, M. (1990). Dysfunctional attitudes, dependency, and self-criticism as predictors of depressive mood states: A 12-month longitudinal study. *Cognitive Therapy and Research*, 14, 315–326. doi:10.1007/BF01183999
- Zuroff, D. C., Mongrain, M., & Santor, D. A. (2004). Conceptualizing and measuring personality vulnerability to depression: Comment on Coyne and Whiffen (1995). *Psychological Bulletin*, 130, 489–511. doi:10.1037/0033-2909.130.3.489

Received April 10, 2011

Revision received February 13, 2012

Accepted February 15, 2012 ■