Perfectionism and daily stress, self-compassion, rumination, and well-being

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Table of Contents

Abstract

This study of 154 community adults (110 women, 44 men) examined daily stress, self-compassion, and rumination as mechanisms through which self-critical (SC) and personal standards (PS) dimensions of perfectionism relate to daily negative and positive affect. Participants completed measures of perfectionism, followed by a 14-day daily diary procedure, which included measures of daily stress, self-compassion, rumination, and affect, for 14 consecutive days. Path modeling results indicated that aggregated daily event stress, lower self-compassion, and ruminative brooding explained the maintenance of daily negative affect in individuals with higher SC perfectionism over two weeks. Further, daily event stress and lower self-compassion explained why higher SC perfectionism was linked to sustained lower daily positive affect over two weeks. When controlling for SC perfectionism, PS perfectionism was linked to higher negative affect through self-compassion and lower ruminative brooding, and to positive affect through self-compassion. Multilevel modeling results indicated that individuals higher in SC/PS perfectionism, relative to individuals lower on these dimensions, reacted with heightened increases in negative affect and greater decreases in self-compassion when they experienced more daily event stress than usual. Individuals higher in SC perfectionism were also found to react to more daily event stress than usual with greater increases in ruminative brooding. In addition, SC perfectionism, but not PS perfectionism, was found to moderate the association of daily self-compassion predicting lower daily ruminative brooding. These findings suggest that interventions for individuals with higher SC/PS perfectionism should target stress and maladaptive emotion regulation tendencies, such as rumination and lower self-compassion, to bolster their well-being on a daily basis.

Résumé

Cette étude a examiné le stress, l'autocompassion, et la rumination quotidien comme mécanismes par lesquels l'autocritique perfectionnisme (AP) et les standards personnelles (SP) se rapportent quotidiennement à l'affect négatif et positif chez 154 adultes de la communauté (110 femmes, 44 hommes). Les participants ont rempli des questionnaires évaluant leur niveau de perfectionnisme. Ensuite, à chaque jour pendant 14 jours consécutifs, ils ont rempli un rapport portant sur leur stress, leur affect négatif et positif, et leur emploi de stratégies de régulation émotionnelle (rumination et autocompassion). Une analyse des pistes causales a démontré que le stress et les tendances à la rumination et un manque d'autocompassion expliquent pourquoi les individus avec un AP plus élevé sont enclins à éprouver de l'affect négatif. Ainsi, il a démontré que le stress et une tendance à un manque d'autocompassion expliquent pourquoi les individus avec un AP plus élevé sont enclins à éprouver moins d'affect positif. Pour les individus avec un SP plus élevé, lorsque la variance partagée avec l'AP est éliminée, l'analyse des pistes causales a démontré que les tendances à l'autocompassion et un manque de la rumination expliquent pourquoi ils ont moins d'affect négatif. De plus, l'autocompassion expliquent leur affect positif plus élevé. Une modélisation à multiniveaux a indiqué que les individus ayant un AP/SP plus élevé, par rapport à ceux ayant des scores inférieurs, présentent des augmentations plus marquées de l'affect négatif, ainsi que des diminutions plus prononcées de l'autocompassion, face aux facteurs de stress quotidiens. De plus, pour eux avec un AP plus élevé, cette réactivité applique aussi à l'emploi plus élevé de la rumination. Finalement, pour les individus ayant un AP plus élevé, l'autocompassion est particulièrement efficace pour réduire la rumination. Ces résultats indiquent que les efforts de traitement et de prévention pour les individus avec un AP/SP plus élevé devraient cibler leur stress et leur utilisation de stratégies de régulation émotionnelle.

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Contribution of Authors

The present study is part of a larger longitudinal study, which will examine the associations of self-critical and personal standards perfectionism, emotion regulation, and well-being in a community sample of employed adults at three time points over two years. The study was designed by the principal investigator, Dr. David Dunkley. I, Aynslie McIntyre, was responsible for recruiting participants, collecting and entering data, and performing data management and statistical analyses during the first time point of the study (Time 1; Fall 2021 – Fall 2022). Dr. Dunkley accepted that I use the data from Time 1 to examine the roles of self-compassion and rumination in the models of stress generation and stress reactivity in perfectionism. Finally, I wrote the thesis, which was reviewed by Dr. Dunkley.

List of Tables and Figures

Tables

Figures

List of Abbreviations

APS-R	Almost Perfect Scale – Revised
CFI	Comparative Incremental Fit
CI	Confidence Interval
DEQ	Depressive Experiences Questionnaire
FMPS	Frost Multidimensional Perfectionism Scale
HMPS	Hewitt & Flett Multidimensional Perfectionism Scale
IFI	Incremental Fit
RMSEA	Root Mean Square Error of Approximation
PANAS	Positive and Negative Affect Scale
PS	Personal Standards
RRS	Ruminative Responses Scale
SC	Self-Critical
SCS	Self-Compassion Scale
SRMR	Standardized Root Mean Square Residual

Introduction

Recent findings suggest that rates of perfectionism are on the rise (Curran & Hill, 2019). This increase is rooted in cultural shifts that have occurred over the past three decades, such as more demanding educational expectations, increased parental pressure on children to succeed, and greater emphasis on values like competitiveness and individualism (Curran & Hill, 2019). Along with this rise in perfectionism comes a rise in psychopathology, as perfectionism is implicated in the etiology and maintenance of various forms of psychopathology, including anxiety and depression (see Egan et al., 2011; Smith et al., 2020 for reviews). As depression and anxiety are major contributors to the global mental health crisis (Kessler et al., 2009), it is necessary for psychological research to identify the mechanisms underlying the association between perfectionism and lower well-being, in order to inform treatment and prevention efforts for psychological disorders. Additionally, perfectionistic individuals tend to have worse therapeutic outcomes (Blatt & Zuroff, 2005; Löw et al., 2020), signalling a need for more tailored interventions.

The role of perfectionism as a transdiagnostic vulnerability factor for various disorders suggests the presence of mediating factors linking it to a range of adverse psychological outcomes. Theory and research suggest that the ways in which perfectionists experience and react to stress play significant roles in their well-being over time. Two models have been put forth to explain the reactions of perfectionists to stress, the first being the stress generation model and the second being the stress reactivity model. The stress generation model posits that perfectionists tend to respond to stress with avoidance, which ultimately leads to the generation of further stress and greater psychological distress (Dunkley et al., 2003). According to the stress reactivity model, individuals higher in perfectionism are more vulnerable to psychological

distress when they are experiencing life stress (e.g., Dunkley, Mandel, et al., 2014; Flett et al., 1995). As such, stress tends to trigger intense affective reactions in perfectionists (Dunkley, Mandel et al., 2014). As adaptive emotion regulation strategies effectively buffer against distress in perfectionists (Aldea & Rice, 2006), it is possible that the pathway from stress to diminished well-being that is observed in perfectionists may be explained by a tendency to engage in maladaptive emotion regulation strategies. It is of particular interest to examine the role of emotion regulation in the pathway from stress to elevated negative mood and reduced positive mood, as negative mood is a core feature of depression and anxiety, while lower positive mood is characteristic of depression (Clark & Watson, 1991).

While the stress generation and stress reactivity models in perfectionists are well-established (e.g., Smith et al., 2020; Dunkley et al., 2003; Dunkley, Ma, et al., 2014), less is known about the specific mechanisms underlying the link between stress and worse affective outcomes in perfectionists. This paper will explore the role of emotion (dys)regulation in that association using a daily diary methodology. Specifically, a model of aggregated daily stress, self-compassion, and rumination as mediators of the associations between perfectionism and negative affect and lower positive affect will be tested. Next, perfectionism will be evaluated as a moderator of the association between daily changes in stress and affect. This paper will subsequently examine how perfectionism moderates associations of daily stress, self-compassion, and rumination.

This paper will be divided into eight sections. I will first discuss the evolution of the conceptualization of perfectionism from unidimensional to multidimensional and will present the two higher-order dimensions of self-critical (SC) and personal standards (PS) perfectionism. In the second section, I will review the literature surrounding the associations between the two

perfectionism dimensions and well-being, specifically, negative and positive affect. In the third section, I will review studies providing evidence for the stress generation and stress reactivity models in perfectionistic individuals. In section four, I will present theory and empirical evidence supporting the mediation model linking perfectionism, stress, self-compassion, rumination, and higher negative affect and lower positive affect. In the fifth section, I will review moderation studies examining perfectionism, stress, self-compassion, rumination, and well-being. In the sixth section, I will present the study's methodology, while in the seventh I will present the results. Finally, the eighth section will provide a discussion of the present study's findings, as well as its limitations, conclusions, and implications.

Defining and Conceptualizing Perfectionism

Perfectionism was historically conceptualized as a unidimensional construct, characterized by the setting of unattainable standards and the rigid pursuit of their attainment, equating self-worth to success and productivity, and "all-or-nothing" thinking, for example, viewing the self as a complete success or failure and nothing in-between (Burns, 1980; Barrow & Moore, 1983). However, over the past three decades, several multidimensional conceptualizations of perfectionism have been developed. Three of these conceptualizations have been particularly influential. The measures associated with these conceptualizations are the Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990), the Hewitt and Flett (1991) Multidimensional Perfectionism Scale (HMPS), and the Almost Perfect Scale – Revised (APS-R; Slaney et al., 2001).

While these conceptualizations differ in the specific dimensions identified, they are similar in that they define perfectionism as being composed of multiple dimensions, some of which are relatively more maladaptive than others. The FMPS conceptualizes perfectionism to be

comprised of several distinct components, specifically, personal standards, concern over mistakes, doubts about actions, parental expectations, parental criticism, and organization. While concern over mistakes is considered to be reflective of perfectionism's more maladaptive nature, personal standards is not thought to be inherently maladaptive (Frost et al., 1990). Hewitt and Flett (1991), on the other hand, conceptualize perfectionism as a combination of intrapersonal (i.e., self-oriented perfectionism) and interpersonal (i.e., other-oriented perfectionism, social prescribed perfectionism) aspects. Self-oriented perfectionism reflects one's setting of unrealistic standards for themselves (Hewitt & Flett, 1991). More strongly related to maladaptive outcomes is socially prescribed perfectionism, which is one's belief that they are being held to unrealistically high standards by others, who are thereby pressuring them to attain perfection (Hewitt & Flett, 1991). Finally, Slaney and colleagues (2001) conceptualize order and high standards to be relatively more adaptive aspects of perfectionism, while discrepancy (i.e., one's perceived inability to meet the high standards set for oneself) is considered to be the relatively more maladaptive aspect of perfectionism.

These conceptualizations of perfectionism have been integrated to produce two higher order dimensions of perfectionism, which have been consistently identified by several factor analytic studies (e.g., Cox et al., 2002; Dunkley et al., 2006; Stoeber & Otto, 2006). While one of these dimensions encapsulates the more adaptive components of perfectionism, the other captures the more harmful components (Dunkley et al., 2006; Stoeber & Otto, 2006). These two higher order dimensions of perfectionism are referred to as personal standards (PS) perfectionism and self-critical (SC) perfectionism, respectively (e.g., Dunkley et al., 2003). SC perfectionism is characterized by harsh self-scrutiny, extremely critical self-evaluations, and chronic concerns regarding criticism and disapproval from others, while PS perfectionism involves setting high

standards and goals for oneself and striving to achieve them (Dunkley et al. 2003). The SC perfectionism composite score is comprised of the Depressive Experiences Questionnaire (DEQ; Blatt et al., 1976) self-criticism subscale, the HMPS socially prescribed perfectionism subscale, the FMPS concern over mistakes subscale, and the APS-R discrepancy subscale. The components of PS perfectionism are the HMPS self-oriented perfectionism subscale, the FMPS personal standards subscale, and the APS-R high standards subscale.

Perfectionism and Distress

SC and PS perfectionism are conceptualized dimensionally, rather than categorically (Zuroff et al., 2004). Thus, each individual falls somewhere along the scale of each dimension. Those who report higher levels of SC perfectionism report more adverse outcomes relative to individuals with higher levels of PS perfectionism. Specifically, PS perfectionism is weakly or negligibly associated with elevated levels of distress (e.g., Aldea & Rice, 2006; Dunkley et al., 2000; 2003). SC perfectionism, on the other hand, has been consistently associated with various indicators of distress, including depressive and anxious symptoms (e.g., Mandel et al. 2015; Dunkley et al., 2020). Further, SC perfectionism has been shown to predict depressive and anxious symptoms over time (see Smith et al. 2016; 2018; 2021 for reviews). SC perfectionism has also been implicated in the maintenance of higher negative affect (Dunkley et al., 2003; Dunkley, Ma, et al., 2014; Chang, 2000; Flett et al., 2009), which is common to both depression and anxiety (Clark & Watson, 1991), and lower positive affect (Dunkley et al., 2003; Dunkley, Ma, et al., 2014; Flett et al., 2009), which is a specific feature of depression (Clark & Watson, 1991). As such, it is important that research address the mechanisms underlying the link between SC perfectionism and affect to inform interventions aimed at improving the well-being of perfectionistic individuals.

Perfectionism, Stress, and Well-Being

To inform our understanding of the link between SC perfectionism and lower well-being, past research has examined the dispositional and situational influences of perfectionism on stress and coping processes. Specifically, the stress generation and stress reactivity models provide explanations for the maintenance and instigation of psychological distress in individuals with higher SC perfectionism.

Stress Generation Model

Per the stress generation model, SC perfectionistic individuals tend to magnify minor stressors, interpreting them as major threats to their self-worth and drive for excellence, which, in turn, creates more stress, contributing to the maintenance of symptoms of distress (Dunkley et al., 2000; Hewitt & Flett, 1993). Further, due to concerns regarding their ability to successfully handle stressful events, SC perfectionists generally respond to daily stressors with avoidant coping (Dunkley et al., 2000; 2003). By typically avoiding their problems, rather than dealing with them head-on, SC perfectionists generate more stress for themselves, which ultimately leads to increased susceptibility to stress (Dunkley et al., 2003; Carver and Connor-Smith, 2010).

Many longitudinal studies have suggested that stress mediates the association between SC perfectionism and depressive symptoms over time (see Smith et al., 2020 for review). The stress generation model in perfectionists has also been examined using a daily diary approach, wherein aggregated scores of daily stress and affect were used to empirically derive stress as a maintenance factor of higher negative affect and lower positive affect (Dunkley et al., 2003; Dunkley, Ma et al., 2014; Dunkley, et al., 2016). Daily diary studies have indicated that SC perfectionism maintains higher daily negative affect and lower daily positive affect through stress generation (Dunkley et al., 2003; Dunkley, Ma et al., 2014; Dunkley et al., 2016).

Individuals higher in PS perfectionism, on the other hand, tend to cope with stressful events in a more adaptive manner; namely, through problem-focused coping, rather than avoidance (Dunkley et al., 2000; Dunkley et al., 2016). Problem-focused coping has been demonstrated to mediate the relationship between PS perfectionism and lower levels of psychological distress (Noble et al., 2014; Hill et al., 2010). Further, problem-focused coping has emerged as a maintenance factor for daily positive affect in PS perfectionistic individuals (Dunkley, Ma, et al., 2014). As such, their tendency to cope with event stress in a more adaptive manner may explain why individuals higher in PS perfectionism report less adverse outcomes compared to individuals higher in SC perfectionism.

Stress Reactivity Model

Theory suggests that individuals who go on to develop perfectionistic traits were raised in environments where parental approval was conditional upon the attainment of extremely high parental expectations, and where failure to achieve these expectations was met with criticism. This fosters the development of a sense of conditional self-worth that is contingent upon their own success and productivity (e.g., Blatt, 1995; Hamachek, 1978; see Dunkley et al., 2016). Those with higher PS perfectionism internalize the high standards that were set by their parents, which they strive to achieve. While this is not in-and-of itself maladaptive, the pressure these individuals place on themselves may take a toll on their emotional well-being (e.g., Dunkley et al., 2003; Flett et al., 2002; Young et al., 2003). Individuals with higher SC perfectionism experience harsh and punitive treatment from their parents, which manifests in extremely critical self-evaluative tendencies (e.g., Blatt, 1995; Flett et al., 2002; Young et al., 2003). As such, both PS and SC perfectionistic individuals are more vulnerable to distress after experiencing stress relative to individuals lower in perfectionism (e.g., Dunkley, Mandel, et al., 2014; Flett et al.,

1995). This stress reactivity model of perfectionism has been examined using both between- and within-persons approaches. Between-persons approaches examined whether perfectionism interacts with individual differences in stress to predict individual differences in distress (Flett et al., 1995). Prior research suggests that both SC and PS perfectionism interact with stress to predict depressive symptoms (Flett et al., 1995). Within-persons analyses, on the other hand, examined whether individuals with higher perfectionism have intensified affective reactions in response to within-person increases in daily stress (Dunkley, Mandel, et al., 2014).

The stress reactivity model is based on the theory that how one reacts to a stressor is more deterministic of psychological outcomes than the stressor itself (Beck, 1979; Charles et al., 2013). Those higher in SC perfectionism, in particular, tend to be more emotionally reactive and prone to guilt in the context of failure (e.g., Békés et al., 2015; Dunkley et al., 2003). One daily diary study found that, relative to individuals lower in perfectionism, both SC and PS perfectionistic individuals experienced greater increases in negative affect and sadness, as well as greater decreases in positive affect, when experiencing more stress than usual at six-month and three-year follow ups (Dunkley, Mandel, et al., 2014). Additionally, stress-sadness reactivity (i.e., the degree to which increases in stress were coupled with increases in sadness) at six-month and three-year follow-ups mediated the association between SC perfectionism and general depressive symptoms, anhedonic depressive symptoms, and general anxious symptoms four years later (Mandel et al., 2015). Another study found that higher SC perfectionism and daily stress-sadness reactivity predicted higher depressive symptoms over one year in individuals with depression (Mandel et al., 2018).

Together, stress generation and stress reactivity contribute to the depressive mood reported by perfectionistic individuals. However, further research is needed to explore the

mechanisms underlying the link between stress and affect in perfectionistic individuals. It is possible that emotion (dys)regulation may play a key role in prolonging these low mood states (Malivoire et al., 2019).

Perfectionism, Stress, Self-Compassion, Rumination and Well-Being

Relative to those higher in PS perfectionism, individuals higher in SC perfectionism tend to respond to stress with more maladaptive emotion regulation and less adaptive emotion regulation (Bergman et al., 2007; O'Connor et al., 2007; Richardson et al., 2014). As such, efforts to reduce maladaptive emotion regulation strategies and bolster adaptive emotion regulation strategies may lead to improvements in the well-being of those with higher SC perfectionism. To better understand the influence of emotion (dys)regulation on daily affect, it is necessary to examine how those with higher levels of perfectionism regulate their emotions on a daily basis (Aldea & Rice, 2006). More specifically, I will propose a dispositional model of how perfectionism maintains daily stress, emotion dysregulation, negative affect, and lower positive affect. I will also consider how perfectionism moderates within-person associations among daily stress, emotion (dys)regulation, and affect.

Perfectionism and the Maintenance of Stress, Lower Self-Compassion, Rumination, and Affect

To understand why SC perfectionistic individuals report persistent lower well-being, it is necessary to examine how they typically respond to the minor stressors that are experienced on a daily basis (Dunkley et al., 2003). While event stress has been established as a mediator between SC perfectionism and both negative affect and lower positive affect (Dunkley et al., 2003; Dunkley, Ma et al., 2014), less is known about the pathways from stress to lower well-being. As the process model of emotion regulation assumes that different emotion regulation strategies may

be used simultaneously (Gross & Thompson, 2007), it is important to examine how different strategies (i.e., self-compassion, rumination) may, in combination, explain the association between event stress and chronic lower well-being in those with higher SC perfectionism.

Self-compassion is an example of an adaptive emotion regulation strategy, however, those higher in SC perfectionism tend to engage in less self-compassion compared to others (e.g., Mehr & Adams, 2016; Stoeber et al., 2020). Originally rooted in Buddhist philosophy, self-compassion has gained traction in Western psychology over the past two decades. A conceptualization of self-compassion and its relationships to other measures of psychological functioning was developed by Neff (2003a). Specifically, Neff described self-compassion as a construct that involves taking an accepting, nonjudgmental approach to painful experiences, directing feelings of kindness towards oneself, and acknowledging that one's own struggles are part of the shared human experience (2003a). Self-compassion is measured using the Self-Compassion Scale (SCS; Neff, 2003b), which is comprised of six subscales. The SCS subscales contrast the tendency to experience feelings of kindness and understanding towards oneself (self-kindness) versus being self-critical (self-judgment), to understand one's experiences to be part of the common human experience (common humanity) versus viewing them as uncommon and isolating (isolation), and to respond to painful experiences in a balanced manner (mindfulness) versus over-identifying with them (over-identification; Neff, 2003a; 2003b).

Rumination, on the other hand, is an example of a maladaptive emotion regulation strategy that perfectionistic individuals tend to engage in (e.g., Flett et al., 2002; Blankstein & Lumley, 2008). Rumination is characterized by self-focused attention (Lyubomirsky & Nolen-Hoeksema, 1993). Its current conceptualization has its origins in Nolen-Hoeksema's (1987) Response Styles Theory. Rumination is assessed using the Ruminative Responses Scale (RRS;

Treynor et al., 2003), which has two subscales: reflection and brooding. Reflection involves active introspection and problem-solving, whereas brooding involves the passive comparison of one's current situation to some unachieved standard (Treynor et al., 2003). Brooding has been linked to worse negative mood concurrently and longitudinally (Treynor et al., 2003; Miranda & Nolen-Hoeksema, 2007; Grassia & Gibb, 2008), indicating that it is a primarily maladaptive form of emotion regulation. The literature regarding the link between reflection and lower well-being, on the other hand, is mixed (Treynor et al., 2003; Miranda & Nolen-Hoeksema, 2007; Grassia & Gibb, 2008; Tahtinen et al., 2020), suggesting that it may be less harmful than brooding.

Theory and research indicate that individuals with higher SC perfectionism tend to respond to stress by treating themselves harshly (Aldea & Rice, 2006; Frost & Marten, 1990; Hewitt & Flett, 1991). More specifically, SC perfectionistic individuals typically respond to their higher levels of stress by engaging in more uncompassionate self-responding: being harsh and critical of themselves (i.e., self-judgment), engaging in all-or-nothing thinking (e.g., "I have failed, therefore I am a failure"; i.e., over-identification), and comparing their failure to the successes of others, and feeling as though they are the only person struggling (i.e., isolation). Typically engaging in uncompassionate self-responding and failing to engage in compassionate self-responding sustains negative affectivity connected to daily stressors and is linked to SC perfectionistic individuals often engaging in ruminative brooding. As they are typically less self-compassionate, their negative self-affect is not being transformed into positive self-affect, leaving them trapped in a perpetual state of harsh self-scrutiny.

Individuals with higher SC perfectionism are also prone to ruminative brooding because they tend to have automatic thoughts related to attaining perfection and avoiding failure (Flett et

al., 1998; Flett et al., 2012). Indeed, they tend to fall into the "brooding trap", by which brooding creates a vicious cycle of negative thoughts and emotions, thereby heightening distress (Blankstein & Lumley, 2008). Further, event stress has been shown to generate feelings of non-specific distress in SC perfectionistic individuals (Blankstein & Dunkley, 2006). These negative feelings may elicit automatic thoughts relating to their perceived failure, thereby, also perpetuating a state of ruminative brooding. Overall, a tendency to respond to stress with lower self-compassion and higher ruminative brooding may act as a maintenance factor for elevated negative affect and reduced positive affect in perfectionistic individuals.

In addition to the theoretical basis, there is also significant empirical evidence in support of this model. Studies examining the link between perfectionism and self-compassion indicate that SC perfectionism is inversely correlated with total self-compassion (Neff, 2003b; Barnett & Sharp, 2016; Mehr & Adams, 2016; Stoeber et al., 2020; Tobin & Dunkley, 2021). Additionally, SC perfectionism is correlated with the three uncompassionate self-responding subscales (i.e., self-judgment, over-identification, isolation) and is inversely correlated with the three compassionate self-responding subscales (i.e., self-kindness, mindfulness, common humanity; Tobin & Dunkley, 2021; Barnett & Sharp, 2016). Further, lower self-compassion has been demonstrated to be related with negative affect and lower positive affect (Neff et al., 2007), and is a predictor of depressive symptoms over time (Lopez et al., 2018; Raes et al., 2011; Zellar et al., 2015). Of most relevance are mediation studies, which have identified lower total self-compassion as a mediator between SC perfectionism and lower well-being (Mehr & Adams, 2016; Stoeber et al., 2020). Self-compassion has also been implicated in the link between stress and diminished well-being. A study conducted on a college student sample found lower self-compassion to mediate the association of stress and depressive symptoms (Fong & Loi, 2015).

This aligns with the findings of another study, in which lower self-compassion, specifically, over-identification, lower mindfulness, and lower common humanity, mediated the association between stressful life experiences and depressive symptoms in college students (Chang et al., 2017).

Previous research also indicates that SC perfectionism is correlated with rumination, and with the brooding subscale in particular (Flett et al., 2002; Blankstein & Lumley, 2008; Olson & Kwon, 2008; Short & Mazmallian, 2013). Mediation studies suggest that rumination explains the link between SC perfectionism and various indicators of lower well-being, including distress (O'Connor et al., 2007), depressive symptoms (Harris et al., 2007), social anxiety (Abdollahi, 2019), and negative affect (Short & Mazmanian, 2013). Rumination is also correlated with perceived stress (Morrison & O'Connor, 2005), and research indicates that it mediates the association between stress and both negative affect and lower positive affect (Ruscio et al., 2015; Du et al., 2018). Additionally, prior research has demonstrated there to be a strong inverse association between self-compassion and rumination (Neff, 2003b; Raes, 2010). Moreover, ruminative brooding has emerged as a mediator between self-compassion and both depressive and anxious symptoms (Raes et al., 2010).

Prior research suggests that, in contrast to what is seen in SC perfectionistic individuals, stress generation does not act as a maintenance factor for depressive symptoms in PS perfectionistic individuals (see Smith et al., 2020 for review). Further, theory and research indicate that, in comparison to SC perfectionistic individuals, those who are higher in PS perfectionism tend to engage in less maladaptive emotion regulation (Bergman et al., 2007; O'Connor et al., 2007; Richardson et al., 2014). However, literature examining the associations between PS perfectionism and self-compassion and ruminative brooding is mixed. While some

have found negative correlations between PS perfectionism and self-compassion (Stoeber et al., 2020; Tobin & Dunkley, 2021), others indicate that they are unrelated (Neff, 2003a). While there is more research regarding the association between PS perfectionism and ruminative brooding, some studies are suggestive of a positive correlation (Flett et al., 2002; Blankstein & Lumley, 2008), while others found no association (Harris et al., 2007; Abdollahai, 2019).

More research is needed to better understand the ways in which stress, self-compassion, and rumination work together to influence mood. Specifically, to our knowledge, no study has examined a model including all three variables. Stress, self-compassion, and rumination have not been examined as mediators in the association between perfectionism and lower well-being, which is an important step in improving our understanding of perfectionism's maladaptive nature. Moreover, the studies reviewed above used one-occasion, retrospective measures. Research needs to examine these associations further using aggregated daily measures. Researchers have argued that using daily diary methodologies and averaging situational reports can be a more ecologically valid method for assessing between-persons trait-like tendencies than are retrospective questionnaires, which are more susceptible to memory biases and distortions (Bolger et al., 2003; Moskowitz, 1986).

Perfectionism, Stress Reactivity, and Emotion Regulation Effectiveness

The maintenance model described above addresses how certain stable trait-like characteristics mediate the association of SC perfectionism and chronic higher negative affect and lower positive affect. However, situational variables also have implications for well-being, which are likely moderated by SC perfectionism. Individuals with higher SC perfectionism tend to exhibit higher stress, ruminative brooding, and negative affect and lower self-compassion and positive affect. These maladaptive dispositional characteristics serve as vulnerability factors,

making SC perfectionistic individuals more sensitive to changes in any one of these variables. As such, the proposed within-person models will examine whether changes in negative affect, positive affect, and self-compassion can be explained by heightened reactivity to daily stressors of individuals higher in SC perfectionism. To assess the effectiveness of emotion regulation for those with higher SC perfectionism, I will also examine whether engaging in more self-compassion on a given day buffers against the use of maladaptive emotion regulation strategies, namely, ruminative brooding.

Perfectionism and Stress Reactivity. The present study aims to replicate and expand on the findings of Dunkley, Mandel, et al. (2014) to determine whether heightened stress reactivity predicts decreases in self-compassion and increases in ruminative brooding, as well as changes in mood. In general, people feel less deserving of self-compassion when they feel vulnerable or view themselves in a negative light and are therefore less likely to be self-compassionate under these conditions (Gilbert et al., 2011; Kelly et al., 2014; Donald et al., 2017). As SC/PS perfectionistic individuals possess a sense of self-worth that hinges on their success and productivity (Blatt, 1995), they may feel more vulnerable or engage in more negative self-evaluations in times of greater stress, relative to those low in SC/PS perfectionism, leading them to react to stress which greater decreases in self-compassion. These increases in feelings of vulnerability and negative self-evaluations may also lead higher SC/PS perfectionistic individuals to react to stress with greater increases in ruminative brooding, in comparison to lower SC/PS perfectionistic individuals (Flett et al., 1998; Flett et al., 2012).

Perfectionism and Emotion Regulation Effectiveness. Given the heightened reactivity observed in those with higher levels of SC/PS perfectionism, more research is needed to assess if emotion regulation strategies might worsen such reactions or serve a protective role. Testing a

between-persons model, Tobin and Dunkley (2021) found that individuals with higher SC perfectionism who were typically lower in self-compassion tended to experience more distress. In contrast, PS perfectionism did not interact with self-compassion to predict distress. In another study of the same dataset as the present study, Tobin and Dunkley (2023) extended these findings to a within-persons design to demonstrate that increases in daily self-compassion were linked to greater decreases in negative mood for perfectionistic individuals. I will extend this question to examine the effectiveness of self-compassion as a buffer against the use of daily ruminative brooding in individuals with higher SC/PS perfectionism. In general, self-compassion stabilizes mood by transforming negative self-affect into positive self-affect, thereby enabling a more objective view of the situation (Neff & Dahm, 2015). In doing so, self-compassion provides some relief from thoughts of self-criticism and personal inadequacy, which would help alleviate ruminative brooding (Neff, 2003a; Finlay-Jones et al., 2015).

Present Study Aims and Hypotheses

The present study aimed to elucidate factors contributing to the association of SC perfectionism and lower well-being (i.e., negative affect, lower positive affect) over two weeks. The first objective of the present study was to test a between-persons maintenance model, with the goal of identifying mechanisms that serve to maintain elevated negative affect and lower positive affect in SC perfectionistic individuals. This study tested a model of stress, self-compassion, and ruminative brooding as mediators between SC perfectionism and both negative and positive affect. This expands upon previous research examining emotion regulation strategies as single mediators of the link between SC perfectionism and well-being (e.g., Mehr & Adams, 2016; O'Connor et al., 2007). The present study also aimed to examine whether the use of one strategy might contribute to the use of other emotion regulation strategies. Thus, lower

self-compassion was examined as a maintenance factor of rumination. While previous research examining emotion regulation strategies as a mediator of SC perfectionism and lower well-being used retrospective, one occasion measures, the present study used aggregated daily diary measures, which researchers argue are less subject to memory biases and distortions (Bolger et al., 2003; Moskowitz, 1986).

The hypothesized maintenance model is presented in Figure 1. It was hypothesized that, when controlling for PS perfectionism, SC perfectionism would be related to aggregated daily event stress, lower self-compassion, ruminative brooding, negative affect, and lower positive affect. It was also expected that aggregated daily event stress, lower self-compassion, and ruminative brooding would be related to negative affect and lower positive affect. Further, I hypothesized that SC perfectionism would be indirectly associated with aggregated daily negative affect and lower positive affect through (a) event stress to lower self-compassion and ruminative brooding, (b) lower self-compassion to ruminative brooding, and (c) ruminative brooding. When controlling for SC perfectionism, it was not expected that PS perfectionism would be related to any maladaptive characteristics in the model.

The second objective of this study was to use within-person analyses to identify how situational changes in emotion regulation variables are more closely coupled with changes in well-being within individuals with higher SC/PS perfectionism. I first aimed to replicate previous research demonstrating that SC/PS perfectionism moderates the within-person associations of daily stress and both daily negative affect and daily positive affect (Dunkley, Mandel, et al., 2014). I then aimed to expand upon these findings by examining the interaction of SC/PS perfectionism and daily stress predicting daily self-compassion and ruminative brooding. It was hypothesized that, when individuals higher in SC/PS perfectionism experienced more

daily stress than usual, they would respond with greater decreases in self-compassion and greater increases in ruminative brooding in comparison to individuals lower in SC/PS perfectionism. I aimed to extend upon another study on the same dataset examining the interaction of SC/PS perfectionism and self-compassion predicting daily affect by examining the related outcome of ruminative brooding. It was hypothesized that, on days when they engage in more self-compassion than usual, individuals higher in SC perfectionism would report larger decreases in ruminative brooding, relative to individuals lower in SC perfectionism. However, I did not expect PS perfectionism to significantly interact with self-compassion to predict daily changes in rumination, consistent with the previous between-person findings of Tobin & Dunkley (2021).

Methods

Participants

One hundred and fifty-four employed community adults (110 assigned female at birth, 44 assigned male at birth; 107 female-identifying, 44 male-identifying, three gender-fluid/non-binary) of a larger sample of 159 adults participated in this study. Participants were recruited via French and English online bulletins and newspaper advertisements. The study was approved by the Jewish General Hospital's human investigation committee and all participants provided informed consent before participating. Participants first completed a battery of questionnaires, including baseline measures of perfectionism, followed by a 14-day daily diary procedure. Five participants were excluded from analyses as they completed less than eight daily diaries. Of those who were included, 153 completed 14 diaries (100.00%) and one participant completed 13 diaries (92.9%). Upon completion of the daily diary procedure, participants were compensated $75.

Participants were aged 18-64 (M = 36.40, SD = 14.26). One hundred and fifteen English-speaking participants completed English versions of the questionnaires, while 39 French-speaking participants completed French versions of the questionnaires. The participants were mostly of European descent (44%; n = 67), with 23% Asian (n = 35), 7% African (n = 11), 7% Jewish (n = 11), 6% Hispanic (n = 9), 3% Middle Eastern (n = 5), and 1% First Nations/ Métis (n = 2). Nine percent of participants identified as more than one ethnicity (n = 14). Participants had either graduated from university (n = 115), college (n = 26), or high school (n = 13).

Procedure

This study took place between October 2021 and November 2022. During a 1.5- to 2-hour online meeting via one-on-one videoconference on Zoom (www.zoom.us), participants provided their demographic information and completed measures of perfectionism. Starting approximately one day after the online meeting, they then completed a 14-day daily diary procedure, during which they completed daily measures of stress, self-compassion, rumination, and affect once a day for 14 consecutive days. Diaries were to be completed at the end of the day, before going to bed. The questionnaires and diaries were administered electronically, through online links provided by Qualtrics (www.qualtrics.com), and could be accessed by computer, tablet, or smartphone.

Measures

Given the bilingual nature of this sample, participants were given the choice to complete the background questionnaires and daily diaries in either English or French.

Perfectionism

SC and PS perfectionism were measured using selected scales from the 66-item Depressive Experiences Questionnaires (DEQ; Blatt et al., 1976), the 35-item Frost

Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990), the 45-item Hewitt and Flett Multidimensional Perfectionism Scale (HMPS; Hewitt & Flett, 1991), and the 23-item Almost Perfect Scale-Revised (APS-R; Slaney et al., 2001). Specifically, SC perfectionism was assessed using the DEQ self-criticism (e.g., "I tend to be very critical of myself"), FMPS concern over mistakes (e.g., "If I fail at work/school, I am a failure as a person"), HMPS socially prescribed perfectionism (e.g., "Although they may not show it, other people get very upset with me when I slip up"), and APS-R discrepancy subscales (e.g., "Doing my best never seems to be enough"), as is supported by previous factor analytic findings (e.g., Cox et al., 2002; Dunkley, et al., 2006 Stoeber & Otto, 2006). PS perfectionism was assessed using the FMPS personal standards (e.g., "I set higher goals than most people"), HMPS self-oriented perfectionism (e.g., "I try to be as perfect as I can be), and APS-R high standards (e.g., "I expect the best from myself") subscales. Several studies attest to the reliability and validity of the DEQ, FMPS, HMPS, and APS-R measures (e.g., Frost et al., 1990; Hewitt & Flett, 1991; Slaney et al., 2001; Zuroff et al, 2004). The α coefficients for DEQ self-criticism, HMPS socially prescribed perfectionism, FMPS concern over mistakes, APS-R discrepancy, FMPS personal standards, HMPS self-oriented perfectionism, and APS-R high standards were .83, .89, .89, .95, .80, .90, .85**,** respectively.

The DEQ, FMPS, HMPS, and APS-R scores were standardized, saved as *z*-scores, then averaged together to yield the SC and PS perfectionism composite variables, as per previous studies (e.g., Dunkley et al., 2003; Dunkley, Mandel, et al., 2014). The literature supports the reliability and validity of the perfectionism composite variables, as previous studies have reported their associations with other measures of personality and psychological (mal)adjustment in the hypothesized direction (e.g., Dunkley, Mandel, et al. 2014; Dunkley et al., 2003; Stoeber

& Otto, 2006). In the present study, α coefficients for SC perfectionism and PS perfectionism were .88 and .83, respectively.

Daily Event Stress

As in previous research (e.g., Dunkley, Mandel, et al., 2014; Dunkley et al., 2003), participants were asked to briefly describe the most bothersome event or issue of the day. These events could have been something that occurred that day, or something participants had been thinking about a lot that day, such as a bothersome event from the past or a worry about the future. They were then asked to classify the event based on whether it was (1) Work-related (e.g., meeting deadlines or goals), (2) Interpersonal (e.g., health or well-being of a family member), related to (3) Your Health (e.g., physical complaints), (4) General (e.g., the weather), or (5) Other (if "Other" was selected, participants were asked to specify). Next, using Likert scales, participants rated the unpleasantness (1 = *not at all* to 11 = *exceptionally*), duration (1 = *a very brief moment of time* to 7 = *a very large amount of time*), and stressfulness (1 = *not at all* to 11 = *exceptionally*) of the particular situation described. These global event appraisal items were then used as indicators of daily event stress, as was done in previous research (e.g., Dunkley et al., 2000; 2003). The internal consistency and reliability of this measure are supported by previous studies (e.g., Dunkley et al., 2003; Dunkley, Mandel, et al., 2014). Within- and between-person reliability for daily variables was computed using the omegaSEM function for calculating multilevel omega reliability in R (Wiley, 2020; Geldhof et al., 2014). Relative to Cronbach's α, McDonald's ω provides a more precise estimate of reliability (Geldhof et al., 2014). In the present study, the within-person ω coefficient for daily event stress was .81, while the between-person ω coefficient was .96.

Daily Self-Compassion

Self-compassion was measured using the 26-item Self-Compassion Scale (SCS; Neff, 2003b). This self-report questionnaire measures compassionate and uncompassionate self-responding in reaction to the most bothersome event of the day using six subscales, which assess the contrasting components of self-kindness (5 items; e.g., "I tried to be understanding and patient towards those aspects of my personality I don't like") and self-judgment (5 items; e.g., "I was disapproving and judgmental about my own flaws and inadequacies"), mindfulness (4 items; e.g., "I tried to take a balanced view of the situation") and over-identification (4 items; e.g., "I became consumed by feelings of inadequacy"), and common humanity (4 items; e.g., "I tried to see my failings as part of the human condition") and isolation (4 items; e.g., "I felt like most other people are probably happier than I am"). Participants were asked to indicate how frequently they engaged in the behaviours described by each item in reference to the most bothersome event of the day on a Likert scale from 1 (*not at all*) to 5 (*frequently*). The internal consistency and convergent and discriminant validity of the SCS are supported by previous research (e.g., Neff, 2003b; Mehr & Adams, 2016). In the present study, the within- and between-person ω coefficients for daily self-compassion were .93 and .69, respectively.

Daily Ruminative Brooding

Ruminative brooding was assessed using the five brooding items from the 22-item Ruminative Responses Scale (RRS; Treynor, et al., 2003). Participants were asked to indicate on a Likert scale from 1 (*not at all*) to 5 (*frequently*) the frequency with which they had had each of the thoughts (e.g., "Thought: 'What am I doing to deserve this?'") in relation to the most bothersome event of that day. Daily ruminative brooding was calculated for each participant by summing their five responses from that day to obtain a total score. The internal consistency and

validity of the RRS brooding subscale are supported (e.g., Armey et al., 2009; Treynor et al., 2003). In the current study, the within-person ω coefficient for daily ruminative brooding was .75, while the between-persons ω coefficient was .95.

Daily Negative and Positive Affect

The 20-item Positive and Negative Affect Scale (PANAS; Watson et al., 1988) was administered to measure daily affect. Using a five-point Likert scale, ranging from 1 (*Very slightly or not at all*) to 5 (*Extremely*), participants were asked to rate the extent to which they had experienced each emotion on that day. Specifically, 10 items assessed negative affect (e.g., "Distressed", "Guilty") and 10 items assessed positive affect (e.g., "Interested", "Excited"). The reliability, convergent validity, and internal consistency of the PANAS are supported (e.g., Crawford & Henry, 2004; Dunkley, Ma, et al., 2014). The ω coefficients for between-persons and within-person negative affect were .96 and .83, respectively. The ω coefficients for between-persons and within-person positive affect were .96 and .87, respectively.

Given the bilingual nature of the sample, French versions of the measures of perfectionism (Boucher et al., 2006; Rhéaume et al., 1994; Labrecque et al., 1998; Kyparissis et al., 2006), stress (see Dunkley, Ma, et al., 2014; Dunkley, Mandel, et al., 2014), self-compassion (Kotsou & Leyes, 2016), ruminative brooding, and affect (Gaudreau et al., 2006) were made available to participants who completed the study in French. The RRS brooding subscale was previously translated to French by a bilingual research assistant, and subsequently back-translated to English by another bilingual research assistant, to ensure no meaning was lost. Psychometric properties of French versions of perfectionism, stress, self-compassion, and affect have been demonstrated to be similar to those of the original English versions (see Dunkley et

al., 2012; Dunkley & Kyparissis, 2008; Dunkley, Ma, et al., 2014; Dunkley, Mandel, et al., 2014; Kotsou & Leyes, 2016).

Path Model Testing

Analysis of Moment Structures 5.0 (AMOS version 5.0; Arbuckle, 2003) was used to test the path model examining aggregated daily event stress, self-compassion, and rumination as mediators of the association between SC/PS perfectionism and aggregated daily positive and negative affect. AMOS uses maximum likelihood estimation to examine the fit of the hypothesized model to the data. As recommended by Hoyle and Panter (1995), we considered several indices of fit. We considered the incremental-fit index (IFI; incremental fit) and the comparative-fit index (CFI; incremental fit), with values above 0.90 indicating better fitting models (see Hoyle & Panter, 1995). We also considered the Standardized Root Mean Square Residual (SRMR; correlation of residuals) and Root Mean Square Error of Approximation (RMSEA), with values below 0.08 suggesting acceptable model fit (Hu & Bentler, 1999; see Kline, 2016 for review).

Indirect effects were tested using the Monte Carlo method for assessing mediation (see Preacher & Selig, 2012). I used RStudio to run R code simulating the sample distribution of an indirect effect. For each indirect effect, 95% confidence-level confidence intervals (CI) were computed using the unstandardized estimates, the asymptotic covariance estimates matrix for each path, and 20,000 bootstrap samples created by randomly sampling and replacing the original data. The indirect effect was considered statistically significant at the $p < .05$ level if the 95% CI did not include zero.

Multilevel Modeling

The Mixed Models procedure in SPSS version 27 was used to conduct multilevel modeling to discern whether daily event stress interacted with SC/PS perfectionism to predict changes in daily negative affect, positive affect, self-compassion, and rumination. We also examined whether daily self-compassion interacted with SC/PS perfectionism to predict changes in daily ruminative brooding.

In the five sets of analyses where changes in (1) negative affect, (2) positive affect, (3) self-compassion, and (4) ruminative brooding were predicted by fluctuations in event stress, scores of event stress were centered to remove between-person differences. Similarly, in the final set of analyses where changes in (5) ruminative brooding was predicted by changes in self-compassion, the self-compassion scores were centered. These centered scores are representative of deviations in the participant's daily stress and self-compassion from their mean scores. This study followed the standard protocol for operationalizing within-person fluctuations in longitudinal data, such that centering is used to provide valid estimates of within- and between-persons effects in daily diary designs, as daily observations in stress and self-compassion are not expected to change over time (see Curran & Bauer, 2011).

Random slopes of daily event stress (analyses 1-4) and self-compassion (analysis 5) were included to examine participant variation in daily event stress and self-compassion. Further, cross-level interactions between SC/PS perfectionism and daily predictor variables were performed to examine negative affect, positive affect, self-compassion, and rumination in response to stress, and rumination in response to self-compassion, as functions of perfectionism. To do so, I evaluated if the slopes representing associations between these variables varied as a function of high versus low SC/PS perfectionism on a daily basis. Each cross-level interaction

term was comprised of two continuous variables and was generated by multiplying the centered daily predictor variable scores by the standardized SC/PS perfectionism scores. Predicted values of the outcome variables were generated to interpret significant cross-level interactions, using one standard deviation above or below the mean for high and low levels, respectively (see Nezlek, 2012).

Results

Descriptive Statistics and Zero-Order Correlations

All 154 participants completed measures of perfectionism. They provided 2,155 out of the possible 2,156 daily reports of event stress, self-compassion, ruminative brooding, negative affect, and positive affect, with one report missing due to non-response. Table 1 reports the means, standard deviations and reliability coefficients for perfectionism, and daily event stress, self-compassion, rumination, negative affect, and positive affect. For daily variables, intraclass correlation coefficients (ICCs) were calculated, wherein .30 is interpreted as moderate and .50 interpreted as strong between-persons (i.e., dispositional) influence. The ICCs for daily event stress, self-compassion, ruminative brooding, negative affect, and positive affect were .36, .54, .50, .54, and .53, respectively.

The zero-order correlations of SC/PS perfectionism with aggregated daily event stress, self-compassion, rumination, negative affect, and positive affect are also presented in Table 1. Cohen's (1992) criteria for weak (r = .10), moderate (r = .30), and strong (r = .50) effect sizes were used to interpret the strength of the associations. As indicated in Table 1, SC perfectionism was strongly correlated with aggregated daily event stress, rumination, and negative affect. SC perfectionism also demonstrated a strong inverse association with aggregated daily self-compassion and a weak, negative correlation with positive affect. PS perfectionism was

moderately correlated with event stress and rumination and was weakly correlated with negative affect. Additionally, PS perfectionism had a moderate inverse correlation with self-compassion. PS perfectionism was not associated with positive affect. Correlations among measures were comparable between English and French participants.

Path Analysis of Perfectionism and the Maintenance of Daily Affect

To assess for mediational effects, the hypothesized maintenance model (Figure 1) was tested, resulting in the following fit indices: $\chi 2$ (5, N = 154) = 16.79, p = .005; IFI = 0.98; CFI = 0.98; SRMR = 0.04; RMSEA = 0.12. Next, to examine the hypothesis that stress, self-compassion, and ruminative brooding would fully explain the relation between SC/PS perfectionism and negative and positive affect, we tested the significance of the direct relations between SC/PS perfectionism and negative and positive affect one-by-one, controlling for the effects of stress, self-compassion, and ruminative brooding. The paths from SC perfectionism to positive affect (β = .10, p = .28) and negative affect (β = .09, p = .21) and the path from PS perfectionism to negative affect (β = -.05, p = .35) were non-significant, and therefore not retained in the final model. The path from PS perfectionism to positive affect was significant (β = .21, p = .002), thus it was retained. The final model (see Figure 2) had the following acceptable fit indices: $\chi 2$ (4, N = 154) = 7.48, *ns*; IFI = 0.99; CFI = 0.99; SRMR = 0.02; RMSEA = 0.08.

Figure 2 presents the path model and standardized parameter estimates between SC and PS perfectionism and aggregated daily event stress, self-compassion, ruminative brooding, negative affect, and positive affect. The residual arrows indicate the proportion of variance in each variable that is unaccounted for by the other variables in the model. Table 2 shows the 95% confidence intervals (CIs) obtained in the tests of indirect effects for the model. These 95% CIs support the presence of seven significant indirect effects from SC perfectionism to aggregated

daily negative affect through: (1) stress, (2) lower self-compassion, (3) ruminative brooding, (4) stress and lower self-compassion, (5) stress and ruminative brooding, (6) lower self-compassion and ruminative brooding, and (7) stress, lower self-compassion, and ruminative brooding. The 95% CIs also support the presence of two hypothesized indirect effects of SC perfectionism on lower aggregated daily positive affect through: (1) lower self-compassion, and (2) stress and lower self-compassion. There were four indirect effects of SC perfectionism predicting higher positive affect contrary to hypotheses: (1) ruminative brooding, (2) stress and ruminative brooding, (3) lower self-compassion and ruminative brooding, and (4) stress, lower self-compassion, and ruminative brooding. These indirect effects likely emerged as significant due to a suppressor effect rather than meaningful effects. Specifically, the negligible zero-order correlation between ruminative brooding and positive affect (r = -.05; p = .53) became positive and significant (β = .36, p < .001) when controlling for other variables in the model. This, in turn, resulted in a positive indirect relation between SC perfectionism and positive affect, despite the inverse zero-order correlation between SC perfectionism and positive affect (r = -.19; p < .05).

Also presented in Table 2 are the 95% CIs obtained in the tests of indirect effects for PS perfectionism predicting both daily negative affect and daily positive affect. The 95% CIs support the presence of two significant indirect effects from PS perfectionism to lower aggregated daily negative affect through: (1) self-compassion and (2) self-compassion and lower ruminative brooding. The 95% CIs also support the presence of two significant indirect effect of PS perfectionism predicting aggregated daily positive affect through: (1) self-compassion and (2) self-compassion and lower ruminative brooding. The first of these indirect effects can be explained by a suppressor effect causing the inverse zero-order correlation (r = -.24; p < .01) between PS perfectionism and self-compassion to become positive (β = .14, p < .05) when

controlling for other variables in the model. This, in turn, led the indirect relation between PS perfectionism and positive affect to become significant, despite a nonsignificant zero-order correlation (r = .13; p = .10). Similarly, the second indirect effect can be attributed to two suppressor effects, wherein the path from PS perfectionism to self-compassion became positive (β = .14, p < .05), despite a negative zero-order correlation (r = -.24; p < .01), and the path from ruminative brooding to positive affect became positive and significant (β = .36, p < .001), despite a negligible zero-order correlation (r = -.05; p = .53). This resulted in a significant indirect relation between PS perfectionism and positive affect, even though the zero-order correlation between PS perfectionism and positive affect was nonsignificant (r = .13; p = .10).

Multilevel Modeling: Perfectionism as a Moderator of Within-Person Relations

I examined affective reactivity to event stress in separate multilevel analyses predicting negative affect and positive affect. I then examined the use of two emotion (dys)regulation strategies (i.e., self-compassion and ruminative brooding) in reaction to event stress. The final multilevel analysis examined emotion regulation effectiveness by evaluating self-compassion as a predictor of ruminative brooding. For each set of analyses, separate models were tested for SC and PS perfectionism to determine if stress reactivity and emotion regulation effectiveness might be moderated by SC and PS perfectionism. Presented in Table 3 are the main effects of the intercept, predictor variable (i.e., event stress, self-compassion), and SC/PS perfectionism. All main effects, except for the main effect of PS perfectionism predicting positive affect, were significant (p < .05).

Perfectionism and Daily Affective Reactivity to Stress. Affective reactivity in response to daily event stress as a function of SC/PS perfectionism was examined in four separate multilevel analyses predicting daily negative affect and positive affect. As presented in Table 3,

both SC and PS perfectionism interacted with daily event stress to predict daily negative affect. Specifically, Figure 3 shows that experiencing more event stress than usual was linked to greater increases in negative affect for individuals higher in SC/PS perfectionism, relative to those lower in SC/PS perfectionism. Neither dimension of perfectionism interacted with daily event stress to predict daily positive affect.

Perfectionism and Daily Self-Compassionate Responding to Stress. I also examined changes in daily self-compassion in response to event stress, as a function of SC/PS perfectionism. As presented in Table 3, both SC and PS perfectionism significantly interacted with daily event stress to predict self-compassion ($p < .05$). As illustrated by Figure 4, on days when they experienced more event stress than usual, individuals higher in SC/PS perfectionism experienced greater decreases in self-compassion relative to individuals lower in SC/PS perfectionism.

Perfectionism and Daily Ruminative Responding to Stress. Next, I examined changes in daily ruminative brooding in response to daily event stress and evaluated SC/PS perfectionism as moderators of this association. SC perfectionism, but not PS perfectionism, interacted with daily event stress to predict changes in daily ruminative brooding (see Table 3). More specifically, on days when they experienced more event stress than usual, individuals with higher SC perfectionism experienced greater increases in ruminative brooding relative to those with lower SC perfectionism (see Figure 5).

Perfectionism and Daily Ruminative Responding to Self-Compassion. Finally, I examined changes in daily ruminative brooding in response to daily self-compassion. I tested separate models for SC/PS perfectionism, to evaluate if SC/PS perfectionism interacted with daily self-compassion to predict changes in ruminative brooding. As presented in Table 3, SC

perfectionism interacted with daily total self-compassion to predict changes in daily rumination ($p < .05$). As illustrated in Figure 6, on days in which they engaged in more self-compassion than usual, individuals higher in SC perfectionism experienced greater decreases in ruminative brooding compared to individuals lower in SC perfectionism. PS perfectionism did not moderate the association of daily self-compassion and daily ruminative brooding.

Discussion

The present study provided a deeper understanding of the mechanisms relating SC and PS perfectionism to well-being, specifically negative and positive affect. It is the first to demonstrate that stress, lower self-compassion, and ruminative brooding maintain higher negative affect in SC perfectionistic individuals, while stress and lower self-compassion were identified as maintenance factors of lower positive affect. Further, when controlling for SC perfectionism, PS perfectionism was found to be associated with adaptive characteristics. Specifically, higher self-compassion was found to maintain higher positive affect, and higher self-compassion and lower ruminative brooding, were shown to maintain lower negative affect for PS perfectionistic individuals. The present study also replicated and expanded upon previous findings (Dunkley, Mandel, et al., 2014) by demonstrating that heightened affective reactivity to stress in SC/PS perfectionistic individuals extends to the use of self-compassion and ruminative brooding. Finally, this study also found self-compassion to act as a protective factor against ruminative brooding for higher SC perfectionistic individuals.

This discussion is organized into four sections. First, I will discuss how SC and PS perfectionism individually relate to event stress, self-compassion, ruminative brooding, negative affect, and positive affect. Second, I will present the findings of the between-persons maintenance model, wherein I will discuss how aggregated daily event stress, self-compassion,

and ruminative brooding mediate the association between SC/PS perfectionism and aggregated daily negative and positive affect. Third, I will present the within-person models of stress reactivity and emotion regulation effectiveness. This section will focus on SC and PS perfectionism as moderators of the daily associations of (1) event stress predicting negative affect, (2) event stress predicting positive affect, (3) event stress predicting self-compassion, (4) event stress predicting ruminative brooding, and (5) self-compassion predicting ruminative brooding. Finally, the fourth section will present the clinical implications, limitations, and future directions of this study.

Perfectionism Associations with Daily Stress, Self-Compassion, Rumination, and Affect

The present study demonstrated a strong association between SC perfectionism and aggregated daily negative affect and a weak negative association with aggregated daily positive affect (see Table 1). I also found SC perfectionism to be strongly linked to aggregated daily stress. This is supported by previous theory and research, which suggests that individuals higher in SC perfectionism tend to magnify minor stressors and generate further stress for themselves (see Smith et al., 2020 for review). Moreover, I found SC perfectionism to have a strong inverse correlation with aggregated daily self-compassion and a strong correlation with aggregated daily ruminative brooding. This lends further support to previous research indicating that SC perfectionism is predictive of lower levels of self-compassion (e.g., Neff, 2003a; Mehr & Adams, 2016; Stoeber et al., 2020; Tobin & Dunkley, 2021) and higher levels of ruminative brooding (e.g., Flett et al., 2002; Harris et al., 2007; Blankstein & Lumley, 2008).

PS perfectionism, on the other hand, was demonstrated to be weakly related to negative affect and was not significantly correlated with positive affect. PS perfectionism was also shown to have a moderate correlation with aggregated daily stress, whereas previous research suggests

that PS perfectionism is weakly or negligibly related to stress (e.g., Dunkley et al., 2003; Prud'homme et al., 2017; see Smith et al., 2020 for review). I also found PS perfectionism to have a weak inverse correlation with aggregated daily self-compassion, which is supported by previous research (Stoeber et al., 2020; Tobin & Dunkley, 2021). A moderate correlation between PS perfectionism and aggregated daily ruminative brooding was observed, which is also supported by prior studies (Flett et al., 2002; Blankstein & Lumley, 2008).

Overall, these results indicate that PS perfectionism is associated with maladaptive characteristics, albeit to a lesser extent than SC perfectionism. This is in keeping with prior theory and research indicating that SC perfectionism is the dimension of perfectionism more strongly associated with psychological distress (e.g., Dunkley et al., 2000; 2003; 2006; Stoeber & Otto, 2006).

Perfectionism and the Maintenance of Stress, Lower Self-Compassion, Rumination, and Affect

The present study found that certain dispositional factors explain why SC perfectionistic individuals experience chronic low mood. Specifically, my path analytic results showed that, when controlling for PS perfectionism, SC perfectionism was indirectly related to aggregated daily negative affect and lower positive affect through stress and lower self-compassion tendencies. This aligns with prior literature indicating that SC perfectionistic individuals tend to respond to stress by treating themselves harshly (Aldea & Rice, 2006; Frost & Marten, 1990; Hewitt & Flett, 1991). Typically engaging in less self-compassion, in turn, maintains higher negative affect and lower positive affect in SC perfectionistic individuals. Consistent with previous literature (see Zessin et al., 2015), lower self-compassion contributes to lower positive affect by diminishing feelings such as pride and enthusiasm and contributes to increased negative

affect by enhancing feelings of fear, distress, and guilt (Watson et al., 1988). Both the feelings of nonspecific distress that result from elevated stress and lower self-compassion perpetuate the automatic thoughts regarding attaining perfection and avoiding failure characteristic of SC perfectionism (Flett et al., 1998; Flett et al., 2012). This perpetuates a state of ruminative brooding, which, in turn, acts as a maintenance factor for higher negative mood, including feelings of fear, guilt, and distress (Watson et al., 1988). The direct association of ruminative brooding with negative affect, but not positive affect, is consistent with theory specifically characterizing rumination as a means of coping with negative affect (Lyubomirsky & Nolen-Hoeksema, 1993; Treynor et al., 2003).

These findings extend upon previous literature demonstrating stress (Chang, 2000; Dunkley et al., 2003), self-compassion (Mehr & Adams, 2016; Stoeber et al., 2020), and rumination (O'Connor et al., 2007; Short & Mazmanian, 2013) to mediate the association between SC perfectionism and indicators of lower well-being, by integrating the variables into a single model. Overall, these findings support the stress generation model of SC perfectionism, as well as the contention that SC perfectionistic individuals experience persistent low well-being due, at least in part, to their tendency to resort to maladaptive emotion regulation strategies (Aldea & Rice, 2006; Malivoire et al., 2019).

The present study also found that, when controlling for SC perfectionism, the effects of PS perfectionism on event stress and emotion dysregulation were no longer significant, which aligns with prior research suggesting that the maladaptive characteristics associated with PS perfectionism are due to shared variance with SC perfectionism (see Stoeber & Otto, 2006 for review). Further, my findings indicate, that, when SC perfectionism is controlled for, PS perfectionism is associated with certain adaptive characteristics that maintain positive affect and

lower negative affect. Specifically, higher self-compassion acted as a maintenance factor for lower negative affect and higher positive affect. Further, as higher self-compassion transforms negative self-affect into positive self-affect, thereby stabilizing one's emotions and enabling a more objective view of the situation (Neff & Dahm, 2015), the tendency to be self-compassionate is linked to a tendency to engage is less ruminative brooding. This, in turn, acts as a maintenance factor of lower negative affect. Finally, when the variance shared with SC perfectionism was removed, PS perfectionism was found to be directly associated with positive affect. These findings should be interpreted cautiously because there is a debate regarding the best means of addressing PS perfectionism. Some researchers contended that it is necessary to partial out the variance of SC perfectionism from PS perfectionism to accurately evaluate this dimension of perfectionism (Stoeber & Gaudreau, 2016), while others asserted that controlling for shared variance with SC perfectionism conceptually changes PS perfectionism, making it impossible to draw conclusions regarding the construct (Hill, 2017).

Perfectionism, Stress Reactivity, and Emotion Regulation Effectiveness

The second objective of this study was to examine how certain situational factors influence the well-being of SC/PS perfectionistic individuals by testing within-person models of stress reactivity and emotion regulation effectiveness and examining SC/PS perfectionism as moderators.

Perfectionism, Stress Reactivity, and Affect

My hypothesis that this study would replicate the findings of Dunkley, Mandel, et al., (2014) was partially confirmed. Both SC and PS perfectionism interacted with daily event stress to predict changes in negative affect, which aligns with the stress reactivity model of perfectionism. Higher SC/PS perfectionistic individuals possess a sense of self-worth that hinges

upon their own success and productivity, which is rooted in their childhood where parental approval was contingent upon the attainment of high parental expectations (e.g., Blatt, 1995; Hamachek, 1978). As such, on days when they experience more stress than usual, SC/PS perfectionistic individuals feel that their sense of self-worth is threatened, resulting in an increase in negative affect. Contrary to the findings of Dunkley, Mandel, et al., (2014), in the current study neither SC nor PS perfectionism interacted with daily event stress to predict changes in positive affect. The majority of the literature examining the stress reactivity model of perfectionism has concentrated on outcomes related to negative affect (e.g., depressive and anxious symptoms; e.g., Hawley et al., 2014; Mandel et al., 2015; Flett et al., 2016), suggesting that this model is of a transdiagnostic nature (Clark & Watson, 1991). Stressors are threatening, giving rise to threat-based emotions common to anxiety and depression, thereby eliciting a spike in negative affect. Daily stressors are not necessarily associated with loss of pleasure, which might explain why the stress reactivity model is more predictive of increases in negative affect, rather than decreases in positive affect.

Perfectionism, Stress Reactivity, and Emotion Regulation

Next, I aimed to extend upon the findings of Dunkley, Mandel, et al. (2014) by testing the within-person model of SC/PS perfectionism and stress interacting to predict changes in the use of emotion (dys)regulation strategies, namely, self-compassion and ruminative brooding. I found that, on days when they experience more event stress than usual, individuals higher in both SC and PS perfectionism exhibited larger decreases in self-compassion compared to individuals lower on these dimensions. Under greater stress, it is common to feel less deserving of self-compassion, and to therefore be less self-compassionate (Gilbert et al., 2011; Kelly et al., 2014;

Donald et al., 2017). This is especially the case for higher SC/PS perfectionistic individuals, as increased stress threatens their sense of self-worth (Blatt, 1995).

I also found that, on days when they experienced more event stress than usual, individuals higher in SC perfectionism experienced greater increases in ruminative brooding, as compared to those lower in SC perfectionism. The feelings of low self-worth that arise from higher event stress may trigger automatic thoughts relating to their perceived failures, thereby causing them to fall into the "brooding trap", a vicious cycle of negative thoughts and feelings (Blankstein & Lumley, 2008), resulting in exacerbated ruminative brooding. PS perfectionism, on the other hand, did not interact with event stress to predict changes in ruminative brooding. These mixed findings for PS perfectionism may be due to the tendency of PS perfectionistic individuals to engage in less maladaptive emotion regulation on a daily basis relative to SC perfectionistic individuals, making them less likely to cascade into hyperreactivity (see Dunkley, Mandel, et al., 2014). Since SC perfectionistic individuals typically engage in less self-compassion and more ruminative brooding than do PS perfectionistic individuals (see Table 1), they are more vulnerable to changes in situational variables, which trigger the hyperreactivity observed in the present study. These findings indicate that the heightened reactivity to daily stressors observed in SC/PS perfectionistic individuals is not specific to affect, but extends to the use of emotion regulation strategies. However, the mixed findings for PS perfectionism indicate that this heightened reactivity may not apply to all forms of emotion regulation.

Perfectionism, Self-Compassion, and Rumination

Another thesis using this dataset found both SC and PS perfectionism to interact with daily self-compassion to predict changes in daily negative affect, but not daily positive affect (Tobin & Dunkley, 2023). I extended these findings by evaluating the interaction of SC/PS

perfectionism with daily self-compassion predicting daily ruminative brooding. On days when they were more self-compassionate than usual, individuals higher in SC perfectionism reported greater decreases in ruminative brooding, relative to those lower in SC perfectionism. Self-compassion serves to regulate emotions by transforming negative self-affect into positive self-affect, which enables a more objective perspective of the situation (Neff & Dahm, 2015). This is particularly effective for SC perfectionistic individuals, as self-compassion provides relief from thoughts of self-criticism and personal inadequacy (Neff, 2003a), which, in turn, reduces engagement in ruminative brooding (Finlay-Jones, et al., 2015). These findings also align with the process model of emotion regulation, which posits that multiple emotion regulation strategies may be used simultaneously (Gross & Thompson, 2007).

PS perfectionism, on the other hand, did not significantly interact with daily self-compassion to predict changes in ruminative brooding. These results are supported by Tobin and Dunkley's (2021) between-persons findings, wherein they found that SC perfectionism, but not PS perfectionism, interacts with self-compassion to predict distress over two years. Like the findings for stress reactivity, it is possible that this is because PS perfectionism is more weakly related to ruminative brooding as compared to SC perfectionism. As they are less prone to ruminative brooding, PS perfectionistic individuals may be less reactive to situational influences.

Clinical Implications

As SC perfectionism has been linked to negative outcomes across several therapeutic approaches (see Blatt & Zuroff, 2005 for review), it is essential to consider the implications of these findings. First, these results further support the measurement and examination of perfectionism as multidimensional, as SC perfectionism, relative to PS perfectionism, was found to be more strongly related to negative affect and lower positive affect. These findings support

previous literature suggesting that SC perfectionism is the relatively more maladaptive dimension of perfectionism (e.g., Dunkley et al., 2000; 2006; Stoeber & Otto, 2006), indicating that clinicians should orient their focus towards SC perfectionism, rather than PS perfectionism.

Second, the present study's findings suggest that treatment and prevention efforts need to consider certain features when treating clients with perfectionistic tendencies. These findings highlight the importance of targeting maladaptive trait-like stress and emotion dysregulation tendencies of SC perfectionistic individuals. Therapies designed to bolster self-compassion, such as Compassion Focused Therapy (CFT; Gilbert, 2009) may prove beneficial for SC perfectionistic clients. The present study indicates that increasing their tendency to be self-compassionate may lead to reductions in ruminative brooding for those with higher SC perfectionism. However, ruminative brooding itself may also be targeted, for example, by mindfulness therapies, like Mindfulness-based Cognitive Behavioural Therapy (Segal et al., 2002), which emphasizes the importance of non-judgmental acceptance of one's negative thoughts and feelings.

Furthermore, the present study indicates that both SC and PS perfectionistic clients may benefit from interventions targeting their heightened reactivity to daily stressors. Cognitive techniques focused on the reattribution of this maladaptive reactivity to the conditional approval of their parents may enable them to reinterpret daily stress in a more adaptive manner (e.g., "Making mistakes does not make me a complete failure"; see Kannan & Levitt, 2013; Kuyken et al., 2009). Self-compassion was found to buffer against ruminative brooding for SC perfectionistic individuals, which suggests that the use of certain emotion regulation strategies impacts the use of others, meaning that interventions targeting one strategy may lead to beneficial changes in others.

Limitations

Although this study has several strengths, it also has many limitations to be addressed in future research. First, all measures used to assess perfectionism, event stress, self-compassion, ruminative brooding, negative affect, and positive affect were self-report. Future research aiming to replicate these findings would benefit from the use of more objective measures, such as interviews or behavioural observations. Next, replication studies using more representative samples are needed to increase the generalizability of these findings, as approximately 71% of participants in the present study were assigned female at birth and 75% were English-speaking. Third, it is also necessary to examine the generalizability of these findings to clinically diagnosed patients, as this would better inform therapeutic interventions. Fourth, as this study was conducted using data from one timepoint, future research should examine these associations longitudinally (i.e., over one year; two years). Finally, as associations were found between self-compassion and ruminative brooding, future research should examine the associations of other emotion regulation strategies (i.e., reappraisal, experiential avoidance) in SC/PS perfectionistic individuals, and incorporate them into these models, to enable the development of more efficacious and tailored interventions.

Conclusion

The present study used a 14-day daily diary methodology to evaluate the associations of SC/PS perfectionism and daily event stress, self-compassion, ruminative brooding, negative affect, and positive affect. First, this study provided additional evidence in support of the distinction of SC and PS perfectionism, as SC perfectionism was found to be the primarily maladaptive dimension of perfectionism. Second, the current study demonstrated that event stress, lower self-compassion, and ruminative brooding act as maintenance factors for negative

affect in higher SC perfectionistic individuals, while event stress and lower self-compassion acted as maintenance factors for lower positive mood. When controlling for shared variance with SC perfectionism, PS perfectionism maintained daily positive affect and lower negative affect through self-compassion tendencies. Finally, when individuals with higher SC/PS perfectionism experienced more stress than usual, they exhibited greater increases in negative affect and greater decreases in self-compassion. Further, self-compassion was found to more effectively buffer against ruminative brooding for individuals higher in SC perfectionism in comparison to those lower in SC perfectionism. With depression and anxiety being major contributors to the global mental health crisis (Kessler et al., 2009), it is necessary for treatment and prevention efforts to concentrate on cognitive-personality vulnerability factors, like SC/PS perfectionism, and their associated stress and emotion regulation processes.

References

Abdollahi, A. (2019). The association of rumination and perfectionism to social anxiety. *Psychiatry*, *82*(4), 345–353. https://doi.org/10.1080/00332747.2019.1608783

Aldea, M. A., & Rice, K. G. (2006). The role of emotional dysregulation in perfectionism and psychological distress. *Journal of Counseling Psychology*, *53*, 498–510. https://doi.org/10.1037/0022-0167.53.4.498

Armey, M. F., Fresco, D. M., Moore, M. T., Mennin, D. S., Turk, C. L., Heimberg, R. G., Kecmanovic, J., & Alloy, L. B. (2009). Brooding and pondering: Isolating the active ingredients of depressive rumination with exploratory factor analysis and structural equation modeling. *Assessment*, *16*(4), 315–327. https://doi.org.10.1177/1073191109340388

Barnett, M. D., & Sharp, K. J. (2016). Maladaptive perfectionism, body image satisfaction, and disordered eating behaviors among U.S. college women: the mediating role of self-compassion. *Personality and Individual Differences*, *99*, 225–234. https://doi.org/10.1016/j.paid.2016.05.004

Barrow, J. C. & Moore, C. A. (1983). Group interventions with perfectionistic thinking. *Personnel & Guidance Journal, 61*(10), 612-615. https://doi.org/10.1111/j.2164-4918.1983.tb00008.x

Beck, A. T. (1979). *Cognitive therapy of depression* (Ser. The Guilford Clinical Psychology and Psychotherapy Series). Guilford Press.

Békés, V., Dunkley, D. M., Taylor, G., Zuroff, D. C., Lewkowski, M., Elizabeth Foley, J., Myhr, G., & Westreich, R. (2015). Chronic stress and attenuated improvement in depression

over 1 year: the moderating role of perfectionism. *Behavior Therapy*, *46*(4), 478–492. https://doi.org/10.1016/j.beth.2015.02.003

Bergman, A. J., Nyland, J. E., & Burns, L. R. (2007). Correlates with perfectionism and the utility of a dual process model. *Personality and Individual Differences, 43*(2), 389-399. https://doi.org/10.1016/j.paid.2006.12.007

Blankstein, K. R., & Lumley, C. H. (2008). Multidimensional perfectionism and ruminative brooding in current dysphoria, anxiety, worry, and anger. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, *26*(3), 168–193. https://doi.org/10.1007/s10942-007-0068-

Blatt, S. J. (1995). The destructiveness of perfectionism: Implications for the treatment of depression. *American Psychologist, 50*, 1003–1020. https://doi.org/10.1037/0003-066X.50.12.1003

Blatt, S. J., D'Afflitti, J. P., & Quinlan, D. M. (1976). Experiences of depression in normal young adults. *Journal of Abnormal Psychology, 85*(4), 383–389. https://doi.org/10.1037//0021-843X.85.4.383

Blatt, S. J., & Zuroff, D. C. (2005). Empirical evaluation of the assumptions in identifying evidence-based treatments in mental health. *Clinical Psychology Review*, *25*(4), 459–86.

Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: Capturing life as it is lived. *Annual Review of Psychology, 54*(1), 579-616. https://doi.org//10.1146/annurev.psych.54.101601.145030

Boucher, S., Cyr, M., & Fortin, A. (2006). Propriétés psychométriques d'une version canadienne-française du Questionnaire des expériences dépressives [Psychometric properties of a French-Canadian version of the Depressive Experiences Questionnaire]. *Canadian Journal of Behavioural Science, 38*, 230–237.

https://doi. org/10.1037/cjbs2006010

Burns, D. D. (1980). The perfectionist's script for self-defeat. *Psychology Today*, *14*(6), 34-52.

Carver, C. S., & Connor-Smith, J. (2010). Personality and coping. *Annual Review of Psychology*, *61*, 679-704. https://doi.org/10.1146/annurev.psych.093008.100352

Chang, E. C. (2000). Perfectionism as a predictor of positive and negative psychological outcomes: examining a mediation model in younger and older adults. *Journal of Counseling Psychology*, *47*(1), 18–26.

Chang, E. C., Yu, T., Najarian, A. S.-M., Wright, K. M., Chen, W., Chang, O. D., Du, Y., & Hirsch, J. K. (2017). Understanding the association between negative life events and suicidal risk in college students: examining self-compassion as a potential mediator. *Journal of Clinical Psychology*, *73*(6), 745–755. https://doi.org/10.1002/jclp.22374

Charles, S. T., Piazza, J. R., Mogle, J., Sliwinski, M. J., & Almeida, D. M. (2013). The wear and tear of daily stressors on mental health. *Psychological Science*, *24*(5), 733–741. https://doi.org/10.1177/0956797612462222

Clark, L. A. & Watson, D. (1991). Tripartite model of anxiety and depression: Psychometric evidence and taxonomic implications. *Journal of Abnormal Psychology*, *100*(3), 316-336. https://doi.org/10.1037/0021-843X.100.3.316

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*, 155–159. http://dx.doi.org/10.1037/0033-2909.112.1.155

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*(3), 365–73.

Crawford, J. R., & Henry, J. D. (2004). The positive and negative affect schedule (PANAS): construct validity, measurement properties and normative data in a large non-clinical sample. *The British Journal of Clinical Psychology*, *43*(3), 245–65.

Curran, P. J., & Bauer, D. J. (2011). The Disaggregation of Within-Person and Between-Person Effects in Longitudinal Models of Change. *Annual review of psychology, 62*, 583-619. https://doi.org/10.1146/annurev.psych.093008.100356

Curran, T., & Hill, A. P. (2019). Perfectionism is increasing over time: a meta-analysis of birth cohort differences from 1989 to 2016. *Psychological Bulletin*, *145*(4), 410–429. https://doi.org/10.1037/bul0000138

Donald, J.N., Ciarrochi, J., Parker, P.D., Baljinder, K.S., Marshall, S.L., & Guo, J. (2017). A worthy self is a caring self: Examining the developmental relations between self-esteem and self-compassion in adolescents. *Journal of Personality, 86*(4), 619-630. https://doi.org/10.1111/jopy.12340

Du, J., Huang, J., An, Y., & Xu, W. (2018). The relationship between stress and negative emotion: The Mediating role of rumination. *Clinical Research and Trials*, *4*(1), 1-5. https://doi.org/10.15761/CRT.1000208

Dunkley, D. M., Blankstein, K. R., & Berg, J. L. (2012). Perfectionism dimensions and the five-factor model of personality. *European Journal of Personality, 26*, 233–244. https://doi.org/10.1002/per.829

Dunkley, D. M., Blankstein, K. R., Halsall, J., Williams, M., & Winkworth, G. (2000). The relation between perfectionism and distress: hassles, coping, and perceived social support as mediators and moderators. *Journal of Counseling Psychology*, *47*, 437–453.

Dunkley, D. M., Blankstein, K. R., Masheb, R. M., & Grilo, C. M. (2006). Personal standards and evaluative concerns dimensions of "clinical" perfectionism: A reply to Shafran et al. (2002, 2003) and Hewitt et al. (2003). *Behaviour Research and Therapy, 44*(1), 63–84. https://doi.org/10.1016/j.brat.2004.12.004

Dunkley, D. M., & Kyparissis, A. (2008). What is DAS self-critical perfectionism really measuring? Relations with the five-factor model of personality and depressive symptoms. *Personality and Individual Differences, 44*, 1295–1305. https://doi.org/ 10.1016/j.paid.2007.11.022

Dunkley, D. M., Ma, D., Lee, I. A., Preacher, K. J., & Zuroff, D. C. (2014). Advancing complex explanatory conceptualizations of daily negative and positive affect: Trigger and maintenance coping action patterns. *Journal of Counseling Psychology, 61*(1), 93–109. https://doi.org/10.1037/a0034673

Dunkley, D. M., Mandel, T., & Ma, D. (2014). Perfectionism, neuroticism, and daily stress reactivity and coping effectiveness 6 months and 3 years later. *Journal of Counseling Psychology, 61*, 616–633. https://doi.org/10.1037/cou0000036

Dunkley, D. M., Solomon-Krakus, S., & Moroz, M. (2016). Personal standards and self-critical perfectionism and distress: Stress, coping, and perceived social support as mediators and moderators. *Perfectionism, Health, and Well-Being*, 157-176.

Dunkley, D. M., Starrs, C. J., Gouveia, L., & Moroz, M. (2020). Self-critical perfectionism and lower daily perceived control predict depressive and anxious symptoms over four years. *Journal of Counseling Psychology, 67*(6), 736–746. https://doi.org/10.1037/cou0000425

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*, 234–52.

Egan, S. J., Wade, T. D., & Shafran, R. (2011). Perfectionism as a transdiagnostic process: a clinical review. *Clinical Psychology Review*, *31*(2), 203–212. https://doi.org/10.1016/j.cpr.2010.04.009

Finlay-Jones, A.L., Rees, C.S., & Kane, R.T. (2015) Self-compassion, emotion regulation and stress among Australian psychologists: Testing and emotion regulation model of self compassion using structural equation modeling. *PLoS One, 10.* https://doi.org/10.1371/journal.pone.0133481

Flett, G. L., Blankstein, K. R., & Hewitt, P. L. (2009). Perfectionism, performance, and state positive affect and negative affect after a classroom test. *Canadian Journal of School Psychology*, *24*(1), 4–18. https://doi.org/10.1177/0829573509332457

Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Gray, L. (1998). Psychological distress and the frequency of perfectionistic thinking. *Journal of Personality and Social Psychology*, *75*(5), 1363–81.

Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Mosher, S. W. (1995). Perfectionism, life events, and depressive symptoms: a test of a diathesis-stress model. *Current Psychology*, *14*(2), 112–137. https://doi.org/10.1007/BF02686885

Flett, G. L., Hewitt, P. L., Demerjian, A., Sturman, E. D., Sherry, S. B., & Cheng, W. (2012). Perfectionistic automatic thoughts and psychological distress in adolescents: an analysis of the perfectionism cognitions inventory. *Journal of Rational-Emotive & Cognitive Behavior Therapy*, *30*(2), 91–104. https://doi.org/10.1007/s10942-011-0131-7

Flett, G. L., Madorsky, D., Hewitt, P. L., & Heisel, M. J. (2002). Perfectionism cognitions, rumination, and psychological distress. *Journal of Rational-Emotive and Cognitive-Behavior Therapy*, *20*(1), 33–47. https://doi.org/10.1023/A:1015128904007

Fong, M., & Loi, N. M. (2016). The mediating role of self-compassion in student psychological health. *Australian Psychologist*, *51*(6), 431–441. https://doi.org/10.1111/ap.12185

Frost, R. O., & Marten, P. A. (1990). Perfectionism and evaluative threat. *Cognitive Therapy and Research*, *14*(6), 559–572. https://doi.org/10.1007/BF01173364

Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research, 14*, 449–468. https://doi.org/ 10.1007/BF01172967

Gaudreau, P., Sanchez, X., & Blondin, J.-P. (2006). Positive and negative affective states in a performance-related setting: Testing the factorial structure of the PANAS across two samples of French-Canadian participants. *European Journal of Psychological Assessment, 22*(4), 240-249. https://doi.org/10.1027/1015-5759.22.4.240

Geldhof, G. J., Preacher, K. J., & Zyphur, M. J. (2014). Reliability estimation in a multilevel confirmatory factor analysis framework. *Psychological Methods, 19*(1), 72–91. https://doi.org/10.1037/a0032138

Gilbert, P. (2009). Introducing compassion-focused therapy. *Advances in Psychiatric Treatment, 15*(3), 199-208. https://doi.org/10.1192/apt.bp.107.005264

Gilbert, P., McEwan, K., Matos, M., Rivis, A. (2011). Fears of compassion: Development of three self-report measures. *Psychology and Psychotherapy: Theory, Research and Practice, 84*(3), 239-255. https://doi.org/10.1348/147608310X526511

Grassia, M., & Gibb, B. E. (2008). Rumination and prospective changes in depressive symptoms. *Journal of Social and Clinical Psychology*, *27*(9), 931–948.

Gross, J. J., & Thompson, R. A. (2007). Emotion regulation: Conceptual foundations. In J. J. Gross (Ed.), *Handbook of Emotion Regulation* (pp. 3-24). New York, NY: Guilford Press.

Hamachek, D. E. (1978). Psychodynamics of normal and neurotic perfectionism. *Psychology: A Journal of Human Behavior, 15*(1), 27–33.

Harris, P. W., Pepper, C. M., & Maack, D. J. (2008). The relationship between maladaptive perfectionism and depressive symptoms: the mediating role of rumination. *Personality and Individual Differences*, *44*(1), 150–160. https://doi.org/10.1016/j.paid.2007.07.011

Hawley, L. L., Zuroff, D. C., Brozina, K., Ho, M. H. R., & Dobson, K. S. (2014). Self-critical perfectionism and stress reactivity following cognitive behavioral therapy for depression. *International Journal of Cognitive Therapy, 7*(3), 287-303. https://doi.org/10.1521/ijct.2014.7.3.287

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*(3), 456–470.

Hewitt, P. L., & Flett, G. L. (1993). Dimensions of perfectionism, daily stress, and depression: a test of the specific vulnerability hypothesis. *Journal of Abnormal Psychology, 102*(1), 58.

Hill, A. P. (2017). Real and imagined perils: A reply to Stoeber and Gaudreau (2017). *Personality and Individual Differences, 108*, 220–224. https://doi.org/10.1016/j.paid.2016.12.026

Hill, A. P., Hall, H. K., & Appleton, P. R. (2010). Perfectionism and athlete burnout in junior elite athletes: the mediating role of coping tendencies. *Anxiety, Stress & Coping, 23*(4), 415–430. https://doi.org/10.1080/10615800903330966

Hoyle, R. H., & Panter, A. T. (1995). Writing about structural equation models. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 158–176). Thousand Oaks, CA: Sage Publications.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1–55. http://dx.doi.org/10.1080/10705519909540118

Kannan, D., & Levitt, H. M. (2013). A review of client self-criticism in psychotherapy. *Journal of Psychotherapy Integration, 23*(2), 166 –178. https://doi.org/10.1037/a0032355

Kelly, A. C., Vimalakanthan, K., & Carter, J.C. Understanding the roles of self-esteem, self-compassion, and fear of self-compassion in eating disorder pathology: An examination of female students and eating disorder patients. *Eating Behaviors, 15*(3), 388-391. https://doi.org/10.1016/j.eatbeh.2014.04.008

Kessler, R.C., Aguilar-Gaxiola, S., Alonso, J., Chatterji, S., Lee, S., Ormel, J., Ustun, T.B., Wang, P.S. (2009). The global burden of mental disorders: An update from the WHO World Mental Health (WMH) Surveys. *Epidemiology and Psychiatric Sciences, 18*(1), 23-33. https://doi.org/10.1017/S1121189X00001421

Kline, R. B. (2016). *Principles and practice of structural equation modeling*. New York, NY: Guilford Press

Kotsou, I., & Leys, C. (2016). Self-Compassion Scale (SCS): Psychometric properties of the French translation and its relations with psychological well-being, affect and depression. *PloS One, 11*, 1–11. https://doi.org/10.1371/journal.pone.0152880

Kuyken, W., Padesky, C. A., & Dudley, R. (2009). *Collaborative case conceptualization: Working effectively with clients in cognitive-behavioral therapy*. New York: Guilford Press.

Kyparissis, A., Pierre, A., Goldsmith, P., & Dunkley, D. M. (2006). *French version of the revised almost perfect scale (ASP-R). Jewish General Hospital*. Montreal, Quebec, Canada: McGill University.

Labrecque, J., Stephenson, R., Boivin, I., & Marchand, A. (1998). Validation de l'échelle multidimensionelle du perfectionnisme auprès de la population francophone du Québec [Validation of the Multidimensional Perfectionism Scale with the French speaking population of Québec]. *Revue Francophone de Clinique Comportementale et Cognitive, 3*, 1–14.

López Angélica, Sanderman, R., & Schroevers, M. J. (2018). A close examination of the relationship between self-compassion and depressive symptoms. *Mindfulness*, *9*(5), 1470–1478. https://doi.org/10.1007/s12671-018-0891-6

Löw, A. C., Schauenburg, H., & Dinger, U. (2020). Self-criticism and psychotherapy outcome: A systematic review and meta-analysis. *Clinical Psychology Review, 75*, Article 101808. https://doi.org/10.1016/j.cpr.2019.101808

Lyubomirsky, S., & Nolen-Hoeksema, S. (1993). Self-perpetuating properties of dysphoric rumination. *Journal of Personality and Social Psychology*, *65*(2), 339–49.

Malivoire, B. L., Kuo, J. R., & Antony, M. M. (2019). An examination of emotion dysregulation in maladaptive perfectionism. *Clinical Psychology Review*, *71*, 39–50. https://doi.org/10.1016/j.cpr.2019.04.006

Mandel, T., Dunkley, D. M., & Moroz, M. (2015). Self-critical perfectionism and depressive and anxious symptoms over 4 years: The mediating role of daily stress reactivity. *Journal of Counseling Psychology, 62*(4), 703–17. https://doi.org/10.1037/cou0000101

Mandel, T., Dunkley, D. M., & Starrs, C. J. (2018). Self-critical perfectionism, daily interpersonal sensitivity, and stress generation: a four-year longitudinal study. *Journal of Psychopathology and Behavioral Assessment, 40*(4), 701–713. https://doi.org/10.1007/s10862-018-9673-7

Mehr, K. E., & Adams, A. C. (2016). Self-compassion as a mediator of maladaptive perfectionism and depressive symptoms in college students. *Journal of College Student Psychotherapy*, *30*(2), 132–145. https://doi.org/10.1080/87568225.2016.1140991

Miranda, R., & Nolen-Hoeksema, S. (2007). Brooding and reflection: rumination predicts suicidal ideation at 1-year follow-up in a community sample. *Behaviour Research and Therapy*, *45*(12), 3088–3095. https://doi.org/10.1016/j.brat.2007.07.015

Morrison, R., & O'Connor, R. C. (2005). Predicting psychological distress in college students: the role of rumination and stress. *Journal of Clinical Psychology*, *61*(4), 447–60.

Moskowitz, D. S. (1986). Comparison of self-reports, reports by knowledgeable informants, and behavioral observation data. *Journal of Personality*, *54*(1), 294–317. https://doi.org/10.1111/j.1467-6494.1986.tb00396.x

Neff, K. D. (2003a). Self-compassion: an alternative conceptualization of a healthy attitude toward oneself. *Self and Identity, 2*(2), 85–101. https://doi.org/10.1080/15298860309032

Neff, K. D. (2003b). The development and validation of a scale to measure self-compassion. *Self and Identity, 2*(3), 223–250. https://doi.org/10.1080/15298860309027

Neff, K.D. & Dahm, K.A. (2015). Self-Compassion: What it is, what it does, and how it relates to mindfulness. In Ostafin, B.D., Robinson, M.D., & Meier B.P. (Eds.) *Handbook of Mindfulness and Self-Regulation*, (pp. 121–137). Springer. https://doi.org/10.1007/978-1-4939-2263-5

Neff, K. D., Rude, S. S., & Kirkpatrick, K. L. (2007). An examination of self-compassion in relation to positive psychological functioning and personality traits. *Journal of Research in Personality*, *41*(4), 908–916. https://doi.org/10.1016/j.jrp.2006.08.002

Nezlek, J. (2012). Multilevel modeling analyses of diary-style data. *Handbook of Research Methods for Studying Daily Life*, 357-383.

Noble, C. L., Ashby, J. S., & Gnilka, P. B. (2014). Multidimensional perfectionism, coping, and depression: differential prediction of depression symptoms by perfectionism type. *Journal of College Counseling*, *17*(1), 80–94. https://doi.org/10.1002/j.2161-1882.2014.00049.x

Nolen-Hoeksema, S. (1987). Sex differences in unipolar depression: evidence and theory. *Psychological Bulletin*, *101*(2), 259.

O'Connor, D. B., O'Connor, R. C., & Marshall, R. (2007). Perfectionism and psychological distress: Evidence of the mediating effects of rumination. *European Journal of Personality, 21*(4), 429-452. https://doi.org/10.1002/per.616

Olson, M. L., & Kwon, P. (2008). Brooding perfectionism: refining the roles of rumination and perfectionism in the etiology of depression. *Cognitive Therapy and Research*, *32*(6), 788–802. https://doi.org/10.1007/s10608-007-9173-7

Preacher, K. J., & Selig, J. P. (2012). Advantages of Monte Carlo confidence intervals for indirect effects. *Communication Methods and Measures*, *6*, 77–98. http://dx.doi.org/10.1080/19312458.2012.679848

Prud'homme, J., Dunkley, D. M., Bernier, E., Berg, J.-L., Ghelerter, A., & Starrs, C. J. (2017). Specific perfectionism components predicting daily stress, coping, and negative affect six months and three years later. *Personality and Individual Differences, 111*, 134–138. https://doi.org/10.1016/j.paid.2017.01.034

Raes, F. (2010). Rumination and worry as mediators of the relationship between self-compassion and depression and anxiety. *Personality and Individual Differences, 48*(6), 757–761. https://doi.org/10.1016/j.paid.2010.01.023

Raes, F. (2011). The effect of self-compassion on the development of depression symptoms in a non-clinical sample. *Mindfulness*, *2*(1), 33–36. https://doi.org/10.1007/s12671-011-0040-y

Rhéaume, J., Letarte, H., Freeston, M. H., Dugas, M., Ladouceur, R., Boivin, I., et al. (1994). *L'Échelle de standards personnels [French version of the Frost MPS]*. Université Laval: Department of Psychology.

Richardson, C. M. E., Rice, K. G., & Devine, D. P. (2014). Perfectionism, emotion regulation, and the cortisol stress response. *Journal of Counseling Psychology, 61*(1), 110–8. https://doi.org/10.1037/a0034446

Ruscio, A. M., Gentes, E. L., Jones, J. D., Hallion, L. S., Coleman, E. S., & Swendsen, J. (2015). Rumination predicts heightened responding to stressful life events in major depressive disorder and generalized anxiety disorder. *Journal of Abnormal Psychology*, *124*(1), 17–26. https://doi.org/10.1037/abn0000025

Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression: a new approach to preventing relapse*. Guilford Press.

Selig, J. P., & Preacher, K. J. (2008). Monte Carlo method for assessing mediation: An interactive tool for creating confidence intervals for indirect effects. Retrieved from http://quantpsy.org.

Short, M. M., & Mazmanian, D. (2013). Perfectionism and negative repetitive thoughts: examining a multiple mediator model in relation to mindfulness. *Personality and Individual Differences*, *55*(6), 716–721. https://doi.org/10.1016/j.paid.2013.05.026

Slaney, R. B., Rice, K. G., Mobley, M., Trippi, J., & Ashby, J. S. (2001). The revised almost perfect scale. *Measurement and Evaluation in Counseling and Development*, *34*(3), 130–45.

Smith, M. M., Sherry, S. B., McLarnon, M. E., Flett, G. L., Hewitt, P. L., Saklofske, D. H., & Etherson, M. E. (2018). Why does socially prescribed perfectionism place people at risk for depression? A five-month, two-wave longitudinal study of the perfectionism social disconnection model. *Personality and Individual Differences, 134*, 49–54. https://doi.org/10.1016/j.paid.2018.05.040

Smith, M. M., Sherry, S. B., Ray, C., Hewitt, P. L., & Flett, G. L. (2021). Is perfectionism a vulnerability factor for depressive symptoms, a complication of depressive symptoms, or both? A meta-analytic test of 67 longitudinal studies. *Clinical Psychology Review, 84*. https://doi.org/10.1016/j.cpr.2021.101982

Smith, M. M., Sherry, S. B., Rnic, K., Saklofske, D. H., Enns, M., & Gralnick, T. (2016). Are perfectionism dimensions vulnerability factors for depressive symptoms after

controlling for neuroticism? A meta-analysis of 10 longitudinal studies. *European Journal of Personality, 30*(2), 201–212. https://doi.org/10.1002/per.2053

Smith, M. M., Sherry, S. B., Vidovic, V., Hewitt, P. L., & Flett, G. L. (2020). Why does perfectionism confer risk for depressive symptoms? a meta-analytic test of the mediating role of stress and social disconnection. *Journal of Research in Personality*, *86*. https://doi.org/10.1016/j.jrp.2020.103954

Stoeber, J., & Gaudreau, P. (2017). The advantages of partialling perfectionistic strivings and perfectionistic concerns: critical issues and recommendations. *Personality and Individual Differences, 104,* 379–386. https://doi.org/10.1016/j.paid.2016.08.039

Stoeber, J., Lalova, A. V., & Lumley, E. J. (2020). Perfectionism, (self-)compassion, and subjective well-being: a mediation model. *Personality and Individual Differences*, *154*. https://doi.org/10.1016/j.paid.2019.109708

Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: approaches, evidence, challenges. *Personality and Social Psychology Review: An Official Journal of the Society for Personality and Social Psychology, Inc, 10*(4), 295–319.

Tahtinen, R. E., Kristjánsdóttir, H., þorgeirsson, S., Oddson, H. R., Saavedra, J. M., & Morris, R. (2021). Depressive symptoms in Icelandic elite athletes: A prospective examination through the lens of the response styles theory. *Psychology of Sport & Exercise*, *56*. https://doi.org/10.1016/j.psychsport.2021.101964

Tobin, R., & Dunkley, D. M. (2021). Self-critical perfectionism and lower mindfulness and self-compassion predict anxious and depressive symptoms over two years. *Behaviour Research and Therapy*, *136*, 103780–103780. https://doi.org/10.1016/j.brat.2020.103780

Tobin, R., & Dunkley, D. M. (June, 2023). *Self-critical perfectionists experience decreases in daily negative affect when engaging in mindfulness.* Paper presented at Snapshots of the Annual National Convention of the Canadian Psychological Association. Toronto, Ontario, Canada.

Treynor, W., Gonzalez, R., & Nolen-Hoeksema, S. (2003). Rumination reconsidered: a psychometric analysis. *Cognitive Therapy and Research*, *27*(3), 247–259. https://doi.org/10.1023/A:1023910315561

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, *54*(6), 1063.

Wiley J (2020). multilevelTools: Multilevel and Mixed Effects Model Diagnostics and Effect Sizes. R package version 0.1.1, <https://CRAN.R-project.org/package=multilevelTools>.

Yanagida T (2023). misty: Miscellaneous Functions 'T.Yanagida'. R package version 0.4.10, <https://CRAN.R-project.org/package=misty>.

Young, J.E., Klosko, J.S., & Weishaar, M.E. (2003). *Schema therapy: A practitioner's guide.* New York, NY: Guilford Press.

Zeller, M., Yuval, K., Nitzan-Assayag, Y., & Bernstein, A. (2015). Self-compassion in recovery following potentially traumatic stress: Longitudinal study of at-risk youth. *Journal of Abnormal Child Psychology, 43*(4), 645-653. https://doi.org/0.1007/s10802-014-9937-y

Zessin, U., Dickhäuser, O., & Garbade, S. (2015). The relationship between self-compassion and well-being: a meta-analysis. *Applied Psychology. Health and Well-Being, 7*(3), 340–64. https://doi.org/10.1111/aphw.12051

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*(3), 489–511.

Table 1

Bivariate Correlations, Means, Standard Deviations, and Reliability Coefficients of Perfectionism and Daily Stress, Self-Compassion, Rumination, and Affect

Variables	1	2	3	4	5	6	7
1. Self-Critical Perfectionism	-/.88[a]	--	--	--	--	--	--
2. Personal Standards Perfectionism	.50***	-/.83[a]	--	--	--	--	--
3. Daily Event Stress	.50***	.30***	.81/.96	--	--	--	--
4. Daily Self-Compassion	-.66***	-.24**	-.51***	.93/.69	--	--	--
5. Daily Ruminative Brooding	.60***	.31***	.64***	-.60***	.75/.95	--	--
6. Daily Negative Affect	.56***	.20*	.60***	-.59***	.70***	.83/.96	--
7. Daily Positive Affect	-.19*	.13	-.15	.48***	-.05	-.10	.87/.96
M	-.001	-.002	16.12	86.00	10.24	16.58	26.74
SD	.85	.87	6.93	17.79	4.97	6.78	8.56

Note. $N = 154$.

MacDonald's ω coefficient for reliability are presented along the diagonal (within-person/between-person).

[a] These values are Cronbach's α coefficient for reliability.

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

Table 2

Bootstrap Analysis of Magnitude and Statistical Significance of Indirect Effects

Indirect Effects	β (Standardized Path Coefficient and Product)	95% CI for Mean Indirect Effects (Lower to Upper)[a]
SC Perfectionism		
A. Paths Predicting NA		
A1. SC → Stress → NA	(.468) × (.204) = .095	[0.1606, 1.055]*
A2. SC → Self-Compassion → NA	(-.606) × (-.231) = .140	[0.3449, 1.400]*
A3. SC → Rumination → NA	(.233) × (.429) = .100	[0.1661, 1.125]*
A4. SC → Stress → Self-Compassion → NA	(.468) × (-.248) × (-.231) = .027	[0.04754, 0.327]*
A5. SC → Stress → Rumination → NA	(.468) × (.402) × (.429) = .081	[0.02401, 0.8099]*
A6. SC → Self-Compassion → Rumination → NA	(-.606) × (-.234) × (.429) = .061	[0.1167, 0.6833]*
A7. SC → Stress → Self-Compassion → Rumination → NA	(.468) × (-.248) × (-.234) × (.429) = .012	[0.01717, 0.1551]*
B. Paths Predicting PA		
B1. SC → Stress → PA	(.468) × (-.095) = -.044	[-0.9878, 0.2707]
B2. SC → Self-Compassion → PA	(-.606) × (.692) = -.419	[-4.293, -2.166]*
B3. SC → Rumination → PA	(.233) × (.357) = .083	[0.1464, 1.282]*
B4. SC → Stress → Self-Compassion → PA	(.468) × (-.248) × (.692) = -.080	[-1.076, -0.252]*
B5. SC → Stress → Rumination → PA	(.468) × (.402) × (.357) =.067	[0.2029, 0.9171]*
B6. SC → Self-Compassion → Rumination → PA	(-.606) × (-.234) × (.357) = .051	[0.1026, 0.7739]*
B7. SC → Stress → Self-Compassion → Rumination → PA	(.468) × (-.248) × (-.234) × (.357) = .010	[0.01627, 0.1727]*
PS Perfectionism		
C. Paths Predicting NA		
C1. PS → Stress → NA	(.067) × (.204) = .014	[-0.1154, 0.3199]
C2. PS → Self-Compassion → NA	(.144) × (-.231) = -.033	[-0.4482, -0.01355]*
C3. PS → Rumination → NA	(.017) × (.429) = .007	[-0.2804, 0.3665]
C4. PS → Stress → Self-Compassion → NA	(.067) × (-.248) × (-.231) = .004	[-0.02423, 0.074]
C5. PS → Stress → Rumination → NA	(.067) × (.402) × (.429) = .012	[-0.05994, 0.03054]
C6. PS → Self-Compassion → Rumination → NA	(.144) × (-.234) × (.429) = -.014	[-0.2100, -0.004725]*
C7. PS → Stress → Self-Compassion → Rumination → NA	(.067) × (-.248) × (-.234) × (.429) = .002	[-0.01349, 0.04232]

Table 2 Continued

Bootstrap Analysis of Magnitude and Statistical Significance of Indirect Effects

Indirect Effects	β (Standardized Path Coefficient and Product)	95% CI for Mean Indirect Effects (Lower to Upper)[a]
D. Paths Predicting PA		
D1. PS → Stress → PA	(.067) × (-.095) = -.006	[-0.2678, 0.1007]
D2. PS → Self-Compassion → PA	(.144) × (.692) = .010	[0.06269, 1.467]*
D3. PS → Rumination → PA	(.017) × (.357) = .006	[-0.2944, 0.4111]
D4. PS → Stress → Self-Compassion → PA	(.067) × (-.248) × (.692) = -.011	[-0.3252, 0.1158]
D5. PS → Stress → Rumination → PA	(.067) × (.402) × (.357) = .010	[-0.0992, 0.2735]
D6. PS → Self-Compassion → Rumination → PA	(.144) × (-.234) × (.357) = -.012	[-0.2332, -0.005059]*
D7. PS → Stress → Self-Compassion → Rumination → PA	(.067) × (-.248) × (-.234) × (.357) = .001	[-0.01504, 0.04687]

Note. $N = 154$. SC = Self-Criticism. PS = Personal Standards. NA = Negative Affect. PA = Positive Affect.

[a] These values are based on the unstandardized path coefficients.

* $p < .05$.

Table 3

Multilevel Regressions: Within-Person Effects of Daily Stress and Self-Compassion and the Moderating Effects of Perfectionism

	Negative Affect		Positive Affect	
Variable	*b*	*t*	*b*	*t*
1.SC × Event Stress				
Intercept	16.58	48.42***	26.76	52.41***
SC	2.85	8.28***	-1.28	-2.48*
Event Stress	0.38	15.11***	-0.24	-8.02***
SC × Event Stress	0.10	4.08***	-0.03	-0.97
2. PS × Event Stress				
Intercept	16.58	41.03***	26.76	51.81***
PS	1.03	2.54*	0.83	1.61
Event Stress	0.37	14.67***	-0.24	-8.00***
PS × Event Stress	0.07	2.90**	-0.04	-1.40
	Self-Compassion		Ruminative Brooding	
	b	*t*	*b*	*t*
3. SC × Event Stress				
Intercept	86.02	105.37***	10.25	43.36***
SC	-8.91	-10.85***	2.20	9.23***
Event Stress	-0.78	-11.81***	0.24	13.57***
SC × Event Stress	-0.21	-3.22**	0.08	4.33***
4. PS × Event Stress				
Intercept	86.03	81.40***	10.25	36.55***
PS	-3.16	-2.99**	1.14	4.07***
Event Stress	-0.77	-11.56***	0.24	12.95***
PS × Event Stress	-2.67	-2.67**	0.03	1.42
	Ruminative Brooding			
	b	*t*		
5. SC × Self-Compassion				
Intercept	10.23	43.31***		
SC	2.19	9.21***		
Self-Compassion	-0.13	-16.89***		
SC × Self-Compassion	-0.02	-2.50*		
6. PS × Self-Compassion				
Intercept	10.25	36.52***		
PS	1.14	4.05***		
Self-Compassion	-0.14	-16.58***		
PS × Self-Compassion	-0.01	-0.63		

Note. b represents the unstandardized regression coefficients. SC = Self-Criticism. PS = Personal Standards.

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

Figure 1

Hypothesized Path Model of SC/PS Perfectionism and Daily Aggregated Event Stress, Self-Compassion, Ruminative Brooding, Positive Affect, and Negative Affect

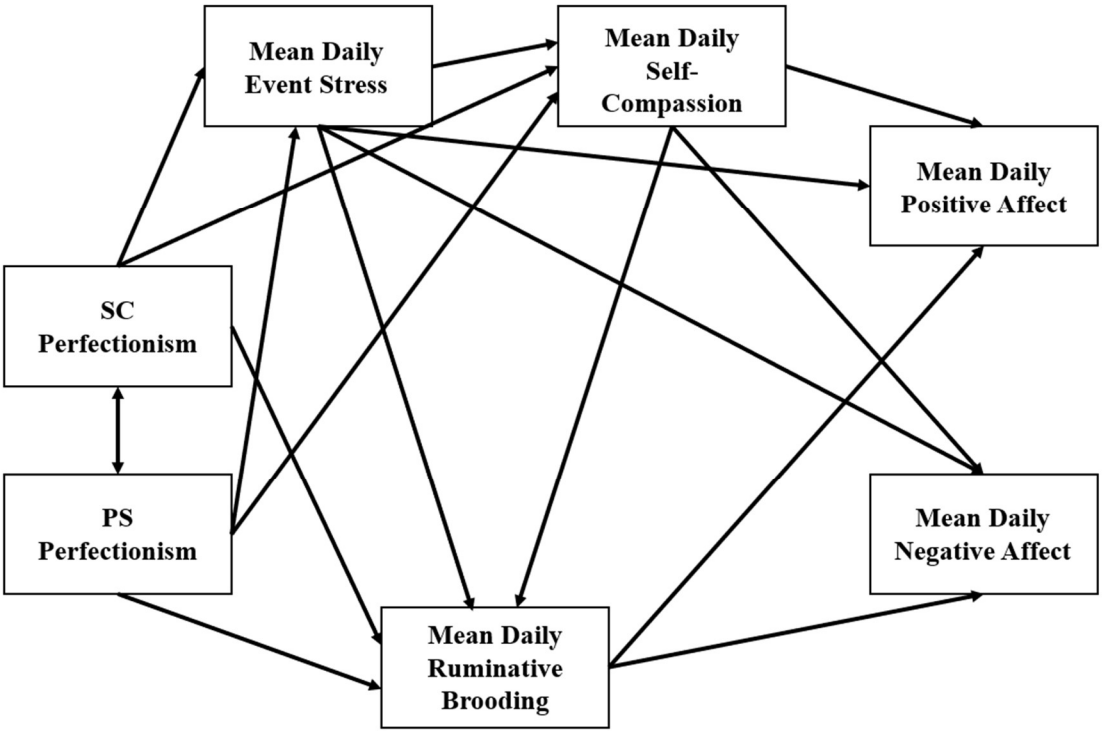
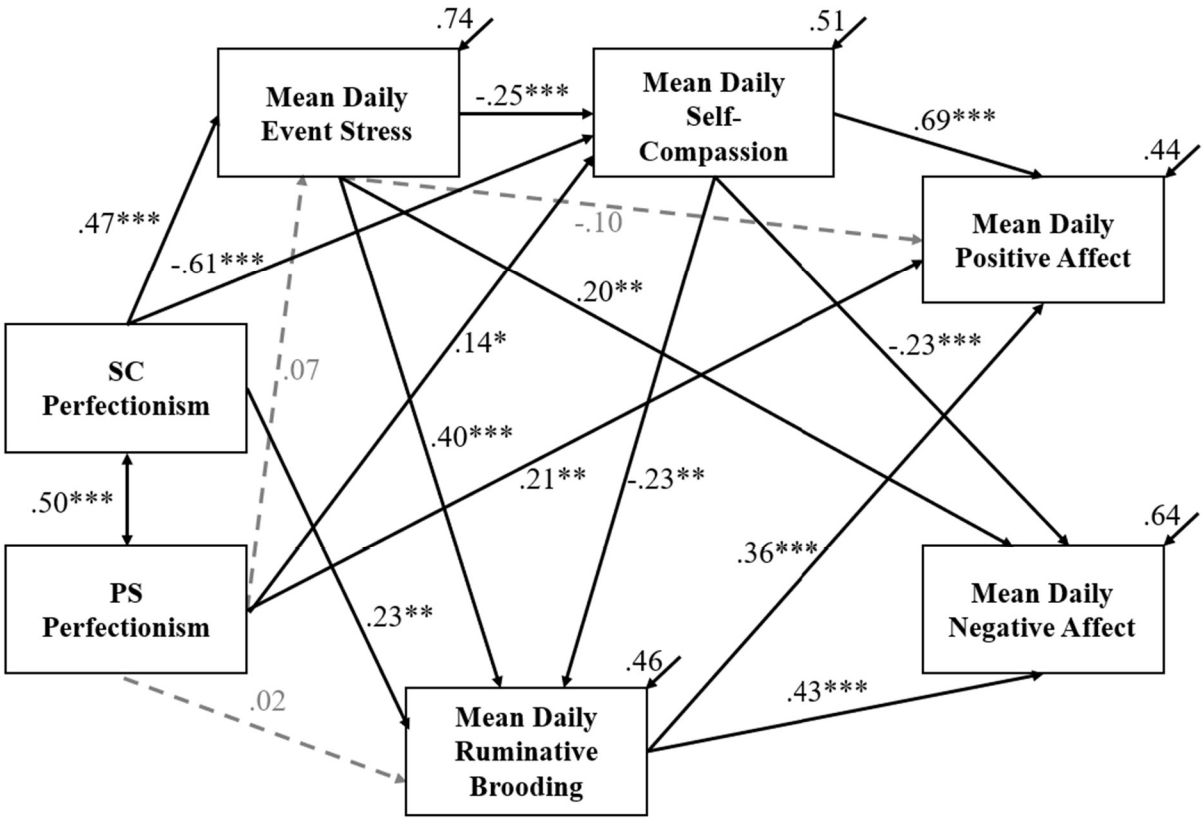


Figure 2

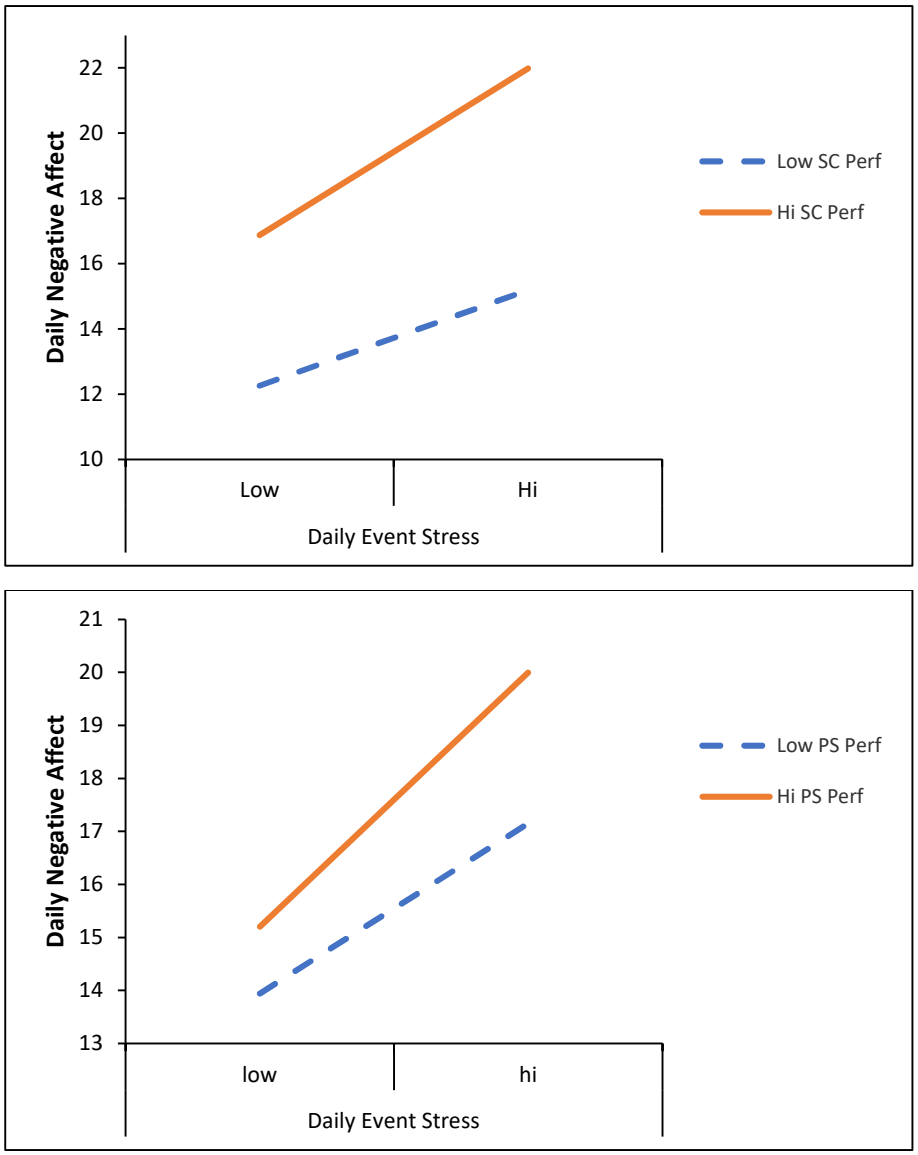
Final Path Model of SC and PS Perfectionism and Aggregated Daily Event Stress, Self-Compassion, Ruminative Brooding, Positive Affect, and Negative Affect



Note. Standardized parameter estimates of the final path model relating self-critical (SC) perfectionism, personal standards (PS) perfectionism and aggregated daily event stress, self-compassion, ruminative brooding, positive affect, and negative affect. Significant estimates are shown in solid black and non-significant estimates ($p > .05$) are dashed in gray. The residual arrows denote the proportion of the variance in the variable that was unaccounted for by other variables. * $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 3

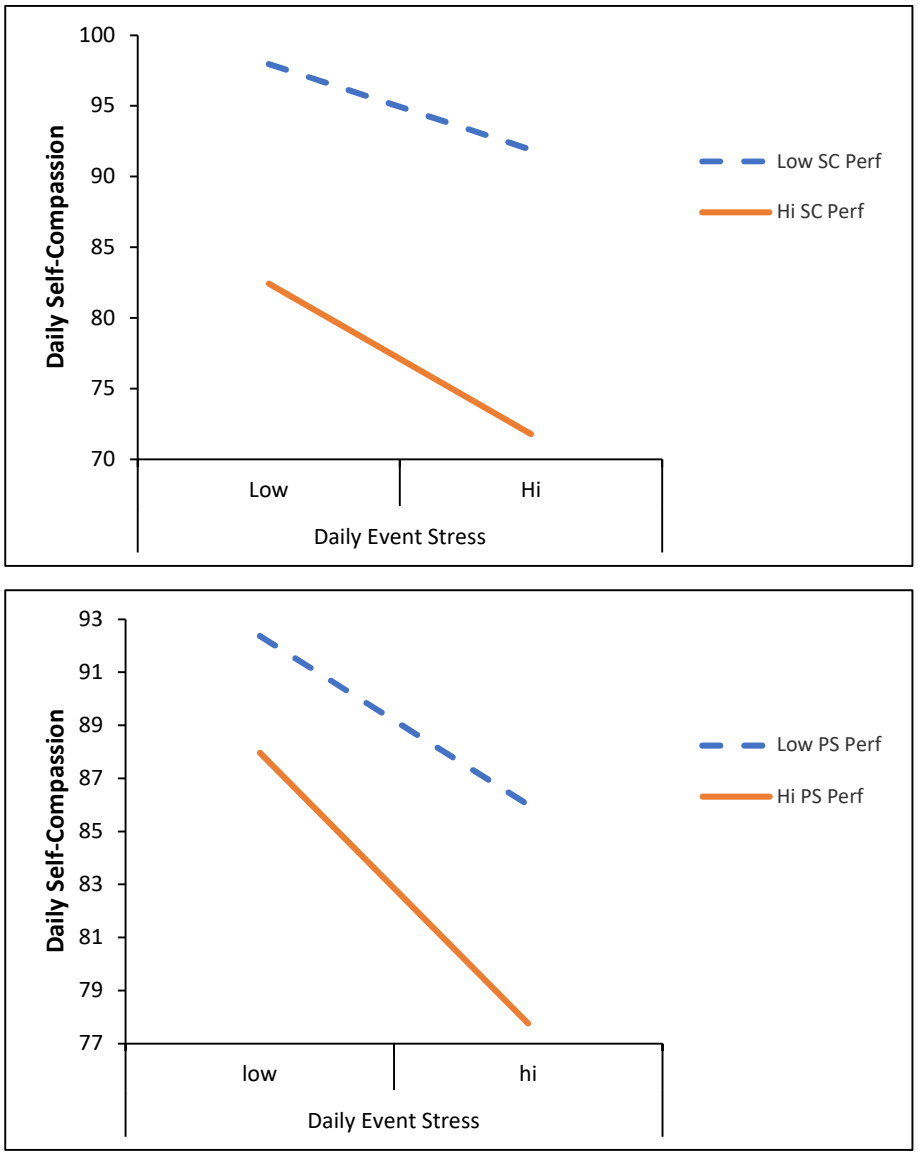
Within-person Associations Between Daily Event Stress and Daily Negative Affect Moderated by Self-Critical (SC; top) and Personal Standards (PS; bottom) Perfectionism



Note. Values for SC/PS Perfectionism and Daily Event Stress are plotted using low (i.e., one standard deviation below the mean) and high (i.e., one standard deviation above the mean) values.

Figure 4

Within-person Associations Between Daily Event Stress and Daily Self-Compassion Moderated by Self-Critical (SC; top) and Personal Standards (PS; bottom) Perfectionism



Note. Values for SC/PS Perfectionism and Daily Event Stress are plotted using low (i.e., one standard deviation below the mean) and high (i.e., one standard deviation above the mean) values.

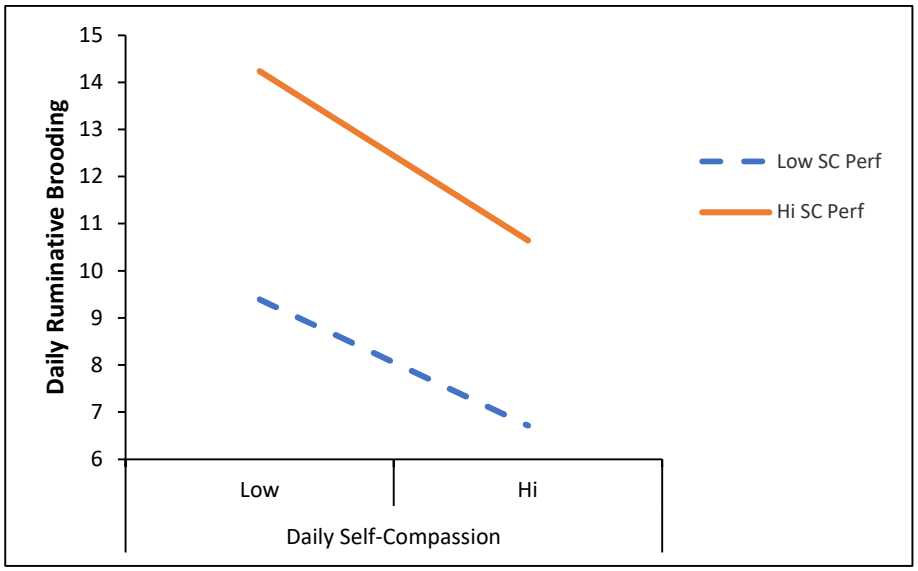
Figure 5

Within-person Associations Between Daily Event Stress and Daily Ruminative Brooding Moderated by Self-Critical (SC) Perfectionism

Note. Values for SC Perfectionism and Daily Event Stress are plotted using low (i.e., one standard deviation below the mean) and high (i.e., one standard deviation above the mean) values.

Figure 6

Within-person Associations Between Daily Self-Compassion and Daily Ruminative Brooding Moderated by Self-Critical (SC) Perfectionism



Note. Values for SC Perfectionism and Daily Self-Compassion are plotted using low (i.e., one standard deviation below the mean) and high (i.e., one standard deviation above the mean) values.