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Perfectionistic Strivings are Neither Adaptive, Healthy, Positive, Functional, nor Advisable: Findings From Six Peer-Reviewed Journal Articles

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ABSTRACT
This article-based dissertation incrementally advanced our understanding of the contentiously debated (mal)adaptiveness of perfectionistic strivings (i.e., self-oriented perfectionism and personal standards). Perfectionistic strivings’ relations with negative emotionality, narcissism, depressive symptoms, and suicide were examined using structural equation modeling, path analysis, and meta-analysis. Additionally, bifactor modeling was used to explore how controlling for perfectionistic concerns (i.e., socially prescribed perfectionism, concern over mistakes, and doubts about actions) impacts perfectionistic strivings’ factor structure. Results suggest perfectionistic strivings are neither adaptive, healthy, positive, functional, nor advisable. Indeed, perfectionistic strivings exacerbated perfectionistic concerns’ relationship with negative emotionality. Likewise, controlling for perfectionistic concerns rendered perfectionistic strivings an unreliable factor. Self-oriented perfectionism also had a small, unique positive relationship with narcissistic grandiosity. Furthermore, perfectionistic strivings predicted small longitudinal increases in depressive symptoms beyond neuroticism. Similarly, daughters’ self-oriented perfectionism conferred risk for daughters’ depressive symptoms by eroding daughters’ social self-esteem. Lastly, perfectionistic strivings had a small positive relationship with suicide ideation. Overall, findings lend credence and coherence to theoretical accounts suggesting self-imposed pressures to be perfect are part of the premorbid personality of people prone to depression, suicide, social disconnection, negative emotionality, and narcissistic grandiosity. Investigators are strongly advised to cease a-priori labeling perfectionistic strivings “adaptive perfectionism”—doing so is an oversimplification of a double-edged, potentially lethal, construct. Researchers are also encouraged to explore further the perils of partialling.

Keywords: perfectionism; strivings; narcissism; depression; social self-esteem; suicide; dyads; daily dairy; meta-analysis; bifactor
CO-AUTHORSHIP STATEMENT

Chapters two-to-seven represent fully-published, peer-reviewed, journal articles undertaken in collaboration with co-authors. However, Martin M. Smith was the primary investigator across all articles and took the lead role in all aspects of the research and writing with one exception: Simon B. Sherry provided access to data used for chapter six. References are provided below, in the order in which they appear within the dissertation. Supplemental material for chapter three, four, five, and seven are available on the publisher’s website.


Supplemental Material:


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Portions of chapter one and chapter eight are drawn from the following article, book chapter, and in preparation manuscript:


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CHAPTER ONE: INTRODUCTION AND LITERATURE REVIEW

1. The Tragedy of Ernest Hemingway: A Case Study

In 1954, Ernest Hemingway (1899-1961) achieved his lifelong dream—the Nobel Prize for English literature. However, this prestigious award brought him little satisfaction. Seven years later Hemingway attempted suicide and was admitted to a psychiatric hospital. But Hemingway’s psychiatric admission did little to assuage his alcohol-fueled depression and suicidality. On the contrary, Hemingway believed the electroshock therapy he received during his hospitalization robbed him of his ability to write and as such the “center of his being.” And on July 2, 1961, two days after being discharged Hemingway woke up early, put on his red robe, and looked for the key to his hunting cabinet; his fourth wife, Mary Welsh, had hidden the key knowing his suicidal intent. Unfortunately, Hemingway found the key, unlocked his gun cabinet, loaded his favorite shotgun, placed the butt of the gun on the floor, put the cold steel inside his mouth—and then pulled the trigger.

What was it about this remarkably talented and accomplished man that ultimately caused his suicide? According to numerous accounts, perfectionism was a core characteristic of Hemingway’s personality integral to his depression and suicidality (e.g., Efferson, 2016). As Yalom (1971, p. 481) observed, “rather than expectations, he [Hemingway] forged a set of restrictive demands upon himself, a tyrannical and inexorable dialogue which pervaded all areas of his inner worlds.” And, perfectionists, like Hemingway, struggle to partake in and benefit from positive and stable interpersonal relationships, which often leaves them feeling alienated, isolated, depressed, and suicidal (Sherry, Mackinnon, & Gautreau, 2016). Indeed, in response to a friend trying to convince him that he still had much to live for, Hemingway replied “What does a man care for? Staying healthy. Working good. Eating and drinking with friends…I haven’t any of them. Do you understand goddamn it? None of them” (Rubinstein, 1988, p. 508).
Moreover, consistent with Flett, Sherry, Hewitt, and Nepon (2014), perfectionism and narcissism often go hand-and-hand; and Hemingway’s narcissistic perfectionism was readily apparent (Nealis, Sherry, Sherry, Stewart, & Macneil, 2015, 2016; Smith, Saklofske, Stoeber, & Sherry, 2016). For instance, when asked by an interviewer what he considered the best intellectual training for a would-be-writer, Hemingway retorted, “Let’s say that he should go out and hang himself because he finds that writing well is impossibly difficult. Then he should be cut down without mercy and forced by his own self to write as well as he can for the rest of his life” (Hemingway & Bruccoli, 1986, p. 115). Likewise, research suggests narcissists experience profound suffering when confronted with ego-involving stressors (Morf & Rhodewalt, 2001). As such, Hemingway’s increasing struggles to write—and to demonstrate excellence—represented a painful stressor for him. As Yalom (1971, p. 488) sagely noted, “when the idealized image is severe and unobtainable …tragic consequences follow: the individual cannot in real life approximate the superhuman scope of the idealized image, reality eventually intrudes, and he realizes a discrepancy between what he wants to be and what he is.” And perceiving a discrepancy between the actual and ideal self is unpleasant and can lead to suicide as a means of escaping painful self-awareness (Baumesiter, 1990). In Hemingway’s own words “The worst death for anyone is to lose the center of his being, the thing he really is…Whether by choice or by fate, to retire from what you do—and makes you what you are—is to back up into the grave” (Hutcher, 2004, p. 228).

As these anecdotes of Hemingway attest, striving for perfection can be pernicious—the overarching theme of the present collection of articles. Additionally, the present article-based dissertation maintains perfectionistic strivings’ destructiveness is under-recognized and misunderstood; and that labeling perfectionistic strivings “adaptive perfectionism” is
inappropriate. But first, what is perfectionism, how does perfectionism fit within the five-factor model of personality, and what causes perfectionism?

1.1. Defining Perfectionism

Perfectionists strive for flawlessness, have high standards, and are overly critical of themselves and others. Perfectionism is also multidimensional (Dunkley, Blankstein, Masheb, & Grilo, 2006; Hewitt, Flett, Besser, Sherry, & McGee, 2003). And two higher-order factors underlie several lower-order perfectionism dimensions: perfectionistic strivings and perfectionistic concerns (Dunkley, Zuroff, & Blankstein, 2003; Stoeber & Otto, 2006). Perfectionistic strivings encompass self-generated pressures to be perfect (self-oriented perfectionism; Hewitt & Flett, 1991), alongside ceaselessly pursuing lofty goals (personal standards; Frost, Marten, Lahart, & Rosenblate, 1990). Perfectionistic concerns comprise socially based pressures to be perfect (socially prescribed perfectionism; Hewitt & Flett, 1991), overly adverse reactions to errors (concern over mistakes; Frost et al., 1990), and nagging uncertainties about performance abilities (doubts about actions; Frost et al., 1990). Additionally, though perfectionistic strivings and perfectionistic concerns overlap (Smith & Saklofske, 2017), they are still empirically distinct (Dunkley & Blankstein, 2000; Stoeber & Otto, 2006).

Indeed, perfectionistic concerns are implicated in the onset and maintenance of an array of psychological problems including depression, social disconnection, suicide, binge eating, procrastination, stress, and anxiety disorders (Cox, Enns, & Clara, 2002; Flett, Hewitt, & Heisel, 2014; Mackinnon, Kehayes, Leonard, Fraser, & Stewart, 2017; Smith, Sherry, Gautreau, Stewart, Saklofske, & Mushquash, 2017; Smith, Sherry, Saklofske, & Mushquash, 2017; Smith, Speth, Sherry, Saklofske, Stewart, & Glowacka, 2017; Smith, Vidovic, Sherry, Stewart, & Saklofske, 2017). Accordingly, perfectionistic concerns’ destructiveness is seldom challenged. Conversely, perfectionistic strivings’ perniciousness is contentiously debated.
1.2. Perfectionism and the Five-Factor Model of Personality

Early theorists emphasized the role of neuroticism in the origins of perfectionism (Enns & Cox, 2002). For instance, Alfred Adler (1938 / 1998) regarded perfectionism as a neurotic form of overcompensation. In Adler’s (1938 / 1988) words, perfectionists are “perpetually comparing themselves with the unobtainable idea of perfection, are always possessed and spurred on by a sense of inferiority” (p. 35-46). Alternatively, Karen Horney (1950) viewed perfectionism as a neurotic pursuit of the idealized self, characterized by “the tyranny of the should” (p. 64). In Horney’s (1950) words, “for the neurotic, his best is not good enough…he should have done better” (Horney, 1950, p. 69-79). And Albert Ellis (1958) conceptualized perfectionism as an irrational belief rooted in neuroticism. Indeed, in Ellis’s (1958) words, “The individual comes to believe in some unrealistic, impossible, often perfectionistic goals—especially the goal that he should always be approved by everyone…and then, in spite of considerable contradictory evidence, refuses to give up his original illogical beliefs” (p. 43-44).

In support, perfectionistic concerns are predominantly characterized by neuroticism and to a lesser extent disagreeableness and introversion (Campbell & DiPaula, 2002; Dunkley, Blankstein, & Berg, 2012; Hill, McIntire, & Bacharach, 1997; Rice, Ashby, & Slaney, 2007). Nonetheless, consistent with Hamachek (1978), not all forms of perfectionism are characterized by neuroticism. Indeed, perfectionistic strivings are predominantly characterized by conscientiousness (e.g., Hill et al., 1997; Dunkley et al., 2012; Rice et al., 2007; Stoeber, Corr, Smith, & Saklofske, 2018). Even so, though perfectionistic strivings and conscientiousness clearly overlap, perfectionistic strivings has unique, potentially pathological elements, such as a rigid need for the self and things to be perfect (Flett & Hewitt, 2015). Similarly, evidence suggests perfectionistic concerns are neither redundant with, nor fully captured, by neuroticism (e.g., Smith, Sherry, Rnic, Saklofske, Enns, & Gralnick, 2016).
1.3. The Intergenerational Transmission of Perfectionism

From a biological standpoint, perfectionism is heritable. Tozzi et al. (2004) studied female twins and found concern over mistakes (a core facet of perfectionistic concerns) and personal standards (a core facet of perfectionistic strivings) overlapped substantially and had “significant contributions from a common genetic factor” (p. 490). Furthermore, evidence suggests perfectionistic concerns and perfectionistic strivings stem from the same general factor (Smith & Saklofske, 2017). As such, perfectionistic parents may beget perfectionistic offspring due to a shared genetic lineage.

Alternatively, from a social learning standpoint, perfectionistic parents create environments for their children filled with lofty expectations (Flett, Hewitt, Oliver, & Macdonald, 2002). Though such parents reward their child when they meet expectations, they fail to reward, or even punish, their child when they fall short of expectations (Appleton, Hall, & Hill, 2010), which in turn reinforces perfectionistic tendencies (Flett et al., 2002). Additionally, from a psychodynamic standpoint, demanding and critical parents lead to the establishment of painful and negative introjects in children, with children internalizing parents’ lofty expectations in fear of losing parental care and approval (Blatt & Homann, 1992; Hewitt, Flett, & Mikail, 2017). In support, evidence suggests people who perceive their parents as guilt inducing, as disregarding their point of view, and as overbearing report higher perfectionistic strivings and perfectionistic concerns (Gong, Paulson, & Wang, 2016; Reilly, Stey, & Lapsley, 2016; Soenens, Elliot et al., 2005a; Soenens, Vansteenkiste, et al., 2005b; Soenens et al., 2008). Likewise, Smith, Sherry, Gautreau, Mushquash, Saklofske, and Snow (2017) recently found that fathers’ self-reported other-oriented perfectionism and daughters’ perceptions of fathers’ psychological control predicted daughters’ perfectionistic concerns and perfectionistic strivings. Accordingly, extant evidence implies perfectionistic strivings do not arise from supportive and nurturing
parenting styles; rather perfectionistic strivings appear to arise from harsh and adverse parenting styles. In other words, research suggests perfectionistic strivings are born out of adversity. Nonetheless, some scholars continue to a-priori label perfectionistic strivings “adaptive perfectionism.”

1.4. Are Perfectionistic Strivings Adaptive?

For half a century scholars have debated whether perfectionism is conducive to mental health (e.g., Hamachek, 1978; Pacht, 1984). However, the practice of labeling perfectionistic strivings “adaptive perfectionism” principally stems from Frost, Heimberg, Holt, Mattia, and Neubauer (1993). Frost and colleagues (1993) factor analyzed various perfectionism subscales and reported a two-factor solution. One factor correlated positively with positive affect, but not negative affect and depression, and was dubbed “positive strivings” (Frost et al., 1993). The other factor correlated positively with negative affect and depression, but not positive affect, and was dubbed “maladaptive evaluative concerns” (Frost et al., 1993). These labels, in turn, gave rise to the practice of referring to perfectionistic strivings as “adaptive perfectionism” (e.g., Chang, Watkins, & Banks, 2004; Enns, Cox, Sareen, & Freeman, 2001). Subsequently, perfectionistic strivings’ so-called adaptiveness was propagated by Stoebber and Otto’s (2006) non-empirical litterature review in which they concluded “perfectionistic strivings are positive” (p. 295). Nonetheless, the contention that perfectionistic strivings are adaptive, positive, healthy, functional, or advisable has not gone unchallenged.

On the contrary, some scholars vehemently reject the notion that perfectionistic strivings are adaptive. Indeed, according to Greenspoon (2000) the term “adaptive perfectionism,” also referred to as “healthy perfectionism,” is an oxymoron “based neither on logical argument nor sufficient reasoning but rather uncritical acceptance of assertions made in the perfectionism literature” (p. 197). Likewise, Flett and Hewitt (2002) maintain the adaptiveness of
perfectionistic strivings is unclear due to several unanswered questions (p. 17). And Hewitt, Flett, and Mikail (2017) recently stated that though perfectionistic strivings “may sometimes yield some tangible benefit (such as higher levels of accomplishment), we regard it as a core personality vulnerability factor that is likely to have significant negative consequences...” (p. 1).

As such, the widely divergent views regarding perfectionistic strivings’ consequences have broadly divided perfectionism researchers into two camps. Those who view striving for perfection as adaptive (e.g., Stoeber & Otto, 2006); and those who view striving for perfection as maladaptive (Hewitt, Flett, & Mikail, 2017). The present article-based dissertation aimed to advance this debate by answering the following hotly debated questions.

1.4.1. Do Perfectionistic Strivings Exacerbate Perfectionistic Concerns?

Perfectionistic strivings and perfectionistic concerns coexist to varying degrees and interact to produce meaningful within-person combinations. But, the two most prominent person-centered models of perfectionism offer differing conceptualizations for how perfectionistic strivings impact perfectionistic concerns’ relationship with psychological outcomes. On the one hand, the 2 x 2 model contends perfectionistic strivings are resiliency factors that protect against perfectionistic concerns’ deleterious consequences (Gaudreau, 2013; Gaudreau & Thompson, 2010). On the other hand, the tripartite model contends perfectionistic strivings exacerbate perfectionistic concerns’ deleterious consequences (Rice & Ashby, 2007; Stoeber, 2012; Stoeber & Otto, 2006). Accordingly, chapter two tested these competing claims across a large sample English-speaking Canadian, and Mandarin-speaking Chinese, university students using structural equation modeling with latent moderation (see Smith, Saklofske, Yan, & Sherry, 2015).

1.4.2. Is Controlling for Perfectionistic Concerns Perilous?

A wealth of evidence indicates perfectionistic concerns occasionally suppress perfectionistic strivings’ relationship with desirable outcomes (Hill, Huelsman, & Araujo, 2010;
Stoeber & Gaudreau, 2017; Stober & Otto, 2006). For instance, Smith, Saklofske, and Yan (2015) reported perfectionistic strivings correlated .15 with trait emotional intelligence, which increased to .34 after controlling for perfectionistic concerns. Accordingly, Stoeber and Gaudreau (2017) maintain that controlling for perfectionistic concerns, when investigating perfectionistic strivings, is essential. Nonetheless, not all scholars agree. In fact, given perfectionistic concerns and perfectionistic strivings overlap substantially (e.g., r = .58 to .72; Dunkley, Blankstein, & Berg, 2012) some scholars have legitimately questioned whether controlling for perfectionistic concerns, when examining perfectionistic strivings, is advisable (e.g., Hill, 2014, 2017; Powers, Koestner, Zuroff, Miyavskaya, & Gorin, 2011). Hence, chapter three investigated how removal of shared variance impacts perfectionistic strivings’ factor structure via the first test of a bifactor model of perfectionism (see Smith & Saklofske, 2017).

1.4.3. Is Self-Oriented Perfectionism Uniquely Related to Narcissistic Grandiosity?

According to Flett et al. (2014) referring to perfectionistic strivings as “adaptive perfectionism” is problematic given that some people high on perfectionistic strivings are prone to narcissistic grandiosity. However, the veracity of this claim is unclear due to notable between study inconsistencies. Indeed, some studies report self-oriented perfectionism (the cornerstone of perfectionistic strivings; Stoeber et al., 2018) is unrelated to narcissistic grandiosity (Stoeber 2014a, 2014b; Stoeber et al., 2015); some studies report self-oriented perfectionism is positively related to narcissistic grandiosity (Flett et al., 2014); and other studies report self-oriented perfectionism is positively related to narcissistic grandiosity in women, but not men (Sherry, Gralnick, Hewitt, Sherry, & Flett, 2014). Chapter four addressed this by conducting the most rigorous, comprehensive meta-analytic review of the perfectionism-narcissism link to date (see Smith, Sherry, Chen, Saklofske, Flett, & Hewitt, 2016).
1.4.4. Are Perfectionistic Strivings Risk Factors for Depression Beyond Neuroticism?

Perfectionistic concerns place people at risk for depression via negative social situations (e.g., hostile interactions), social cognitions (e.g., perceiving others as uncaring), maladaptive coping (e.g., emotion oriented coping), and daily hassles (Dunkley & Blankstein, 2000; Dunkley, Blankstein, Halsall, Williams, & Winkworth, 2000; Dunkley, Sainslow, Grilo, & McGlashan, 2006; Hewitt & Flett, 1993; Sherry, Mackinnon, Macneil, & Fitzpatrick, 2013). However, notable between study inconsistencies, as well as an overreliance on cross-sectional designs, have clouded our understanding of the perfectionistic strivings-depressive symptoms link. Indeed, on the one hand, certain scholars view perfectionistic strivings as resiliency factors that buffer against depressive symptoms (Enns, Cox, & Clara, 2005; Stoeber & Otto, 2006). In support, some evidence suggests perfectionistic strivings correlate negatively with depressive symptoms (e.g., Smith et al., 2015). Alternatively, other scholars maintain perfectionistic strivings are vulnerability factors that confer risk for depressive symptoms. In support, some evidence suggests perfectionistic strivings predict increased depressive symptoms in the presence of ego-involving achievement stressors (e.g., failing a test; Békés et al., 2015; Hewitt, Flett, & Ediger, 1996). Chapter Five addressed this via a rigorous meta-analytic test of the extent to which perfectionistic strivings predict longitudinal change in depressive symptoms (see Smith, Sherry, Rnic et al., 2016).

1.4.5. Does Self-Oriented Perfectionism Play a Role in Social Disconnection?

Why do perfectionists get depressed? The Perfectionism Social Disconnection Model (PSDM; Hewitt, Flett, Sherry, & Caelian, 2006) offers a compelling answer. Socially prescribed perfectionism generates feelings of being disliked by and rejected by other people, which in turn triggers depressive symptoms. Indeed, if as Moretti and Higgins (1999) assert we have internal audiences that include intrapsychic representations of other people’s expectations and opinions,
then individuals with high socially prescribed perfectionism view their internal audience as disgruntled. However, though clearly appropriate to accord socially prescribed perfectionism a prominent role in the PSDM, theory suggests self-oriented perfectionism (a core facet of perfectionistic strivings) is also important in understanding perfectionist’s interpersonal problems and depressive symptoms (Hewitt, Flett, & Mikail, 2017; Sherry, Mackinnon, & Gautreau, 2016). To address, chapter seven extended and tested the PSDM in a sample of mother-daughter dyads using a daily diary design with longitudinal follow-up (see Smith, Sherry, Mushquash, Saklofske, Gautreau, & Nealis, 2017).

1.4.6. Are Perfectionistic Strivings Related to Suicide Ideation?

Baumeister (1990) theorized that holding unreasonably high personal standards can trigger a causal chain cumulating in suicide. Even so, whether perfectionistic strivings buffer against or confer risk for suicidality is unclear. Indeed, some studies report perfectionistic strivings are negative related to suicidality (e.g., Stoeber & Otto, 2006), some studies report perfectionistic strivings are unrelated to suicidality (e.g., Hewitt, Norton, Flett, Callander, & Cowan, 1998), and other studies report perfectionistic strivings are positively related to suicidality (e.g., Flamenbaum & Holden, 2007). Chapter Eight addressed this by conducting the first meta-analytic review of the perfectionism-suicide literature in the hopes of informing debate on the pros and cons of striving for perfection (see Smith, Sherry, Chen, Saklofske, Mushquash, Flett, & Hewitt, in press).


1.5. References


CHAPTER TWO: PERFECTIONISTIC STRIVINGS AND CONCERNS INTERACT

2. Abstract

For most individuals, perfectionistic strivings and perfectionistic concerns coexist to varying degrees. While there is agreement that within-person combinations of perfectionistic strivings and perfectionistic concerns produce meaningful “subtypes”, the number and characterization of these within-person combinations is still debated. The two most prominent person-centered perfectionism models (the tripartite model and the 2 x 2 model) offer differing characterizations of how perfectionistic strivings effects perfectionistic concerns’ relationship with psychological outcomes. According to the 2 x 2 model, perfectionistic strivings buffers against the negative effects of perfectionistic concerns. The 2 x 2 model thus claims the most deleterious within-person combination of perfectionistic strivings and perfectionistic concerns is low strivings and high concerns. In contrast, according to the tripartite model, perfectionistic strivings exacerbates the maladaptive effects of perfectionistic concerns. The tripartite model thus claims the most maladaptive within-person combination of perfectionistic strivings and perfectionistic concerns is high strivings and high concerns. The present study tested these competing claims in a group of English speaking Canadians and a group of Mandarin speaking Chinese. Results support the tripartite model of perfectionism.

2.1. Introduction

Perfectionism refers to a propensity to set high standards, strive for flawlessness, and experience dissatisfaction with anything falling short of perfection (Hewitt & Flett, 1991; Frost, Marten, Lahart, & Rosenblate, 1990; Stoeber & Otto, 2006). There is a general consensus that perfectionism is best understood as a multidimensional personality trait (Hewitt, Flett, Besser, Sherry, & McGee, 2003) comprised of two higher-order factors (Dunkley, Zuroff, & Blankstein, 2003; Smith, Saklofske, & Nordstokke, 2013; Stoeber & Otto, 2006): perfectionistic strivings
(ceaselessly and rigidly demanding perfection of the self) and perfectionistic concerns (nagging self-doubts, excessive concerns over others expectations, and overly negative reactions to perceived failures). There is also a general consensus that perfectionistic strivings and perfectionistic concerns produce meaningful within-person “subtypes” of perfectionism (Gaudreau & Thompson, 2010; Stoeber & Otto, 2006). However, the number and characterization of these within-person combinations of perfectionistic strivings and concerns is still debated with the two most prominent person-centered perfectionism models, the tripartite model of perfectionism (Rice & Ashby, 2007; Stoeber & Otto, 2006; Stoeber, 2012) and the 2 x 2 model of perfectionism (Gaudreau & Thompson, 2010; Gaudreau, 2013), offering differing models of how perfectionistic strivings effects the association between perfectionistic concerns and psychological outcomes.

2.1. Overview of the 2 x 2 and Tripartite Model of Perfectionism

The 2 x 2 model of perfectionism (Gaudreau & Thompson, 2010) claims the interaction between perfectionistic strivings and perfectionistic concerns differentiates four dispositional within-person combinations of perfectionism: (a) non-perfectionism (low perfectionistic strivings and low perfectionistic concerns), (b) pure personal standards perfectionism (high perfectionistic strivings and low perfectionistic concerns), (c) pure evaluative concerns perfectionism (low perfectionistic strivings and high perfectionistic concerns), and (d) mixed profile perfectionism (high perfectionistic strivings and high perfectionistic concerns). As Stoeber (2012) notes, the cornerstone of the 2 x 2 model is its assertion that mixed profile perfectionism is related to ‘better’ outcomes than pure evaluative concerns perfectionism.

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1We concur with Stoeber (2012) that the 2 x 2 model’s use of “subtypes” is conceptually inappropriate and promotes improper statistical analysis. Thus, for the remainder of our article, we will use “within-person combinations” in place of “subtypes”.
In contrast, the tripartite model of perfectionism (Rice & Ashby, 2007; Stoeber & Otto, 2006) claims the interaction between perfectionistic strivings and perfectionistic concerns differentiates three dispositional within-person combinations of perfectionism: (a) healthy perfectionism (high perfectionistic strivings and low perfectionistic concerns), (b) unhealthy perfectionism (high perfectionistic strivings and high perfectionistic concerns), and (c) non-perfectionism (low perfectionistic strivings). According to this model, perfectionistic strivings are only adaptive in the presence of low perfectionistic concerns. In the presence of high perfectionistic concerns, perfectionistic strivings are maladaptive. That is, the tripartite model contends that maladaptive perfectionism is related to worse outcomes than non-perfectionism (Stoeber, 2012).

2.1.2. The 2 x 2 and Tripartite Model of Perfectionism: Convergence and Divergence

The two most prominent person-centered models of perfectionism overlap considerably. The 2 x 2 models “pure personal standards perfectionism” coincides with the tripartite models “healthy perfectionism” (Stoeber, 2012). Both “pure personal standards perfectionism” and “healthy perfectionism” refer to a combination of high perfectionistic strivings and low perfectionistic concerns. In addition, both the 2 x 2 model and the tripartite model view high perfectionistic strivings and low perfectionistic concerns as the most “adaptive” within-person combination of perfectionistic strivings and concerns (Gaudreau & Thompson, 2010; Stoeber & Otto, 2006).

Despite this overlap, there are fundamental differences between the 2 x 2 model and the tripartite model in how combinations of high and low perfectionistic concerns in the presence of low perfectionistic strivings are characterized. The tripartite model does not differentiate the combination of high perfectionistic concerns with low perfectionistic strivings from the combination of low perfectionistic concerns with low perfectionistic strivings. The tripartite
model considers both combinations as indicative of “non-perfectionism”. In contrast, the 2 x 2 model regards the combination of low perfectionistic strivings with high perfectionistic concerns as “pure evaluative concerns perfectionism” and the combination of low perfectionistic strivings with low perfectionistic concerns as “non-perfectionism”. This differentiation is key to the distinction between the 2 x 2 and the tripartite models of perfectionism.

According to the 2 x 2 model, low perfectionistic strivings with high perfectionistic concerns is the most maladaptive within-person combination of perfectionistic strivings and concerns (Douilliez & Lefvre, 2011). In contrast, the tripartite model characterizes high perfectionistic strivings and high perfectionistic concerns as the most maladaptive within-person combination of perfectionistic strivings and concerns. As noted by Stoeber (2012), the fundamental difference between the 2 x 2 model and the tripartite model stems from how perfectionistic strivings are characterized as influencing the relationship between perfectionistic concerns and psychological outcomes. Specifically, the 2 x 2 model conceptualizes perfectionistic strivings as a buffer against the maladaptive effects of perfectionistic concerns (Douillez & Lefevre, 2011). Thus, the 2 x 2 model characterizes the combination of high perfectionistic strivings with high perfectionistic concerns as related to less “maladaptive” outcomes than the combination of low perfectionistic strivings with high perfectionistic concerns. Conversely, the tripartite model conceptualizes perfectionistic strivings as exacerbating the maladaptive effects of perfectionistic concerns (Stoeber & Otto, 2006). Thus, according to the tripartite model, the combination of high perfectionistic strivings with high perfectionistic concerns is associated with greater negative outcomes than the combination of low perfectionistic strivings and high perfectionistic concerns.

2.1.3. Objectives and Hypothesis
The aim of the present research was to test the 2 x 2 and tripartite model of perfectionism through a rigorous investigation of the effect of perfectionistic strivings on the relationship between perfectionistic concerns and a latent measure of negative emotionality (depression, anxiety, and stress) in English speaking Canadian and Mandarin speaking Chinese university students. If evidence is found that perfectionistic strivings buffers against the effect of perfectionistic concerns on negative emotionality in both the Canadian and the Chinese groups, it would provide strong support for the 2 x 2 model of perfectionism. Conversely, if evidence is found that perfectionistic strivings exacerbates the effect of perfectionistic concerns on negative emotionality in both the Canadian and Chinese groups, it would provide strong support for the tripartite model of perfectionism. Based on past support for the tripartite model (Gillman, Ashby, Sverko, Florell, & Varjas, 2005; Parker, 1997; Rice & Slaney, 2002; Stoeber & Otto, 2006) we hypothesized that, in both the Canadian and the Chinese groups, perfectionistic strivings will moderate the effect of perfectionistic concerns on negative emotionality such that perfectionistic concerns will be more negatively consequential for individuals with high perfectionistic strivings than low perfectionistic strivings.

2.2. Method

2.2.1. Participants

1,006 undergraduates (425 Canadian; 581 Chinese) participated. Canadian participants (316 women; 109 men) averaged 18.77 years of age (SD = 4.04) and were recruited from a large university in central Canada. Chinese participants (412 women; 169 men) averaged 20.56 years of age (SD = 1.43) and were recruited from a large university in Beijing, China.

2.2.2. Measures

Perfectionistic concerns, perfectionistic strivings, and negative emotionality, were measured as latent variables, each with three manifest indicators (see Figure 1). Scales used in the Chinese
sample were translated into Mandarin following the procedure outlined by Hambleton and Lee (2013). Past research supports the reliability and validity of our translated measures (Smith, Saklofske, Yan, & Sherry, 2016).

![Measurement model](image)

**Figure 1.** Measurement model.  
*Note.* Ovals represent latent variables. Rectangles represent observed indicators. Factor loadings for Canadian participants are outside parentheses. Factor loadings for Chinese participants are inside parentheses. All estimates are standardized. **SOP** = self-oriented perfectionism; **PS** = personal standards; **SPP** = socially prescribed perfectionism; **COM** = concern over mistakes; **DAA** = doubts about actions; **HFMPS** = Hewitt and Flett’s (1991) Multidimensional Perfectionism Scale; **EDI** = Garner et al.’s (1983) Eating Disorder Inventory.

### 2.2.2.1. Perfectionistic Concerns

Prescribed Perfectionism subscale (HFMPS-SPP), the short form of Frost et al.’s (1990) Multidimensional Perfectionism Scale Concern Over Mistakes subscale (FMPS-COM), and Frost et al.’s (1990) Multidimensional Perfectionism Scale Doubts About Actions subscale (FMPS-DAA). The HFMPS-SPP, FMPS-COM, and FMPS-DAA were selected based on research indicating they measure core interpersonal, cognitive, and behavioural features of perfectionistic concerns (Graham et al., 2010). Research supports the reliability and the validity of these subscales (Graham et al., 2010; Mackinnon & Sherry, 2012; Smith, Saklofske, & Nordstokke, 2014).

2.2.2.2. Perfectionistic Strivings

Perfectionistic strivings were measured using three short form subscales developed by Cox, Enns, and Clara (2002) and by Sherry and Hall (2009): The 5-item short form of Hewitt and Flett’s (1991) Multidimensional Perfectionism Scale Self-Oriented Perfectionism subscale (HFMPS-SOP), the 4-item short form of Frost et al.’s (1990) Multidimensional Perfectionism Scale Personal Standards subscale (FMPS-PS), and the 4-item modified form of Garner et al.’s (1983) Eating Disorder Inventory Self-Oriented Perfectionism subscale (EDI-SOP). Research has supported the use of the HFMPS-SOP, FMPS-PS, and EDI-SOP to measure core interpersonal, cognitive, and behavioural features of perfectionistic strivings (Mackinnon & Sherry, 2012; McGrath et al., 2012) as well as their reliability and the validity (Mackinnon & Sherry, 2012; Sherry et al., 2010).

2.2.2.3. Negative Emotionality

Negative emotionality was measured using the 21-item short form of the Depression Anxiety Stress Scales (DASS-21; Lovibond & Lovibond, 1995). Three 7-item subscales measured depression, anxiety, and stress. Research supports the reliability and the validity of the DASS-21 (Lovibond & Lovibond, 1995).
2.2.3. Procedure

The Research Ethic’s Board at both universities approved this study. Canadian participants were recruited from the Department of Psychology’s participant pool. Participants were directed to an online consent form and questionnaires. Following completion of online measures participants were debriefed. As compensation, Canadian participants were awarded one credit to use towards an introductory psychology course. Additionally, the established research protocol at a large university in Beijing China was followed. All Chinese participants completed the translated questionnaires following the same procedure described for the Canadian sample, but without any form of credit as this is not standard procedure in Chinese universities.

2.2.4. Data Analysis

Prior to hypothesis testing, a confirmatory factor analysis framework, analyzed in Mplus 6.0, tested if factor loadings differed across participants from Canada (completing English versions of measures) and participants from China (completing Mandarin versions of measures). Establishing an adequate pattern of measurement invariance increases confidence that the same construct of perfectionism is being measured in both the Canadian and Chinese groups. The question of whether constraining intercepts to be equal across groups causes a decrement in fit is outside the scope of the present study and thus scalar invariance was not tested.

For all models, full information maximum likelihood estimation was used. A CFI and a TLI in the range of .95 and a RMSEA in the range of .06 suggest excellent model fit (Byrne, 2012). Moderate model fit is suggested by a CFI and a TLI in the range of .90 and a RMSEA in the range of .10 (Byrne, 2001) Comparative fit index difference tests (ΔCFI) were used for invariance testing rather than chi-square difference tests (Δχ²) which are overly sensitive to trivial fluctuations and differences in the context of invariance testing (Meade, Johnson, &
Braddy, 2008). A $\Delta$CFI $\leq .01$ suggests no significant difference between nested models (Byrne, 2012; Kline, 2011).

Assuming an adequate pattern of measurement variance is established, latent moderated structural equation modeling will be used to test our hypothesis that perfectionistic strivings exacerbates the effect of perfectionistic concerns on negative emotionality (see Jose, 2013; Klein & Moosbrugger, 2000). Research suggests latent moderated structural equation modeling is preferable to traditional moderation techniques (e.g., multiple regression) due to its ability to identify and partition error variance (Jose, 2013). Simulation studies indicate latent moderated structural equation modeling provides efficient parameter estimators and unbiased standard errors (Klein & Moosbrugger, 2000). When compared to alternative latent variable interaction modeling approaches (e.g., unconstrained product indicator), latent moderated structural equation modeling provided the most efficient estimate of a latent variable interaction with the highest power (Cham, West, Ma, & Aiken, 2012).

The fit of the overall model containing the latent variable interaction will not be assessed as fit indices are not sensitive to latent interaction effects (Klein & Moosbrugger, 2000). Moreover, there is no agreed upon appropriate saturated and null model for latent variable interactions, rendering fit indices for models with latent variable interactions suspect (Hoyle, 2012). Finally, an interaction term is purely a statistical device and thus model fit information following the inclusion of an interaction term is typically of little concern. Following Klein and Moosbrugger’s (2000) recommendation, the significance of the interaction between the two continuous latent variables (perfectionistic concerns and perfectionistic strivings) on the continuous latent outcome variable (negative emotionality) will be tested via a $z$-test (Klein & Moosbrugger, 2000). If the path coefficient corresponding to the interaction term is statistically
significant \((p < .05)\), it indicates moderation (a linear relation between perfectionistic concerns and negative emotionality which changes uniformly over levels of perfectionistic strivings).

Assuming moderation, the model with the interaction term will be compared to the model without the interaction term using \(R^2\) and AIC values. Burnham and Anderson (2002) recommended if the AIC value for the model with the interaction term is 4 or more units lower than the AIC value for the model without the interaction term, it would provide strong evidence that the model with the interaction term is superior.

### 2.3. Results

#### 2.3.1. Descriptive Statistics

Full-information maximum likelihood was used for missing data. Less than 5% of data points were missing. Means, standard deviations, alpha reliabilities, and bivariate correlations appear in Table 1. Alpha reliabilities for the Canadian and Chinese groups were very good \((\alpha \geq .80)\). Bivariate correlations indicated perfectionistic concerns had a strong positive relation with perfectionistic strivings in both Canadian and Chinese groups. In addition, in both Canadian and Chinese groups, perfectionistic concerns had a strong positive relation with negative emotionality, whereas perfectionistic strivings had a weak positive relation with negative emotionality.

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>(\alpha)</th>
<th>(M)</th>
<th>(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Perfectionistic strivings</td>
<td>—</td>
<td>.62*</td>
<td>.28*</td>
<td>.91</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>2. Perfectionistic concerns</td>
<td>.49*</td>
<td>—</td>
<td>.51*</td>
<td>.89</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3. Negative emotionality</td>
<td>.30*</td>
<td>.44*</td>
<td>—</td>
<td>.93</td>
<td>14.91</td>
<td>10.74</td>
</tr>
<tr>
<td>(\alpha)</td>
<td>.85</td>
<td>.80</td>
<td>.91</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<tr>
<td>(M)</td>
<td>—</td>
<td>—</td>
<td>12.08</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>(SD)</td>
<td>—</td>
<td>—</td>
<td>9.18</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

*Note.* Statistics for Canadian participants are above the diagonal. Statistics for Chinese participants are below the diagonal. Perfectionistic strivings and perfectionistic concerns have a mean of 0 and standard deviation of 1.
2.3.2. Factorial Invariance

Factorial invariance assessed whether factor loadings (see Figure 1) differed between the Canadian and the Chinese groups (see Smith, Saklofske, Yan, & Sherry, 2016). When compared to the unconstrained model, constraining invariance across all loadings resulted in a significant reduction in model fit (ΔCFI = .014; see Model 2D in Table 2). However, subsequent tests indicated all factor loadings, with the exception of the stress subscale, function equivalently across Canadian and Chinese groups. All standardized factor loadings were substantial and significant (p < .001; see Figure 1). For the Canadian group, factor loadings ranged from .65 to .89; for the Chinese group, factor loadings ranged from .51 to .84. Overall, confirmatory factor analysis suggests the pattern of factorial invariance observed was acceptable.

Table 2. Goodness-of-fit statistics for tests of multigroup measurement invariance

<table>
<thead>
<tr>
<th>Model number</th>
<th>Comparative model</th>
<th>χ²</th>
<th>df</th>
<th>TLI</th>
<th>CFI</th>
<th>ΔCFI</th>
<th>RMSEA (90% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Configural model</td>
<td>—</td>
<td>262.95</td>
<td>48</td>
<td>.914</td>
<td>.943</td>
<td>—</td>
<td>.096 (.085-.108)</td>
</tr>
<tr>
<td>2. Measurement model</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model A: All factor loadings constrained equal across groups</td>
<td>2A versus 1</td>
<td>321.00</td>
<td>54</td>
<td>.905</td>
<td>.929</td>
<td>.014</td>
<td>.101 (.091-.112)</td>
</tr>
<tr>
<td>Model B: Factor loadings for only perfectionistic strivings constrained equal</td>
<td>2B versus 1</td>
<td>276.38</td>
<td>50</td>
<td>.913</td>
<td>.940</td>
<td>.003</td>
<td>.097 (.086-.108)</td>
</tr>
<tr>
<td>Model C: Model B with factor loading for perfectionistic concerns constrained equal</td>
<td>2C versus 1</td>
<td>283.08</td>
<td>52</td>
<td>.915</td>
<td>.939</td>
<td>.004</td>
<td>.096 (.085-.107)</td>
</tr>
<tr>
<td>Model D: Model C with factor loadings for depression and anxiety constrained equal [Selected].</td>
<td>2D versus 1</td>
<td>303.32</td>
<td>53</td>
<td>.910</td>
<td>.934</td>
<td>.009</td>
<td>.099 (.088-.110)</td>
</tr>
</tbody>
</table>

Note. ΔCFI = differences in CFI values between models.

2.3.3. Main Effects

The fit of the main effects model for the Canadian group (see Figure 2) was acceptable: $X^2 = 171.13$, CFI = .923, TLI = .884, RMSEA = .121 (95% CI .104-.138). The fit of the main effects model for the Chinese group (see Figure 2) was excellent: $X^2 = 94.01$, CFI = .964, TLI = .946, RMSEA = .072 (95% CI .056-.087).
In the Canadian group, perfectionistic strivings and concerns accounted for 46.4% of the variance in negative emotionality. In the Chinese group, perfectionistic strivings and concerns accounted for 36.9% of the variance in negative emotionality. Much of this variance was due to the independent main effect of perfectionistic concerns on negative emotionality in both the Canadian (standardized $\beta = .96$, $p < .001$) and the Chinese (standardized $\beta = .68$, $p < .001$) groups.

After controlling for shared variance with perfectionistic concerns the contribution of perfectionistic strivings became considerably reduced (relative to bivariate correlations). In the Canadian group, the main effect of perfectionistic strivings on negative emotionality indicated the presence of a suppression effect (standardized $\beta = -.44$, $p < .001$). That is, after removing shared variance with perfectionistic concerns, perfectionistic strivings switched signs and became negatively (as opposed to positively) related to negative emotionality. In the Chinese group, after controlling for shared variance with perfectionistic concerns the effect of perfectionistic strivings on negative emotionality became non-significant (standardized $\beta = -.13$, $p > .05$).

**Figure 2.** Main effects model.  
*Note.* Ovals represent latent variables. Factor loadings for Canadian participants are outside parentheses. Factor loadings for Chinese participants are inside parentheses. All estimates are standardized. *p < .01.*
2.3.4. Latent Moderation

Significant moderation was observed in the Canadian group (unstandardized $\beta = .03$, $p < .001$). The model with no interaction term had an AIC value of 20101.92 compared to an AIC value of 20083.64 for the model with the interaction term suggesting the model with the interaction term is preferable to the main effects model ($\Delta$AIC = 18.28). The interaction term accounted for 5.3% of the variance in negative emotionality. To facilitate interpretation of the interaction observed in the Canadian group, the effect of perfectionistic concerns on negative emotionality at one standard deviation ($SD$) above and one $SD$ below the zero mean of perfectionistic strivings was plotted over the range of $-3SD$ to $+3SD$ (see Figure 3).

Significant moderation was also observed in the Chinese group (unstandardized $\beta = .03$, $p = .045$). The model with no interaction term (see Figure 2) had an AIC value of 24342.70 compared to the AIC value of 24336.91 for the model with the interaction term (see Figure 3). As in the Canadian group, AIC values indicated the model with the interaction term is preferable to the main effects model ($\Delta$AIC = 5.79; Burnham & Anderson, 2002). The interaction term accounted for 3.2% of the variance in negative emotionality. To facilitate interpretation of the interaction observed in the Chinese group, the effect of perfectionistic concerns on negative emotionality at one $SD$ above and one $SD$ below the zero mean of perfectionistic strivings was plotted over the range of $-3SD$ to $+3SD$ (see Figure 4).
PERFECTIONISTIC STRIVINGS AND CONCERNS INTERACT

Figure 3. Interaction plot (Canada)
Note. The effect of perfectionistic concerns on negative emotionality at one standard deviation above and one standard deviation below the zero mean of perfectionistic strivings plotted over the range -3 SD to +3 SD. The metric of perfectionistic strivings and perfectionistic concerns have been set by fixing their variance at 1.

Figure 4. Interaction plot (China)
Note. The effect of perfectionistic concerns on negative emotionality at one standard deviation above and one standard deviation below the zero mean of perfectionistic strivings plotted over the range -3SD to +3SD. The metric of perfectionistic strivings and perfectionistic concerns have been set by fixing their variance at 1.

2.4. Discussion

The 2 x 2 model of perfectionism (Gaudreau & Thompson, 2010) claims perfectionistic strivings interact with perfectionistic concerns such that perfectionistic concerns are more consequential for individuals with low perfectionistic strivings. In contrast, the tripartite model
of perfectionism (Rice & Ashby, 2007; Stoeber & Otto, 2006) claims perfectionistic strivings interact with perfectionistic concerns such that perfectionistic concerns are more consequential for individuals with high perfectionistic strivings. As hypothesized, the tripartite model was supported both in the Canadian and the Chinese groups where perfectionistic strivings exacerbated the effect of perfectionistic concerns on negative emotionality.

Whether perfectionistic strivings is considered “adaptive” (e.g., Gaudreau & Thompson, 2010), “maladaptive” (e.g., Flett & Hewitt, 2006), or “benign” (Bieling, Israeli, Antony, 2004) is still debated. The present study advances this debate by suggesting that perfectionistic strivings “adaptiveness” is contingent upon the presence of perfectionistic concerns. In the present study, within-person combinations of high perfectionistic concerns (+1SD) and low perfectionistic strivings (-1SD) was related to lower negative emotionality, whereas the combination of high perfectionistic concerns and high perfectionistic strivings was related to higher negative emotionality (see Figure 3 and 4). Consequently, findings support the tripartite models conceptualization of “unhealthy perfectionism” (high perfectionistic strivings and high perfectionistic concerns) as more detrimental than “non-perfectionism” (low perfectionistic strivings).

A strength of the study was the replication of our findings in two groups living in very different countries (Canada or China) and completing measures in different languages (English or Mandarin). The generalizability of our findings across North American and Asian culture increases confidence that the observed interaction does not stem from measurement error. Regardless of culture (Canadian or Chinese) or language (English or Mandarin), perfectionistic strivings are only “adaptive” when perfectionistic concerns are concurrently low. In the presence of high perfectionistic concerns, perfectionistic strivings appear “maladaptive”.
2.4.1. Limitations

This cross-sectional study precludes us from addressing questions of directionality that would require a multiwave longitudinal design. Future research might consider the use of a longitudinal design to determine if the observed interaction between perfectionism dimensions predicts changes in negative emotionality. In addition, future research might consider testing the extent to which findings generalize to other samples based on age, education, and occupation.

2.4.2. Concluding Remarks

Our study provides strong evidence in support of the tripartite model. The combination of high perfectionistic strivings with high perfectionistic concerns (unhealthy perfectionism) was related to higher negative emotionality than the combination of low perfectionistic strivings with high perfectionistic concerns (non-perfectionism). However, perfectionistic strivings exacerbated the maladaptive effects of perfectionistic concerns only when perfectionistic concerns were greater than 1 standard deviation from the mean. When perfectionistic concerns were less than 1 standard deviation from the mean perfectionistic strivings appeared to buffer against the maladaptive effects of perfectionistic concerns, as posit by the 2 x 2 model of perfectionism. The replication of the observed interaction across two groups living in different countries (Canada or China) and speaking different languages (English or Mandarin) increased confidence in the reported findings.
2.5. References


and Therapy, 41, 1221-1236.


CHAPTER THREE: THE BIFACTOR MODEL OF PERFECTIONISM

3. Abstract

Evidence suggests perfectionism is a multidimensional construct comprised of two higher-order factors: perfectionistic strivings and perfectionistic concerns. However, the substantial overlap between perfectionistic strivings and perfectionistic concerns is problematic, as are the unanswered questions regarding the structure of perfectionism following removal of common variance. The present research addressed this through bifactor modeling. Three student samples (N = 742) completed Hewitt and Flett’s (1991) Multidimensional Perfectionism Scale (HFMPS), Frost, Marten, Lahart, & Rosenblate’s (1990) Multidimensional Perfectionism Scale (FMPS), and Slaney, Rice, Mobley, Trippi, and Ashby’s (2001) Almost Perfect Scale-Revised (APS-R). Greater support was consistently found for the bifactor model, relative to the two-factor model. Results suggest the bifactor model best represents the structure of perfectionism and provide preliminary support for the use of a general factor score. Researchers are cautioned that removal of general variance may render the reliability of specific factors (i.e., perfectionistic strivings and perfectionistic concerns) suspect.

3.1. Introduction

Accumulated evidence suggests perfectionism is best understood as a multidimensional construct (Hewitt, Flett, Besser, Sherry, & McGee, 2003) comprised of two higher-order factors: perfectionistic strivings and perfectionistic concerns (see Stoeber & Otto, 2006, for review). Perfectionistic strivings encompass a family of traits, including self-oriented perfectionism (demanding perfection of oneself; Hewitt & Flett, 1991), order (organization and neatness; Slaney, Rice, Mobley, Trippi, & Ashby, 2001), and personal standards (setting unreasonable
high personal standards and goals; Frost, Marten, Lahart, & Rosenblate, 1990). Perfectionistic concerns are comprised of a constellation of traits, including socially prescribed perfectionism (perceiving others as demanding perfection of oneself; Hewitt & Flett, 1991), concern over mistakes (i.e., adverse reactions to failures; Frost et al., 1990), doubts about actions (doubts about performance abilities; Frost et al., 1990), discrepancy (the perceived difference between the standards one has and one’s actual performance; Slaney et al., 2001), and other-oriented perfectionism (demanding perfection from others; Hewitt & Flett, 1991).

Perfectionistic concerns are robustly associated with negative outcomes (e.g., depression; Stoebner & Otto, 2006) and are longitudinal risk factors for psychological maladjustment (Smith, Sherry, Rnic, Saklofske, Enns, & Gralnick, 2016). In contrast, perfectionistic strivings are inconsistent predictors of psychological maladjustment. For example, prior research has shown following removal of general variance, perfectionistic strivings are negatively associated with maladjustment (e.g., depression; Smith, Saklofske, Yan, and Sherry, 2015; see Stoebner & Otto, for review). Indeed, some research suggests perfectionistic concerns suppress the association between perfectionistic strivings and positive outcomes (Hill, Huelsman, & Araujo, 2010).

In general, past research has supported the validity of the two-factor model (Dunkley, Blankstein, Halsall, Williams, & Winkworth, 2000; Dunkley, Blankstein, & Berg, 2012; Stoebner & Otto, 2006) which has been found to emerge from different measures (e.g., the Clinical Perfectionism Questionnaire; Stoebner & Damian, 2014), and to generalize to non-English speaking samples (Smith, Saklofske, Yan, & Sherry, 2016). Even so, there remain unanswered questions regarding the structure of perfectionism. In particular, to what extent does a general

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1As requested by a reviewer, order was included as a facet of perfectionistic strivings.

2As requested by a reviewer, other-oriented perfectionism was included as a facet of perfectionistic concerns.
factor account for common variance across core perfectionism dimensions? Additionally, what effect does the removal of general variance have on the structure of perfectionism?

We attempted to answer these questions through bifactor modeling. Given that perfectionistic strivings and perfectionistic concerns overlap substantially (e.g., $r = .58$ to $.72$; Dunkley et al., 2012), it is reasonable to assert that rather than two highly correlated perfectionism factors (perfectionistic strivings and perfectionistic concerns) there might be just a single general factor underlying responses to all indicator variables (i.e., perfectionism subscales). As well, the substantial overlap between perfectionistic strivings and perfectionistic concerns may hinder differential validity (DeMars, 2013). Bifactor modeling would rectify this given that in bifactor models specific factors are orthogonal and capture common variance amongst items not accounted for by a general factor. In addition, facets (i.e., elements of higher-order constructs) are specified as loading onto both a general factor and a specific factor. Relative to correlated factor models, bifactor models are computationally simpler to estimate and usually provide superior model fit (DeMars, 2013; Chen, West, & Sousa, 2006). Nonetheless, for the general factor of perfectionism to be supported there would need to be significant positive loadings for all indicators (i.e., perfectionism subscales) on the general factor.

3.1.1. The Present Research

Only a limited number of perfectionism models have been evaluated and researchers rarely, if ever, attempt to disentangle perfectionism’s common and specific components. Therefore, we evaluated an alternative structural model of perfectionism using nine subscales derived from Hewitt and Flett’s (1991) Multidimensional Perfectionism Scale (HFMPS), Frost, et al.’s (1990) Multidimensional Perfectionism Scale (FMPS), and Slaney et al.’s (2001) Almost Perfect Scale-Revised (APS-R): self-oriented perfectionism, order, personal standards, high standards, socially prescribed perfectionism, concern over mistakes, doubts about actions,
discrepancy, and other-oriented perfectionism. We conducted bifactor modeling to evaluate the proportion of total and common variance attributable to a general factor and specific factors (i.e., perfectionistic strivings and perfectionistic concerns), as well as to determine whether using a general factor score is justified. Thus, the present study was not merely focused on finding the model with the best fit, but also in using several indices such as omega hierarchical to provide information on the strength of the general factor, and reliability of specific factors (i.e., perfectionistic strivings and perfectionistic concerns) after controlling for variance attributable to the general factor (Jovanović, 2015).

3.2. Method

3.2.1. Participants

Three student samples were recruited from the Department of Psychology’s subject pool at a large university in Central Canada. Sample 1 was comprised of 291 undergraduate students and data were collected in late 2014. Sample 2 was comprised of 152 undergraduate students and was collected in the winter of 2015. Sample 3 included 305 undergraduate students and was collected in the spring of 2015.

The combined sample of 731 students (373 women and 358 men) had a mean age of 18.74 years ($SD = 2.42$). The mean age of women ($M = 18.53, SD = 1.49$) differed significantly from men ($M = 18.96, SD = 3.10$), $t(725) = 2.45, p < .05$. However, the effect size of this difference (Cohen’s $d = .18$) was negligible according to Cohen’s (1992) guidelines for small, medium, and large effect sizes ($r = .10, .30, .50$, respectively; see Ferguson, 2009). The majority of the sample was in their first year of study (82.3%; $N = 631$). Self-reported ethnicities were 52.3% White, 16.3% Chinese, 5.6% South Asian, 5.2% Multiracial, 3% East Indian, 2.7% Korean, 2.5% Arab, 1.5% South East Asian, 1.4%, and 9% other. Detailed statistics regarding gender differences are presented in the Supplemental Material.
3.2.2. Measures

3.2.2.1. Perfectionistic Strivings

Perfectionistic strivings were measured using four subscales: the 5-item short form of Hewitt and Flett’s (1991) Multidimensional Perfectionism Scale (HFMPS) Self-Oriented Perfectionism subscale (HFMPS-SOP; e.g., “I strive to be as perfect as I can be”; see Hewitt, Habke, Lee-Bagley, Sherry, & Flett, 2008), Frost et al.’s (1990) 4-item short-form Multidimensional Perfectionism Scale Personal Standards subscale (FMPS-PS; e.g., “I set higher goals than most people”; see Cox, Enns, & Clara, 2002), Slaney et al.’s (2001) 4-item Almost Perfect Scale-Revised (APS-R) Order subscale (APS-R-O; e.g., “I like to always be organized and disciplined”), and Slaney et al.’s (2001) APS High Standards subscale (APS-R-S; e.g., “I set very high standards for myself”). Participants responded to the HFMPS-SOP, APS-R-O, and APS-R-S using a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree), and to the FMPS-PS using a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Research attests to the reliability and validity of these subscales. Cronbach’s alpha for the HFMPS-SOP typically ranges between .75 to .85 (see Hewitt et al., 2008). Smith, Saklofske, Yan, and Sherry (2016) reported an alpha of .84 for the FMPS-PS. Additionally, the APS-S and APS-R-O have been shown to have adequate internal consistency and temporal stability (Slaney et al., 2001), as well as convergent, divergent, structural, and predictive validity (Rice, Ashby, & Slaney, 2007; Slaney et al., 2001). In the present study the reliability (Cronbach’s alpha) values for HFMPS-SOP, FMPS-PS, APS-R-O, and APS-R-S were all adequate (α > .70; see Table 3).

3.2.2.2. Perfectionistic concerns

Perfectionistic concerns were measured using five subscales: the 5-item short form of Hewitt and Flett’s (1991) HFMPS Socially Prescribed Perfectionism subscale (HFMPS-SPP; e.g., “People expect more from me than I am capable of giving”; see Hewitt, Habke, Lee-
Baggley, Sherry, & Flett, 2008), the 5-item short form of Frost et al.’s (1990) FMPS Concerns Over Mistakes subscale (FMPS-COM; e.g., “If I fail at work/school I am a failure as a person”; see Cox, Enns, & Clara, 2002), Frost et al.’s (1990) 4-item FMPS Doubts About Actions subscale (FMPS-DAA; e.g., “I usually have doubts about the simple everyday things I do”; see Cox, Enns, & Clara, 2002), Slaney et al.’s (2001) 12-item APS-R Discrepancy subscale (APS-R-D; e.g., “I am hardly every satisfied with my performance”), and the 5-item short form of Hewitt and Flett’s (1991) HFMPS Other-Oriented Perfectionism subscale (HFMPS-OOP; e.g., “I cannot stand to see people close to me make mistakes”; see Hewitt, Habke, Lee-Baggley, Sherry, & Flett, 2008) The HFMPS-SPP, APS-R-D, and HFMPS-OOP employ a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree), while the FMPS-COM and FMPS-DAA both use a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Support for the reliability and validity of the HFMPS-SPP, HFMPS-OOP, FMPS-COM, FMPS-DAA, and APS-R-D has been reported in several studies. Sherry et al. (2010) reported a Cronbach’s alpha of .76 for the HFMPS-SPP. Hewitt et al. (2008) reported a Cronbach’s alpha of .84 for the HFMPS-OOP. Further, support for the reliability, as well as validity, of the HFMPS-SPP and HFMPS-OOP is reported in Hewitt et al. (2008). Additionally, Mackinnon and Sherry (2012) reported a Cronbach’s alpha from .87-.89 for the FMPS-COM and Rice and Dellwo (2011) found a Cronbach’s alpha of .78 for the FMPS-DAA. A summary of evidence in support of the reliability and validity of the APS-D can be found in Slaney, Rice, and Ashby (2002), as well as Flett and Hewitt (2015). In the present study the reliability (Cronbach’s alpha) values for the HFMPS-SPP HFMPS-OOP, FMPS-COM, FMPS-DAA, and APS-D were adequate (α >.70; see Table 3).
### Table 3. Bivariate correlations and Cronbach’s alphas

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<td>.55*</td>
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<td>.41*</td>
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<td>.25*</td>
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<td>.51*</td>
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<td>.65*</td>
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<td>.15*</td>
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3.2.3. Data Analytic Strategy

Confirmatory factor analysis (CFA) and structural equation modeling (SEM) were conducted using Mplus version 7.4 (Muthén & Muthén, 1998-2010). All analysis employed robust maximum likelihood estimation (MLR). The Satorra-Bentler Scaled chi-square difference test ($\Delta \chi^2$) was used for all model comparisons (Gibbons & Hedeker, 1992). In addition to chi-square, the following approximate fit indices for model evaluation were used: the root mean error of approximation (RMSEA), the comparative fit index (CFI), and the Tucker-Lewis Index (TLI).

The RMSEA is an indicator of the level of misfit per degrees of freedom, with values of .08 or below being acceptable and values of .05 or less indicating close model fit. In evaluating RMSEA, the 90% confidence interval is used to assess both “close fit” and “poor fit” hypotheses (see Kline, 2015). Optimally, the lower bound of the confidence interval will include zero, but the close fit hypothesis is supported in distinguishing that a confidence interval includes the .05 value and has a non-significant p-value ($>.05$). The poor fit hypothesis is evaluated by determining that the upper bonds confidence interval does not exceed the threshold for poor fit or a .10 value. Additionally, regarding CFI and TLI, values in the range of .95 or above suggest good model fit and values between .90 and .95 suggest marginally acceptable model fit (Hu & Bentler, 1998). For the bifactor model, the omega coefficient, the omega hierarchical coefficient, and the omega subscale coefficient was computed which enabled an evaluation of how much total and common variance in perfectionism is attributed to the general factor and specific factors, as well as to examine whether forming a total perfectionism score is justified (Reise, 2012; Reise, Bonifay, & Haviland, 2013; Reise, Moore, & Haviland, 2010). We
also evaluated multigroup invariance of the bifactor model across the three samples, as well as across men and women.

Several competing models of perfectionism were tested: (1) the single factor model with subscales loading onto one underlying factor; (2) the two-factor model (both orthogonal and oblique) with two dimensions: perfectionistic strivings (comprising self-oriented perfectionism, personal standards, high standards, order) and perfectionistic concerns (comprising socially prescribed perfectionism, concern over mistakes, doubts about actions, discrepancy, and other-oriented perfectionism); (3) the bifactor model with two specific factors (perfectionistic strivings and perfectionistic concerns) and a general factor. The decision to use the chi-square statistic to compare the fit of correlated factor models to bifactor models is defensible as the correlated factor model is nested within the bifactor model (Reise, 2012). Specifically, the correlated factor model can be derived from the bifactor model by fixing the loadings on the general factor to zero and freeing the orthogonality constraints on the specific factors (see Reise, 2012, for a detailed discussion). To increase confidence in our findings, we also used the Bayesian Information Criterion (BIC) to evaluate the fit of all models tested. For BIC, the lower values across model comparisons were considered to represent relatively better fit (Betts, Pickart, & Heistad, 2011).

3.3. Results

3.3.1. Descriptive Statistics

Means, standard deviations, bivariate correlations, and Cronbach’s alpha are presented in Table 3. Women relative to men reported significantly lower other-oriented perfectionism (Cohen’s $d = .29$), and significantly greater personal standards (Cohen’s $d = -.21$), and discrepancy (Cohen’s $d = -.16$). Detailed statistics regarding gender differences are presented in the Supplemental Material.
Table 4. Model fit across samples

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<th>Models (M)</th>
<th>( \chi^2 )</th>
<th>df</th>
<th>RMSEA [90% CI]</th>
<th>Pclose</th>
<th>CFI</th>
<th>TLI</th>
<th>BIC</th>
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<td>M1: One-factor</td>
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<td>.000</td>
<td>.794</td>
<td>.725</td>
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<td>M2: Two-factor orthogonal</td>
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<td>.000</td>
<td>.725</td>
<td>.634</td>
<td>7149.07</td>
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<tr>
<td>M3: Two-factor oblique</td>
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<td>.147 [.129,.167]</td>
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<td>.816</td>
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<td>.108 [.087,.129]</td>
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<td>.938</td>
<td>.902</td>
<td>6883.05</td>
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<td>.683</td>
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<tr>
<td>M1: One-factor</td>
<td>655.99*</td>
<td>27</td>
<td>.178 [.166,.190]</td>
<td>.000</td>
<td>.783</td>
<td>.711</td>
<td>17580.32</td>
</tr>
<tr>
<td>M2: Two-factor orthogonal</td>
<td>741.52*</td>
<td>27</td>
<td>.188 [.177,.200]</td>
<td>.000</td>
<td>.758</td>
<td>.677</td>
<td>17760.20</td>
</tr>
<tr>
<td>M3: Two-factor oblique</td>
<td>373.60*</td>
<td>26</td>
<td>.134 [.122,.146]</td>
<td>.000</td>
<td>.882</td>
<td>.837</td>
<td>17333.21</td>
</tr>
<tr>
<td>M4: Two-factor oblique CE permitted</td>
<td>261.23*</td>
<td>23</td>
<td>.118 [.105,.131]</td>
<td>.000</td>
<td>.919</td>
<td>.874</td>
<td>17222.56</td>
</tr>
<tr>
<td>M5: Bi-factor model CE permitted</td>
<td>45.92*</td>
<td>15</td>
<td>.052 [.036,.070]</td>
<td>.377</td>
<td>.990</td>
<td>.975</td>
<td>17022.65</td>
</tr>
</tbody>
</table>

Note. CE = correlated errors. \( \chi^2 \) = robust maximum likelihood chi-square; RMSEA = root mean square error of approximation; Pclose = probability RMSEA \( \leq .05 \); CFI = comparative fit index; TLI = Tucker-Lewis index; BIC = Bayesian information criterion.

* \( p < .001 \).
### Table 5. Factor loadings and sources of variance in perfectionism

<table>
<thead>
<tr>
<th>Indicator</th>
<th>One-factor</th>
<th>Two-factor</th>
<th>Bifactor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GFP</td>
<td>PS</td>
<td>PS</td>
</tr>
<tr>
<td>Socially prescribed perfectionism (HFMPS)</td>
<td>.75*</td>
<td>.74*</td>
<td></td>
</tr>
<tr>
<td>Concern over mistakes (FMPS)</td>
<td>.78*</td>
<td>.87*</td>
<td></td>
</tr>
<tr>
<td>Doubts about actions (FMPS)</td>
<td>.65*</td>
<td>.73*</td>
<td></td>
</tr>
<tr>
<td>Discrepancy (APS-R)</td>
<td>.68*</td>
<td>.76*</td>
<td></td>
</tr>
<tr>
<td>Other-oriented perfectionism (HFMPS)</td>
<td>.64*</td>
<td>.62*</td>
<td></td>
</tr>
<tr>
<td>Self-oriented perfectionism (HFMPS)</td>
<td>.82*</td>
<td></td>
<td>.87*</td>
</tr>
<tr>
<td>Personal standards (FMPS)</td>
<td>.80*</td>
<td></td>
<td>.87*</td>
</tr>
<tr>
<td>High standards (APS-R)</td>
<td>.64*</td>
<td></td>
<td>.74*</td>
</tr>
<tr>
<td>Order (APS-R)</td>
<td>.32*</td>
<td></td>
<td>.41*</td>
</tr>
<tr>
<td>% total variance</td>
<td>41.8</td>
<td>22.9</td>
<td>25.2</td>
</tr>
<tr>
<td>% common variance</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


*p < .001.
Figure 5. Diagrams of the two-factor oblique (left) and bifactor (right) models for combined sample.

Note. All estimates are standardized. PS = perfectionistic strivings; PC = perfectionistic concerns; GFP = general factor of perfectionism; HFMPS = Hewitt and Flett’s (1990) Multidimensional Perfectionism Scale; FMPS = Frost et al.’s (1990) Multidimensional Perfectionism Scale; APS-R = Slaney et al.’s (2001) Almost Perfect Scale-Revised. SPP = socially prescribed perfectionism; COM = concerns over mistakes; DAA = doubts about actions; APS-D = discrepancy; OOP = other-oriented perfectionism; SOP = self-oriented perfectionism; FMPS-PS = personal standards; APS-S = high standards; APS-O = order.
3.3.2. Confirmatory Factor Analysis

As shown in Table 4, the one-factor and two-factor models without error covariances yielded poor fit to the data in each of the three samples. The inspection of residual moments indicated that there were strongly correlated residuals between order and personal standards, order and high standards, and high standards and discrepancy. Allowing these residual correlations to inter-correlate resulted in lower BIC values (see Table 4), as well as a significantly better model fit: $\Delta \chi^2(3) = 113.68, p < .001$. These findings suggest that the measurement model is degraded when significantly correlated residuals are left out. Consequently, the two-factor model with correlated errors was used as the baseline model upon which the bifactor model was compared (Betts, Pickart, & Heistad, 2011; Jovanović, 2015). However, the refined two-factor model with correlated errors still fit poorly.

In contrast to the two-factor model, across three samples the bifactor model demonstrated good fit to the data with most fit indices being above the threshold for acceptable model fit. Additionally, the bifactor models consistently had the lowest BIC values (see Table 4) and fitted the data significantly better than the refined two-factor models (for Sample 1: $\Delta \chi^2(8) = 60.88, p < .001$; for Sample 2: $\Delta \chi^2(8) = 39.10, p < .001$; for Sample 3: $\Delta \chi^2(8) = 102.35, p < .001$). Thus, results suggested that the bifactor model best represented the structure of perfectionism.

We investigated multigroup invariance of the bifactor model across samples. The fit of the configural model was acceptable: MLR $\chi^2(45) = 95.49$, RMSEA = .067 (90% CI =.048, .086; Pclose = .066), CFI = .984, TLI = .961. Constraining factor loadings to be equal across the three samples (i.e., measurement invariance; Kline, 2015) did not result in a significant loss of fit: $\Delta\chi^2(30) = 31.35, p = .398$. We also investigated multigroup invariance of the bifactor model across gender. The fit of the configural model was again acceptable: MLR $\chi^2(10) = 21.29$,
RMSEA = .056 (90% CI =.022, .089; Pclose = .346), CFI = .995, TLI = .981. Furthermore, constraining factor loadings to be equal across men and women did not result in a significant loss of fit: Δχ²(11) = 23.50, p = .080. Results support the generalizability of the bifactor model across the three samples and across gender. Thus, for the remainder of analyses, the three samples were merged into a single group comprised of both men and women (N = 742).

3.3.3. The Bifactor Model of Perfectionism

Table 5 presents factor loadings, sources of variance, and reliability estimates for the general factor and two specific factors (perfectionistic strivings and perfectionistic concerns). Socially prescribed perfectionism, concern over mistakes, doubts about actions, discrepancy, other-oriented perfectionism, self-oriented perfectionism, personal standards, and high standards, all had strong loadings (i.e., ≥.40) on the general factor (see Figure 6). Additionally, with the exception of high standards and order, all perfectionism indicators had higher loadings on the general factor relative to specific factors. Furthermore, after controlling for the general factor, concern over mistakes, discrepancy, and doubts about actions loadings on the specific perfectionistic concerns factor remained significant. Moreover, after controlling for the general factor, all indicator loadings for the specific perfectionistic strivings factor remained salient.

The general factor explained 38.6% of the total variance, while the specific perfectionistic concerns and specific perfectionistic strivings factors explained 4.4% and 9.7% of the total variance, respectively. Additionally, the general factor accounted for 73.2% of the common variance. The value of ωₜ (coefficient omega hierarchical) indicated that 77% of the variance of the composite perfectionism score was attributable to a general factor. Omega hierarchical for subscale scores (ωₛ), which indicates the reliability of specific factors after controlling for the general factor, was .04 for the specific perfectionistic concerns factor and .36
for the specific perfectionistic strivings factor. As well, 40.9% of the reliable variance in perfectionistic strivings and 4.6% of the reliable variance in perfectionistic concerns (i.e., $\omega_s / \omega$) was independent of the general factor. Moreover, the bifactor model accounted for 52.7% of the total variance, whereas the two-factor model and one-factor model accounted for 48.1% and 41.8% of the total variance, respectively. Thus, results again suggest the bifactor model best represents the structure of perfectionism and suggests that the use of a general factor score is justified. However, results also indicate that perfectionistic concerns, and to a lesser extent perfectionistic strivings, are unreliable factors following the removal of general variance.

3.4. Discussion

The aim of the present research was to evaluate a bifactor model of perfectionism as a viable alternative to the two-factor model. Findings indicate that a bifactor model with a general factor and two specific factors (perfectionistic strivings and perfectionistic concerns) best represents the structure of perfectionism. Furthermore, results suggest the majority of common variance amongst core perfectionism dimensions is attributable to a general factor. In particular, a strong general factor appears to be present amongst self-oriented perfectionism, concern over mistakes, doubts about actions, discrepancy, other-oriented perfectionism, personal standards, high standards, order, and self-oriented perfectionism. As well, results suggest that a substantial portion of variance is independent of the general factor and attributable to a specific perfectionistic strivings factor.

Nonetheless, perfectionistic strivings and perfectionistic concerns were unreliable factors following removal of general variance. In particular, the omega subscale coefficient for both the specific perfectionistic strivings factor and the specific perfectionistic concerns factors fell short of .50, suggesting specific factor scores for perfectionistic strivings and perfectionistic concerns are unreliable (see Reise, Bonifay, & Haviland, 2013). In contrast, the omega hierarchical
coefficient for the general factor suggested that the use of a general factor score is defensible. Taken together these findings suggest greater care is needed when examining the effects of perfectionistic strivings and perfectionistic concerns following removal of shared variance (e.g., Hill et al., 2010; Stoeber & Otto, 2006). Indeed, the unreliability of the specific perfectionistic strivings factor calls into question the claimed ‘adaptiveness’ of perfectionistic strivings given that these finding hinge on the removal of general variance (e.g., Stoeber & Corr, 2016).

Additionally, relative to the bifactor model, the two-factor model has notable limitations. In particular, unlike the bifactor model, the two-factor model is unable to clarify the relative importance of general and specific components of perfectionism. Moreover, the two-factor model provides no means of evaluating whether perfectionistic strivings and perfectionistic concerns remain stable factors after controlling for general variance.

Moving forward, we encourage researchers to evaluate the utility of the two-factor model via bifactor modeling before only using perfectionistic strivings and perfectionistic concerns as predictors. Failure to investigate a bifactor model prior to interpreting the effects of perfectionistic strivings and perfectionistic concerns may lead to misguided inferences. If, as in the present study, bifactor modeling reveals a dominant general factor with weak specific factors, we advise researchers to use either the general factor or scores derived from lower-level perfectionism dimensions (e.g., self-oriented perfectionism). It should be noted in the majority of circumstances, the latter will be more fruitful given that lower-order perfectionism dimensions capture specific and predictive variance (Paunonen, Haddock, Forsterling, & Keinonen, 2003).

3.4.1. Future Directions and Limitations

A richer, more fine-grained, analysis of the structure of perfectionism using long form measures is needed. Additionally, a limitation inherent to all bifactor models is that they necessitate the use of structural equation modeling and cannot be examined using traditional
statistical approaches such as multiple regression. Furthermore, the generalizability of our findings require replication beyond student samples. Research is also needed on whether specific factor scores, or a weighted combination of specific and general factor scores should be reported (DeMars, 2013). Moreover, additional research evaluating bifactor models derived from different combinations of perfectionism indicators is required. Finally, researchers should consider investigating whether the bifactor model changes the conceptual meaning of specific factors to such an extent that they cease to be relevant to perfectionism research.
3.5. References


CHAPTER FOUR: PERFECTIONISM AND NARCISSISM

4. Abstract

Theoretical accounts suggest an important relationship between perfectionism and narcissism, and 25 years of research has tested these accounts. We meta-analyzed this literature, providing the most comprehensive test of the perfectionism-narcissism relationship to date. Thirty studies were located ($N = 9,091$). After controlling for overlap among perfectionism dimensions, random-effects meta-analysis indicated self-oriented perfectionism, other-oriented perfectionism, and perfectionistic self-promotion were related to narcissistic grandiosity, whereas socially prescribed perfectionism, perfectionistic self-promotion, and nondisclosure of imperfection were related to narcissistic vulnerability. Results suggest grandiose narcissists strive toward lofty goals, impose unrealistic demands on others, and promote an image of perfection. Results also suggest vulnerable narcissists actively promote an image of infallibility while defensively concealing imperfections in response to perceptions of others as demanding.

4.1. Introduction

More than a century of case histories and theoretical accounts suggest perfectionism is a central feature of the grandiose and the vulnerable aspects of narcissist’s style of thinking, behaving, and relating (e.g., Beck, Freeman, & Davis, 2004; Freud, 1957; Horney, 1950; Ronningstam, 2010, 2011; Rothstein, 1999; Sorotzkin, 1985). Millon, for instance, noted that “narcissists cannot tolerate any flaw, however small, in the perfection of the self” (Millon & Davis, 2000, p. 284). There is also a recent upsurge in research on a constellation of narcissistic and perfectionistic traits termed narcissistic perfectionism (e.g., Flett, Sherry, Hewitt, & Nepon, 2014; Nealis, Sherry, Sherry, Stewart, & Macneil, 2015; Smith, Saklofske, Stoeber, & Sherry, 2016). Yet, our understanding of the perfectionism-narcissism relationship is in need of clarification. In particular, it is unclear whether, and to what extent, perfectionism dimensions
PERFECTIONISM AND NARCISSISM

relate to the two core themes of narcissism: narcissistic grandiosity and narcissistic vulnerability (Cain, Pincus, & Ansell, 2008; Dickinson & Pincus, 2003; Miller & Campbell, 2008; Pincus, Ansell, Pimentel, Cain, Wright, & Levy, 2009; Wink, 1991). The aim of our study is to bring greater coherence to our understanding of the perfectionism-narcissism relationship by comprehensively meta-analysing research on perfectionism (trait perfectionism, perfectionistic self-presentation, and perfectionistic cognitions) and narcissism (narcissistic grandiosity and narcissistic vulnerability).

4.1.1. Trait Perfectionism, Perfectionistic Self-Presentation, and Perfectionistic Cognitions

Perfectionists strive to be faultless, hold unrealistically high standards, and experience overly negative reactions to perceived mistakes, setbacks, and criticisms. Several notable models of perfectionism exist (e.g., Dunkley, Zuroff, & Blankstein, 2003; Frost, Marten, Lahart, & Rosenblate, 1990), and one widely researched model is proposed by Hewitt and Flett (1991). These authors posited three forms of perfectionism: self-oriented perfectionism (demanding perfection of oneself), other-oriented perfectionism (demanding perfection of others), and socially prescribed perfectionism (perceiving others are demanding perfection of oneself). More recently, Flett, Hewitt, Blankstein, and Gray (1998) and Hewitt et al. (2003) proposed two supplements to trait perfectionism—namely, perfectionistic self-presentation and perfectionistic cognitions.

Perfectionistic self-presentation (Hewitt et al., 2003) includes perfectionistic self-promotion (brashly promoting a perfect image to others), nondisclosure of imperfection (concern over verbal disclosures of imperfection to others), and nondisplay of imperfection (concern over behavioural displays of imperfection to others). Perfectionistic cognitions involve automatic thoughts with perfectionistic themes (self-critical, ruminative thoughts reflecting an excessive need for goal attainment and discrepancies between the actual and the ideal self; Flett et al.,
1998). Trait perfectionism distinguishes the source and the direction of perfectionistic expectations; perfectionistic self-presentation involves the public, social expression of perfectionism; and perfectionistic cognitions involve the private, cognitive expression of perfectionism. These dimensions are differentially related to various outcomes, including disordered personality (Flett et al., 1998; Hewitt & Flett, 1991; Hewitt et al., 2003).

4.1.2. Narcissistic Grandiosity and Narcissistic Vulnerability

Narcissism refers to a pervasive pattern of grandiosity, self-focus, and self-importance in absence of requisite accomplishments (Caligor, Levy, & Yeomans, 2015; Pincus & Lukowitsky, 2010). According to Morf and Rhodelwalt’s (2001) self-regulatory processing model, narcissists engage in strategic self-regulatory behaviours and processes, as a means of constructing and maintaining a relatively positive, albeit fragile, self-image. Moreover, these self-regulatory behaviours and processes are theorized to be driven by an intense need for external validation and admiration (Pincus et al., 2009). While most individuals can effectively manage needs for self-validation and admiration, narcissism involves an impaired ability to satisfy these needs such that self-enhancement becomes an overriding goal (Pincus & Roche, 2011). Nonetheless, evidence has converged in support of two themes linked with narcissism: narcissistic grandiosity and narcissistic vulnerability (Cain et al., 2008; Dickinson & Pincus, 2003; Pincus et al., 2009; Wink, 1991).

Although narcissistic grandiosity and narcissistic vulnerability overlap, research indicates important phenotypic differences in expression (Pincus et al., 2009). In particular, for people high on narcissistic grandiosity, self-esteem dysregulation triggers both aggression and envy; for people high on narcissistic vulnerability, self-esteem dysregulation triggers profound shame and a deep-seated sense of inadequacy (Besser & Priel, 2010; Cain et al., 2008; Pincus & Lukowitsky, 2010). Moreover, narcissistic grandiosity is characterized by the pursuit of

4.1.3. THE PERFECTIONISM-NARCISSISM RELATIONSHIP

an imperfect self” (p. 4). Furthermore, according to cognitive theorists, narcissistic schemas involve entitled and perfectionistic expectations for others and perpetual dissatisfaction with others’ perceived flaws (Beck et al., 2004). Indeed, as noted by Ronningstam (2011) narcissist often “readily announce their perfectionistic strivings and ideals, often in combination with their contempt for the perceived imperfections of other people” (p.93). Supporting these views, research indicates narcissism has moderate positive relationships with other-oriented perfectionism (Trumpeter, Watson, & O’Leary, 2006) and perfectionistic self-promotion (Hewitt et al., 2003). Nevertheless, only two studies explicitly address perfectionism’s relationship with measures of narcissistic grandiosity and narcissistic vulnerability (Flett et al., 2014; Stoeb, Sherry, & Nealis, 2015).

Flett et al. (2014) reported self-oriented and socially prescribed perfectionism were related to narcissistic grandiosity and vulnerability, whereas other-oriented perfectionism was inconsistently related to narcissistic grandiosity and unrelated to narcissistic vulnerability. Flett et al. (2014) also found perfectionistic self-presentation dimensions, as well as perfectionistic cognitions, displayed strong positive associations with narcissistic grandiosity and vulnerability. In addition, Stoeb et al. (2015) reported that, after removal of overlap in trait perfectionism dimensions, other-oriented perfectionism was predominantly related to narcissistic grandiosity, whereas socially prescribed perfectionism was predominantly related to narcissistic vulnerability.

4.1.4. Advancing Research on the Perfectionism-Narcissism Relationship Using Meta-Analysis

Why do we, despite 25 years of research, still have a limited understanding of the link between perfectionism and narcissism? We assert there are four main reasons. First, there are notable between-study inconsistencies. Some studies report self-oriented perfectionism is unrelated to narcissistic grandiosity (Stoeb, 2014; Stoeb, 2015; Stoeb et al., 2015); other
studies report self-oriented perfectionism is positively related to narcissistic grandiosity (Flett et al., 2014) or self-oriented perfectionism is positively related to narcissistic grandiosity in women but not men (Sherry, Gralnick, Hewitt, Sherry, & Flett, 2014). Likewise, some studies assert all perfectionistic self-presentation dimensions are related to narcissistic grandiosity (Flett et al., 2014), whereas others contend only perfectionistic self-promotion is related to narcissistic grandiosity (Hewitt et al., 2003). Second, several of these studies involve smaller sample sizes and are likely underpowered. Evidence suggests correlations do not stabilize until \( N > 250 \) (Schönbrodt & Perugini, 2013). A meta-analysis could overcome the limitations of smaller samples sizes (e.g., Borenstein, Hedges, Higgins, & Rothstein, 2009) and bring greater clarity to our understanding of perfectionism’s relationship with narcissistic grandiosity and vulnerability.

Third, the array of narcissism measures used has complicated understanding of the perfectionism-narcissism relationship. Some studies use scales primarily capturing narcissistic grandiosity (e.g., Stoeber et al., 2014); other studies use scales primarily capturing narcissistic vulnerability (e.g., Sherry, Hewitt, Flett, Lee-Baggley, & Hall, 2007). Thus, even though evidence of trait perfectionism, perfectionistic self-presentation, and perfectionistic cognitions relationships with narcissism is accumulating, there has been no systematic attempt to synthesize findings from studies primarily measuring narcissistic grandiosity in isolation from studies primarily measuring narcissistic vulnerability.

Fourth, most research on the link between perfectionism dimensions and narcissism does not evaluate the degree to which relationships stem from unique or shared variance (cf. Sherry et al., 2014; Stoeber et al., 2015). This is problematic given that failure to control for the overlap among perfectionism dimensions may obscure distinct relationships (see Stoeber & Otto, 2006 for review). A meta-analysis could rectify this by reanalyzing how trait perfectionism and
perfectionistic self-presentation relate to narcissistic grandiosity and narcissistic vulnerability following removal of shared variance among perfectionism dimensions by calculating partial correlations coefficients (see Cohen, Cohen, West, & Aiken, 2003).

4.1.5. Hypotheses

Numerous theoretical accounts propose that grandiose narcissists impose unrealistic demands onto others and promote an image of perfection to others (Hewitt et al., 2003). Building upon these theoretical accounts, and prior empirical findings (Nealis et al., 2015; Sherry, et al., 2014), we hypothesized that, after removing overlap among trait perfectionism dimensions, other-oriented perfectionism would be predominately related to narcissistic grandiosity and that, after removing overlap among perfectionistic self-presentation dimensions, perfectionistic self-promotion would be predominately related to narcissistic grandiosity.

Much like socially prescribed perfectionism (Hewitt, Flett, Sherry, & Caelian, 2006; Millon & Davis, 2000), theory suggests for vulnerable narcissists, self-esteem dysregulation triggers shame with a profound sense of inadequacy and incompetence. And extensive evidence suggests people high in socially prescribed perfectionism also struggle with feelings of inferiority (Stoeber, 2015). Given this, and prior findings (Flett et al., 2014; Stoeber et al., 2015), we hypothesized that, after controlling for the correlation among trait perfectionism dimensions, socially prescribed perfectionism would be predominately related to narcissistic vulnerability and that, after controlling for overlap among perfectionistic self-presentation dimensions, nondisclosure of imperfection would be predominately related to narcissistic vulnerability. Finally, our examination of the relationship between perfectionistic cognitions, narcissistic grandiosity, and narcissistic vulnerability was considered exploratory as this topic is largely unstudied.
4.2. Procedure

4.2.1. Selection of Studies

A literature search using PsycINFO, PubMed, and ProQuest Dissertations and Theses was conducted using the keywords and Boolean search terms “perfect*” AND “narciss*.” This search yielded 233 studies from PsycINFO, 44 studies from PubMed, and 50 studies from ProQuest. The first and the third author reviewed the abstract and the method of all studies identified from this search, selecting studies meeting inclusion criteria. Studies were included that (a) reported an effect size (e.g., correlation coefficient), sufficient information for computing an effect size, or this information was obtained from a corresponding author; (b) were a published journal article, dissertation, book chapter, or data provided directly from an author.

This literature search yielded a total of 36 studies for inclusion. Interrater-agreement on inclusion or exclusion in the meta-analysis was 100%. Following the literature search, the reference lists of included studies were examined in an attempt to locate other relevant studies (Card, 2012). We elected to include, rather than exclude, one sample of elementary school students (Thomaes & Sedikes, 2015) as the contention that the perfectionism-narcissism relationship differs across adolescents, young adults, and adults should not be assumed but rather tested empirically via moderation (see Borenstein, Hedges, Higgins, & Rothstein, 2009; Card, 2012). On May 19, 2016, we terminated all search strategies and started data reduction and analysis. We excluded seven studies (see Supplemental Material A for justification). The final sample of selected studies was composed of 30 studies with 36 samples.

4.2.2. Coding of Studies

The first and the third author coded each study based on nine characteristics: sample size, sample type, mean age of participants, percent of female participants, percent ethnic minority,
publication status, measure used to assess perfectionism, measure used to assess narcissistic grandiosity, and measure used to assess narcissistic vulnerability.

**4.2.3. Meta-Analytic Procedure**

Random-effects analyses were performed using Comprehensive Meta-Analysis software (Borenstein, Hedges, Higgins, & Rothstein, 2005). We chose random-effects models over fixed-effects models as the 30 included studies varied widely in design (see Table 6 and Table 7). Random-effects models are also generally preferable to fixed-effects models as they allow for generalizations beyond the set of selected studies to future studies (Bornstein et al., 2009; Card, 2012). Weighted mean effect sizes were computed following the procedure prescribed by Hunter and Schmidt (1990). This allowed for estimation of mean effect sizes and the variance in observed scores after considering sampling error (Card, 2012). Effect size estimates were weighted by sample size and aggregated. We chose to weight effects by sample size as studies with larger sample sizes, relative to studies with smaller sample sizes, have greater precision (Borenstein et al., 2009). In studies that included more than one measure of narcissistic grandiosity or narcissistic vulnerability, effect sizes obtained using various measures were averaged such that one effect size was included in the analysis (Bornstein et al., 2009). This commonly used meta-analytic strategy guards against overrepresentation of studies that include multiple effects. We also used the formula provided by Borenstein et al. (2009) to calculate power under the random effects model for each weighted mean effect.

Additionally, partial correlations were computed using the “corpcor” package (Schafer, Opgen-Rhein, Zuber, Silva, & Strimmer, 2015) for R statistical software (R Core Team, 2013). Specifically, for trait perfectionism, partial effects were computed by residualizing trait perfectionism dimensions (self-oriented perfectionism, other-oriented perfectionism, and socially prescribed perfectionism) based on their correlation with each other prior to being correlated.
with a total narcissism score. Likewise, for perfectionistic self-presentation, partial effects were computed by residualizing perfectionistic self-presentation dimensions (perfectionistic self-promotion, non-disclosure of imperfection, and non-display of imperfection) based on their correlation with each other prior to being correlated with a total narcissism score. This commonly used meta-analytic strategy (e.g., Hill & Curran, 2016) allows for evaluation of the unique effects.

To assess moderation, the total heterogeneity of weighted mean effect sizes ($Q_T$) was evaluated (see Table 8). If $Q_T$ is significant, it indicates the variance evident in the weighted mean effect sizes is greater than would be expected by sampling error (Card, 2012). A non-significant $Q_T$ suggests a weak basis for moderation. The inconsistency in observed relationships across studies ($I^2$) was also computed for each analysis. $I^2$ is a measure of inconsistency and indicates the percentage of total variation across studies attributable to heterogeneity; values of 25%, 50%, and 75% correspond to low, medium, and high heterogeneity, respectively (Higgins & Thompson, 2002). Unlike $Q_T$, $I^2$ is unbiased by the number of included studies (Card, 2012).

When $Q_T$ was significant, a categorical structure to the data was stipulated and the total heterogeneity explained by the categorization ($Q_B$) calculated. A significant $Q_B$ indicates significant difference in effect sizes between categories and provides a firm basis for moderation (Borenstein et al., 2009). In the presence of a significant $Q_B$, as well as sufficient content coverage, differences in effect sizes between studies grouped by publication status (articles, dissertations, book chapters, manuals), age (adult, young adult, adolescent), and sample (university undergraduates, community adults, psychiatric patients, regular exercisers, elementary school students) were examined by performing a series of all possible two-group comparisons to determine which groups differed significantly in the magnitude of effect sizes.
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(Card, 2012). For each group comparison, the resultant $Q_b$ from the two groups was evaluated using a chi-square test with one degree of freedom. Additionally, when $Q_T$ was significant, we evaluated the potential moderating effect of gender using meta-regression.

To assess publication bias we calculated Rosenthal’s (1979) fail-safe number (fail-safe $N$), inspected funnel plots with both observed studies and imputed studies, and computed Egger’s test of regression to the intercept (Egger, Smith, Schneider, Minder, 1997). Fail-safe $N$ indicates the number of non-significant or missing studies with a mean effect size of zero that would be needed to change the statistical significance of an observed effect to a non-significant level. Rosenthal (1979) recommended that fail-safe $N$ should be greater than $5k + 10$, where $k$ equals the number of observed effect sizes. Funnel plots with observed and imputed studies allow for visual inspection of how the effect size shifts when imputed studies are included (Bornstein et al., 2009). Additionally, in the absence of publication bias Egger’s regression intercept does not differ significantly from zero (Egger et al., 1997).

4.3. Results

4.3.1. Description of Studies

Our literature search identified 30 studies and 36 samples containing relevant effect size data (Table 6). The total number of participants pooled across studies was 9,091. Relevant data were obtained from 24 journal articles, 4 dissertations, 1 book chapter, and 1 manual. Samples were available between 1991 and 2016, with a median year of 2009. There were 26 samples of university undergraduates, 5 samples of psychiatric patients, 2 samples of regular exercisers, 2 samples of community adults, and 1 sample of elementary school students. Sample size varied between 71 and 629, with an average of 252.53 ($SD = 143.64$). The mean age of participants was 23.3 years ($SD = 6.3$; range of 13.0 to 37.3). The average percent of female participants was 66.0%; the average percentage of ethnic minority participants was 21.0%.
**Table 6. Characteristics of studies included in the meta-analysis**

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample type</th>
<th>Mean age</th>
<th>Female %</th>
<th>Ethnic %</th>
<th>Status</th>
<th>Narcissistic grandiosity</th>
<th>Narcissistic vulnerability</th>
<th>Perfectionism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albanese-Kotar (2001)</td>
<td>community</td>
<td>32.2</td>
<td>60.0</td>
<td>11.0</td>
<td>dissertation</td>
<td>NPI</td>
<td>--</td>
<td>MPS-SOP</td>
</tr>
<tr>
<td>Casale et al. (2016)</td>
<td>university</td>
<td>22.6</td>
<td>54.2</td>
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f Wave 1 data were reported in the Nealis et al. (2015) Study 2.
g informant reports
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</table>

Note. \( r \) = bivariate correlation; \( pr \) = partial correlation; \( SOP \) = self-oriented perfectionism; \( OOP \) = other-oriented perfectionism; \( SPP \) = socially prescribed perfectionism; \( PSP \) = perfectionistic self-presentation; \( NDC \) = nondisclosure of imperfection; \( NDP \) = nondisplay of imperfection; \( PCI \) = perfectionistic cognitions; \( N \) = narcissism; \( NPI \) = Raskin and Terry’s (1988) Narcissistic Personality Inventory; \( SCID-II-N \) = narcissism subscale of Spitzer et al.’s (1990) Structured Clinical Interview for \( DSM-III-R \) Personality Disorders; \( PNI-gran \) = grandiosity subscale of Pincus et al.’s (2009) Pathological Narcissism Inventory; \( PNI-vul \) = vulnerable subscale of Pincus et al.’s (2009) Pathological Narcissism Inventory; \( PAI-gran \) = grandiosity subscale of Morey’s (1991) Personality Assessment Inventory; \( MCMI-N \) = narcissism subscale of Millon’s (1983) Clinical Multiaxial Inventory; \( MMPI-N \) = narcissism subscale of Morey et al.’s (1985) Minnesota Multiphasic Personality Inventory; \( DD-N \) = narcissism subscale of Jonason and Webster’s (2010) Dirty Dozen Scale; \( PES \) = Campbell et al.’s (2004) Psychological Entitlement Scale; \( PDQ-N \) = narcissism subscale of Hyler’s (1994) Personality Diagnostic Questionnaire; \( HSNS \) = Hendin and Cheek’s (1997) Hypersensitive Narcissism Scale; \( NIS \) = Syler’s (1991) Narcissistic Injury Scale; \( DAPP-N \) = narcissistic personality disorder subscale of Livesley et al.’s (1992) Dimensional Assessment of Personality Pathology; \( PID-5-NP \) = narcissistic personality subscale of Krueger et al.’s (2012) Personality Inventory for the \( DSM-5 \); \( CNS \) = Thomaes, Stegge, et al.’s (2008) Childhood Narcissism Scale; \( OMNI \) = O’Brien’s (1987) Multiphasic Narcissism Inventory.  

\(^a\)Hewitt and Flett’s (1990) Other-Oriented Perfectionism Scale was used to measure other-oriented perfectionism.  

\(^b\)Hill et al.’s (2004) high standards for others subscale of the Perfectionism Inventory was used to measure other-oriented perfectionism.  

\(^c\)Wave 1 data were reported in the Nealis et al. (2015) Study 2.
**Table 8. Summary of overall bivariate effect sizes for the relationship between narcissism and trait perfectionism and perfectionistic self-presentation**

<table>
<thead>
<tr>
<th>Variable</th>
<th>k</th>
<th>N</th>
<th>(r^*)</th>
<th>95% CI</th>
<th>Fail-safe N</th>
<th>(Q_T)</th>
<th>I² (%)</th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Narcissistic grandiosity</strong></td>
<td></td>
<td></td>
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<td>[.09, .21]</td>
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<tr>
<td>Nondisclosure of imperfection</td>
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<td>2,307</td>
<td>.19**</td>
<td>[.06, .31]</td>
<td>133</td>
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<td>.79</td>
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<td>.12</td>
<td>[.04, .26]</td>
<td>38a</td>
<td>90.39***</td>
<td>92.26</td>
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<td>883</td>
<td>51.09***</td>
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<td>[.32, .60]</td>
<td>461</td>
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<td>[.27, .58]</td>
<td>151</td>
<td>18.43***</td>
<td>89.15</td>
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</table>

*Note. k = number of studies; N = total number of participants in the k samples; \(r^*\) = weighted mean \(r\); CI = confident interval; \(Q_T\) = measure of heterogeneity of effect sizes; \(I^2\) = percentage of heterogeneity.

\(a\) p < .05; \(b\) p < .01; \(c\) p < .001.

\(a\) Fail-safe N below threshold (5k +10)
Table 9. Summary of overall partial effect sizes for the relationship between narcissism and trait perfectionism and perfectionistic self-presentation

<table>
<thead>
<tr>
<th>Variable</th>
<th>k</th>
<th>N</th>
<th>$r^*$</th>
<th>$pr^*$</th>
<th>95% CI</th>
<th>Fail-safe N</th>
<th>$Q_T$</th>
<th>$I^2$ (%)</th>
<th>Power</th>
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<td><strong>Narcissistic grandiosity</strong></td>
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<td>[.19,.29]</td>
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<td>.02</td>
<td>[-.05,.09]</td>
<td>0a</td>
<td>107.05***</td>
<td>81.32</td>
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<td>.26***</td>
<td>[.21,.32]</td>
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<td>34.97</td>
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<tr>
<td>Self-oriented perfectionism</td>
<td>7</td>
<td>1,978</td>
<td>.23***</td>
<td>.04</td>
<td>[-.04,.11]</td>
<td>0a</td>
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<td>1,978</td>
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<td>1,978</td>
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<td>.39***</td>
<td>[.28,.50]</td>
<td>509</td>
<td>49.70***</td>
<td>87.93</td>
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<td>.18***</td>
<td>[.10,.25]</td>
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<td>[.07,.32]</td>
<td>60</td>
<td>26.94**</td>
<td>85.15</td>
<td>.83</td>
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*Note. k = number of studies; N = total number of participants in the k samples; $r^*$ = weighted mean $r$; $pr^*$ = weighted mean $pr$; CI = confident interval for $pr$; $Q_T$ = measure of heterogeneity for $pr$; $P$ = percentage of heterogeneity for $pr$.

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

aFail-safe N below threshold (5k +10).
4.3.2. Measures

4.3.2.1. Perfectionism


4.3.2.2. Narcissistic Grandiosity

Narcissistic grandiosity was assessed using 10 measures (see Table 6): Raskin and Terry’s (1988) Narcissistic Personality Inventory (NPI); the grandiosity subscale of Pincus et al.’s (2009) Pathological Narcissism Inventory (PNI-gran); the narcissism subscale of Millon’s (1983) Clinical Multiaxial Inventory (MCMI-N); the narcissism subscale of Morey, Waugh, and Blashfield’s (1985) Minnesota Multiphasic Personality Inventory (MMPI-N); the narcissism subscale of Jonason and Webster’s (2010) Dirty Dozen Scale (DD-N); Campbell, Bonacci, Shelton, Exline, and Bushman’s (2004) Psychological Entitlement Scale (PES); the narcissism subscale of Spitzer, Williams, Gibbon, and First’s (1990) Structured Clinician Interview for DSM-III-R (SCID-II-N); the narcissism subscale of Krueger, Derringer, Markon, Watson, and Skodol’s (2012) Personality Inventory for DSM-5 (PID-5-NP); Thomaes, Stegge, Bushman, Olthof, and Denissen’s (2008) Childhood Narcissism Scale (CNS); and the grandiosity subscale of Morey’s (1991) Personality Assessment Inventory (PAI-Gran). Our decision to categorize the NPI, PNI-gran, MCMI-N, MMPI-N, DD-N, PES, SCID-II-N, PID-5-NP, CNS and PAI-Gran as measures of narcissistic
grandiosity was guided by Pincus et al. (2009), by Pincus and Lukowitsky (2010), and by Miller, Gentile, Wilson, and Campbell (2013).

4.3.2.3. Narcissistic Vulnerability

Narcissistic vulnerability was assessed using seven measures (see Table 6): the vulnerable narcissism subscale of Pincus et al.’s (2009) PNI (PNI-vul); Slyter’s (1991) Narcissistic Injury Scale (NIS); the narcissism subscale of Hyler, Rieder, Williams, Spitzer, Hendler, and Lyons’s (1988) Personality Diagnostic Questionnaire (PDQ-N); the narcissism subscale of Livesley, Jackson, and Schroeder’s (1992) Dimensional Assessment of Personality Pathology (DAPP-N); Ashby, Lee, and Duke’s (1979) Narcissistic Personality Disorder Scale (NPDS); Hendin and Cheek’s (1997) Hypersensitive Narcissism Scale (HSNS); and O’Brien’s (1987) Multiphasic Narcissism Inventory (OMNI).

The PNI-vul, NIS, PDQ-N, DAPP-N, NPDS, HSNS, and OMNI are viewed as measures of narcissistic vulnerability. The PNI-vul was developed by Pincus et al. (2009) to specifically assess narcissistic vulnerability. Likewise, the NIS was designed to capture a central theme of narcissistic vulnerability—overly negative reactions when there is a failure to live up to an idealized image (Pincus et al. 2009). The PDQ-N is more a measure of narcissistic vulnerability than narcissistic grandiosity as it assesses an “emotionally unstable, negative affect-laden, introverted form of narcissism” (Miller & Campbell, 2008, p. 449; Pincus et al., 2009). The DAPP-N loads more strongly on an emotional deregulation factor than a dissocial factor and thus is also best conceptualized as a measure of narcissistic vulnerability (Maples, Collins, Miller, Fischer, & Seibert, 2011, p. 83; Miller & Maples, 2011). The HSNS is uncorrelated with the NPI (Pincus et al., 2009) and its use as a measure of narcissistic vulnerability is common (Stoeber et al., 2015). The NPDS has robust positive associations with hypersensitivity and is typically uncorrelated with the NPI (Wink & Gough, 1990). Research suggests the OMNI assess vulnerable, but not grandiose,
PERFECTIONISM AND NARCISSISM

aspects of narcissism (Maples et al., 2011; Miller & Maples, 2011). Nevertheless, we acknowledge that researchers rarely state whether their measures (particularly older measures) assess primarily narcissistic grandiosity or narcissistic vulnerability and thus we recognize that some readers may disagree with our categorization. Consequently, we report findings individually by measure, as well as total effect sizes ignoring categorization, in Supplemental Material B.

4.3.3. Overall Effect Sizes

Weighted mean effect sizes for trait perfectionism dimensions, perfectionistic self-presentation dimensions, and perfectionistic cognitions’ relationships with narcissistic grandiosity and vulnerability are in Table 8. Partial weighted mean effect sizes are in Table 9. Following Cohen’s (1992) guidelines for small, medium, and large effect sizes ($r = .10, .30, .50$, respectively), self-oriented, other-oriented, socially prescribed perfectionism, perfectionistic self-promotion, nondisclosure of imperfection, and perfectionistic cognitions had small-to-moderate positive relationships with narcissistic grandiosity. Nondisplay of imperfection’s relationship with narcissistic grandiosity was non-significant. And the three trait perfectionism dimensions, the three perfectionistic self-presentation dimensions, and perfectionistic cognitions all had small-to-moderate positive relationships with narcissistic vulnerability.

Trait perfectionism dimensions also displayed small-to-large positive correlations with each other ($r = .08$ to $.71$; see Supplemental Material C). After controlling for overlap between trait perfectionism dimensions, self-oriented perfectionism and other-oriented perfectionism had small positive relationships with narcissistic grandiosity, but non-significant relationships with narcissistic vulnerability. Conversely, partial effects revealed socially prescribed perfectionism had a non-significant relationship with narcissistic grandiosity but a moderate positive relationship with narcissistic vulnerability.

Perfectionistic self-presentation dimensions had moderate-to-large positive correlations
with each other ($r = .46$ to $.76$; see Supplemental Material C). After controlling for overlap between perfectionistic self-presentation dimensions, perfectionistic self-promotion had small-to-moderate positive relationships with narcissistic grandiosity and vulnerability. Partial correlations also revealed nondisplay of imperfection had a small negative relationship with narcissistic grandiosity and a small positive relationship with narcissistic vulnerability. After removal of overlap between perfectionistic self-presentation dimensions, nondisclosure of imperfection’s relationships with narcissistic grandiosity and vulnerability were non-significant.

Inspection of total heterogeneity indicated variability in weighted mean effect sizes exceeded variability associated with sampling error (see Table 8 and Table 9). The percentage of total variance owing to heterogeneity ranged from small to high, suggesting possible moderators.

4.3.4. Moderator Analysis

Supplementary analyses (see Supplemental Material D) were conducted to test whether perfectionism’s relationships with narcissistic grandiosity and vulnerability varied as a function of publication status (peer reviewed journal articles; dissertations and book chapters), age (adolescent samples ≥ 13 and ≤ 17 years; young adult samples ≥ 18 and ≤ 25 years; adult samples > 25 years), or sample type (university undergraduates; psychiatric patients; regular exercisers; community adults; elementary school students). Self-oriented perfectionism’s relationship with narcissistic vulnerability was positive in university samples but non-significant in psychiatric samples and regular exercisers. Self-oriented perfectionism’s relationship with narcissistic vulnerability was also positive in young adults but non-significant in adults. In addition, self-oriented perfectionism’s relationship with narcissistic vulnerability was smaller for published studies relative to unpublished studies.

Furthermore, other-oriented perfectionism’s unique relationship with narcissistic vulnerability was larger for published studies relative to unpublished studies. Conversely,
perfectionistic self-promotion’s, nondisclosure of imperfection’s, nondisplay of imperfection’s, and perfectionistic cognitions’ relationships with narcissistic grandiosity and narcissistic vulnerability were consistently smaller in published studies relative to unpublished studies. Moreover, meta-regression revealed the strength of perfectionistic self-promotion’s partial relationship with narcissistic vulnerability was moderated by the percentage of females. Overall, we suggest caution in interpreting our moderator analyses given the number of tests conducted.

4.3.5. Publication Bias

Additional supplemental analyses (see Supplemental Material E and F) were conducted to evaluate publication bias. Funnel plots and Egger’s regression intercept provided mixed evidence of publication bias. In particular, in four cases Egger’s regression intercept was significant. Nonetheless, adjusted point estimates were consistently close to observed point estimates and provided the same substantive implications.

4.4. Discussion

Despite 25 years of sustained empirical research (e.g., Hewitt & Flett, 1991; Nealis Sherry, Sherry, Stewart, & Macneil, 2016), our understanding of the perfectionism-narcissism relationship is obscured by notable between-study inconsistencies, underpowered studies, the array of narcissism measures used, and the dearth of research controlling for overlap between perfectionism dimensions. Our study addressed these challenges by meta-analyzing narcissistic grandiosity and narcissistic vulnerability in relation to trait perfectionism, perfectionistic self-presentation, and perfectionistic cognitions. Findings were derived from 30 studies with 36 samples and 9,091 participants, representing the most comprehensive test of the perfectionism-narcissism relationship thus far. Results arising from bivariate and partial effect sizes support more than a century of case histories and theoretical accounts suggesting perfectionism is
fundamental to understanding the personality profile of narcissists (e.g., Beck et al., 2004; Freud, 1957; Horney, 1950; Rothstein, 1999; Sorotzkin, 1985).

4.4.1. An Improved Understanding of the Perfectionism-Narcissism Relationship

As hypothesized, partial correlations suggested other-oriented perfectionism was positively related to narcissistic grandiosity. This finding lends credence to longstanding theoretical accounts indicating grandiose narcissists harshly impose perfectionistic demands onto others while experiencing perpetual dissatisfaction with others’ perceived flaws (Beck et al., 2004; Ronningstam, 2010, 2011). While such a demanding and disagreeable interpersonal style likely elicits little sympathy, evidence also suggests grandiose narcissists themselves suffer amid distressing daily conflict with others (Nealis et al., 2015; Nealis et al., 2016).

Somewhat unexpectedly, partial correlations revealed self-oriented perfectionism was positively related to narcissistic grandiosity. Thus, self-oriented perfectionism’s relationship with narcissistic grandiosity does not appear to stem merely from overlap with other-oriented perfectionism, as some authors suggest (Stoeber, 2014; Stoeber, 2015; Stoeber et al., 2015). Self-oriented perfectionism’s overlap with narcissistic grandiosity complements a broader literature suggesting that, although self-oriented perfectionism is often labeled as “adaptive,” such statements are overly simplistic (e.g., Sherry, Hewitt, Sherry, Flett, & Graham, 2010; Smith, Sherry, Rnic, Saklofske, Enns, & Gralnick, 2016). Specifically, our results indicate that self-oriented perfectionism is more than just an extreme need for achievement and may involve a willingness to exploit others in pursuit of status, power, dominance, and physical beauty (Besser & Priel, 2010; Fitzpatrick, Sherry, Hartling, Hewitt, Flett, & Sherry, 2011; Sherry et al., 2006).

Perfectionistic self-promotion was also associated with narcissistic grandiosity, even after controlling for overlap among perfectionistic self-presentation dimensions. Grandiose narcissists may exhibit an image of perfect capability in pursuit of others’ respect (Ronningstam, 2010,
Sorotzkin (1985) also suggested narcissists may brashly present themselves as perfect to others in an attempt to confirm their grandiose self-image. And as Beck et al. (2004) observed, ‘‘image [to grandiose narcissists] is everything because it is the armor of their self-worth’’ (p. 252).

Interestingly, our finding that nondisplay of imperfection was negatively related to narcissistic grandiosity suggests that, despite being heavily invested in promoting an image of infallibility to others, grandiose narcissist’s self-preoccupation and inflated sense of self may lead to indifference regarding the perceived costs of behaving imperfectly (Flett et al., 2014; Kernberg, 1984; Morf & Rhodewalt, 2001; Sherry et al., 2014). Indeed, grandiose narcissists may not be concerned about behavioral displays of imperfections because they believe that no such imperfections exist.

As with grandiose narcissists, our results also suggest vulnerable narcissists are fixated on promoting their (so-called) perfection to others, perhaps in pursuit of others’ approval and validation (Hewitt et al., 2003). However, unlike grandiose narcissists, vulnerable narcissists appear to have a defensive and an insecure preoccupation with behaving imperfectly. In contrast to grandiose narcissists, vulnerable narcissists also appear to have a strong sense of falling short of others’ expectations: Vulnerable narcissists expect and perceive criticism, judgment, and pressure from others. Our findings accord with theory and research suggesting that vulnerable narcissists, relative to grandiose narcissists, tend to rely more on external feedback from others to manage their self-esteem (Besser & Priel, 2010) and tend to experience greater shame when this external feedback suggests they are less than perfect (Pincus et al., 2009). Our research also joins a wider literature suggesting that, to vulnerable narcissists, others’ intentions are malevolent (Dickinson & Pincus, 2003; Pincus et al., 2009).
Finally, bivariate effects indicated that both narcissistic grandiosity and narcissistic vulnerability are related to the frequency of perfectionistic thoughts. This finding dovetails with Beck et al.’s (2004) observation that narcissists are prone to thoughts involving hyper-competitiveness and a need for perfection. As noted by Flett et al. (2014), grandiose narcissists may be prone to perfectionistic thoughts involving fantasies of achieving perfection, whereas vulnerable narcissist may be prone to perfectionistic thoughts encompassing ruminations about the perceived consequences of failing to be perfect.

Overall, our findings suggest trait perfectionism dimensions, perfectionistic self-presentation dimensions, and perfectionism cognitions are differentially related to narcissistic grandiosity and narcissistic vulnerability in ways that accord with longstanding theoretical accounts of narcissistic perfectionism (Beck et al., 2004; Freud, 1957; Horney, 1950; Rothstein, 1999; Sorotzkin, 1985), thereby supporting the validity of the perfectionism construct. Our results also complement research suggesting there is a theoretically meaningfully distinction between grandiose and vulnerable narcissism (Pincus et al., 2009; Pincus & Lukowitsky, 2010).

4.4.2. Limitations of the Overall Literature

Research on the perfectionism-narcissism relationship is lopsided. We have extensive research on trait perfectionism’s relationship with narcissism, but comparatively little research on perfectionistic self-presentation and perfectionistic cognitions’ relationships with narcissism. Moreover, the majority of studies investigated narcissistic grandiosity instead of narcissistic vulnerability, making work on perfectionism and narcissistic vulnerability an important future direction. Additionally, except Nealis et al. (2016), all included studies relied on self-reports. Self-reports are potentially problematic when studying perfectionism and narcissism, traits which can involve self-presentational biases (e.g., defensiveness). Future studies should advance this literature by using methods of data collection that go beyond self-report (e.g., informant reports...
or laboratory observation). Also, all research on perfectionism and narcissism uses cross-sectional designs, and multi-wave longitudinal data is needed to test whether perfectionism comes before and contributes to changes in narcissism (and vice versa). Furthermore, since 8 of the 30 included studies had sample sizes < 100, our research suggests many studies on the perfectionism-narcissism relationship are underpowered. Researchers are encouraged to move forward by using sample sizes large enough to detect small-to-medium effects.

4.4.3. Limitations of the Present Study

Certain limitations in the extant research translate into limitations in our meta-analysis. In this regard, some analyses were based on a small number of effect sizes, leading to relatively large confidence intervals. Included studies were also composed primarily of Caucasians from Canada, USA, and the UK. Our findings may have limited generalizability to more ethnically diverse samples. Furthermore, narcissistic grandiosity and narcissistic vulnerability are non-orthogonal and may even fluctuate within the same individual over time (Gore & Widiger, 2016). Thus, it follows that the present study’s separation of narcissistic grandiosity from narcissistic vulnerability may be problematic. Indeed, a possibility which warrants further study is the extent to which perfectionism and narcissism are related via dynamic intrapersonal processes. For instance, deflated grandiosity may modify personality processes from narcissistic to perfectionistic in a dynamic manner. Given Morf and Rhodewalt’s (2001) work on narcissism as a method of self-esteem maintenance, research comparing the intrapsychic processes underlying perfectionism, narcissistic grandiosity, and narcissistic vulnerability remains an exciting and important area for further inquiry. A more finely grained analysis of perfectionism dimensions’ relationships with lower-order facets of narcissism (e.g., entitlement rage) is also needed. Additionally, our age range for included studies was 13.0 to 37.3 years of age.
Consequently, we were unable to include studies covering the full life span, particularly samples of adults over 37.3 years of age.

4.4.4. Concluding Remarks

The present meta-analysis offers the most rigorous, comprehensive test of the relationship between perfectionism and narcissism to date. Results corroborate more than a century of case histories and theoretical accounts suggesting perfectionism is important to understanding both grandiose and vulnerable narcissists. We add substantively to this literature by bringing greater specificity to the understanding of the perfectionism-narcissism relationship. In synthesizing this literature, we showed that self-oriented perfectionism and other-oriented perfectionism are predominantly related to narcissistic grandiosity, whereas socially prescribed perfectionism and nondisplay of imperfection are predominately related to narcissistic vulnerability.
4.5. References

References marked with an asterisk indicate studies included in the meta-analysis.


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CHAPTER FIVE: PERFECTISM, NEUROTICISM, AND DEPRESSION

5. Abstract

Extensive evidence suggests neuroticism is a higher-order personality trait that overlaps substantially with perfectionism dimensions and depressive symptoms. Such evidence raises an important question: Which perfectionism dimensions are vulnerability factors for depressive symptoms after controlling for neuroticism? To address this, a meta-analysis of research testing whether socially prescribed perfectionism, concern over mistakes, doubts about actions, personal standards, perfectionistic attitudes, self-criticism, and self-oriented perfectionism predict change in depressive symptoms, after controlling for baseline depression and neuroticism, was conducted. A literature search yielded 10 relevant studies (N = 1,758). Meta-analysis using random-effects models revealed that all seven perfectionism dimensions had small positive relationships with follow-up depressive symptoms beyond baseline depression and neuroticism. Perfectionism dimensions appear neither redundant with nor captured by neuroticism. Results lend credence and coherence to theoretical accounts and empirical studies suggesting perfectionism dimensions are part of the premorbid personality of people vulnerable to depressive symptoms.

5.1. Introduction

Neuroticism is a dispositional tendency to experience negative emotional states. This higher order personality dimension encapsulates several lower order characteristics (e.g., anxiety, hostility, impulsivity, vulnerability), and is robustly predictive of numerous mental-health problems (Lahey, 2009), including depressive symptoms (e.g., sadness, loneliness, anhedonia, apathy, hopelessness, helplessness, suicidal ideation; Békés, Dunkley, et al., 2015; Graham, Sherry, et al., 2010). Given that neuroticism shares substantial variance with depressive symptoms, researchers have legitimately questioned whether lower-order personality traits such
as perfectionism predict depressive symptoms beyond higher-order vulnerability factors such as neuroticism (Coyne & Whiffen, 1995; Enns & Cox, 1997; Enns, Cox, & Clara, 2005). The present meta-analysis of 10 longitudinal studies (N = 1,758) represents the most comprehensive examination to date of the relationship between perfectionism and depressive symptoms after controlling for baseline neuroticism.

5.1.1. Perfectionism Dimensions, Neuroticism, and Depressive Symptoms

Extensive evidence suggests two higher-order factors underlie and account for shared variance amongst core perfectionism dimensions: perfectionistic concerns and perfectionistic strivings (see Stoebert & Otto, 2006, for review). Perfectionistic concerns are comprised of a family of traits, including socially prescribed perfectionism (i.e., perceiving others as demanding perfection of oneself; Hewitt & Flett, 1991), concern over mistakes (i.e., adverse reactions to failures; Frost, Marten, Lahart, & Rosenblate, 1990), doubts about actions (i.e., doubts about performance abilities; Frost et al., 1990), and self-criticism (i.e., the tendency to assume blame and feel self-critical towards the self; Blatt, D’Afflitti, & Quinlan, 1976). Perfectionistic strivings encompass a constellation of traits, including self-oriented perfectionism (i.e., demanding perfection of oneself; Hewitt & Flett, 1991), and personal standards (i.e., setting unreasonably high personal standards and goals; Frost et al., 1990). In the present study, perfectionistic attitudes also receive attention. Beck and associates’ (e.g., Imber et al., 1990) treat perfectionism as a unitary cognitive style that we label perfectionistic attitudes. These attitudes include cognitive distortions with perfectionistic themes (e.g., black-and-white, dichotomous thinking) and social difficulties with perfectionistic themes (e.g., social-evaluative concerns). Perfectionistic attitudes align more closely with perfectionistic concerns (versus perfectionistic strivings; Sherry, Hewitt, Flett, & Harvey, 2003).

Accumulated evidence suggests perfectionistic concerns exacerbate the effect of stress on
depressive symptoms across clinical (e.g., Békés, et al., 2015; Enns & Cox, 2005; Hewitt, Flett, & Ediger, 1996) and non-clinical samples (e.g., Flett, Hewitt, Blankstein, & Mosher, 1995; Sherry, Gautreau, Mushquash, Sherry, & Allen, 2014). Likewise, prior research suggests perfectionistic concerns confer vulnerability to depressive symptoms through negative social situations (e.g., hostile interactions), social cognitions (e.g., perceiving others as uncaring), maladaptive coping (e.g., avoidance), negative life events (e.g., romantic breakups), and daily hassles (Dunkley & Blankstein, 2000; Dunkley, Blankstein, Halsall, Williams, & Winkworth, 2000; Dunkley, Sanislow, Grilo, & McGlashan, 2006; Hewitt & Flett, 1993; Sherry, Hewitt, Stewart, Mackinnon, Mushquash, Flett, & Sherry, 2012). In contrast, perfectionistic strivings are inconsistent predictors of depressive symptoms, with some research suggesting they are vulnerability factors (e.g., Békés et al., 2015; Hewitt et al., 1996; Joiner & Schmidt, 1995), and other research suggesting they are resiliency factors (e.g., Enns, Cox, & Clara, 2005). On the one hand, perfectionistic strivings confer vulnerability to depressive symptoms in the presence of ego-involving achievement stressors (e.g., failing a test; Békés, et al., 2015; Hewitt et al., 1996). On the other hand, perfectionistic strivings are occasionally associated with positive outcomes (e.g., resourcefulness and task-oriented coping; Dunkley, Zuroff, & Blankstein, 2003; Stoeber & Otto, 2006) and, after controlling for perfectionistic concerns, are sometimes negatively associated with depressive symptoms (e.g., Smith, Saklofske, Yan, & Sherry, 2015; see Stoeber & Otto, 2006 for review).

Aside from perfectionistic strivings’ status as a vulnerability factor, some investigators also question whether the apparent link between perfectionism dimensions and depressive symptoms stem from overlap with the “third variable” neuroticism (Enns et al., 2005). Indeed, a long-standing debate in psychology centers on whether lower-order characteristics, such as
perfectionism dimensions, predict change in outcomes (e.g., depressive symptoms), beyond higher-order traits such as neuroticism (Coyne & Whiffen, 1995; Zuroff, Mongrain, & Santor, 2004). Research on the incremental explanatory power of perfectionism dimensions beyond neuroticism is particularly important given that depression and several perfectionism dimensions have strong positive associations with neuroticism (Dunkley, Sanislow, Grilo, & McGlashan, 2009; Dunkley, Blankstein, & Berg, 2012; Lahey, 2009), and because vulnerability is a fundamental component of neuroticism (Costa & McCrae, 1992). Moreover, neuroticism is a robust predictor of change in depressive symptoms across both clinical and non-clinical samples (Lahey, 2009). However, while many perfectionism dimensions are conceptually and empirically related to neuroticism, perfectionism dimensions also have unique components that distinguish them from neuroticism, such as a profound sense that one is making irreconcilable mistakes, as well as feeling as though others impose unfair demands on the self to be perfect (Flett & Hewitt, 2015). Additionally, Dunkley et al (2012) found that perfectionistic concerns are distinguishable from neuroticism in terms of lower agreeableness.

Nonetheless, there are notable between-study inconsistencies concerning the status of perfectionism as a vulnerability factor that predicts incremental changes in depressive symptoms beyond neuroticism (e.g., Békés, et al., 2015; Enns et al., 2005; Dunkley et al., 2009; Sherry, Mackinnon, Macneil, & Fitzpatrick, 2013). Given that neuroticism overlaps with many perfectionism constructs (Dunkley et al., 2012; Enns et al., 2005; Graham et al., 2010), it is crucial that researchers determine which, if any, perfectionism dimensions are vulnerability factors for depressive symptoms after controlling for baseline neuroticism. The apparent link between perfectionism and depressive symptoms may otherwise be an artifact arising from
shared variance with the “third-variable” neuroticism. By controlling for this covariate, our study represents a rigorous test of the perfectionism-depressive symptoms relationship.

5.1.2. Advancing Research on Perfectionism and Depressive Symptoms Using Meta-Analysis

A quantitative synthesis may clarify between-study inconsistencies concerning the status of perfectionism as a vulnerability factor for depressive symptoms (Enns, Cox & Inayatulla, 2003; Sherry et al., 2013), allowing an overall conclusion to be reached. Given that the majority of studies suggest perfectionism has a small to moderate effect on depressive symptoms, it is likely that they are underpowered (e.g., Enns, Cox, Sareen, & Freeman, 2001). Advantages of a meta-analysis will help overcome limitations of small sample sizes (Card, 2012), bringing greater clarity to our understanding of the longitudinal effects of perfectionism dimensions on depressive symptoms. The consequences of perfectionistic strivings on depressive symptoms are also contentiously debated, with researchers either arguing they are vulnerability (e.g., Békés, et al. 2015) or resiliency (e.g., Enns et al., 2005) factors for change in depressive symptoms. Meta-analysis will provide a more encompassing and generalizable statement about the longitudinal effects of perfectionistic strivings on depressive symptoms, which is difficult to establish through any single longitudinal study.

5.1.3. Objectives and Hypotheses

Are perfectionism dimensions part of a premorbid personality structure that reliably increases the risk of experiencing depressive symptomology above and beyond the effects of baseline neuroticism and baseline depression? Do only certain perfectionism dimensions confer vulnerability to depressive symptoms? This study addressed these contentiously debated questions by comprehensively meta-analyzing extant research. Based on theory and empirical evidence, we hypothesized that baseline socially prescribed perfectionism would predict follow-
up depressive symptoms after controlling for baseline neuroticism and baseline depressive symptoms. A similar hypothesis was made for the other perfectionistic concerns dimensions, including concern over mistakes, doubts about actions, perfectionistic attitudes and self-criticism. We also explored whether perfectionistic striving dimensions (self-oriented perfectionism and personal standards) predict change in follow-up depressive symptoms beyond neuroticism. Additionally, we investigated the effects of perfectionistic strivings on depressive symptoms after controlling for perfectionistic concerns, baseline neuroticism and baseline depression.

5.2. Method

5.2.1. Selection of Studies

A literature search on PsycINFO was conducted using the keywords and Boolean search terms “perfection*” OR “self-criticism” AND “longitudinal*” OR “prospective”. Dissertations and non-English language articles were excluded. This search yielded 241 studies. The first and third author reviewed the abstract and method of all studies identified from this broad search selecting studies that met inclusion criteria. Journal articles were included if the following criteria were met: (a) the study used a longitudinal design, (b) depressive symptoms were assessed on at least two measurement occasions, (c) perfectionism was assessed alongside depression in one of the measurement occasions preceding the final assessment of depression, and (d) neuroticism was assessed alongside depression and perfectionism at one of the measurement occasions preceding the final assessment of depression.

The literature search yielded a total of 12 articles for inclusion. Interrater agreement on inclusion or exclusion in the meta-analysis was high (100%). Following the literature search, the reference lists of the included articles were examined in an attempt to locate other relevant studies (Card, 2012). If a study did not report information needed to compute effect sizes, the
authors were contacted. All authors contacted \((N = 3)\) provided the requested information. On October 5, 2015 we terminated all search strategies and instigated data reduction and analysis. We elected to exclude Mushquash and Sherry (2013) as it used the same sample and measure of depression (i.e., the Profile of Mood States depression subscale; McNair, Lorr, & Droppleman, 1992) as Sherry et al. (2014). We also excluded Enns et al. (2003) as it was a treatment study. Finally, one study (Mackinnon, Sherry, Antony, Stewart, Sherry, & Hartling, 2012) reported data on couples. In this case, females and males in the dyad were treated as unique studies. Thus, the final sample of selected studies was comprised of 10 articles with 11 samples (see Table 10 for sample characteristics).

5.2.2. Coding of Studies

The first and third author coded each study based on 10 characteristics: sample size at baseline, sample type, mean age of participants at baseline, percent of female participants at baseline, percent of Caucasian participants at baseline, time lag between assessments, percent attrition, measure used to assess perfectionism, measure used to assess neuroticism, and measure used to assess depressive symptoms.

5.2.3. Meta-Analytic Procedure

Random-effects analyses were performed using Comprehensive Meta-Analysis software (Version 3.3; Borenstein, Hedges, Higgins, & Rothstein, 2005). We chose random-effects models, over fixed-effects models, as the 10 selected studies varied widely in design (see Table 10). Moreover, random-effects models are generally preferable to fixed-effects models, as they allow for generalizations beyond the set of selected studies to future studies (Card, 2012).

Weighted mean effect sizes were computed following the procedure recommended by Hunter and Schmidt (1990). This allowed for estimation of mean effect sizes and the variance in observed scores after considering sampling error (Card, 2012). Effect size estimates were
weighted by sample size and aggregated. We chose to weight effects by sample size as studies with larger sample sizes, relative to studies with smaller sample sizes, have greater precision. To examine the relationship between perfectionism dimensions and depressive symptoms after controlling for baseline neuroticism and baseline depression, standardized betas were computed for each of the 11 samples using Mplus 6 (Muthén & Muthén, 1998-2010). In studies that included more than one measure of depressive symptoms, effect sizes obtained using various measures of depression were averaged such that one effect size was included in the analysis (Card, 2012). This commonly used meta-analytic strategy guards against overrepresentation of studies that include multiple effects. Prior to averaging, correlations were transformed into Fisher’s Z (Card, 2012). When studies included more than two waves of data collection, the time points whereby the necessary measures were administered (depressive symptoms, neuroticism, perfectionism at one time-point, depressive symptoms at a subsequent time point), and that correspond to the longest time lag between measurement occasions, were selected to compute effect sizes. Selection of the longest possible time lag provided the most conservative test of the perfectionism-depressive symptoms link. To facilitate interpretation, weighted mean effect size correlations, as well as 95% confidence intervals, are reported in Table 11.

For each analysis, the total heterogeneity of weighted mean effect sizes ($Q_T$) was assessed (see Table 12). If $Q_T$ is significant, it indicates the variance evident in the weighted mean effect sizes is greater than would be expected by sampling error (Card, 2012). A non-significant $Q_T$ suggests a weak basis for moderation. The inconsistency in observed relationships across studies ($I^2$) was also computed for each analysis. $I^2$ indicates the percentage of total variation across studies due to heterogeneity: values of 25%, 50%, and 75% correspond to low, medium, and high heterogeneity, respectively (Higgins & Thompson, 2002). Unlike $Q_T$, $I^2$ is not adversely
influenced by the number of included studies. To ensure accuracy, the first and third author computed effect sizes independently. No discrepancies in reported effect sizes were found.

5.3. Results

5.3.1. Description of Studies

Our literature search identified 10 studies and 11 samples that contained relevant effect size data (Table 10). The total number of participants pooled across studies was 1,758. Studies were published between 2001 and 2015, and the median year of publication was 2012. Studies varied considerably. Sample size varied between 47 and 240, with a median of 152. The average percent of female participants was 65.2%; the average percent of Caucasian participants was 83.9%. The mean age of the participants at baseline was 28.4 years (SD = 10.3; range: 18.3-50.1). The time lag between assessments varied between 2 and 192.0 weeks (M = 40.04 SD = 68.7). A total of three samples contained undergraduates, one sample contained community members, two samples used psychiatric patients, two samples used medical students, one sample used depressed outpatients, and two samples contained a mix of undergraduates, graduate students, and community members. The average percent attrition was 14.5%. Perfectionism was assessed using four measures (see Table 10). Neuroticism was assessed using four measures (see Table 10). Depressive symptoms were assessed using 11 measures (Table 11).
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*Note. Time lag in weeks; COM = concern over mistakes; DAA = doubts about actions; PS = personal standards; SC = self-criticism, SOP = self-oriented perfectionism; SPP = socially prescribed perfectionism; D = depression; P = perfectionism; N = neuroticism; NA = negative affect; DAS = Weissman and Beck’s (1978) Dysfunctional Attitude Scale; DEQ-SC = Blatt, D’Afflitti, & Quinlan’s (1976) Depressive Experiences Questionnaire Self-Criticism; DEQ-SF-SC = Depressive Experiences Questionnaire Self-Criticism Short Form (see Bagby, Parker, Joffe, & Buis, 1994); FMPS = Frost et al.’s (1990) Multidimensional Perfectionism Scale; FMPS-SF = Frost’s Multidimensional Perfectionism Scale Short Form (see Cox, Enns, & Clara, 2002); HFMPS = Hewitt and Flett’s (1991) Multidimensional Perfectionism Scale; HFMPS-SF = Hewitt and Flett’s Multidimensional Perfectionism Scale Short Form (see Hewitt, Habke, Lee-Baggely, Sherry, & Flett, 2008); BFI = Benet-Martinez and John’s (1998) Big Five Inventory; IPIP = Donnellan, Oswald, Baird, and Lucas’ (2006) Mini International Personality Inventory; NEOFFI = Costa and McCrae’s (1992a) NEO Five-Factor Inventory; NEOPIR = Costa and McCrae’s (1992b) Revised NEO Personality Inventory; aPsychiatric patients bMedical students cUndergraduates dUndergraduates, graduate students, and community members
Table 11. Relationships between perfectionism dimensions, neuroticism, and depressive symptoms

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### Table 1: Correlations Between Perfectionist Attitudes, Personal Standards, and Depression

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### References

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<td>.47</td>
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**Note.** COM = concern over mistakes; DAA = doubts about actions; PA = perfectionistic attitudes; PS = personal standards; SC = self-criticism; SOP = self-oriented perfectionism; SPP = socially prescribed perfectionism; N = neuroticism; x₁ = baseline variable; x₂ = follow-up variable; x₁/x₂ = bivariate correlation between baseline variables; COM₁→DEP₂ = standardized beta for concern over mistakes predicting follow-up depressive symptoms (controlling for baseline depressive symptoms, neuroticism); N₁→DEP₂ = standardized beta for neuroticism predicting follow-up depressive symptoms (controlling for baseline depressive symptoms, concern over mistakes); DEP₁→DEP₂ = standardized beta for depressive symptoms predicting follow-up depressive symptoms (controlling for baseline neuroticism, concern over mistakes). D = depression; NA = negative affect; BDI = Beck, Ward, & Mendelson’s (1961) Beck Depression Inventory; BDI-SF = Beck and Beck’s (1972) short form of Beck et al.’s (1961) Beck Depression Inventory; CES = Radloff’s (1977) Center for Epidemiological Studies Scale; CES-SF = Radloff’s (1977) Center for Epidemiological Studies Scale Short Form; DACLG = Lubin’s (1965) Depression Adjective Checklist Form G; DACLE = Lubin’s (1965) Depression Adjective Checklist Form E. DASS = Lovibond and Lovibond’s (1995) Depression, Anxiety, and Stress Scales; HAM-D = Hamilton’s (1960) Hamilton Depression Rating Scale; LIFEPSPCR = Keller et al.’s (1987) Longitudinal Interval Follow-up Evaluation; PAI = Morey’s (1991) Personality Assessment Inventory; PANAS = Watson et al.’s (1988) Positive and Depressive Affect Scale; POMS = McNair et al.’s (1992) Profile of Mood States; SCL90R = Derogatis and Lazarus’ (1994) Symptom Checklist-Revised
5.3.2. Overall Effect Sizes

The weighted mean effect sizes between perfectionism at baseline and depressive symptoms at follow-up, while controlling for neuroticism and depressive symptoms at baseline, are reported in Table 12. Following Cohen’s (1992) guidelines for small, medium, and large effect sizes ($r = .10, .30, .50$, respectively), all longitudinal perfectionism-depression effects were small in magnitude. For socially prescribed perfectionism, a positive effect ($\beta = .13, p < .001$) was observed between socially prescribed perfectionism at baseline and depressive symptoms at follow-up, while controlling for neuroticism and depression at baseline. In this regard, a positive effect ($\beta = .10, p < .001$) was found for concern over mistakes, a positive effect ($\beta = .13, p < .001$) was found for doubts about actions, a positive effect was found for self-criticism ($\beta = .12, p = .027$), a positive effect ($\beta = .08, p = .018$) was found for self-oriented perfectionism ($\beta = .08, p = .018$), a positive effect was found for personal standards ($\beta = .10, p = .003$), and a positive effect ($\beta = .24, p < .001$) was found for perfectionistic attitudes. Results suggest all perfectionism dimensions confer vulnerability to depressive symptoms, even after removal of variance attributable to baseline depressive symptoms and baseline neuroticism.

Additionally, all weighted mean effect sizes corresponding to perfectionism dimensions effects on follow-up depression had non-significant $Q_t$ values and $I^2$ estimates of 0.0% (see Table 12). This suggests the assumption of homogeneity should be retained and indicates common study effects (Card, 2012). The non-significant $Q$ values also indicate differences in relevant effect sizes were not greater than would be expected on the basis of sample variation alone. This may be an artifact of the small sample sizes of five of the included studies (e.g., Békés et al., 2015). In addition, the percentage of total variance due to true heterogeneity (i.e., $I^2$) was consistently small, suggesting that variability amongst effect sizes was not due to additional
sources and suggests a weak basis for testing the influence of potential moderating factors (Card, 2012).

After controlling for concern over mistakes, doubts about actions, and socially prescribed perfectionism, as well as baseline depressive symptoms and baseline neuroticism, the effect of personal standards on follow-up depressive symptoms was non-significant ($\beta = .02, p = .504$). Likewise, a similar pattern was observed for self-oriented perfectionism ($\beta = .00, p = .930$).

Detailed statistics regarding the effects of personal standards and self-oriented perfectionism on follow-up depressive symptoms after controlling for baseline depressive symptoms, baseline neuroticism, baseline concern over mistakes, baseline doubts about actions, and baseline socially prescribed perfectionism are presented in Supplemental Material A. Additionally, while outside the scope of the present paper, the effects of concern over mistakes, personal standards, self-oriented perfectionism and socially prescribed perfectionism on follow-up depressive symptoms, after controlling for conscientiousness, are available in Supplemental Material B.

### Table 12. Summary of effect sizes for the relationship between perfectionism dimensions, neuroticism, and depressive symptoms

<table>
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<tr>
<th>Variable</th>
<th>$k$</th>
<th>$N$</th>
<th>$r^2$</th>
<th>95% CI</th>
<th>$Q_T$</th>
<th>$F^2$ (%)</th>
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<td>[.13, .25]</td>
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Empirical studies and theoretical accounts suggest perfectionism is a vulnerability factor for depressive symptoms (Békés et al., 2015; Graham et al., 2010; Hewitt et al., 1996; Joiner & Schmidt, 1995). It is unclear, however, the extent to which this relationship persists after controlling for the compelling covariate of neuroticism. Prior studies have shown that when measures of depressive symptoms are highly saturated with items assessing negative emotionality, depressive symptoms’ relation with vulnerability factors (e.g., perfectionism) will be largely explained by shared variance with neuroticism (Dunkley, Blankstein, & Flett, 1997; Zuroff et al., 2004). Accordingly, this renders the present meta-analytic review of the extant experiments relatively weak.
empirical literature examining if perfectionism dimensions continue to predict change in depressive symptoms after controlling for baseline neuroticism a particularly stringent test of the perfectionism-depressive symptoms link.

In our meta-analysis of ten longitudinal studies comprised of undergraduate, community member, psychiatric patient, outpatient, and medical student samples, neuroticism was the strongest predictor of change in depressive symptoms. Even so, all seven perfectionism dimensions still predicted changes in depressive symptoms beyond neuroticism. Findings lend credence and coherence to research and theories suggesting perfectionism dimensions are part of the premorbid personality of people vulnerable to depressive symptoms (e.g., Békés., 2015; Dunkley et al., 2003; Flett et al., 1995; Hewitt & Flett, 1993; Hewitt et al., 1996).

5.4.1. Perfectionistic Concerns

Consistent with hypotheses, socially prescribed perfectionism, concern over mistakes, doubts about actions, self-criticism, and perfectionistic attitudes add incrementally to understanding change in depressive symptoms beyond neuroticism. Effects were small in magnitude across a wide range of samples, methods, and measures. Results suggest perfectionistic concerns constructs are lower-order personality traits neither redundant with nor captured by neuroticism. As prior research suggests, people high in perfectionistic concerns appear to think, feel, and behave in ways that have depressogenic consequences (Graham et al., 2010). Such people believe others hold lofty expectations for them, and often feel incapable of living up to the perfection they perceive that others demand. They may agonize about perceived failures and have doubts about performance abilities because they experience their social world as judgmental, pressure-filled, and unyielding. Perfectionistic concerns also appear to be comprised of stable, underlying traits that trigger depressive symptoms by predisposing people to the frequent subjective experience of disappointing others (Sherry et al., 2014). Additionally,
consistent with the diathesis-stress model, perfectionistic concerns predict heightened depressive symptoms by predisposing people to perceive interpersonal stressors as more ego-involving and distressing (Békés et al., 2015; Hewitt & Flett, 1993; 2002).

### 5.4.2. Perfectionistic Strivings

Does personal standards and self-oriented perfectionism protect against depressive symptoms? Our meta-analysis offers a resounding “no” to this question. Findings from our meta-analysis are incongruent with a view of perfectionistic strivings constructs as resiliency factors that protect against increases in depressive symptoms (Enns et al., 2005). An over-reliance on cross-sectional studies may have clouded the nature of the perfectionism-depressive symptoms relationship, resulting in inconsistencies in the literature concerning the consequences of this trait. In particular, according to the diathesis-stress model of perfectionism, perfectionistic strivings only promotes depressive symptoms in the presence of ego-threatening stressors, such as achievement failures (e.g., poor performance on an exam; Békés et al., 2015; Enns & Cox, 2005). This might render the deleterious effects of perfectionistic strivings on depressive symptoms elusive when assessed at only a single time point.

Additionally, our findings dovetail with past theoretical accounts, case histories, and empirical studies. In fact, clinicians have long described perfectionistic strivings as a “Trojan horse,” whereby self-concealment and perfectionistic self-presentation mask perfectionistic strivings’ depressogenic effects (see Blatt, 1995). Our results complement studies showing that perfectionistic strivings’ rob people of satisfaction and positive affect (Hewitt & Flett, 1991) and amplify the risk of suicide (Blatt, 1995; Flett, Hewitt, & Heisel, 2014) and early mortality (Fry & Debats, 2009). Individuals with high perfectionistic strivings are only satisfied when everything in their lives suggests that they are perfect; when life events inevitably suggest they are not perfect, depressive symptoms follow.
Despite this, our findings also complement research showing perfectionistic strivings confer vulnerability for depressive symptoms through overlap with perfectionistic concerns (Stoeber & Otto, 2006). After controlling for baseline depression, baseline neuroticism, and baseline perfectionistic concerns, personal standards and self-oriented perfectionism ceased to be significant predictors of follow-up depressive symptoms. Nevertheless, we caution against over-interpretation of this finding in light of increasing apprehension that controlling for perfectionistic concerns when examining the effects of perfectionistic strivings may change the conceptual meaning of perfectionistic strivings, and may well undermine its relevance to perfectionism research (e.g., Hill, 2014; Molnar, Sadava, Flett, & Colautti, 2012; Powers, Koestner, Zuroff, Milyavskaya, & Gorin, 2011).

5.4.3. Limitations of Overall Literature

Summarizing limitations within the extant research elucidates further areas requiring examination, thereby providing direction to advance the field of study. While conducting our literature search, it became apparent that the majority of studies on the perfectionism-depressive symptoms link are cross-sectional in nature and do not take neuroticism into account. This is problematic, as cross-sectional studies fail to address temporal precedence, and thus are incapable of evaluating the extent to which perfectionism dimensions predict change in depressive symptoms. Moreover, studies that neglect to control for neuroticism run the risk of drawing erroneous conclusions due to the substantial overlap between perfectionism dimensions and the “third-variable” neuroticism (Dunkley et al., 2012; Enns et al., 2005). Given the importance of assessing constructs longitudinally, and extensive evidence suggesting perfectionism, neuroticism, and depressive symptoms are highly correlated (Dunkley et al., 2012; Enns et al., 2005; Graham et al., 2010), researchers in the area are advised to move forward by using longitudinal designs that control for neuroticism.
Moreover, the vast majority of research on the perfectionism-depressive symptom link relies on mono-source designs (cf. Flett, Besser, & Hewitt, 2005; Sherry et al., 2013). Mono-source designs are problematic when studying personality traits such as perfectionism that can involve self-presentational biases (e.g., defensively concealing imperfections from others; Klonsky & Oltmanns, 2002). Future studies can advance the literature by using alternative methods of data collection (e.g., informant reports; Sherry, Nealis et al., 2013). Finally, as five of the ten studies included in our meta-analysis had sample sizes below 150, the present research suggests many longitudinal perfectionism studies are underpowered. Researchers are advised to move forward by using sample sizes large enough to detect small to moderate effects.

5.4.4. Limitations of the Present Study and Future Directions

Certain limitations in extant literature translate into limitations in the present meta-analysis. In this regard, studies from only three research teams met our inclusion criteria, limiting investigator variability. Also, while the effects of five perfectionistic concern dimensions were tested in the current meta-analysis, only two perfectionistic striving dimensions were included (self-oriented perfectionism and personal standards). It is, therefore, likely that perfectionistic concerns captured a more comprehensive construct, thereby limiting our ability to accurately compare the contributions of perfectionistic concerns and perfectionistic strivings. Furthermore, seven of the ten studies included used a short-form, opposed to a long-form, measure of neuroticism. A richer, more fine-grained analysis of the longitudinal effects of perfectionism on depressive symptoms beyond neuroticism’s six lower order facets is needed. Also, findings derived from the current meta-analysis may have limited generalizability beyond the specific set of samples included. Additionally, future research should also explore the extent to which perfectionism dimensions are vulnerability factors for other forms of emotional distress such as anger and anxiety. Finally, the predictive utility of perfectionism in the present meta-analysis
was likely understated due to not accounting for life stressors, which consistent with a diathesis-stress model, may need to be present for perfectionism’s role as a vulnerability factor to become evident (Hewitt & Flett, 1993; 2002).

5.4.5. Concluding Remarks

The present meta-analysis of 10 longitudinal studies (involving 11 samples and 1,758 participants) represents the most comprehensive test to date of the perfectionism-depressive symptoms relationship. Results add substantively to the perfectionism and depression literature by synthesizing existing research to demonstrate that all perfectionism dimensions predict change in depressive symptoms beyond neuroticism. Findings support past evidence suggesting perfectionistic concerns and perfectionistic strivings comprise lower-order personality traits that place individuals at risk for experiencing depressive symptoms. In sum, our meta-analysis sheds light on the experiences of people with high levels of perfectionism, highlighting the importance of developing ways of intervening when people feel they must meet the perfectionistic expectations of themselves and others.
5.5. References

References marked with an asterisk indicate studies included in the meta-analysis.


neuroticism: A longitudinal study of middle-aged community-dwelling women. 

*Personality and Individual Differences, 69, 1-4.*


*Psychological Bulletin, 130*, 489-511
CHAPTER SIX: EXPANDING THE SOCIAL DISCONNECTION MODEL

6. Abstract

The perfectionism social disconnection model (PSDM) asserts socially prescribed perfectionism confers risk for depression by eroding social self-esteem. However, self-oriented perfectionism and other-oriented perfectionism are neglected in extant tests of the PSDM. Moreover, the PSDM attributes the source of depression to dispositional characteristics without considering interpersonal contexts. We expanded and tested the PSDM in 218 mother-daughter dyads using a daily diary design with longitudinal follow-up. Daughters completed measures of self-oriented and socially prescribed perfectionism (Wave 1), social self-esteem (Wave 2), and depression (Wave 1 and Wave 3). Mothers completed a measure of other-oriented perfectionism (Wave 1). Daughters’ socially prescribed and self-oriented perfectionism, and mothers’ other-oriented perfectionism, conferred vulnerability to daughters’ depression by lowering daughters’ social self-esteem.

6.1. Introduction

Perfectionism confers risk for depressive symptoms (Dunkley Sanislow, Grillo, & McGlashan, 2006; Shahar, Blatt, Zuroff, & Pilkonis, 2003; Smith et al., 2016). But why do perfectionists get depressed? The perfectionism social disconnection model (PSDM; Hewitt, Flett, Sherry, & Caelian, 2006) offers one compelling explanation—perfectionism impedes participating in and benefiting from close relationships, which in turn places perfectionists at risk for depressive symptoms (Sherry, Mackinnon, & Gautreau, 2016). Extant evidence supports the PSDM. Shahar, Blatt, Zuroff, Krupnick, and Sotsky (2004) studied patients receiving treatment for depression and found baseline perfectionism reduced the quality of the patient’s social network, impaired the patient-therapist alliance, and slowed reductions in post-treatment depression. Similarly, Dunkley and colleagues (2006) reported decreased social support and
increased negative social interactions accounted for the perfectionism-depressive symptom link. Likewise, other forms of social disconnection mediate the perfectionism-depressive symptom link including interpersonal discrepancies (Sherry et al., 2013), communication styles (Barnett & Johnson, 2016), and personality dependent interpersonal stressors (Békés et al., 2015; Cox, Clara, & Enns, 2009; Flett, Besser, & Hewitt, 2014).

However, there are still major gaps in our understanding of the perfectionism-depression link. Research on the PSDM omits self-oriented and other-oriented perfectionism (e.g., Barnett & Johnson, 2016; Sherry, Law, Hewitt, Flett, & Besser, 2008). And research on perfectionism and depressive symptoms typically focus on dispositional characteristics (e.g., perfectionistic traits)—without considering interpersonal contexts (e.g., parent-offspring relationships), despite evidence that interpersonal contexts are critically important to understanding depression (Joiner & Coyne, 1999). We addressed these limitations by extending and by testing the PSDM in a sample of mother-daughter dyads using a daily diary design with longitudinal follow-up.

6.1.1. The Perfectionism Social Disconnection Model

Hewitt and Flett (1991) conceptualized perfectionism as a multidimensional personality trait composed of three dimensions: self-oriented perfectionism (demanding perfection of oneself), other-oriented perfectionism (demanding perfection of others), and socially prescribed perfectionism (perceiving others as demanding perfection). For people high on socially prescribed perfectionism a sense of being accepted by and liked by others is elusive (Mackinnon et al., 2011). And if, as Moretti and Higgins (1999) assert, we have an internal audience that includes intrapsychic representations of other people’s opinions and expectations, then individuals with elevated socially prescribed perfectionism see their inner audience as disgruntled (Sherry et al., 2013). Indeed, establishing meaningful connections to others is difficult for people high on socially prescribed perfectionism, as other’s love, approval, and
acceptance are judged as forthcoming only if they achieve perfect outcomes (Hewitt & Flett, 1991; Hewitt et al., 2006). In sum, according to the PSDM, socially prescribed perfectionism generates feelings of being rejected and disliked by other people (i.e., low social self-esteem), which subsequently contributes to depressive symptoms (Hewitt et al., 2006). And the PSDM views socially prescribed perfectionism as the perfectionism dimension that leaves people most vulnerable to depression (Flett, Hewitt, & De Rosa, 1996; Hewitt et al., 2006). However, though clearly appropriate to accord socially prescribed perfectionism a prominent role in the PSDM, there is also an important role for self-oriented and other-oriented perfectionism in understanding perfectionists’ interpersonal difficulties and depressive symptoms (Sherry et al., 2016).

6.1.2. Expanding the PSDM: A Role for Self-Oriented Perfectionism

Compared to socially prescribed perfectionism, self-oriented perfectionism shows weaker associations with depressive symptoms (Smith et al., 2016). But self-oriented perfectionism still confers risk for depression across a wide range of populations (Hewitt & Flett, 1993; Smith et al., 2016). And, like socially prescribed perfectionism, self-oriented perfectionism is linked to low social self-esteem among female undergraduates (Blankstein, Dunkley, & Wilson, 2008; Sherry & Hall, 2009). Indeed, theory suggests self-oriented perfectionism leads to an imbalanced life wherein self-definition trumps relatedness (Sherry et al., 2016).

Specifically, relentlessly pursuing agentic goals, at the expense of communal goals, causes people with elevated self-oriented perfectionism to miss or to ignore chances for close relationships (Hewitt et al., 2006; Sherry et al., 2016). Likewise, people high on self-oriented perfectionism are overly competitive, which manifests in a win-at-all-costs interpersonal style (Sherry et al., 2016). As such, individuals high on self-oriented perfectionism have a self-preservation orientation in which competition, beating others, and being the absolute best are paramount (Flett, Hewitt, Blankstein, & Gray, 1998; Sherry, Hewitt, Flett, Lee-Bagley, & Hall,
Hence, for people high on self-oriented perfectionism, other people are seen more as potential competitors than as potential collaborators (Sherry et al., 2016).

Similarly, for individuals with high self-oriented perfectionism, their sense of self-worth is contingent on achieving perfection (Struman, Flett, Hewitt, & Rudolph, 2009). Thus, people with elevated self-oriented perfectionism seek out others’ acceptance and approval by doggedly striving to meet self-imposed perfectionistic goals. However, perfection is intangible, fleeting, and rare. Thus, individuals with elevated self-oriented perfectionism experience a high frequency of perceived failures and a low frequency of perceived successes. Accordingly, after repeatedly falling short of their self-imposed perfectionistic goals, people high on self-oriented perfectionism often feel deficient in the eyes of others (Sherry et al., 2016). Drawing on Horney (1950), we can say individuals high on self-oriented perfectionism move away from other people due to their hyper-focus on agentic achievement, their neglect of communal goals, and their precarious sense of self-worth (Sherry et al., 2016; Struman et al., 2009).

6.1.3. Expanding the PSDM: A Role for Other-Oriented Perfectionism

Whereas self-oriented perfectionists move away from other people, other-oriented perfectionists move against other people (Horney, 1950). In fact, individuals with high other-oriented perfectionism denigrate others, are continually disappointed by others, and are perpetually in conflict with others (Hewitt & Flett, 1991; Sherry et al., 2016). However, other-oriented perfectionism shows inconsistent associations with depressive symptoms (Chen, Hewitt, & Flett, 2017). And theory suggests, for people high on other-oriented perfectionism, their tendency to externalize blame buffers against depressive symptoms (Chen et al., 2017).

Even so, the recipients of perfectionistic demands appear to suffer more than the originators of perfectionistic demands (Sherry et al., 2016; Smith et al., 2017). For instance, Hewitt, Flett, and Mikail (1995) found spouses of people with high other-oriented perfectionism
had greater marital distress, whereas the partner high on other-oriented perfectionism was not themselves affected. Likewise, Smith and colleagues (2017) reported other-oriented perfectionism in influencers (mothers, fathers, romantic partners, and friends) predicted socially prescribed perfectionism in targets, which subsequently contributed to targets’ stress. Thus, although individuals with high other-oriented perfectionism do not themselves suffer greater distress, evidence indicates they distress the people closest to them (Hewitt et al., 1995; Nealis, Sherry, Sherry, Stewart, & Macneil, 2015; Smith et al., 2017). In fact, being harshly judged vis-à-vis another person’s unobtainable standards may lead people to feel rejected by and disliked by others (i.e., low social self-esteem), which in turn triggers depressive symptoms (Sherry et al., 2016). And yet, although plausible, this contention is untested to date.

6.1.4. Testing the Expanded PSDM using Mother-Daughter Dyads

Against this background, we tested an often discussed (Blatt, 1995; Bruch, 1971; Sherry et al., 2016), but rarely studied, idea—depressive symptoms in daughters arise not only from socially prescribed perfectionism, but also self-oriented perfectionism and exposure to critical, pressuring, and demanding mothers. We focused on daughters since, from adolescence onward, women are twice as likely to be depressed (Mead, 2002). Furthermore, Blankstein, Dunkley, and Wilson (2008) found perfectionistic strivings, a composite of self-oriented perfectionism and personal standards, correlated negatively with social self-esteem among female, but not male, undergraduates. Moreover, daughters appear to become perfectionistic in response to criticism, pressure, and demands from mothers (Besser & Priel, 2005; Clark & Coker, 2009; Flett, Hewitt, Oliver, & Macdonald, 2002; Flett, Hewitt, & Singer, 1995; Soenens, Elliot, Goossens, Vansteenkiste, Luyten, & Duriez, 2005). And, maternal criticism, maternal pressure, and maternal demands are tied to depressive symptoms in daughters (Gibb, Uhrlass, Grassia, Benas,
6.1.5. The Present Study

We expanded and tested the PSDM to provide an integrative theoretical framework explaining why daughters’ socially prescribed perfectionism, daughters’ self-oriented perfectionism, and mothers’ other-oriented perfectionism confer risk for depressive symptoms in daughters. Given the rank-order stability of depressive symptoms (Prenoveau et al., 2011), we hypothesized depressive symptoms would display moderately-to-strongly stable autoregressive paths (e.g., depressive symptoms at Wave 1 predicting depressive symptoms at Wave 3). We controlled for baseline depressive symptoms to examine change in depressive symptoms, and because future depressive symptoms are strongly predicted by past depressive symptoms (Judd, Schettler, & Akiskal, 2002). Moreover, depressive symptoms predict social self-esteem (Orth & Robins, 2013), making it necessary to test if social self-esteem is predicted by perfectionism and not merely a complication of daughters’ depressive symptoms. We focused on low social self-esteem because this form of social disconnection is key to the phenomenology of perfectionists, with evidence suggesting such feelings of disharmony with, and exclusion from others, are common daily experiences for perfectionists (Sherry & Hall, 2009).

Additionally, among female undergraduates, socially prescribed perfectionism and self-oriented perfectionism display negative associations with social self-esteem (Blankstein et al., 2008; Flett et al., 1996; Sherry & Hall, 2009) and positive associations with depressive symptoms (Mushquash & Sherry, 2012; Sherry, Hewitt, Flett, & Harvey, 2003; Smith et al., 2016). Likewise, other-oriented perfectionism in one person contributes to distress in another person (Haring, Hewitt, & Flett, 2003; Hewitt & Flett, 1993; Hewitt et al., 1995; Smith et al., 2017). Hence, we also hypothesized daughters’ socially prescribed perfectionism, daughters’ self-oriented perfectionism, and mothers’ other-oriented perfectionism would predict increased
depressive symptoms in daughters’ (Wave 3) via negative associations with daughters’ social self-esteem (Wave 2). Regarding the anticipated indirect effect of daughters’ socially prescribed perfectionism, a similar hypothesis was supported in Mackinnon et al. (2011) and Sherry and Hall (2009). Conversely, although informed by case histories (Bruch, 1971), theoretical models (Sherry et al., 2016), and recent findings (Smith et al., 2016, 2017), the indirect effects of daughters’ self-oriented perfectionism and mothers’ other-oriented perfectionism were considered more exploratory given that our study is the first to test these specific predictions.

Lastly, we aimed to methodologically advance research on perfectionism and depressive symptoms. Typically, cross-sectional designs are used to study the perfectionism-depressive symptoms link (e.g., Flett, Besser, & Hewitt, 2005). However, cross-sectional designs cannot address directionality, and there are advantages to other designs. Longitudinal designs can take baseline levels of outcome variables into account and allow for stronger causal inferences. Daily diary designs have improved reliability via repeated assessments and have increased ecological validity while reducing recall bias (Laurenceau & Bolger, 2005). Even so, most daily diary studies on perfectionism (e.g., Sherry, Sherry, et al., 2014) rely on a once-daily reporting schedule, which increases the chance of recall bias relative to using multiple daily reports. Accordingly, to overcome these limitations, we combined a daily diary approach, assessing daughters twice daily, with a longitudinal follow-up.

6.2. Method

6.2.1. Participants

In line with the rules of thumb for sample sizes proposed by dyadic researchers (e.g., Kenny, Kashy, & Cook, 2006), we recruited 218 mother-daughter dyads to test our model (see Figure 1). Mothers had a mean age of 50.1 years ($SD = 4.9$). Most mothers were Caucasian (91.7%) and lived in Canada (84.4%). Daughters averaged 20.0 years of age. The majority of
daughters were Caucasian (89.9%), lived in Canada (94.0%), and were from family households that earned more than $60,000 per year (75.6%). On average, daughters were enrolled in their second year of university ($M = 2.1$, $SD = 1.2$). Additionally, on average, mothers and daughters emailed each other 2.3 times per week ($SD = 4.3$), texted each other 4.0 times per week ($SD = 2.6$), spoke on the phone 3.7 times per week ($SD = 2.3$), and saw each other in person 2.5 times per week ($SD = 3.0$). Some daughters lived with their mothers (21.2%) while other daughters lived in the same state/province (29.5%) or country (45.0%). The remaining daughters (3.7%) lived in a different country than their mothers or did not indicate their proximity to their mothers (0.6%).

6.2.2. Measures

6.2.2.1. Other-Oriented Perfectionism

Other-oriented perfectionism in mothers was measured at Wave 1 using Hewitt and Flett’s (1990) 8-item Other-Oriented Perfectionism Scale (OOP-90; “I think less of people I know when they make mistakes”). The OOP-90 is rated on a 7-point scale from 1 (strongly disagree) to 7 (strongly agree). Stoeber (2014) reported the OOP-90 is strongly correlated ($r = .58$) with the Multidimensional Perfectionism Scale other-oriented perfectionism subscale (MPS-OOP; Hewitt & Flett, 1991). We used the OOP-90 as this measure captures the tendency to require perfection of others in a critical, pressuring, and demanding way (Nealis et al., 2015). The OOP-90 has demonstrated good reliability and validity (e.g., Hewitt & Flett, 1990; Nealis et al., 2015; Stoeber, 2014, 2015).

6.2.2.2. Socially Prescribed Perfectionism

Daughters’ socially prescribed perfectionism was measured at Wave 1 using the 5-item short-form of Hewitt and Flett’s (1991) Multidimensional Perfectionism Scale socially prescribed perfectionism subscale (MPS-SF-SPP; Hewitt, Habke, Lee-Bagley, Sherry, & Flett,
2008; “Others expect nothing less than perfection from me”). The 5-item MPS-SF-SPP is strongly correlated with the original 15-item subscale \( r = .90; \) Hewitt et al., 2008. The MPS-SF-SPP is rated on a 7-point scale from 1 (strongly disagree) to 7 (strongly agree) and has shown good reliability and validity (e.g., Smith et al., 2017; Stoeber, in press).

6.2.2.3. Self-Oriented Perfectionism

Daughters’ self-oriented perfectionism was measured at Wave 1 using the 5-item short-form of Hewitt and Flett’s (1991) Multidimensional Perfectionism Scale self-oriented perfectionism subscale (MPS-SF-SOP; “It is very important that I am perfect in everything I attempt;” Hewitt et al., 2008). The MPS-SF-SOP is strongly correlated with the original 15-item subscale \( r = .91; \) Hewitt et al., 2008. The MPS-SF-SOP is rated on a 7-point scale from 1 (strongly disagree) to 7 (strongly agree). Research supports the reliability and validity of the MPS-SF-SPP (e.g., Smith et al., 2017; Stoeber, in press).

6.2.2.4. Social Self-Esteem

Daughters’ social self-esteem was measured at Wave 2 using the 4-item short-form of Heatherton and Polivy’s (1991) State Self-Esteem Scale social self-esteem subscale (SSES-SF-SSE; “I was worried about looking like a fool;” Sherry & Hall, 2009). Sherry and Hall (2009) constructed the SSES-SF-SSE by selecting the four highest loading items from the original 7-item scale (see p. 898 of Heatherton & Polivy, 1991). The SSES-SF-SSE is strongly correlated with the original 7-item subscale \( r = .77; \) Sherry & Hall, 2009). Daughters’ responded to SSES-SF-SSE using a 5-point scale from 1 (not at all) to 5 (extremely). The SSES-SF-SSE has shown good psychometric properties (e.g., Sherry & Hall, 2009; Mackinnon et al., 2011).

6.2.2.5. Depressive Symptoms

Daughters’ depressive symptoms were measured at Wave 1 and Wave 3 using the 10-item short-form of Radolff’s (1977) Center for Epidemiological Studies Depression Scale (CES-
EXPANDING THE SOCIAL DISCONNECTION MODEL

D-SF; “I felt depressed;” Cole, Rabin, Smith, & Kaufman, 2004). The CESD-SF is rated on a 4-point scale from 0 (rarely or none of the time) to 3 (most or all of the time) and is strongly correlated with the original 20-item subscale ($r = .94$; McGrath et al., 2012). The CES-D-SF also has shown good reliability and validity, with psychometric properties that compare favorably with the original 20-item subscale (McGrath et al., 2012).

6.2.3. Procedure

The second author’s research ethics board approved our study. Daughters were recruited via ads posted in the Department of Psychology’s participant pool as well as flyers posted around campus. Daughters were asked to provide contact information for a maternal figure (i.e., an adult woman in a maternal caretaking role, hereafter referred to as “mother”). Mothers included biological mothers (96.8%), adoptive mothers (1.4%), grandmothers (0.4%), aunts (0.4%), and guardians (1.0%). At Wave 1, daughters completed measures of socially prescribed perfectionism, self-oriented perfectionism, and depressive symptoms. Likewise, at Wave 1 mothers completed an online measure of other-oriented perfectionism. Daughters began Wave 2 one week after Wave 1 and completed an online measure of social self-esteem twice daily (eight hours after waking and just before going to bed). Daughters were sent reminder emails twice a day to complete their online surveys. Wave 3 began one week after Wave 2 and daughters’ completed a follow-up depressive symptoms questionnaire in our laboratory. Daughters were compensated either $25 or $10 and three credit points towards a psychology class.

6.2.4. Data Analytic Strategy

We performed a missing value analysis, calculated descriptive statistics, and conducted tests of multivariate normality. Daughters’ social self-esteem at Wave 2 was aggregated from the daily diary data for subsequent analyses. Our model (see Figure 1) was evaluated with path analysis using Mplus 7.2 (Muthén & Muthén, 1998-2012). The significance of direct and indirect
effects was evaluated using bias-corrected bootstrapping with 20,000 resamples (Shrout & Bolger, 2002). If the 90% confidence interval for an indirect effect does not contain 0 within its lower and upper bounds, it suggests mediation (Efron & Tibshirani, 1994).

6.3. Results

6.3.1. Compliance with Protocol and Missing Data Analysis

Of the 218 daughters that completed Wave 1, 99.1% completed Wave 2 and 99.5% completed Wave 3. During Wave 2, daughters completed 2575 entries. Out of 14 possible daily diary entries, most daughters submitted 12 ($M = 11.81$, $SD = 2.54$); 52 entries were excluded as they were completed within 2 hours of each other. In total, 2523 diaries (98.0%) were retained. Response rates were high, ranging from a low of 85.3% on Day 7 to a high of 96.1% on Days 2 and 3. Wave 3 occurred approximately 21 days after Wave 1 ($M = 21.5$, $SD = 2.1$). Only 0.5% to 1.4% of data were missing across all three waves. Little’s (1988) missing completely at random (MCAR) test was nonsignificant, $\chi^2 (37, N = 218) = 37.38$, $p = .45$, suggesting our data were MCAR. Thus, missing data were handled using full information maximum likelihood.

6.3.2. Descriptive Statistics

Means, standard deviations, Cronbach’s alpha, and bivariate correlations are in Table 1. Following Cohen’s (1992) guidelines from small, medium, and large effects ($r = .10, .30, .50$, respectively), daughters’ socially prescribed perfectionism (Wave 1), daughters’ self-oriented perfectionism (Wave 1), daughters’ depressive symptoms (Wave 1), and mothers’ other-oriented perfectionism (Wave 1) displayed small-to-moderate negative associations with daughters’ social self-esteem (Wave 2). And daughters’ social self-esteem (Wave 2) displayed a large negative association with daughters’ follow-up depressive symptoms (Wave 3).
Table 13. Means, standard deviations, alpha reliabilities, and bivariate correlations

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Daughters’ socially prescribed perfectionism (wave 1)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>2. Daughters’ self-oriented perfectionism (wave 1)</td>
<td>.46***</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3. Daughters’ depressive symptoms (wave 1)</td>
<td>.29***</td>
<td>.08</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>4. Mothers’ other-oriented perfectionism (wave 1)</td>
<td>.22**</td>
<td>.14*</td>
<td>.06</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>5. Daughters’ social self-esteem (wave 2)</td>
<td>-.39***</td>
<td>-.33***</td>
<td>-.47***</td>
<td>-.21**</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>6. Daughters’ depressive symptoms (wave 3)</td>
<td>.23***</td>
<td>.11</td>
<td>.68***</td>
<td>.18**</td>
<td>-.53***</td>
<td>—</td>
</tr>
<tr>
<td>Mean</td>
<td>3.78</td>
<td>4.70</td>
<td>1.82</td>
<td>1.69</td>
<td>1.87</td>
<td>4.70</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>1.36</td>
<td>1.22</td>
<td>0.52</td>
<td>0.64</td>
<td>0.74</td>
<td>1.22</td>
</tr>
<tr>
<td>Alpha reliabilities (α)</td>
<td>.84</td>
<td>.88</td>
<td>.82</td>
<td>.92</td>
<td>.85</td>
<td>.88</td>
</tr>
</tbody>
</table>

Note. Missing data were handled using full information maximum likelihood (N = 218).
*p < .05; **p < .01; ***p < .001.

6.3.3. Path Analysis

As expected, the auto-regressive path between daughters’ depression at Wave 1 and daughters’ depression at Wave 3 was highly stable: $B = 0.61$, $\beta = .57$ (90% CI: .458 to .664), $SE = .05$. Likewise, as hypothesized, after controlling for baseline depression, daughters’ socially prescribed perfectionism ($B = 0.02$, $\beta = .04$ [90% CI: .010 to .089], $SE = .01$) and self-oriented perfectionism ($B = 0.02$, $\beta = .05$ [90% CI: .023, .115], $SE = .01$), as well as mothers’ other-oriented perfectionism ($B = 0.03$, $\beta = .03$ [90% CI: .002, .082], $SE = .01$), were indirectly associated with daughters’ depression at Wave 3 via lower social self-esteem at Wave 2 (see Figure 7). Similarly, when we tested the same model, but with daughters’ socially prescribed perfectionism and self-oriented perfectionism aggregated, results provided the same substantive implications.\(^2\)

\(^2\)Daughters’ aggregated socially prescribed and self-oriented perfectionism were indirectly associated with depression at Wave 3, via lower social self-esteem at Wave 2: $B = .04$, $\beta = .08$ [90% CI: .04, .14], $SE = .03$. Mothers’ other-oriented perfectionism was indirectly associated with daughters’ depression at Wave 3, via lower social self-esteem at Wave 2: $B = .09$, $\beta = .03$ [90% CI: .001, .080], $SE = .02$. 
Figure 6. Path model for the perfectionism social disconnection model

Note. Rectangles represent observed variables. Single-headed arrows represent hypothesized paths. Double-headed arrows represent hypothesized correlations. Significant standardized coefficients are indicated as black lines. Non-significant standardized coefficients are indicated as gray lines. The path model explained 53.1% of the variance in daughters’ depressive symptoms (Wave 3). In the interest of clarity, error terms are not displayed.

6.4. Discussion

Our daily dairy study with longitudinal follow-up conceptually and methodologically advanced understanding of the perfectionism-depressive symptom link by expanding, testing, and supporting the perfectionism social disconnection model (PSDM) in mother-daughter dyads. Whereas the original PSDM (Hewitt et al., 2006) focused on socially prescribed perfectionism and social disconnection, our reformulated PSDM highlighted the contribution of self-oriented and other-oriented perfectionism to social disconnection and depressive symptoms. Likewise, whereas the original PSDM attributed the source of depressive symptoms to dispositional characteristics alone (perfectionistic traits), our expanded PSDM also acknowledged the
contribution of interpersonal contexts (mothers’ other-oriented perfectionism). Consistent with expectations, and research (Prenoveau et al., 2011), depressive symptoms exhibited strong rank-order stability and controlling for this stability allowed us to test the role of study variables in predicting change in depressive symptoms. As hypothesized, findings supported our reformulated PSDM (see Figure 1). Daughters’ socially prescribed perfectionism, daughters’ self-oriented perfectionism, and mothers’ other-oriented perfectionism were indirectly associated with increased depressive symptoms, through social self-esteem.

6.4.1. Expanding and Testing the PSDM in Mother-Daughter Dyads

Daughters’ self-oriented perfectionism and daughters’ socially prescribed perfectionism displayed small positive correlations with mothers’ other-oriented perfectionism. This finding is congruent with research suggesting daughters become perfectionistic in response to hypercritical, pressuring, and demanding mothers (Appleton, Hall, & Hill, 2010; Besser & Priel, 2005; Clark & Coker, 2009; Cook & Kearney, 2014; Soenens et al., 2005). Likewise, daughters’ socially prescribed perfectionism and daughters’ self-oriented perfectionism displayed moderate negative associations with daughters’ social self-esteem. Thus, as with prior theory (Sherry et al., 2016) and research (Blankstein et al., 2008; Sherry & Hall, 2009), findings suggest daughters with high socially prescribed and self-oriented perfectionism are in a bind. On the one hand, they strive for other’s approval and acceptance (Hewitt et al., 2006; Struman et al., 2009). On the other hand, they perceive the opposite from others—disapproval and rejection. Indeed, for daughters’ high on socially prescribed perfectionism, feeling accepted by and liked by others is difficult as they see other people as perpetually dissatisfied (Hewitt & Flett, 1991; Hewitt et al., 2006). Likewise, for daughters’ high on self-oriented perfectionism, establishing a sense of social self-esteem is hard, as an implacable pursuit of agentic achievement leads to an imbalanced life wherein chances for close relationships are missed or ignored (Sherry et al., 2007; Sherry et al., 2016).
Furthermore, mothers’ other-oriented perfectionism displayed small negative associations with daughters’ social self-esteem. Hence, results also suggest maintaining a sense of connection with others is especially challenging for daughters with mothers high on other-oriented perfectionism.

Additionally, as hypothesized, daughters’ socially prescribed perfectionism and daughters’ self-oriented perfectionism indirectly conferred risk for depressive symptoms through lower social self-esteem. These findings complement a wider literature suggesting socially prescribed and self-oriented perfectionism encapsulate central preoccupations for and core attributes of people vulnerable to feelings of social disconnection and depressive symptoms (Hewitt et al., 2006; Smith et al., 2016). Socially prescribed and self-oriented perfectionism appear to represent uniquely important, underlying personality traits that leave daughters vulnerable to depressive symptoms by setting psychosocial conditions (e.g., low social self-esteem) wherein depressive symptoms are more likely to occur.

Likewise, consistent with hypotheses, mothers’ other-oriented perfectionism indirectly contributed to daughters’ depressive symptoms via a negative association with daughters’ social self-esteem at Wave 2. These findings indicate incorporating mother-daughter relations into the PSDM might incrementally add to our understanding of why some daughters have poor social self-esteem and why some daughters get depressed. Findings also support interpersonal models (Hewitt, Flett, & Mikail, 2017; Weissman et al., 2000), in that depressive symptoms in daughters appear to be, in part, associated with other-oriented perfectionism in mothers. That is, results are congruent with our assertion that mothers characterized by other-oriented perfectionism might make it difficult for daughters to develop a healthy view of themselves, including feeling like they are a person of value in the eyes of others (Bruch, 1979). And without a sense of being accepted by others, daughters become vulnerable to depression (Trzeniewski et al., 2006).
Considered together, our findings revealed perceiving pressure from others to be perfect (i.e., socially prescribed perfectionism), self-generated pressures to be perfect (i.e., self-oriented perfectionism) and critical, pressuring, and demanding mothers (i.e., mothers’ other-oriented perfectionism) were associated with daughters’ feeling rejected, deficient, and excluded—feelings that are depressogenic (Baumeister, & Leary, 1995; Hewitt et al., 2006).

6.4.2. Limitations and Future Directions

Our sample involved mainly young, Caucasian, university-attending daughters and their middle-aged, Caucasian, community-dwelling mothers. Future research should test if our findings generalize to samples with more severe levels of perfectionism and depression (e.g., psychiatric samples). Similarly, future research should evaluate the extent to which our findings generalize to younger samples of mothers and daughters, as well as father-daughter, father-son, and mother-son dyads. Likewise, future research should explore familial interactions, as daughters’ socially prescribed and self-oriented perfectionism may shape interactions with mothers (see Hewitt, Flett, & Mikail, 2017). Additionally, to reduce participant burden, we used the 4-item short-form of Heatherton and Polivy’s (1991) social self-esteem subscale. Though this short-form evidenced acceptable reliability and validity in our study and in two others (Mackinnon et al., 2011; Sherry & Hall, 2009), less is known about its psychometric properties. Study variables were also measured using self-reports, which are potentially biased. Future studies might overcome this potential bias by collecting informant reports. Future research should also control for baseline levels of social self-esteem, thereby testing if changes in (and not merely the occurrence of low social self-esteem) mediates the perfectionism-depressive symptom relationship. Also, given that perfectionism and depression were measured as between-person variables, we were unable to incorporate within-person variability in social self-esteem into our model (see Preacher, Zyphur, & Zhang, 2010). Investigators could address this by including
daily measures of perfectionism and depression alongside daily measures of social self-esteem. Moreover, future research might consider using a daughter-specific measure of other-oriented perfectionism, as it is unclear the extent to which mothers’ high on other-oriented perfectionism specifically demand perfection from their daughters. Lastly, based on theory (Hewitt et al. 2006) and research (Sherry et al., 2013, 2016), we tested a specific sequence of behaviors (see Figure 1). Even so, different sequences are possible. For instance, low social self-esteem in daughters might be an antecedent of, rather than a consequence of, daughters’ socially prescribed perfectionism. Alternatively, mothers’ other-oriented perfectionism might contribute to the development of daughters’ perfectionism and depressive symptoms due to shared genetics and/or shared environmental factors.

6.4.3. Concluding Remarks

Our daily dairy study with a longitudinal follow-up provides a conceptually rich and a methodologically rigorous test of the PSDM that underscores the impact that mothers high on other-oriented perfectionism might have on daughters’ social self-esteem and depressive symptoms. As expected, daughters’ socially prescribed perfectionism, daughters’ self-oriented perfectionism, and mothers’ other-oriented perfectionism predicted increased depressive symptoms in daughters at Wave 3 via negative associations with daughters’ social self-esteem at Wave 2. Researchers and clinicians who seek to understand, assess, or treat depressed perfectionists by focusing solely on socially prescribed perfectionism may miss vital information. We encourage researchers and clinicians to consider both the characterological and the interpersonal contexts in which perfectionists get depressed.
6.5. References


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EXPANDING THE SOCIAL DISCONNECTION MODEL

*Personality, 30*, 201-212.


CHAPTER SEVEN: PERFECTIONISM AND SUICIDE

7. Abstract

Over 50 years of research implicates perfectionism in suicide. Yet the role of perfectionism in suicide needs clarification due to notable between-study inconsistencies in findings, underpowered studies, and uncertainty whether perfectionism confers risk for suicide. Objective: We addressed this by meta-analyzing perfectionism’s relationship with suicide ideation and attempts. We also tested whether self-oriented, other-oriented, and socially prescribed perfectionism predicted increased suicide ideation, beyond baseline ideation. Method: Our literature search yielded 45 studies (N = 11,747) composed of undergraduates, medical students, community adults, and psychiatric patients. Results: Meta-analysis using random effects models revealed perfectionistic concerns (socially prescribed perfectionism, concern over mistakes, doubts about actions, discrepancy, perfectionistic attitudes), perfectionistic strivings (self-oriented perfectionism, personal standards), parental criticism, and parental expectations displayed small-to-moderate positive associations with suicide ideation. Socially prescribed perfectionism also predicted longitudinal increases in suicide ideation. And perfectionistic concerns, parental criticism, and parental expectations displayed small, positive associations with suicide attempts. Conclusions: Results lend credence to theoretical accounts suggesting self-generated and socially based pressures to be perfect are part of the premorbid personality of people prone to suicide ideation and attempts. Perfectionistic strivings’ association with suicide ideation also draws into question the notion that such strivings are healthy, adaptive, or advisable.

7.1. Introduction

Suicide is a major public health concern with wide-reaching consequences. Suicide claims more lives than homicide and war combined, is the second-leading cause of death among
American adolescents, and costs the US economy $51 billion annually (Center for Disease Control and Prevention, 2015). By 2020, suicide is predicted to account for 2.4% of the global burden of disease (World Health Organization, 2012). Worldwide, 10 to 20 million people attempt suicide each year and nearly one million people complete suicide each year (World Health Organization, 2012). And each suicide seriously affects at least six people (McIntosh & Drapeau, 2014). Even so, the global suicide rate decreased 26% from 2000 to 2012, suggesting some forms of suicide are preventable (World Health Organization, 2012). Accordingly, researchers and clinicians are increasingly interested in identifying reliable markers of suicide to support prevention and intervention strategies. And although suicide is seldom attributable to any single factor, personality traits can play a very important role (Bogg & Roberts, 2004; Brezo, Paris, & Turecki, 2006). The present study focuses on one such trait—perfectionism.

The Alaska Suicide Follow-Back Study (Alaska Injury Prevention Center, 2007) helps illustrate the perniciousness of perfectionism. In this study, researchers interviewed family and friends of people who completed suicide and found 56% of decedents were described as perfectionistic (Alaska Injury Prevention Center, 2007, p. 32). Similarly, when Törnblom, Werbart, and Rydelius (2013, p. 248) conducted interviews with parents of adolescents who completed suicide, 68.1% reported their child’s “high demands and expectations”—hallmarks of perfectionism—were contributing factors. As these examples suggest, perfectionism can be pernicious. Even so, the role of perfectionism in suicide may be under-appreciated, under-recognized, and misunderstood due to notable inconsistencies in findings between studies, underpowered studies, and uncertainty whether perfectionism confers longitudinal risk for suicide ideation and attempts. We addressed these issues by conducting a rigorous, comprehensive meta-analytic review of the perfectionism-suicide relationship. In conducting this
empirical synthesis, our goal was to bring greater clarity to this important literature.

7.1.1. Conceptualizing Perfectionism

The most widely adopted conceptualizations of perfectionism are associated with two measures, both titled the Multidimensional Perfectionism Scale (Frost, Marten, Lahart, & Rosenblate, 1990, FMPS; Hewitt & Flett, 1991, MPS). Frost et al. (1990) defined perfectionism as “high standards of performance which are accompanied by overly critical evaluations of one’s behavior” (p. 450) and introduced six dimensions—concern over mistakes, doubts about actions, parental criticism, parental expectations, personal standards, and organization. Concern over mistakes involves a preoccupation with mistakes to such an extent that performance is either perfect or worthless. Doubts about actions characterize a nagging sense of doubt regarding the quality of one’s performance. Personal standards reflect setting unreasonably high personal standards and goals. Parental criticism and parental expectations encompass perceptions of one’s parents as excessively critical and holding unrealistically high expectations. Organization includes an overemphasis on order, precision, and neatness. Hewitt and Flett’s (1991) model underscored the personal and the interpersonal aspects of perfectionism and introduced three dimensions—self-oriented perfectionism (demanding perfection of oneself), other-oriented perfectionism (demanding perfection of others), and socially prescribed perfectionism (perceiving others are demanding perfection of oneself).

Other notable conceptualizations of perfectionism exist. Slaney, Rice, Mobley, Trippi, and Ashby’s (2001) Almost Perfect Scale-Revised (APS-R) conceptualizes perfectionism as having positive and negative features, with the APS-R’s discrepancy subscale reflecting a perceived gap between how one is and how one would like to be, and the APS-R’s standards subscale reflecting striving for excellence (Blasberg, Hewitt, Flett, Sherry, & Chen, 2016).
Alternatively, Beck and associates’ (Imber et al., 1990) view perfectionism as a unitary cognitive style, which we label perfectionistic attitudes. These attitudes include cognitive distortions with perfectionistic themes (e.g., black-and-white dichotomous thinking) and social difficulties with perfectionistic themes (e.g., social evaluative concerns; Sherry, Hewitt, Flett, & Harvey, 2003). Finally, Garner, Olmstead, and Polivy’s (1983) Eating Disorder Inventory (EDI) conceptualizes perfectionism as a unidimensional construct characterized by both perfectionistic standards and evaluative concerns (Sherry, Hewitt, Besser, McGee, & Flett, 2004).

7.1.2. Perfectionistic Concerns, Perfectionistic Strivings, Other Forms of Perfectionism, and Correlates of Perfectionism

The number of perfectionism dimensions makes studying perfectionism challenging. However, this challenge can be mitigated by adopting the two-factor model (e.g., Smith, Sherry, Chen, et al., 2016). This model asserts the majority of common variance among lower-order perfectionism dimensions is attributable to two higher-order factors: perfectionistic concerns and strivings (Stoeber & Otto, 2006). Perfectionistic concerns encompass a family of traits involving socially prescribed perfectionism, concern over mistakes, doubts about actions, discrepancy, and perfectionistic attitudes (Dunkley, Sanislow, Grilo, & McGlashan, 2004; Smith, Sherry, Rnic et al., 2016). In contrast, perfectionistic strivings encompass a constellation of traits involving self-oriented perfectionism and personal standards (Stoeber & Otto, 2006).

Yet the two-factor model is unable to integrate all forms of perfectionism—particularly other-oriented perfectionism. The two-factor model is also incapable of accommodating total scores. Although the use of total scores is discouraged by some (Hewitt, Flett, Besser, Sherry, & McGee, 2003), several studies use them (e.g., Chang, 2002). To deal with such issues, we refer to other-oriented perfectionism and total perfectionism scores as measured by Frost et al. (1990) and by Garner et al. (1983) as “other forms of perfectionism.” We also considered three of Frost
et al.’s (1990) six facets (parental criticism, parental expectations, and organization) as “correlates of perfectionism,” as opposed to core characteristics of perfectionism (Stoeber & Otto, 2006). Parental criticism and expectations assess childhood antecedents of perfectionism (Sherry & Hall, 2009), and organization does not appear definitional to the perfectionism construct (Frost et al., 1990). Given Cox, Enns, and Clara’s (2002) factor analytic findings, we also combined parental criticism and parental expectations to form parental perceptions.

7.1.3. Suicide Ideation and Suicide Attempts

Suicide ideation involves thoughts, intent, threats, and other non-physical actions; suicide attempts involve physical behaviors in which an individual attempts to end his or her life, but survives (Kessler, Berglund, Borges, Nock, & Wang, 2005). Research suggests suicide ideation and suicide attempts lie along a continuum, such that risk for completed suicide increases as one progresses from passive thoughts about suicide, to seriously thinking about suicide, to actively attempting suicide (Joiner, 2005). Indeed, suicide ideation, and even passive thoughts about wanting to be dead, predict suicide completion (Brown, Beck, Steer, & Grisham, 2000; Brown, Steer, Henriques, & Beck, 2005). Likewise, suicide attempts are robustly tied to suicide completion (Oquendo et al., 2004). And the best predictor of completed suicide is a history of attempts (Nordström, Samuelsson, & Asberg, 1995; Joiner et al., 2005). Given these links, we refer to the continuum of possible suicide thoughts (ideation) and actions (attempts) as suicidality.

7.1.4. The Perfectionism-Suicidality Relationship

Public outcry over the perfectionism-suicide link arose largely from media accounts of Sidney Blatt’s (1995) article “The Destructiveness of Perfectionism.” Blatt’s (1995) article described how perfectionism led three remarkably talented individuals to end their lives (i.e., Vincent Foster, Alasdair Clayre, and Denny Hansen). Five years earlier, Baumeister (1990) also
sounded the same alarm with his escape theory of suicide. Baumeister (1990) posited lofty personal standards can trigger a causal chain cumulating in suicide. Building on these accounts, most researchers conceptualize perfectionism as a vulnerability factor for suicide (e.g., Flett, Hewitt, & Heisel, 2014; Hewitt, Flett, Sherry, & Caelian, 2006; Roxborough et al. 2012).

So, why is perfectionism associated with thinking about, attempting, and even completing suicide? Perfectionists are their own worst critics—good enough is never enough (Hewitt & Flett, 1991). Consequently, the typical perfectionist is locked in an endless loop of self-defeating over-striving in which each new task is another opportunity for harsh self-rebuke, disappointment, and failure (DiBartolo, Frost, Chang, LaSota, & Grills, 2004; Dunkley & Grilo, 2007; Struman, Flett, Hewitt, & Rudolph, 2009). In addition, black-and-white thinking can lead perfectionists to interpret failures as catastrophes that, in extreme circumstances, are seen as warranting death (Blatt, 1995; Flett et al., 2014; Hewitt et al., 2006). Many perfectionists also struggle to participate in, and to benefit from, stable, positive interpersonal relationships (Sherry, Mackinnon, & Gautreau, 2015). And this inability to partake in harmonious relationships may leave perfectionists at risk for suicidality (see Hewitt et al., 2006). Similarly, the stress-diathesis model of perfectionism (Hewitt & Flett, 2002) asserts ego-involving stressors place perfectionists at risk for suicide. Flamenbaum and Holden (2007), for instance, found perfectionists are prone to psychache (i.e., profound psychological pain) if they perceive unfulfilled needs in areas of achievement and affiliation. All told, research suggests an important relationship between perfectionism and suicide. Yet, this literature has not been meta-analyzed.

Hewitt et al.’s (2006), O’Connor’s (2007), and Flett et al.’s (2014) non-empirical reviews capably summarized the perfectionism-suicide literature and concluded perfectionistic concerns were related to suicidality. However, due to notable inconsistencies between studies in findings,
none of these authors reached concrete conclusions regarding perfectionistic strivings’ link with suicidality. Indeed, some studies report perfectionistic strivings are negatively related to suicidality (e.g., Stoeber & Otto, 2006); some studies report perfectionistic strivings are unrelated to suicidality (e.g., Hewitt, Norton, Flett, Callander, & Cowan, 1998); and other studies report perfectionistic strivings are positively related to suicidality (e.g., Flamenbaum & Holden, 2007). Likewise, O’Connor (2007; p. 709) concluded: “there are insufficient studies to draw any firm conclusion about [other-oriented perfectionism].” And other-oriented perfectionism was absent from reviews by Hewitt et al. (2006) and by Flett et al. (2014). Additionally, as with perfectionistic strivings, inconsistent findings between studies have rendered our understanding of other-oriented perfectionism’s relationship with suicidality equivocal. Some investigators report other-oriented perfectionism is negatively related to suicidality (Hunter & O’Connor, 2003); some investigators report other-oriented perfectionism is unrelated to suicidality (Hewitt, Caelian, Chen, & Flett, 2014); and other investigators report other-oriented perfectionism is positively related to suicidality in Asian, but not Caucasian, samples (Chen, Hewitt, & Flett, 2017). Nonetheless, as of 2017, there are 12 studies examining other-oriented perfectionism and suicidality (see Table 1), meaning this literature is now suitable for meta-analysis. In sum, though perfectionistic concerns’ link with suicidality is clear (Flett et al., 2014; Hewitt et al., 2006; O’Connor, 2007), perfectionistic strivings’ and other-oriented perfectionism’s link with suicidality is unclear.

7.1.5. Advancing Research on the Perfectionism-Suicidality Relationship Using Meta-Analysis

Over 50 years of case reports, theoretical accounts, and empirical research implicate perfectionism in suicide (e.g., Blatt, 1995; Hassan, Flett, Ganguli, & Hewitt, 2014; Hewitt et al., 2014; Kiamanesh, Dyregrov, Haavind, & Dieserud, 2014; Shaffer, 1974). And yet, there is much
to learn about the perfectionism-suicidality relationship (Flett et al., 2014). First, noteworthy inconsistencies between studies in findings (e.g., Flamenbaum & Holden, 2007; Hewitt et al., 1998; Hewitt et al., 2014; Hunter & O’Connor, 2003) have clouded our understanding of perfectionistic strivings’ and other-oriented perfectionism’s relationships with suicidality. And a quantitative synthesis is needed for overall conclusions to be reached. Such a quantitative synthesis could also allow for tests of moderating variables (e.g., gender) that might explain when the strength or the direction of the perfectionism-suicidality relationship changes. Second, despite evidence that correlations do not stabilize until $N \geq 250$ (Schönbrodt & Perugini, 2013), most research on perfectionism and suicide attempts are underpowered (cf. Flamenbaum & Holden, 2007). However, meta-analysis could overcome limitations of small samples (Borenstein, Hedges, Higgins, & Rothstein, 2009), and bring greater clarity to our understanding of perfectionism’s relationship with suicide attempts. Third, as noted by Flett et al. (2014) and O’Connor (2007), the extent to which perfectionism dimensions confer risk for suicide has yet to be determined. Indeed, most investigators use cross-sectional designs which, unlike longitudinal designs, cannot address temporal precedence. As such, whether perfectionism leads to increases in suicidality is unclear, and researchers and clinicians can only speculate as to whether reducing perfectionism reduces suicidality. Nevertheless, there is now sufficient data to test if self-oriented, other-oriented, and socially prescribed perfectionism predict follow-up suicide ideation, beyond baseline suicide ideation (Chen, 2012; Enns, Cox, Sareen, & Freeman, 2001; O’Connor et al., 2007a). Fourth, due to limitations of non-empirical reviews, the strength of the relation between perfectionism dimensions, suicide ideation, and suicide attempts is unclear. A meta-analysis could shed light on which perfectionism dimensions display the strongest relations with suicide ideation and suicide attempts, which in time might inform the development of
interventions designed to target and to modify perfectionism’s most pernicious aspects.

7.1.6. Objectives and Hypothesis

Our primary aim was to bring greater clarity to our understanding of the perfectionism-suicidality relationship by comprehensively synthesizing empirical research on perfectionism, suicide ideation, and suicide attempts. To date, there is no meta-analysis of findings from this longstanding and important literature. We also aimed to test the contentiously debated relation between perfectionistic strivings, suicide ideation, and suicide attempts. Such evidence would inform debate on the pros and the cons of demanding perfection of oneself (e.g., Stoeber & Otto, 2006; Sherry, Hewitt, Sherry, Flett, & Graham, 2010). Another aim was to test if self-oriented, other-oriented, and socially prescribed perfectionism predicted longitudinal increases in suicide ideation over time. Controlling for baseline suicide ideation represents a stringent test of the perfectionism-suicidality relationship, as baseline suicide ideation is a strong predictor of subsequent suicide ideation (e.g., Joiner et al., 2005).

Building on theory and research (Flett et al., 2014, Hewitt et al., 2006; O’Connor, 2007), we hypothesized perfectionistic concerns (socially prescribed perfectionism, concern over mistakes, doubts about action, discrepancy, and perfectionistic attitudes) would display positive relationships with suicide ideation and attempts. We also hypothesized socially prescribed perfectionism would place people at risk for longitudinal increases in suicide ideation. However, given the inconsistency of research on suicidality in relation to perfectionistic strivings (self-oriented perfectionism, personal standards), other forms of perfectionism (other-oriented perfectionism, EDI-perfectionism total scores, FMPS-perfectionism total scores), and correlates of perfectionism (parental criticism, parental expectations, organization), we considered our investigation into these questions to be more exploratory.

7.2. Method
7.2.1. Selection of Studies
In 2016, a literature search using PsycINFO, Medline, Web of Science, ERIC, and ProQuest Dissertations and Theses was conducted using the keywords and Boolean search terms “perfect*” and “suicid*.” This search yielded 100 studies from PsycINFO, 122 studies from Medline, 226 studies from Web of Science, and 38 studies from ProQuest. We also compiled a list of 353 authors who had published on perfectionism. We then contacted each author individually and requested unpublished findings. However, none of the authors contacted provided relevant data. Additionally, we monitored the Perfectionism Network Mailing List to identify studies that were accepted, but not published, at the time of our literature search. This yielded one study: Chen, Hewitt, and Flett (2017). Both the first and the third author then reviewed abstracts of all studies identified, selecting studies meeting inclusion criteria. Studies were included that (a) contained data on perfectionism and suicidality (ideation and attempts) and (b) were in English. Included studies also (c) reported an effect size, reported enough information for computing an effect size, or effect size information was obtained from a study author. All authors contacted ($N = 1$) provided the requested information.

This literature search yielded 57 studies for inclusion. Interrater agreement on inclusion or exclusion in the meta-analysis was 95%. Disagreement was resolved by revisiting articles and coming to a consensus. The reference lists of included articles were also examined to locate additional relevant literature. On August 7, 2016, we terminated all search strategies and started data reduction and analysis. We excluded 12 studies (see Supplemental Material A). The final sample of included studies was composed of 45 studies with 54 samples.

7.2.2. Coding of Studies
The first and the third author coded each study based on nine characteristics: sample size, sample type, mean age of participants, percentage of female participants, percentage of ethnic
minority participants, publication status, measure used to assess perfectionism, measure used to assess suicide ideation, and measure used to assess suicide attempts.

### 7.2.3. Meta-Analytic Procedures

Random-effects analyses were conducted using Comprehensive Meta-Analysis software (Borenstein, Hedges, Higgins, & Rothstein, 2005). We chose random-effects models, over fixed-effects models, as the 45 included studies varied widely in design. We also weighed mean effects following the procedure suggested by Hunter and Schmidt (1990). This allowed us to estimate mean effect sizes and variance in observed scores after considering sampling error (Card, 2012). Next, effect size estimates were weighted by sample size and aggregated. For studies with more than one measure of suicide ideation, we averaged effect sizes so only one effect was included (Borenstein, Hedges, Higgins, & Rothstein, 2009; Card, 2012). Effect sizes presented in metrics other than $r$ (i.e., means, $t$-tests, $d$, or $F$ scores), were converted and expressed as correlations following formulas provided by Borenstein et al. (2009). We also used Borenstein et al.’s (2009) formula to calculate power under the random-effects model for each weighted mean effect.

Additionally, most included studies measured perfectionism and suicide ideation with imperfect reliability. As this can attenuate the magnitude of observed correlations, effects were adjusted by dividing the observed correlation by the square root of the product of the two corresponding reliability coefficients (Card, 2012). When reported, the actual reliability statistics for a study were used; when not reported, the corresponding meta-analyzed mean reliability was used (Card, 2012). However, we were unable to adjust for unreliability in suicide attempts. Thus, in the interest of methodological consistency we used the common, albeit conservative, strategy of interpreting observed effects, which generally underestimates the true magnitude of effect sizes (Borenstein et al. 2009). Nonetheless, for readers who disagree with this strategy, effect sizes adjusted for unreliability are presented in our supplementary material.
To examine the extent to which baseline self-oriented, other-oriented, and socially prescribed perfectionism predict follow-up suicide ideation, after controlling for baseline ideation, we computed partial correlations using the “corpcor” package (Schafer, Opgen-Rhein, Zuber, Silvia, & Strimmer, 2015) for R (R Core Team, 2013). Although there was insufficient data to examine unique effects between perfectionism dimensions and suicide attempts, there was sufficient data to examine unique effects between perfectionism dimensions and suicide ideation. Thus, again using the “corpcor” package (Schafer et al., 2015), we computed partial correlations for MPS perfectionism dimensions by residualizing self-oriented, other-oriented, and socially prescribed perfectionism based on their overlap with each other prior to being correlated with suicide ideation. Likewise, for FMPS perfectionism dimensions, we computed partial correlations by residualizing concern over mistakes, doubts about action, parental criticism, parental expectations, personal standards, and organization based on their overlap with each other prior to being correlated with suicide ideation.

To assess moderation, we evaluated the total heterogeneity of weighted mean effect sizes ($Q_T$). A significant $Q_T$ indicates variance in weighted mean effect sizes is greater than expected by sampling error (Card, 2012); a non-significant $Q_T$ suggests a weak basis for moderation. For each analysis, we also computed the inconsistency in observed effects ($I^2$) across studies. $I^2$ indicates the percentage of total variance across studies due to heterogeneity: values of 25%, 50%, and 75% correspond to low, medium, and high heterogeneity, respectively.

When $Q_T$ was significant, we stipulated a categorical structure and the total heterogeneity explained by the categorization ($Q_B$) was calculated (Card, 2012). A significant $Q_B$ indicates meaningful differences in effects between categories and provides a firm basis for moderation (Borenstein et al. 2009). When $Q_B$ was significant, we examined differences in effect sizes
between studies grouped by publication status (articles and dissertations), age (adult, young adult, adolescent), and sample (community adults, undergraduate students, psychiatric patients) by performing a series of all possible two-group comparisons to test which group differed significantly in effect size (Card, 2012). For each group comparison, the resultant $Q_B$ from the two groups was tested using a $\chi^2$ test with one df. We also recorded gender (percentage female) and ethnicity (percentage ethnic minority) as continuous variables and used mixed-effects meta-regression to test the potential moderating effects of gender and ethnicity.

To assess publication bias, we inspected funnel plots with observed and imputed studies, and computed Egger’s test of regression to the intercept (Egger, Smith, Schneider, & Minder, 1997). Such funnel plots allow for visual inspection of how the effect size shifts when imputed studies are included (Borenstein et al., 2009). And in the absence of publication bias, Egger’s regression intercept does not differ significantly from zero (Egger et al., 1997).

### 7.2.4. Description of Studies

Our search identified 45 studies and 54 samples containing relevant effect size data (see Table 1). The total number of participants pooled across studies was 11,747. Relevant data were obtained from 38 journal articles and 7 dissertations. There were 21 samples of university undergraduates, 29 samples of psychiatric patients, 1 sample of medical students, and 3 samples of community adults. There were 48 cross-sectional samples and six longitudinal samples. Sample size varied between 17 and 1,436 with an average of 217.5 ($SD = 259.8$). The mean age of participants was 26.8 years ($SD = 10.2$; range 12.9-58.6). The average percentage of female participants was 63.3%; the average percentage of ethnic minority participants was 24.4%. Effect size information for each individual study is presented in Supplemental Material B. Adjusted effect size information for each individual study is presented in Supplemental Material C.
7.2.5. Measures

7.2.5.1. Perfectionism

Following theory and research (e.g., Dunkley et al., 2004; Stoeber & Otto, 2006), personal standards (FMPS) and self-oriented perfectionism (MPS, CAPS) were considered facets of perfectionistic strivings; concern over mistakes (FMPS), doubts about actions (FMPS), socially prescribed perfectionism (MPS, CAPS), discrepancy (APS-R), and perfectionistic attitudes (DAS-P) were considered facets of perfectionistic concerns. Parental criticism and expectations, and organization were designated correlates of perfectionism. As well, parental criticism and parental expectations were combined and labeled as parental perceptions (see Cox et al., 2002). Other-oriented perfectionism (MPS), FMPS-perfectionism, and EDI-perfectionism were designated other forms of perfectionism.

7.2.5.2. Suicide ideation and suicide attempts

Suicide ideations was assessed via self-reported suicidal thinking. Suicide attempts were assessed via self-reported number of prior suicide attempts (e.g., Adkins & Parker, 1996), clinician’s ratings of the number of prior suicide attempts (e.g., Fedorowicz et al., 2007), and group comparisons between suicide attempters and non-attempters (e.g., Hewitt et al., 2014). Although, Pfeffer’s (1986) Child Suicide Potential Scale (CPS) and Linehan’s (1981) Suicide Behavior Questionnaire (SBQ) assess suicidal ideation and suicide attempts, we categorized the CPS and SBQ as measures of suicide ideation given the majority of CPS and SBQ items assess suicidal thoughts.
### Table 14. Characteristics of studies included in the meta-analysis

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample Type</th>
<th>Sample Size</th>
<th>Mean Age</th>
<th>Female %</th>
<th>Ethnic %</th>
<th>Status</th>
<th>Design</th>
<th>Perfectionism Measures</th>
<th>Suicide Ideation Measures</th>
<th>Suicide Attempts</th>
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<td>NR</td>
<td>NR</td>
<td>10.1</td>
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</table>

Note. **N** = total number of participants; **NR** = not reported; **female %** = percentage female; **ethnic %** = percentage ethnic minority; **status** = publication status of the study; **FMPS** = Frost’s et al.’s (1990) Multidimensional Perfectionism Scale; **total** = total score; **ASIQ** = Reynolds’ (1991) Adult Suicide Ideation Questionnaire; **COM** = concern over mistakes; **DAA** = doubts about actions; **PC** = parental criticism; **PE** = parental expectations; **PS** = personal standards; **ORG** = organization; **AAHS-ST** = National Adolescent Health Survey suicidal thinking modified version (1989); **DAS-P** = Weissman and Beck’s (1978) Dysfunctional Attitude Scale-Perfectionism Subscale; **SSI** = Blankstein’s (2004) Current Suicide Ideation Scale; **CAPS** = Flett et al.’s (2016) Child-Adolescent Perfectionism Scale; **SIQ** = Reynolds’ (1977a) Suicide Ideation Questionnaire; **EDI** = Garner et al.’s (1983) Eating Disorder Inventory perfectionism subscale; **BSS** = Beck and Steer’s (1993) Suicide Ideation Scale; **M** = motivation; **P** = preparation; **Intent** = suicidal intent; **CSPS** = Pfeffer’s (1986) Child Suicide Potential Scale; **GHQ-ST** = Goldberg and Williams’ (1988) General Health Questionnaire suicidal thinking subscale; **BDI-SI** = Beck’s
Depression Inventory item 9 (suicidal intent); **RST-past** = rating of the frequency of past suicidal thoughts; **RST-future** = rating of the frequency of future suicidal thoughts; **SBQ** = Linehan’s (1981) Suicidal Behavior Questionnaire; **SI** = suicidal ideation; **SIQ-JR** = Reynolds’ (1987b) Suicidal Ideation Questionnaire-Grades 7-9; **FSII** = Chang and Chang’s (2016) Frequency of Suicide Ideation Inventory; **SPS** = Cull and Gill’s (1982) Suicide Probability Scale; **BSSI** = Beck et al.’s (1979) Scale for Suicidal Ideation; **APS-D** = Slaney et al.’s (2001) Almost Perfect Scale-Revised discrepancy subscale; **DSI-SS** = Metalsky and Joiner’s (1997) Depressive Symptoms Inventory-suicidality subscale; **SIS** = Rudd’s (1989) Suicidal Ideation Scale.

a University undergraduates  
b Psychiatric patients  
c Community adults  
d Medical students  
e Participants reported whether they had ever seriously thought about attempting suicide.  
f Self-reported number of prior suicide attempts.  
g Prior number of suicide attempts assessed by a clinician.  
h Participants asked “How likely is it that you will attempt suicide someday”?  
i Compared suicide attempters and non-attempters.
### Table 15. Summary of overall effect sizes for the relationship between perfectionism and suicidality

<table>
<thead>
<tr>
<th>Variable</th>
<th>k</th>
<th>N</th>
<th>r^a</th>
<th>95% CI</th>
<th>Q_T</th>
<th>F (%)</th>
<th>Egger’s intercept</th>
<th>95% CI</th>
<th>k^TF</th>
<th>“Trim and fill” estimates</th>
<th>Power</th>
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<td><strong>Suicide ideation</strong></td>
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<tr>
<td>Perfectionistic concerns^a</td>
<td>42</td>
<td>7,936</td>
<td>.28***</td>
<td>[.24, .32]</td>
<td>99.10***</td>
<td>58.63</td>
<td>1.75</td>
<td>[0.76, 2.73]</td>
<td>0</td>
<td>.28 [.24, .31]</td>
<td>.99</td>
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<td>[.25, .32]</td>
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<td>.28 [.25, .32]</td>
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<td>952</td>
<td>.25***</td>
<td>[.13, .36]</td>
<td>12.19</td>
<td>67.20</td>
<td>2.51</td>
<td>[-4.36, 9.38]</td>
<td>0</td>
<td>.25 [.13, .36]</td>
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<td>[.18, .35]</td>
<td>5.14</td>
<td>41.62</td>
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<td>.99</td>
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<td>904</td>
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<td>[.14, .38]</td>
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<td>67.27</td>
<td>3.38</td>
<td>[-4.79, 11.54]</td>
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<td>.98</td>
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<td>[.19, .52]</td>
<td>33.55***</td>
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<td>4.07</td>
<td>[-0.33, 8.48]</td>
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<td>.26 [.09, .41]</td>
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<td>0.00</td>
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<td>[-1.56, 0.64]</td>
<td>0</td>
<td>.11 [.08, .15]</td>
<td>.99</td>
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<td>[.00, .19]</td>
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<td>61.27</td>
<td>3.34</td>
<td>[-4.71, 11.39]</td>
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<td>.10 [.00, .19]</td>
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<td>49.87</td>
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<td>[.06, .26]</td>
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<td>[0.21, 2.08]</td>
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<td>.09 [.04, .13]</td>
<td>.97</td>
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<td>1.00</td>
<td>[-2.01, 4.01]</td>
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<td>.05 [-.07, .17]</td>
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<td>0</td>
<td>.02 [.01, .06]</td>
<td>.19</td>
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<td>0</td>
<td>.07 [-.01, .15]</td>
<td>.37</td>
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<td>[.04, .06]</td>
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<td>0.00</td>
<td>-0.49</td>
<td>[-1.82, 0.83]</td>
<td>0.01</td>
<td>.01 [-.04, .05]</td>
<td>.06</td>
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<td>1.26</td>
<td>0.00</td>
<td>-1.42</td>
<td>[-2.58, -.28]</td>
<td>0</td>
<td>-.03 [-.13, .06]</td>
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<td>[.07, .21]</td>
<td>1.30</td>
<td>0.00</td>
<td>-0.31</td>
<td>[-0.55, -.07]</td>
<td>0</td>
<td>.16 [.08, .23]</td>
<td>.99</td>
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<tr>
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<tr>
<td></td>
<td>k</td>
<td>N</td>
<td>r</td>
<td>CI</td>
<td>Qr</td>
<td>I²</td>
<td>kTF</td>
<td>FMPS</td>
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<td>.08**</td>
<td>[.03, .12]</td>
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<td>.07</td>
<td>85</td>
<td>Frost’s et al.’s (1990)</td>
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<td>[.02, .12]</td>
<td>0</td>
<td>.07</td>
<td>79</td>
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</tr>
<tr>
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<td>[-.06, .04]</td>
<td>0</td>
<td>.07</td>
<td>79</td>
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</tr>
</tbody>
</table>

Note. k = number of studies; N = total number of participants in the k samples; r = weighted mean bivariate correlation; CI = confident interval; Qr = measure of heterogeneity of effect sizes; I² = percentage of heterogeneity; kTF = number of imputed studies as part of “trim and fill” method; FMPS = Frost’s et al.’s (1990) Multidimensional Perfectionism Scale; EDI-Perfectionism = Garner et al.’s (1983) Eating Disorder Inventory perfectionism subscale.

aPerfectionistic concerns assessed as aggregate of socially prescribed perfectionism, concern over mistakes, and doubts about actions.

bPerfectionistic strivings assessed as aggregate of self-oriented perfectionism and personal standards.

cParental perceptions assessed as aggregate of parental criticism and parental expectations (Cox et al., 2002).

dPerfectionistic concerns assessed as aggregate of socially prescribed perfectionism, concern over mistakes, and doubts about actions.

*p < .05; **p < .01; ***p < .001.
7.3. Results

7.3.1. Overall Effect Sizes

Weighted mean effect sizes between perfectionism, correlates of perfectionism, and suicide ideation and suicide attempts are in Table 15 (see Supplemental Material D for adjusted effect sizes). Following Cohen’s (1992) guidelines for small, medium, and large effects ($r = .10$, .30, and .50, respectively), perfectionistic concerns, socially prescribed perfectionism, concern over mistakes, doubts about actions, discrepancy, perfectionistic attitudes, perfectionistic strivings, self-oriented perfectionism, personal standards, parental perceptions, parental criticism, parental expectations, and FMPS-perfectionism displayed small-to-moderate, positive relationships with suicide ideation. Other-oriented perfectionism’s and organization’s relationships with suicide ideation were non-significant. And perfectionistic concerns, socially prescribed perfectionism, concern over mistakes, doubts about action, FMPS-perfectionism, parental perceptions, parental criticism, and parental expectations displayed small, positive relationships with suicide attempts; perfectionistic attitudes’, perfectionistic strivings’, self-oriented perfectionism’s, personal standards’, other-oriented perfectionism’s, EDI-perfectionism’s, and organization’s relationships with suicide attempts were non-significant.

Weighted mean effect sizes for the relationships between self-oriented, other-oriented, and socially prescribed perfectionism at baseline and suicide ideation at follow-up, while controlling for ideation at baseline, are in Supplemental Material E (see Supplemental Material F for adjusted longitudinal effect sizes). Despite the large, positive relationship between baseline and follow-up suicide ideation, socially prescribed perfectionism still displayed a small, positive relationship with follow-up suicide ideation, after controlling for baseline suicide ideation. Self-oriented and other-oriented perfectionism’s relationships with follow-up suicide ideation, after controlling for baseline ideation, were non-significant.
MPS perfectionism dimensions displayed small-to-large positive correlations with each other (see Supplemental Material G for observed effects and Supplemental Material H for adjusted effects). After controlling for overlap in MPS dimensions, self-oriented perfectionism ceased to significantly predict suicide ideation; other-oriented perfectionism had a small unique negative association with suicide ideation; and socially prescribed perfectionism had a small unique positive relationship with suicide ideation. FMPS-perfectionism dimensions had marginal-to-large correlations with each other (see Supplemental Material G for observed effects and Supplemental Material H for adjusted effects). After controlling for overlap in FMPS dimensions, the relationships among suicide ideation and concern over mistakes, personal standards, parental expectations, and organization were non-significant. However, after controlling for overlap among FMPS dimensions, doubts about actions and parental criticism displayed small unique positive relationships with ideation (see Supplemental Material G for observed effects and Supplemental Material H for adjusted effects).

The test of the total heterogeneity of variance of weighted mean effect sizes ($Q_T$) was significant for suicide ideation’s relations with perfectionistic concerns, concern over mistakes, discrepancy, personal standards, perfectionistic attitudes, other-oriented perfectionism, FMPS-perfectionism, and organization (see Table 2). $Q_T$ was also significant for the link between suicide attempts and perfectionistic concerns (see Table 15). The percentage of total variance owing to heterogeneity ($I^2$) ranged from small to large, suggesting possible moderators.

7.3.2. Moderator Analysis

Moderator analyses (see Supplemental Material I) tested if effect sizes with significant heterogeneity ($Q_T$) were moderated by publication status (peer reviewed articles; dissertations), age (adolescent samples $\geq 13$ and $\leq 17$ years; young adult samples $\geq 18$ and $\leq 25$ years; adult samples $\geq 25$ years), sample (university undergraduates; community adults; psychiatric patients),
or perfectionism measure. Perfectionistic concerns’ relationship with suicide attempts was non-significant for the CAPS, but significant for the FMPS and the MPS. Meta-regression also revealed the strength of the relationship between perfectionistic concerns and suicide attempts decreased as the proportion of females in a sample increased. However, we advise caution in interpreting our moderator analyses given the small number of studies per subgroup.

7.3.3. Publication Bias

Funnel plots (see Supplemental Material J) and Egger’s regression intercept (see Table 2) provided mixed evidence for publication bias. Egger’s regression intercept was significant for perfectionistic concerns’ relationship with suicide ideation and suicide attempts. Moreover, the funnel plot for perfectionistic concerns and suicide attempts was asymmetrical. Accordingly, for perfectionistic concerns relationship with suicide ideation and suicide attempts, trim and fill estimates may provide more accurate estimates. Nonetheless, after imputing missing studies, the adjusted point estimates for perfectionistic concerns’ relationships with suicide ideation and suicide attempts provided the same substantive implications (see Table 2).

7.4. Discussion

Suicide claims one life every 45 seconds (World Health Organization, 2012). Given the wide-reaching personal and societal costs of suicide, it is vital to identify contributing factors. One such factor, supported by over 50 years of case histories, theoretical accounts, and empirical research, is perfectionism (Blatt, 1995; Hassan et al., 2014; Hewitt et al., 2014; Kiamanesh et al., 2014; Shaffer, 1974). Yet, despite the abundance of research, the role of perfectionism in suicide remains under-appreciated, under-recognized, and misunderstood due to inconsistencies between studies in findings, underpowered studies, and uncertainty surrounding whether perfectionism dimensions predict longitudinal increases in suicidality. We aimed to rectify this by rigorously conducting the first meta-analytic review of the perfectionism-suicidality relationship.
7.4.1. An Improved Understanding of the Perfectionism-Suicidality Relationship

Our meta-analysis of 45 studies, 54 samples, and 11,747 participants represents the most comprehensive test of the perfectionism-suicidality link to date. All dimensions or correlates of perfectionism (except for other-oriented perfectionism and organization) were positively related to suicide ideation. And these effect sizes were generally consistent across samples, methods, and measures. Socially prescribed perfectionism also predicted longitudinal increases in suicide ideation. And seven dimensions or correlates of perfectionism were related positively to suicide attempts (i.e., perfectionistic concerns, socially prescribed perfectionism, concern over mistakes, doubts about actions, FMPS-perfectionism, and parental criticism and expectations).

These findings complement case histories and theoretical accounts (e.g., Baumeister, 1990; Blatt, 1995; Hewitt et al., 2006) suggesting people high in perfectionism appear to think, behave, perceive, and relate in ways that have suicidogenic consequences. We refined this literature, showing that perfectionism dimensions are differentially related to suicidality, with perfectionistic strivings (self-oriented perfectionism and personal standards) predicting suicide ideation and perfectionistic concerns (socially prescribed perfectionism, concern over mistakes, doubts about actions, and perfectionistic attitudes) predicting suicide ideation and attempts. People high in perfectionistic strivings are only satisfied when events in their lives suggest they are perfect; when life events inevitably suggest they are not perfect, suicidal ideation may follow (Blatt, 1995; Hewitt & Flett, 2002). People high in perfectionistic concerns believe others hold lofty expectations for them, and feel incapable of living up to the perfection they perceive others demand. Such people also tend to see their social world as rejecting, and to see others as disappointed in them. This sense of disappointing others may fuel suicide ideation and attempts for people high in perfectionistic concerns (Hewitt et al., 2006; Sherry et al., 2015).
Our results also suggest socially prescribed perfectionism acts as a risk factor, predicting longitudinal increases in suicide ideation. Given the strong link between baseline suicide ideation and subsequent suicide ideation, these analyses represent a particularly stringent test of the connection between socially prescribed perfectionism and suicide ideation. Socially prescribed perfectionism appears to be composed of stable, underlying traits that trigger suicide ideation. In fact, our findings lend credence to the longstanding notion that feeling incapable of living up to the lofty standards of others is a part of the premorbid personality of people at risk for suicide (for a review, see Hewitt et al., 2006). Our findings also join a wider literature suggesting that, when people experience their social world as pressure-filled, judgmental, and hyper-critical, they think about and/or engage in various potential means of escape (e.g., alcohol misuse and binge eating), including suicide (e.g., Baumeister, 1990; Sherry & Hall, 2009). In addition, preliminarily, our findings suggest parental criticism and expectations are parenting styles with enduring negative consequences. It seems the conditions that give rise to perfectionism (e.g., critical and demanding parents; Blatt, 1995) might also be linked to suicidality.

Other-oriented perfectionism’s and organization’s relationships with suicide ideation and attempts were non-significant. While other-oriented perfectionists appear to elicit great distress in other people (Nealis, Sherry, Stewart, & Macneil, 2015), our results suggest other-oriented perfectionists themselves do not suffer greater suicidality. Our findings also indicate organization is benign as regards suicide ideation. However, we are unable to reach a concrete conclusion regarding organization’s relationship with suicide attempts as only two studies assessed organization and suicide attempts (Adkins & Parker, 1996; Portzky, van Heeringen, & Vervaet, 2014). Moreover, concerns exist about whether organization is part of the perfectionism construct (Stoeber & Otto, 2006). Indeed, Frost et al. (1990) considered organization to be
associated with perfectionism, but not a defining trait.

Although both perfectionistic concerns and strivings were related to suicide ideation, only perfectionistic concerns were related to suicide attempts. Our results thus suggest perfectionistic concerns are linked to more severe, and potentially more lethal, suicide behaviors. That said, perfectionistic strivings link with suicide ideation is important. The strength of the relation between perfectionistic strivings and suicide ideation may intensify in the presence of ego-involved stressors (Flett et al., 2014; Hewitt et al., 2006). And the small, but positive, relation between perfectionistic strivings and suicide ideation diverges with some authors’ notion that perfectionistic strivings are adaptive traits that protect against suicidality (e.g., Stoeber & Otto, 2006). In contrast, our results suggest people high in perfectionistic strivings appear driven to achieve perfection in a manner that makes them want to die. In relation to the broader personality research literature, conscientiousness is negatively related to suicide ideation (Bogg & Roberts, 2004), whereas we found perfectionistic strivings are positively related to suicide ideation. These results suggest the reliable, self-disciplined behavior typifying conscientiousness differs from the unrealistic goal-pursuit and expectations central to perfectionistic strivings, and perfectionistic strivings are more than just conscientiousness or an extreme need for achievement.

Turning to unique effects, findings aligned with studies showing perfectionistic strivings’ relation with suicide ideation is due to overlap with perfectionistic concerns (e.g., Flamenbaum & Holden, 2007). Controlling for overlap in MPS perfectionism dimensions, socially prescribed perfectionism was positively related to suicide ideation, other-oriented perfectionism was negatively related to suicide ideation, and self-oriented perfectionism was unrelated to suicide ideation. And controlling for overlap in FMPS perfectionism dimensions, doubts about actions and parental criticism, but not concern over mistakes or parental expectations, were related to
suicide ideation. However, we caution against over-interpretation of these unique effects.

Researchers are wary that removing variance attributable to perfectionistic concerns, when examining the effects of perfectionistic strivings, may change the conceptual meaning of perfectionistic strivings and result in a form of perfectionism seldom seen in real life (Hill, 2014; Molnar, Sadava, Flett, & Colautti, 2012; Powers, Koestner, Zuroff, Milyavskaya, & Gorin, 2011). Indeed, it is unclear what residualized perfectionistic strivings measures (Hill, 2014). Until such questions are answered, we urge caution in interpreting our results involving residualized perfectionistic strivings. And we note that, at best, perfectionistic strivings stripped of its overlap with perfectionistic concerns are unrelated to suicide ideation; at worst, perfectionistic strivings, when not residualized, are related to suicide ideation—neither of which suggests that self-driven pressure to be perfect is conducive to mental health.

### 7.4.2. Limitations of Overall Literature

Though there are a growing number of longitudinal studies (e.g., O’Connor et al., 2007a), most research on the perfectionism-suicidality link is cross-sectional. As cross-sectional studies are incapable of testing for risk factors, this is problematic. Accordingly, although our findings provide compelling evidence that most perfectionism dimensions are concomitants of suicidality, there is much to learn about whether perfectionism comes before, occurs during, or persists after suicidality (see Durbin & Hicks, 2014). We also need stringent tests of the extent to which perfectionism adds incrementally to our understanding of suicidality beyond other established predictors of suicidality such as personality traits (e.g., borderline traits), psychological symptoms (e.g., depression), and sociocultural factors (e.g., poverty). Also, while five perfectionistic concerns’ dimensions were tested in our meta-analysis, only two perfectionistic strivings’ dimensions were included (self-oriented perfectionism, personal standards). Thus, it is
likely perfectionistic concerns captured a more comprehensive construct, limiting our ability to compare the contributions of perfectionistic concerns and strivings. Moreover, most research on the perfectionism-suicidality link is on trait perfectionism. As such, little consideration is given to other dimensions of perfectionism (e.g., perfectionistic self-presentation; Hewitt et al., 2003).

7.4.3. Limitations of the Present Study

Limitations in the literature translate into limitations in our analyses. For some scales, data were available for suicide ideation but not suicide attempts (and vice versa). Also, while there were enough data to test the extent to which MPS dimensions predict longitudinal changes in suicide ideation, there was insufficient data to test the extent to which the other perfectionism dimensions or correlates confer longitudinal risk for suicide ideation. And, although there were sufficient data to assess MPS and FMPS dimensions’ relationships with suicide ideation, after controlling for overlap, there was insufficient data to assess MPS and FMPS dimensions’ relationships with suicide attempts, after controlling for overlap. Likewise, research on organization’s relationship with suicide attempts is limited and further research is needed to obtain more accurate results. Future research also should integrate our findings into empirically tested models explaining when and why perfectionism combines with constructs such as stress and social problems to predict suicidality. Finally, included studies involved mainly Caucasians from Canada, the USA, and the UK, meaning our findings may have limited generalizability to ethnically diverse samples. Given Chen et al.’s (2017) recent work on ethnic variations in the perfectionism-suicide link, investigating ethnic differences in the perfectionism-suicide relationship is an important area for further inquiry.

7.4.4. Concluding Remarks

Our meta-analysis offers the most rigorous, comprehensive test of the perfectionism-suicidality relationship to date. In synthesizing extant research, we corroborated and extended
theoretical accounts underscoring the perniciousness of perfectionism (Blatt, 1995; Flett et al., 2014; Hewitt et al., 2006; O’Connor, 2007). In fact, 13 of 15 perfectionism dimensions had positive relationships with suicide ideation, with the most perniciousness form of perfectionism involving perceived external pressure to be perfect.

Decades of empirical research suggest relentlessly pursuing perfection engenders intense psychological pain (Smith, Sherry, Rnic, et al., 2016). Perfectionists have a harsh way of relating to a self they often find deficient (e.g., self-attack; Hewitt & Flett, 1991). And pressure, hassles, and stress are abundant in the lives of many perfectionists (Dunkley et al., 2000). A prickly and a conflictual style of relating to others also typifies perfectionists, leaving them feeling disconnected from others (Sherry et al., 2015). Amid such pain, perfectionists may think about, or engage in, suicide as a means of escaping a life they find unbearable (Baumeister, 1990).
7.5. References

Studies marked with an asterisk were included in the present meta-analysis.


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CHAPTER EIGHT: GENERAL DISCUSSION

8.1. Discussion

Notable between-study inconsistencies, an over-reliance on cross-sectional designs, and uncertainty regarding the perils of partiailling have stifled our understanding of perfectionistic strivings’ consequences. Likewise, the practice of a-priori labeling perfectionistic strivings adaptive perfectionism—despite a construct’s adaptiveness being an empirical question—has fostered widespread under-appreciation of perfectionistic strivings’ costs. My dissertation addressed these challenges via six fully-published, peer-reviewed, journal articles. Perfectionistic strivings’ ties to depression, suicidality, negative emotionality, and narcissism were examined using meta-analysis, path analysis, and structural equation modeling. Bifactor modeling was used to explore how partiailling variance attributable to perfectionistic concerns impacts perfectionistic strivings’ factor structure. Overall, findings complement longstanding theoretical accounts suggesting perfectionistic strivings are neither adaptive, healthy, positive, functional, nor advisable (e.g., Hewitt & Flett, 1991; Greenspoon, 2001; Pacht, 1984). Indeed, results echoed Pacht’s (1984) sentiment that “in true life, not only is perfection impossible but the cost to those who seek it is inordinately high” (p. 390).

In particular, perfectionistic strivings exacerbated perfectionistic concerns’ relationship with negative emotionality across a large sample of English-speaking Canadian and Mandarin-speaking Chinese university students (see Smith, Saklofske, Yan, & Sherry, 2015). Furthermore, removal of shared variance rendered perfectionistic strivings an unreliable factor (see Smith & Saklofske, 2017). Additionally, as demonstrated by a rigorous daily-diary study of mother-daughter dyads, daughters’ self-oriented perfectionism conferred risk for daughters’ depression by eroding daughters’ social self-esteem (see Smith, Sherry, Mushquash, Saklofske, Gautreau, & Nealis, 2017). Likewise, a meta-analysis revealed self-oriented perfectionism had a small, unique
positive relationship with narcissistic grandiosity (Smith, Sherry, Chen, Saklofske, Flett, & Hewitt, 2016). Similarly, a meta-analysis demonstrated perfectionistic strivings had a small positive relationship with follow-up depressive symptoms, even after controlling for baseline depression and neuroticism (see Smith, Sherry, Rnic, Saklofske, Enns, & Gralnick, 2016). And lastly, a meta-analysis showed that perfectionistic strivings had a small positive relationship with suicide ideation (see Smith, Sherry, Chen, Saklofske, Mushquash, Flett, & Hewitt, in press). Hence, people high on perfectionistic strivings appear driven to achieve perfection in a manner that makes them depressed, suicidal, and prone to narcissistic grandiosity.

However, effects were small. Even so, small effects can still be theoretically meaningful. For instance, findings are incongruent with conceptualizations of perfectionistic strivings as adaptive traits that protect against depression and suicide and are unrelated to narcissistic grandiosity (e.g., Stoeber & Otto, 2006; Stoeber, 2014a, 2014b). Likewise, within the context of the broader personality literature, conscientiousness is related negatively to depression, suicide ideation, and narcissistic grandiosity (Bogg & Roberts, 2014; Paulhus & Williams, 2002), whereas results implied perfectionistic strivings are related positively to depression, suicide ideation, and narcissistic grandiosity. Accordingly, the reliable, self-disciplined behavior characterizing conscientiousness appears to differ fundamentally from the unrealistic, pathological goal pursuit characterizing perfectionistic strivings.

8.1.1. Perfectionistic Strivings Exacerbate Perfectionistic Concerns

The tripartite model contends perfectionistic strivings exacerbate perfectionistic concerns’ relationship with maladaptive outcomes (Rice & Ashby, 2007; Stoeber & Otto, 2006). In contrast, the 2 x 2 model contends perfectionistic strivings attenuate perfectionistic concerns’ maladaptive effects (Gaudreau, 2013; Gaudreau & Thompson, 2010). To address this, Smith et al. (2015) tested the moderating effect of perfectionistic strivings on perfectionistic concerns’
relationship with negative emotionality using structural equation modeling with latent moderation (Jose, 2013; Klein & Moosbrugger, 2000). Across both the Canadian \( (N = 425) \) and Chinese \( (N = 581) \) groups, perfectionistic strivings were only “adaptive” when perfectionistic concerns were concurrently low. Moreover, perfectionistic strivings exacerbated, not attenuated, the perfectionistic concerns-negative emotionality link. However, a notable limitation of Smith et al. (2015) was the use of a variable-centered approach to test models typically evaluated via person-centered approaches (e.g., latent profile analysis; Richardson, Rice, & Devine, 2014). As such, Smith, Saklofske, Yan, and Sherry (2016) addressed this limitation by using multigroup latent profile analysis to test the generalizability of the tripartite model across Canadian and Chinese university students. Congruent with Smith et al. (2015), Smith et al. (2016) reported individuals categorized as “adaptive perfectionists” or “maladaptive perfectionists” had significantly higher depression, anxiety, stress, and negative affect relative to individuals categorized as “non-perfectionists.”

8.1.2. Controlling for Perfectionistic Concerns Renders Perfectionistic Strivings Unreliable

Stoeber and Gaudreau (2017) assert that controlling for perfectionistic concerns is imperative when studying perfectionistic strivings. However, whether the removal of variance attributable to perfectionistic concerns degrades perfectionistic strivings’ factor structure, as well as whether perfectionistic concerns and perfectionistic strivings stem from the same general factor, was unclear. Hence, Smith and Saklofske (2017) addressed this using bifactor modeling. Three student samples \( (N = 742) \) completed Hewitt and Flett’s (1991) Multidimensional Perfectionism Scale; Frost, Marten, Lahart, and Rosenblate’s (1990) Multidimensional Perfectionism Scale; and Slaney, Rice, Mobley, Trippi, and Ashby’s (2001) Almost Perfect Scale-Revised (2001). Results implied a strong general factor underlies perfectionistic concerns and perfectionistic strivings. Indeed, the general factor captured 38.6% of the total variance;
perfectionistic concerns and perfectionistic strivings only captured 4.4% and 9.7% of the total variance, respectively. Moreover, the removal of shared variance rendered perfectionistic strivings an unreliable factor. Accordingly, Smith and Saklofske’s (2017) findings complement Hill (2014, 2017) and suggest controlling for perfectionistic concerns, when studying perfectionistic strivings, can be perilous (see also Lynam, Hoyle, & Newman, 2006).

However, Smith and Saklofske (2017) overlooked one important question—what does the general factor measure? Gäde, Schermelleh-Engel, and Klein (in press) addressed this limitation. Specifically, Gäde et al. (in press) used bifactor modeling to investigate the factor structure of Hill, Huelsman, Furr, Kibler, Vincente, and Kennedy’s (2004) Perfectionism Inventory and found that concern over mistakes characterized the general factor. Curiously, Gäde et al.’s (in press) also reported that partialling rendered perfectionistic concerns, but not perfectionistic strivings, unreliable. As such, additional research is needed to probe why Smith and Saklofske’s (2017) and Gäde et al.’s (in press) findings diverged.

8.1.3. Self-Oriented Perfectionism is Associated with Narcissistic Grandiosity

Over 100 years of theory, research, and clinical observations suggest perfectionism is essential to understanding narcissists style of thinking, behaving, and relating (Beck, Freeman, & Davis, 2004; Freud, 1957, Horney, 1950; Ronningstam, 2010, 2011; Rothstein, 1999). However, our understanding of the perfectionism-narcissism relationship was in need of clarification due to uncertainty regarding how perfectionism relates to the two core themes of narcissism: narcissistic grandiosity and narcissistic vulnerability (Cain, Pincus, & Ansell, 2008; Dickinson & Pincus, 2003; Miller & Campbell, 2008; Pincus et al., 2009; Wink, 1991). As such, Smith, Sherry, Chen et al. (2016) addressed this by conducting the most rigorous, comprehensive meta-analytic test of the perfectionism-narcissism link to date. The literature search yielded 30 studies (N = 9,091). Meta-analysis using random effect models revealed self-oriented perfectionism, other-oriented
perfectionism, and perfectionistic self-promotion had unique positive relationships with narcissistic grandiosity. In contrast, socially prescribed perfectionism, perfectionistic self-promotion, and non-disclosure of imperfection had unique positive relationships with narcissistic vulnerability. Hence, findings suggest self-oriented perfectionism is more than an extreme need for achievement and may involve a willingness to exploit others in the vain pursuit of status, power, physical beauty, and dominance (Besser & Priel, 2010; Fitzpartick et al., 2011; Sherry, Hewitt, Besser, Flett, & Klien, 2006). Additionally, findings imply self-oriented perfectionism’s overlap with narcissistic grandiosity does not merely stem from overlap with other-oriented perfectionism, as some authors suggest (e.g., Stoeber, 2014a, 2014b, Stoeber, Sherry, & Nealis, 2015). Finally, given self-oriented perfectionism is a facet of perfectionistic strivings, result dovetail with Flett, Sherry, Hewitt, and Nepon’s (2014) observation that a-priori labeling perfectionistic strivings “adaptive” is ill-advised given some people high on perfectionistic strivings are also high on narcissistic grandiosity.

8.1.4. Perfectionistic Strivings Confer Risk for Depressive Symptoms Beyond Neuroticism

Whether perfectionism dimensions confer risk for depressive symptoms, beyond neuroticism was unclear. In fact, given neuroticism and depression overlap substantially, some researchers have legitimately questioned whether the perfectionism-depression link merely stems from the potential ‘third variable’ neuroticism (e.g., Enns & Cox, 1997; Enns, Cox, & Clara, 2005). Moreover, some investigators conceptualize perfectionistic strivings as resiliency factors that protect against depressive symptoms (e.g., Enns et al., 2005). Other investigators conceptualize perfectionistic strivings as vulnerability factors that confer risk for depressive symptoms (e.g., Békés et al., 2015). To address this, Smith, Sherry, Rnic et al. (2016) conducted a meta-analysis of longitudinal research testing the extent to which perfectionistic concerns and perfectionistic strivings predict change in depressive symptoms, beyond neuroticism. The
literature search yielded 10 studies for inclusion ($N = 1,758$). Meta-analysis using random effect models revealed all dimensions of perfectionistic concerns (socially prescribed perfectionism, concern over mistakes, doubts about action) and all dimensions of perfectionistic strivings (self-oriented perfectionism, personal standards) predicted small positive increases in depressive symptoms, even after controlling for neuroticism.

Accordingly, Smith, Sherry, Rnic et al.’s (2016) findings are incongruent with conceptualizations of perfectionistic strivings as resiliency factors that buffer against depressive symptoms. Furthermore, though controlling for perfectionistic concerns rendered perfectionistic strivings’ relationship with depressive symptoms non-significant, researchers are increasingly wary that controlling for perfectionistic concerns, when investigating perfectionistic strivings, may be inadvisable (e.g., Hill, 2014, 2017; Molnar, Sadava, Flett, & Colautti, 2012; Powers, Koestner, Zuroff, Milyavskaya, & Gorin, 2011; Smith & Saklofske, 2017). Moreover, at best, perfectionistic strivings stripped of its variance with perfectionistic concerns are unrelated to depressive symptoms; at worst, perfectionistic strivings, when not residualized, predict longitudinal increases in depressive symptoms. Neither of which suggests perfectionistic strivings are adaptive, positive, healthy, functional, or advisable.

8.1.5. Self-Oriented Perfectionism Belongs in the Perfectionism Social Disconnection Model

The Perfectionism Social Disconnection Model (PSDM; Hewitt, Flett, Sherry, & Caelian, 2006) posits socially prescribed perfectionism confers risk for depressive symptoms by eroding social self-esteem. However, the PSDM omits self-oriented perfectionism (a core facet of perfectionistic strivings) and other-oriented perfectionism. Moreover, the PSDM attributes the source of depression to dispositional characteristics without considering the broader interpersonal context. As such, Smith, Sherry, and Mushquash et al. (2017) expanded and tested the PSDM in 218 mother-daughter dyads using a daily diary design with longitudinal follow-up.
Daughters’ completed measures of self-oriented perfectionism, socially prescribed perfectionism, and depressive symptoms at Wave 1. Likewise, at Wave 1 mothers completed a measure of other-oriented perfectionism. Wave 2 began a week after Wave 1, and involved daughters’ completing daily measures of social self-esteem twice a day over the course of a week. Finally, Wave 3 occurred approximately one week after Wave 2 and involved daughters completing a follow-up measure of depressive symptoms. Results revealed daughters’ self-oriented and socially prescribed perfectionism, and mothers’ other-oriented perfectionism, conferred risk for depressive symptoms in daughters by eroding daughters’ social self-esteem. As such, findings build on Smith, Sherry, Rnic et al. (2016) and imply perfectionistic strivings confer risk for depressive symptoms by promoting feelings of being rejected by and disliked by other people (i.e., low social self-esteem).

8.1.6. Perfectionistic Strivings Predict Suicide Ideation

Despite 50 years of research, the role of perfectionism in suicide was in need of clarification due to notable between-study inconsistencies and underpowered studies. Smith, Sherry, Chen et al. (in press) addressed this by conducting the first meta-analytic test of perfectionism’s relationship with suicide ideation and suicide attempts. The literature search yielded 45 studies (N = 11,747) composed of undergraduates, medical students, community adults, and psychiatric patients. Meta-analysis using random effect models revealed perfectionistic concerns and perfectionistic strivings displayed small-to-moderate positive associations with suicide ideation. Socially prescribed perfectionism also predicted longitudinal increases in suicide ideation. And perfectionistic concerns had a small positive relationship with the prior number of suicide attempts. Thus, results imply perfectionistic concerns and perfectionistic strivings are part of the premorbid personality of people prone to suicidality.
Moreover, perfectionistic strivings association with suicide ideation draws into question the notion that such strivings are adaptive, positive, healthy, functional, or advisable.

However, does perfectionistic strivings’ positive relationship with suicide ideation remain significant after controlling for the compelling covariate hopelessness? Hopelessness—negative expectations concerning the self and the future (Beck, Weissman, Lester, & Trexler, 1974)—shows consistent links with perfectionism (Flett, Hewitt, & Heisel, 2014) and predicts suicide ideation across both clinical (e.g., Kovacs & Garrison, 1985) and non-clinical (Young et al., 1996) populations. Smith, Vidovic, Sherry, and Saklofske (2017) addressed this by conducting a meta-analytic test of the extent to which self-oriented and socially prescribed perfectionism adds to the prediction of suicide ideation beyond hopelessness. Findings derived from 15 studies (\( N = 2,089 \)) revealed both self-oriented and socially prescribed perfectionism had small positive associations with suicide ideation, even after controlling for hopelessness.

8.2. Perfectionistic Strivings are Neither Adaptive, Healthy, Positive, nor Advisable

Does rigidly demanding perfection of the self, coupled with holding unreasonably high personal standards, protect against undesirable outcomes as some authors suggest (e.g., Stoeber & Otto, 2006)? Clearly, the answer is no. Though perfectionistic strivings sometimes correlate positively with desirable outcomes (e.g., trait emotional intelligence; Smith, Saklofske, & Yan, 2015), especially after controlling for perfectionistic concerns, the benefits of perfectionistic strivings pale in comparison to perfectionistic strivings’ costs. Indeed, a construct that places people at risk for depressive symptoms, that erodes social self-esteem, and that correlates positively with suicide ideation and narcissistic grandiosity is far from one that should be encouraged. Hence, investigators are strongly advised to cease a-priori labeling perfectionistic strivings “adaptive perfectionism.” Failure to heed this recommendation could lead severely distressed people suffering from perfectionistic strivings to slip through the cracks (Flett &
Additionally, it is curious, albeit unfortunate, that some scholars have unwittingly fallen prey to a hallmark of perfectionism—black-and-white dichotomous thinking (Blatt, 1995; Sherry, Hewitt, Flett, & Harvey, 2003). Such scholars view perfectionism as either all “good” (i.e., adaptive perfectionism) or all “bad” (i.e., maladaptive perfectionism) with nothing in-between. Yet rarely is life so simple. A more realistic conceptualization is perfectionistic strivings are neither good nor bad, but rather double-edged (Stoeber, 2018). In other words, within the context of the broader personality literature, some of traits might be consensually evaluated as good (e.g., conscientiousness) or bad (e.g., neuroticism) in a given context and a given point in time. But, no trait, in and of itself, is unequivocally adaptive or maladaptive (see Paunonen & Hong, 2015).

As to why some scholars remain fixated on the notion that demanding perfection of the self is purely adaptive, one can only speculate. Perhaps, as noted by Greenspoon (2000), adaptive perfectionism propagated due to “an attempt to see some of our own perfectionism as not wholly bad” (p. 207). Or perhaps adaptive perfectionism is merely a remnant of the laudable positive psychology movement. Alternatively, perhaps adaptive perfectionism reflects a zeitgeist stemming from an increased push towards neoliberal governance that emphasizes competitive individualism over communal goals (Curran & Hill, in press).

8.3. Understanding Perfectionistic Strivings’ Maladaptiveness

Why are people high on perfectionistic strivings more likely to encounter adverse outcomes such as depression and suicide? Striving for perfection is a means without an end (Greenspoon, 2000). As such, people high on perfectionistic strivings often invest so heavily in being perfect that they lose sight of why they were striving to be perfect in the first place—to garner the love, approval, and acceptance of others. Moreover, for people with high
perfectionistic strivings, their sense of self-worth is shaky—they are only satisfied when everything in their lives is perfect; when life events inevitably suggest they are not perfect, maladaptive outcomes such as depression, and in extreme circumstances suicide, follow (DiBartolo, Frost, Chang, LaSota, & Grills, 2004; Struman, Flett, Hewitt, & Rudolph, 2009). Perfection is also intangible, fleeting and rare. Accordingly, people with high perfectionistic strivings often encounter a high frequency of perceived failures and a low frequency of perceived successes (Flett, Hewitt, & Heisel, 2014).

Additionally, perfection is in the eye of the beholder. What one person considers perfect, another considers riddled with flaws. As such, striving for perfection sets people up for failure as it is rarely clear whether one’s performance is perfect or imperfect. Striving for perfection also puts people in no-win situations. Specifically, people high on perfectionistic strivings believe they are either acceptable or worthless. Thus, if such people fall short of their own lofty goals, they have failed; but if they manage to meet their goals, they experience no satisfaction as they have merely done what was expected (Burns, 1980). Furthermore, as per the stress-diathesis model (Hewitt & Flett, 1993), people with elevated perfectionistic strivings are at risk for maladaptive outcomes due to a tendency to experience achievement-related stressors as more ego-involving and distressing (Békés et al., 2015; Hewitt & Flett, 2002).

8.4. Limitations and Future Directions

The findings presented should be considered in light of their limitations. In particular, some of the results reported were cross-sectional. As such, the directionality of the perfectionism-narcissism link, as well as the perfectionism-suicide link, remains unclear. Additionally, with the exception of Smith, Sherry, and Mushquash et al. (2017), findings were derived from mono-source designs. Mono-source designs are problematic when studying personality traits such as perfectionism in which self-presentational bias could invalidate results
(Klonsky & Oltnmanns, 2002). Future studies should advance this literature by using methods of data collection that go beyond self-reports (e.g., informant reports or laboratory observation; Besser, Flett, & Hewitt, 2004; Flett, Besser, & Hewitt, 2005; Mackinnon et al. 2012).

Furthermore, Smith and Saklofske (2017) included other-oriented perfectionism as a facet of perfectionistic concerns and order as a facet of perfectionistic strivings. Yet, ample evidence indicates other-oriented perfectionism exists outside the two-factor model, and that order is best understood as a correlate, not a core characteristic, of perfectionism (see Stoeber & Otto, 2006; Stoeber, 2018). Thus, future research would profit from investigating the extent to which Smith and Saklofske’s (2017) findings replicate when other-oriented perfectionism and order are omitted from a bifactor model. Likewise, except for Smith et al. (2015), samples were predominantly Caucasian. Thus, findings may have limited generalizability to more ethnically diverse samples. Similarly, samples were predominantly female, and further research is needed to probe potential gender differences.

Additionally, whether Slaney et al.’s (2001) high standards subscale should be considered a facet of perfectionistic strivings is debatable (Blasberg, Hewitt, Flett, Sherry, & Chen, 2016; Flett & Hewitt, 2006, 2015). For instance, according to Blasberg et al. (2016), Slaney et al.’s (2001) high standards subscale is more a measure of conscientious achievement striving than perfectionism per se. Likewise, the two-factor model currently dominates the perfectionism litterateur. However, whether measuring perfectionistic strivings and perfectionistic concerns, rather than subscales that comprise them, is preferable is unclear. In fact, a yet to be tested possibility is the specific dimensions that comprise perfectionistic strivings and perfectionistic concerns capture specific predictive variance that is cast off as error when factor analyzed (see Paunonen, Haddock, Forsterling, & Keinonen, 2003). Put differently, the sum of perfectionistic
strivings and perfectionistic concerns parts may be greater than the whole. Lastly, the destructiveness of perfectionistic strivings was likely underestimated across the present series of articles due to not accounting for life stressors, which may need to be present for perfectionistic strivings’ perniciousness to be readily apparent (Hewitt & Flett, 1993, 2002).

8.5. Concluding Remarks

Not all perfectionism researchers, let alone all co-authors, will agree with some of the more provocative statements made in this concluding chapter. However, one assertion I hope all researchers will agree with is that a-priori labeling perfectionistic strivings “adaptive perfectionism” is an unscientific practice that must stop. In closing, in light of the findings presented, I maintain the time has come for us to see the imperfections in “adaptive perfectionism” research and start developing ways of intervening when people feel they must live up to their own self-generated perfectionistic goals.
8.6. References


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2013-2014  Hired as a part-time paid research assistant at the Center of Addiction and Mental Health (CAMH).
2012-2013  Hired to created, monitor, analyze, and provide updates for the Psychological Associations Psychologist in Education Online Survey; Canadian Association of School Psychologists Online Survey.
2011-2012  Hired as a full time paid research assistant from July 1, 2011 to August 31, 2011 and from June 1, 2012 to August 1, 2012. Salary was paid for, in part, by the following grant: Human Resources and Skills Development Canada: Canada Summer Grants.

ACADEMIC AWARDS & HONOURS

2017-2019  Doctoral Excellence Research Award ($10,000)
2016-2019  Social Sciences and Humanities Doctoral Scholarship ($60,000) [Accepted]
2016-2017  Ontario Graduate Scholarship ($15,000) [Declined]
2015-2016  Ontario Graduate Scholarship ($15,000) [Accepted]
2015  Leola E. Neal Award for Best Master’s Thesis ($450) [Accepted]
2014  CPA Certificate of Academic Excellence
2014-2015  Ontario Graduate Scholarship ($15,000) [Accepted]
2013-2014  Ontario Graduate Scholarship ($15,000) [Accepted]
2012-2013  Social Sciences and Humanities Master’s Scholarship ($17,500) [Accepted]
2012  Human Resources and Skills Development: Canada Summer Jobs ($2,000)
2012  The Canadian Psychological Associations Kenneth Dion Award ($200)
2011  Human resources and skills development: Canada Summer Jobs ($2,000)
2008-2012 Dean’s List: Dalhousie University’s Honour Roll

PUBLICATIONS

Peer-Reviewed Journal Articles


**Book Chapters**


**Encyclopedia Entries**


Manuscripts Under Review

Manuscripts in Preparation


PRESENTATIONS

Presentations to Scholarly Audiences


Symposium conducted at the Canadian Psychological Association's 75th Annual Convention, Vancouver, Canada.


**TEACHING ACTIVITIES**

**Guest Lectures**

2017

Lecture Title: *The perniciousness of perfectionism: Findings from daily diary, multi-source, meta-analytic, and longitudinal studies*

Professor(s): Dr. Philip Vernon

Course Title: Introduction to Personality Theory and Research (Psych 2550B)

Location: Department of Psychology, University of Western Ontario

2017

Lecture Title: *The perniciousness of perfectionism: Findings from daily diary, multi-source, meta-analytic, and longitudinal studies*
Professor(s): Dr. Donald H. Saklofske
Course Title: Clinical Assessment Practicum (Psych 9800)
Location: Department of Psychology, University of Western Ontario

2016
Lecture Title: *Understanding perfectionism: Findings from three meta-analyses and a new measure.*
Professor(s): Dr. Philip Vernon
Course Title: Introduction to Personality Theory and Research (Psych 2550B)
Location: Department of Psychology, University of Western Ontario

2015
Lecture Title: *The assessment of multidimensional perfectionism*
Professor(s): Dr. Donald H. Saklofske
Course Title: Clinical Assessment (Psych 9800)
Location: Department of Psychology, University of Western Ontario

### Graduate Teaching Assistant

<table>
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<th>Year (Term)</th>
<th>Course Title (Code)</th>
<th>Course Size (Level)</th>
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<td>2015-2016 (fall)</td>
<td>Test Construction and Survey Design (9545A)</td>
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<th>Course Size (Level)</th>
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<tbody>
<tr>
<td>2016-2017 (fall)</td>
<td>Test Construction</td>
<td>30 (fourth year)</td>
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<tr>
<td>2015-2016 (fall)</td>
<td>Survey Research (3991F)</td>
<td>30 (fourth year)</td>
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<td>2013-2014 (winter)</td>
<td>Social Psychology (2070B)</td>
<td>450 (second year)</td>
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<td>2012-2013 (fall-winter)</td>
<td>Introduction to Psychology (1000A/B)</td>
<td>110 (first year)</td>
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<tr>
<td>2010-2011 (fall-winter)</td>
<td>Introduction to Psychology (1011/1012)</td>
<td>155 (first year)</td>
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### SUPERVISING ACTIVITIES

### Undergraduate Students

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<tr>
<th>Year</th>
<th>Start</th>
<th>Finish</th>
<th>Student Name</th>
<th>Supervisory Role</th>
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<tr>
<td>2017</td>
<td>2018</td>
<td></td>
<td>Manuela Paruch</td>
<td>Honours Thesis Co-Supervisor</td>
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<tr>
<td>2016</td>
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<td></td>
<td>Janice Yue-Yan Lam</td>
<td>Honours Thesis Co-Supervisor</td>
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<tr>
<td>2014</td>
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<td>James Yanowski</td>
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<td>2014</td>
<td>2015</td>
<td></td>
<td>Laura Collins</td>
<td>Honours Thesis Co-Supervisor</td>
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<td>2013</td>
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<td>Justin Toh</td>
<td>Honours Thesis Co-Supervisor</td>
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</table>
EDITORIAL BOARD

*Journal of Psychoeducational Assessment* (February 2016 to present)  
*Personality and Individual Differences* (October 2015 to present)

AD HOC JOURNAL REVIEWER

*Anxiety, Stress, & Coping*  
*Assessment*  
*Canadian Journal of School Psychology*  
*Current Psychology*  
*European Journal of Personality*  
*Frontiers in Psychology: Emotion Science*  
*Journal of Psychoeducational Assessment*  
*Journal of Sports Sciences*  
*Measurement and Evaluation in Counseling and Development*  
*Personality and Individual Differences*  
*Psychological Assessment*  
*Scandinavian Journal of Medicine and Science in Sports*

MEDIA RELATIONS


