

---

Electronic Thesis and Dissertation Repository

---

2-22-2018 11:00 AM

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

Martin M. Smith, *The University of Western Ontario*

Supervisor: Saklofske, Donald H, *The University of Western Ontario*

A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Psychology

© Martin M. Smith 2018

Follow this and additional works at: <https://ir.lib.uwo.ca/etd>



Part of the [Personality and Social Contexts Commons](#)

---

### Recommended Citation

Smith, Martin M., "Perfectionistic Strivings are Neither Adaptive, Healthy, Positive, Functional, nor Advisable: Findings From Six Peer-Reviewed Journal Articles" (2018). *Electronic Thesis and Dissertation Repository*. 5222.

<https://ir.lib.uwo.ca/etd/5222>

This Dissertation/Thesis is brought to you for free and open access by Scholarship@Western. It has been accepted for inclusion in Electronic Thesis and Dissertation Repository by an authorized administrator of Scholarship@Western. For more information, please contact [wlsadmin@uwo.ca](mailto:wlsadmin@uwo.ca).

## 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 diary; 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.

**Smith, M. M., Saklofske, D. H., Yan, G., & Sherry, S. B. (2015).** Perfectionistic strivings and perfectionistic concerns interact to predict negative emotionality: Support for the tripartite model of perfectionism in Canadian and Chinese university students. *Personality and Individual Differences, 81*, 141-147.

**Smith, M. M., & Saklofske, D. H. (2017).** The structure of multidimensional perfectionism: Support for a bifactor model with a dominant general factor. *Journal of Personality Assessment, 99*, 297-303.

Supplemental Material:

<http://www.tandfonline.com/doi/suppl/10.1080/00223891.2016.1208209?scroll=top>

**Smith, M. M., Sherry, S. B., Chen, S., Saklofske, D. H., Flett, G. L., & Hewitt, P. L. (2016).** Perfectionism and narcissism: A meta-analytic review. *Journal of Research in Personality, 64*, 90-101.

Supplemental Material:

<http://www.sciencedirect.com/science/article/pii/S0092656616300927#ec-research-data>

**Smith, M. M., Sherry, S.B., Rnic, K., Saklofske, D. H., Enns, M. W., & Gralnick, T. (2016).** Are perfectionism dimensions vulnerability factors for depressive symptoms after controlling for neuroticism? A meta-analysis of 10 longitudinal studies. *European Journal of Personality, 30*, 201-212.

Supplemental Material:

<http://onlinelibrary.wiley.com/doi/10.1002/per.2053/supinfo>

**Smith, M. M., Sherry, S. B., Mushquash, A. R., Saklofske, D. H., Gautreau, C., & Nealis, L. J. (2017).** Perfectionism erodes social self-esteem and generates depressive symptoms: Studying mother-daughter dyads using a daily diary design with longitudinal follow-up. *Journal of Research in Personality, 71*, 72-79.

**Smith, M. M., Sherry, S. B., Chen, S., Saklofske, D. H., Mushquash, C., Flett, G. L., & Hewitt, P. L. (in press).** The perniciousness of perfectionism: A meta-analytic review of the perfectionism-suicide relationship. *Journal of Personality*. doi:10.1111/jopy.12333

Supplemental Material:

<http://onlinelibrary.wiley.com/doi/10.1111/jopy.12333/abstract>

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

**Smith, M. M., Sherry, S. B., Gautreau, C. M., Mushquash, A. R., Saklofske, D. H., & Allen, S. L. (2017).** The intergenerational transmission of perfectionism: Fathers' other-oriented perfectionism and daughters' perceived psychological control predicts daughters' self-critical and personal standards perfectionism. *Personality and Individual Differences, 119*, 242-248.

- Smith, M. M.**, Sherry, S. B., & Saklofske, D. H. (2018). Understanding the narcissistic need for perfection: The most dazzling, perfect, and comprehensive review ever. In T. Herman, A. Brunell, & J. Foster (Eds.), *The handbook of trait narcissism: Key advances, research methods, and controversies*. New York, NY: Springer.
- Smith, M. M.**, Sherry, S. B., Vidovic, V., Saklofske, D. H., Stoeber, J., & Benoit, A. (in preparation). Perfectionism and the five-factor model of personality: A meta-analysis of 79 studies.
- Smith, M. M.**, Vidovic, V., Sherry, S. B., & Saklofske, D. H. (2017). Self-oriented perfectionism and socially prescribed perfectionism adds incrementally to the prediction of suicide ideation beyond hopelessness: A meta-analysis of 15 studies (pp. 349-371). In U. Kumar (Ed.), *Handbook of suicidal behaviour*. New York, NY: Springer.

## ACKNOWLEDGMENTS

I am grateful for my supervisor and mentor Dr. Donald H. Saklofske. Without Don's unwavering guidance, support, and mentorship I would not be where I am today. Additionally, Dr. Paul Hewitt and Dr. Gordon Flett deserve thanks for the fundamental role they played in shaping my understanding of perfectionism. I also am indebted to Dr. Paul Tremblay who taught me most of what I know about statistics. And I would be remiss if I did not thank Dr. Simon Sherry, who took me under his wing nearly eight years ago, and continues to support and influence my program of research.

A heartfelt thank you is also reserved for my parents (Dr. Peter Smith and Dr. Katherine Montgomery), who always encouraged me to do my best, but never expected, let alone wanted, perfection. Lastly, I am thankful for my friends' tireless support: Christian Han, Katerina Rnic, Natalie Wells, and Jason Wells have made Ontario feel like home. And Luke Hansen-MacDonald and James Giffin have never failed to bring a smile to my face. Lastly, Nick Hansen-MacDonald and Zoe Dunsworth deserve a special thank you for challenging me to think outside the box and for the numerous days of respite provided at their cottage.

# TABLE OF CONTENTS

ABSTRACT.....	i
CO-AUTHORSHIP STATEMENT .....	ii
ACKNOWLEDGMENTS .....	iv
TABLE OF CONTENTS.....	v
LIST OF TABLES .....	x
LIST OF FIGURES .....	xi
CHAPTER ONE: INTRODUCTION AND LITERATURE REVIEW .....	1
1. The Tragedy of Ernest Hemingway: A Case Study.....	1
1.1. Defining Perfectionism .....	3
1.2. Perfectionism and the Five-Factor Model.....	4
1.3. The Intergenerational Transmission of Perfectionism.....	5
1.4. Are Perfectionistic Strivings Adaptive?.....	6
1.4.1. Do Perfectionistic Strivings Exacerbate Perfectionistic Concerns? .....	7
1.4.2. Is Controlling for Perfectionistic Concerns Perilous? .....	7
1.4.3. Is Self-Oriented Perfectionism Uniquely Related to Narcissistic Grandiosity? .....	8
1.4.4. Are Perfectionistic Strivings Risk Factors for Depression Beyond Neuroticism? .....	9
1.4.5. Does Self-Oriented Perfectionism Play a Role in Social Disconnection? .....	9
1.4.6. Are Perfectionistic Strivings Related to Suicide Ideation?.....	10
1.5. References.....	11
CHAPTER TWO: PERFECTIONISTIC STRIVINGS AND CONCERNS INTERACT .....	21
2. Abstract.....	21
2.1. Introduction.....	21
2.1.1. Overview of the 2 x 2 and Tripartite Model of Perfectionism.....	22
2.1.2. The 2 x 2 and Tripartite Model of Perfectionism: Convergence and Divergence .....	23
2.1.3. Objectives and Hypothesis .....	24
2.2. Method .....	25
2.2.1. Participants .....	25
2.2.2. Measures.....	25
2.2.3. Procedure .....	28
2.2.4. Data Analysis.....	28
2.3. Results.....	30
2.3.1. Descriptive Statistics .....	30
2.3.2. Factorial Invariance .....	31
2.3.3. Main Effects .....	31
2.3.4. Latent Moderation .....	33
2.4. Discussion .....	34

2.4.1. Limitations.....	36
2.4.2. Concluding Remarks .....	36
2.5. References.....	37
CHAPTER THREE: THE BIFACTOR MODEL OF PERFECTIONISM .....	41
3. Abstract.....	41
3.1. Introduction.....	41
3.1.1. The Present Research.....	43
3.2. Method.....	44
3.2.1. Participants .....	44
3.2.2. Measures.....	45
3.2.3. Data Analytic Strategy.....	48
3.3. Results.....	49
3.3.1. Descriptive Statistics .....	49
3.3.2. Confirmatory Factor Analysis .....	53
3.3.3. The Bifactor Model of Perfectionism.....	54
3.4. Discussion .....	55
3.4.1. Future Directions and Limitations .....	56
3.5. References.....	58
CHAPTER FOUR: PERFECTIONISM AND NARCISSISM .....	62
4. Abstract.....	62
4.1. Introduction.....	62
4.1.1. Trait Perfectionism, Perfectionistic Self-Presentation, and Perfectionistic Cognitions.....	63
4.1.2. Narcissistic Grandiosity and Narcissistic Vulnerability .....	64
4.1.3. The Perfectionism-Narcissism Relationship.....	65
4.1.4. Advancing Research on the Perfectionism-Narcissism Relationship Using Meta-Analysis.....	66
4.1.5. Hypotheses.....	68
4.2. Procedure .....	69
4.2.1. Selection of Studies .....	69
4.2.2. Coding of Studies .....	69
4.2.3. Meta-Analytic Procedure.....	70
4.3. Results.....	72
4.3.1. Description of Studies .....	72
4.3.2. Measures.....	81
4.3.3. Overall Effect Sizes .....	83
4.3.4. Moderator Analysis .....	84
4.3.5. Publication Bias.....	85
4.4. Discussion .....	85
4.4.1. An Improved Understanding of the Perfectionism-Narcissism Relationship.....	86
4.4.2. Limitations of the Overall Literature.....	88
4.4.3. Limitations of the Present Study.....	89

4.4.4. Concluding Remarks .....	90
4.5. References .....	91
CHAPTER FIVE: PERFECTIONISM, NEUROTICISM, AND DEPRESSION .....	101
5. Abstract .....	101
5.1. Introduction .....	101
5.1.1. Perfectionism Dimensions, Neuroticism, and Depressive Symptoms .....	102
5.1.2. Advancing Research on Perfectionism and Depressive Symptoms Using Meta-Analysis .....	105
5.1.3. Objectives and Hypotheses .....	105
5.2. Method .....	106
5.2.1. Selection of Studies .....	106
5.2.2. Coding of Studies .....	107
5.2.3. Meta-Analytic Procedure .....	107
5.3. Results .....	109
5.3.1. Description of Studies .....	109
5.3.2. Overall Effect Sizes .....	116
5.4. Discussion .....	118
5.4.1. Perfectionistic Concerns .....	119
5.4.2. Perfectionistic Strivings .....	120
5.4.3. Limitations of Overall Literature .....	121
5.4.4. Limitations of the Present Study and Future Directions .....	122
5.4.5. Concluding Remarks .....	123
5.5. References .....	124
CHAPTER SIX: EXPANDING THE SOCIAL DISCONNECTION MODEL .....	133
6. Abstract .....	133
6.1. Introduction .....	133
6.1.1. The Perfectionism Social Disconnection Model .....	134
6.1.2. Expanding the PSDM: A Role for Self-Oriented Perfectionism .....	135
6.1.3. Expanding the PSDM: A Role for Other-Oriented Perfectionism .....	136
6.1.4. Testing the Expanded PSDM using Mother-Daughter Dyads .....	137
6.1.5. The Present Study .....	138
6.2. Method .....	139
6.2.1. Participants .....	139
6.2.2. Measures .....	140
6.2.3. Procedure .....	142
6.2.4. Data Analytic Strategy .....	142
6.3. Results .....	143
6.3.1. Compliance with Protocol and Missing Data Analysis .....	143
6.3.2. Descriptive Statistics .....	143
6.3.3. Path Analysis .....	144
6.4. Discussion .....	145



6.4.1. Expanding and Testing the PSDM in Mother-Daughter Dyads .....	146
6.4.2. Limitations and Future Directions .....	148
6.4.3. Concluding Remarks .....	149
6.5. References .....	150
<b>CHAPTER SEVEN: PERFECTIONISM AND SUICIDE.....</b>	<b>159</b>
7. Abstract .....	159
7.1. Introduction .....	159
7.1.1. Conceptualizing Perfectionism .....	161
7.1.2. Perfectionistic Concerns, Perfectionistic Strivings, Other Forms of Perfectionism, and Correlates of Perfectionism.....	162
7.1.3. Suicide Ideation and Suicide Attempts.....	163
7.1.4. The Perfectionism-Suicidality Relationship .....	163
7.1.5. Advancing Research on the Perfectionism-Suicidality Relationship Using Meta-Analysis .....	165
7.1.6. Objectives and Hypothesis .....	167
7.2. Method .....	167
7.2.1. Selection of Studies .....	168
7.2.2. Coding of Studies .....	168
7.2.3. Meta-Analytic Procedures .....	169
7.2.4. Description of Studies .....	171
7.2.5. Measures.....	172
7.3. Results.....	181
7.3.1. Overall Effect Sizes .....	181
7.3.2. Moderator Analysis .....	182
7.3.3. Publication Bias .....	183
7.4. Discussion .....	183
7.4.1. An Improved Understanding of the Perfectionism-Suicidality Relationship .....	184
7.4.2. Limitations of Overall Literature.....	187
7.4.3. Limitations of the Present Study.....	188
7.4.4. Concluding Remarks .....	188
7.5. References.....	190
<b>CHAPTER EIGHT: GENERAL DISCUSSION .....</b>	<b>204</b>
8.1. Discussion .....	204
8.1.1. Perfectionistic Strivings Exacerbate Perfectionistic Concerns .....	205
8.1.2. Controlling for Perfectionistic Concerns Renders Perfectionistic Strivings Unreliable.....	206
8.1.3. Self-Oriented Perfectionism is Associated with Narcissistic Grandiosity.....	207
8.1.4. Perfectionistic Strivings Confer Risk for Depressive Symptoms Beyond Neuroticism.....	208
8.1.5. Self-Oriented Perfectionism Belongs in the Perfectionism Social Disconnection Model.....	209
8.1.6. Perfectionistic Strivings Predict Suicide Ideation .....	210
8.2. Perfectionistic Strivings are Neither Adaptive, Healthy, Positive, nor Advisable .....	211
8.3. Understanding Perfectionistic Strivings' Maladaptiveness .....	212
8.4. Limitations and Future Directions .....	213

8.5. Concluding Remarks.....	215
8.6. References.....	216
CURRICULUM VITAE .....	225

## LIST OF TABLES

Table 1. Means, standard deviations, alpha reliabilities, and bivariate correlations .....	30
Table 2. Goodness-of-fit statistics for tests of multigroup measurement invariance .....	31
Table 3. Bivariate correlations and Cronbach's alphas .....	47
Table 4. Model fit across samples.....	50
Table 5. Factor loadings and sources of variance in perfectionism.....	51
Table 6. Characteristics of studies included in the meta-analysis .....	73
Table 7. Bivariate and partial correlations for the relationship between narcissism and trait perfectionism, perfectionistic self-presentation, and perfectionistic cognitions.....	77
Table 8. Summary of overall bivariate effect sizes for the relationship between narcissism and trait perfectionism and perfectionistic self-presentation.....	79
Table 9. Summary of overall partial effect sizes for the relationship between narcissism and trait perfectionism and perfectionistic self-presentation .....	80
Table 10. Characteristics of longitudinal studies included in the meta-analysis .....	110
Table 11. Relationships between perfectionism dimensions, neuroticism, and depressive symptoms .....	112
Table 12. Summary of effect sizes for the relationship between perfectionism dimensions, neuroticism, and depressive symptoms.....	117
Table 13. Means, standard deviations, alpha reliabilities, and bivariate correlations .....	144
Table 14. Characteristics of studies included in the meta-analysis .....	173
Table 15. Summary of overall effect sizes for the relationship between perfectionism and suicidality.....	179

## LIST OF FIGURES

Figure 1. Measurement model. ....	26
Figure 2. Main effects model. ....	32
Figure 3. Interaction plot (Canada).....	34
Figure 4. Interaction plot (China) .....	34
Figure 5. Diagrams of the two-factor oblique and bifactor models for the combined sample .....	52
Figure 6. The path model for the Perfectionism Social Disconnection Model.....	145

## 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 Hemmingway’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 Stoeber and Otto’s (2006) non-empirical literature 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; Stoeber & 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, Galnick, 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

- Adler, A. (1938 / 1998). *A challenge to mankind / Social interest: Adler's key to the meaning of life*. Oxford, UK: Oneworld Publications.
- Appleton, P. R., Hall, H. K., & Hill, A. P. (2010). Family patterns of perfectionism: An examination of elite journal athletes and their parents. *Psychology and Sport Exercise, 11*, 363-371.
- Baumeister, R. F. (1990). Suicide as escape from self. *Psychological Review, 97*, 90-113.
- Békés, V., Dunkley, D., Taylor, G., Zuroff, D., Lewkowski, M., Foley, J., ... & Westreich, R. (2015). Chronic stress and attenuated improvement in depression over 1 year: The moderating role of perfectionism. *Behavior Therapy, 46*, 479-492.
- Blatt, S. J., & Homann, E. (1992). Parent-child interaction in the etiology of dependent and self-critical depression. *Clinical Psychology Review, 12*, 47-91.
- Campbell, J. D., & DiPaula, A. (2002). Perfectionistic self-beliefs: Their relation to personality goal pursuit. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 181-198). Washington, DC: American Psychological Association.
- Chang, E. C., Watkins, A., & Banks, K. H. (2004). How adaptive and maladaptive perfectionism relate to positive and negative psychological functioning: Testing a stress-mediation model in black and white female college students. *Journal of Counseling Psychology, 51*, 93-102.
- Cox, B. J., Enns, M. W., & Clara, I. P. (2002). The multidimensional structure of perfectionism in clinically distressed and college student samples. *Psychological Assessment, 14*, 365-373.
- Dunkley, D. M., & Blankstein, K. R. (2000). Self-critical perfectionism, coping, hassles, and

- current distress: A structural equation modeling approach. *Cognitive Therapy and Research*, 24, 713-730.
- Dunkley, D. M., Blankstein, K. R., & Berg, J. L. (2012). Perfectionism dimensions and the five-factor model of personality. *European Journal of Personality*, 26, 233-244.
- Dunkley, D. M., Blankstein, K. R., Halsall, J., Williams, M., & Winkworth, G. (2000). The relation between perfectionism and distress: Hassles, coping, and perceived social support as mediators and moderators. *Journal of Counseling Psychology*, 47, 437-453.
- Dunkley, D. M., Blankstein, K. R., Masheb, R. M., & Grilo, C. M. (2006). Personal standards and evaluative concerns dimensions of “clinical” perfectionism: A reply to Shafran et al. (2002, 2003) and Hewitt et al. (2003). *Behaviour Research and Therapy*, 44, 63-84.
- Dunkley, D. M., Sanislow, C. A., Grilo, C. M., & McGlashan, T. H. (2006). Perfectionism and depressive symptoms 3 years later: Negative social interactions, avoidant coping, and perceived social support as mediators. *Comprehensive Psychiatry*, 47, 106-115.
- Dunkley, D. M., Zuroff, D. C., & Blankstein, K. R. (2003). Self-critical perfectionism and daily affect: Dispositional and situational influences on stress and coping. *Journal of Personality and Social Psychology*, 84, 234-252.
- Efferson (2016, April 8). Why some people commit suicide without warning, *The Federalist*. Retrieved from <http://www.thefederalist.com/2016/04/08/why-some-people-commit-suicide-without-warning>
- Ellis, A. (1958). Relational psychotherapy. *Journal of General Psychology*, 59, 35-49.
- Enns, M. W., & Cox, B. J. (2002). The nature and assessment of perfectionism: A critical analysis. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 33-62). Washington, DC: American Psychological Association.



- Enns, M. W., Cox, B. J., & Clara, I. P. (2005). Perfectionism and neuroticism: A longitudinal study of specific vulnerability and diathesis stress models. *Cognitive Therapy and Research, 29*, 541-553
- Enns, M. W., Cox, B. J., Sareen, J., & Freeman, P. (2001). Adaptive and maladaptive perfectionism in medical students: A longitudinal investigation. *Medical Education, 35*, 1034-1042.
- Flamenbaum, R., & Holden, R. R. (2007). Psychache as a mediator in the relationship between perfectionism and suicidality. *Journal of Counseling Psychology, 54*, 51-61.
- Flett, G. L., & Hewitt, P. L. (2002). Perfectionism and maladjustment: An overview of theoretical, definitional, and treatment issues. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 5-31). Washington, DC: American Psychological Association.
- Flett, G. L., & Hewitt, P. L. (2015). Measures of perfectionism. In G. J. Boyle, D. H. Saklofske, & G. Matthews (Eds.), *Measures of personality and social psychology constructs* (pp. 595-618). San Diego, CA: Elsevier Academic Press.
- Flett, G. L., Hewitt, P. L., & Heisel, M. J. (2014). The destructiveness of perfectionism revisited: Implications for the assessment of suicide risk and the prevention of suicide. *Review of General Psychology, 18*, 156-172.
- Flett, G. L., Hewitt, P. L., Oliver, J. M., & Macdonald, S. (2002). Perfectionism in children and their parents. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 89-132). Washington, DC: American Psychological Association.
- Flett, G. L., Sherry, S. B., Hewitt, P. L., & Nepon, T. (2014). Understanding the narcissistic perfectionists among us. In A. Besser (Ed.), *Handbook of psychology of narcissism:*

- Diverse perspectives* (pp. 43-66). New York, NY: Nova Science Publishers.
- Frost, R. O., Heimberg, R. G., Holt, C. S., Mattia, J. I., & Neubauer, A. L. (1993). A comparison of two measures of perfectionism. *Personality and Individual Differences, 14*, 119-126.
- Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research, 14*, 449-468.
- Gaudreau, P. (2013). The 2 x 2 model of perfectionism: Commenting on the critical comments and suggestions of Stoeber (2012). *Personality and Individual Differences, 55*, 351-355.
- Gaudreau, P., & Thompson, A. (2010). Testing the 2 x 2 model of dispositional perfectionism. *Personality and Individual Differences, 48*, 532-537.
- Gong, X., Paulson, S. E., & Wang, C. (2016). Exploring family origins of perfectionism: The impact of interpersonal conflict and parenting behaviors. *Personality and Individual Differences, 100*, 43-48.
- Greenspoon, T. S. (2000). "Healthy perfectionism" is an oxymoron! Reflections on the psychology of perfectionism and the sociology of science. *Journal of Advanced Academics, 11*, 197-208.
- Hamachek, D. E. (1978). Psychodynamics of normal and neurotic perfectionism. *Psychology, 15*, 27-33.
- Hemingway, E., & Brucoli, M. J. (1986). *Conversations with Ernest Hemingway*. University Press of Mississippi.
- Hewitt, P. L., & Flett, G.L. (1991). Perfectionism in the self and social contexts. *Journal of Personality and Social Psychology, 60*, 456-470.
- Hewitt, P. L., & Flett, G. L. (1993). Dimensions of perfectionism, daily stress, and depression: A test of the specific vulnerability hypothesis. *Journal of Abnormal Psychology, 102*, 58-

65.

- Hewitt, P. L., Flett, G. L., Besser, A., Sherry, S. B., & McGee, B. (2003). Perfectionism is multidimensional: A reply to Shafran, Cooper, and Fairburn (2002). *Behaviour Research and Therapy, 41*, 1221-1236.
- Hewitt, P. L., Flett, G. L., & Ediger, E. (1996). Perfectionism and depression: Longitudinal assessment of a specific vulnerability hypothesis. *Journal of Abnormal Psychology, 105*, 276-280.
- Hewitt, P. L., Flett, G. L., & Mikail, S. F. (2017). Introduction to perfectionism. In P. L. Hewitt., G. L. Flett., & S. F. Mikail (Eds.), *Perfectionism: A relational approach to conceptualization, assessment, and treatment* (pp. 1-24). New York: The Guilford Press.
- Hewitt, P. L., Flett, G. L., Sherry, S. B., & Caelian, C. (2006). Trait perfectionism dimensions and suicidal behavior. In T. E. Ellis (Ed.), *Cognition and suicide: Theory, research, and therapy* (pp. 215-235). Washington, DC: American Psychological Association.
- Hewitt, P. L., Norton, R., Flett, G. L., Callander, L., & Cowan, T. (1998). Dimensions of perfectionism, hopelessness, and attempted suicide in a sample of alcoholics. *Suicide and Life Threatening Behavior, 28*, 395-406.
- Hill, A. P. (2014). Perfectionistic strivings and the perils of partialling. *International Journal of Sport and Exercise Psychology, 12*, 302-315.
- Hill, A. P. (2017). Real and imagined perils: A reply to Stoeber and Gaudreau (2017). *Personality and Individual Differences, 108*, 220-224.
- Hill, R. W., Huelsman, T. J., & Arajuo, G. (2010). Perfectionistic concerns suppress associations between perfectionistic strivings and positive outcomes. *Personality and Individual Differences, 48*, 584-589.

Hill, R. W., McIntire, K., & Bacharach, V. (1997). Perfectionism and the Big Five factors.

*Journal of Social Behavior and Personality*, 12, 257-270.

Horney, K. (1950). *Neurosis and human growth*. New York, NY: Norton.

Hutchner, A. E. (2004). *Papa Hemingway: A personal memoir*. New York, NY: Da Capo Press.

Mackinnon, S. P., Kehayes, I. L. L., Leonard, K. E., Fraser, R., & Stewart, S. H. (2017).

Perfectionistic concerns, social negativity, and subjective well-being: A test of the social disconnection model. *Journal of Personality*, 85, 326-340.

Morf, C. C., & Rhodewalt, F. (2001). Unraveling the paradoxes of narcissism: A dynamic self-

regulatory processing model. *Psychological Inquiry*, 12, 177-196.

Moretti, M. M., & Higgins, E. (1999). Own versus other standpoints in self-regulation. *Review of*

*General Psychology*, 3, 188-223.

Nealis, L. J., Sherry, S. B., Sherry, D., Stewart, S. H., & Macneil, M. (2015). Towards a better

understanding of narcissistic perfectionism: Evidence of factorial validity, incremental validity, and mediating mechanisms. *Journal of Research in Personality*, 57, 11-25.

Nealis, L. J., Sherry, S. B., Sherry, D. L., Stewart, S. H., & Macneil, M. A. (2016). Revitalizing

narcissistic perfectionism: Evidence of reliability and validity of an emerging construct. *Journal of Psychopathology and Behavioral Assessment*, 38, 493-504.

Pacht, A. R. (1984). Reflections on perfectionism. *American Psychologist*, 39, 3863-3890.

Powers, T. A., Koestner, R., Zuroff, D., Milyavskaya, & Gorin (2011). The effect of self-

criticism and self-oriented perfectionism on goal pursuit. *Personality and Social Psychology Bulletin*, 37, 964-975.

Reilly, E. E., Stey, P., & Lapsley, D. K. (2016). A new look at the links between perceived

parenting, socially prescribed perfectionism, and disordered eating. *Personality and*

- Individual Differences*, 88, 17-20.
- Rice, K. G., & Ashby, J. S. (2002). An efficient method for classifying perfectionists. *Journal of Counseling Psychology*, 54, 72-85.
- Rice, K. G., Ashby, J. S., & Slaney, R. B. (2007). Perfectionism and the five-factor model of personality. *Assessment*, 14, 385-398.
- Rubstein, A. T. (1988). *American literature root and flower*. New York: Monthly Review Press.
- Sherry, S. B., Gralnic, T. M., Hewitt, P. L., Sherry, D. L., & Flett, G. L. (2014). Perfectionism and narcissism: Testing unique relationships and gender differences. *Personality and Individual Differences*, 61, 52-56.
- Sherry, S. B., Mackinnon, S. P., & Gaudreau, C. G. (2016). Perfectionist's don't play nicely with others: Expanding the social disconnection model. In F. M. Sirois & D. Molnar (Eds.), *Perfectionism, health, and well-being* (pp. 225-243). New York, NY: Springer.
- Sherry, S. B., Mackinnon, S. P., Macneil, M. A., & Fitzpatrick, S. (2013). Discrepancies confer vulnerability to depressive symptoms: A three-wave longitudinal study. *Journal of Counseling Psychology*, 60, 112-126.
- Soenens, B., Elliot A. J., Gossens, L., Vansteenkiste, M., Luyten, P., & Duriez, B. (2005a). The intergenerational transmission of perfectionism: Parents' psychological control as an intervening variable. *Journal of Family Psychology*, 19, 358-366.
- Soenens, B., Luyckx, K., Vansteenkiste, M., Luyten, P., Duriez, B., & Goossens, L. (2008). Maladaptive perfectionism as an intervening variable between psychological control and adolescent depressive symptoms: A three-wave longitudinal study. *Journal of Family Psychology*, 22, 465-474.
- Soenens, B., Vansteenkiste M., Luyten, P., Duriez, B., & Goossens, L. (2005b). Maladaptive

- perfectionistic self-representations: The mediating link between psychological control and adjustment. *Personality and Individual Differences*, *38*, 487-498.
- Smith, M. M., & Saklofske, D. H. (2017). The structure of multidimensional perfectionism: Support for a bifactor model with a dominant general factor. *Journal of Personality Assessment*, *99*, 297-303.
- Smith, M. M., Saklofske, D. H., Stoeber, J., & Sherry, S. B. (2016). The Big Three Perfectionism Scale: A new measure of perfectionism. *Journal of Psychoeducational Assessment*, *34*, 670-688.
- Smith, M. M., Saklofske, D. H., & Yan, G. (2015). Perfectionism, trait emotional intelligence, and psychological outcomes. *Personality and Individual Differences*, *85*, 155-158.
- Smith, M. M., Saklofske, D. H., Yan, G., & Sherry, S. B. (2015). Perfectionistic strivings and perfectionistic concerns interact to predict negative emotionality: Support for the tripartite model of perfectionism in Canadian and Chinese university students. *Personality and Individual Differences*, *81*, 141-147.
- Smith, M. M., Sherry, S. B., Chen, S., Saklofske, D. H., Flett, G. L., & Hewitt, P. L. (2016). Perfectionism and narcissism: A meta-analytic review. *Journal of Research in Personality*, *64*, 90-101
- Smith, M. M., Sherry, S. B., Chen, S., Saklofske, D. H., Mushquash, C., Flett, G. L., & Hewitt, P. L. (in press). The perniciousness of perfectionism: A meta-analytic review of the perfectionism-suicide relationship. *Journal of Personality*. doi:10.1111/jopy.12333
- Smith, M. M., Sherry, S. B., Gautreau, C. M., Mushquash, A., Saklofske, D. H., & Snow, S. L. (2017). The intergenerational transmission of perfectionism: Fathers' other-oriented perfectionism and daughters' perceived psychological control predict daughters' self-

- critical and personal standards perfectionism. *Personality and Individual Differences*, *119*, 242-248.
- Smith, M. M., Sherry, S. B., Gautreau, C. M., Stewart, S. H., Saklofske, D. H., & Mushquash, A. R. (2017). Are perfectionistic concerns an antecedent of or a consequence of binge eating, or both? A short-term four-wave longitudinal study of undergraduate women. *Eating Behaviour*, *26*, 23-26.
- Smith, M. M., Sherry, S. B., Mushquash, A. R., Saklofske, D. H., Gautreau, C., & Nealis, L. J. (2017). Perfectionism erodes social self-esteem and generates depressive symptoms: Studying mother-daughter dyads using a daily diary design with longitudinal follow-up. *Journal of Research in Personality*, *71*, 72-79.
- Smith, M. M., Sherry, S.B., Rnic, K., Saklofske, D. H., Enns, M. W., & Gralnick, T. (2016). Are perfectionism dimensions vulnerability factors for depressive symptoms after controlling for neuroticism? A meta-analysis of 10 longitudinal studies. *European Journal of Personality*, *30*, 201-212
- Smith, M. M., Sherry, S. B., Saklofske, D. H., & Mushquash, A. R. (2017). Clarifying the perfectionism-procrastination relationship using a 7-day, 14 occasion daily diary study. *Personality and Individual Differences*, *112*, 117-123.
- Smith, M. M., Speth, T., Sherry, S. B., Saklofske, D. H., Stewart, S. H., & Glowacka, M. (2017). Is socially prescribed perfectionism veridical? A new take on the stressfulness of perfectionism. *Personality and Individual Differences*, *110*, 115-118.
- Smith, M. M., Vidovic, V., Sherry, S. B., Stewart, S. H., & Saklofske, D. H. (2018). Perfectionistic concerns confer risk for anxiety symptoms: A meta-analysis of 11 longitudinal studies. *Anxiety, Stress, & Coping*, *31*, 4-20.

Stoeber, J. (2012). The 2 x 2 model of perfectionism: A critical comment and some suggestions.

*Personality and Individual Differences, 61*, 97-100.

Stoeber, J. (2014a). How other-oriented perfectionism differs from self-oriented and socially

prescribed perfectionism. *Journal of Psychopathology and Behavioral Assessment, 36*,

329-338.

Stoeber, J. (2014b). Multidimensional perfectionism and the DSM-5 personality traits.

*Personality and Individual Differences, 64*, 115-120.

Stoeber, J. (2018). Perfectionism: An introduction. In J. Stoeber (Ed.), *The psychology of*

*perfectionism: Theory, research, applications* (pp. 3-15). London: Routledge.

Stoeber, J., Corr, P. J., Smith, M. M., & Saklofske, D. H. (2018). Perfectionism and

personality. In J. Stoeber (Ed.), *The psychology of perfectionism: Theory, research,*

*applications* (pp. 68-88). London: Routledge.

Stoeber, J., & Gaudreau, P. (2017). The advantages of partialling perfectionistic strivings and

perfectionistic concerns: Critical issues and recommendations. *Personality and Individual*

*Differences, 104*, 379-386.

Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: Approaches, evidence,

challenges. *Personality and Social Psychology Review, 10*, 295-319.

Stoeber, J., Sherry, S. B., & Nealis, L. J. (2015). Multidimensional perfectionism and narcissism:

Grandiose or vulnerable? *Personality and Individual Differences, 80*, 85-90.

Tozzi, F., Aggen, S. H., Neale, B. M., Anderson, C. B., Mazzeo, S. E., Neale, M. C., & Bulik, C.

M. (2004). The structure of perfectionism: A twin study. *Behavior Genetics, 34*, 483-494.

Yalom, I. (1971). Ernest Hemingway—A psychiatric view. *Archives of General Psychiatry, 24*,

485-494.



**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<sup>1</sup>” 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.

### **2.1.1. 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.

---

<sup>1</sup>We 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 (Douilliez & 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**

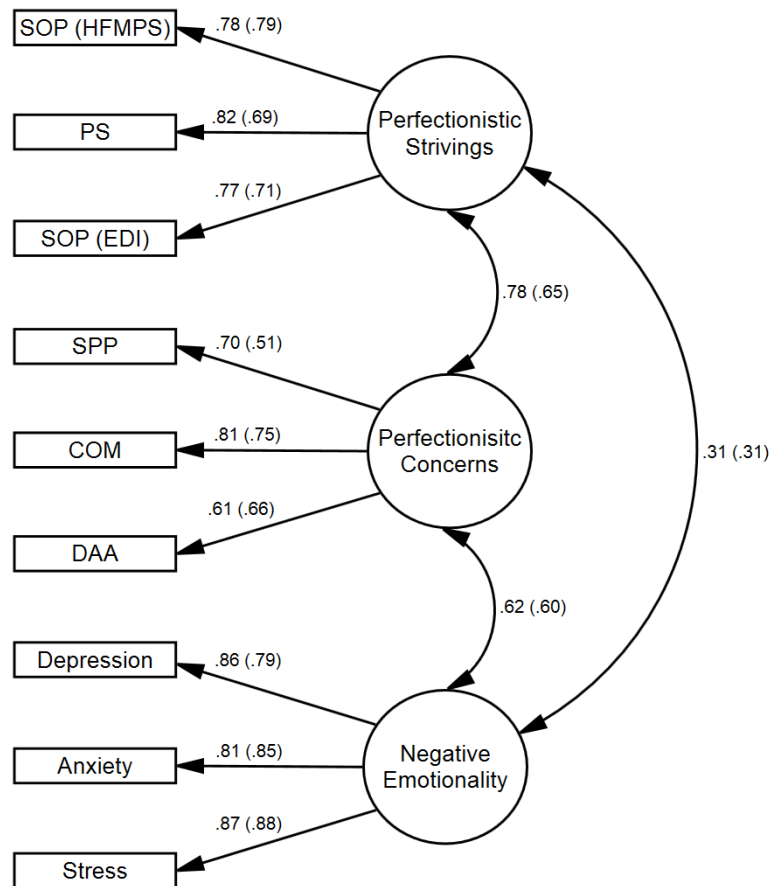
### **2.2.1. Participants**

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).



**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

Perfectionistic concerns were measured using three short form subscales developed by Cox, Enns, and Clara (2002) and Hewitt, Habke, Lee-Bagley, Sherry, and Flett (2008): The short form of Hewitt and Flett's (1991) *Multidimensional Perfectionism Scale Socially*

*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 ( $\Delta\text{CFI}$ ) were used for invariance testing rather than chi-square difference tests ( $\Delta X^2$ ) 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 1.** Means, standard deviations, alpha reliabilities, and bivariate correlations

Variable	1	2	3	$\alpha$	$M$	$SD$
1. Perfectionistic strivings	—	.62*	.28*	.91	—	—
2. Perfectionistic concerns	.49*	—	.51*	.89	—	—
3. Negative emotionality	.30*	.44*	—	.93	14.91	10.74
$\alpha$	.85	.80	.91	—	—	—
$M$	—	—	12.08	—	—	—
$SD$	—	—	9.18	—	—	—

*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 ( $\Delta\text{CFI} = .014$ ; 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

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

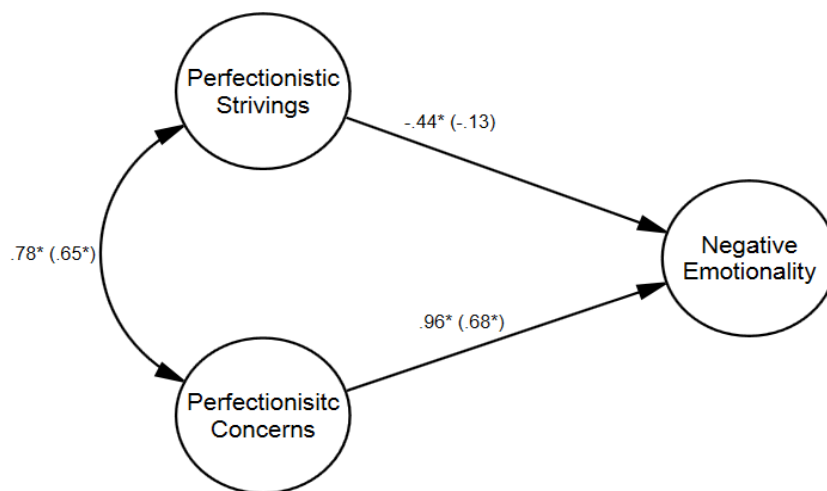
Note.  $\Delta\text{CFI}$  = differences in CFI values between models.

### 2.3.3. Main Effects

The fit of the main effects model for the Canadian group (see Figure 2) was acceptable:  $X^2 = 171.13$ ,  $\text{CFI} = .923$ ,  $\text{TLI} = .884$ ,  $\text{RMSEA} = .121$  (95% CI .104-.138). The fit of the main effects model for the Chinese group (see Figure 2) was excellent:  $X^2 = 94.01$ ,  $\text{CFI} = .964$ ,  $\text{TLI} = .946$ ,  $\text{RMSEA} = .072$  (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  $\beta = -.13, p > .05$ ).



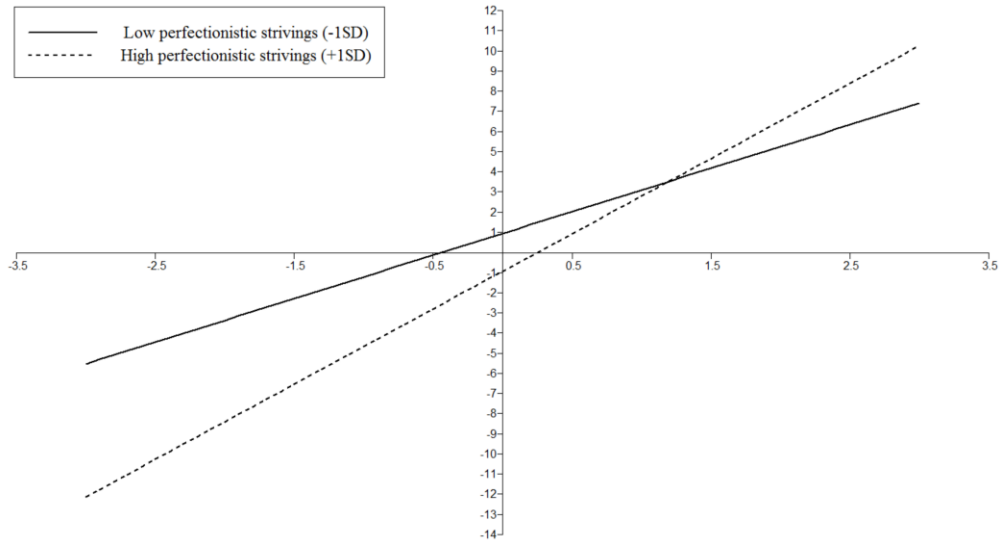
**Figure 2.** Main effects model.

*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

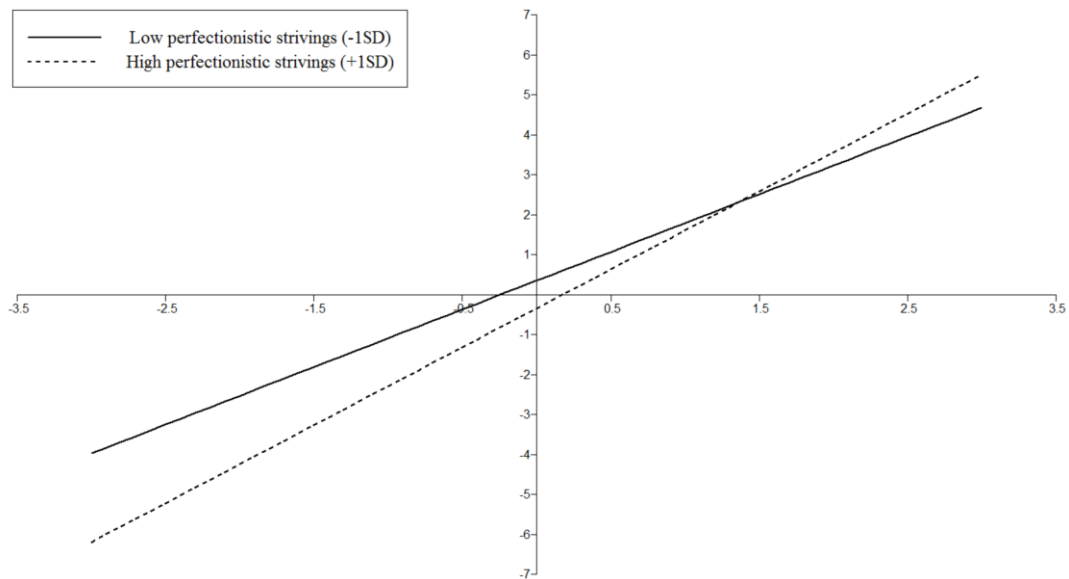
Significant moderation was observed in the Canadian group (unstandardized  $\beta = .03$ ,  $p < .001$ ). The model with no interaction term had an AIC value of 20101.92 compared to an AIC value of 20083.64 for the model with the interaction term suggesting the model with the interaction term is preferable to the main effects model ( $\Delta\text{AIC} = 18.28$ ). 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 ( $\Delta\text{AIC} = 5.79$ ; 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).



**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  $-3SD$  to  $+3SD$ . 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

- Bieling, P. J., Israeli, A. L., Smith, J., & Antony, M. M. (2004). Is perfectionism good, bad, or both? *Personality and Individual Differences, 36*, 1373-1385.
- Burnham, K. P., & Anderson, D. R. (2002). *Model selection and multimodel inference: A practical information-theoretical approach (2<sup>nd</sup> edition)*. New York, NY: Springer.
- Byrne, B. M. (2001). Structural equation modeling with AMOS, EQS, and LISREL: Comparative approaches to testing for the factorial validity of a measuring instrument. *International Journal of Testing, 1*, 55-86.
- Byrne, B. M. (2012). *Structural equation modeling with Mplus: Basic concepts, applications, and programming*. New York, NY: Routledge/Taylor & Francis.
- Cham, H., West, S. G., & Ma, Y. (2012). Estimating latent variable interactions with non-normal observed data: A comparison of four approaches. *Multivariate Behavioral Research, 47*, 840-876.
- Cox, B. J., Enns, M. W., & Clara, I. P. (2002). The multidimensional structure of perfectionism in clinically distressed and college student samples. *Psychological Assessment, 14*, 465-473.
- Douilliez, C., & Lefevre, F. (2011). Interactive effect of perfectionism dimensions on depressive symptoms: A reply to Gaudrau and Thompson. *Personality and Individual Difference, 50*, 1147-1151.
- Dunkley, D. M., Zuroff, D. C., & Blankstein, K. R. (2003). Self-critical perfectionism and daily affect: Dispositional and situational influences on stress and coping. *Journal of Personality and Social Psychology, 84*, 234-252.
- Flett, G. L., & Hewitt, P. L. (2006). Positive versus negative perfectionism in psychopathology: A comment on Slade and Owens's dual process model. *Behavior Modification, 30*, 472-

495.

Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism.

*Cognitive Therapy and Research, 14*, 449-468.

Gaudreau, P. (2013). The 2 x 2 model of perfectionism: Commenting the critical comments and

suggestions of Stoeber (2012). *Personality and Individual Differences, 55*, 351-355.

Gaudreau, P., & Thompson, A. (2010). Texting a 2x2 model of dispositional perfectionism.

*Personality and Individual Differences, 48*, 532-537.

Gilman, R., Ashby, J. S. Sverko, D., Florell, D., & Varjas, K. (2005). The relationship between

perfectionism and multidimensional life satisfaction among Croatian and American

youth. *Personality and Individual Differences, 39*, 155.

Graham, A. R., Sherry, S. B., Stewart, S. H., Sherry, D. L., McGrath, D. S., Fossum, K. M., &

Allen, S. L. (2010). The existential model of perfectionism and depressive symptoms: A

short-term, four-wave longitudinal study. *Journal of Counseling Psychology, 57*, 423-

438.

Hambleton, R.K., & Lee, M.K. (2013). Methods of translating and adapting tests to increase

cross-language validity. In D. H. Saklofske, C. R. Reynolds, & V. L. Schwann (Eds.),

*The Oxford Handbook of Child Psychological Assessment* (pp. 172-181). New York:

Oxford University Press.

Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts:

Conceptualization, assessment, and association with psychopathology. *Journal of*

*Personality and Social Psychology, 60*, 456-470.

Hewitt, P. L., Flett, G. L., Besser, A., Sherry, S. B., & McGee, B. (2003). Perfectionism is

multidimensional: A reply to Shafran, Cooper and Fairburn (2002). *Behaviour Research*

- and Therapy, 41*, 1221-1236.
- Hewitt, P. L., Habke, A. M., Lee-Baggley, D., Sherry, S. B., & Flett, G. L. (2008). The impact of perfectionistic self-presentation on the cognitive, affective, and physiological experience of a clinical interview. *Psychiatry: Interpersonal and Biological Processes, 71*, 93-122.
- Hoyle, R. H. (Ed.). (2012). *Handbook of structural equation modeling*. New York, NY: Guilford.
- Jose, E. P. (2013). *Doing statistical mediation & moderation*. New York, NY: Guilford.
- Klein, A., & Moosbrugger, H. (2000). Maximum likelihood estimation of latent interaction effects with the LMS method. *Psychometrika, 65*, 457-474.
- Klein, R. B. (2011). *Principles and Practice of Structural Equation Modeling*. New York, NY: Guilford.
- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the beck depression and anxiety inventories. *Behaviour Research and Therapy, 33*, 335-343.
- Mackinnon, S. P., & Sherry, S. B. (2012). Perfectionistic self-presentation mediates the relationship between perfectionistic concerns and subjective well-being: A three-wave longitudinal study. *Personality and Individual Differences, 53*, 22-28.
- McGrath, D. S., Sherry, S. B., Stewart, S. H., Mushquash, A. R., Allen, S. L., Nealis, L. J., & Sherry, D. L. (2012). Reciprocal relations between self-critical perfectionism and depressive symptoms: Evidence from a short-term, four-wave longitudinal study. *Canadian Journal of Behavioural Science, 44*, 169-181.
- Meade, A. W., Johnson, E. C., & Braddy, P. W. (2008). Power and sensitivity of alternative fit indices in tests of measurement invariance. *Journal of Applied Psychology, 93*, 568-592.
- Parker, W. D. (1997). An empirical typology of perfectionism in academically talented

- children. *American Educational Research Journal*, 34, 545-562.
- Rice, K. G., & Ashby, J. S. (2007). An efficient method for classifying perfectionists. *Journal of Counseling Psychology*, 54, 72-85.
- Rice, K. G., & Slaney, R. B. (2002). Clusters of perfectionists: Two studies of emotional adjustment and academic achievement. *Measurement and Evaluation in Counseling and Development*, 35, 35-48.
- Sherry, S. B., Hewitt, P. L., Besser, A., McGee, B. J., & Flett, G. L. (2004). Self-oriented and socially prescribed perfectionism in the eating disorder inventory perfectionism subscale. *International Journal of Eating Disorders*, 35, 69-79.
- Sherry, S. B., Hewitt, P. L., Sherry, D. L., Flett, G. L., & Graham, A. R. (2010). Perfectionism dimensions and research productivity in psychology professors: Implications for understanding the (mal)adaptiveness of perfectionism. *Canadian Journal of Behavioural Science*, 42, 273-283.
- Smith, M. M., Saklofske, D. H., & Nordstokke, D. W. (2014). The link between neuroticism and perfectionistic concerns: The mediating effect of trait emotional intelligence. *Personality and Individual Differences*, 61, 97-100.
- Smith, M. M., Saklofske, D. H., Yan, G., & Sherry, S. B. (2016). Cultural similarities in perfectionism: Perfectionistic strivings and concerns generalize across Chinese and Canadian Groups. *Measurement and Evaluation in Counseling and Development*, 49, 63-76.
- Stoeber, J. The 2 x 2 model of perfectionism. A critical comment and some suggestions. (2012). *Personality and Individual Differences*, 53, 541-545.
- Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: Approaches, evidence, challenges. *Personality and Social Psychology Review*, 10, 295-319.

## 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)<sup>1</sup>. 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)<sup>2</sup>.

Perfectionistic concerns are robustly associated with negative outcomes (e.g., depression; Stoeber & 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 Stoeber & 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; Stoeber & Otto, 2006) which has been found to emerge from different measures (e.g., the Clinical Perfectionism Questionnaire; Stoeber & 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

---

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

<sup>2</sup>As 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 (FMPS) Self-Oriented Perfectionism subscale (FMPS-SOP; e.g., "I strive to be as perfect as I can be"; see Hewitt, Habke, Lee-Baggley, 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 FMPS-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 FMPS-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 FMPS-SOP, FMPS-PS, APS-R-O, and APS-R-S were all adequate ( $\alpha > .70$ ; 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) FMPS Socially Prescribed Perfectionism subscale (FMPS-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 ( $\alpha > .70$ ; see Table 3).

**Table 3.** Bivariate correlations and Cronbach's alphas

	1	2	3	4	5	6	7	8	$\alpha$
Sample 1									
1. Socially prescribed perfectionism (HFMPs)	1								.79
2. Concern over mistakes (FMPS)	.65*	1							.82
3. Doubts about actions (FMPS)	.46*	.65*	1						.76
4. Discrepancy (APS-R)	.51*	.68*	.65*	1					.93
5. Other-oriented perfectionism (HFMPs)	.57*	.55*	.41*	.41*	1				.82
6. Self-oriented perfectionism (HFMPs)	.62*	.58*	.48*	.49*	.55*	1			.87
7. Personal standards (FMPS)	.57*	.62*	.51*	.48*	.50*	.76*	1		.82
8. High standards (APS-R)	.41*	.46*	.34*	.53*	.25*	.63*	.69*	1	.79
9. Order (APS-R)	.16	.16	.12	.16	.13	.34*	.27*	.48*	.85
Sample 2									
1. Socially prescribed perfectionism (HFMPs)	1								.90
2. Concern over mistakes (FMPS)	.70*	1							.82
3. Doubts about actions (FMPS)	.61*	.70*	1						.78
4. Discrepancy (APS-R)	.58*	.71*	.73*	1					.95
5. Other-oriented perfectionism (HFMPs)	.61*	.48*	.39*	.41*	1				.72
6. Self-oriented perfectionism (HFMPs)	.66*	.54*	.48*	.57*	.51*	1			.90
7. Personal standards (FMPS)	.62*	.55*	.50*	.48*	.52*	.74*	1		.72
8. High standards (APS-R)	.53*	.39*	.31*	.45*	.39*	.71*	.68*	1	.87
9. Order (APS-R)	.29*	.28	.13	.31*	.23*	.53*	.37*	.65*	.87
Sample 3									
1. Socially prescribed perfectionism (HFMPs)	1								.88
2. Concern over mistakes (FMPS)	.54*	1							.79
3. Doubts about actions (FMPS)	.43*	.60*	1						.78
4. Discrepancy (APS-R)	.42*	.64*	.59*	1					.94
5. Other-oriented perfectionism (HFMPs)	.58*	.48*	.28*	.35*	1				.80
6. Self-oriented perfectionism (HFMPs)	.59*	.51*	.34*	.39*	.53*	1			.84
7. Personal standards (FMPS)	.48*	.57*	.38*	.41*	.45*	.70*	1		.80
8. High standards (APS-R)	.33*	.29*	.17*	.38*	.28*	.63*	.60*	1	.88
9. Order (APS-R)	.09	.10	.09	.19*	.12*	.33*	.15*	.47*	.84

Note. HFMPs = Hewitt and Flett's (1991) Multidimensional Perfectionism Scale; FMPS = Frost's et al.'s (1990) Multidimensional Perfectionism Scale; APS-R = Slaney et al.'s (2001) Almost Perfect Scale-Revised.  $\alpha$  = Cronbach's alpha. \* $p < .001$ .

### 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 bounds 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

Models (M)	Model Fit						
	$\chi^2$	df	RMSEA [90% CI]	Pclose	CFI	TLI	BIC
Sample 1							
M1: One-factor	296.28*	27	.180 [.162, .199]	.000	.794	.725	7038.73
M2: Two-factor orthogonal	386.29*	27	.208 [.190, .227]	.000	.725	.634	7149.07
M3: Two-factor oblique	199.35*	26	.147 [.129, .167]	.000	.867	.816	6951.09
M4: Two-factor oblique CE permitted	104.62*	23	.108 [.087, .129]	.000	.938	.902	6883.05
M5: Bi-factor CE permitted	29.98	15	.057 [.026, .087]	.315	.989	.972	6842.68
Sample 2							
M1: One-factor	201.04*	27	.212 [.185, .239]	.000	.763	.683	3418.99
M2: Two-factor orthogonal	189.34*	27	.204 [.177, .232]	.000	.779	.705	3438.00
M3: Two-factor oblique	110.23*	26	.150 [.122, .179]	.000	.885	.841	3363.03
M4: Two-factor oblique CE permitted	78.34	23	.129 [.099, .161]	.000	.924	.882	3344.09
M5: Bi-factor CE permitted	32.79	15	.091 [.048, .133]	.057	.976	.942	3326.82
Sample 3							
M1: One-factor	290.28*	27	.181 [.163, .200]	.000	.744	.659	7276.08
M2: Two-factor orthogonal	295.86*	27	.183 [.165, .202]	.000	.739	.652	7309.07
M3: Two factor oblique	180.19*	26	.141 [.122, .161]	.000	.850	.793	7169.96
M4: Two-factor oblique CE permitted	140.23*	23	.131 [.111, .152]	.000	.886	.822	7145.92
M5: Bi-factor model CE permitted	32.79	15	.063 [.033, .093]	.208	.983	.959	7068.30
Combined sample							
M1: One-factor	655.99*	27	.178 [.166, .190]	.000	.783	.711	17580.32
M2: Two-factor orthogonal	741.52*	27	.188 [.177, .200]	.000	.758	.677	17760.20
M3: Two factor oblique	373.60*	26	.134 [.122, .146]	.000	.882	.837	17333.21
M4: Two-factor oblique CE permitted	261.23*	23	.118 [.105, .131]	.000	.919	.874	17222.56
M5: Bi-factor model CE permitted	45.92*	15	.052 [.036, .070]	.377	.990	.975	17022.65

*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.

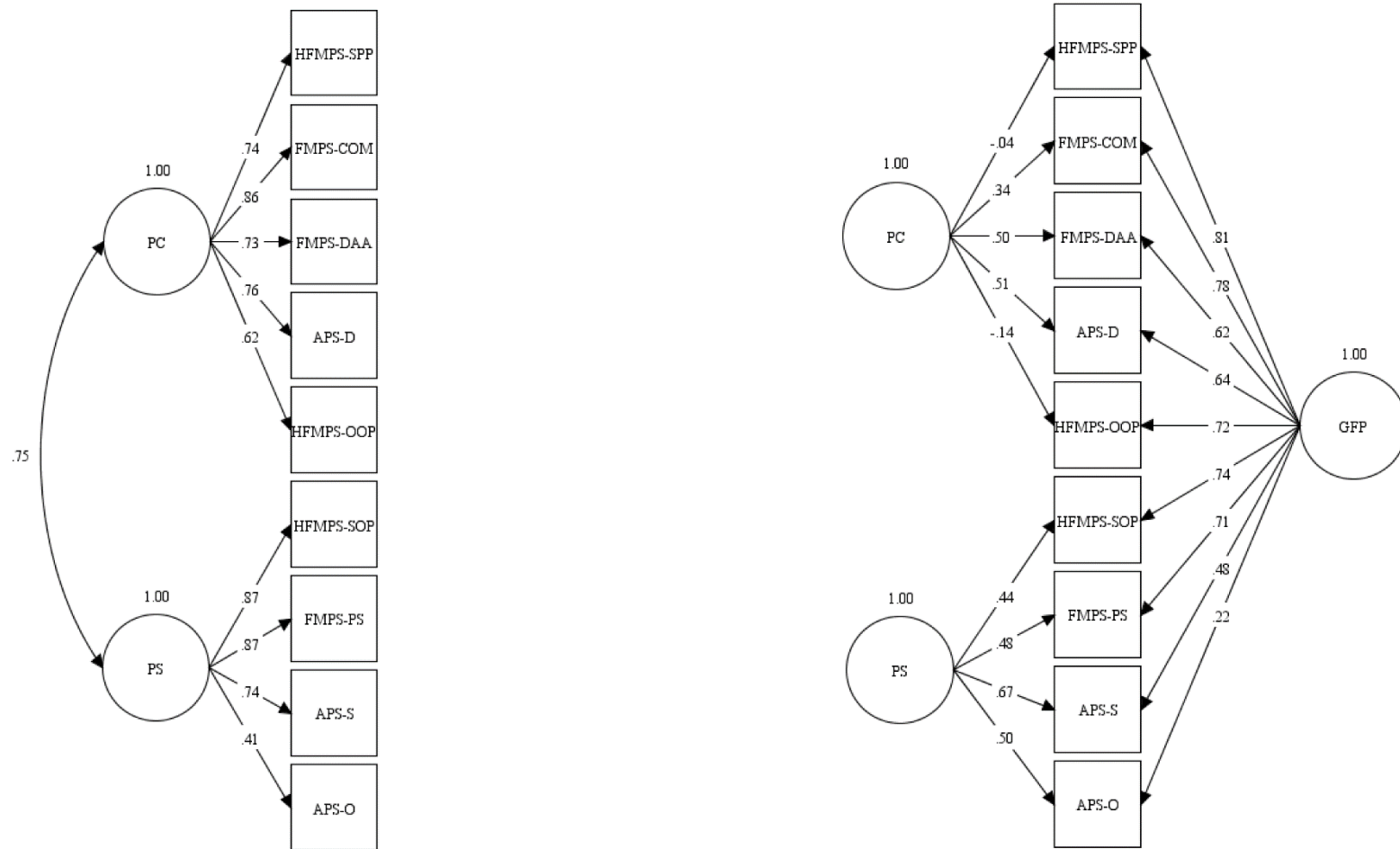
\* $p < .001$ .

**Table 5.** Factor loadings and sources of variance in perfectionism

Indicator	One-factor	Two-factor		Bifactor		
	GFP	PS	PS	GFP	PC	PS
Socially prescribed perfectionism (HFMPs)	.75*	.74*	–	.81*	–.04	–
Concern over mistakes (FMPS)	.78*	.87*	–	.78*	.34*	–
Doubts about actions (FMPS)	.65*	.73*	–	.62*	.50*	–
Discrepancy (APS-R)	.68*	.76*	–	.64*	.51*	–
Other-oriented perfectionism (HFMPs)	.64*	.62*	–	.72*	–.14	–
Self-oriented perfectionism (HFMPs)	.82*	–	.87*	.74*	–	.44*
Personal standards (FMPS)	.80*	–	.87*	.71*	–	.48*
High standards (APS-R)	.64*	–	.74*	.48*	–	.67*
Order (APS-R)	.32*	–	.41*	.22*	–	.50*
% total variance	41.8	22.9	25.2	38.6	4.4	9.7
% common variance	–	47.6	52.4	73.2	8.4	18.4
	–	$\omega = .87$	$\omega = .87$	$\omega = .86$	$\omega = .87$	$\omega = .88$
	–	–	–	$\omega_h = .77$	$\omega_s = .04$	$\omega_s = .36$

*Note.* HFMPs = Hewitt and Flett's (1990) Multidimensional Perfectionism Scale Short Form (see Hewitt et al., 2008); FMPS-SF = Frost et al.'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; GFP = general factor of perfectionism; PS = perfectionistic strivings; PC = perfectionistic concerns;  $\omega$  = omega coefficient;  $\omega_h$  = omega hierarchical;  $\omega_s$  = omega subscale.

\* $p < .001$ .



**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;  $P_{close}$  = .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:  $\Delta\chi^2_{(11)} = 23.50$ ,  $p = .080$ . 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.,  $\geq .40$ ) 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  $\omega_h$  (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 ( $\omega_s$ ), 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 findings 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

- Betts, J., Pickart, M., & Heistad, D. (2011). Investigating early literacy and numeracy: Exploring the utility of the bifactor model. *School Psychology Quarterly, 26*, 97.
- Chen, F. F., West, S. G., & Sousa, K. H. (2006). A comparison of bifactor and second-order models of quality of life. *Multivariate Behavioral Research, 41*, 189-225.
- Cox, B. J., Enns, M. W., & Clara, I. P. (2002). The multidimensional structure of perfectionism in clinically distressed and college student samples. *Psychological Assessment, 14*, 365.
- DeMars, C. E. (2013). A tutorial on interpreting bifactor model scores. *International Journal of Testing, 13*, 354-378.
- Dunkley, D. M., Blankstein, K. R., & Berg, J. L. (2012). Perfectionism dimensions and the five-factor model of personality. *European Journal of Personality, 26*, 233-244.
- Dunkley, D. M., Blankstein, K. R., Halsall, J., Williams, M., & Winkworth, G. (2000). The relation between perfectionism and distress: Hassles, coping, and perceived social support as mediators and moderators. *Journal of Counseling Psychology, 47*, 437-453.
- Ferguson, C. J. (2009). An effect size primer: A guide for clinicians and researchers. *Professional Psychology: Research and Practice, 40*, 532-538.
- Flett, G., & Hewitt, P. (2015). Measures of perfectionism. In G. J. Boyle, D. H. Saklofske & G. Mathews (Eds.), *Personality and Social Psychology Constructs* (pp. 595-617). Academic Press.
- Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research, 14*, 449-468.
- Gibbons, R. D., & Hedeker, D. R. (1992). Full-information item bi-factor analysis. *Psychometrika, 57*, 423-436.

- Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology, 60*, 456.
- Hewitt, P. L., & Flett, G. L. (2004). *The Multidimensional Perfectionism Scale: Manual*. Toronto: Multi-Health Systems, Inc.
- Hewitt, P. L., Flett, G. L., Besser, A., Sherry, S. B., & McGee, B. (2003). Perfectionism is multidimensional: A reply to Shafran, Cooper, and Fairburn (2003). *Behaviour Research and Therapy, 41*, 1221-1236.
- Hewitt, P. L., Habke, A. M., Lee-Baggley, D. L., Sherry, S. B., & Flett, G. L. (2008). The impact of perfectionistic self-presentation on the cognitive, affective, and physiological experience of a clinical interview. *Psychiatry, 71*, 93-122.
- Hill, R. W., Huelsman, T. J., & Araujo, G. (2010). Perfectionistic concerns suppress associations between perfectionistic strivings and positive life outcomes. *Personality and Individual Differences, 48*, 584-589.
- Hu, L. T., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods, 3*, 424.
- Jovanović, V. (2015). A bifactor model of subjective well-being: A re-examination of the structure of subjective well-being. *Personality and Individual Differences, 87*, 45-49.
- Kline, R. B. (2015). *Principles and practice of structural equation modeling*. Guilford publications.
- Mackinnon, S. P., & Sherry, S. B. (2012). Perfectionistic self-presentation mediates the relationship between perfectionistic concerns and subjective well-being: A three-wave longitudinal study. *Personality and Individual Differences, 53*, 22-28.

- Musek, J. (2007). A general factor of personality: Evidence for the Big One in the five-factor model. *Journal of Research in Personality, 41*, 1213-1233.
- Muthén, L., & Muthén, B. (2010). *Mplus user's guide* (6<sup>th</sup> ed.). Los Angeles, CA: Muthén & Muthén.
- Reise, S. P. (2012). The rediscovery of bifactor measurement models. *Multivariate Behavioral Research, 47*, 667-696.
- Reise, S. P., Bonifay, W. E., & Haviland, M. G. (2013). Scoring and modeling psychological measures in the presence of multidimensionality. *Journal of Personality Assessment, 95*, 129-140.
- Reise, S. P., Moore, M., & Haviland, G. (2010). Bifactor models and rotations: Exploring the extent to which multidimensional data yield univocal scale scores. *Journal of Personality Assessment, 92*, 544-559.
- Rice, K. G., Ashby, J. S., & Slaney, R. B. (2007). Perfectionism and the five-factor model of personality. *Assessment, 14*, 385-398.
- Sherry, S. B., Hewitt, P. L., Sherry, D. L., Flett, G. L., & Graham, A. R. (2010). Perfectionism dimensions and research productivity in psychology professors: Implications for understanding the (mal)adaptiveness of perfectionism. *Canadian Journal of Behavioural Science, 42*, 273.
- Slaney, R. B., Rice, K. G., & Ashby, J. S. (2002). A programmatic approach to measuring perfectionism: The Almost Perfect Scales. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 63-83). Washington, DC: American Psychological Association.
- Slaney, R. B., Rice, K. G., Mobley, M., Trippi, J., & Ashby, J. S. (2001). The revised almost



- perfect scale. *Measurement and Evaluation in Counseling and Development*, *34*, 130-145.
- Smith, M. M., Saklofske, D. H., Yan, G., & Sherry, S. B. (2015). Perfectionistic strivings and perfectionistic concerns interact to predict negative emotionality: Support for the tripartite model of perfectionism in Canadian and Chinese university students. *Personality and Individual Differences*, *81*, 141-147.
- Smith, M. M., Saklofske, D. H., Yan, G., & Sherry, S. B. (2016). Cultural similarities in perfectionism: Perfectionistic strivings and concerns generalize across Chinese and Canadian groups. *Measurement and Evaluation in Counseling and Development*, *49*, 63-76.
- Smith, M. M., Sherry, S.B., Rnic, K., Saklofske, D. H., Enns, M. W., & Gralnick, T. (2016). Are perfectionism dimensions vulnerability factors for depressive symptoms after controlling for neuroticism? A meta-analysis of 10 longitudinal studies. *European Journal of Personality*, *30*, 201-212.
- Stoeber, J., & Corr, P. J. (2016). A short empirical note on perfectionism and flourishing. *Personality and Individual Differences*, *90*, 50-53.
- Stoeber, J., & Damian, L. (2014). The clinical perfectionism questionnaire: Further evidence of two factors capturing perfectionistic strivings and perfectionistic concerns. *Personality and Individual Differences*, *61-62*, 38-42.
- Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: Approaches, evidence, challenges. *Personality and Social Psychology Review*, *10*, 295-319.

## 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

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

interpersonal power and control, exaggerated self-importance, and a sense of entitlement (Pincus et al., 2009). In contrast, narcissistic vulnerability is characterized by a defensive and insecure grandiosity which leads to feelings of worthlessness and negative affect, as well as a hypervigilant readiness for criticism or failure (Cain et al., 2008; Pincus et al., 2009; Wink, 1991). Additionally, narcissistic grandiosity and narcissistic vulnerability manifest substantially different relations with self-esteem, with narcissistic grandiosity displaying small-to-moderate positive correlations and narcissistic vulnerability displaying moderate negative correlations (Miller & Campbell, 2008; Pincus et al., 2009). Finally, narcissistic grandiosity and narcissistic vulnerability generally display divergent patterns of correlations with other forms of personality pathology. Specifically, narcissistic grandiosity is typically a stronger correlate of antisocial and histrionic personality disorders, whereas narcissistic vulnerability is typically a stronger correlate of avoidant and borderline personality disorders (Dickinson & Pincus, 2003).

#### **4.1.3. The Perfectionism-Narcissism Relationship**

Perfectionism is long present in theoretical accounts of narcissism (e.g., Ellis, 1997). Sorotzkin (1985) asserted narcissists brazenly present themselves as perfect as a means of validating their grandiose self-image. Rothstein (1999) emphasized the “felt quality of perfection” experienced by narcissists (p.17). Morf and Rhodewalt’s (2001) self-regulatory model describes perfectionism as an interpersonal strategy used as a means of protecting and enhancing narcissistic individuals’ self-esteem. Similarly, Ronningstam (2010) theorized that narcissistic individual’s grandiose self-concept is driven by a sustained sense of worthlessness, which prompts exhibition of an image of perfect capability in pursuit of others’ respect and admiration. And Pincus, Cain, and Wright (2014) noted perfectionism in narcissism is particularly problematic as perfectionism contributes to a lack of positive reinforcement from occupational, social, and recreational activities as well as social withdrawal as a means “to hide

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; Stoeber, 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, Stoeber 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 (Stoeber, 2014; Stoeber, 2015; Stober 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

(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

	Sample						Measures		
	<i>N</i>	Sample type	Mean age	Female %	Ethnic %	Status	Narcissistic grandiosity	Narcissistic vulnerability	Perfectionism
Albanese-Kotar (2001)	230	community <sup>a</sup>	32.2	60.0	11.0	dissertation	NPI	--	MPS-SOP MPS-OOP MPS-SPP
Casale et al. (2016)	305	university <sup>b</sup>	22.6	54.2	NR	article	NPI	HSNS	PSPS-PSP PSPS-NDC PSPS-NDP
Cassady (1996)	368	university <sup>b</sup>	NR	NR	NR	dissertation	SCID-II-N	--	MPS-SOP MPS-OOP MPS-SPP
Davis et al. (2001)	102	university <sup>b</sup>	21.5	100.0	0.0	article	NPI	--	MPS-SOP MPS-OOP MPS-SPP
Davis et al. (2005)	100	university <sup>b</sup>	22.8	0.0	NR	article	NPI	--	MPS-SOP
Fitzpartick et al. (2011)	305	university <sup>b</sup>	19.5	100.0	NR	article	NPI	--	MPS-SOP MPS-OOP MPS-SPP PSPS-PSP PSPS-NDP
Flett et al. (2014) Study 1	229	university <sup>b</sup>	20.6	66.4	NR	book chapter	PNI-Gran	PNI-Vul	MPS-SOP MPS-OOP MPS-SPP PSPS-PSP PSPS-NDC PSPS-NDP
Flett et al. (2014) Study 2	168	university <sup>b</sup>	20.7	60.1	NR	book chapter	PNI-Gran	PNI-Vul	MPS-SOP MPS-OOP MPS-SPP PSPS-PSP PSPS-NDP
Freudenstein et al. (2012)	100	psychiatric <sup>c</sup>	16.6	47.0	12.0	article	NPI	--	PCI CAPS-SOP CAPS-SPP
Hewitt et al. (1992)	90	psychiatric <sup>c</sup>	35.9	53.0	0.0	article	MMPI-N	--	MPS-SOP MPS-OOP MPS-SPP

Hewitt et al. (2003)	222	university <sup>b</sup>	19.2	77.0	NR	article	NPI	--	PSPS-PSP PSPS-NDC PSPS-NDP MPS-SOP MPS-OOP MPS-SPP
Hewitt and Flett (1991) Study 1	93	university <sup>b</sup>	22.1	68.0	NR	article	NPI	--	MPS-SOP MPS-OOP MPS-SPP
Hewitt and Flett (1991) Study 2	77	psychiatric <sup>c</sup>	35.9	49.0	NR	article	MCMi-N	--	MPS-SOP MPS-OOP MPS-SPP
Hewitt and Flett (2004)	71	psychiatric <sup>c</sup>	NR	NR	NR	manual	PAI-Gran	--	MPS-SOP MPS-OOP MPS-SPP
Mann et al. (2004)	200	university <sup>b</sup>	23.9	59.0	41.0	article	--	NIS	MPS-SOP MPS-OOP MPS-SPP
Mann (2006)	95	university <sup>b</sup>	23.4	79.0	NR	dissertation	NPI	--	MPS-SOP MPS-OOP MPS-SPP PSPS-PSP PSPS-NDC PSPS-NDP
McCown and Carlson (2004)	203	psychiatric <sup>c</sup>	32.2	20.0	NR	article	--	PDQ-N	MPS-SOP MPS-OOP MPS-SPP
Miller and Mesagno (2014)	90	exercisers <sup>d</sup>	27.4	62.2	2.0	article	NPI	--	MPS-SOP MPS-OOP MPS-SPP
Nathanson et al. (2006)	291	university <sup>b</sup>	NR	65.0	57.0	article	NPI	--	MPS-SOP MPS-OOP MPS-SPP
Nealis et al. (2015) Study 1	323	university <sup>b</sup>	20.6	81.7	20.0	article	DD-N PES	--	MPS-90-OOP MPS-SPP PI-HSFO
Nealis et al. (2015) Study 2	155	university <sup>b</sup>	20.7	76.8	30.0	article	DD-N PES	--	MPS-90-OOP MPS-SPP PI-HSFO
Nealis et al. (2016) Wave 2 <sup>f</sup>	155	university <sup>b</sup>	20.7	76.8	29.0	article	DD-N PES	--	MPS-90-OOP MPS-SPP PI-HSFO

Nealis et al. (2016)	151	informants <sup>g</sup>	30.2	61.9	26.7	article	DD-N PES	--	MPS-90-OOP MPS-SPP PI-HSFO
Ohtani and Sakurai (1995)	414	university <sup>b</sup>	NR	63.0	NR	article	NPI	--	MPS-SOP MPS-OOP MPS-SPP
Sherry et al. (2007) Study 1	532	university <sup>b</sup>	19.5	56.0	NR	article	--	PDQ-N	MPS-SOP MPS-OOP MPS-SPP
Sherry et al. (2007) Study 2	350	university <sup>b</sup>	19.1	82.6	NR	article	--	DAPP-N	MPS-SOP MPS-OOP MPS-SPP PSPS-PSP PSPS-NDC PSPS-NDP
Sherry et al. (2014) men	354	university <sup>b</sup>	19.7	0.0	NR	article	NPI	--	PCI MPS-SOP MPS-OOP MPS-SPP PSPS-PSP PSPS-NDC PSPS-NDP
Sherry et al. (2014) women	629	university <sup>b</sup>	19.8	100.0	NR	article	NPI	--	PCI MPS-SOP MPS-OOP MPS-SPP PSPS-PSP PSPS-NDC PSPS-NDP
Smith et al. (2016) Study 2	352	community <sup>a</sup>	36.4	42.0	26.0	article	DD-N	--	PCI MPS-SOP MPS-OOP MPS-SPP
Sorento-Gerhart (1997)	124	exercisers <sup>d</sup>	37.3	100.0	17.0	dissertation	NPI	NPDS	MPS-SOP MPS-OOP MPS-SPP
Stoeber (2014)	338	university <sup>b</sup>	19.8	81.1	27.0	article	DD-N	--	MPS-SOP MPS-OOP MPS-90-OOP MPS-SPP

Stoeber (2015)	311	university <sup>b</sup>	19.9	87.5	NR	article	PID-5-NP	--	MPS-SOP MPS-OOP MPS-SPP
Stoeber et al. (2015)	375	university <sup>b</sup>	19.6	81.9	30.0	article	NPI PNI-Gran	HSNS PNI-Vul	MPS-SOP MPS-OOP MPS-SPP
Thomaes and Sedikides (2015)	258	grade school <sup>c</sup>	13.0	100.0	2.0	article	CNS	--	CAPS-SOP CAPS-SPP
Trumpeter et al. (2006)	531	university <sup>b</sup>	19.3	64.6	36.0	article	NPI	--	MPS-SOP MPS-OOP MPS-SPP
Watson et al. (1999)	400	university <sup>b</sup>	20.3	61.2	17.0	article	NPI	OMNI	MPS-SOP MPS-OOP MPS-SPP

*Note.* **NR** = not reported. **Ethnic %** = percentage ethnic minority. **MPS** = Hewitt and Flett's (1991) Multidimensional Perfectionism Scale; **MPS-90** = Hewitt and Flett's (1990) Multidimensional Perfectionism Scale; **PSPS** = Hewitt et al.'s (2003) Perfectionistic Self-Presentation Scale; **PCI** = Flett et al.'s (1998) Perfectionistic Cognitions Inventory; **CAPS** = Flett et al.'s (2000) Child-Adolescent Perfectionism Scale; **SOP** = self-oriented perfectionism; **OOP** = other-oriented perfectionism; **SPP** = socially prescribed perfectionism; **PSP** = perfectionistic self-promotion; **NDC** = nondisclosure of imperfection; **NDP** = nondisplay of imperfection; **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** = vulnerability 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; **NIS** = Slyter's (1991) Narcissistic Injury Scale; **PDQ-N** = narcissism subscale of Hyler's (1994) Personality Diagnostic Questionnaire; **DD-N** = narcissism subscale of Jonason and Webster's (2010) Dirty Dozen Scale; **PES** = Campbell et al.'s (2004) Psychological Entitlement Scale; **DAPP-N** = narcissism subscale of Livesley et al.'s (1992) Dimensional Assessment of Personality Pathology; **NPDS** = Ashby et al.'s (1979) Narcissistic Personality Disorder Scale; **PID-5-NP** = narcissistic personality subscale of Krueger et al.'s (2012) Personality Inventory for the *DSM-5*; **HSNS** = Hendin and Cheek's (1997) Hypertensive Narcissism Scale; **CNS** = Thomaes, Stegge, et al.'s (2008) Childhood Narcissism Scale; **OMNI** = O'Brien's (1987) Multiphasic Narcissism Inventory.

<sup>a</sup>community adults

<sup>b</sup>university undergraduates

<sup>c</sup>psychiatric patients

<sup>d</sup>regular exercisers

<sup>e</sup>elementary school students

<sup>f</sup>Wave 1 data were reported in the Nealis et al. (2015) Study 2.

<sup>g</sup>informant reports





	PES	--	--	.76 <sup>a</sup>	--	--	--	--	--	--	--	--	--	--
	PES	--	--	.69 <sup>b</sup>	--	--	--	--	--	--	--	--	--	--
Ohtani and Sakurai (1995)	NPI	.26	--	.10	--	-.05	--	--	--	--	--	--	--	--
Sherry et al. (2007) Study 1	PDQ-N	.20	.04	.26	.15	.29	.21	.31	.18	.24	.09	.23	.00	.35
Sherry et al. (2007) Study 2	DAPP-N	.23	.12	.21	.12	.25	.20	.47	.29	.24	-.09	.42	.18	.34
Sherry et al. (2014) men	NPI	.12	-.02	.30	.26	.13	.06	.14	.21	.11	.13	-.06	-.24	.12
Sherry et al. (2014) women	NPI	.17	.10	.25	.21	.06	-.07	.22	.32	.09	.03	-.02	-.27	.12
Smith et al. (2016) Study 2	DD-N	.46	.08	.58	.37	.44	.03	--	--	--	--	--	--	--
Sorento-Gerhart (1997)	NPI	.22	.17	.25	.20	.02	-.18	--	--	--	--	--	--	--
	NPDS	.11	-.16	.15	.01	.41	.42	--	--	--	--	--	--	--
Stoeber (2014)	DD-N	.08	-.04	.20	.15	.17	.10	--	--	--	--	--	--	--
	DD-N	.08	.03	.26 <sup>a</sup>	.22	.17	.06	--	--	--	--	--	--	--
Stoeber (2015)	PID-5-NP	.21	.04	.40	.34	.13	-.03	--	--	--	--	--	--	--
Stober et al. (2015)	HSNS	.18	.03	.12	.02	.37	.33	--	--	--	--	--	--	--
	PNI-Gran	.19	.08	.15	.07	.21	.14	--	--	--	--	--	--	--
	PNI-Vul	.22	.03	.20	.09	.41	.35	--	--	--	--	--	--	--
	NPI	.03	-.03	.17	.17	.01	-.02	--	--	--	--	--	--	--
Thomaes and Sedikides (2015)	CNS	.27	.21	--	--	.18	.05	--	--	--	--	--	--	--
Trumpeter et al. (2006)	NPI	.30	--	.32	--	.11	--	--	--	--	--	--	--	--
Watson et al. (1999)	OMNI	.15	--	.15	--	.29	--	--	--	--	--	--	--	--
	NPI	.27	--	.29	--	.12	--	--	--	--	--	--	--	--

*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** = Slyter'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.

<sup>a</sup>Hewitt and Flett's (1990) Other-Oriented Perfectionism Scale was used to measure other-oriented perfectionism.

<sup>b</sup>Hill et al.'s (2004) high standards for others subscale of the Perfectionism Inventory was used to measure other-oriented perfectionism.

<sup>c</sup>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

Variable	<i>k</i>	<i>N</i>	<i>r</i> <sup>+</sup>	95% CI	Fail-safe <i>N</i>	<i>Q<sub>T</sub></i>	<i>I</i> <sup>2</sup> (%)	Power
<i>Narcissistic grandiosity</i>								
Self-oriented perfectionism	26	6,495	.23***	[.18, .27]	2,026	74.38***	66.39	.99
Other-oriented perfectionism	27	6,821	.32***	[.26, .37]	4,432	173.35***	85.00	.99
Socially prescribed perfectionism	27	6,873	.15***	[.09, .21]	949	163.19***	84.07	.99
Perfectionistic self-promotion	8	2,307	.30***	[.20, .39]	372	43.72***	83.99	.99
Nondisclosure of imperfection	8	2,307	.19**	[.06, .31]	133	70.23***	90.04	.79
Nondisplay of imperfection	8	2,307	.12	[-.04, .26]	38 <sup>a</sup>	90.39***	92.26	.33
Perfectionistic cognitions	3	1,151	.26*	[.03, .47]	41	28.88***	93.07	.60
<i>Narcissistic vulnerability</i>								
Self-oriented perfectionism	9	2,581	.20***	[.12, .27]	215	27.91***	71.34	.99
Other-oriented perfectionism	9	2,581	.15***	[.10, .20]	124	14.89	46.29	.99
Socially prescribed perfectionism	9	2,581	.39***	[.30, .47]	883	51.09***	84.34	.99
Perfectionistic self-promotion	5	1,584	.46***	[.36, .55]	460	22.61***	82.31	.99
Nondisclosure of imperfection	5	1,584	.39***	[.26, .50]	291	33.43***	88.04	.99
Nondisplay of imperfection	5	1,584	.48***	[.32, .60]	461	50.46***	92.07	.99
Perfectionistic cognitions	3	1,050	.44***	[.27, .58]	151	18.43***	89.15	.99

*Note.* *k* = number of studies; *N* = total number of participants in the *k* samples; *r*<sup>+</sup> = weighted mean *r*; *CI* = confident interval; *Q<sub>T</sub>* = measure of heterogeneity of effect sizes; *I*<sup>2</sup> = percentage of heterogeneity.

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

<sup>a</sup>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

Variable	<i>k</i>	<i>N</i>	<i>r</i> <sup>+</sup>	<i>pr</i> <sup>+</sup>	95% CI	Fail-safe <i>N</i>	<i>Q<sub>T</sub></i>	<i>I</i> <sup>2</sup> (%)	Power
<i>Narcissistic grandiosity</i>									
Self-oriented perfectionism	19	4,518	.22***	.09***	[.06, .13]	175	24.25	25.76	.99
Other-oriented perfectionism	19	4,638	.31***	.24***	[.19, .29]	1,229	49.59***	63.95	.99
Socially prescribed perfectionism	21	4,996	.17***	.02	[-.05, .09]	0 <sup>a</sup>	107.05***	81.32	.10
Perfectionistic self-promotion	7	2,085	.29***	.26***	[.21, .32]	252	9.23	34.97	.99
Nondisclosure of imperfection	7	2,085	.20**	.07	[-.04, .17]	6 <sup>a</sup>	35.81***	83.25	.22
Nondisplay of imperfection	7	2,085	.12	-.15*	[-.27, -.03]	89	46.71***	87.15	.67
<i>Narcissistic vulnerability</i>									
Self-oriented perfectionism	7	1,978	.23***	.04	[-.04, .11]	0 <sup>a</sup>	15.96*	62.40	.15
Other-oriented perfectionism	7	1,978	.16***	.04	[-.03, .11]	0 <sup>a</sup>	13.92*	56.87	.20
Socially prescribed perfectionism	7	1,978	.43***	.39***	[.28, .50]	509	49.70***	87.93	.99
Perfectionistic self-promotion	5	1,584	.46***	.18***	[.10, .25]	60	9.53*	58.04	.99
Nondisclosure of imperfection	5	1,584	.39***	.11	[-.01, .22]	17 <sup>a</sup>	20.75***	80.72	.22
Nondisplay of imperfection	5	1,584	.48***	.19**	[.07, .32]	60	26.94***	85.15	.83

Note. *k* = number of studies; *N* = total number of participants in the *k* samples; *r*<sup>+</sup> = weighted mean *r*; *pr*<sup>+</sup> = weighted mean *pr*; *CI* = confident interval for *pr*; *Q<sub>T</sub>* = measure of heterogeneity for *pr*; *I*<sup>2</sup> = percentage of heterogeneity for *pr*.

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

<sup>a</sup>Fail-safe *N* below threshold (*5k* + 10).

### **4.3.2. Measures**

#### **4.3.2.1. Perfectionism**

Trait perfectionism was assessed using four measures (see Table 6): Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (MPS), Hewitt and Flett's (1990) Other-Oriented Perfectionism subscale (MPS-90-OOP), Flett et al.'s (in press) Child-Adolescent Perfectionism Scale (CAPS), and the high standards for others subscale of Hill et al.'s (2004) Perfectionism Inventory (PI-HSFO). Perfectionistic self-presentation was assessed with Hewitt et al.'s (2003) Perfectionistic Self-Presentation Scale; perfectionistic cognitions were measured using Flett et al.'s (1998) Perfectionistic Cognitions Inventory.

#### **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,

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  $\geq 13$  and  $\leq 17$  years; young adult samples  $\geq 18$  and  $\leq 25$  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,

2011). 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 meaningful 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.

- \*Albanese-Kotar, N. (2001). *Development of an expanded typology of perfectionism* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3012469)
- Ashby, H. U., Lee, R., & Duke, E. H. (1979, September). *A narcissistic personality disorder MMPI scale*. Paper presented at A.P.A. Nation Convention, New York.
- Beck, A., Freeman, A., & Davis, D. (2004). *Cognitive therapy of personality disorders*. NY: Guilford.
- Besser., A., & Priel, B. (2010). Grandiose narcissism versus vulnerable narcissism in threatening situations. *Journal of Social and Clinical Psychology, 29*, 874-902.
- Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2005). *Comprehensive Meta-Analysis (Version 2)* [Computer software]. Englewood, NJ: Biostat.
- Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2009). *Introduction to meta-analysis*. England: Wiley.
- Cain, N. M., Pincus, A. L., & Ansell, E. B. (2008). Narcissism at the crossroads: Phenotypic description of pathological narcissism across clinical theory, social/personality psychology, and psychiatric diagnosis. *Clinical Psychology Review, 28*, 638-656.
- Campbell, W. K., Bonacci, A. M., Shelton, J., Exline, J. J., & Bushman, B. J. (2004). Psychological entitlement. *Journal of Personality Assessment, 83*, 29-45.
- Card, N. A. (2012). *Applied meta-analysis for social science research*. NY: Guilford.
- \*Casale, S., Fioravanti, G., Rugai, L., Flett, G. L., & Hewitt, P. L. (2016). The interpersonal expression of perfectionism among grandiose and vulnerable narcissists: Perfectionistic self-presentation, effortless perfection, and the ability to seem perfect. *Personality and*

- Individual Differences*, 99, 320-324.
- \*Cassady, P. (1996). *Dimensions of perfectionism as vulnerability factors for depression in the narcissistic and obsessive-compulsive personalities* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 9715588)
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112, 155-159.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression / correlation analysis for the behavioural sciences* (3rd ed.). Hillsdale: Erlbaum.
- \*Davis, C., Dionne, M., & Shuster, B. (2001). Physical and psychological correlates of appearance orientation. *Personality and Individual Differences*, 30, 21-30.
- \*Davis, C., Karvinen, K., & McCreary, D. R. (2005). Personality correlates of a drive for muscularity in young men. *Personality and Individual Differences*, 39, 349-359.
- Dickinson, K. A., & Pincus, A. L. (2003). Interpersonal analysis of grandiose and vulnerable narcissism. *Journal of Personality Disorders*, 17, 188-207.
- Dunkley, D. M., Zuroff, D. C., & Blankstein, K. R. (2003). Self-critical perfectionism and daily affect: Dispositional and situational influences on stress and coping. *Journal of Personality and Social Psychology*, 84, 234-252.
- Egger, M., Smith, G. D., Schneider, M., & Minder, C. (1997). Bias in meta-analysis detected by a simple, graphical test. *BMJ*, 315, 629-634.
- Ellis, A. (1997). Must musturbation and demandingness lead to emotional disorders? *Psychotherapy: Theory, research, practice, training*, 34, 95-98.
- \*Fitzpatrick, S., Sherry, S., Hartling, N., Hewitt, P., Flett, G., & Sherry, D. (2011). Narcissism, perfectionism, and interest in cosmetic surgery. *Plastic and Reconstructive Surgery*, 127, 176-177.



- Flett, G. L., Hewitt, P. L., Besser, A., Su, C., Boucher, D., Munro, Y., ... & Gale, O. (2016). The Child–Adolescent Perfectionism Scale. *Journal of Psychoeducational Assessment*, *34*, 634-652.
- Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Gray, L. (1998). Psychological distress and the frequency of perfectionistic thinking. *Journal of Personality and Social Psychology*, *75*, 1363-1381.
- \*Flett, G. L., Sherry, S. B., Hewitt, P. L., & Nepon, T. (2014). Understanding the narcissistic perfectionists among us. In A. Besser (Ed.), *Handbook of psychology of narcissism: Diverse perspectives* (pp. 43- 66). New York: Nova Science Publishers.
- Freud, S. (1957). On narcissism: An introduction. In J. Strachey (Ed.), *The standard edition of the complete psychological works of Sigmund Freud* (pp. 73-102). London: Hograth.
- \*Freudenstein, O., Valevski, A., Apter, A., Zohar, A., Shoval, G., Nahshoni, E., ... & Zalsman, G. (2012). Perfectionism, narcissism, and depression in suicidal and nonsuicidal adolescent inpatients. *Comprehensive Psychiatry*, *53*, 746-752.
- Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research*, *14*, 449-468.
- Gore, W. L., & Widiger, T. A. (2016). Fluctuation between grandiose and vulnerable narcissism. *Personality Disorders: Theory, Research, and Treatment*, *7*, 363-371.
- Hendin, H. M., & Cheek, J. M. (1997). Assessing hypersensitive narcissism: A reexamination of Murray's Narcissism Scale. *Journal of Research in Personality*, *31*, 588-599.
- Hewitt, P. L., & Flett, G. L. (1990). Perfectionism and depression. *Journal of Social Behavior and Personality*, *5*, 423-438.
- \*Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts. *Journal of*

- Personality and Social Psychology*, 60, 456-470.
- \*Hewitt, P. L., & Flett, G. L. (2004). *Multidimensional Perfectionism Scale (MPS): Technical manual*. Toronto: Multi-Health Systems.
- Hewitt, P., Flett, G., Sherry, S., & Caelian, C. (2006). Trait perfectionism dimensions and suicide behavior. In T. Ellis (Ed.), *Cognition and suicide* (pp. 215–235). Washington: APA.
- \*Hewitt, P. L., Flett, G. L., Sherry, S. B., Habke, M., Parkin, M., Lam, R. W., ... & Stein, M. B. (2003). The interpersonal expression of perfection: perfectionistic self-presentation and psychological distress. *Journal of Personality and Social Psychology*, 84, 1303-1325.
- \*Hewitt, P. L., Flett, G. L., & Turnbull, W. (1992). Perfectionism and multiphasic personality inventory (MMPI) indices of personality disorder. *Journal of Psychopathology and Behavioral Assessment*, 14, 323-335.
- Higgins, J., & Thompson, S. G. (2002). Quantifying heterogeneity in a meta-analysis. *Statistic in Medicine*, 21, 1539-1558.
- Hill, A. P., & Curran, T. (2016). Multidimensional perfectionism and burnout: A meta-analysis. *Personality and Social Psychology Review*, 20, 269-288.
- Hill, R. W., Huelsman, T. J., Furr, R. M., Kibler, J., Vicente, B. B., & Kennedy, C. (2004). A new measure of perfectionism: The Perfectionism Inventory. *Journal of Personality Assessment*, 82, 80-91.
- Horney, K. (1950). *Neurosis and human growth*. New York: Norton.
- Hunter, J. E., & Schmidt, F. L. (1990). Dichotomization of continuous variables: The implications for meta-analysis. *Journal of Applied Psychology*, 75, 334-349.
- Hyder, S. E., Rieder, R. O., Williams, J. B., Spitzer, R. L., Hendler, J., & Lyons, M. (1988). The Personality Diagnostic Questionnaire: Development and preliminary results. *Journal of*

*Personality Disorders, 2, 229-237.*

Jonason, P. K., & Webster, G. D. (2010). The dirty dozen: A concise measure of the dark triad.

*Psychological Assessment, 22, 420-432.*

Kernberg, O. F. (1984). *Severe personality disorders: Psychotherapeutic strategies*. New Haven: Yale.

Krueger, R. F., Derringer, J., Markon, K. E., Watson, D., & Skodol, A. E. (2012). Initial construction of a maladaptive personality trait model and inventory for *DSM-5*.

*Psychological Medicine, 42, 1879-1890.*

Livesley, W. J., Jackson, D., & Schroeder, M. (1992). Factorial structure of traits delineating personality disorders. *Archives of General Psychiatry, 55, 941-948.*

\*Mann, H. (2006). *Perfectionism and defensively high self-esteem* (Master's thesis). Available from ProQuest Dissertations and Theses database. (UMI No. MR19686)

\*Mann, M. P. (2004). The adverse influence of narcissistic injury and perfectionism on college students' institutional attachment. *Personality and Individual Differences, 36, 1797-1806.*

Maples, J., Collins, B., Miller, J., Fischer, S., & Seibert, A. (2011). Differences between grandiose and vulnerable narcissism and bulimic symptoms in young women. *Eating Behaviors, 12, 83-85.*

\*McCown, W. G., & Carlson, G. (2004). Narcissism, perfectionism, and self-termination from treatment in outpatient cocaine users. *Journal of Rational-Emotive and Cognitive-Behavior Therapy, 22, 325-336.*

Miller, J. D., & Campbell, W. K. (2008). Comparing clinical and social-personality conceptualizations of narcissism. *Journal of Personality, 76, 449-476.*

- Miller, J. D., Gentile, B., Wilson, L., & Campbell, W. K. (2013). Grandiose and vulnerable narcissism and the DSM–5 pathological personality trait model. *Journal of Personality Assessment, 95*, 284-290.
- Miller, J. D., & Maples, J. (2011). Trait personality models of narcissistic personality disorder, grandiose narcissism, and vulnerable narcissism. In Campbell, K., & Miller, J. (Eds.), *The handbook of narcissism and narcissistic personality disorder*. NY: Wiley.
- \*Miller, K. J., & Mesagno, C. (2014). Personality traits and exercise dependence: Exploring the role of narcissism and perfectionism. *International Journal of Sport and Exercise Psychology, 12*, 368-381.
- Millon, T. (1983). *Millon Clinical Multiaxial Inventory*. Minneapolis: National Computer Systems.
- Millon, T., & Davis, R. (2000). *Personality disorders in modern life*. NY: Wiley.
- Morey, L. C. (1991). *Personality Assessment Inventory*. Odessa, FL: Routledge.
- Morey, L. C., Waugh, M. H., & Blashfield, R. K. (1985). MMPI scales for DSM-III personality disorders: Their derivation and correlates. *Journal of Personality Assessment, 49*, 245-251.
- Morf, C. C., & Rhodewalt, F. (2001). Unraveling the paradoxes of narcissism: A dynamic self-regulatory processing model. *Psychological Inquiry, 12*, 177-196.
- \*Nathanson, C., Paulhus, D. L., & Williams, K. M. (2006). Predictors of a behavioral measure of scholastic cheating: Personality and competence but not demographics. *Contemporary Educational Psychology, 31*, 97-122.
- \*Nealis, L. J., Sherry, S. B., Sherry, D. L., Stewart, S. H., & Macneil, M. A. (2015). Toward a better understanding of narcissistic perfectionism: Evidence of factorial validity,

- incremental validity, and mediating mechanisms. *Journal of Research in Personality*, 57, 11-25.
- \*Nealis, L. J., Sherry, S. B., Sherry, D. L., Stewart, S. H., & Macneil, M. A. (2016). Revitalizing narcissistic perfectionism: Evidence of reliability and validity of an emerging construct. *Journal of Psychopathology and Behavioral Assessment*, 38, 493-504.
- O'Brien, M. L. (1987). Examining the dimensionality of pathological narcissism: Factor analysis and construct validity of the O'Brien Multiphasic Narcissism Inventory. *Psychological Reports*, 61, 499-510.
- \*Ohtani, Y., & Sakurai, S. (1995). Relationship of perfectionism to depression in college students. *The Japanese Journal of Psychology*, 66, 41-47.
- Pincus, A. L., Ansell, E. B., Pimentel, C. A., Cain, N. M., Wright, A. G., & Levy, K. N. (2009). Initial construction and validation of the Pathological Narcissism Inventory. *Psychological Assessment*, 21, 365-279.
- Pincus, A. L., Cain, N. M., & Wright, A. G. (2014). Narcissistic grandiosity and narcissistic vulnerability in psychotherapy. *Personality Disorders: Theory, Research, and Treatment*, 5, 439.
- Pincus, A. L., & Lukowitsky, M. R. (2010). Pathological narcissism and narcissistic personality disorder. *Annual Review of Clinical Psychology*, 6, 421-446.
- Pincus, A. L., & Roche, M. J. (2011). Narcissistic grandiosity and narcissistic vulnerability. In W. K. Campbell & J. D. Miller (Eds.), *The handbook of narcissism and narcissistic personality disorder* (pp. 31– 40). NY: Wiley.
- R Core Team (2013). R: A language and environment for statistical computing [Computer software]. Vienna, Austria.

- Raskin, R., & Terry, H. (1988). A principal-components analysis of the Narcissistic Personality Inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology, 54*, 890.
- Ronningstam, E. (2010). Narcissistic personality disorder: A current review. *Current Psychiatry Reports, 12*, 68-75.
- Ronningstam, E. (2011). Narcissistic personality disorder: A clinical perspective. *Journal of Personality and Social Psychology, 17*, 89-99.
- Rosenthal, R. (1979). The file drawer problem and tolerance for null results. *Psychological Bulletin, 86*, 638-641.
- Rothstein, A. (1999). *The narcissistic pursuit of perfection* (2<sup>nd</sup> ed.). Madison, CT: International Universities.
- Schafer, J., Opgen-Rhein, R., Zuber, V., Silva, P., & Strimmer, K. (2015). Corpcor: Efficient estimation of covariance and (partial) correlation (R package version 1.14.4).
- Schönbrodt, F. D., & Perugini, M. (2013). At what sample size do correlations stabilize? *Journal of Research in Personality, 47*, 609–612.
- Sherry, S. B., Hewitt, P. L., Besser, A., Flett, G. L., & Klein, C. (2006). Machiavellianism, trait perfectionism, and perfectionistic self-presentation. *Personality and Individual Differences, 40*, 829-839.
- \*Sherry, S. B., Hewitt, P. L., Flett, G. L., Lee-Baggley, D. L., & Hall, P. A. (2007). Trait perfectionism and perfectionistic self-presentation in personality pathology. *Personality and Individual Differences, 42*, 477-490.
- Sherry, S. B., Hewitt, P. L., Sherry, D. L., Flett, G. L., & Graham, A. R. (2010). Perfectionism dimensions and research productivity in psychology professors. *Canadian Journal of*

- Behavioural Science*, 42, 273-283.
- \*Sherry, S. B., Gralnick, T. M., Hewitt, P. L., Sherry, D. L., & Flett, G. L. (2014). Perfectionism and narcissism: Testing unique relationships and gender differences. *Personality and Individual Differences*, 61, 52-56.
- Slyter, S. L. (1991). *Narcissistic injury scale*. Unpublished instrument.
- \*Smith, M. M., Saklofske, D. H., Stoeber, J., & Sherry, S. B. (2016). The Big Three Perfectionism Scale: A new measure of perfectionism. *Journal of Psychoeducational Assessment*, 34, 670-688.
- Smith, M. M., Sherry, S. B., Rnic, K., Saklofske, D. H., Enns, M., & Gralnick, T. (2016). Are perfectionism dimensions vulnerability factors for depressive symptoms after controlling for neuroticism? A meta-analysis of 10 longitudinal studies. *European Journal of Personality*, 30, 201-212.
- \*Sorento-Gerhart. (1997). *Excessive exercise in women* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 973422)
- Sorotzkin, B. (1985). The quest for perfection: Avoiding guilt or avoiding shame? *Psychotherapy: Theory, Research, Practice, Training*, 22, 564-571.
- Spitzer, R. L., Williams, J. B., Gibbon, M., & First, M. B. (1990). *Structured clinician interview for DSM-III-R axis II disorders (SCID-II)*. Washington: American Psychiatric Press, Inc.
- \*Stoeber, J. (2014). Multidimensional perfectionism and the DSM-5 personality traits. *Personality and Individual Differences*, 64, 115-120.
- \*Stoeber, J. (2015). How other-oriented perfectionism differs from self-oriented and socially prescribed perfectionism: Further findings. *Journal of Psychopathology and Behavioral*

- Assessment*, 37, 611-623.
- Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: Approaches, evidence, challenges. *Personality and Social Psychology Review*, 10, 295-319.
- \*Stoeber, J., Sherry, S. B., & Nealis, L. J. (2015). Multidimensional perfectionism and narcissism: Grandiose or vulnerable? *Personality and Individual Differences*, 80, 85-90.
- \*Thomaes, S., & Sedikides, C. (2016). Thin images reflected in the water: Narcissism and girls vulnerability to the thin-ideal. *Journal of Personality*, 84, 633-645.
- Thomaes, S., Stegge, H., Bushman, B. J., Olthof, T., & Denissen, J. (2008). Development and validation of the Childhood Narcissism Scale. *Journal of Personality Assessment*, 90, 382-391.
- \*Trumpeter, N., Watson, P. J., & O'Leary, B. J. (2006). Factors within multidimensional perfectionism scales: Complexity of relationships with self-esteem, narcissism, self-control, and self-criticism. *Personality and Individual Differences*, 41, 849-860.
- \*Watson, P. J., Varnell, S. P., & Morris, R. J. (1999). Self-reported narcissism and perfectionism: An ego-psychological perspective and the continuum hypothesis. *Imagination, Cognition and Personality*, 19, 59-69.
- Westen, D. (1990). The relations amongst narcissism, self-concept, and self-esteem. *Psychoanalysis and Contemporary Thought*, 13, 183-239.
- Wink, P. (1991). Two faces of narcissism. *Journal of Personality and Social Psychology*, 61, 590-597.
- Wink, P., & Gough, H. G. (1990). New narcissism scales for the California Psychological Inventory and MMPI. *Journal of Personality Assessment*, 54, 446-463.



**CHAPTER FIVE: PERFECTIONISM, 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 Stoeber & 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).

**Table 10.** Characteristics of longitudinal studies included in the meta-analysis

	Sample							Measurement		
	<i>N</i>	Sample type	Mean age	Time lag	Attrition %	Female %	Caucasian %	Neuroticism	Perfectionistic concerns	Perfectionistic strivings
Békés et al. (2015)	47	Psychiatric <sup>a</sup>	45.5	50.9	–	70.2	75.0	NEOPIR-N	DAS-P DEQ-SC FMPS-COM HFMP-SPP	FMPS-PS HFMP-SOP
Dunkley et al. (2006)	96	Psychiatric <sup>a</sup>	34.3	158.6	–	62.5	84.0	NEOPIR-N	DAS-P	–
Dunkley et al. (2009)	107	Psychiatric <sup>a</sup>	34.4	192.0	–	60.7	82.0	NEOPIR-N	DAS-P	–
Enns et al. (2001)	96	Medical <sup>b</sup>	25.1	24.0	39.6	41.7	–	NEOFFI-N	FMPS-COM FMPS-DAA HFMP-SPP	FMPS-PS HFMP-SOP
Enns et al. (2005)	206	Medical <sup>b</sup>	24.0	20.0	32.5	44.2	–	NEOFFI-N	FMPS-COM FMPS-DAA HFMP-SPP	FMPS-PS HFMP-SOP
Graham et al. (2010)	240	Undergrad <sup>c</sup>	20.0	3.0	3.3	83.3	86.7	BFI-N	FMPS-SF-COM FMPS-DAA HFMP-SF-SPP	FMPS-SF-PS HFMP-SF-SOP
Mackinnon & Sherry (2012)	127	Undergrad <sup>c</sup>	18.3	19.0	9.4	77.9	81.1	BFI-N	FMPS-SF-COM FMPS-DAA HFMP-SF-SPP	FMPS-SF-PS HFMP-SF-SOP
Mackinnon et al. (2012)	226	Mixed <sup>d</sup>	22.4	4.0	2.7	0.0	88.5	BFI-N	DEQ-SF-SC FMPS-SF-COM HFMP-SF-SPP	–
Mackinnon et al. (2012)	226	Mixed <sup>d</sup>	21.5	4.0	2.2	100.0	88.5	BFI-N	DEQ-SF-SC FMPS-SF-COM HFMP-SF-SPP	–
Sherry et al. (2013)	155	Undergrad <sup>c</sup>	20.7	4.3	1.9	76.8	70.3	BFI-N	DEQ-SF-SC HFMP-SF-SPP FMPS-SF-COM FMPS-DAA	–

Sherry et al. (2014)	232	Community	50.1	3.3	9.2	100.0	90.4	IPIP-N	DEQ-SF-SC FMPS-SF-COM FMPS-DAA HFMP-SF-SPP	FMPS-SF-PS HFMP-SF-SOP
----------------------	-----	-----------	------	-----	-----	-------	------	--------	---	---------------------------

*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); HFMP-SF = Hewitt and Flett's (1991) Multidimensional Perfectionism Scale; HFMP-SF-SOP = Hewitt and Flett's Multidimensional Perfectionism Scale Short Form (see Hewitt, Habke, Lee-Baggely, Sherry, & Flett, 2008); BFI = Benet-Martínez and John's (1998) Big Five Inventory; IPIP = Donnellan, Oswald, Baird, and Lucas' (2006) Mini International Personality Item Pool; NEOFFI = Costa and McCrae's (1992a) NEO Five-Factor Inventory; NEOPIR = Costa and McCrae's (1992b) Revised NEO Personality Inventory;

<sup>a</sup>Psychiatric patients

<sup>b</sup>Medical students

<sup>c</sup>Undergraduates

<sup>d</sup>Undergraduates, graduate students, and community members

**Table 11.** Relationships between perfectionism dimensions, neuroticism, and depressive symptoms

		Concern over mistakes					
	Outcome	$r_{COM_1, N_1}$	$r_{COM_1, DEP_1}$	$r_{N_1, DEP_1}$	$COM_1 \rightarrow DEP_2$	$N_1 \rightarrow DEP_2$	$DEP_1 \rightarrow DEP_2$
Békés et al. (2015)	BDI	.43	.20	.32	.08	-.07	.50
	HAM-D	.43	.08	.24	.26	.05	.24
	<b>Overall</b>	<b>.43</b>	<b>.14</b>	<b>.28</b>	<b>.17</b>	<b>-.01</b>	<b>.38</b>
Enns et al. (2001)	BDI-SF	.52	.33	.57	-.07	.40	.22
	<b>Overall</b>	<b>.52</b>	<b>.33</b>	<b>.57</b>	<b>-.07</b>	<b>.40</b>	<b>.22</b>
Enns et al. (2005)	BDI	.54	.48	.60	.09	.03	.57
	PANAS-NA	.54	.42	.55	.21	.20	.28
	<b>Overall</b>	<b>.54</b>	<b>.45</b>	<b>.58</b>	<b>.15</b>	<b>.12</b>	<b>.44</b>
Graham et al. (2010)	CES-D-SF	.48	.43	.55	.06	.08	.65
	DASS-D	.48	.41	.48	.10	.08	.49
	SCLR-D	.48	.44	.52	.09	.06	.65
	<b>Overall</b>	<b>.48</b>	<b>.43</b>	<b>.52</b>	<b>.08</b>	<b>.07</b>	<b>.60</b>
Mackinnon & Sherry (2012)	CES-D	.42	.55	.63	.17	.00	.45
	PANAS-NA	.42	.30	.61	.25	.02	.41
	POMS-D	.42	.52	.53	.21	-.12	.54
	<b>Overall</b>	<b>.42</b>	<b>.46</b>	<b>.59</b>	<b>.21</b>	<b>-.03</b>	<b>.47</b>
Mackinnon et al. (2012) men	CES-D	.18	.28	.54	.04	.19	.57
	<b>Overall</b>	<b>.18</b>	<b>.28</b>	<b>.54</b>	<b>.04</b>	<b>.19</b>	<b>.57</b>
Mackinnon et al. (2012) women	CES-D	.16	.15	.54	.08	.11	.60
	<b>Overall</b>	<b>.16</b>	<b>.15</b>	<b>.54</b>	<b>.08</b>	<b>.11</b>	<b>.60</b>
Sherry et al. (2013)	CES-D	.30	.14	.50	.17	.12	.41
	DASS-D	.30	.42	.46	.12	.04	.38
	SCL90R-D	.30	.48	.52	.10	.19	.40
	<b>Overall</b>	<b>.30</b>	<b>.35</b>	<b>.49</b>	<b>.13</b>	<b>.12</b>	<b>.40</b>
Sherry et al. (2014)	DACLE	.37	.54	.48	.11	.20	.51
	DACLG	.37	.50	.47	.14	.20	.47
	POMS-D	.37	.52	.47	.11	.15	.57
	<b>Overall</b>	<b>.37</b>	<b>.52</b>	<b>.47</b>	<b>.12</b>	<b>.18</b>	<b>.52</b>
		Doubts about actions					
	Outcome	$r_{DAA_1, N_1}$	$r_{DAA_1, DEP_1}$	$r_{N_1, DEP_1}$	$DAA_1 \rightarrow DEP_2$	$N_1 \rightarrow DEP_2$	$DEP_1 \rightarrow DEP_2$
Enns et al. (2001)	BDI-SF	.62	.39	.57	.16	.24	.21
	<b>Overall</b>	<b>.62</b>	<b>.39</b>	<b>.57</b>	<b>.16</b>	<b>.24</b>	<b>.21</b>
Enns et al. (2005)	BDI	.65	.51	.60	.04	.04	.58
	PANAS-NA	.65	.42	.55	.10	.24	.31
	<b>Overall</b>	<b>.65</b>	<b>.47</b>	<b>.58</b>	<b>.07</b>	<b>.14</b>	<b>.45</b>
Graham et al. (2010)	CES-D-SF	.50	.57	.55	.07	.08	.63
	DASS-D	.50	.47	.48	.13	.07	.48
	SCLR-D	.50	.54	.52	.11	.05	.63
	<b>Overall</b>	<b>.50</b>	<b>.53</b>	<b>.52</b>	<b>.10</b>	<b>.07</b>	<b>.58</b>

Mackinnon & Sherry (2012)	CES-D	.53	.57	.63	.29	-.06	.42
	PANAS-NA	.53	.45	.61	.31	-.01	.37
	POMS-D	.53	.49	.53	.28	-.18	.55
	<b>Overall</b>	<b>.53</b>	<b>.50</b>	<b>.59</b>	<b>.29</b>	<b>-.08</b>	<b>.45</b>
Sherry et al. (2013)	CES-D	.36	.35	.50	.16	.10	.43
	DASS-D	.36	.32	.46	.10	.03	.40
	SCL90R-D	.36	.48	.52	.11	.18	.40
	<b>Overall</b>	<b>.36</b>	<b>.38</b>	<b>.49</b>	<b>.12</b>	<b>.10</b>	<b>.41</b>
Sherry et al. (2014)	DACLE	.43	.56	.48	.08	.20	.52
	DACLG	.43	.47	.47	.16	.18	.47
	POMS-D	.43	.53	.47	.09	.15	.58
	<b>Overall</b>	<b>.43</b>	<b>.52</b>	<b>.47</b>	<b>.11</b>	<b>.18</b>	<b>.52</b>
Perfectionistic attitudes							
	Measure	$r_{PA_1, N_1}$	$r_{PA_1, DEP_1}$	$r_{N_1, DEP_1}$	$PA_1 \rightarrow DEP_2$	$N_1 \rightarrow DEP_2$	$DEP_1 \rightarrow DEP_2$
Békés et al. (2015)	BDI	.49	.24	.32	-.08	.00	.51
	HAM-D	.49	.02	.24	.18	.07	.26
	<b>Overall</b>	<b>.49</b>	<b>.13</b>	<b>.28</b>	<b>.05</b>	<b>.04</b>	<b>.39</b>
Dunkley et al. (2006)	BDI	.63	.24	.41	.27	.26	.20
	<b>Overall</b>	<b>.63</b>	<b>.24</b>	<b>.41</b>	<b>.27</b>	<b>.26</b>	<b>.20</b>
Dunkley et al. (2009)	LIFEPPSR-D	.59	.18	.38	.24	-.06	.27
	PAI-D	.59	.18	.38	.31	.24	.15
	<b>Overall</b>	<b>.59</b>	<b>.18</b>	<b>.38</b>	<b>.28</b>	<b>.09</b>	<b>.21</b>
Personal standards							
	Measure	$r_{PS_1, N_1}$	$r_{PS_1, DEP_1}$	$r_{N_1, DEP_1}$	$PS_1 \rightarrow DEP_2$	$N_1 \rightarrow DEP_2$	$DEP_1 \rightarrow DEP_2$
Békés et al. (2015)	BDI	.23	.20	.32	.00	-.04	.51
	HAM-D	.23	-.06	.24	.16	.13	.26
	<b>Overall</b>	<b>.23</b>	<b>.07</b>	<b>.27</b>	<b>.08</b>	<b>.09</b>	<b>.39</b>
Enns et al. (2001)	BDI-SF	.21	.11	.57	.00	.35	.22
	<b>Overall</b>	<b>.21</b>	<b>.11</b>	<b>.57</b>	<b>.00</b>	<b>.35</b>	<b>.22</b>
Enns et al. (2005)	BDI	.18	.24	.60	.03	.06	.59
	PANAS-NA	.18	.19	.55	.19	.27	.30
	<b>Overall</b>	<b>.18</b>	<b>.22</b>	<b>.58</b>	<b>.11</b>	<b>.17</b>	<b>.45</b>
Graham et al. (2010)	CES-D-SF	.15	.17	.55	.05	.10	.65
	DASS-D	.15	.12	.48	.06	.11	.51
	SCL-R-D	.15	.21	.52	.04	.08	.66
	<b>Overall</b>	<b>.15</b>	<b>.17</b>	<b>.52</b>	<b>.05</b>	<b>.10</b>	<b>.61</b>
Mackinnon & Sherry (2012)	CES-D	.25	.23	.63	.14	.00	.52
	PANAS-NA	.25	.21	.61	.20	.08	.41
	POMS-D	.25	.17	.53	.19	-.12	.62
	<b>Overall</b>	<b>.25</b>	<b>.20</b>	<b>.59</b>	<b>.18</b>	<b>-.01</b>	<b>.52</b>
Sherry et al. (2014)	DACLG	.18	.34	.48	.13	.21	.51
	DACLE	.18	.34	.47	.19	.22	.47

	POMS-D	.18	.36	.48	.12	.17	.58
	<b>Overall</b>	<b>.18</b>	<b>.35</b>	<b>.48</b>	<b>.15</b>	<b>.20</b>	<b>.52</b>
Self-criticism							
	Measure	$r_{SC_1, N_1}$	$r_{SC_1, DEP_1}$	$r_{N_1, DEP_1}$	$SC_1 \rightarrow DEP_2$	$N_1 \rightarrow DEP_2$	$DEP_1 \rightarrow DEP_2$
Békés et al. (2015)	BDI	.44	.25	.32	-.07	-.01	.51
	HAM-D	.44	.02	.24	.18	.12	.25
	<b>Overall</b>	<b>.44</b>	<b>.14</b>	<b>.28</b>	<b>.06</b>	<b>.06</b>	<b>.38</b>
Mackinnon et al. (2012) women	CES-D	.32	.37	.54	.15	.09	.57
	<b>Overall</b>	<b>.32</b>	<b>.37</b>	<b>.54</b>	<b>.15</b>	<b>.09</b>	<b>.57</b>
Mackinnon et al. (2012) men	CES-D	.30	.43	.54	.06	.18	.55
	<b>Overall</b>	<b>.30</b>	<b>.43</b>	<b>.54</b>	<b>.06</b>	<b>.18</b>	<b>.55</b>
Sherry et al. (2013)	CES-D	.23	.18	.50	.17	.11	.45
	DASS-D	.23	.14	.46	.17	.02	.42
	SCL90R-D	.23	.17	.52	.19	.16	.43
	<b>Overall</b>	<b>.23</b>	<b>.16</b>	<b>.49</b>	<b>.18</b>	<b>.10</b>	<b>.43</b>
Sherry et al. (2014)	DACLE	.46	.43	.47	.20	.16	.44
	DACLG	.46	.48	.47	.20	.16	.49
	POMS-D	.46	.51	.47	.17	.12	.54
	<b>Overall</b>	<b>.46</b>	<b>.47</b>	<b>.47</b>	<b>.19</b>	<b>.15</b>	<b>.49</b>
Self-oriented perfectionism							
	Measure	$r_{SOP_1, N_1}$	$r_{SOP_1, DEP_1}$	$r_{N_1, DEP_1}$	$SOP_1 \rightarrow DEP_2$	$N_1 \rightarrow DEP_2$	$DEP_1 \rightarrow DEP_2$
Békés et al. (2015)	BDI	.13	.29	.32	.12	-.04	.47
	HAM-D	.13	.10	.24	.26	.14	.21
	<b>Overall</b>	<b>.13</b>	<b>.20</b>	<b>.28</b>	<b>.19</b>	<b>.05</b>	<b>.34</b>
Enns et al. (2001)	BDI-SF	.39	.18	.57	-.03	.37	.22
	<b>Overall</b>	<b>.39</b>	<b>.18</b>	<b>.57</b>	<b>-.03</b>	<b>.37</b>	<b>.22</b>
Enns et al. (2005)	BDI	.18	.22	.60	.07	.06	.58
	PANAS-NA	.18	.18	.55	.19	.27	.30
	<b>Overall</b>	<b>.18</b>	<b>.20</b>	<b>.58</b>	<b>.13</b>	<b>.17</b>	<b>.44</b>
Graham et al. (2010)	CES-D-SF	.14	.11	.55	-.03	.10	.66
	DASS-D	.14	.14	.48	.02	.11	.52
	SCL-R-D	.14	.16	.52	.00	.09	.67
	<b>Overall</b>	<b>.14</b>	<b>.14</b>	<b>.52</b>	<b>.00</b>	<b>.10</b>	<b>.62</b>
Mackinnon & Sherry (2012)	CES-D	.17	.13	.63	.17	.00	.52
	PANAS-NA	.17	.09	.61	.19	.09	.43
	POMS-D	.17	.09	.53	.13	-.10	.63
	<b>Overall</b>	<b>.17</b>	<b>.10</b>	<b>.59</b>	<b>.16</b>	<b>.00</b>	<b>.53</b>
Sherry et al. (2014)	DACLE	.18	.24	.47	.15	.21	.50
	DACLG	.18	.24	.48	.11	.21	.54
	POMS-D	.18	.21	.47	.07	.16	.61
	<b>Overall</b>	<b>.18</b>	<b>.23</b>	<b>.47</b>	<b>.11</b>	<b>.19</b>	<b>.55</b>

		Socially prescribed perfectionism						
	Measure	$r_{SPP_1, N_1}$	$r_{SPP_1, DEP_1}$	$r_{N_1, DEP_1}$	$SPP_1 \rightarrow DEP_2$	$N_1 \rightarrow DEP_2$	$DEP_1 \rightarrow DEP_2$	
Békés et al. (2015)	BDI	.32	.35	.32	.08	-.06	.49	
	HAM-D	.32	.23	.24	.32	.08	.17	
	<b>Overall</b>	<b>.32</b>	<b>.29</b>	<b>.28</b>	<b>.20</b>	<b>.01</b>	<b>.34</b>	
Enns et al. (2001)	BDI-SF	.47	.25	.57	.06	.31	.21	
	<b>Overall</b>	<b>.47</b>	<b>.25</b>	<b>.57</b>	<b>.06</b>	<b>.31</b>	<b>.21</b>	
Enns et al. (2005)	BDI	.46	.39	.60	.14	.01	.57	
	PANAS-NA	.46	.36	.55	.19	.23	.29	
	<b>Overall</b>	<b>.46</b>	<b>.38</b>	<b>.58</b>	<b>.17</b>	<b>.12</b>	<b>.44</b>	
Graham et al. (2010)	CES-D-SF	.24	.24	.55	.13	.08	.64	
	DASS-D	.24	.14	.48	.15	.08	.51	
	SCLR-D	.24	.22	.52	.13	.06	.65	
	<b>Overall</b>	<b>.24</b>	<b>.20</b>	<b>.52</b>	<b>.14</b>	<b>.07</b>	<b>.60</b>	
Mackinnon & Sherry (2012)	CES-D	.33	.37	.63	.09	.01	.51	
	PANAS-NA	.33	.34	.61	.10	.10	.41	
	POMS-D	.33	.32	.53	.08	-.10	.62	
	<b>Overall</b>	<b>.33</b>	<b>.34</b>	<b>.59</b>	<b>.09</b>	<b>.00</b>	<b>.52</b>	
Mackinnon et al. (2012) men	CES-D	.18	.27	.54	.07	.19	.56	
	<b>Overall</b>	<b>.18</b>	<b>.27</b>	<b>.54</b>	<b>.07</b>	<b>.19</b>	<b>.56</b>	
Mackinnon et al. (2012) women	CES-D	.12	.18	.54	.04	.11	.60	
	<b>Overall</b>	<b>.12</b>	<b>.18</b>	<b>.54</b>	<b>.04</b>	<b>.11</b>	<b>.60</b>	
	<b>Overall</b>	<b>.12</b>	<b>.18</b>	<b>.54</b>	<b>.04</b>	<b>.11</b>	<b>.60</b>	
Sherry et al. (2013)	CES-D	.12	.24	.50	.19	.14	.42	
	DASS-D	.12	.28	.46	.20	.06	.36	
	SCL90R-D	.12	.31	.52	.16	.21	.39	
	<b>Overall</b>	<b>.12</b>	<b>.28</b>	<b>.49</b>	<b>.18</b>	<b>.14</b>	<b>.39</b>	
Sherry et al. (2014)	DACLG	.35	.44	.48	.20	.18	.48	
	DACLE	.35	.40	.47	.28	.16	.44	
	POMS-D	.35	.38	.47	.16	.13	.58	
	<b>Overall</b>	<b>.35</b>	<b>.41</b>	<b>.47</b>	<b>.21</b>	<b>.16</b>	<b>.50</b>	

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;  $x_1$  = baseline variable;  $x_2$  = follow-up variable;  $r_{x_1, y_1}$  = bivariate correlation between baseline variables;  $COM_1 \rightarrow DEP_2$  = standardized beta for concern over mistakes predicting follow-up depressive symptoms (controlling for baseline depressive symptoms, neuroticism);  $N_1 \rightarrow DEP_2$  = standardized beta for neuroticism predicting follow-up depressive symptoms (controlling for baseline depressive symptoms, concern over mistakes);  $DEP_1 \rightarrow DEP_2$  = 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; LIFEPCR = 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

Variable	<i>k</i>	<i>N</i>	<i>r</i> <sup>+</sup>	95% CI	<i>Q<sub>T</sub></i>	<i>I</i> <sup>2</sup> (%)
Neuroticism						
'N <sub>1</sub> ,DEP <sub>1</sub>	11	1758	.51***	[.47, .55]	13.43	25.55
Concern over mistakes						
'COM <sub>1</sub> ,N <sub>1</sub>	9	1555	.38***	[.28, .47]	39.61***	79.80
'COM <sub>1</sub> ,DEP <sub>1</sub>	9	1555	.36***	[.27, .45]	30.44***	73.72
N <sub>1</sub> →DEP <sub>2</sub>	9	1402	.13***	[.08, .19]	9.07	11.83
DEP <sub>1</sub> →DEP <sub>2</sub>	9	1402	.50***	[.42, .56]	21.38**	62.58
<b>COM<sub>1</sub>→DEP<sub>2</sub></b>	<b>9</b>	<b>1402</b>	<b>.10***</b>	<b> [.05, .15]</b>	<b>4.82</b>	<b>0.00</b>
Doubts about actions						
'DAA <sub>1</sub> ,N <sub>1</sub>	6	1056	.52***	[.43, .60]	19.39**	74.21
'DAA <sub>1</sub> ,DEP <sub>1</sub>	6	1056	.48***	[.43, .53]	5.29	5.43
N <sub>1</sub> →DEP <sub>2</sub>	6	914	.10***	[.03, .18]	6.65	6.65
DEP <sub>1</sub> →DEP <sub>2</sub>	6	914	.46***	[.38, .54]	11.83*	57.74
<b>DAA<sub>1</sub>→DEP<sub>2</sub></b>	<b>6</b>	<b>914</b>	<b>.13***</b>	<b> [.07, .19]</b>	<b>4.02</b>	<b>0.00</b>
Perfectionistic attitudes						
'PA <sub>1</sub> ,N <sub>1</sub>	3	250	.59***	[.50, .67]	1.26	0.00
'PA <sub>1</sub> ,DEP <sub>1</sub>	3	250	.19***	[.07, .31]	0.43	0.00
N <sub>1</sub> →DEP <sub>2</sub>	3	250	.15***	[.02, .27]	2.16	7.28
DEP <sub>1</sub> →DEP <sub>2</sub>	3	250	.24***	[.12, .36]	1.50	0.00
<b>PA<sub>1</sub>→DEP<sub>2</sub></b>	<b>3</b>	<b>250</b>	<b>.24***</b>	<b> [.11, .35]</b>	<b>1.95</b>	<b>0.00</b>
Personal standards						
'PS <sub>1</sub> ,N <sub>1</sub>	6	948	.19***	[.13, .25]	1.05	0.00

$r_{PS_1,DEP_1}$	6	948	.21***	[.13, .29]	5.53	33.58
$N_1 \rightarrow DEP_2$	6	809	.14***	[.06, .22]	6.76	26.05
$DEP_1 \rightarrow DEP_2$	6	809	.48***	[.39, .57]	7.84*	61.84
<b><math>PS_1 \rightarrow DEP_2</math></b>	<b>6</b>	<b>809</b>	<b>.10**</b>	<b> [.04, .17]</b>	<b>2.45</b>	<b>0.00</b>
Self-criticism						
$r_{SC_1,N_1}$	5	883	.39***	[.33, .44]	7.90	49.38
$r_{SC_1,DEP_1}$	5	883	.34***	[.22, .46]	14.90**	73.16
$N_1 \rightarrow DEP_2$	5	861	.14***	[.06, .21]	2.12	0.00
$DEP_1 \rightarrow DEP_2$	5	861	.51***	[.46, .56]	5.16	22.47
<b><math>SC_1 \rightarrow DEP_2</math></b>	<b>5</b>	<b>861</b>	<b>.14***</b>	<b> [.07, .20]</b>	<b>2.59</b>	<b>0.00</b>
Self-oriented perfectionism						
$r_{SOP_1,N_1}$	6	948	.19***	[.12, .25]	5.37	6.88
$r_{SOP_1,DEP_1}$	6	948	.18***	[.11, .24]	1.95	0.00
$N_1 \rightarrow DEP_2$	6	809	.09*	[.02, .16]	4.45	0.00
$DEP_1 \rightarrow DEP_2$	6	809	.49***	[.38, .58]	15.95**	68.65
<b><math>SOP_1 \rightarrow DEP_2</math></b>	<b>6</b>	<b>809</b>	<b>.08*</b>	<b> [.01, .15]</b>	<b>3.97</b>	<b>0.00</b>
Socially prescribed perfectionism						
$r_{SPP_1,N_1}$	9	1555	.28***	[.19, .36]	25.73***	68.91
$r_{SPP_1,DEP_1}$	9	1555	.26***	[.20, .32]	13.40	40.28
$N_1 \rightarrow DEP_2$	9	1402	.11***	[.06, .17]	8.12	1.42
$DEP_1 \rightarrow DEP_2$	9	1402	.49***	[.42, .56]	22.37**	64.24
<b><math>SPP_1 \rightarrow DEP_2</math></b>	<b>9</b>	<b>1402</b>	<b>.13***</b>	<b> [.07, .18]</b>	<b>5.36</b>	<b>0.00</b>

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; **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; **DEP** = Depressive symptoms;  $x_1$  = baseline variable;  $x_2$  = follow-up variable;  $r_{x_1,y_1}$  = bivariate correlation between baseline variables;  $COM_1 \rightarrow DEP_2$  = standardized beta for concern over mistakes predicting follow-up depressive symptoms (controlling for baseline depressive symptoms, neuroticism);  $N_1 \rightarrow DEP_2$  = standardized beta for neuroticism predicting follow-up depressive symptoms (controlling for baseline depressive symptoms, concern over mistakes);  $DEP_1 \rightarrow DEP_2$  = standardized beta for depressive symptoms predicting follow-up depressive symptoms (controlling for baseline neuroticism, concern over mistakes).

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

#### 5.4. Discussion

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

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.

- Bagby, R. M., Parker, J. D., Joffe, R. T., & Buis, T. (1994). Reconstruction and validation of the Depressive Experiences Questionnaire. *Assessment, 1*, 59-68.
- Beck, A. T., & Beck, R. W. (1972). Screening depressed patients in family practice: A rapid technique. *Postgraduate Medical Journal, 52*, 81-85.
- Beck, A. T., Ward, C., & Mendelson, M. (1961). Beck Depression Inventory (BDI). *Archives of General Psychiatry, 4*, 561-571.
- \*Békés, V., Dunkley, D., Taylor, G., Zuroff, D., Lewkowski, M., Foley, J., ... & Westreich, R. (2015). Chronic stress and attenuated improvement in depression over 1 year: The moderating role of perfectionism. *Behavior Therapy, 46*, 479-492.
- Benet-Martínez, V., & John, O. P. (1998). Los Cinco Grandes across cultures and ethnic groups: Multitrait-multimethod analyses of the Big Five in Spanish and English. *Journal of Personality and Social Psychology, 75*, 729-750.
- Blatt, S. J. (1995). The destructiveness of perfectionism: Implications for the treatment of depression. *American Psychologist, 50*, 1003-1020.
- Blatt, S. J., D'Afflitti, J. P., & Quinlan, D. M. (1976). Experiences of depression in normal young adults. *Journal of Abnormal Psychology, 85*, 383-389.
- Borenstein, M., Hedges, L., Higgins, J., & Rothenstein, H. (2005). *Comprehensive meta-analysis* (Version 3.3). Englewood, NJ: Biostat.
- Card, N. A. (2012). *Applied meta-analysis for social science research*. New York: Guilford Press.
- Chang, E. C., & Rand, K. L. (2000). Perfectionism as a predictor of subsequent adjustment:



- Evidence for a specific diathesis–stress mechanism among college students. *Journal of Counseling Psychology*, 47, 129.
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112, 155-159.
- Costa, P. T., & McCrae, R. R. (1992). Normal personality assessment in clinical practice: The NEO Personality Inventory. *Psychological Assessment*, 4, 5-13.
- Coyne, J. C., & Whiffen, V. E. (1995). Issues in personality diathesis for depression: The case of sociotropy-dependency and autonomy-self-criticism. *Psychological Bulletin*, 118, 358-378.
- Cox, B. J., Enns, M. W., & Clara, I. P. (2002). The multidimensional structure of perfectionism in clinically distressed and college student samples. *Psychological Assessment*, 14, 365-373.
- Derogatis, L. R., & Lazarus, L. (1994). SCL-90-R, Brief Symptom Inventory, and matching clinical rating scales. In M. Maruish (Ed.), *The use of psychological testing for treatment planning and outcome assessment* (pp. 217-248). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Donnellan, M., Oswald, F. L., Baird, B. M., & Lucas, R. E. (2006). The Mini-IPIP Scales: Tiny-yet-effective measures of the Big Five factors of personality. *Psychological Assessment*, 18, 192-203.
- Dunkley, D. M., & Blankstein, K. R. (2000). Self-critical perfectionism, coping, hassles, and current distress: A structural equation modeling approach. *Cognitive Therapy and Research*, 24, 713-730.
- Dunkley, D. M., Blankstein, K. R., & Berg, J. L. (2012). Perfectionism dimensions and the five-factor model of personality. *European Journal of Personality*, 26, 233-244.

- Dunkley, D. M., Blankstein, K. R., & Flett, G. L. (1997). Specific cognitive-personality vulnerability styles in depression and the five-factor model of personality. *Personality and Individual Differences, 23*, 1041-1053.
- Dunkley, D. M., Blankstein, K. R., Halsall, J., Williams, M., & Winkworth, G. (2000). The relation between perfectionism and distress: Hassles, coping, and perceived social support as mediators and moderators. *Journal of Counseling Psychology, 47*, 437-453.
- \*Dunkley, D. M., Sanislow, C. A., Grilo, C. M., & McGlashan, T. H. (2006). Perfectionism and depressive symptoms 3 years later: Negative social interactions, avoidant coping, and perceived social support as mediators. *Comprehensive Psychiatry, 47*, 106-115.
- \*Dunkley, D. M., Sanislow, C. A., Grilo, C. M., & McGlashan, T. H. (2009). Self-criticism versus neuroticism in predicting depression and psychosocial impairment for 4 years in a clinical sample. *Comprehensive Psychiatry, 50*, 335-346.
- Dunkley, D. M., Zuroff, D. C., & Blankstein, K. R. (2003). Self-critical perfectionism and daily affect: Dispositional and situational influences on stress and coping. *Journal of Personality and Social Psychology, 84*, 234-252.
- Enns, M. W., & Cox, B. J. (1997). Personality dimensions and depression: Review and commentary. *Canadian Journal of Psychiatry, 42*, 274-284.
- Enns, M. W., & Cox, B. J. (2005). Perfectionism, stressful life events, and the 1-year outcome of depression. *Cognitive Therapy and Research, 29*, 541-553.
- \*Enns, M. W., Cox, B. J., & Clara, I. P. (2005). Perfectionism and neuroticism: A longitudinal study of specific vulnerability and diathesis-stress models. *Cognitive Therapy and Research, 29*, 463-478.
- Enns, M. W., Cox, B. J., & Inayatulla, M. (2003). Personality predictors of outcome for

- adolescents hospitalized for suicidal ideation. *Journal of the American Academy of Child and Adolescent Psychiatry*, 42, 720-727.
- \*Enns, M. W., Cox, B. J., Sareen, J., & Freeman, P. (2001). Adaptive and maladaptive perfectionism in medical students: A longitudinal investigation. *Medical Education*, 35, 1034-1042.
- Flett, G. L., Besser, A., & Hewitt, P. L. (2005). Perfectionism, ego defense styles, and depression: A comparison of self-reports versus informant ratings. *Journal of Personality*, 73, 1355-1396.
- Flett, G. L., & Hewitt, P. L. (2015). Measures of perfectionism. In G. J. Boyle, D. H. Saklofske, & G. Matthews (Eds.), *Measures of personality and social constructs* (pp. 595-618). London: Academic Press.
- Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Mosher, S. W. (1995). Perfectionism, life events, and depressive symptoms: A test of a diathesis-stress model. *Current Psychology*, 14, 112-137.
- Flett, G. L., Hewitt, P. L., & Heisel, M. (2014). The destructiveness of perfectionism revisited: Implications for the assessment of suicide risk and the prevention of suicide. *Review of General Psychology*, 18, 156-172.
- Frost, R., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research*, 14, 449-468.
- Fry, P. S., & Debats, D. L. (2009). Perfectionism and the five-factor personality traits as predictors of mortality in older adults. *Journal of Health Psychology*, 14, 513-524.
- \*Graham, A. R., Sherry, S. B., Stewart, S. H., Sherry, D. L., McGrath, D. S., Fossum, K. M., & Allen, S. L. (2010). The existential model of perfectionism and depressive symptoms: A

- short-term, four-wave longitudinal study. *Journal of Counseling Psychology*, *57*, 423-438.
- Hamilton, M. (1960). A rating scale for depression. *Journal of Neurology, Neurosurgery, and Psychiatry*, *23*, 56-62.
- Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts. *Journal of Personality and Social Psychology*, *60*, 456-470.
- Hewitt, P. L., & Flett, G. L. (1993). Dimensions of perfectionism, daily stress, and depression: A test of the specific vulnerability hypothesis. *Journal of Abnormal Psychology*, *102*, 58-65.
- Hewitt, P. L., & Flett, G. L. (2002). Perfectionism and stress processes in psychopathology. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 255-284). Washington: American Psychological Association.
- Hewitt, P. L., Flett, G. L., & Ediger, E. (1996). Perfectionism and depression: Longitudinal assessment of a specific vulnerability hypothesis. *Journal of Abnormal Psychology*, *105*, 276-280.
- Hewitt, P. L., Habke, A., Lee-Bagley, D., Sherry, S. B., & Flett, G. L. (2008). The impact of perfectionistic self-presentation on the cognitive, affective, and physiological experience of a clinical interview. *Psychiatry*, *71*, 93-122.
- Higgins, J., & Thompson, S. G. (2002). Quantifying heterogeneity in a meta-analysis. *Statistics in Medicine*, *21*, 1539-1558.
- Hill, A. P. (2014). Perfectionistic strivings and the perils of partialling. *International Journal of Sport and Exercise Psychology*, *12*, 302-315.
- Hunter, J. E., & Schmidt, F. L. (1990). Dichotomization of continuous variables: The

- implications for meta-analysis. *Journal of Applied Psychology*, 75, 334-349.
- Imber, S. D., Pilkonis, P. A., Sotsky, S. M., Elkin, I., Watkins, J. T., Collins, J. F., & ... Glass, D. R. (1990). Mode-specific effects among three treatments for depression. *Journal of Consulting and Clinical Psychology*, 58, 352-359.
- Joiner, T. E., & Schmidt, N. B. (1995). Dimensions of perfectionism, life stress, and depressed and anxious symptoms: Prospective support for diathesis-stress but not specific vulnerability among male undergraduates. *Journal of Social and Clinical Psychology*, 14, 165-183.
- Keller, M. B., Lavori, P. W., Friedman, B., Nielsen, E., Endicott, J., McDonald-Scott, P., & Andreasen, N. C. (1987). The longitudinal interval follow-up evaluation: A comprehensive method for assessing outcome in prospective longitudinal studies. *Archives of General Psychiatry*, 44, 540-548.
- Klonsky, E. D., & Oltmanns, T. F. (2002). Informant-reports of personality disorder: Relation to self-reports and future research directions. *Clinical Psychology: Science and Practice*, 9, 300-311.
- Lahey, B. B. (2009). Public health significance of neuroticism. *American Psychologist*, 64, 241-256.
- Lovibond, P., & Lovibond, S. (1995). The structure of negative emotional states. *Behaviour Research and Therapy*, 33, 335-343.
- Lubin, B. (1965). Adjective checklists for measurement of depression. *Archives of General Psychiatry*, 12, 57-62.
- \*Mackinnon, S. P., & Sherry, S. B. (2012). Perfectionistic self-presentation mediates the relationship between perfectionistic concerns and subjective well-being: A three-wave

- longitudinal study. *Personality and Individual Differences*, 53, 22-28.
- \*Mackinnon, S. P., Sherry, S. B., Antony, M. M., Stewart, S. H., Sherry, D. L., & Hartling, N. (2012). Caught in a bad romance: Perfectionism, conflict, and depression in romantic relationships. *Journal of Family Psychology*, 26, 215-225.
- McNair, D. M., Lorr, M., & Droppleman, L. F. (1992). *Profile of Mood States manual*. San Diego, CA: Educational and Industrial Testing Service.
- Molnar, D. S., Sadava, S. W., Flett, G. L., & Colautti, J. (2012). Perfectionism and health: A mediational analysis of the roles of stress, social support and health-related behaviours. *Psychology & Health*, 27, 846-864.
- Morey, L. C. (1991). *Personality Assessment Inventory - Professional Manual*. Lutz, FL: Psychological Assessment Resources.
- Mushquash, A. R., & Sherry, S. B. (2013). Testing the perfectionism model of binge eating in mother–daughter dyads: A mixed longitudinal and daily diary study. *Journal of Marriage and Family*, 14, 171-179.
- Muthén, L. K., & Muthén, B. O. (1998-2011). *Mplus user's guide*. Los Angeles, CA: Muthén & Muthén.
- Powers, T. A., Koestner, R., Zuroff, D. C., Milyavskaya, M., & Gorin, A. (2011). The effects of self-criticism and self-oriented perfectionism on goal pursuit. *Personality and Social Psychology Bulletin*, 37, 964-975.
- Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385-401.
- \*Sherry, S. B., Gautreau, C. M., Mushquash, A. R., Sherry, D. L., & Allen, S. L. (2014). Self-critical perfectionism confers vulnerability to depression after controlling for

- neuroticism: A longitudinal study of middle-aged community-dwelling women. *Personality and Individual Differences*, *69*, 1-4.
- Sherry, S. B., Hewitt, P. L., Flett, G. L., & Harvey, M. (2003). Perfectionism dimensions, perfectionistic attitudes, dependent attitudes, and depression in psychiatric patients and university students. *Journal of Counseling Psychology*, *50*, 373-386.
- Sherry, S. B., Hewitt, P. L., Stewart, S. H., Mackinnon, A. L., Mushquash, A. R., Flett, G. L., & Sherry, D. L. (2012). Social disconnection and hazardous drinking mediate the link between perfectionistic attitudes and depressive symptoms. *Journal of Psychopathology and Behavioural Assessment*, *26*, 193-201.
- Sherry, S. B., Mackinnon, S. P., Macneil, M. A., & Fitzpatrick, S. (2013). Discrepancies confer vulnerability to depressive symptoms: A three-wave longitudinal study. *Journal of Counseling Psychology*, *60*, 112-126.
- \*Sherry, S. B., Nealis, L. J., Macneil, M. A., Stewart, S. H., Sherry, D. L., & Smith, M. M. (2013). Informant reports add incrementally to the understanding of the perfectionism-depression connection: Evidence from a prospective longitudinal study. *Personality and Individual Differences*, *54*, 957-960.
- Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: Approaches, evidence, challenges. *Personality and Social Psychology Review*, *10*, 295-319.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect. *Journal of Personality and Social Psychology*, *54*, 1063-1070.
- Weissman, A. N., & Beck, A. T. (1978). *Development and validation of the Dysfunctional Attitude Scale: A preliminary investigation*. Paper presented at the 86th Annual

Convention of the American Psychological Association, Toronto, Ontario, Canada.

Zuroff, D. C., Mongrain, M., & Santor, D. A. (2004). Conceptualizing and measuring personality vulnerability to depression: Comment on Coyne and Whiffen (1995).

*Psychological Bulletin*, 130, 489-511



## 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-Baggley, & Hall,

2007). 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,

& McGeary, 2009; Rosenbaum Asarnow, Tompson, Woo, & Cantwell, 2001).

### **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-Baggley, 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 Radloff’s (1977) Center for Epidemiological Studies Depression Scale (CES-

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 13. 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

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

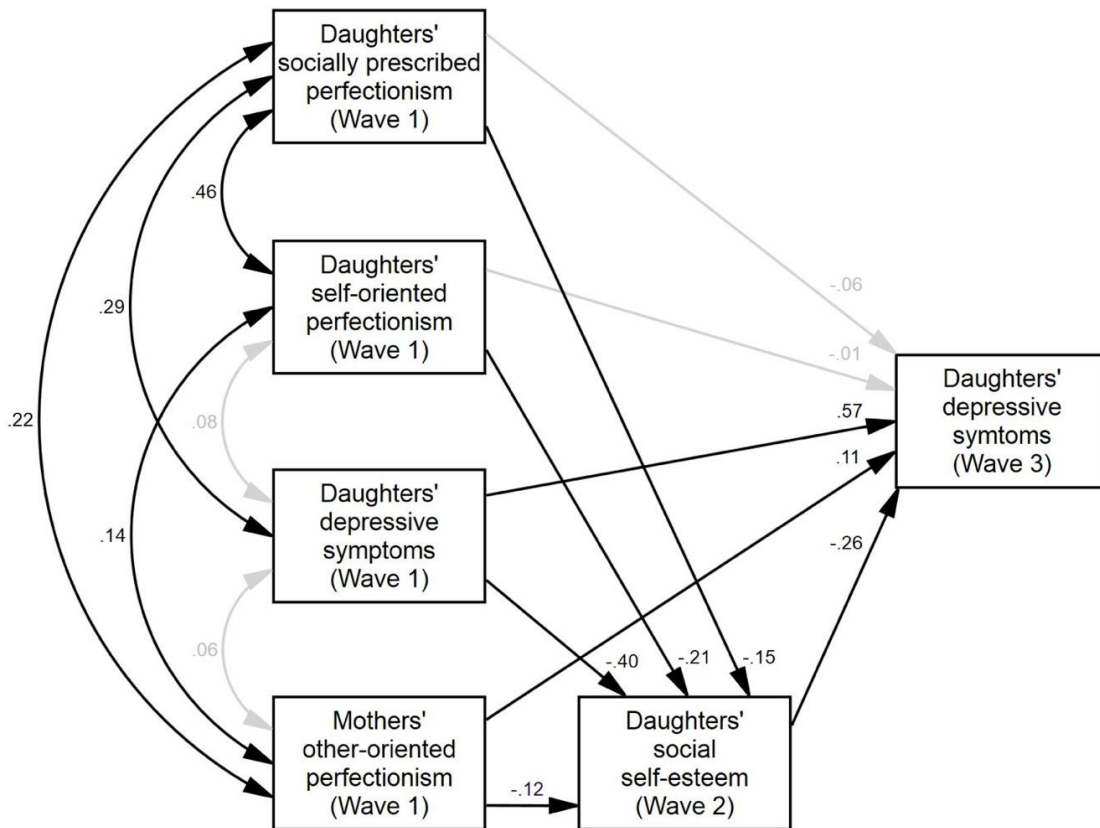
Note. Missing data were handled using full information maximum likelihood ( $N = 218$ ).

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

### 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.<sup>2</sup>

<sup>2</sup>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 diary 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 diary 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

- Appleton, P. R., Hall, H. K., & Hill, A. P. (2010). Family patterns of perfectionism: An examination of elite junior athletes and their parents. *Psychology of Sport and Exercise, 11*, 363-371.
- Barnett, M., & Johnson, D. M. (2016). The perfectionism social disconnection model: The mediating role of communication styles. *Personality and Individual Differences, 94*, 200-205.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*, 497-529.
- Békés, V., Dunkley, D. M., Taylor, G., Zuroff, D. C., Lewkowski, M., Foley, J. E., . . . & Westreich, R. (2015). Chronic stress and attenuated improvement in depression over 1 year: The moderating role of perfectionism. *Behavior Therapy, 46*, 478.
- Besser, A., & Priel, B. (2005). The apple does not fall far from the tree: Attachment styles and personality vulnerabilities to depression in three generations of women. *Personality and Social Psychology Bulletin, 31*, 1052-1073.
- Blankstein, K. R., Dunkley, D. M., & Wilson, J. (2008). Evaluative concerns and personal standards perfectionism: Self-esteem as a mediator and moderator of relations with personal and academic needs and estimated GPA. *Current Psychology, 27*, 29-61.
- Blatt, S. J. (1995). The destructiveness of perfectionism: Implications for the treatment of depression. *American Psychologist, 50*, 1003-1020.
- Bruch, H. (1971). Family transactions in eating disorders. *Comprehensive Psychiatry, 12*, 238-248.
- Chen, C., Hewitt, P. L., & Flett, G. L. (2017). Ethnic variations in other-oriented perfectionism's associations with depression and suicide behaviour. *Personality and Individual*

- Differences*, 104, 504-509.
- Clark, S., & Coker, S. (2009). Perfectionism, self-criticism and maternal criticism: A study of mothers and their children. *Personality and Individual Differences*, 47, 321-325.
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112, 155-159.
- Cole, J. C., Rabin, A. S., Smith, T. L., & Kaufman, A. S. (2004). Development and validation of a Rasch-derived CES-D short form. *Psychological Assessment*, 16, 360-372.
- Cook, L. C., & Kearney, C.A. (2014). Parent perfectionism and psychopathology symptoms and child perfectionism. *Personality and Individual Differences*, 70, 1-6.
- Cox, B. J., Clara, I. P., & Enns, M. W. (2009). Self-criticism, maladaptive perfectionism, and depression symptoms in a community sample: A longitudinal test of the mediating effects of person-dependent stressful life events. *Journal of Cognitive Psychotherapy*, 23, 336-349.
- Dunkley, D. M., Sanislow, C. A., Grilo, C. M., & McGlashan, T. H. (2006). Perfectionism and depressive symptoms 3 years later: Negative social interactions, avoidant coping, and perceived social support as mediators. *Comprehensive Psychiatry*, 47, 106-115.
- Efron, B., & Tibshirani, R. J. (1994). *An introduction to the bootstrap*. CRC press.
- Flett, G. L., Besser, A., & Hewitt, P. L. (2005). Perfectionism, ego defense styles, and depression: A comparison of self-reports versus informant ratings. *Journal of Personality*, 73, 1355-1396.
- Flett, G. L., Besser, A., & Hewitt, P. L. (2014). Perfectionism and interpersonal orientations in depression: An analysis of validation seeking and rejection sensitivity in a community sample of young adults. *Psychiatry: Interpersonal and Biological Processes*, 77, 67-85.
- Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Gray, L. (1998). Psychological distress and the

- frequency of perfectionistic thinking. *Journal of Personality and Social Psychology*, 75, 1363-1381.
- Flett, G. L., Hewitt, P. L., & De Rosa, T. (1996). Dimensions of perfectionism, psychosocial adjustment, and social skills. *Personality and Individual Differences*, 20, 143-150.
- Flett, G. L., Hewitt, P. L., Oliver, J. M., & Macdonald, S. (2002). Perfectionism in children and their parents: A developmental analysis. In G. L. Flett, & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 89-132). Washington, DC: American Psychological Association.
- Flett, G. L., Hewitt, P. L., & Singer, A. (1995). Perfectionism and parental authority styles. *Individual Psychology: Journal of Adlerian Theory, Research & Practice*, 51, 50-60.
- Gibb, B. E., Uhrlass, D. J., Grassia, M., Benas, J. S., & McGeary, J. (2009). Children's inferential styles, 5-HTTLPR genotype, and maternal expressed emotion-criticism: An integrated model for the intergenerational transmission of depression. *Journal of Abnormal Psychology*, 118, 734-745.
- Haring, M., Hewitt, P. L., & Flett, G. L. (2003). Perfectionism, coping, and quality of intimate relationships. *Journal of Marriage and Family*, 65, 143-158.
- Heatherton, T. F., & Polivy, J. (1991). Development and validation of a scale for measuring state self-esteem. *Journal of Personality and Social Psychology*, 60, 895-910.
- Hewitt, P. L., & Flett, G. L. (1990). Perfectionism and depression: A multidimensional analysis. *Journal of Social Behavior & Personality*, 5, 423-438. Retrieved from <http://www.sbp-journal.com/index.php/sbp>
- Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts. *Journal of Personality and Social Psychology*, 60, 456-470.

- Hewitt, P. L., & Flett, G. L. (1993). Dimensions of perfectionism, daily stress, and depression: A test of the specific vulnerability hypothesis. *Journal of Abnormal Psychology, 102*, 58-65.
- Hewitt, P. L., Flett, G. L., & Mikail, S. F. (1995). Perfectionism and relationship adjustment in pain patients and their spouses. *Journal of Family Psychology, 9*, 335-347.
- Hewitt, P. L., Flett, G. L., & Mikail, S. F. (2017). *Perfectionism: A relational approach to conceptualization, assessment, and treatment*. New York, NY: Guilford Press.
- Hewitt, P. L., Flett, G. L., Sherry, S. B., & Caelian, C. (2006). Trait perfectionism dimensions and suicidal behavior. In T. E. Ellis (Ed.), *Cognition and suicide: Theory, research, and therapy* (pp. 215-235). Washington, DC: American Psychological Association.
- Hewitt, P. L., Habke, A., Lee-Baggley, D. L., Sherry, S. B., & Flett, G. L. (2008). The impact of perfectionistic self-presentation on the cognitive, affective, and physiological experience of a clinical interview. *Psychiatry: Interpersonal & Biological Processes, 71*, 93-122.
- Horney, K. (1950). *Neurosis and human growth*. New York, NY: Norton.
- Joiner, T. E., & Coyne, J. C. (1999). *The interactional nature of depression: Advances in interpersonal approaches*. Washington, DC: American Psychological Association.
- Judd, L. L., Schettler, P. J., & Akiskal, H. S. (2002). The prevalence, clinical relevance, and public health significance of subthreshold depressions. *Psychiatric Clinics of North America, 25*, 685-698.
- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic analysis*. New York, NY: Guilford.
- Laurenceau, J., & Bolger, N. (2005). Using diary methods to study marital and family processes. *Journal of Family Psychology, 19*, 86-97.

- Little, R. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, *83*, 1198–1202.
- Mackinnon, S. P., Sherry, S. B., Antony, M. M., Stewart, S. H., Sherry, D. L., & Hartling, N. (2012). Caught in a bad romance: Perfectionism, conflict, and depression in romantic relationships. *Journal of Family Psychology*, *26*, 215-225.
- Mackinnon, S. P., Sherry, S. B., Graham, A. R., Stewart, S. H., Sherry, D. L., Allen, S. L., Fitzpatrick, S., & McGrath, D. S. (2011). Reformulating and testing the perfectionism model of binge eating: A short-term, three-wave longitudinal study. *Journal of Counseling Psychology*, *58*, 630-646.
- McGrath, D. S., Sherry, S. B., Stewart, S. H., Mushquash, A. R., Allen, S. L., Nealis, L. J., & Sherry, D. L. (2012). Reciprocal relations between self-critical perfectionism and depressive symptoms: Evidence from a short-term, four-wave longitudinal study. *Canadian Journal of Behavioural Science*, *44*, 169-181.
- Mead, D. (2002). Marital distress, co-occurring depression and marital therapy: A review. *Journal of Marital and Family Therapy*, *28*, 299-314.
- Moretti, M. M., & Higgins, E. (1999). Own versus other standpoints in self-regulation. *Review of General Psychology*, *3*, 188-223.
- Mushquash, A. R., & Sherry, S. B. (2012). Understanding the socially prescribed perfectionist's cycle of self-defeat: A 7-day, 14-occasion daily diary study. *Journal of Research in Psychology*, *46*, 700-709.
- Muthén, L., & Muthén, B. (1998-2012). *Mplus Users' Guide*, Los Angeles, CA: Author.
- Nealis, L. J., Sherry, S. B., Sherry, D., Stewart, S. H., & Macneil, M. A. (2015). Toward a better understanding of narcissistic perfectionism: Evidence of factorial validity, incremental

- validity, and mediating mechanisms. *Journal of Research in Personality*, 57, 11-25.
- Orth, U., & Robins, R. W. (2013). Understanding the link between low self-esteem and depression. *Current Directions in Psychological Science*, 22, 455-460.
- Preacher, K. J., Zyphur, M. J., & Zhang, Z. (2010). A general multilevel SEM framework for assessing multilevel mediation. *Psychological Methods*, 15, 209-233.
- Prenoveau, J. M., Craske, M. G., Zinbarg, R. E., Mineka, S., Rose, R. D., & Griffith, J. W. (2011). Are anxiety and depression just as stable as personality during late adolescence? *Journal of Abnormal Psychology*, 120, 832-843.
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385-401.
- Rosenbaum Asarnow, J., Tompson, M., Woo, S., & Cantwell, D.P. (2001). Is expressed emotion a specific risk factor for depression or a nonspecific correlate of psychopathology? *Journal of Abnormal Child Psychology*, 29, 573-583.
- Shahar, G., Blatt, S. J., Zuroff, D. C., Krupnick, J. L., & Sotsky, S. M. (2004). Perfectionism impedes social relations and response to brief treatment for depression. *Journal of Social and Clinical Psychology*, 23, 140-154.
- Shahar, G., Blatt, S. J., Zuroff, D. C., & Pilkonis, P. A. (2003). Role of perfectionism and personality disorder features in response to brief treatment for depression. *Journal of Consulting and Clinical Psychology*, 71, 629-633.
- Sherry, S. B., & Hall, P. (2009). The perfectionism model of binge eating: Tests of an integrative model. *Journal of Personality and Social Psychology*, 96, 690-709.
- Sherry, S. B., Hewitt, P. L., Flett, G. L., & Harvey, M. (2003). Perfectionism dimensions, perfectionistic attitudes, dependent attitudes, and depression in psychiatric patients and

- university students. *Journal of Counseling Psychology*, 50, 373-386.
- Sherry, S. B., Hewitt, P. L., Flett, G. L., Lee-Baggley, D. L., & Hall, P. A. (2007). Trait perfectionism and perfectionistic self-presentation in personality pathology. *Personality and Individual Differences*, 42, 477-490.
- Sherry, S. B., Law, A., Hewitt, P. L., Flett, G. L., & Besser, A. (2008). Social support as a mediator of the relationship between perfectionism and depression: A preliminary test of the social disconnection model. *Personality and Individual Differences*, 45, 339-344.
- Sherry, S. B., Mackinnon, A. L., Fossum, K., Antony, M. M., Stewart, S. H., Sherry, D. L., . . . & Mushquash, A. R. (2013). Perfectionism, discrepancies, and depression. Testing the perfectionism social disconnection model in a short-term, four-wave longitudinal study. *Personality and Individual Differences*, 54, 692-697.
- Sherry, S. B., Mackinnon, S. P., & Gaudreau, C. G. (2016). Perfectionists don't play nicely with others: Expanding the social disconnection model. In F. M. Sirois & D. Molnar (Eds), *Perfectionism, health, and well-being* (pp. 225-243). New York, NY: Springer.
- Sherry, S. B., Sherry, D. L., Macneil, M. A., Smith, M. M., Mackinnon, S. P., Stewart, S. H., Antony, M. M. (2014). Does socially prescribed perfectionism predict daily conflict? A 14-day daily diary study of romantic couples using self- and partner-reports. *Personality and Individual Differences*, 61, 24-27.
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods*, 7, 422-445.
- Smith, M. M., Sherry, S. B., Rnic, K., Saklofske, D. H., Enns, M., & Gralnick, T. (2016). Are perfectionism dimensions vulnerability factors for depressive symptoms after controlling for neuroticism? A meta-analysis of 10 longitudinal studies. *European Journal of*



*Personality, 30*, 201-212.

- Smith, M. M., Speth, T.A., Sherry, S. B., Saklofske, D. H., Stewart, S. H., & Glowacka, M. (2017). Is socially prescribed perfectionism veridical? A new take on the stressfulness of perfectionism. *Personality and Individual Differences, 110*, 115-118.
- Smith, M. M., Vidovic, V., Sherry, S. B., & Saklofske, D. H. (2017). Self-oriented perfectionism and socially prescribed perfectionism adds incrementally to the prediction of suicide ideation beyond hopelessness: A meta-analysis of 15 studies. In U. Kumar (Ed.), *Handbook of suicidal behaviour*. New York: Springer.
- Soenens, B., Elliot, A. J., Goossens, L., Vansteenkiste, M., Luyten, P., & Duriez, B. (2005). The intergenerational transmission of perfectionism: Parents' psychological control as an intervening variable. *Journal of Family Psychology, 19*, 358-366.
- Stoeber, J. (2014). How other-oriented perfectionism differs from self-oriented and socially prescribed perfectionism. *Journal of Psychopathology and Behavioral Assessment, 36*, 329-338.
- Stoeber, J. (2015). How other-oriented perfectionism differs from self-oriented and socially prescribed perfectionism: Further findings. *Journal of Psychopathology and Behavioral Assessment, 37*, 611-623.
- Stoeber, J. (in press). Comparing two short forms of the Hewitt-Flett Multidimensional Perfectionism Scale. *Assessment, 36*, 611-623.
- Struman, E. D., Flett, G. L., Hewitt, P. L., & Rudolph, S. G. (2009). Dimensions of perfectionism and self-worth contingencies in depression. *Journal of Rationale-Emotive & Cognitive Behavior Therapy, 27*, 213-231.
- Trzesniewski, K. H., Donnellan, M. B., Moffitt, T. E., Robins, R. W., Poulton, R., & Caspi, A.

(2006). Low self-esteem during adolescence predicts poor health, criminal behavior, and limited economic prospects during adulthood. *Developmental Psychology*, *42*, 381.

Weissman, M. M., Markowitz, J. C., & Klerman, G. L. (2000). *Comprehensive guide to interpersonal psychotherapy*. New York, NY: Basic Books.

## 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 unfilled 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 14). 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 CSPS and SBQ items assess suicidal thoughts.



**Table 14.** Characteristics of studies included in the meta-analysis

	Sample					Status	Design	Measures		
	<i>N</i>	Sample type	Mean age	Female %	Ethnic %			Perfectionism	Suicide ideation	Suicide attempts
Adkins (1994)	129	university <sup>a</sup>	NR	NR	10.1	dissertation	cross-sectional	FMPS-total	ASIQ	—
Adkins and Parker (1996)	129	university <sup>a</sup>	21.8	65.0	11.0	article	cross-sectional	FMPS-COM FMPS-DAA FMPS-PC FMPS-PE FMPS-PS FMPS-ORG	AAHS-ST <sup>e</sup>	attempts <sup>f</sup>
Beck et al. (1993)	908	psychiatric <sup>b</sup>	36.4	55.0	NR	article	cross-sectional	DAS-P	SSI	attempts <sup>f</sup>
Beevers and Miller (2004) time 1	121	psychiatric <sup>b</sup>	38.0	74.4	6.6	article	longitudinal	DAS-P	MSSI	—
Beevers and Miller (2004) time 2	100	psychiatric <sup>b</sup>	38.0	74.4	6.6	article	longitudinal	DAS-P	MSSI	—
Blankstein et al. (2007) women	144	university <sup>a</sup>	22.1	100.0	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	CSI	—
Blankstein et al. (2007) men	61	university <sup>a</sup>	22.1	0.0	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	CSI	—
Blasberg et al. (2016)	371	university <sup>a</sup>	21.0	61.0	NR	article	cross-sectional	FMPS-PS	SSI	—
Caelian (2005)	55	psychiatric <sup>b</sup>	15.5	74.5	25.5	dissertation	cross-sectional	CAPS-SOP CAPS-SPP	SIQ	attempts <sup>f</sup>
Chang (2002)	371	university <sup>a</sup>	23.5	80.6	7.0	article	cross-sectional	FMPS-total	ASIQ	—
Chen (2012) women	279	community <sup>c</sup>	58.6	100.0	13.5	dissertation	longitudinal	MPS-SOP MPS-OOP MPS-SPP	SSI	—
Chen (2012) men	157	community <sup>c</sup>	58.6	0.0	13.5	dissertation	longitudinal	MPS-SOP MPS-OOP	SSI	—

								MPS-SPP		
Chen et al. (2017)	240	university <sup>a</sup>	18.9	63.8	50.0	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	SSI ASIQ	—
Dean and Range (1996)	168	university <sup>a</sup>	21.9	69.0	28.0	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	SBQ	—
Dean and Range (1999)	132	psychiatric <sup>b</sup>	35.5	71.2	33.3	article	cross-sectional	MPS-SOP MPS-SPP	SSI	—
Dean et al. (1996)	114	university <sup>a</sup>	24.4	84.2	28.1	article	cross-sectional	MPS-SPP	SSI	—
Enns et al. (2001)	96	medical <sup>d</sup>	25.1	41.7	NR	article	longitudinal	MPS-SOP MPS-OOP MPS-SPP FMPS-COM FMPS-DAA FMPS-PC FMPS-PE FMPS-PS FMPS-ORG	SIQ	—
Fedorowicz et al. (2007)	940	psychiatric <sup>b</sup>	26.0	0.0	NR	article	cross-sectional	EDI	—	attempts <sup>g</sup>
Flamenbaum and Holden (2007)	264	university <sup>a</sup>	18.9	75.8	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	BSS-M BSS-P intent <sup>h</sup>	attempts <sup>f</sup>
Foulon et al. (2007)	304	psychiatric <sup>b</sup>	22.3	97.7	NR	article	cross-sectional	EDI	—	attempts <sup>i</sup>
Franko et al. (2004)	246	psychiatric <sup>b</sup>	NR	100.0	NR	article	cross-sectional	EDI	—	attempts <sup>i</sup>
Freudenstein et al. (2012)	100	psychiatric <sup>b</sup>	16.6	47.0	12.0	article	cross-sectional	CAPS-SOP CAPS-SPP	CSPS	attempts <sup>i</sup>
Hamilton and Schweitzer (2000)	389	university <sup>a</sup>	22.7	74.3	NR	article	cross-sectional	FMPS-PS FMPS-COM	GHQ-ST	—

								FMPS-DAA FMPS-PC FMPS-PE FMPS-total		
Hewitt et al. (1992)	87	psychiatric <sup>b</sup>	35.7	52.9	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	BDI-SI	—
Hewitt et al. (1994) study 1	91	psychiatric <sup>b</sup>	35.5	53.8	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	SSI RST-past RST-future	—
Hewitt et al. (1994) study 2	160	university <sup>a</sup>	21.7	65.6	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	SSI RST-past RST-future	—
Hewitt et al. (1997) women	33	psychiatric <sup>b</sup>	15.4	100.0	NR	article	cross-sectional	CAPS-SOP CAPS-SPP	SIQ	—
Hewitt et al. (1997) men	33	psychiatric <sup>b</sup>	15.4	0.0	NR	article	cross-sectional	CAPS-SOP CAPS-SPP	SIQ	—
Hewitt et al. (1998)	78	psychiatric <sup>b</sup>	32.8	53.8	30.8	article	cross-sectional <sup>i</sup>	MPS-SOP MPS-OOP MPS-SPP	—	attempts <sup>i</sup>
Hewitt et al. (2014)	55	psychiatric <sup>b</sup>	15.5	74.5	25.5	article	cross-sectional	CAPS-SOP CAPS-SPP	SIQ	attempts <sup>i</sup>
Hunter and O'Connor (2003) sample 1	43	psychiatric <sup>b</sup>	34.6	53.4	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	—	attempts <sup>i</sup>
Hunter and O'Connor (2003) sample 2	44	psychiatric <sup>b</sup>	34.6	47.7	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	—	attempts <sup>i</sup>
Izadi (2015)	50	community <sup>c</sup>	27.0	74.0	42.0	dissertation	cross-sectional	MPS-SPP FMPS-COM	SBQ-SI	attempts <sup>f</sup>

								FMPS-PC FMPS-PE		
Jacobs et al. (2009)	439	psychiatric <sup>b</sup>	14.6	54.0	26.0	article	cross-sectional	DAS-P	SIQ-JR	—
Jeglic (2003)	97	university <sup>a</sup>	18.4	73.2	33.0	dissertation	cross-sectional	FMPS-total	—	attempts <sup>i</sup>
Jeglic et al. (2007) study 2	440	university <sup>a</sup>	18.5	62.0	40.0	article	cross-sectional	FMPS-total	—	attempts <sup>i</sup>
Muyan and Chang (2015)	288	university <sup>a</sup>	21.3	59.0	NR	article	cross-sectional	FMPS-COM FMPS-DAA FMPS-PC FMPS-PE FMPS-PS FMPS-ORG	FSII	—
O'Connor and Forgan (2007)	255	university <sup>a</sup>	22.0	78.0	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	GHQ-ST	—
O'Connor et al. (2007a) study 2	151	university <sup>a</sup>	24.0	72.2	NR	article	longitudinal	MPS-SOP MPS-OOP MPS-SPP	SPS-SI	—
O'Connor et al. (2007b) sample 1	65	psychiatric <sup>b</sup>	24.1	72.2	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	SPS-SI	—
O'Connor et al. (2007b) sample 2	61	psychiatric <sup>b</sup>	24.1	72.2	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	SPS-SI	—
Pisetsky et al. (2013)	635	psychiatric <sup>b</sup>	31.7	NR	NR	article	cross-sectional	FMPS-COM FMPS-DAA FMPS-PS	—	attempts <sup>i</sup>
Portzky et al. (2014)	1,436	psychiatric <sup>b</sup>	24.2	95.4	NR	article	cross-sectional	EDI FMPS-COM FMPS-DAA FMPS-PC	—	attempts <sup>i</sup>

								FMPS-PE FMPS-PS FMPS-ORG		
Ranieri et al. (1987) sample 1	50	psychiatric <sup>b</sup>	44.3	56.0	8.0	article	cross-sectional	DAS-P	BSSI	attempts <sup>f</sup>
Ranieri et al. (1987) sample 2	25	psychiatric <sup>b</sup>	41.7	60.0	NR	article	cross-sectional	DAS-P	BSSI	attempts <sup>f</sup>
Rasmussen et al. (2008) sample 1	17	psychiatric <sup>b</sup>	38.0	57.5	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	SPS-SI	—
Rasmussen et al. (2008) sample 2	23	psychiatric <sup>b</sup>	38.0	57.5	NR	article	cross-sectional	MPS-SOP MPS-OOP MPS-SPP	SPS-SI	—
Rasmussen et al. (2012a)	161	psychiatric <sup>b</sup>	33.7	59.0	NR	article	cross-sectional	MPS-SPP	SPS-SI	—
Rasmussen et al. (2012b)	214	university <sup>a</sup>	20.1	57.0	25.7	article	cross-sectional	APS-D	DSI-SS	—
Roxborough et al. (2012)	152	psychiatric <sup>b</sup>	12.9	45.4	28.5	article	cross-sectional	CAPS-SOP CAPS-SPP	intent <sup>h</sup>	—
Sligh (2006)	48	university <sup>a</sup>	20.1	52.1	62.5	dissertation	cross-sectional	APS-D	DSI-SS	—
Wallack (2007)	181	university <sup>a</sup>	19.8	79.6	26.0	dissertation	cross-sectional	APS-D	SIS	—
Wang et al. (2013)	466	university <sup>a</sup>	26.4	49.6	NR	article	cross-sectional	APS-D	SIS	—
Yamaguchi et al. (2000)	51	psychiatric <sup>b</sup>	21.2	96.1	NR	article	cross-sectional	EDI	—	attempts <sup>i</sup>

*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** = Beck et al.'s (1988) Scale for Suicidal Ideation; **MSSI** = Miller et al.'s (1986) Modified Scale for Suicidal Ideation; **MPS** = Hewitt and Flett's (1991) Multidimensional Perfectionism Scale; **SOP** = self-oriented perfectionism; **OOP** = other-oriented perfectionism; **SPP** = socially prescribed perfectionism; **CSI** = Blankstein's (2004) Current Suicide Ideation Scale; **CAPS** = Flett et al.'s (2016) Child-Adolescent Perfectionism Scale; **SIQ** = Reynolds' (1987a) Suicidal 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

(1967) 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.

<sup>a</sup>University undergraduates

<sup>b</sup>Psychiatric patients

<sup>c</sup>Community adults

<sup>d</sup>Medical students

<sup>e</sup>Participants reported whether they had ever seriously thought about attempting suicide.

<sup>f</sup>Self-reported number of prior suicide attempts.

<sup>g</sup>Prior number of suicide attempts assessed by a clinician.

<sup>h</sup>Participants asked "How likely is it that you will attempt suicide someday"?

<sup>i</sup>Compared suicide attempters and non-attempters.

**Table 15.** Summary of overall effect sizes for the relationship between perfectionism and suicidality

Variable	<i>k</i>	<i>N</i>	<i>r</i> <sup>+</sup>	95% CI	<i>Q<sub>T</sub></i>	<i>I</i> <sup>2</sup> (%)	Egger's intercept	95% CI	<i>k</i> <sup>TF</sup>	"Trim and fill" estimates <i>r</i> <sup>+</sup> [95% CI]	Power
<b>Suicide ideation</b>											
Perfectionistic concerns <sup>a</sup>	42	7,936	.28***	[.24, .32]	99.10***	58.63	1.75	[0.76, 2.73]	0	.28 [.24, .31]	.99
Socially prescribed perfectionism	30	3,640	.28***	[.25, .32]	37.04	21.71	0.35	[-1.00, 1.69]	0	.28 [.25, .32]	.99
Concern over mistakes	5	952	.25***	[.13, .36]	12.19*	67.20	2.51	[-4.36, 9.38]	0	.25 [.13, .36]	.98
Doubts about actions	4	902	.27***	[.18, .35]	5.14	41.62	2.94	[-5.67, 11.58]	2	.20 [.11, .30]	.99
Discrepancy	4	904	.26***	[.14, .38]	9.17*	67.27	3.38	[-4.79, 11.54]	1	.24 [.12, .35]	.98
Perfectionistic attitudes	5	1,533	.37***	[.19, .52]	33.55***	88.08	4.07	[-0.33, 8.48]	2	.26 [.09, .41]	.98
Perfectionistic strivings <sup>b</sup>	31	4,588	.10***	[.07, .13]	32.14	6.65	0.18	[-0.94, 1.30]	0	.10 [.07, .13]	.99
Self-oriented perfectionism	27	3,315	.11***	[.08, .15]	20.96	0.00	-0.46	[-1.56, 0.64]	0	.11 [.08, .15]	.99
Personal standards	5	1,273	.10*	[.00, .19]	10.33*	61.27	3.34	[-4.71, 11.39]	0	.10 [.00, .19]	.52
Other forms of perfectionism											
Other-oriented perfectionism	20	2,755	.01	[-.04, .06]	32.87*	42.19	0.27	[-1.78, 2.30]	1	.01 [-.04, .06]	.08
FMPS total score	4	1,018	.31***	[.15, .45]	19.71***	84.77	4.72	[-16.92, 26.36]	1	.27 [.12, .40]	.96
EDI perfectionism	0	—	—	—	—	—	—	—	—	—	—
Correlates of perfectionism											
Parental perceptions <sup>c</sup>	5	1,904	.19***	[.10, .27]	12.79*	68.71	2.04	[-5.58, 9.66]	0	.19 [.10, .27]	.98
Parental criticism	5	952	.20***	[.11, .29]	7.98	49.87	0.92	[-5.56, 7.40]	0	.20 [.10, .29]	.98
Parental expectations	5	952	.16**	[.06, .26]	8.42	52.47	1.96	[-3.91, 7.84]	1	.13 [.03, .23]	.88
Organization	3	513	-.02	[-.20, .17]	7.92*	74.75	2.53	[-77.38, 82.43]	0	-.02 [-.20, .17]	.05
<b>Suicide attempts</b>											
Perfectionistic concerns <sup>d</sup>	15	5,275	.12***	[.07, .17]	24.48*	42.81	1.15	[0.21, 2.08]	5	.08 [.03, .14]	.99
Socially prescribed perfectionism	8	689	.19**	[.08, .29]	12.57	44.32	0.21	[-3.65, 4.07]	0	.19 [.08, .29]	.93
Concern over mistakes	5	1,827	.09***	[.04, .14]	0.12	0.00	0.08	[-0.35, 0.52]	1	.09 [.04, .13]	.97
Doubts about action	3	1,777	.06*	[.01, .11]	2.76	0.00	1.00	[-2.01, 4.01]	2	.05 [-.02, .11]	.71
Discrepancy	0	—	—	—	—	—	—	—	—	—	—
Perfectionistic attitudes	3	983	.09	[-.03, .22]	2.54	21.26	1.42	[-1.55, 4.40]	2	.05 [-.07, .17]	.32
Perfectionistic strivings <sup>a</sup>	10	1,436	.02	[-.02, .06]	5.25	0.00	-0.10	[-1.10, 0.87]	0	.02 [-.01, .06]	.19
Self-oriented perfectionism	6	539	.07	[-.01, .16]	3.04	0.00	-1.61	[-3.20, -0.02]	0	.07 [-.01, .15]	.37
Personal standards	4	1,777	.01	[-.04, .06]	0.60	0.00	-0.49	[-1.82, 0.83]	0	.01 [-.04, .05]	.06
Other forms of perfectionism											
Other-oriented perfectionism	4	429	-.03	[-.13, .06]	1.26	0.00	-1.42	[-2.58, -0.28]	0	-.03 [-.13, .06]	.11
FMPS total score	3	666	.14***	[.07, .21]	1.30	0.00	-0.31	[-0.55, -0.07]	0	.16 [.08, .23]	.99
EDI-perfectionism	5	2,975	.03	[-.01, .06]	1.83	0.00	1.06	[-0.98, 2.73]	1	.03 [-.01, .06]	.33
Correlates of perfectionism											

Parental perceptions <sup>c</sup>	3	3,230	.07***	[.04, .11]	0.53	0.00	0.45	[-6.43, 7.33]	0	.07 [.04, .11]	.98
Parental criticism	3	1,615	.08**	[.03, .12]	0.65	0.00	0.63	[-5.23, 6.50]	2	.07 [.02, .11]	.85
Parental expectations	3	1,615	.07**	[.02, .12]	0.10	0.00	0.01	[-3.86, 3.87]	0	.07 [.02, .11]	.79
Organization	2	1,565	-.01	[-.06, .04]	0.82	0.00	—	—	—	—	—

Note. *k* = number of studies; *N* = total number of participants in the *k* samples; *r*<sup>+</sup> = weighted mean bivariate correlation; *CI* = confident interval; *Q<sub>T</sub>* = measure of heterogeneity of effect sizes; *I*<sup>2</sup> = percentage of heterogeneity; *k*<sup>TF</sup> = 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.

<sup>a</sup>Perfectionistic concerns assessed as aggregate of socially prescribed perfectionism, concern over mistakes, doubts about actions, and discrepancy.

<sup>b</sup>Perfectionistic strivings assessed as aggregate of self-oriented perfectionism and personal standards.

<sup>c</sup>Parental perceptions assessed as aggregate of parental criticism and parental expectations (Cox et al., 2002).

<sup>d</sup>Perfectionistic 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, & Vervaeet, 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-involving 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.

\*Adkins, K. (1994). *Relationship between perfectionism and suicidal ideation for students in a college honors program and students in a regular college program*. (Doctoral dissertation). Available from ProQuest Dissertations and Theses database (UMI No: 942920).

\*Adkins, K., & Parker, W. (1996). Perfectionism and suicidal preoccupation. *Journal of Personality, 64*, 529-543.

Alaska Injury Prevention Center, Critical Illness and Trauma Foundation, Inc., & American Association of Suicidology. (2007). *Alaska suicide follow-back study final report*. Juneau, AK. Alaska Department of Health and Social Services.

American School Health Association, Association for the Advancement of Health Education and Society for Public Health Education, Inc. (1989). *The National Adolescent Health Survey*. Oakland, CA: Third Party Publishing Co.

Baumeister, R. F. (1990). Suicide as escape from self. *Psychological Review, 97*, 90-113.

Beck, A. T. (1967). *Depression: Clinical, experimental, and theoretical aspects*. New York: Harper & Row.

Beck, A. T., Kovacs, M., & Weissman, A. (1979). Assessment of suicidal intention: The scale for suicide ideation. *Journal of Consulting and Clinical Psychology, 47*, 343-352.

Beck, A. T., & Steer, R. A. (1993). *Beck Scale for Suicidal Ideation manual*. San Antonio, TX: Psychological corporation.

\*Beck, A. T., Steer, R.A., & Brown, G. (1993). Dysfunctional attitudes and suicidal ideation in psychiatric outpatients. *Suicide and Life-Threatening Behaviour, 23*, 11-20.

Beck, A. T., Steer, R. A., & Ranieri, W. F. (1988). Scale for Suicide Ideation: Psychometric properties of a self-report version. *Journal of Clinical Psychology, 44*, 499-505.

\*Beevers, C. G., & Miller, I. W. (2004). Perfectionism, cognitive bias, and hopelessness as prospective predictors of suicidal ideation. *Suicide and Life-Threatening Behaviour, 34*, 126-137.

Blankstein, K. R. (2004). [Development of the Brief Measure of Suicide Ideation]. Unpublished manuscript.

\*Blankstein, K. R., Lumley, C. H., & Crawford, A. (2007). Perfectionism, hopelessness, and suicide ideation. Revisions to the diathesis-stress and stress-vulnerability models. *Journal of Rational Emotive & Cognitive Behaviour Therapy, 25*, 279-319.

\*Blasberg, J., Hewitt, P., Flett, G., Sherry, S., & Chen, C. (2016). The importance of item wording: The distinction between measuring high standards versus measuring perfectionism and why it matters. *Journal of Psychoeducational Assessment, 34*, 702-717.

Blatt, S. J. (1995). The destructiveness of perfectionism. *American Psychologist, 50*, 1003-1020.

Bogg, T., Roberts, B. (2004). Conscientiousness and health related-behaviours: A meta-analysis of the leading behavioural contributors to mortality. *Psychological Bulletin, 130*, 887-919.

Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2005). *Comprehensive meta-analysis (version 2) [computer software]*. Englewood, NJ: Biostat.

Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2009). *Introduction to meta-analysis*. England: Wiley.

Brezo, J., Paris, J., & Turecki, G. (2006). Personality traits as correlates of suicidal ideation,

- suicide attempts, and suicide completions: A systematic review. *Acta Psychiatrica Scandinavica*, *113*, 180-206.
- Brown, G. K., Beck, A. T., Steer, R. A., & Grisham, J. R. (2000). Risk factors for suicide in psychiatric outpatients: a 20-year prospective study. *Journal of Consulting and Clinical Psychology*, *68*, 371-377.
- Brown, G. K., Steer, R. A., Henriques, G. R., & Beck, A. T. (2005). The internal struggle between the wish to die and the wish to live: A risk factor for suicide. *American Journal of Psychiatry*, *162*, 1977-1979.
- \*Caelian, C. F. (2005). *The role of perfectionism and stress in the suicidal behaviour of depressed adolescents*. (Doctoral dissertation). Available from ProQuest Dissertations and Theses database (UMI No: NR10383).
- Card, N. A. (2012). *Applied meta-analysis for social science research*. NY: Guilford.
- Center for Disease Control and Prevention. (2015). *Suicide facts at a glance*. Retrieved from <http://www.cdc.gov/violenceprevention/pdf/suicide-datasheet-a.PDF>
- \*Chang, E. C. (2002). Examining the link between perfectionism and psychological maladjustment: Social problem solving as a buffer. *Cognitive Therapy and Research*, *26*, 581-595.
- Chang, E. C., & Chang, O. D. (2016). Development of the Frequency of Suicidal Ideation Inventory. *Cognitive Therapy and Research*, *40*, 549-556.
- \*Chen, C. (2012). *Perfectionism and suicide ideation*. (Master's thesis). Available from ProQuest Dissertations and Theses database.
- \*Chen, C., Hewitt, P. L., & Flett, G. L. (2017). Ethnic variations in other-oriented perfectionism's associations with depression and suicide behaviour. *Personality and Individual Differences*, *104*, 504-509.

- Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*, 155-159.
- Cox, B. J., Enns, M. W., & Clara, I. P. (2002). The multidimensional structure of perfectionism in clinically distressed and college student samples. *Psychological Assessment*, *14*, 365.
- Cull, J. G., & Gill, W. S. (1982). *Suicide Probability Scale*. Los Angeles: Western Psychological Services.
- \*Dean, P., & Range, L. (1996). The escape theory of suicide and perfectionism in college students. *Death Studies*, *20*, 415-424.
- \*Dean, P., & Range, L. (1999). Testing the escape theory of suicide in an outpatient clinical population. *Cognitive Therapy and Research*, *23*, 561-572.
- \*Dean, P., Range, L., & Goggin, W. (1996). The escape theory of suicide in college students: Testing a model that includes perfectionism. *Suicide and Life-Threatening Behaviour*, *26*, 181-186.
- DiBartolo, P. M., Frost, R. O., Chang, P., LaSota, M., & Grills, A. E. (2004). Shedding light on the relationship between personal standards and psychopathology: The case for contingent self-worth. *Journal of Rational-Emotive and Cognitive-Behavior Therapy*, *22*, 237-250.
- Dunkley, D. M., & Grilo, C. (2007). Self-critical perfectionism, coping, hassles, and current distress: A structural equation modeling approach. *Cognitive Therapy and Research*, *24*, 713-730.
- Dunkley, D. M., Sanislow, C. A., Grilo, C. M., & McGlashan, T. H. (2004). Validity of DAS perfectionism and need for approval in relation to the five-factor model of personality. *Personality and Individual Differences*, *37*, 1391-1400.
- Durbin, C. E., & Hicks, B. M. (2014). Personality and psychopathology: A stagnant field in need

- of development. *European Journal of Personality*, 28, 362-386.
- Egger, M., Smith, G. D., Schneider, M., & Minder, C. (1997). Bias in meta-analyses detected by a simple graphical test. *BMJ*, 315, 629-634.
- \*Enns, M. W., Cox, B. J., Sareen, J., & Freeman, P. (2001). Adaptive and maladaptive perfectionism in medical students: A longitudinal investigation. *Medical Education*, 35, 1034-1042.
- \*Fedorowicz, V. J., Falissard, B., Foulon, C., Dardennes, R., Divac, S., Guelfi, J., & Rouillon, F. (2007). Factors associated with suicidal behaviors in a large French sample of inpatients with eating disorders. *International Journal of Eating Disorders*, 40, 589-595.
- \*Flamenbaum, R., & Holden, R. R. (2007). Psychache as a mediator in the relationship between perfectionism and suicidality. *Journal of Counseling Psychology*, 54, 51-61.
- Flett, G. L., Hewitt, P. L., Besser, A., Su, C., Vaillancourt, T., Boucher, D., . . . Gale, O. (2016). The child-adolescent perfectionism scale. *Journal of Psychoeducational Assessment*, 34, 634-652.
- Flett, G. L., Hewitt, P. L., & Heisel, M. J. (2014). The destructiveness of perfectionism revisited: Implications for the Assessment of Suicide Risk and Prevention of Suicide. *Review of General Psychology*, 18, 156-172.
- \*Foulon, C., Guelfi, J., Kipman, A., Adès, J., Romo, L., Houdeyer, K., et al. (2007). Switching to the bingeing/purging subtype of anorexia nervosa is frequently associated with suicidal attempts. *European Psychiatry*, 22, 513-519.
- \*Franko, D.L., Keel, P.K., Dorer, D.J., Delinsky, S.S., Charat, V., Herzog, D.B., Renn, R., Eddy, K.T., & Blais, M.A., (2004). What predicts suicide attempts in women with eating disorders? *Psychological Medicine*, 34, 843-853.
- \*Freudenstein, O., Valevski, A., Apter, A., Zohar, A., Shoval, G., Nahshoni, E., ... & Zalsman, G. (2012). Perfectionism, narcissism, and depression in suicidal and nonsuicidal

- adolescent inpatients. *Comprehensive Psychiatry*, 53, 746-752.
- Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research*, 14, 449-468.
- Garner, D. M., Olmstead, M. P., Polivy, J. (1983). The development and validation of a multidimensional eating disorder inventory for anorexia and bulimia. *International Journal of Eating Disorders*, 1, 15-34.
- Goldberg, D., & Williams, P. (1988). *A user's guide to the general health questionnaire*. Windsor, UK: NFER-Nelson.
- Hassan, S., Flett, G. L., Ganguli, R., & Hewitt, P. L. (2014). Perfectionistic self-presentation and suicide in a young woman with major depression and psychotic features. *Case Reports in Psychiatry*, 2014, 1-6.
- \*Hamilton, T., & Schweitzer, R. (2000). The cost of being perfect: Perfectionism and suicide ideation in university students. *Australian and New Zealand Journal of Psychiatry*, 34, 829-835.
- \*Hewitt, P. L., Caelian, C. F., Chen, C., & Flett, G. L. (2014). Perfectionism, stress, daily hassles, hopelessness, and suicide potential in depressed psychiatric adolescents. *Journal of Psychopathology and Behavioral Assessment*, 36, 663-674.
- Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts. *Journal of Personality and Social Psychology*, 60, 456-470.
- Hewitt, P. L., & Flett, G. L. (2002). Perfectionism and stress processes in psychopathology. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (255-284). Washington, DC: American Psychological Association.
- Hewitt, P. L., Flett, G. L., Besser, A., Sherry, S. B., & McGee, B. (2003). Perfectionism is

- multidimensional: A reply to Shafran, Cooper, and Fairburn (2002). *Behaviour Research and Therapy*, *41*, 1221-1236.
- Hewitt, P. L., Flett, G. L., Sherry, S. B., & Caelian, C. F. (2006). Trait perfectionism dimensions and suicide behavior. In T. E. Ellis (Ed.), *Cognition and suicide: Theory, research, and practice* (pp. 215-235). Washington, DC: American Psychological Association.
- Hewitt, P. L., Flett, G. L., Sherry, S. B., Habke, M., Parkin, M., Lam, R. W., ... & Stein, M. B. (2003). The interpersonal expression of perfection: Perfectionistic self-presentation and psychological distress. *Journal of Personality and Social Psychology*, *84*, 1303-1325.
- \*Hewitt, P., Flett, G., & Turnbull-Donovan, W. (1992). Perfectionism and suicide potential. *British Journal of Clinical Psychology*, *31*, 181-190.
- \*Hewitt, P., Flett, G., & Weber, C. (1994). Dimensions of perfectionism and suicide ideation. *Cognitive Therapy and Research*, *18*, 439-460.
- \*Hewitt, P., Newton, J., Flett, G., & Callander, L. (1997). Perfectionism and suicide ideation in a adolescent psychiatric patients. *Journal of Abnormal Child Psychology*, *25*, 95-101.
- \*Hewitt, P., Norton, R., Flett, G., Callander, L., & Cowan, T. (1998). Dimensions of perfectionism, hopelessness, and attempted suicide in a sample of alcoholics. *Suicide and Life-Threatening Behaviour*, *28*, 395-406.
- Hill, A. P. (2014). Perfectionistic strivings and the perils of partialling. *International Journal of Sport and Exercise Psychology*, *12*, 302-315.
- \*Hunter, E. C. & O'Connor, R. C. (2003). Hopelessness and future thinking in parasuicide: The role of perfectionism. *British Journal of Clinical Psychology*, *42*, 355-365.
- Hunter, J. E., & Schmidt, F. L. (1990). Dichotomization of continuous variables: Implications for meta-analysis. *Journal of Applied Psychology*, *75*, 334-349.



- Imber, S. D., Pilkonis, P. A., Sotsky, S. M., Elkin, I., Watkins, J. T., Collins, J. F., ... & Glass, D. R. (1990). Mode-specific effects among three treatments for depression. *Journal of Consulting and Clinical Psychology, 58*, 352-359.
- \*Izadi, M. (2015). *Perfectionism, shame, and non-suicidal self-injury*. (Doctoral dissertation). Available from ProQuest Dissertations and Theses Database (UMI No. 3624290).
- \*Jacobs, R. H., Silva, S. G., Reinecke, M. A., Curry, J. F., Ginsburg, G. S., Kratochvil, C. J., & March, J. S. (2009). Dysfunctional attitudes scale perfectionism: A predictor and partial mediator of acute treatment outcome among clinically depressed adolescents. *Journal of Clinical Child & Adolescent Psychology, 38*, 803-813.
- \*Jeglic, E. L. (2003). *An analysis of suicidal behaviour in college samples*. (Doctoral dissertation). Available from ProQuest Dissertations and Theses database (UMI No: 3102089).
- \*Jeglic, E. L., Pepper, C. M., Vanderhoff, H. A., & Ryabchenko, K. A. (2007). An analysis of suicide ideation in a college sample. *Archives of Suicide Research, 11*, 41-56.
- Joiner, T. E. (2005). *Why people die by suicide*. Cambridge, MA: Harvard.
- Joiner, T. J., Conwell, Y., Fitzpatrick, K., Witte, T., Schmidt, N., Berlim, M. T., & ...Rudd, M. D. (2005). Four studies on how past and current suicidality relate even when 'everything but the kitchen sink' is covaried. *Journal of Abnormal Psychology, 114*, 291-303.
- Kessler, R. C., Berglund, P., Borges, G., Nock, M., & Wang, P. S. (2005). Trends in suicide ideation, plans, gestures, and attempts in the United States, 1990-1992 to 2001-2003. *The Journal of the American Medical Association, 293*, 2487-2495.
- Kiamanesh, P., Dyregrov, K., Haavind, H., & Dieserud, G. (2014). Suicide and perfectionism: A psychological autopsy study of non-clinical suicides. *OMEGA-Journal of Death and*

- Dying*, 69, 381-399.
- Linehan, M. M. (1981). [Suicidal Behavior Questionnaire]. Unpublished manuscript.
- McIntosh, J. L., & Drapeau, C. W. (2014). *U.S.A. suicide 2011: Official final data*: Washington, DC: American Association of Suicidology, downloaded from <http://www.suicidology.org>.
- Metalsky, G. I., & Joiner, T. E., Jr. (1997). The Hopelessness Depression Symptom Questionnaire. *Cognitive Therapy and Research*, 21, 359-384.
- Miller, I. W., Norman, W. H., Bishop, S. B., & Dow, M. G. (1986). The Modified Scale for Suicidal Ideation. *Journal of Consulting and Clinical Psychology*, 54, 724-725.
- Molnar, D. S., Sadava, S. W., Flett, G. L., & Colautti, J. (2012). Perfectionism and health: A mediational analysis of the roles of stress, social support and health-related behaviours. *Psychology & Health*, 27, 846-864.
- \*Muyan, M., & Chang, E. C. (2015). Perfectionism as a predictor of suicidal risk in Turkish college students. *Cognitive Therapy and Research*, 39, 776-784.
- Nealis, L. J., Sherry, S. B., Sherry, D. L., Stewart, S. H., & Macneil, M. (2015). Toward a better understanding of narcissistic perfectionism. *Journal of Research in Personality*, 57, 11-25.
- Nordström, P., Samuelsson, M., & Åsberg, M. (1995). Survival analysis of suicide risk after attempted suicide. *Acta Psychiatrica Scandinavica*, 91, 336-340.
- O'Connor, R. C. (2007). The relations between perfectionism and suicidality: A systematic review. *Suicide and Life-Threatening Behavior*, 37, 689-714.
- \*O'Connor, R. C., & Forgan, G. (2007). Suicidal thinking and perfectionism. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 25, 321-341.
- \*O'Connor, R. C., Whyte, M., Fraser, L., Masterton, G., Miles, J., & MacHale, S. (2007a).

- Predicting short-term outcome in well-being following suicidal behaviour: The conjoint effects of social perfectionism and positive future thinking. *Behavioural Research and Therapy*, 45, 1543-1555.
- \*O'Connor, D. B., O'Connor, R. C., & Marshall, R. (2007b). Perfectionism and psychological distress: Evidence of the mediating effects of rumination. *European Journal of Personality*, 21, 429-452.
- Oquendo, M. A., Galfalvy, H., Russo, S., Ellis, S. P., Grunebaum, M. F., Burke, A., & Mann, J. J. (2004). Prospective study of clinical predictors of suicidal acts after a major depressive episode in patients with major depressive disorder or bipolar disorder. *American Journal of Psychiatry*, 161, 1433-1441.
- Pfeffer, C. R. (1986). *The suicidal child*. New York, NY: Basic Books.
- \*Pisetsky, E., Thornton, L., Lichtenstein, P., Pedersen, N., & Bulik, C. (2013). Suicide attempts in women with eating disorders. *Journal of Abnormal Psychology*, 122, 1042-1056.
- \*Portzky, G., van Heeringen, K., & Vervaet, M. (2014). Attempted suicide in patients with eating disorders. *Crisis*, 35, 378-387.
- Powers, T. A., Koestner, R., Zuroff, D. C., Milyavskaya, M., & Gorin, A. (2011). The effects of self-criticism and self-oriented perfectionism on goal pursuit. *Personality and Social Psychology Bulletin*, 37, 964-975.
- \*Ranieri, W., Steer, R., Lavrence, T., & Rissmiller, D. (1987). Relationships of depression, hopelessness, and dysfunctional attitudes to suicide ideation in psychiatric patients. *Psychological Reports*, 61, 967-975.
- R Core Team (2013). R [Computer software]. Vienna, Austria.
- \*Rasmussen, S. A., Elliot, M. A., & O'Connor, R. C. (2012a). Psychological distress and

- perfectionism in recent suicide attempters: The role of behavioural inhibition and activation. *Personality and Individual Differences*, 52, 680-685.
- \*Rasmussen, S. A., O'Connor, R. C., & Brodie, D. (2008). The role of perfectionism and autobiographical memory in a sample of parasuicide patients. *Crisis*, 29, 64-72.
- \*Rasmussen, K. A., Slush, M. L., Wingate, L. R., Davidson, C. L., & Grant, D. M. (2012b). Can perceived burdensomeness explain the relationship between suicide and perfectionism? *Suicide and Life-Threatening Behavior*, 42, 121-128.
- Reynolds, W. M. (1987a). *Suicidal Ideation Questionnaire, Professional Manual*. Odessa, Florida: Psychological Assessment Resources.
- Reynolds, W. M. (1987b). *About my life, grades 7-9*. Lutz, FL: Psychological Assessment.
- Reynolds, W. M. (1991). Psychometric characteristics of the Adult Suicidal Ideation Questionnaire in college students. *Journal of Personality Assessment*, 56, 289-307.
- \*Roxborough, H. M., Hewitt, P. L., Kaldas, J., Flett, G. L., Caelian, C. M., Sherry, S., & Sherry, D. L. (2012). Perfectionistic self-presentation, socially prescribed perfectionism, and suicide in youth. *Suicide and Life-Threatening Behavior*, 42, 217-233.
- Rudd, M. (1989). The prevalence of suicidal ideation among college students. *Suicide and Life-Threatening Behavior*, 19, 173-183.
- Schafer, J., Opgen-Rhein, R., Zuber, V., Silvia, P., & Strimmer, K. (2015). Corpcor: Efficient estimation of covariance and (partial) correlation. (R package version 1.14.4).
- Schönbrodt, F. D., & Perugini, M. (2013). At what sample size do correlations stabilize? *Journal of Research in Personality*, 47, 609-612.
- Shaffer, D. (1974). Suicide in childhood and early adolescence. *Journal of Child and Psychology and Psychiatry*, 15, 275-291.

- Sherry, S. B., & Hall, P. A. (2009). The perfectionism model of binge eating: Tests of an integrative model. *Journal of Personality and Social Psychology, 96*, 690-709.
- Sherry, S. B., Hewitt, P. L., Besser, A., McGee, B. J., & Flett, G. L. (2004). Self-oriented and socially prescribed perfectionism in the Eating Disorder Inventory perfectionism subscale. *International Journal of Eating Disorders, 35*, 69-79.
- Sherry, S. B., Hewitt, P. L., Flett, G. L., & Harvey, M. (2003). Perfectionism dimensions, perfectionistic attitudes, dependent attitudes, and depression in psychiatric patients and university students. *Journal of Counseling Psychology, 50*, 373-386.
- Sherry, S. B., Hewitt, P. L., Sherry, D. L., Flett, G. L. & Graham, A. R. (2010). Perfectionism dimensions and research productivity in psychology professors. *Canadian Journal of Behavioural Science, 42*, 273-283.
- Sherry, S. B., Mackinnon, S. P., & Gautreau, C. G. (2015). Perfectionists don't play nicely with others: Expanding the social disconnection model. In F. M. Sirois & D. S. Molnar (Eds.), *Perfectionism, health, and well-being*. New York: Springer.
- Slaney, R. B., Rice, K., Mobley, M., Trippi, J., & Ashby, J. (2001). The Revised Almost Perfect Scale. *Measurement and Evaluation in Counseling and Development, 34*, 130-145.
- \*Slis, M. L. (2006). *Mediating factors between maladaptive perfectionism and suicide*. (Doctoral dissertation). Available from ProQuest Dissertations (UMI: 305086561).
- Smith, M. M., Sherry, S. B., Chen, S., Saklofske, D. H., Flett, G. L., & Hewitt, P. L. (2016). Perfectionism and narcissism: A meta-analytic review. *Journal of Research in Personality, 64*, 90-101.
- Smith, M. M., Sherry, S. B., Rnic, K., Saklofske, D. H., Enns, M., & Gralnick, T. (2016). Are perfectionism dimensions vulnerability factors for depressive symptoms after controlling

- for neuroticism? A meta-analysis of 10 longitudinal studies. *European Journal of Personality, 30*, 201-212.
- Smith, M. M., Vidovic, V., Sherry, S. B., & Saklofske, D. H. (2017). Self-oriented perfectionism and socially prescribed perfectionism adds incrementally to the prediction of suicide ideation beyond hopelessness: A meta-analysis of 15 studies. In U. Kumar (Ed.), *Handbook of suicidal behaviour*. New York: Springer.
- Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: Approaches, evidence, challenges. *Personality and Social Psychology Review, 10*, 295-319.
- Sturman, E. D., Flett, G. L., Hewitt, P. L., & Rudolph, S. G. (2009). Dimensions of perfectionism and self-worth contingencies in depression. *Journal of Rational-Emotive & Cognitive-Behavior Therapy, 27*, 213-231.
- Törnblom, A. W., Werbart, A., & Rydelius, P. A. (2013). Shame behind the masks: The parents' perspective on their sons' suicide. *Archives of Suicide Research, 17*, 242-261.
- \*Wallack, C.E. (2007). *Factors associated with suicidal ideation among American college students*. (Doctoral dissertation). Available from ProQuest Dissertations and Theses database (UMI No: 3271211).
- \*Wang, K. T., Wong, Y. J., & Fu, C. C. (2013). Moderation effects of perfectionism and discrimination on interpersonal factors and suicide ideation. *Journal of Counseling Psychology, 60*, 367-378.
- Weissman, A. N., & Beck, A. T. (1978). *Development and validation of the Dysfunctional Attitude Scale: A preliminary investigation*. Paper presented at the 86<sup>th</sup> Annual Convention of the American Psychological Association, Toronto, Canada.
- World Health Organization. (2012). *Suicide prevention*. Geneva, Switzerland: Author. Retrieved

from [http://www.who.int/mental\\_health/prevention/suicide/suicideprevent/en/](http://www.who.int/mental_health/prevention/suicide/suicideprevent/en/).

\*Yamaguchi, N., Kobayashi, J., Tachikawa, H., Sato, S., Hori, M., Suzuki, T., et al. (2000).

Parental representation in eating disorder patients with suicide. *Journal of Psychosomatic Research*, 49, 131-136.

## CHAPTER EIGHT: GENERAL DISCUSSION

### 8.1. Discussion

Notable between-study inconsistencies, an over-reliance on cross-sectional designs, and uncertainty regarding the perils of partialling 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 partialling 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 &

Hewitt, 2013).

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 & Oltmanns, 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 literature. 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

- Beck, A. T., Freeman, A., & Davis, D. (2004). *Cognitive therapy of personality disorders*. New York, NY: Guilford.
- Beck, A. T., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: Hopelessness Scale. *Journal of Consulting and Clinical Psychology, 42*, 861-865.
- Békés, V., Dunkley, D., Taylor, G., Zuroff, D., Lewkowski, M., Foley, J., ... & Westreich, R. (2015). Chronic stress and attenuated improvement in depression over 1 year: The moderating role of perfectionism. *Behavior Therapy, 46*, 479-492.
- Besser, A., Flett, G. L., & Hewitt, P. L. (2004). Perfectionism, cognition, and affect in response to performance failure vs. success. *Journal of Rational-Emotive and Cognitive-Behavior Therapy, 22*, 297-324.
- Besser, A., & Priel, B. (2010). Grandiose narcissism versus vulnerable narcissism in threatening situations. *Journal of Social and Clinical Psychology, 29*, 874-902.
- Blasberg, J., Hewitt, P., Flett, G., Sherry, S., & Chen, C. (2016). The importance of item wording: The distinction between measuring high standards versus measuring perfectionism and why it matters. *Journal of Psychoeducational Assessment, 34*, 702-717.
- Blatt, S. J. (1995). The destructiveness of perfectionism: Implications for the treatment of depression. *American Psychologist, 50*, 1003-1020.
- Bogg, T., & Roberts, B. (2004). Conscientiousness and health-related behaviors: A meta-analysis of the leading behavioral contributors to mortality. *Psychological Bulletin, 130*, 887-919.
- Burns, D. D. (1980). The perfectionist's script for self-defeat. *Psychology Today, 14*(6), 34-52.
- Cain, N. M., Pincus, A. L., & Ansell, E. B. (2008). Narcissism at the crossroads: Phenotypic

- description of pathological narcissism across clinical theory, social / personality psychology, and psychiatric diagnosis. *Clinical Psychology Review*, 28, 638-656.
- Curran, T., & Hill, A. P. (in press). Perfectionism is increasing over time: A meta-analysis of birth cohort differences between 1989 to 2016. *Psychological Bulletin*.
- DiBartolo, P. M., Frost, R. O., Chang, P., LaSota, M., & Grills, A. E. (2004). Shedding light on the relationship between personal standards and psychopathology: The case for contingent self-worth. *Journal of Rational-Emotive and Cognitive-Behavior Therapy*, 22, 237-250.
- Dickinson, K., & Pincus, A. L. (2003). Interpersonal analysis of grandiose and vulnerable narcissism. *Journal of Personality Disorders*, 17, 1188-1207.
- Ellis, A. (2002). The role of irrational beliefs in perfectionism. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 217-229). Washington: American Psychological Association.
- Enns, M. W., & Cox, B. J. (1997). Personality dimensions and depression: Review and commentary. *Canadian Journal of Psychiatry*, 42, 274-284.
- Enns, M. W., Cox, B. J., & Clara, I. P. (2005). Perfectionism and neuroticism: A longitudinal study of specific vulnerability and diathesis-stress models. *Cognitive Therapy and Research*, 29, 463-478.
- Fitzpatrick, S., Sherry, S., Hartling, N., Hewitt, P., Flett, G., & Sherry, D. (2011). Narcissism, perfectionism, and interest in cosmetic surgery. *Plastic and Reconstructive Surgery*, 127, 176-177.
- Flett, G. L., Besser, A., & Hewitt, P. L. (2005). Perfectionism, ego defense styles, and depression: A comparison of self-reports versus informant ratings. *Journal of*

- Personality*, 73, 1355-1396.
- Flett, G. L., & Hewitt, P. L. (2006). Positive versus negative perfectionism in psychopathology: A comment on Slade and Owen's dual process model. *Behavior Modification*, 30, 472-492.
- Flett, G. L., & Hewitt, P. L. (2013). Disguised distress in children and adolescents "flying under the radar": What psychological problems are underestimated and how schools must respond. *Canadian Journal of School Psychology*, 28, 12-27.
- Flett, G. L., & Hewitt, P. L. (2015). Measures of perfectionism. In G. J. Boyle, D. H. Saklofske, & G. Matthews (Eds.), *Measures of personality and social psychology constructs* (pp. 595-618). San Diego, CA: Elsevier Academic press.
- Flett, G. L., Hewitt, P. L., & Heisel, M. J. (2014). The destructiveness of perfectionism revisited: Implications for the assessment of suicide risk and prevention of suicide. *Review of General Psychology*, 18, 156-172.
- Flett, G. L., Sherry, S. B., Hewitt, P. L., & Nepon, T. (2014). Understanding the narcissistic perfectionists among us. In A. Besser (Ed.), *Handbook of psychology of narcissism: Diverse perspectives* (pp. 43-66). New York, NY: Nova Science Publishers.
- Freud, S. (1957). On narcissism: An introduction. In J. Strachey (Ed.), *The standard edition of the complete psychological works of Sigmund Freud* (pp. 73-102). London, UK: Hogarth.
- Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research*, 14, 449-468.
- Gäde, J. C., Schermelleh-Engel, K., & Klein, A. G. (in press). Disentangling the common variance of perfectionistic strivings and perfectionistic concerns: A bifactor model of perfectionism. *Frontiers in Psychology*.

Gaudreau, P. (2013). The 2 x 2 model of perfectionism: Commenting on the critical comments and suggestions of Stoeber (2012). *Personality and Individual Differences, 55*, 351-355.

Gaudreau, P., & Thompson, A. (2010). Testing the 2 x 2 model of dispositional perfectionism. *Personality and Individual Differences, 48*, 532-537.

Greenspoon, T. S. (2000). "Healthy perfectionism" is an oxymoron! Reflections on the psychology of perfectionism and the sociology of science. *Journal of Advanced Academics, 11*, 197-208.

Hamachek, D. E. (1978). Psychodynamics of normal and neurotic perfectionism. *Psychology, 15*, 27-33.

Held, B. S. (2004). The negative side of positive psychology. *Journal of Humanistic Psychology, 44*, 9-46.

Hewitt, P. L., & Flett, G.L. (1991). Perfectionism in the self and social contexts. *Journal of Personality and Social Psychology, 60*, 456-470.

Hewitt, P. L., & Flett, G. L. (1993). Dimensions of perfectionism, daily stress, and depression: A test of the specific vulnerability hypothesis. *Journal of Abnormal Psychology, 102*, 58-65.

Hewitt, P. L., & Flett, G. L. (2002). Perfectionism and stress processes in psychopathology. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 255-284). Washington: American Psychological Association.

Hewitt, P. L., Flett, G. L., Sherry, S. B., & Caelian, C. (2006). Trait perfectionism dimensions and suicidal behavior. In T. E. Ellis (Ed.), *Cognition and suicide: Theory, research, and therapy* (pp. 215-235). Washington, DC: American Psychological Association.

Hill, A. P. (2014). Perfectionistic strivings and the perils of partialling. *International Journal of*

- Sport and Exercise Psychology*, 12, 302-315.
- Hill, A. P. (2017). Real and imagined perils: A reply to Stoeber and Gaudreau (2017). *Personality and Individual Differences*, 108, 220-224.
- Hill, R. W., Huelsman, T. J., Furr, R. M., Kibler, J., Vincente, B. B., & Kennedy, C. (2004). A new measure of perfectionism: The Perfectionism Inventory. *Journal of Personality Assessment*, 82, 80-91.
- Horney, K. (1950). *Neurosis and human growth*. New York, NY: Norton.
- Jose, E. P. (2013). *Doing statistical mediation & moderation*. New York, NY: Guilford.
- Klein, A., & Moosbrugger, H. (2000). Maximum likelihood estimation of latent interaction effects with the LMS method. *Psychometrika*, 65, 457-474.
- Klonsky, E. D., & Oltmanns, T. F. (2002). Informant-reports of personality disorder: Relation to self-reports and future research directions. *Clinical Psychology: Science and Practice*, 9, 300-311.
- Kovacs, M., & Garrison, B. (1985). Hopelessness and eventual suicide: A 10-year prospective study of patients hospitalized with suicide ideation. *American Journal of Psychiatry*, 1, 559-563.
- Lynam, D. R., Hoyle, R. H., & Newman, J. P. (2006). The perils of partialling: Cautionary tales from aggression and psychopathy. *Assessment*, 13, 328-341.
- Mackinnon, S. P., Sherry, S. B., Antonty, M. M., Stewart, S. H., Sherry, D. L., & Hartling, N. (2012). Caught in a bad romance: Perfectionism, conflict, and depression in romantic relationships. *Journal of Family Psychology*, 26, 215-225.
- Miller, J. D., & Campbell, W. K. (2008). Comparing clinical and social-personality conceptualizations of narcissism. *Journal of Personality*, 76, 449-479.



- Molnar, D. S., Sadava, S. W., Flett, G. L., & Colautti, J. (2012). Perfectionism and health: A mediational analysis of the roles of stress, social support and health-related behaviours. *Psychology & Health, 27*, 846-864.
- Pacht, A. R. (1984). Reflections on perfectionism. *American Psychologist, 39*, 3863-3890.
- Paulhus, D. L., & Williams, K. M. (2002). The Dark Triad of personality: Narcissism, Machiavellianism, and psychopathy. *Journal of Research in Personality, 36*, 556-563.
- Paunonen, S. V., Haddock, G., Forsterling, F., & Keinonen, M. (2003). Broad versus narrow personality measures and the prediction of behaviour across cultures. *European Journal of Personality, 17*, 413-433.
- Paunonen, S. V., & Hong, R. Y. (2015). On the properties of personality traits. In M. Mikulincer & P. R. Shaver (Ed.), *APA Handbook of Personality and Social Psychology: Vol. 4. Personality Processes and Individual Differences* (pp. 233-259). Washington, DC: APA.
- Pincus, A. L., Ansell, E. B., Pimentel, C. A., Cain, N. M., Wright, A. G., & Levy, K. N. (2009). Initial construction and validation of the Pathological Narcissism Inventory. *Psychological Assessment, 21*, 365-379.
- Powers, T. A., Koestner, R., Zuroff, D., Milyavskaya, & Gorin (2011). The effect of self-criticism and self-oriented perfectionism on goal pursuit. *Personality and Social Psychology Bulletin, 37*, 964-975.
- Rice, K. G., & Ashby, J. S. (2007). An efficient method for classifying perfectionists. *Journal of Counseling Psychology, 54*, 72-85.
- Richardson, C., Rice, K. G., & Devine, P. (2014). Perfectionism, emotional regulation, and cortisol stress response. *Journal of Counseling Psychology, 61*, 110-118.

- Ronningstam, E. (2010). Narcissistic personality disorder: A current review. *Current Psychiatry Reports, 12*, 68-75.
- Ronningstam, E. (2011). Narcissistic personality disorder: A clinical perspective. *Journal of Personality and Social Psychology, 17*, 89-99.
- Rothstein, A. (1999). *The narcissistic pursuit of perfection* (2<sup>nd</sup> ed.). Madison, CT: International Universities.
- Sherry, S. B., Hewitt, P. L., Besser, A., Flett, G. L., & Klein, C. (2006). Machiavellianism, trait perfectionism, and perfectionistic self-presentation. *Personality and Individual Differences, 40*, 829-839.
- Sherry, S. B., Hewitt, P. L., Flett, G. L., & Harvey, M. (2003). Perfectionism dimensions, perfectionistic attitudes, and depression in psychiatric patients and university students. *Journal of Counseling Psychology, 50*, 373-386.
- Slaney, R. B., Rice, K. G., Mobley, M., Trippi, J., & Ashby, J. S. (2001). The revised almost perfect scale. *Measurement and Evaluation in Counseling and Development, 34*, 130-145.
- Smith, M. M., & Saklofske, D. H. (2017). The structure of multidimensional perfectionism: Support for a bifactor model with a dominant general factor. *Journal of Personality Assessment, 99*, 297-303.
- Smith, M. M., Saklofske, D. H., & Yan, G. (2015). Perfectionism, trait emotional intelligence, and psychological outcomes. *Personality and Individual Differences, 85*, 155-158.
- Smith, M. M., Saklofske, D. H., Yan, G., & Sherry, S. B. (2015). Perfectionistic strivings and perfectionistic concerns interact to predict negative emotionality: Support for the tripartite model of perfectionism in Canadian and Chinese university students.

*Personality and Individual Differences, 81, 141-147.*

Smith, M. M., Saklofske, D. H., Yan, G., & Sherry, S. B. (2016). A person-centered perspective on multidimensional perfectionism in Canadian and Chinese university students: A multigroup latent profile analysis. *Journal of Multicultural Counseling and Development, 44, 135-151.*

Smith, M. M., Sherry, S. B., Chen, S., Saklofske, D. H., Flett, G. L., & Hewitt, P. L. (2016). Perfectionism and narcissism: A meta-analytic review. *Journal of Research in Personality, 64, 90-101*

Smith, M. M., Sherry, S. B., Chen, S., Saklofske, D. H., Mushquash, C., Flett, G. L., & Hewitt, P. L. (in press). The perniciousness of perfectionism: A meta-analytic review of the perfectionism-suicide relationship. *Journal of Personality.*

Smith, M. M., Sherry, S.B., Rnic, K., Saklofske, D. H., Enns, M. W., & Gralnick, T. (2016). Are perfectionism dimensions vulnerability factors for depressive symptoms after controlling for neuroticism? A meta-analysis of 10 longitudinal studies. *European Journal of Personality, 30, 201-212*

Smith, M. M., Sherry, S. B., Mushquash, A. R., Saklofske, D. H., Gautreau, C., & Nealis, L. J. (2017). Perfectionism erodes social self-esteem and generates depressive symptoms: Studying mother-daughter dyads using a daily diary design with longitudinal follow-up. *Journal of Research in Personality, 71, 72-79.*

Smith, M. M., Vidovic, V., Sherry, S. B., & Saklofske, D. H. (2017). Self-oriented perfectionism and socially prescribed perfectionism adds incrementally to the prediction of suicide ideation beyond hopelessness: A meta-analysis of 15 studies (pp. 349-371). In U. Kumar (Ed.), *Handbook of suicidal behaviour*. New York: Springer.

- Stoeber, J. (2014a). How other-oriented perfectionism differs from self-oriented and socially prescribed perfectionism. *Journal of Psychopathology and Behavioral Assessment*, *36*, 329-338.
- Stoeber, J. (2014b). Multidimensional perfectionism and the DSM-5 personality traits. *Personality and Individual Differences*, *64*, 115-120.
- Stoeber, J. (2018). Perfectionism: An introduction. In J. Stoeber (Ed.), *The psychology of perfectionism: Theory, research, applications* (pp. 3-15). London: Routledge.
- Stoeber, J., & Gaudreau, P. (2017). The advantages of partialling perfectionistic strivings and perfectionistic concerns: Critical issues and recommendations. *Personality and Individual Differences*, *104*, 379-386.
- Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: Approaches, evidence, challenges. *Personality and Social Psychology Review*, *10*, 295-319.
- Stoeber, J., Sherry, S. B., & Nealis, L. J. (2015). Multidimensional perfectionism and narcissism: Grandiose or vulnerable. *Personality and Individual Differences*, *80*, 85-90.
- Struman, E. D., Flett, G. L., Hewitt, P. L., & Rudolph, S. G. (2009). Dimensions of perfectionism and self-worth contingencies in depression. *Journal of Rationale-Emotive & Cognitive Behavior Therapy*, *27*, 213-231.
- Wink, P. (1991). Two faces of narcissism. *Journal of Personality and Social Psychology*, *61*, 590-597.
- Young, M. A., Fogg, L. F., Schettner, W., Fawcett, J., Akiska, H., & Maser, J. (1996). Stable trait components of hopelessness and sensitivity to depression. *Journal of Abnormal Psychology*, *105*, 155-165.

## CURRICULUM VITAE

### Martin Montgomery Smith, M.Sc.

#### PERSONAL INFORMATION

Citizenship: Canadian

Date of Birth: June 7, 1988

Place of Birth: Halifax, Nova Scotia

#### EDUCATIONAL HISTORY

- 2014-Present     **Ph.D. Candidate**, Personality and Measurement, Supervised by Donald H. Saklofske, The University of Western Ontario, London, Ontario
- 2012-2014       **Master of Science**, Personality and Measurement, Supervised by Donald H. Saklofske, The University of Western Ontario, London, Ontario
- 2007-2012       **Bachelor of Arts (Honours)**, Major in Psychology, Supervised by Simon B. Sherry, Dalhousie University, Halifax, Nova Scotia

#### WORK EXPERIENCE

- 2015             Worked on the NEO-PI-3 manual for Hogrefe.
- 2013-2014       Hired as a part-time paid research assistant at the Center of Addiction and Mental Health (CAMH).
- 2012-2013       Hired to create, 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

1. Plouffe, R., **Smith, M. M.**, & Saklofske, D. H. (in press). A psychometric investigation of the assessment of sadistic personality. *Personality and Individual Differences*.
2. **Smith, M. M.**, Sherry, S. B., Mushquash, A. R., Saklofske, D. H., Gautreau, C., & Nealis, L. J. (in press). Perfectionism erodes social self-esteem and generates depressive symptoms: Studying mother-daughter dyads using a daily diary design with longitudinal follow-up. *Journal of Research in Personality*. doi:10.1016/j.jrp.2017.10.001
3. **Smith, M. M.**, Vidovic, V., Sherry, S. B., Stewart, S. H., & Saklofske, D. H. (2018). Perfectionistic concerns confer risk for anxiety symptoms: A meta-analysis of 11 longitudinal studies. *Anxiety, Stress, & Coping*, 31, 4-20. doi:10.1080/10615806.2017.1384466
4. Mesarosova, K., Siegling, A. B., Ploffe, R. A., Saklofske, D. H., **Smith, M. M.**, & Tremblay, P. F. (accepted). Personality measurement and profile in European sample of civil airline pilots. *European Journal of Psychological Assessment*.
5. **Smith, M. M.**, Sherry, S. B., Chen, S., Saklofske, D. H., Mushquash, C., Flett, G. L., & Hewitt, P. L. (in press). The perniciousness of perfectionism: A meta-analytic review of the perfectionism-suicide relationship. *Journal of Personality*. doi:1111/jopy.12333
6. **Smith, M. M.**, Sherry, S.B., Gautreau, C.M., Mushquash, A. R., Saklofske, D. H., & Allen, S. L. (2017). The intergenerational transmission of perfectionism: Fathers' other-oriented perfectionism and daughters' perceived psychological control predicts daughters' self-critical and personal standards perfectionism. *Personality and Individual Differences*, 119, 242-248. doi:10.1016/j.paid.2017.07.030
7. **Smith, M. M.**, Saklofske, D. H., Yan, G., & Sherry, S. B. (2017). Does perfectionism predict depression, stress, and life satisfaction after controlling for neuroticism? A study of Canadian and Chinese undergraduates. *Journal of Individual Differences*, 38, 63-70. doi:10.1027/1614-0001/a000223
8. **Smith, M. M.**, & Saklofske, D. H. (2017). The structure of multidimensional perfectionism: Support for a bifactor model with a dominant general factor. *Journal of Personality Assessment*, 99, 297-303. doi:10.1080/00223891.2016.1208209
9. **Smith, M. M.**, Sherry, S. B., Saklofske, D. H., & Mushquash, A. R. (2017). Clarifying the perfectionism-procrastination relationship using a 7-day, 14 occasion daily diary study. *Personality and Individual Differences*, 112, 117-123. doi:10.1016/j.paid.2017.02.059
10. **Smith, M. M.**, Speth, T., Sherry, S. B., Saklofske, D. H., Stewart, S. H., & Glowacka, M. (2017). Is socially prescribed perfectionism veridical? A new take on the stressfulness of perfectionism. *Personality and Individual Differences*, 110, 115-118. doi:10.1016/j.paid.2017.01.031

11. **Smith, M. M.**, Sherry, S. B., Gautreau, C. M., Stewart, S. H., Saklofske, D. H., & Mushquash, A. R. (2017). Are perfectionistic concerns an antecedent of or a consequence of binge eating, or both? A short-term four-wave longitudinal study of undergraduate women. *Eating Behaviour, 26*, 23-26. doi:10.1016/j.eatbeh.2017.01.001
12. Plouffe, R., Saklofske, D. H., & **Smith, M. M.** (2017). The Assessment of Sadistic Personality: Preliminary psychometric evidence for a new measure. *Personality and Individual Differences, 104*, 166-171. doi:10.1016/j.paid.2016.07.043
13. **Smith, M. M.**, Sherry, S. B., Chen, S., Saklofske, D. H., Flett, G. L., & Hewitt, P. L. (2016). Perfectionism and narcissism: A meta-analytic review. *Journal of Research in Personality, 64*, 90-101. doi:10.1016/j.jrp.2016.07.012
14. **Smith, M. M.**, Saklofske, D. H., Stoeber, J., & Sherry, S. B. (2016). The Big Three Perfectionism Scale: A new measure of perfectionism. *Journal of Psychoeducational Assessment, 34*, 670-688. doi:10.1177/0734282916651539
15. **Smith, M. M.**, Sherry, S.B., Rnic, K., Saklofske, D. H., Enns, M. W., & Gralnick, T. (2016). Are perfectionism dimensions vulnerability factors for depressive symptoms after controlling for neuroticism? A meta-analysis of 10 longitudinal studies. *European Journal of Personality, 30*, 201-212. doi:10.1002/per.2053
16. **Smith, M. M.**, Saklofske, D. H., Yan, G., & Sherry, S. B. (2016). A person-centered perspective on multidimensional perfectionism in Canadian and Chinese university students: A multigroup latent profile analysis. *Journal of Multicultural Counseling and Development, 44*, 135-151. doi:10.1002/jmcd.12042
17. Andrei, F., **Smith, M. M.**, Surcinelli, P., Baldaro, B., & Saklofske, D. H. (2016). The trait emotional intelligence questionnaire: Internal structure, criterion and incremental validity in an Italian sample. *Measurement and Evaluation in Counseling and Development, 49*, 34-45. doi:10.1177/0748175615596786
18. **Smith, M. M.**, Saklofske, D. H., Yan, G., & Sherry, S. B. (2016). Cultural similarities in perfectionism: Perfectionistic strivings and concerns generalize across Chinese and Canadian groups. *Measurement and Evaluation in Counseling and Development, 49*, 63-76. doi:10.1177/0748175615596785
19. **Smith, M. M.**, Saklofske, D. H., Keefer, K. V., & Tremblay, P. F. (2016). Coping strategies and psychological outcomes: The moderating effects of personal resiliency. *The Journal of Psychology: Interdisciplinary and Applied, 150*, 18-32. doi:10.1080/00223980.2015.1036828
20. Saklofske, D. H., Austin, E., Yan, G., & **Smith, M. M.** (2016). Factor structure and correlates of the Mandarin version of the Managing the Emotions of Others (MEOS) scale. *International Journal of Psychology, 51*, 72-77. doi:10.1002/ijop.12147
21. **Smith, M. M.**, Saklofske, D. H., & Yan, G. (2015). Perfectionism, trait emotional intelligence, and psychological outcomes. *Personality and Individual Differences, 85*, 155-158. doi:10.1016/j.paid.2015.05.010
22. **Smith, M. M.**, Saklofske, D. H., Yan, G., & Sherry, S. B. (2015). Perfectionistic strivings and perfectionistic concerns interact to predict negative emotionality: Support for the tripartite model of perfectionism in Canadian and Chinese

- university students. *Personality and Individual Differences*, *81*, 141-147. doi:10.1016/j.paid.2014.09.006
23. Austin, E. J., Saklofske, D. H., **Smith, M. M.**, & Tohver, G. (2014). Associations of the managing the emotions of others (MEOS) scale with personality, the Dark Triad, and trait EI. *Personality and Individual Differences*, *65*, 8-13. doi:10.1016/j.paid.2014.01.060
  24. Sherry, S. B., Sherry, D. L., Macneil, M. A., **Smith, M. M.**, MacKinnon, S. P., Stewart, S. H., & Antony, M. M. (2014). Does socially prescribed perfectionism predict daily conflict? A 14-day daily diary study. *Personality and Individual Differences*, *61*, 24-27. doi:j.paid.2013.12.028
  25. Mackinnon, S. P., Sherry, S. B., Pratt, M. W., & **Smith, M. M.** (2014). Perfectionism, friendship intimacy and depressive affect in transitioning university students: A longitudinal study using mixed methods. *Canadian Journal of Behavioral Sciences*, *46*, 49-59. doi:10.1037/a0033764
  26. **Smith, M. M.**, Saklofske, D. H., & Nordstokke, D. W. (2014). The link between neuroticism and perfectionistic concerns: The mediating effect of trait emotional intelligence. *Personality and Individual Differences*, *61*, 97-100. doi:10.1016/j.paid.2013.12.013
  27. Sherry, S. B., Nealis, L. J., Macneil M. A., Stewart, S. H., Sherry, D. L., & **Smith, M. M.** (2013). Informant reports add incrementally to the understanding of the perfectionism-depression connection: Evidence from a prospective longitudinal study. *Personality and Individual Differences*, *54*, 957-960. doi:10.1016/j.paid.2013.01.002

### Book Chapters

1. Stoeber, J., Corr, P., **Smith, M. M.**, & Saklofske, D. H. (2018). Perfectionism and personality. In J. Stoeber (Ed.), *The psychology of perfectionism: Theory, research, applications* (pp. 66-88). London: Routledge.
2. **Smith, M. M.**, Vidovic, V., Sherry, S. B., & Saklofske, D. H. (2017). Self-oriented perfectionism and socially prescribed perfectionism adds incrementally to the prediction of suicide ideation beyond hopelessness: A meta-analysis of 15 studies (pp. 349-371). In U. Kumar (Ed.), *Handbook of suicidal behaviour*. New York: Springer.
3. **Smith, M. M.**, Sherry, S. B., & Saklofske, D. H. (2017). Understanding the narcissistic need for perfection: The most dazzling, perfect, and comprehensive review ever. In T. Herman, A. Brunell, & J. Foster (Eds.), *The handbook of trait narcissism: Key advances, research methods, and controversies*. New York: Springer.

### Encyclopedia Entries

1. **Smith, M. M.**, & Chen, S. (2017). Perfectionism. In B. J. Carducci (Editor-in-Chief) & A. Di Fabio, D. H. Saklofske, & C. Stough (Vol. Eds.), *The Wiley-Blackwell Encyclopedia of Personality and Individual Differences: Vol. III. Personality processes and individual differences*. Hoboken, NJ: John Wiley & Sons.



2. Plouffe, R. A., Wilson, C. A., & **Smith, M. M.** (2017). Dark triad. In B. J. Carducci (Editor-in-Chief) & A. Di Fabio, D. H., Saklofske, & C. Stough (Vol. Eds.), *Wiley-Blackwell Encyclopedia of Personality and Individual Differences: Vol. III. Personality processes and individual differences*. Hoboken, NJ: John Wiley & Sons.

### Manuscripts Under Review

1. Kehayes, I. L., **Smith, M. M.**, Sherry, S. B., & Vidovic, V. (submitted). Are perfectionism dimensions risk factors for bulimic symptoms? A meta-analysis of 12 longitudinal studies. *Eating Behaviors*.

### Manuscripts in Preparation

1. **Smith, M. M.**, Sherry, S. B., Saklofske, D. H., Vidovic, V., Stoeber, J., & Vidovic, V. (in preparation). Perfectionism and the five-factor model of personality: A meta-analytic review.
2. **Smith, M. M.**, McLarnon, M. E., Sherry, S. B., Flett, G. L., & Hewitt, P. L. (in preparation). A 5-month, 2-wave longitudinal study testing the social disconnection model: Do social problems mediate the relationship between perfectionism and depressive symptoms?
3. Bartel, S. J., Sherry, S. B., **Smith, M. M.**, Vidovic, V., Conrod, P. J., & Stewart, S. H. (in preparation). Is anxiety sensitivity a risk factor for or complication of alcohol misuse? A meta-analysis.

## PRESENTATIONS

### Presentations to Scholarly Audiences

1. **Smith, M. M.**, Sherry, S. B., Speth, T. A., Saklofske, D. H., Stewart, S. H., & Glowacka, M. (2017, June). Is socially prescribed perfectionism veridical? A new take on the stressfulness of perfectionism. In P. L. Hewitt (Chair), *Understanding the origins and the stressfulness of perfectionism: New evidence on social networks, cohort effects, and cultural influences*. Symposium conducted at the Canadian Psychological Association 2017 Convention, Toronto, Ontario, Canada.
2. **Smith, M. M.**, Sherry, S. B., Chen, S., Saklofske, D. H., Mushquash, C. J., Flett, G. L., & Hewitt, P. L. (2017, June). The perniciousness of perfectionism: A meta-analytic review of the perfectionism-suicide relationship. In G. L. Flett (Chair), *The destructiveness of perfectionism: Understanding perfectionism's impact on psychotherapy, affect, and suicide*. Symposium conducted at the Canadian Psychological Association 2017 Convention, Toronto, Ontario, Canada.
3. Vidovic, V., **Smith, M. M.**, Sherry, S. B., Stewart, S. H., & Saklofske, D. H. (2017, May). *Perfectionistic concerns confer risk for anxiety symptoms: A meta-analysis of 11 longitudinal studies*. Poster session presented at the 43<sup>rd</sup> Annual In-House Conference of the Department of Psychology and Neuroscience, Dalhousie University, Halifax, Nova Scotia, Canada.

4. Vidovic, V., **Smith, M. M.**, Sherry, S. B., Stewart, S. H., & Saklofske, D. H. (2017, March). *Does perfectionism confer risk for anxiety symptoms? A meta-analysis of longitudinal studies*. Poster session presented at Crossroads: An Interdisciplinary Health Research Conference, Dalhousie University, Halifax, Nova Scotia, Canada.
5. **Smith, M. M.**, Sherry, S. B., Rnik, K., Saklofske, D. H., Enns, M. W., & Gralnick, T. (2016, June). Are perfectionism dimensions vulnerability factors for depressive symptoms after controlling for neuroticism? A meta-analysis of 10 longitudinal studies. In G. Flett (Chair), *Perfectionism in personal and interpersonal dysfunction*. Symposium conducted at the Canadian Psychological Associations 77<sup>th</sup> Annual Convention, Victoria, Canada.
6. **Smith, M. M.**, Saklofske, D. H., Joachim, S., & Sherry, S. B. (2016, July). *The Big Three Perfectionism Scale: A new measure of perfectionism*. Symposium conducted at the Perfectionism Network Meeting, University of Kent, Canterbury, England.
7. Sherry, S. B., **Smith, M. M.**, Saklofske, D. H., Nealis, L. J., Hewitt, P. L., & Flett, G. L. (2016, July). *Narcissistic perfectionism: New evidence from a meta-analysis, longitudinal study, and daily diary study*. Symposium conducted at the Perfectionism Network Meeting, University of Kent, Canterbury, England.
8. **Smith, M. M.**, & Saklofske, D. H. (July, 2016). *The general factor of perfectionism: Support for a bifactor model with a dominant general factor and specific factors*. Poster session presented at the Perfectionism Network Meeting, University of Kent, Canterbury, England.
9. **Smith, M. M.**, Saklofske, D. H., Gonggu, Y., & Sherry, S. B. (2015, July). A person-centered perspective on multidimensional perfectionism in Canadian and Chinese university students: A multigroup latent profile analysis. In D. H. Saklofske & **M. M. Smith** (Chairs), *Research Advances in Perfectionism*. Symposium conducted at The International Society for the Study of Individual Differences Biannual Convention, London, Canada.
10. Saklofske, D. H., **Smith, M. M.**, Gonggu, Y., & Sherry, S. B. (2015, August). Perfectionism, personal resiliency, and psychological outcomes in Canadian and Chinese students. In G. L. Flett (Chair), *Understanding perfectionistic students: Academic, emotional, and social functioning*. Symposium conducted at the 123<sup>rd</sup> American Psychological Association Annual Convention, Toronto, Canada.
11. **Smith, M. M.**, Saklofske, D. H., Nordstokke, D. W., & Prince-Embury, S. (June, 2015). *Assessing personal resiliency in young adults: An upward extension of the Resiliency Scale for Young Adults*. Poster session presented at the Canadian Psychological Association's 76<sup>th</sup> Annual Convention, Ottawa, Canada.
12. **Smith, M. M.**, Saklofske, D. H., Sherry, B. S., & Yan, G. (June, 2015). *Cross-cultural differences and similarities in perfectionism: Generalizability of the two-factor model of perfectionism across Canada and China*. Poster session presented at the Canadian Psychological Association's 76<sup>th</sup> Annual Convention, Ottawa, Canada.
13. Saklofske, D. H., Nordstokke, D., **Smith, M. M.**, & Prince-Embury, S. (June, 2014). *The three factor model of resiliency: Measuring resiliency in youth and adults*.

- Symposium conducted at the Canadian Psychological Association's 75<sup>th</sup> Annual Convention, Vancouver, Canada.
14. **Smith, M. M.**, Saklofske, D. H., Yan, G. (July, 2014). *The effect of culture on the perfectionism-psychological outcome link*. Poster session presented at the 28<sup>th</sup> International Congress of Applied Psychology, Paris, France.
  15. **Smith, M. M.**, & Saklofske, D. H. (June, 2014). *Perfectionistic strivings moderates the effect of perfectionistic concerns on depression, anxiety, and stress*. Poster session presented at the Canadian Psychological Association's 75<sup>th</sup> Annual Convention, Vancouver, Canada.
  16. **Smith, M. M.**, Saklofske, D. H., & Nordstokke, D. W. (June, 2014). *Neuroticism and perfectionistic concerns: The mediating effect of personal resiliency*. Poster session presented at the Canadian Psychological Association's 75<sup>th</sup> Annual Convention, Vancouver, Canada.
  17. **Smith, M. M.**, Saklofske, D. H., & Keefer, K. V. (June, 2014). *Personal resiliency moderates the effect of coping strategies on psychological outcomes*. Poster session presented at the Canadian Psychological Association's 75<sup>th</sup> Annual Convention, Vancouver, Canada.
  18. Tohver, G. C., **Smith, M. M.**, & Saklofske, D. H. (June, 2014). *Forgive or forget? Perfectionistic concerns, propensity for forgiveness, and the mediating role of Emotional Intelligence*. Poster session presented at the Canadian Psychological Association's 75<sup>th</sup> Annual Convention, Vancouver, Canada.
  19. **Smith, M. M.**, Saklofske, D. H., Prince-Embury, S., Nordstokke, D. W. & Vesely, A. (2013, July). *Measuring personal resiliency in young adulthood: The resiliency scale for young adults*. Poster session presented at the International Study for the Study of Individual Differences, Annual Convention, Barcelona, Spain.
  20. **Smith, M. M.**, Sherry, S. B., Mackinnon, S. P., Stewart, S. H., Sherry, D. L., & Antony M. M. (2013, July). *The relationship between neuroticism and perfectionistic discrepancies: A longitudinal actor-partner interdependence model*. Poster session presented at the International Society for the Study of Individual Differences, Annual Convention, Barcelona, Spain.
  21. **Smith, M. M.**, Saklofske, D. H., Nordstokke, D. W., Prince-Embury, S., Nugent, S. & Vesely, A. (June, 2013). *Assessing personal resiliency in emerging adulthood: The resiliency scale for children and adolescents*. Poster session presented at the Canadian Psychological Association's 74<sup>th</sup> Annual Convention, Quebec City, Canada.
  22. **Smith, M. M.**, Sherry, S. B., Macneil, M. A., Mackinnon, S. P., Stewart, S. H., Antony, M. M., Sherry, D. L., & Stewart, S. H. (June, 2013). *Does socially prescribed perfectionism predict daily conflict? A 14-day diary study of romantic couples using self and partner reports*. Poster session presented at the Canadian Psychological Association's 74<sup>th</sup> Annual Convention, Quebec City, Canada.
  23. **Smith, M. M.**, Sherry, S. B., Mackinnon, S. P., Stewart, S. H., Sherry, D.L., Antony, M. M., & Hartling, N. (May, 2012). *The link between neuroticism and perfectionism: A longitudinal actor-partner interdependence model*. Symposium conducted at the 36th Annual Science Atlantic Undergraduate

- Psychology Conference, Acadia University, Wolfville, Nova Scotia, Canada.
24. **Smith, M. M.**, Sherry, S. B., Mackinnon, S. P., Stewart, S. H., Sherry, D. L., Antony, M. M., & Hartling, N., (June, 2012). *Is neuroticism a source trait for perfectionism? A longitudinal actor-partner interdependence model*. Poster session presented at the Canadian Psychological Association's 73rd Annual Convention, Halifax, Canada.
  25. Goutreau, C. M., Mackinnon, S. P., Sherry, S. B., **Smith, M. M.**, & Pratt, M. W. (2012, October). *Pre-university friendships moderates the relationship between socially prescribed perfectionism and depressive affect*. Poster session presented at the Psychiatry Research Day 2012, Dalhousie University, Halifax, Canada.
  26. Nealis, L. J., MacNeil, M., **Smith, M. M.**, MacLean, S., Ramasubbu, C., & Sherry, D. L., Stewart, S. H., & Sherry, S. B. (2012, April). *Narcissistic perfectionism: A framework for understanding grandiose, entitled, demanding, and critical people*. Poster session presented at the 38<sup>th</sup> Annual Graham Goddard In-House Conference, Dalhousie University, Halifax, Canada.
  27. MacLean, S., Macneil, M. A., Sherry, S. B., Nealis, L. J., Stewart, S. H., Sherry, D. L., & **Smith, M. M.** (2012, November). *Informant reports add incrementally to understanding of the perfectionism-depression connection: Evidence from a longitudinal study*. Poster session presented at the 22<sup>nd</sup> Annual Psychiatry Research Day, Lord Nelson, Halifax, Canada.
  28. Macneil, M. A., Mackinnon, S. P., Fitzpatrick, S., Fulmore, J., Gautreau, C., Hicks, M., MacKinnon, A. L., **Smith, M. M.**, & Sherry, S. B. (2011, October). *Intrapersonal discrepancies confer vulnerability to depressive symptoms: A three-wave cross-lagged panel analysis*. Poster session presented at the Psychiatry Research Day 2011, Dalhousie University, Halifax, Canada.
  29. Fitzpatrick, S., Mackinnon, S. P., Fulmore, J., Gautreau, C., Gyenes, N. Hicks, M., MacKinnon, A., McNeil, M., **Smith, M. M.**, & Sherry, S. B. (2011, May). *Perfectionistic concerns, interpersonal discrepancies, and psychological well-being: A longitudinal mixed-method approach*. Poster session presented at the 35th Annual Atlantic Provinces Council on the Sciences Undergraduate Psychology Conference, Dalhousie University, Halifax, 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

<b>Graduate Teaching Assistant</b>		
<b>Year (Term)</b>	<b>Course Title (Code)</b>	<b>Course Size (Level)</b>
2015-2016 (fall)	Test Construction and Survey Design (9545A)	10 (second year)
2014-2015 (fall)	Test Construction and Survey Design (9545A)	10 (second year)
2013-2014 (fall)	Test Construction and Survey Design (9545A)	10 (second year)
<b>Undergraduate Teaching Assistant</b>		
<b>Year (Term)</b>	<b>Course Title (Code)</b>	<b>Course Size (Level)</b>
2016-2017 (fall)	Test Construction	30 (fourth year)
2015-2016 (fall)	Survey Research (3991F)	30 (fourth year)
2013-2014 (winter)	Social Psychology (2070B)	450 (second year)
2012-2013 (fall-winter)	Introduction to Psychology (1000A/B)	110 (first year)
2010-2011 (fall-winter)	Introduction to Psychology (1011/1012)	155 (first year)

## **SUPERVISORY ACTIVITIES**

<b>Undergraduate Students</b>			
<b>Year</b>		<b>Student Name</b>	<b>Supervisory Role</b>
<b>Start</b>	<b>Finish</b>		
2017	2018	Manuela Paruch	Honours Thesis Co-Supervisor
2016	2017	Janice Yue-Yan Lam	Honours Thesis Co-Supervisor
2014	2015	James Yanowski	Honours Thesis Co-Supervisor
2014	2015	Laura Collins	Honours Thesis Co-Supervisor
2013	2014	Justin Toh	Honours Thesis Co-Supervisor

**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**

Thomas, C., & Andrew, H. (2018, January 3). How perfectionism became a hidden epidemic among young people. *The Conversation*, Retrieved from:

<http://theconversation.com/how-perfectionism-became-a-hidden-epidemic-among-young-people-89405>

Martin, J. (2017, September, 27). Suicidal behavior, thoughts associated with perfectionistic tendencies. *Psychiatry Advisor*. Retrieved from

<http://www.psychiatryadvisor.com/suicide-and-self-harm/suicidal-ideation-behavior-perfectionism-strivings/article/695845/>

Graham, S. (2017, September 24). Is your perfectionism affecting your mental health? *The Debrief*. Retrieved from <http://www.thedebrief.co.uk/news/real-life/perfectionist-meaning-traits-mental-health-20170968289>

Pakulska, M. (2017, September 14). Perfectionists: Their own worst enemies. *Research2Reality*. Retrieved from <https://research2reality.com/healthmedicine/perfectionists-their-own-worst-enemies/>

Matthews, S. (2017, September 12). Perfectionism can be deadly. *Health Medicine Network*. Retrieved from: <http://healthmedicinet.com/i/perfectionism-can-be-deadly/>

Ross, D. (2017, September 11). Pressure to be perfect could increase the risk of suicide. *Seeker*. Retrieved from <https://www.seeker.com/health/mind/pressure-to-be-perfect-could-increase-the-risk-of-suicide>

MacMillan, A. (2017, September 7). Striving to be perfect has a scary downside. *Health*. Retrieved from <http://www.health.com/anxiety/perfectionism-linked-to-suicide>

Dean, J. (2017, September 5). The admired personality trait linked to suicide risk. *PSYBLOG*. Retrieved from <http://www.spring.org.uk/2017/09/personality-trait-suicide.php>

- Mehta, S. (2017, September 1). Striving for perfection linked to suicide. *The London Free Press*. Retrieved from <http://www.lfpress.com/2017/08/31/striving-for-perfection-linked-to-suicide>
- Smith, M. M.** (Speaker). (2017). Perfectionism and suicide [Radio interview]. In McKee, K and Ennett [Interviewers], *Information Morning Show London*. London, ON: CBC News.
- Smith, M. M.** (Speaker). (2017). Perfectionism and suicide [Television interview]. In Moreau, C (Interviewer), *CTV News*. London, ON.
- Smith, M. M.** (Speaker). (2017). Perfectionism and suicide [Radio interview]. In L. Brandt (Interviewer), *The Morning Show*. London, ON: News / Talk 1290.
- Western co-authored study suggest correlation between perfectionism and suicide risk. (2017, August 29). *Global News*. Retrieved from <http://globalnews.ca/news/3704956/western-co-authored-study-suggests-correlation-between-perfectionism-and-suicide-risk/>
- Murray, M. (2017, August 2). We need to talk about the incredibly dangerous side-effect of perfectionism. *Stylist*. Retrieved from <http://www.stylist.co.uk/life/downsides-of-perfectionism-perfectionist-mental-health-suicide-study-university-western-ontario>
- Jarett, C. (2017, July 27). Perfectionism as a risk factor for suicide-the most comprehensive test to date. *The British Psychological Society Research Digest*. Retrieved from <https://digest.bps.org.uk/2017/07/27/perfectionism-as-a-risk-factor-for-suicide-the-most-comprehensive-test-to-date/>
- Larson, J. L. (2017, July 27). Prof's study suggests perfectionism can be deadly. *The Chronicle Herald*. Retrieved from <http://thechronicleherald.ca/novascotia/1489806-prof%E2%80%99s-study-suggests-perfectionism-can-be-deadly>
- Fida, K. (2017, July 30). Perfectionism can play role in suicidal thoughts: Halifax researcher. *Metro News*. Retrieved from <http://www.metronews.ca/news/halifax/2017/07/30/perfectionism-suicidal-thoughts-study-dalhousie-university.html>
- Hicks, J. (2017, July 28). Study suggests link between perfectionism and suicide. *Tonic*. Retrieved from [https://tonic.vice.com/en\\_us/article/zmvpm9/study-suggests-link-between-perfectionism-and-suicide](https://tonic.vice.com/en_us/article/zmvpm9/study-suggests-link-between-perfectionism-and-suicide)
- Petter, O. (2017, July 31). Perfectionism and suicide are linked, finds new study. *Independent*. Retrieved from <http://www.independent.co.uk/life-style/perfectionism-suicide-link-study-body-kill-adolescents-western-ontario-mental-health-a7868581.html>
- Borrelli, L. (2017, July 31). Trying to be perfect may lead to suicide ideation, poor mental health. *Medical Daily*. Retrieved from <http://www.medicaldaily.com/trying-be-perfect-may-lead-suicide-ideation-poor-mental-health-420721>
- Sherry, S. B. (Speaker). (2017). Perfectionism and suicide. [Radio interview]. In C. A. Meehan (Interviewer), *The Carol Anne Meehan Show*. Ottawa, ON: 1310 News.
- Sherry, S. B. (Speaker). (2017). Perfectionism and suicide. [Radio news report]. In D. Connolly and L. Renault (Interviewers), *Information Morning Nova Scotia*. Halifax, NS: CBC News.
- Sherry, S. B. (Speaker). (2017). Perfectionism and suicide. [Radio interview]. In S. MacLeod (Interviewer), *The Sheldon MacLeod Show*. Halifax, NS: News95.7.
- Hahn, C. (2017, May 31). 3 steps to take to overcome the perfectionism that causes anxiety and depression. *Anxiety.org*. Retrieved from <https://www.anxiety.org/perfectionism-can-lead-to-anxiety-and-depression>

Whitbourne, S. (2016, November 11). Why do some narcissists need to be so perfect? A need for perfection drives narcissism according to new research. *Psychology Today*. Retrieved from <https://www.psychologytoday.com/blog/fulfillment-any-age/201611/why-do-some-narcissists-need-be-so-perfect>