

Lakehead

UNIVERSITY

OFFICE OF GRADUATE STUDIES

NAME OF STUDENT: Megan Short

DEGREE AWARDED: M.A.

ACADEMIC UNIT: Psychology

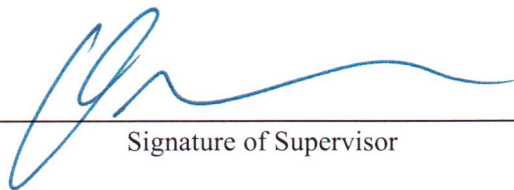
TITLE OF THESIS: Trait Perfectionism: An Investigation of the Mediating Effects
of Negative Repetitive Thought and the Role of Mindfulness

This thesis has been prepared

under my supervision

and the candidate has complied

with the Master's regulations.



Signature of Supervisor

April 18, 2012

Date

Trait Perfectionism: An Investigation of the Mediating Effects of Negative Repetitive
Thought and the Role of Mindfulness

Megan M. Short

A thesis submitted to the Faculty of Graduate Studies

In partial fulfillment of the requirements for the degree of

Master of Arts (Clinical Psychology)

Department of Psychology

Lakehead University

Thunder Bay, Ontario

April 2012

Supervisor: Dr. D. Mazmanian

Second Reader: Dr. A. Maranzan

Internal External Examiner: Dr. M. Bédard

PERFECTIONISM, REPETITIVE THOUGHT, AND MINDFULNESS

Abstract

Although perfectionism has been related to various maladaptive outcomes, several studies have demonstrated inconsistent relationships between the dimensions of trait perfectionism and psychological distress. Furthermore, little research has examined mechanisms underlying maladaptive trait perfectionism or potential intervention strategies. The aim of the current study was to investigate the mediating effects of worry and rumination on the relationships between maladaptive trait perfectionism and psychological distress, and to relate these multiple mediator models to a five-facet model of mindfulness. A battery of questionnaires was employed to examine these relationships in a sample of 213 undergraduate university students. Socially prescribed perfectionism was strongly related to psychological distress, including negative affect, depression, anxiety, and stress, while self-oriented perfectionism and other-oriented perfectionism appeared generally unrelated to psychological distress. In terms of mindfulness, the facets of acting with awareness, non-judging of inner experience, and to a lesser extent non-reactivity to inner experience, appeared to be the strongest independent contributors to the variables in the mediational models, namely, socially prescribed perfectionism, worry, rumination, and psychological distress. Furthermore, worry and rumination mediated the relationship between socially prescribed perfectionism and negative affect; however, in the presence of high levels of dispositional mindfulness, rumination was no longer a mediating mechanism in this model. Overall, socially prescribed perfectionism emerged as the most detrimental dimension of trait perfectionism and dispositional mindfulness appeared to play a role in decreased levels of related negative repetitive thoughts and psychological distress.

Acknowledgements

First, I would like to thank my supervisor, Dr. Dwight Mazmanian, for his continuous guidance and encouragement during my Master of Arts degree. Thank you for allowing me the freedom to pursue an area of research that was of interest to me. Your unwavering support and dedication has provided me with copious opportunities for success and has helped me become a better researcher. I would also like to thank my second reader, Dr. Amanda Maranzan, for all of your advice and direction in the preparation of this document. Your feedback has been invaluable.

I would like to thank the members of the Health, Hormones, and Behaviour Lab who each helped me throughout this process in their own way.

In addition, I would like to acknowledge the Ontario Graduate Student Scholarship Program for their aid in funding the current investigation.

Last, but not least, I would like to thank my family: Mom, Dad, Jillian, Karla, and Ian. I would never be where I am today without your love and support. Thank you for encouraging me to believe in myself. Also, I would like to thank Mark, for your unconditional love and support, and for putting up with me when I sometimes act a little too “perfectionistic”.

Table of Contents

Abstract..... i

Acknowledgements..... ii

List of Tables..... vi

List of Figures..... vii

List of Abbreviations..... viii

List of Appendices..... x

Introduction..... 1

The Multidimensional Model of Perfectionism..... 2

 Trait Perfectionism and Psychological Distress..... 3

Negative Repetitive Thought..... 5

 Worry..... 6

 Rumination..... 8

 Differentiating Worry and Rumination..... 9

Negative Repetitive Thought as a Mediator between Perfectionism and Distress..... 11

 Rumination as a Mediator between Perfectionism and Distress..... 11

 Worry as a Mediator between Perfectionism and Distress..... 12

Treatment Considerations for Perfectionism: Mindfulness..... 13

Current Investigation..... 15

 Aims and Hypotheses..... 17

Method..... 18

 Participants..... 18

 Measures..... 20

PERFECTIONISM, REPETITIVE THOUGHT, AND MINDFULNESS

Procedure.....	25
Results.....	26
Descriptive Statistics, Reliability, and Validity of Study Instruments.....	27
Relationships between the Dimensions of Trait Perfectionism, Negative Repetitive Thought, and Measures of Psychological Distress.....	30
Relationships between the Dimensions of Trait Perfectionism, Negative Repetitive Thought, Psychological Distress, and the Facets of Mindfulness.....	32
Negative Repetitive Thought Mediating the Relationship between Maladaptive Trait Perfectionism and Negative Affect in Low and High Mindfulness Groups	36
Discussion.....	44
Limitations.....	50
Future Research.....	51
Conclusions.....	53
References.....	55

List of Tables

Table 1	Demographic Characteristics of the Student Sample ($N = 213$).....	19
Table 2	Descriptive Statistics and Reliability Estimates of the Multidimensional Perfectionism Scale (MPS), the Penn State Worry Questionnaire (PSWQ), the Ruminative Responses Scale – Brooding (RRS-B), the Positive and Negative Affect Schedule (PANAS), the Depression Anxiety Stress Scales-21 (DASS-21), and the Five Facet Mindfulness Questionnaire (FFMQ), in a Student Sample ($N = 213$).....	28
Table 3	Bivariate Correlations between the Multidimensional Perfectionism Scale (MPS), the Penn State Worry Questionnaire (PSWQ), the Ruminative Responses Scale – Brooding (RRS-B), the Positive and Negative Affect Schedule (PANAS), the Depression Anxiety Stress Scales-21 (DASS-21), the Five Facet Mindfulness Questionnaire (FFMQ), and the Balanced Inventory of Desirable Responding (BIDR) and the Personality Research Form – Infrequency Scale (PRF-IN), in a Student Sample ($N = 213$).....	29
Table 4	Bivariate Correlations between the Multidimensional Perfectionism Scale (MPS), the Penn State Worry Questionnaire (PSWQ), the Ruminative Response Scales – Brooding (RRS-B), the Positive and Negative Affect Schedule (PANAS), and the Depression Anxiety Stress Scales-21 (DASS-21), in a Student Sample ($N = 213$).....	33
Table 5	Semi-Partial Correlations between the Dimensions of the Multidimensional Perfectionism Scale (MPS), and the Positive and Negative Affect Schedule (PANAS) and the Depression Anxiety Stress Scales-21 (DASS-21), in a Student Sample ($N = 213$).....	34
Table 6	Bivariate Correlations between the Multidimensional Perfectionism Scale (MPS), the Penn State Worry Questionnaire (PSWQ), the Ruminative Response Scales – Brooding (RRS-B), the Positive and Negative Affect Schedule (PANAS), and the Depression Anxiety Stress Scales-21 (DASS-21), and the Facets of the Five Facet Mindfulness Questionnaire (FFMQ), in a Student Sample ($N = 213$).....	35
Table 7	Semi-Partial Correlations between the Socially Prescribed Perfectionism Subscale of the Multidimensional Perfectionism Scale (MPS-SPP), the Penn State Worry Questionnaire (PSWQ), the Ruminative Response Scales – Brooding (RRS-B), the Positive and Negative Affect Schedule (PANAS), and the Depression Anxiety Stress Scales-21 (DASS-21), and the Facets of the Five Facet Mindfulness Questionnaire (FFMQ), in a Student Sample ($N = 213$).....	38

PERFECTIONISM, REPETITIVE THOUGHT, AND MINDFULNESS

Table 8 Demographic Differences between the Low Mindfulness and High Mindfulness Groups.....39

Table 9 One-Way Analyses of Covariance (ANCOVA) comparing the Mean Scores of the Low Mindfulness and High Mindfulness Groups on the Multidimensional Perfectionism Scale- Socially Prescribed Perfectionism Subscale (MPS-SPP), the Penn State Worry Questionnaire (PSWQ), the Ruminative Response Scales – Brooding (RRS-B), the Positive and Negative Affect Schedule (PANAS), and the Depression Anxiety Stress Scales-21 (DASS-21), while controlling for Age and Marital Status.....40

List of Figures

Figure 1 Indirect effects of the Penn State Worry Questionnaire (PSWQ) and the Ruminative Response Scales – Brooding (RRS-B) on the relationship between the Socially Prescribed Perfectionism Subscale (MPS-SPP) and the Negative Affect Scale (PANAS-NA), while controlling for age and marital status, in the low mindfulness group ($n = 71$).....42

Figure 2 Indirect effects of the Penn State Worry Questionnaire (PSWQ) and the Ruminative Response Scales – Brooding (RRS-B) on the relationship between the Socially Prescribed Perfectionism Subscale (MPS-SPP) and the Negative Affect Scale (PANAS-NA), while controlling for age and marital status, in the high mindfulness group ($n = 72$).....43

PERFECTIONISM, REPETITIVE THOUGHT, AND MINDFULNESS

List of Abbreviations

BIDR	Balanced Inventory of Desirable Responding
BIDR-IM	Balanced Inventory of Desirable Responding – Impression Management Subscale
BIDR-SD	Balanced Inventory of Desirable Responding – Self-Deception Subscale
DASS-21	Depression Anxiety Stress Scales-21
DASS-21-A	Depression Anxiety Stress Scales-21-Anxiety Subscale
DASS-21-D	Depression Anxiety Stress Scales-21-Depression Subscale
DASS-21-S	Depression Anxiety Stress Scales-21-Stress Subscale
FFMQ	Five Facet Mindfulness Questionnaire
FFMQ-AWARE	Five Facet Mindfulness Questionnaire – Acting with Awareness Subscale
FFMQ-DESCRIBE	Five Facet Mindfulness Questionnaire – Describing Subscale
FFMQ-NON-JUDGE	Five Facet Mindfulness Questionnaire – Non-Judging of Inner Experience Subscale
FFMQ-NON-REACT	Five Facet Mindfulness Questionnaire – Non-Reactivity to Inner Experience Subscale
FFMQ-OBSERVE	Five Facet Mindfulness Questionnaire – Observing Subscale
MPS	Multidimensional Perfectionism Scale
MPS-OOP	Multidimensional Perfectionism Scale – Other-Oriented Perfectionism Subscale
MPS-SOP	Multidimensional Perfectionism Scale – Self-Oriented Perfectionism Subscale
MPS-SPP	Multidimensional Perfectionism Scale – Socially Prescribed Perfectionism Subscale

PERFECTIONISM, REPETITIVE THOUGHT, AND MINDFULNESS

OOP	Other-Oriented Perfectionism
PANAS	Positive and Negative Affect Schedule
PANAS-NA	Positive and Negative Affect Schedule – Negative Affect Subscale
PANAS-PA	Positive and Negative Affect Schedule – Positive Affect Subscale
PRF-IN	Personality Research Form – Infrequency Scale
PSWQ	Penn State Worry Questionnaire
RRS-B	Rumination Response Scale – Brooding Subscale
RRS-BR	Rumination Response Scale – Brooding and Reflection
SOP	Self-Oriented Perfectionism
SPP	Socially Prescribed Perfectionism

List of Appendices

Appendix A: Demographic Information Form.....66

Appendix B: Multidimensional Perfectionism Scale.....69

Appendix C: Penn State Worry Questionnaire.....72

Appendix D: Ruminative Responses Scale – Brooding and Reflection.....73

Appendix E: Positive and Negative Affect Schedule.....74

Appendix F: Depression Anxiety Stress Scales – 21.....76

Appendix G: Five Facet Mindfulness Questionnaire.....78

Appendix H: Balanced Inventory of Desirable Responding.....80

Appendix I: Personality Research Form – Infrequency Scale.....82

Appendix J: Research Ethics Board Approval Letter.....83

Appendix K: Initial Contact Script.....84

Appendix L: Information Letter.....85

Appendix M: Informed Consent Form.....86

Appendix N: Debriefing Form.....87

Trait Perfectionism: An Investigation of the Mediating Effects of Negative Repetitive Thought and the Role of Mindfulness

In recent years, trait perfectionism has been subject to increasing empirical attention. In its pathological form, perfectionism can cause extreme distress in which one strives compulsively toward impossible goals (Slade & Owens, 1998). Originally, the empirical literature focused on a unidimensional conceptualization of perfectionism. More recently, a multidimensional approach consisting of three types of trait perfectionism has been developed and investigated (Hewitt & Flett, 1991). Although increased attention has led to a better understanding of perfectionism as a construct, research is still needed to elucidate the underlying mechanisms that relate specific dimensions of trait perfectionism to psychological distress.

Recurrent negative thinking patterns have been found to have an adverse affect on mood and an individual's functioning (Watkins, 2008). Specifically, rumination and worry are maladaptive repetitive thought styles that have been associated with maladaptive perfectionism, and are common mediating variables for various forms of psychological distress, such as anxiety and mood disorders (O'Connor, O'Connor, & Marshall, 2007; Segerstrom, Tsao, Alden, & Craske, 2000). According to the Canadian Community Health Survey, which was conducted by Health Canada to provide cross-sectional estimates of health status for 133 health regions across Canada, approximately 8% of Canadian adults will experience anxiety or depression at some point in their lives (Statistics Canada, 2002). Furthermore, many anxiety disorders have consistently been found to be comorbid with depressive disorders (Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992). The high prevalence of these two disorders, and their unifying

association with negative repetitive thought patterns and maladaptive trait perfectionism, warrants research aimed at developing more comprehensive models of perfectionism, and possible novel approaches for treatment.

According to Hayes (2004), mindfulness-based interventions are considered “third phase” psychological treatments, and have potential therapeutic benefits for maladaptive perfectionism. This phase introduces elements, such as mindfulness, that were developed in areas outside of psychology into the traditional cognitive-behavioural structure. Research has shown that when mindfulness processes are incorporated into modes of empirically-based therapy it results in positive outcomes for clients (Forman, Herbert, Moitra, Yeomans, & Geller, 2007). Additionally, mindfulness skills promote wellness and decreased levels of negative affect in non-clinical populations (Kim et al., 2009; Short & Mezo, 2010). The cultivation of mindfulness skills may disrupt the maladaptive chain that underlies maladaptive perfectionism and psychological distress. Moreover, the present-moment awareness and nonjudgmental acceptance aspects of mindfulness are inconsistent with perfectionistic beliefs and negative repetitive thought. Investigating maladaptive trait perfectionism and negative repetitive thought in association to the specific facets of mindfulness can inform practice and theory for the treatment of these vulnerability factors.

The Multidimensional Model of Perfectionism

Perfectionism has been operationalized as a stable trait characteristic, and has become an important individual-differences variable in the investigation of psychological distress (Hewitt & Flett, 2002). Trait perfectionism is the tendency to continuously, and compulsively, strive towards perfection, improvement, and high standards. One of the

most studied models of maladaptive trait perfectionism was derived by Hewitt and Flett (1991), and is defined as a multidimensional phenomenon consisting of self-oriented (SOP), other-oriented (OOP), and socially prescribed (SPP) perfectionism. Self-oriented perfectionism involves self-directed perfectionist behaviours and refers to the tendency to set and seek high standards of performance for oneself. Other-oriented perfectionism focuses on the beliefs and expectations of the capabilities of others. It involves the tendency of individuals to expect high performance standards of others. Socially prescribed perfectionism involves the perceptions and beliefs that an individual must attain to the high standards and expectations prescribed by others. More specifically, individuals perceive that others expect perfection of them (Hewitt & Flett, 1991). Some authors have argued that a dual-process model of perfectionism exists, purporting that certain dimensions of perfectionism, namely self-oriented perfectionism, is adaptive and associated with conscientiousness and intrinsic motivation (Mills & Blankstein, 2000; Slade & Owens, 1998). However, Hewitt and Flett (2007) have argued that trait perfectionism is a “neurotic personality style” and that all forms of perfectionism are maladaptive and self-defeating as the standards that one sets are impossible to achieve. Researchers have found supporting evidence that trait perfectionism is related to a variety of psychological states and disorders.

Trait Perfectionism and Psychological Distress

The strongest association between trait perfectionism and psychological distress has been found in socially prescribed perfectionism (Hewitt & Flett, 1991; Hewitt, Flett, & Ediger, 1996). A longitudinal study by Hewitt et al. (1996) found that socially prescribed perfectionism predicted an increase in depression over a four-month period. In

addition, extensive research connects socially prescribed perfectionism to anxiety. High levels of socially prescribed perfectionism have been found in individuals who are diagnosed with social phobia, specific phobia, and generalized anxiety disorder (Antony, Purdon, Huta, & Swinson, 1998). Within social phobia, socially prescribed perfectionism has been deemed to play a role in the development and maintenance of the disorder (Antony et al., 1998). Socially prescribed perfectionism has also been found to correlate highly with anxiety levels in undergraduate students (Flett, Hewitt, & DeRosa, 1996).

Some studies have related self-oriented perfectionism to both anxiety and depression. Evidence provided by Blankstein and Lumley (2008) indicates that self-oriented perfectionism predicts levels of anxiety and worry. Although a strong positive relationship between self-oriented perfectionism and depression has been found in clinical samples, the research literature concerning self-oriented perfectionism in non-clinical samples is not as well established. While some studies have found a positive relationship between these two constructs, others have found no relationship between self-oriented perfectionism and depression in student samples (Flett, Madorsky, Hewitt, & Heisel, 2002). Additionally, as previously noted, some authors contend that in non-clinical populations self-oriented perfectionism denotes an adaptive form of the trait, which bears positive benefits for individuals (Slade & Owens, 1998).

The relationship between other-oriented perfectionism and psychological distress is even less clear. A number of studies have found a relationship between other-oriented perfectionism and psychological distress, such as anxiety, while other studies have found no relationship between other-oriented perfectionism and anxiety or depression (Chang, Sanna, Chang, & Bodem, 2008). Some researchers have hypothesized that people with

other-oriented perfectionism may be protected against forms of psychopathology because they blame others for negative life events (Shafran & Mansell, 2001). Moreover, research has found that other-oriented perfectionism has been positively associated with histrionic, narcissistic, and antisocial personality characteristics (Hewitt & Flett, 1991). Therefore, these individuals may experience high levels of interpersonal distress, which may not be related to depression or anxiety, but other forms of negative affect, such as hostility and irritability.

In summary, it is evident from recent studies that elevations in socially prescribed perfectionism are related to greater levels of distress; however, there are mixed findings pertaining to the association of self-oriented perfectionism and other-oriented perfectionism, with psychological distress. Further research is required to clarify the role that each dimension of trait perfectionism has on the development and maintenance of psychological distress. Perfectionistic behaviours and cognitions occur in both clinical and non-clinical samples, and some examinations have revealed that the level of maladaptive perfectionism in patients and in the general public does not significantly differ (Hewitt & Flett, 1991). In terms of prevention, it might be important to target maladaptive perfectionism in non-clinical populations and intervene before this vulnerability trait develops into incremental levels of clinical distress. This can be achieved by examining maladaptive perfectionism and its associated mediating variables in non-clinical populations.

Negative Repetitive Thought

Negative repetitive thoughts are cognitive processes that are suggested to be universal and cause vulnerability to mood and anxiety disorders, and general states of

negative affect (Short & Mezo, 2009). Therefore, these persistent negative thoughts are potentially a common mediating link between various risk factors and states of psychological distress. While repetitive thought can have some constructive consequences, such as adaptive preparation, it has been well documented that negative repetitive self-focused thought results in negative consequences (Watkins, 2008). For instance, repetitive thought concerning upsetting events has been found to predict psychological distress (Nolen-Hoeksema, 1991). Specifically, the repetitive thought patterns of rumination and worry have been found to be a predisposing factor for anxiety and mood disorders and provide insight into the co-occurrence of these two disorders (Segerstrom et al., 2000). Furthermore, research has shown that worry and rumination exhibit similar correlational patterns, as well as independent relationships when controlling for the other, with negative affect (Short & Mezo, 2009).

Worry

Chronic worry is commonly defined as a chain of thoughts that are relatively uncontrollable, negative affect-laden, and related to events with uncertain outcomes (Borkovec, Robinson, Pruzinsky, & DePree, 1983). Theoretical approaches to maladaptive worry include the idea that worry is a form of avoidance (Borkovec & Inz, 1991), and that worry is associated with intolerance of uncertainty (Dugas, Gagnon, Ladouceur, Freeston, 1998). Specifically, Borkovec and Inz (1991) speculated that the basic function of worry in generalized anxiety disorder is for avoidance of affect in emotional experiences. Thus, an individual would avoid somatic anxiety by engaging in high levels of conceptual activity, such as worry. Research has found that generalized anxiety disorder and worry are correlated with experiential avoidance. This phenomenon

occurs when a person negatively evaluates, and is unwilling to experience or accept their bodily sensations, emotions, thoughts, and memories, and engages in behaviours to control or escape these experiences (Roemer, Salters, Raffa, & Orsillo, 2005). These results support the theory that worry is an internal avoidance strategy, however, this model makes assumptions regarding individuals' motivations to worry that cannot be explained by behavioural theory. Alternatively, Dugas and colleagues (1998) constructed a conceptual model representing intolerance of uncertainty as a pivotal component of worry and the development of generalized anxiety disorder. In the empirical investigations supporting these two theories, both avoidance and intolerance of uncertainty have been significantly related to worry and deemed to be critical factors in distinguishing individuals with generalized anxiety disorder from non-clinical participants (Dugas et al., 1998; Roemer et al., 2005).

Worry has primarily been studied in the context of generalized anxiety disorder and is a defining feature of this disorder. Moreover, research strongly supports the notion that the cognitive process of worry is a vulnerability factor for generalized anxiety disorder (Starcevic, Berle, Milicevic, Hannan, Lamplugh, & Eslick, 2007). Chronic worry has also been found to be a dimension of many other anxiety disorders, such as social phobia, panic disorder, and obsessive-compulsive disorder (Starcevic et al., 2007). Specifically, Barlow and DiNardo (1991) proposed that worry is a fundamental characteristic of all anxiety disorders, with the possible exception of simple phobias. Even so, studies have found that levels of pathological worry are greater in generalized anxiety disorder patients, than those suffering from other anxiety disorders (Chelminski & Zimmerman, 2003). In sum, research strongly supports the maladaptive outcomes of

worry, such as anxiety and general psychological distress.

Rumination

The cognitive process of rumination is related to negative affect and involves self-focused attention on past events (Treyner, Gonzalez, & Nolen-Hoeksema, 2003). Thus, like worry, the repetitive thought style of rumination also leads to unconstructive consequences and is a cognitive vulnerability factor for psychopathology (Goring & Papageorgiou, 2008). Nolen-Hoeksema and colleagues (1991) proposed a highly influential conceptualization of rumination within the Response Styles Theory of Depression. Within this conceptual framework, a ruminative response to negative events prolongs depressive episodes over time. This type of behavioural reaction is unlike a distraction response, which focuses attention to other activities rather than being preoccupied with the past (Nolen-Hoeksema, Morrow, & Fredrickson, 1993). A ruminative response style has also been found to be predictive of depressive episodes (Nolen-Hoeksema, 2000). Based on findings from a factor analysis examining the conceptualization of rumination, the main aspects of this construct consist of reflection and brooding (Treyner et al., 2003). These particular components of rumination are not confounded by depressive symptomology. Reflection is neutrally affect-laden and can be defined as engaging in contemplation and attempting to overcome problems and difficulties. The cognitive style of brooding is negatively affect-laden and concerns self-criticism and moody pondering. Reflection has been found to be more self-focused, while brooding rumination focuses more on symptomology and is typically more strongly associated with psychological distress (Treyner et al., 2003).

The role that rumination plays as a predisposing factor for negative affect is well

supported. Empirical evidence supports the Response Styles Theory of Depression and it has been found that rumination prolongs depressed mood, even when controlling for initial levels of depression (Nolen-Hoeksema et al., 1993). Additional research has found that rumination can also predict depressive episodes (Nolen-Hoeksema, 2000). In one study, individuals who endorsed a ruminative response to distress before the Loma Prieta Earthquake, which struck the Santa Cruz mountains in 1989, were more likely to show elevated depressive symptoms immediately after the earthquake and on follow-up measures (Nolen-Hoeksema & Morrow, 1991). Clearly, brooding rumination¹ has maladaptive properties and is related to the maintenance of psychological distress.

Differentiating Worry and Rumination

Much of the current research examining repetitive thought processes has investigated the association of worry and rumination. In particular, these constructs share common elements, such that both are relatively uncontrollable repetitive thoughts focused on negative events (Segerstrom et al., 2000). Moreover, both worry and rumination have been described as repetitive and unproductive, and have been found to amplify anxiety and depression, respectively (Segerstrom et al., 2000). Research has also shown that worry is related to both anxiety and depression, and similarly, rumination is related to both anxiety and depression (Nolen-Hoeksema, 2000; Starcevic, 1995). These findings suggest that recurrent negative thinking patterns may contribute to co-existing anxious and depressive states.

The literature regarding repetitive thought strongly supports the similarities between rumination and worry; however, the degree of overlap between the two

¹ This investigation primarily focuses on the brooding subtype of rumination, rather than the reflective subtype, and thus will be referred to as simply “rumination” from here on.

constructs is still undetermined. The negative thought patterns of worry and rumination have been differentiated on the temporal basis of their content, namely, that worrying focuses on future events, while rumination is concerned with past events (Watkins, Moulds, & Mackintosh, 2005). This particular study by Watkins and colleagues (2005) investigated hypothesized factors that would differ between worry and rumination. However, the results of this study indicated that while worry and rumination differed on temporal content, they did not differ on any other variables, such as the extent to which the thoughts were verbal or visual, or the extent to which they were related to problem solving. A factor analysis examining the items of psychometrically established measures of worry and rumination resulted in a four-factor solution that accounted for 50.35% of the variance: (1) tendency to worry, (2) tendency to analyze feelings/self, (3) dwelling on negative feelings, and (4) absence of worry (Goring & Papageorgiou, 2008). The first and fourth factor contained all items from a measure of worry, while the second and third factor contained items from a measure of rumination. Therefore, worry and rumination items loaded on separate factors. These findings suggest that, although the factors were correlated with each other and with a measure of depression and anxiety, rumination and worry are separate constructs. The empirical literature examining worry and rumination supports the claim that the two involve the same processes, but can be differentiated based on content. Overall, research in this area indicates that the negative repetitive thought patterns of worry and rumination are independent cognitive activities, and therefore these thought constructs should be examined independently in relation to variables of distress.

Negative Repetitive Thought as a Mediator between Perfectionism and Distress

Mediation in psychological research is the process by which some variables exert effects on other variables through intervening or mediating variables (Preacher & Hayes, 2008). This process can be evaluated through various statistical procedures, typically involving multiple regression analyses. Research examining integrative diathesis models relating perfectionism and other theoretically significant variables has only recently begun (Chang et al., 2008). A study that separately tests the mediational effects of worry and rumination is needed to clearly conceptualize the underlying relationships that are operating within the relationship of maladaptive perfectionism and psychological distress. That is, research is needed to elucidate the potential mechanisms that mediate the destructive effects of perfectionism.

Rumination as a Mediator between Perfectionism and Distress

Prior studies have examined the mediational role of rumination between perfectionism and psychological distress. The majority of the research has examined rumination as a mediator between socially prescribed perfectionism and depression, due to the strong associations that have been found between these constructs. This model holds strong support in the literature, specifically when the relationship between trait perfectionism and depression is mediated via brooding rather than reflective ruminative tendencies (O'Connor, O'Connor, & Marshall, 2007). O'Connor et al. (2007) not only examined rumination as a mediator between socially prescribed perfectionism and depression, but also in relation to anxiety. A non-clinical sample, consisting of both university and non-university individuals, were examined and it was found that rumination was a partial mediator for subthreshold levels of depression and anxiety.

Worry as a Mediator between Perfectionism and Distress

Little research has examined worry as a mediator between trait perfectionism and psychological distress. Research is warranted in this area because of the strong associations between worry and psychological distress, and psychological distress and perfectionism. Moreover, evidence supports that socially prescribed perfectionism is related to worry, and is a predictive variable of worry, especially in women (Blankstein & Lemley, 2008). Although research suggests possible mediating relationships between these constructs, more attention needs to focus on elucidating these mediational models. Specifically, research needs to clarify the role of worry as a mediator between each dimension of perfectionism and psychological distress.

In sum, no research has examined the mediating roles of the separate cognitive processes of worry and rumination with each dimension of trait perfectionism and psychological distress, specifically negative affect. According to the tripartite model of emotion, there is a broad mood factor, namely, negative affect that is operational in both anxiety and depression, as well as other forms of psychological distress (Watson, Clark, & Carey, 1988). Employing negative affect as an outcome variable in these multiple mediator models is a valuable way to examine the dimensions of trait perfectionism in relation to general psychological distress. Additionally, previously examined mediational models in this area have relied on semi-partial correlational analyses and hierarchical linear regressions, which do not take into account sensitivity to violations of normality as bootstrapped approaches do (Preacher & Hayes, 2008). Appropriate statistical examination of these mediational processes is an important consideration for both the development and treatment of maladaptive perfectionism.

Treatment Considerations for Trait Perfectionism: Mindfulness

Mindfulness is a method that involves “bringing one’s complete attention to the present experience on a moment-to-moment basis” (Marlatt & Kristellar, 1999, p. 68). Furthermore, it is described as a therapeutic process, which directs attention so that one is attentive and aware of current stimuli in an accepting and non-judgmental way (Brown & Ryan, 2003). The construct of mindfulness has been associated with ameliorating psychological distress and maintaining one’s well-being (Hayes, Follette, & Linehan, 2004; Kabat-Zinn, 1994). Although this therapeutic technique originated from Eastern meditation traditions (Kabat-Zinn, 1994), in recent decades it has become incorporated into many mental health interventions used for various psychological and medical complaints (Hayes et al., 2004). Research has shown that when mindfulness processes are incorporated into models of empirically based therapy it results in positive outcomes for clients (Ma & Teasdale, 2004).

Mindfulness can be conceptualized as both a dispositional characteristic, and as a skill that can be learned and practiced. Whether mindfulness is measured as an inherent capacity or a cultivated skill, increased levels of mindfulness are associated with decreased psychological distress (Evans, Ferrando, Findler, Stowell, Smart, & Haglin, 2008; Short & Mezo, 2010). The constructs of dispositional and cultivated mindfulness have been most commonly measured by employing psychometrically sound self-report instruments. Many measures of mindfulness can be found in the psychological literature and most appear to have appropriate application in research examining the role of mindfulness in the psychological well-being of clinical and non-clinical samples (Kim et al., 2009; Short & Mezo, 2010). Baer, Smith, Hopkins, Krietemeyer, and Toney (2006)

reviewed several self-report measures of mindfulness and through factor analysis, conceptualized the construct to be multi-faceted, specifically comprised of five skills: (1) observing internal and external stimuli, such as sensations, cognitions, emotions, sights, sounds, and smells, (2) describing and labeling internal and external stimuli with words, (3) acting with awareness, rather than acting mechanically with attention focused elsewhere, (4) non-judging of inner experience, such as thoughts and feelings, and (5) non-reactivity to inner experiences by letting thoughts come and go. As this is a fairly recent conceptualization, the empirical literature on this model of mindfulness has only recently begun.

Empirical studies have revealed that the inverse relationship between mindfulness and distress not only exists in clinical populations, but also in non-clinical populations. Research has found that an individual's dispositional level of mindfulness is negatively associated with levels of anxiety, depression, stress, worry, and rumination (Short & Mezo, 2010). Furthermore, mindfulness is effective at reducing levels of distress when learned as a skill and practiced (Napoli, Krech, Holley, 2005). In particular, Napoli and colleagues (2005) found that a 24-week mindfulness-training program reduced anxiety and increased attention in elementary school students. Psychological interventions that incorporate mindfulness skills have produced similar positive effects in populations experiencing extreme distress (Barnhofer, Crane, Hargus, Amarasinghe, Winder, & Williams, 2009).

Many studies have revealed strong support for the efficacy of mindfulness training for the treatment of psychological distress (Craigie, Rees, & Marsh, 2008; Evans et al., 2008; Ree, & Craigie, 2007); however, few studies have examined the underlying

mechanisms, or processes of change in which mindfulness leads to beneficial outcomes. Moreover, no studies have examined mindfulness as a therapeutic tool for alleviating distress in individuals high in perfectionism, specifically trait perfectionism. To fully understand mechanisms of change in mindfulness-based treatments, it is important to examine mindfulness in relation to specific mediating variables. Further, examining the separate facets of mindfulness aids in elucidating the specific skills that mindfulness cultivates, and how they may be related to the amelioration of psychological distress. Insight into how these mechanisms are related can aid in targeting areas for intervention, especially in individuals who experience maladaptive levels of trait perfectionism.

Current Investigation

It is useful to examine the correlates and underlying mechanisms of trait perfectionism as research has found that perfectionist personality styles can create a vulnerability to psychological distress, and can also impede treatment (Shafran & Mansell, 2001). In particular, perfectionism can play a pivotal role in impairing the therapeutic process as it is related to a poor therapeutic alliance and unrealistic treatment goals in therapy (Blatt & Zuroff, 2002). People who possess maladaptive trait perfectionism have been described to measure their self-worth in terms of achieving unrealistic high standards (Shafran & Mansell, 2001). Thus, identifying and clarifying the proposed relationships between trait perfectionism, negative repetitive thought, psychological distress, and mindfulness can aid in targeting mechanisms of change and reducing psychological distress. To date, no research has examined the mediating roles of the separate cognitive processes of worry and rumination with each dimension of trait

perfectionism and negative affect. This research is needed to elucidate any potential maladaptive effects that each type of trait perfectionism can produce in an individual.

It is also important to examine perfectionism and its associated constructs in non-clinical populations, specifically student samples. University settings have elevated performance demands required to achieve success (Stevens & Pfof, 1984), and prior investigations have revealed that two thirds of student samples are classified as perfectionistic (Grzegorek, Slaney, Franze, & Rice, 2004). Moreover, studies have found that there is no significant difference between the mean score of perfectionism in clinical samples with diagnoses of anxiety and depression and the mean score of non-clinical samples (Hewitt & Flett, 1991). Therefore, the level of perfectionism found in non-clinical samples is frequently at elevated levels and may be generalizable to clinical populations. A student sample also provides access to a larger sample size and can provide useful insight into the operating mechanisms found in clinical samples. Overall, research is warranted to investigate the development of maladaptive effects of perfectionism in non-clinical populations, and particularly student samples, which is what this study aims to accomplish.

Mindfulness training has implications for the treatment of maladaptive perfectionism as it may specifically target the mediating effects of worry and rumination. The cultivation of mindfulness skills would endorse letting go and acceptance of perfectionistic and negative repetitive thoughts, rather than altering the content of cognitions, as seen in traditional models of cognitive-behavioral therapy. Although perfectionism is conceptualized as a static trait variable, mindfulness skills may disrupt the maladaptive chain that underlies maladaptive perfectionism and psychological

distress. This study will provide preliminary evidence of the potential treatment implications of mindfulness by examining the individual relationships of current levels of mindfulness, to the variables in the mediational models of trait perfectionism.

Aims and Hypotheses

The purpose of the current study is to examine underlying mechanisms operating between trait perfectionism and psychological distress. Replicating and extending previous research, and exploring innovative hypotheses will accomplish this. Statistical examinations will provide preliminary findings on how, and to what extent, the different dimensions of trait perfectionism are related to levels of negative repetitive thought and psychological distress. Furthermore, the five-facet model of mindfulness will be investigated in relation to the variables in these mediational models. Worry and rumination will be examined as mediators between each dimension of trait perfectionism and psychological distress, in a group of individuals who reveal low dispositional, or current, levels of mindfulness, and in a group of individuals who reveal high dispositional levels of mindfulness. The multiple mediator models will be examined using a bootstrapped multivariate extension of the Sobel test (Baron & Kenny, 1986) developed by Preacher and Hayes (2008). These comparisons will give preliminary results on the potential treatment benefits of mindfulness training. Therefore, it is hypothesized that:

(1) Trait perfectionism, worry, and rumination will be positively associated with depression, anxiety, stress, and negative affect, and will predict negative affect. As the research examining self-oriented and other-oriented perfectionism in association with depression and anxiety have revealed some ambiguous results, the predicted strength of these relationships is undetermined.

(2) The five facets of mindfulness will be negatively associated with maladaptive trait perfectionism, worry, rumination, depression, anxiety, stress, and negative affect. That is, as levels of mindfulness increase, levels of distress will decrease. The independent relationships between each facet of mindfulness and these variables will be examined on an exploratory basis.

(3) Negative repetitive thought (i.e., worry and rumination) will mediate the relationship between the dimensions of trait perfectionism and negative affect in the high mindfulness group, but not in the low mindfulness group. The predicted mediating effect will persist across the dimensions of trait perfectionism. A strong mediational effect will be found for the socially prescribed perfectionism dimension, while moderate mediational effects will be found for the self-oriented and other-oriented perfectionism dimensions. This is hypothesized because socially prescribed is more strongly related to intense personal distress, as revealed by its associations with depression and anxiety.

Method

Participants

The sample for this study consisted of 213 undergraduate university students, recruited from Lakehead University, in Thunder Bay, Ontario. The demographic characteristics of the sample can be seen in Table 1. Using G*Power 3.0.10 (Faul, Erdfelder, Lang, & Buchner, 2007) as a guideline, an a priori power analysis for multiple regression, with an alpha set at .05, was conducted. A total sample size of $N = 89$ was needed to detect a medium effect, and a total sample size of $N = 40$ was needed to detect a large effect. Therefore, a sample of 213 appears to be more than sufficient to confidently examine the relationships between the pertinent constructs of this study.

Table 1

Demographic Characteristics of the Student Sample (N = 213)

Variable	Mean (SD) / n (Frequency)
Age (years)	25.0 (7.4)
Sex (female)	177 (83.1%)
Sexual Orientation (heterosexual)	201 (94.4%)
Ethnicity (white)	191 (89.7%)
Where From	
City (10, 000 or more)	147 (69.0%)
Town (1,000 – 9, 999)	50 (23.5%)
Village (100 – 999)	16 (7.5%)
Marital Status	
Married	28 (13.1%)
Common Law	5 (2.3%)
Divorced/Separated	10 (4.7%)
Committed Relationship	93 (43.7%)
Single	77 (36.2%)
Employment Status	
Full-Time	53 (24.9%)
Part-Time	99 (46.5%)
Unemployed	61 (28.6%)
Annual Family Income	
\$0 – \$36, 378	80 (37.6%)
\$36, 379 – \$72, 756	52 (23.0%)
\$72, 757 – \$118, 285	49 (23.2%)
Over \$118, 286	32 (15.0%)
Educational Status (Full-Time)	159 (74.6%)
Year of University	
First	33 (15.5%)
Second	54 (25.4%)
Third	67 (31.5%)
Fourth	44 (20.7%)
Fifth	8 (3.8%)
Undergraduate Degree	7 (3.3%)
Diagnosed with Psychological Condition (Yes)	46 (21.6%)
Receiving Treatment for Psychological Condition	
Counselling/ Therapy	13 (6.1%)
Medication	21 (9.9%)
Neither	179 (84.0%)

Measures

To evaluate the relationships between perfectionism, negative repetitive thought, psychological distress, and mindfulness, a number of reliable and valid instruments were employed. All instruments were completed in the same data collection period; thus, all constructs were measured concurrently. Self-report instruments in this study included: a demographic information form, and a measure of (1) trait perfectionism, (2) worry, (3) rumination, (4) anxiety, depression, and stress, (5) positive and negative affect, (6) mindfulness, (7) social desirability, and (8) infrequency.

Demographic Information Form. The Demographic Information Form (Appendix A) was developed for this study to capture the distribution of demographic characteristics in the study sample. Participants were asked to provide information including their age, gender, sexual orientation, ethnicity, locality, relationship status, employment status, family annual income, education, and mental health.

Multidimensional Perfectionism Scale (MPS; Hewitt & Flett, 1991). The MPS (Appendix B) is a 45-item measure of trait perfectionism, with 15 questions assessing each of the three dimensions of perfectionism. The subscales include self-oriented (MPS-SOP; e.g., “One of my goals is to be perfect in everything that I do”), other-oriented (MPS-OOP; e.g., “If I ask someone to do something, I expect it to be done flawlessly”), and socially prescribed (MPS-SPP; e.g., “The people around me expect me to succeed at everything that I do”; Hewitt & Flett, 1991). Participants rate their responses on a seven-point Likert scale, ranging from one (strongly disagree) to seven (strongly agree), and higher scores indicate higher levels of perfectionism. The validity and reliability of the MPS has been well established in both clinical and non-clinical populations. Test-retest

reliability over a three-month period has been found to be high for the MPS-SOP, MPS-OOP, and MPS-SPP subscales ($r = .88, .85, .75$), respectively (Hewitt & Flett, 1991).

Internal consistency for the MPS-SOP, MPS-OOP, and MPS-SPP subscales has also been found to be high, Cronbach's $\alpha = .91, .85, .78$, respectively (O'Conner et al., 2007).

Many studies have shown strong support for the validity of the MPS. A strong correlation has been found between the MPS subscales and measures of personal standards and self-criticism, $r = .42 - .75, p < .05$ (Hewitt et al., 1991).

Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990). The PSWQ (Appendix C) is a 16-item unidimensional measure of chronic worry (Meyer et al., 1990). Participants rate items on a one to five point Likert-type scale ranging from “not at all typical of me” to “very typical of me” (e.g., “As soon as I finish one task, I start to worry about everything else I have to do”). Higher scores indicate higher levels of worry, with a cut-off of greater than 40 indicating a pathological level (Meyer et al., 1990). Studies support the reliability and validity of the PSWQ. The test-retest reliability has been found to be high, with correlations ranging from .74 to .93 and re-test periods ranging from 2 to 10 weeks (Molina & Borkovec, 1994). Internal consistency has been found to range from .80 to .95 (Brown, Anthony, & Barlow, 1992). Validity of the PSWQ has also been supported. The PSWQ has been found to correlate highly, and in the predicted direction, with measures of anxiety, depression, and other measures of worry (Segerstrom et al., 2000; van Rijsoort, Emmelkamp, & Vervaeke, 1999).

Ruminative Responses Scale- Brooding and Reflection (RRS-BR; Treynor et al., 2003). Rumination was assessed using a 10-item version of the Ruminative Responses

Scale (RRS) that was developed by Nolen-Hoeksema and Marrow (1991; Appendix D). This instrument was created to exclude items of the RRS that have been found to measure depressive symptomology, rather than rumination, in order to eliminate conceptual overlap (Treyner et al., 2003). Participants completed the 10 items of the brooding and reflection subscales of the RRS, however, the 5-item brooding subscale was the primary focus of statistical analyses. The brooding subscale (RRS-B) measures preoccupation with depressing, morbid, or painful memories or thoughts (e.g., “Think ‘Why do I always react this way?’”). The items are rated on a Likert-type scale, ranging from zero (almost never) to three (almost always), with higher scores indicating higher levels of rumination. The psychometric properties of the RRS-BR are well established. The correlation between a self-report and interview format version of the RRS-BR has been found to be high, $r = .90$, revealing high alternate forms reliability (Treyner et al., 2003). The RRS-BR has also demonstrated good internal consistency, $\alpha = .90$, and test-re-test reliability over a one-year time span, $r = .71$ (Treyner et al., 2003). Moreover, the RRS-BR has been found to correlate strongly with measures of depression, which supports high convergent validity (Treyner et al., 2003).

Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988).

The PANAS is a 20-item scale that was developed as a self-report instrument designed to measure positive affect (PANAS-PA; e.g., “Excited”) and negative affect (PANAS-NA; e.g., “Irritable”; Appendix E). The “Past Few Weeks” form of the PANAS was employed, which asks participants to “indicate to what extent you have felt this way over the past few weeks.” Items are administered using a five-point Likert-type scale ranging from one (very slightly) to five (extremely), and higher scores indicate greater levels of

affect. The psychometric properties of these scales are well established. The PANAS-PA and PANAS-NA subscales have revealed high internal consistencies of .89 and .85, respectively (Crawford & Henry, 2004). Furthermore, correlations between the scales and the Depression Anxiety Stress Scales have ranged from -.30 to -.48 for the PANAS-PA scale, and .60 - .67 for the PANAS-NA scale (Crawford & Henry, 2004).

Depression Anxiety Stress Scales – 21 (DASS-21; Antony, Bieling, Cox, Enna, & Swinson, 1998). The DASS-21 is a 21-item self-report measure that yields three factors: depression (DASS-21-D; e.g., “I felt I wasn't worth much as a person”), anxiety (DASS-21-A; e.g., “I felt I was close to panic”), and stress (DASS-21-S; e.g., “I found it hard to wind down”; Appendix F). Participants are asked to report the frequency and severity of any negative emotions they had experienced over the previous week on a four-point Likert-type scale (0 = did not apply to me at all, 3 = applied to me very much). Higher ratings indicate higher levels of depression, anxiety, and stress. Evidence supports the psychometric properties of the DASS-21. Specifically, the internal consistency has been found to range from .82 - .90 for the three scales (Henry & Crawford, 2005). Moreover, the scales of the DASS-21 correlate positively with measures of negative affect, and negatively with measures of positive affect (Henry & Crawford, 2005).

Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006). The FFMQ (Appendix G) is a 39-item measure of mindfulness and is composed of five subscales. The subscales include observing (FFMQ-OBSERVE; e.g., “When I’m walking, I deliberately notice the sensations of my body moving”), describing (FFMQ-DESCRIBE; e.g., “I’m good at finding words to describe my feelings”), acting with awareness (FFMQ-AWARE; e.g., “I find it difficult to stay focused on what’s happening in the present”);

reverse scored), non-judging of inner experience (FFMQ- NON-JUDGE; e.g., “I believe that some of my thoughts are abnormal or bad and I shouldn’t think that way”; reverse scored), and non-reactivity to inner experience (FFMQ-NON-REACT; e.g., “I perceive my feelings and emotions without having to react to them”; Baer et al., 2006).

Participants rate their responses on a five-point Likert-type scale, ranging from one (never true) to five (always true), and higher scores indicate higher levels of mindfulness. The reliability and validity of the FFMQ has been established. Internal consistency for the five facets has been found to range from .72 - .92 (Baer et al., 2008). Many studies have also shown strong support for validity of the FFMQ. For example, the five facets correlate as expected to other measures of mindfulness, such as the Mindful Attention Awareness Scale, and measures of psychological well-being (Baer et al, 2008; Baer et al, 2006).

Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1988). The BIDR measures self-deception, the tendency to give favorably biased but honest self-descriptions, and impression management, the tendency to give favorable self-descriptions in order to be perceived better by others (Paulhus, 1988). It was included in this study as a measure of social desirability, with the purpose to control for response bias (Appendix H). A low correlation with the BIDR indicates that the scores are not biased in a socially desirable manner. The measure consists of 40 items rated on a seven-point Likert-type scale ranging from one (not true) to seven (very true), and higher scores indicate higher levels of social desirability. The BIDR is comprised of two subscales measuring self-deception (BIDR-SD; e.g., “I always know why I like things”) and impression management (BIDR-IM; e.g., “I always obey laws, even if I’m unlikely to get

caught”). The measure supports adequate test-retest reliability over a five-week time period for the self-deception and impression management subscales, $r = .65$ and $.69$, respectively (Paulhus, 1988). Internal consistency for the total measure has been found to be high, $\alpha = .83$, and to range from $.68 - .86$ for the self-deception and impression management subscales. The BIDR has also been found to correlate highly with other measures of social desirability (Paulhus, 1988).

Personality Research Form – Infrequency Scale (PRF – IN; Jackson, 1984). The Infrequency Scale of the PRF, Form E was included to identify carelessness or other non-purposeful responding (Appendix I). It consists of 16 true-false items (e.g., “I have never had any hair on my head”) that were divided to appear at the beginning, middle, and end of the questionnaire battery. Higher scores indicate responses that are implausible or pseudo-random in manner, possibly due to carelessness, poor comprehension, passive non-compliance, confusion, or gross deviation (Jackson, 1984).

Procedure

Lakehead University’s Research Ethics Board reviewed and approved the current study (Appendix J). The researcher visited undergraduate classes and orally informed the students of the opportunity to be involved in research that investigates “how personality, thoughts, and behaviours relate to mood” (Appendix K). Participants in classes where the instructor incorporated bonus points towards students’ final grades for research participation were presented with this incentive. Participants were advised that their participation was entirely voluntary and that their names would not appear on any forms or in any reports. Participants were also informed that they maintain the right to withdraw

from the study at any time without penalty. An information letter (Appendix L) was given, which included a website to access to participate in the study.

Participants completed the questionnaire battery through a secured website service (i.e., SurveyMonkey). They first viewed a consent form (Appendix M), which restated the details of the study that were previously presented on the information letter. Participants had to indicate consent before continuing to the questionnaire battery. The demographic information form always appeared at the front of the battery and should not have biased participant responses. The questions on the form did not relate to any of the items in the questionnaire battery. The questionnaires in the battery were randomized to control for order effects. Participants were informed that they were under no obligation to continue the study if they experienced discomfort or anxiety during any part of the study. The questionnaire battery took approximately 30-45 minutes to complete, and the participants were then presented with a debriefing form (Appendix N). Data were stored on a password-protected computer that was locked within a laboratory at Lakehead University. There are no known physical or psychological risks associated with completing any of the questionnaires in this study. Participants were advised that in the event they felt any internal discomfort after completing the questionnaires that they contact the Student Health and Counselling Centre at Lakehead University, or the Thunder Bay Crisis Response Service, to speak to a mental health service provider. The students were invited to email the researcher to receive a synopsis of the study's results.

Results

Bivariate correlational analysis, semi-partial correlational analysis, multiple regression analysis, and mediational analysis using a bootstrapped multivariate extension

(Preacher & Hayes, 2008) of the Sobel test (Baron & Kenny, 1986) were employed to examine the specified hypotheses. Due to the high number of comparisons calculated, a Bonferroni correction was adopted to reduce the potential threat of Type I error. All test statistics were evaluated at the .001 alpha level, with the exception of the mediational analyses as the bootstrap procedure controls Type I error rates.

Descriptive Statistics, Reliability, and Validity of Study Instruments

The scale characteristics of the measures of trait perfectionism, negative repetitive thought, psychological distress, and mindfulness were investigated in this student sample. Descriptive statistics and reliability estimates are presented in Table 2. The internal consistencies of the measures were estimated using coefficient alphas, and are all above the acceptable threshold of .70 (Nunnally, 1978). In terms of the overall level of distress in this student sample, the mean scores for the depression, anxiety, and stress scales of the DASS-21 fall into the “normal severity” category of symptomology, based on a five-point classification system (i.e., normal – mild – moderate – severe – extremely severe; Anthony et al., 1998).

The instruments measuring trait perfectionism, negative repetitive thought, psychological distress, and mindfulness were investigated in relation to a measure of response infrequency and a measure of social desirability. The PRF-IN was included to detect carelessness or other non-purposeful responding. One participant obtained a total score on the PRF-IN greater than the suggested cut-off of four, and therefore, was removed from the analyses (Jackson, 1984). The BIDR was employed to identify social desirability in responses, as measured by self-deception and impression management.

Table 2

Descriptive Statistics and Reliability Estimates of the Multidimensional Perfectionism Scale (MPS), the Penn State Worry Questionnaire (PSWQ), the Ruminative Responses Scale – Brooding (RRS-B), the Positive and Negative Affect Schedule (PANAS), the Depression Anxiety Stress Scales-21 (DASS-21), and the Five Facet Mindfulness Questionnaire (FFMQ), in a Student Sample (N = 213)

	Mean	SD	Range	Coefficient alpha
MPS-SOP	67.58	15.66	23 – 104	.89
MPS-OOP	56.14	10.99	26 – 93	.76
MPS-SPP	52.99	14.55	19 – 97	.87
PSWQ	52.97	14.39	17 - 80	.94
RRS-B	11.52	3.23	5 - 20	.78
PANAS-NA	22.54	7.39	10 – 46	.86
PANAS-PA	32.64	8.11	10 - 50	.91
DASS-21-D	3.79	4.30	0 – 21	.90
DASS-21-A	3.92	3.80	0 – 17	.78
DASS-21-S	6.39	4.28	0 – 18	.85
FFMQ	125.77	17.41	71 – 178	.88

Note. MPS-SOP = Multidimensional Perfectionism Scale – Self-Oriented Perfectionism Subscale; MPS-OOP = Multidimensional Perfectionism Scale – Other-Oriented Perfectionism Subscale; MPS-SPP = Multidimensional Perfectionism Scale – Socially Prescribed Perfectionism Subscale. PSWQ = Penn State Worry Questionnaire. RRS-B = Ruminative Responses Scale – Brooding Subscale. PANAS-NA = Positive and Negative Affect Schedule – Negative Affect Scale. PANAS-PA = Positive and Negative Affect Schedule – Positive Affect Scale. DASS-21-D = Depression Anxiety and Stress Scales-21 – Depression Scale; DASS-21-A = Depression Anxiety and Stress Scales-21 – Anxiety Scale; DASS-21-S = Depression Anxiety and Stress Scales-21 – Stress Scale. FFMQ = Five Facet Mindfulness Questionnaire.

Table 3

Bivariate Correlations between the Multidimensional Perfectionism Scale (MPS), the Penn State Worry Questionnaire (PSWQ), the Ruminative Responses Scale – Brooding (RRS-B), the Positive and Negative Affect Schedule (PANAS), the Depression Anxiety Stress Scales-21 (DASS-21), the Five Facet Mindfulness Questionnaire (FFMQ), and the Balanced Inventory of Desirable Responding (BIDR) and the Personality Research Form – Infrequency Scale (PRF-IN), in a Student Sample (N = 213)

	BIDR	BIDR-IM	BIDR-SDE	PRF-IN
MPS-SOP	.02	.02	.01	-.08
MPS-OOP	-.08	-.15	.02	.03
MPS-SPP	-.32*	-.20	-.34*	.01
PSWQ	-.29*	-.14	-.37*	-.06
RRS-B	-.22*	-.13	-.25*	-.02
PANAS-NA	-.33*	-.21	-.35*	.05
PANAS-PA	.22*	.08	.31*	.07
DASS-21-D	-.21	-.14	-.22*	.00
DASS-21-A	-.32*	-.32*	-.26*	-.06
DASS-21-S	-.32*	-.23*	-.31*	-.03
FFMQ	.49*	.32*	.52*	-.07

Note. MPS-SOP = Multidimensional Perfectionism Scale – Self-Oriented Perfectionism Subscale; MPS-OOP = Multidimensional Perfectionism Scale – Other-Oriented Perfectionism Subscale; MPS-SPP = Multidimensional Perfectionism Scale – Socially Prescribed Perfectionism Subscale. PSWQ = Penn State Worry Questionnaire. RRS-B = Ruminative Responses Scale – Brooding Subscale. PANAS-NA = Positive and Negative Affect Schedule – Negative Affect Scale; PANAS-PA = Positive and Negative Affect Schedule – Positive Affect Scale. DASS-21-D = Depression Anxiety and Stress Scales-21 – Depression Scale; DASS-21-A = Depression Anxiety and Stress Scales-21 – Anxiety Scale; DASS-21-S = Depression Anxiety and Stress Scales-21 – Stress Scale. FFMQ = Five Facet Mindfulness Questionnaire. BIDR = Balanced Inventory of Desirable Responding; BIDR-IM = Balanced Inventory of Desirable Responding – Impression Management Subscale; BIDR-SDE = Balanced Inventory of Desirable Responding – Self-Deceptive Enhancement. PRF-IN = Personality Research Form – Infrequency Scale. * $p < .001$.

Table 3 displays the bivariate correlations between the study instruments and the two validity measures. None of the study instruments correlated with the PRF-IN. Although some of the study instruments were significantly correlated with the BIDR and its subscales, the effect sizes associated with the intercorrelations between the study instruments remained when controlling for the BIDR scores. Therefore, social desirability was not controlled for in the subsequent analyses.

Relationships between the Dimensions of Trait Perfectionism, Negative Repetitive Thought, and Measures of Psychological Distress

The bivariate correlations between the dimensions of trait perfectionism, worry, rumination, negative affect, positive affect, depression, anxiety, and stress were examined and are presented in Table 4. When examining the intercorrelations between the measures of each construct, significant moderate positive correlations were revealed between the subscales of the MPS, and between the measures of negative repetitive thought, namely the PSWQ and the RRS-B. Significant strong positive correlations were calculated between the measures of psychological distress, specifically between the depression, anxiety, and stress scales of the DASS-21 and the negative affect subscale of the PANAS. A low negative correlation was found between the negative and positive affect scales of the PANAS. This pattern of relationships were as predicted.

The measures of negative repetitive thought and the measures of psychological distress correlated as expected. Both the PSWQ and the RRS-B obtained significant moderate to strong positive correlations with the depression, anxiety, and stress scales of the DASS-21 and the negative affect scale of the PANAS. A significant moderate negative correlation was found between the PSWQ and the positive affect scale of the

PANAS, while a significant low negative correlation was found between the RRS-B and the positive affect scale of the PANAS.

The relationships of the dimensions of trait perfectionism to negative repetitive thought and psychological distress are consistent with some previous research, and also provide some novel findings. As predicted, the socially prescribed perfectionism (SPP) subscale obtained significant moderate correlations with the PSWQ, the RRS-B, the negative affect scale of the PANAS, and the depression, anxiety, and stress scales of the DASS-21. A significant low negative correlation was found between the SPP subscale and the positive affect scale of the PANAS. The self-oriented perfectionism (SOP) subscale revealed a significant moderate positive relationship with the PSWQ, and significant low positive relationships with the RRS-B and the stress scale of the DASS-21. The SOP subscale was not significantly correlated with the positive and negative affect scales of the PANAS, or the depression and anxiety scales of the DASS-21. Furthermore, the other-oriented perfectionism (OOP) subscale was not significantly correlated with any of the negative repetitive thought or psychological distress measures.

To examine the independent contribution of each of the three dimensions of perfectionism to the measures of psychological distress, semi-partial correlational analyses were employed (see Table 5). The SOP and the OOP subscales did not reveal any significant semi-partial correlations with the measures of psychological distress. The SPP subscale revealed significant positive moderate semi-partial correlations with the negative affect scale of the PANAS, and the depression, anxiety, and stress scales of the DASS-21. A significant negative moderate semi-partial correlation emerged between the SPP subscale and the positive affect scale of the PANAS.

Relationships between the Dimensions of Trait Perfectionism, Negative Repetitive Thought, Psychological Distress, and the Facets of Mindfulness

To examine the relationships of trait perfectionism, worry, rumination, positive affect, negative affect, depression, anxiety, and stress, to mindfulness skills, bivariate correlational analyses were first employed (see Table 6). Significant moderate negative correlations were obtained between the total scores of the FFMQ, which measures mindfulness, and the other instruments, with the exception of the self-oriented perfectionism (SOP) subscale and the other-oriented perfectionism (OOP) subscale of the MPS. These two dimensions of perfectionism obtained no significant correlations with the FFMQ total scores or subscales. The observing subscale of the FFMQ did not reveal any significant correlations with the other instruments. The describing subscale of the FFMQ revealed a significant moderate negative correlation with the SPP subscale of the MPS, and a significant low positive correlation with the positive affect scale of the PANAS. Significant moderate to high correlations emerged between the acting with awareness subscale of the FFMQ and the other instruments, with the exceptions of the SOP and OOP subscales of the MPS. Significant moderate to high correlations were found between the non-judging of inner experience subscale of the FFMQ and the other instruments, with the exceptions of the SOP and OOP subscales of the MPS and the positive affect scale of the PANAS. Significant low to moderate correlations were found between the non-reacting to inner experience subscale of the FFMQ and the other instruments, with the exception of the SOP and OOP subscales of the MPS and the anxiety scale of the DASS-21.

Table 4

Bivariate Correlations between the Multidimensional Perfectionism Scale (MPS), the Penn State Worry Questionnaire (PSWQ), the Ruminative Response Scales – Brooding (RRS-B), the Positive and Negative Affect Schedule (PANAS), and the Depression Anxiety Stress Scales-21 (DASS-21), in a Student Sample (N = 213)

	1	2	3	4	5	6	7	8	9
1. MPS-SOP									
2. MPS-OOP	.43*								
3. MPS-SPP	.47*	.38*							
4. PSWQ	.37*	.14	.45*						
5. RRS-B	.22*	.14	.36*	.49*					
6. PANAS-NA	.17	.14	.37*	.52*	.51*				
7. PANAS-PA	.06	-.05	-.24*	-.35*	-.23*	-.21			
8. DASS-21-D	.13	.09	.34*	.45*	.52*	.59*	-.56*		
9. DASS-21-A	.15	.12	.35*	.40*	.38*	.59*	-.22*	.59*	
10. DASS-21-S	.24*	.14	.39*	.58*	.55*	.69*	-.35*	.66*	.61*

Note. MPS-SOP = Multidimensional Perfectionism Scale – Self-Oriented Perfectionism Subscale; MPS-OOP = Multidimensional Perfectionism Scale – Other-Oriented Perfectionism Subscale; MPS-SPP = Multidimensional Perfectionism Scale – Socially Prescribed Perfectionism Subscale. PSWQ = Penn State Worry Questionnaire. RRS-B = Ruminative Responses Scale – Brooding Subscale. PANAS-NA = Positive and Negative Affect Schedule – Negative Affect Scale. PANAS-PA = Positive and Negative Affect Schedule – Positive Affect Scale. DASS-21-D = Depression Anxiety and Stress Scales-21 – Depression Scale; DASS-21-A = Depression Anxiety and Stress Scales-21 – Anxiety Scale; DASS-21-S = Depression Anxiety and Stress Scales-21 – Stress Scale. * $p < .001$.

Table 5

Semi-Partial Correlations between the Dimensions of the Multidimensional Perfectionism Scale (MPS), and the Positive and Negative Affect Schedule (PANAS) and the Depression Anxiety Stress Scales-21 (DASS-21), in a Student Sample (N = 213)

	PANAS-PA	PANAS-NA	DASS-21-D	DASS-21-A	DASS-21-S
MPS-SOP	.18	-.05	-.03	-.03	.05
MPS-OOP	-.05	.02	-.01	.01	.00
MPS-SPP	-.37*	.40*	.39*	.41*	.35*

Note. MPS-SOP = Multidimensional Perfectionism Scale – Self-Oriented Perfectionism Subscale; MPS-OOP = Multidimensional Perfectionism Scale – Other-Oriented Perfectionism Subscale; MPS-SPP = Multidimensional Perfectionism Scale – Socially Prescribed Perfectionism Subscale. PANAS-NA = Positive and Negative Affect Schedule – Negative Affect Scale. PANAS-PA = Positive and Negative Affect Schedule – Positive Affect Scale. DASS-21-D = Depression Anxiety and Stress Scales-21 – Depression Scale; DASS-21-A = Depression Anxiety and Stress Scales-21 – Anxiety Scale; DASS-21-S = Depression Anxiety and Stress Scales-21 – Stress Scale. * $p < .001$.

Table 6

Bivariate Correlations between the Multidimensional Perfectionism Scale (MPS), the Penn State Worry Questionnaire (PSWQ), the Ruminative Response Scales – Brooding (RRS-B), the Positive and Negative Affect Schedule (PANAS), and the Depression Anxiety Stress Scales-21 (DASS-21), and the Facets of the Five Facet Mindfulness Questionnaire (FFMQ), in a Student Sample (N = 213)

	FFMQ					
	TOTAL	OBSERVE	DESCRIBE	AWARE	NON-JUDGE	NON-REACT
MPS-SOP	-.14	.05	-.09	-.05	-.18	-.15
MPS-OOP	-.13	.02	-.06	-.09	-.10	-.14
MPS-SPP	-.48*	-.05	-.32*	-.35*	-.41*	-.28*
PSWQ	-.46*	.03	-.12	-.41*	-.53*	-.35*
RRS-B	-.45*	.11	-.18	-.45*	-.55*	-.23*
PANAS-NA	-.41*	.10	-.14	-.48*	-.48*	-.21*
PANAS-PA	.47*	.16	.27*	.42*	.21	.39*
DASS-21-D	-.42*	.06	-.13	-.55*	-.36*	-.27*
DASS-21-A	-.34*	.12	-.18	-.40*	-.38*	-.12
DASS-21-S	-.43*	.03	-.12	-.44*	-.48*	-.25*

Note. MPS-SOP = Multidimensional Perfectionism Scale – Self-Oriented Perfectionism Subscale; MPS-OOP = Multidimensional Perfectionism Scale – Other-Oriented Perfectionism Subscale; MPS-SPP = Multidimensional Perfectionism Scale – Socially Prescribed Perfectionism Subscale. PSWQ = Penn State Worry Questionnaire. RRS-B = Ruminative Responses Scale – Brooding Subscale. PANAS-NA = Positive and Negative Affect Schedule – Negative Affect Scale. PANAS-PA = Positive and Negative Affect Schedule – Positive Affect Scale. DASS-21-D = Depression Anxiety and Stress Scales-21 – Depression Scale; DASS-21-A = Depression Anxiety and Stress Scales-21 – Anxiety Scale; DASS-21-S = Depression Anxiety and Stress Scales-21 – Stress Scale. FFMQ = Five Facet Mindfulness Questionnaire; FFMQ-OBSERVE = Five Facet Mindfulness Questionnaire – Observe Subscale; FFMQ-DESCRIBE = Five Facet Mindfulness Questionnaire – Describe Subscale; FFMQ-AWARE = Five Facet Mindfulness Questionnaire – Act with Awareness Subscale; FFMQ-NON-JUDGE = Five Facet Mindfulness Questionnaire – Non-Judging to Inner Experience Subscale.; FFMQ-NON-REACT = Five Facet Mindfulness Questionnaire – Non-Reactivity to Inner Experience Subscale. * $p < .001$.

Given that the self-oriented (SOP) and other-oriented (OOP) perfectionism subscales of the MPS were not significantly correlated with negative affect or the other measures of psychological distress (as seen in Table 4 and Table 5), or with mindfulness (as seen in Table 6), suggests that these dimensions of trait perfectionism may not be maladaptive. Thus, the subsequent analyses excluded the SOP and OOP subscales and focused on the socially prescribed perfectionism (SPP) subscale of the MPS.

Semi-partial correlational analyses were employed to examine the independent relationships of trait perfectionism, worry, rumination, positive affect, negative affect, depression, anxiety, and stress, to mindfulness skills (see Table 7). When examining the separate facets of mindfulness, the acting with awareness subscale revealed significant low to moderate semi-partial correlations with the measures of psychological distress. The non-judging of inner experience subscale revealed significant low to moderate negative semi-partial correlations with the SPP subscale of the MPS, the PSWQ, the RRS-B, the negative affect scale of the PANAS, and the stress scale of the DASS-21. The non-reacting to inner experience subscale revealed a significant low negative semi-partial correlation with the PSWQ and a significant low positive semi-partial correlation with the positive affect scale of the PANAS.

Negative Repetitive Thought Mediating the Relationship between Maladaptive Trait Perfectionism and Negative Affect in Low and High Mindfulness Groups

To investigate negative repetitive thought as a mediator between perfectionism and negative affect, and to examine how this mediational model is related to mindfulness, a low mindfulness group and a high mindfulness group were created. A tertile-split was employed to divide students into these two groups based on their total scores on the

FFMQ. The low mindfulness group ($n = 71$) consisted of individuals in the lowest tertile, with FFMQ total scores ranging from 71 to 119. The high mindfulness group ($n = 72$) consisted of individuals in the highest tertile, with FFMQ total scores ranging from 133 to 178. An independent samples t -test confirmed that the FFMQ total mean score was significantly lower in the low mindfulness group ($M = 107.62$; $SD = 11.55$) than the high mindfulness group ($M = 143.82$; $SD = 9.97$); $t(141) = 20.07$, $p < .001$.

Independent t -tests and non-parametric chi-square tests of independence were conducted to determine whether there were significant between group differences dependent on the demographic characteristics of the low mindfulness and high mindfulness groups (see Table 8). No significant group differences were found on the demographic characteristics, with the exception of age and marital status. Students in the high mindfulness group were significantly older and more likely to be married than the low mindfulness group, while students in the low mindfulness group were significantly younger and more likely to be single, $ps < .001$. These results suggest that differences between the two groups were independent of the demographic composition of the groups, apart from age and marital status, which were covaried in all subsequent analyses.

One-way analyses of covariance (ANCOVA) examined low and high mindfulness group differences on the mean scores of socially prescribed perfectionism, worry, rumination, negative and positive affect, depression, anxiety, and stress, while controlling for age and marital status (see Table 9). Significant group differences were found on each of these measures. Students in the high mindfulness group reported lower levels of socially prescribed perfectionism, worry, rumination, negative affect, depression, anxiety, and stress, and higher levels of positive affect, $ps < .001$.

Table 7

Semi-Partial Correlations between the Socially Prescribed Perfectionism Subscale of the Multidimensional Perfectionism Scale (MPS-SPP), the Penn State Worry Questionnaire (PSWQ), the Ruminative Response Scales – Brooding (RRS-B), the Positive and Negative Affect Schedule (PANAS), and the Depression Anxiety Stress Scales-21 (DASS-21), and the Facets of the Five Facet Mindfulness Questionnaire (FFMQ), in a Student Sample (N = 213)

	FFMQ				
	OBSERVE	DESCRIBE	AWARE	NON-JUDGE	NON-REACT
MPS-SPP	.00	-.18	-.11	-.24*	-.14
PSWQ	.01	.05	-.15	-.34*	-.23*
RRS-B	.07	-.05	-.18	-.34*	-.12
PANAS-NA	.06	.01	-.27*	-.25*	-.11
PANAS-PA	.05	.07	.30*	-.01	.25*
DASS-21-D	.05	.05	-.41*	-.08	-.18
DASS-21-A	.09	-.08	-.21*	-.19	-.04
DASS-21-S	-.02	.05	-.23*	-.29*	-.13

Note. MPS-SPP = Multidimensional Perfectionism Scale – Socially Prescribed Perfectionism Subscale. PSWQ = Penn State Worry Questionnaire. RRS-B = Ruminative Responses Scale – Brooding Subscale. PANAS-NA = Positive and Negative Affect Schedule – Negative Affect Scale. PANAS-PA = Positive and Negative Affect Schedule – Positive Affect Scale. DASS-21-D = Depression Anxiety and Stress Scales-21 – Depression Scale; DASS-21-A = Depression Anxiety and Stress Scales-21 – Anxiety Scale; DASS-21-S = Depression Anxiety and Stress Scales-21 – Stress Scale. FFMQ = Five Facet Mindfulness Questionnaire; FFMQ-OBSERVE = Five Facet Mindfulness Questionnaire – Observe Subscale; FFMQ-DESCRIBE = Five Facet Mindfulness Questionnaire – Describe Subscale; FFMQ-AWARE = Five Facet Mindfulness Questionnaire – Act with Awareness Subscale; FFMQ-NON-JUDGE = Five Facet Mindfulness Questionnaire – Non-Judging to Inner Experience Subscale; FFMQ-NON-REACT = Five Facet Mindfulness Questionnaire – Non-Reactivity to Inner Experience Subscale. * $p < .001$.

Table 8

Demographic Differences between the Low Mindfulness and High Mindfulness Groups

Variable	Low Mindfulness (<i>n</i> = 71)	High Mindfulness (<i>n</i> = 72)	<i>p</i>
Mean Age (years)	22.99	27.32	< .001*
Sex (female)	84.5%	84.7%	.972
Sexual Orientation (heterosexual)	93.0%	98.6%	.243
Ethnicity (white)	97.2%	95.8%	.732
Where From			.304
City (10, 000 or more)	71.4%	68.1%	
Town (1,000 – 9, 999)	24.3%	20.8%	
Village (100 – 999)	4.3%	11.1	
Marital Status			< .001*
Married	4.2%	22.5%	
Common Law	0.0%	2.8%	
Divorced/Separated	4.3%	5.6%	
Committed Relationship	47.1%	50.7%	
Single	44.2%	18.3%	
Employment Status			.120
Full-Time	17.1%	31.9%	
Part-Time	55.7%	47.2%	
Unemployed	27.1%	20.8%	
Annual Family Income			.676
\$0 – \$36, 378	36.6%	43.7%	
\$36, 379 – \$72, 756	23.9%	19.7%	
\$72, 757 – \$118, 285	19.7%	22.5%	
Over \$118, 286	19.7%	14.1%	
Educational Status (Full-Time)	77.1%	67.6%	.206
Year of University			.176
First	18.8%	11.4%	
Second	30.4%	24.3%	
Third	31.9%	28.6%	
Fourth	15.9%	24.3%	
Fifth	2.9%	5.7%	
Undergraduate Degree	0.0%	5.7%	
Diagnosed with Psychological Condition	23.9%	22.2%	.807
Treatment for Psychological Condition			.569
Counselling/ Therapy	8.6%	4.2%	
Medication	11.3%	12.5%	
Neither	80.3%	83.3%	

Note. *p*-value is associated with the results from an independent *t*-test (*t*) or a chi-square test of independence (pearson χ^2). **p* < .001.

Table 9

One-Way Analyses of Covariance (ANCOVA) comparing the Mean Scores of the Low Mindfulness and High Mindfulness Groups on the Multidimensional Perfectionism Scale-Socially Prescribed Perfectionism Subscale (MPS-SPP), the Penn State Worry Questionnaire (PSWQ), the Ruminative Response Scales – Brooding (RRS-B), the Positive and Negative Affect Schedule (PANAS), and the Depression Anxiety Stress Scales-21 (DASS-21), while controlling for Age and Marital Status

Variable	Low Mindfulness (n = 71)	High Mindfulness (n = 72)	F
MPS-SPP	60.55	44.69	36.95*
PSWQ	59.79	45.35	30.87*
RRS-B	13.20	9.99	34.25*
PANAS-NA	26.41	19.04	35.87*
PANAS-PA	28.68	36.31	37.53*
DASS-21-D	5.90	2.17	20.38*
DASS-21-A	5.20	2.51	15.63*
DASS-21-S	8.32	4.58	25.42*

Note. MPS-SPP = Multidimensional Perfectionism Scale – Socially Prescribed Perfectionism Subscale. PSWQ = Penn State Worry Questionnaire. RRS-B = Ruminative Responses Scale – Brooding Subscale. PANAS-NA = Positive and Negative Affect Schedule – Negative Affect Scale. PANAS-PA = Positive and Negative Affect Schedule – Positive Affect Scale. DASS-21-D = Depression Anxiety and Stress Scales-21 – Depression Scale; DASS-21-A = Depression Anxiety and Stress Scales-21 – Anxiety Scale; DASS-21-S = Depression Anxiety and Stress Scales-21 – Stress Scale. * $p < .001$.

The mediational effects of worry and rumination on the relationship between socially prescribed perfectionism and negative affect were assessed in both the low mindfulness and high mindfulness groups using a bootstrapped multivariate extension of the Sobel test (Baron & Kenny, 1986) developed by Preacher and Hayes (2008). This nonparametric resampling procedure addresses sensitivity to violations of normality, which is a current issue of the Sobel test. Five thousand random samples of the original size were taken from the data, replacing each value as it was sampled, and indirect effects were computed in each sample (see Preacher & Hayes, 2008). Additional benefits of this procedure are that it allows multiple mediators to be examined, and reports the individual effect of each mediator, controlling for the other. Furthermore, covariates are permitted to be included in the multiple mediator models. If the upper and lower bounds of the bias-corrected 95% confidence intervals do not contain zero, the indirect effect is significant.

Regression coefficient estimates and bias-corrected 95% confidence intervals were calculated for the evidence of mediation in the low mindfulness group and are displayed in Figure 1. Results revealed that worry (PSWQ) and rumination (RRS-B), both individually and in total, significantly mediated the relationship between socially prescribed perfectionism and negative affect, while controlling for age and marital status.

Next, regression coefficient estimates and bias-corrected 95% confidence intervals were calculated for the evidence of mediation in the high mindfulness group and are displayed in Figure 2. Results revealed that worry (PSWQ) significantly mediated the relationship between socially prescribed perfectionism and negative affect, while controlling for age and marital status. However, the meditating effect of rumination (RRS-B) was no longer significant in the high mindfulness group.

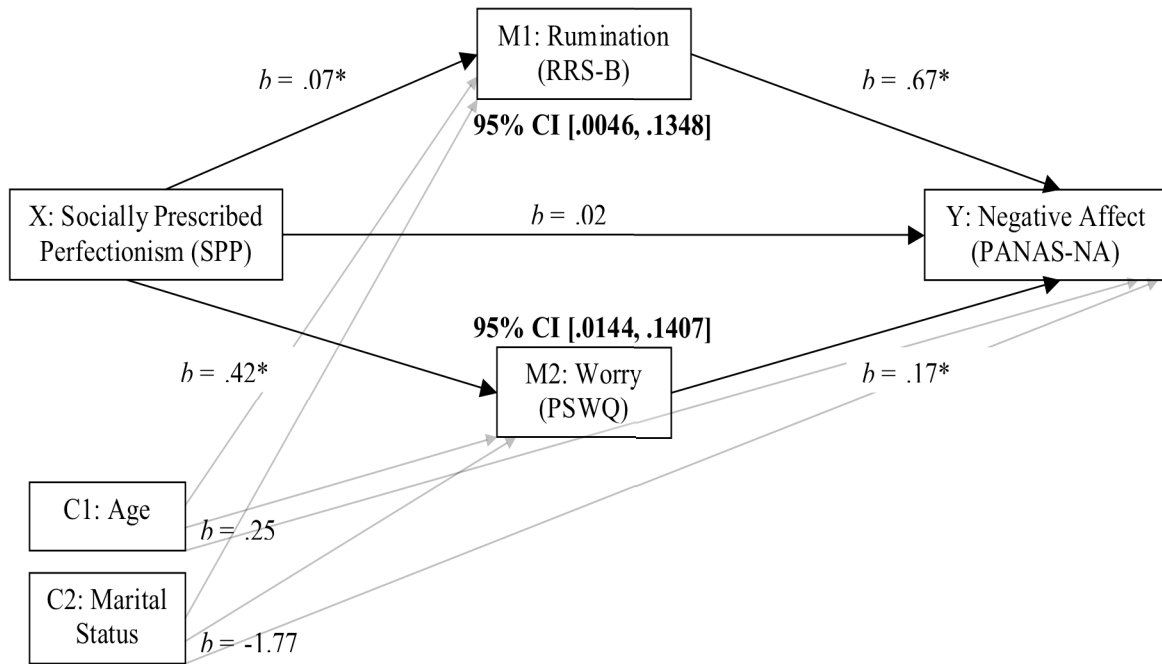


Figure 1. Indirect effects of the Penn State Worry Questionnaire (PSWQ) and the Ruminative Response Scales – Brooding (RRS-B) on the relationship between the Socially Prescribed Perfectionism Subscale (MPS-SPP) and the Negative Affect Scale (PANAS-NA), while controlling for age and marital status, in the low mindfulness group ($n = 71$). CI = Confidence Interval. $*p < .05$.

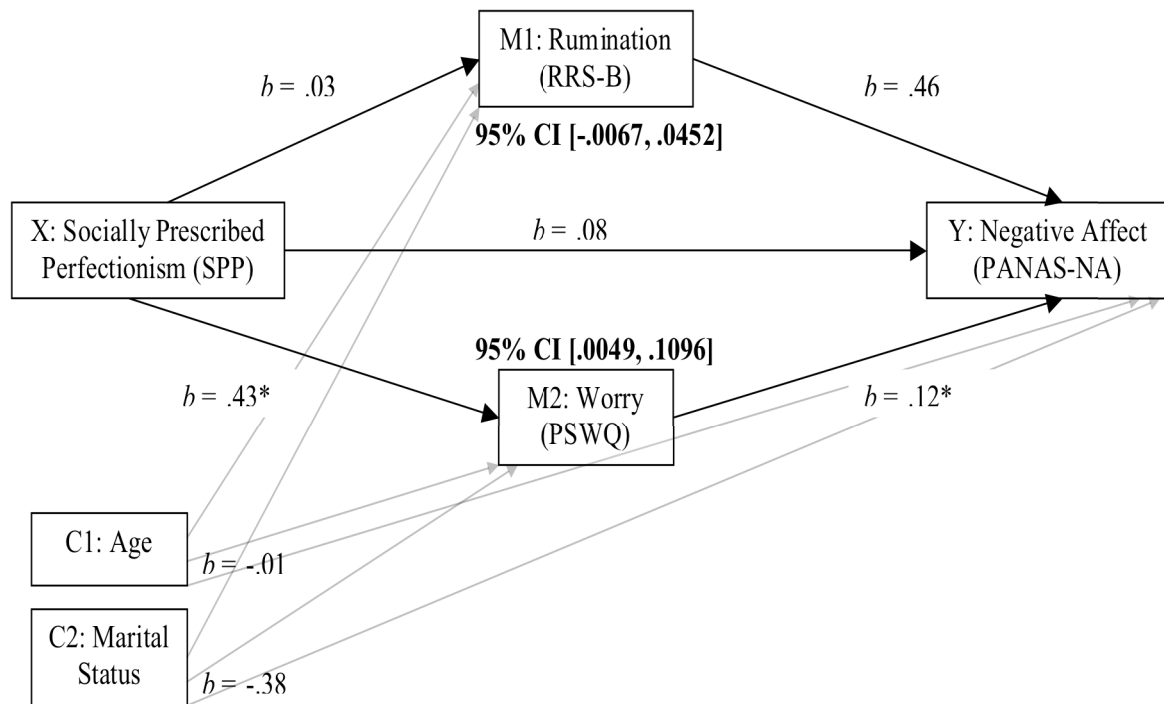


Figure 2. Indirect effects of the Penn State Worry Questionnaire (PSWQ) and the Ruminative Response Scales – Brooding (RRS-B) on the relationship between the Socially Prescribed Perfectionism Subscale (MPS-SPP) and the Negative Affect Scale (PANAS-NA), while controlling for age and marital status, in the high mindfulness group ($n = 72$). CI = Confidence Interval. $*p < .05$.

Discussion

The primary goal of the current investigation was to examine cognitive processes underlying trait perfectionism and psychological distress. Examining these meditational models in relation to mindfulness gives rise to potential treatment implications. This study particularly aimed to: (1) identify and clarify the relationships between trait perfectionism, negative repetitive thought, and psychological distress, (2) examine the mediating effects of both worry and rumination, on the relationships between trait perfectionism and psychological distress, and (3) provide preliminary evidence of the treatment implications of mindfulness. To date, this is the first investigation to examine the mediating roles of the separate cognitive processes of worry and rumination with trait perfectionism and negative affect, and to compare these multiple mediator models in relation to mindfulness. Identifying and clarifying the proposed relationships between trait perfectionism, negative repetitive thought, psychological distress, and mindfulness can aid in targeting mechanisms of change and reducing psychological distress.

The hypothesized relationships were examined in an undergraduate student sample in order to investigate perfectionism in a population that has been found to demonstrate high levels of this trait, and to examine these relationships in a high stress environment (Stoeber & Stoeber, 2009). Investigating perfectionism in this type of environment was important as the diathesis-stress view of perfectionism suggests that perfectionistic standards have the strongest maladaptive effects under stressful conditions (Flett & Hewitt, 2002).

From the analyses conducted here, it was observed that first, the dimensions of trait perfectionism revealed differential relationships with negative repetitive thought and

psychological distress. That is, socially prescribed perfectionism was strongly related to negative repetitive thought and psychological distress, self-oriented perfectionism was related to negative repetitive thought to a lesser extent, but not related to psychological distress with the exception of stress, and other-oriented perfectionism was not related to negative repetitive thought or psychological distress. Second, when examining the independent contribution of each of the three dimensions of perfectionism, only socially prescribed perfectionism indicated a unique relationship to psychological distress.

In considering the role of mindfulness in relation to these variables, negative repetitive thought, psychological distress, and socially prescribed perfectionism were strongly related to mindfulness, while self-oriented and other oriented perfectionism were not. When examining the independent contributions of the facets of mindfulness, the act with awareness and non-judging of inner experience facets, and to a lesser extent the non-reactivity to inner experience facet, revealed the strongest unique contributions. The high mindfulness group revealed significantly lower levels of socially prescribed perfectionism, negative repetitive thought, and psychological distress, compared to the low mindfulness group. Lastly, rumination and worry significantly mediated the relationship between socially prescribed perfectionism and negative affect in the low mindfulness group; however, when the multiple mediator model was examined in the high mindfulness group, the mediating effect of rumination was no longer present. These results make an important theoretical contribution to the understanding of trait perfectionism, and provide preliminary support of mindfulness training as a potential treatment approach.

The first aim of this investigation was to identify and clarify the relationships of the dimensions of perfectionism to negative repetitive thought and psychological distress. As hypothesized and consistent with previous research, socially prescribed perfectionism had the strongest relationship to negative repetitive thought and psychological distress. Although some authors argue that all three dimensions of perfectionism are related to psychological distress, the current results suggest that self-oriented and other-oriented perfectionism are not related to levels of negative affect or positive affect. To further support this claim, only socially prescribed perfectionism indicated a unique relationship to negative affect, depression, anxiety, and stress. These results relate to the debate regarding a dual-process model of perfectionism that asserts the presence of both maladaptive and adaptive aspects of perfectionism (Slade & Owens, 1998). The current findings suggest that independent of socially prescribed perfectionism, self-oriented and other-oriented perfectionism are benign when considering the absence of relationships between these dimensions of trait perfectionism and negative affect, depression, anxiety, and stress. That is, although it is possible that high degrees of self-oriented and other-oriented perfectionism may have an association with other positive outcomes, they do not appear to be associated with decreases in negative affect, depression, anxiety, or stress, or to increased levels of positive affect. The maladaptive or adaptive effects of self-oriented perfectionism remains unclear because on the one hand, authors have suggested that self-oriented perfectionism is driven by positive reinforcement and a desire for success (Slade & Owens, 1998), and on the other, have associated self-oriented perfectionism with demanding unrealistic standards of perfection for oneself (Hewitt et al., 1996). Furthermore, these results do not support the offered hypothesis that other-oriented

perfectionism may not be related to depression or anxiety, but would be associated with other forms of negative affect. Although other-oriented perfectionism has been positively associated with histrionic, narcissistic, and antisocial personality characteristics (Hewitt & Flett, 1991), it is possible that that people with other-oriented perfectionism may be protected against experiencing all forms of negative affect, including hostility and irritability, because they blame others for negative life events (Shafran & Mansell, 2001). Examining whether there are adaptive aspects of perfectionism is beyond the scope of this study, but is a critical issue as it has many implications for clinical practice and the treatment of psychopathology. If an adaptive form of perfectionism exists, then clinicians may aim to cultivate the “healthy” forms of this trait, or transform maladaptive perfectionism into more adaptive perfectionism.

A secondary aim of the current investigation was to explore the role of mindfulness for potential treatment implications. Socially prescribed perfectionism was strongly related to mindfulness, while self-oriented and other oriented perfectionism were not. These findings were not entirely surprising after finding no significant relationships between self-oriented and other-oriented perfectionism and psychological distress, and considering that mindfulness is related to decreasing distress and maintaining one’s well-being (Kim et al., 2009). Furthermore, it appears that some facets of mindfulness are more important than others with respect to socially prescribed perfectionism, and the other variables in the mediational model. In particular, the act with awareness and non-judging of inner experience facets, and to a lesser extent the non-reactivity to inner experience facet appear to be significant skills of mindfulness to engage in for targeting maladaptive perfectionism and its maladaptive effects. These findings are consistent with

the literature, which suggests that in mindfulness training observation of the stimuli in ones' environment alone is not sufficient for treatment of psychopathology (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Evidently, adopting an accepting, non-judgmental frame of mind is imperative in employing mindfulness as an effective treatment for psychological distress associated with maladaptive perfectionism.

Due to the fact that perfectionism has been found to be a stable trait variable, and thus difficult to modify, it is important to examine the underlying mechanisms linking perfectionism with psychological distress. Identifying these underlying, or mediating factors, gives insight into targets for treatment. The current results indicated that both worry and rumination help explain the link between socially prescribed perfectionism and negative affect. Although rumination was already established as a mediator between socially prescribed perfectionism and depression, the negative repetitive thought style of worry has not been the focus of much research in this area. These findings are consistent with previous research suggesting that trait perfectionists experience frequent and persistent cognitions regarding the perceived discrepancy between their actual self and their ideal self (Flett, Hewitt, Blankstein, & Grey, 1998).

Examining the multiple mediator model in both a low mindfulness group and high mindfulness group, differentiated based on dispositional levels, allowed this study to offer preliminary evidence towards the potential treatment benefits of mindfulness training. Results indicated that the high mindfulness group had significantly lower levels of all of the variables present in the mediator model, namely, socially prescribed perfectionism, negative repetitive thought, and psychological distress. Additionally, when the mediational model was examined in the high mindfulness group, the mediating effect

of rumination was no longer present. Thus, it appears that mindfulness skills may disrupt part of the maladaptive chain that underlies trait perfectionism and psychological distress. The overall theoretical and practical implications of the multiple mediator models suggest that in order to mitigate the maladaptive effects of socially prescribed perfectionism, treatment should target the persistent negative repetitive thought mechanisms of both rumination and worry, and that mindfulness training might particularly be helpful in decreasing the mediational effects of rumination.

Perfectionist personality styles have been found to predict psychological distress, particularly depression, and to also impede treatment (Shafran & Mansell, 2001). Few studies have shown the effective treatment of perfectionism, despite the various studies that have indicated the maladaptive effects of having a perfectionist personality. While standard principles of cognitive-behavioural therapy, such as thought records, behavioral experiments, and exposure have been suggested in the treatment of perfectionism (Antony & Swinson, 1998), these methods have not been thoroughly examined through empirical examination (Shafran & Mansell, 2001). Many authors voice concerns regarding the difficulties of changing cognitions related to perfectionism to more realistic and adaptive thoughts through traditional cognitive therapy. What is more, the notion of acceptance is ostensibly important in understanding maladaptive perfectionism. Research has indicated that maladaptive perfectionism is related to decreased levels of unconditional self-acceptance, which may be explained by the postulation that these individuals will demand for perfection, rather than strive for perfection (Flett, Besser, Davis, & Hewitt, 2003; Lundh, 2004). These findings indicate that specific interventions

for perfectionism are warranted, and mindfulness-based training, with its clear emphasis on acceptance, appears to be a promising approach to tackle this treatment dilemma.

Limitations

Several important limitations to the present study must be mentioned. First, the current study included the use of a single modality, namely, self-report as the main measurement tool. Utilizing other modalities to examine perfectionism, negative repetitive thought, psychological distress, and mindfulness would aid in assessing the entire construct. However, as previously mentioned, the self-report instruments employed indicate well-established psychometric properties, and social desirability and infrequency scales were employed in order to rule out response bias and careless responding.

More to the point, there is no consensus on a measure or model of perfectionism. While the goal of the present research was to examine trait perfectionism, it does not take into consideration the importance of other perfectionist facets not measured by the MPS, such as self-relevant perfectionistic cognitions (Flett et al., 1998). It would be important to examine the influence of perfectionism on negative repetitive thought and psychological distress based on other models and measures of perfectionism.

A further limitation is the clear homogeneity of the sample. The student sample in the current study was predominately White. As discussed by Chang (1998), given that Asians report greater perfectionist tendencies than Whites, it is important to determine the extent to which ethnic or racial differences affect perfectionism.

Another limitations may lie in the single measurement design of the current study. All of the data were collected in one time period, and although the goal of the study was to examine a “snap-shot” of the relationships occurring in the sample, this design does

not allow examination of how these variables interact over time. Lastly, due to the fact that participants self-selected into the low and high mindfulness groups based on dispositional mindfulness scores, characteristics associated with self-selection may be related to the outcome variables. While this is a limitation, demographic between group differences were investigated and controlled for as covariates for all analyses examining the differences between the low and high mindfulness groups.

Future Research

The results from the current investigation provide a number of interesting avenues for future research. These findings should be replicated in other samples, and with other measures of psychological distress. As noted earlier, this sample was predominately White; therefore, it would be useful to extend this research to more diverse samples. As well, it is possible that the relationships between trait perfectionism, negative repetitive thought, psychological distress, and mindfulness could differ in clinical populations, specifically in individuals diagnosed with mood and anxiety disorders. Finally, the research literature supports numerous instruments designed to measure various forms of psychological distress, such as depression, anxiety, and stress. In general, it is important to replicate these findings and extend them to other psychometrically supported self-report instruments, as well as other measurement modalities.

Although this study did not examine sex differences, future research would benefit from investigating the mediational models of trait perfectionism and the potential treatment effects of mindfulness in samples of women and men. Previous research has provided evidence that the dimensions of trait perfectionism vary according to gender or sex. That is, more socially prescribed perfectionism and self-oriented perfectionism, and

less other-oriented perfectionism differentiate women from men (Masson, Cadot, & Anseau, 2003). Moreover, women tend to be more perfectionistic than men in certain domains of their lives, such as dress, orderliness, and time management (Stoeber & Stoeber, 2009).

This study suggests that self-oriented and other-oriented perfectionism are not related to maladaptive symptom outcomes; however, future research should include adaptive outcomes, such as self-regulatory or coping skills, to investigate whether these forms of perfectionism are benign or indeed adaptive. Hewitt and Flett (2007) have suggested that although some dimensions of perfectionism may be associated with adaptive variables concurrently, perfectionism is associated with an increase in psychological distress over time when one does not attain their goals, thus indicating that all perfectionism is maladaptive. Longitudinal studies should be conducted to determine the adaptive and maladaptive outcomes of the dimensions of perfectionism over time.

Furthermore, it is possible that there are reciprocal relationships between negative repetitive thoughts and negative affect. An experimental design, incorporating negative repetitive thought inductions would extend the current research and highly benefit this area of investigation. Finally, this investigation sets the groundwork for future studies that could employ a mindfulness training program to empirically test the effects of mindfulness on trait perfectionism, negative repetitive thought, and psychological distress, over time. It would be interesting to examine negative repetitive thought as a mediator between maladaptive trait perfectionism and psychological distress after cultivating or enhancing levels of dispositional mindfulness. Research of this nature can contribute to the development of treatment and prevention programs of psychological

distress related to trait perfectionism, which can be incorporated into mental health and community settings, and especially into university student centers.

Conclusions

The research literature examining the maladaptive outcomes of trait perfectionism has produced some conflicting results. It is important that research efforts are dedicated to examine the mechanisms by which maladaptive symptoms develop, so that treatment can be targeted effectively. The current investigation generated greater knowledge of the adverse effects of maladaptive trait perfectionism, and provided potential treatment directions. Based on the presented results, this study provides support for several conclusions. First, socially prescribed perfectionism is clearly a maladaptive form of trait perfectionism and is strongly related to psychological distress, including general negative affect, depression, anxiety, and stress. However, although the debate over the adaptive aspects of perfectionism remains in the literature, self-oriented and other-oriented perfectionism appear unrelated to general positive and negative affect. Second, the negative repetitive thought patterns of worry and rumination are both important underlying mechanisms in explaining the relationship between socially prescribed perfectionism and psychological distress, particularly negative affect. In terms of the role of mindfulness, the facets of acting with awareness, non-judging of inner experience, and to a lesser extent non-reactivity to inner experience, are the most strongly related to socially prescribed perfectionism, worry, and rumination. Moreover, in the presence of high levels of dispositional mindfulness, rumination is no longer a mediating mechanism between socially prescribed perfectionism and negative affect, thus suggesting that

mindfulness skills acquisition may be an effective treatment for socially prescribed trait perfectionism.

The current investigation goes beyond a descriptive analysis to a more functional understanding of the relationships between maladaptive perfectionism and psychological distress. It is important that research efforts are dedicated to examine the mechanisms by which maladaptive symptoms develop, so that treatment can be targeted effectively. This research sets the groundwork for future studies that could employ a mindfulness skills training program to empirically test the effects of mindfulness on trait perfectionism, negative repetitive thought, and psychological distress, over time. In sum, this examination has provided insight in clarifying the relationships between the dimensions of trait perfectionism and positive and negative affective states. These results have provided further understanding regarding the cognitive mechanisms underlying perfectionism and psychological distress and insight into potential treatment and prevention programs for maladaptive trait perfectionism.

References

- Antony, M. M., Bieling, P. J., Cox, B. J., Enns, M. W., & Swinson, R. P. (1998). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress scales in clinical groups and a community sample. *Psychological Assessment, 10*, 176-181. doi:10.1016/j.jad.2008.01.023
- Antony, M. M., Purdon, C. L., Huta, V., & Swinson, R. P. (1998). Dimensions of perfectionism across the anxiety disorders. *Behaviour Research and Therapy, 36*, 1143-1154. doi:10.1016/S0005-7967(98)00083-7
- Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness, *Assessment, 13*(1), 27-45. doi:10.1177/1073191105283504
- Baer, R. A., Smith, G. T., Lykins, E., Button, D., Krietemeyer, J., Sauer, S., . . . Williams, J. M. G. (2008). Construct validity of the Five Facet Mindfulness Questionnaire in meditating and nonmeditating samples. *Assessment, 15*(3), 329-342. doi:10.1177/1073191107313003
- Barnhofer, T., Crane, C., Hargus, E., Amarasinghe, M., Winder, R., & Williams, J. M. G. (2009). Mindfulness-based cognitive therapy as a treatment for chronic depression: A preliminary study. *Behaviour Research and Therapy, 47*, 366–373. doi:10.1016/j.brat.2009.01.019
- Barlow, D. H., & DiNardo, P. A. (1991). The diagnosis of generalized anxiety disorder: Development, current status, and future directions. In R. M. Rapee & D. H. Barlow (Eds.), *Chronic anxiety: Generalized anxiety disorder and mixed anxiety-depression* (pp. 95–118). New York, NY: Guilford Press.

- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
doi:10.1037/0022-3514.51.6.1173
- Blanstein, K. R., & Lemley, C. H. (2008). Multidimensional perfectionism and ruminative brooding in current dysphoria, anxiety, worry, and anger. *Journal of Rational Emotive Cognitive Behavioral Therapy, 26*, 168-193.
doi:10.1007/s10942-007-0068-z
- Blatt, S. J., & Zuroff, D. C. (2002). Perfectionism in the therapeutic process. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 393–406). Washington, DC: American Psychological Association.
- Borkovec, T. D., & Inz, J. (1991). The nature of worry in generalized anxiety disorder: a predominance of thought activity. *Behaviour Research and Therapy, 28*, 153–158.
doi:10.1016/0005-7967(90)90027-G
- Borkovec, T. D., Robinson, E., Pruzinsky, T., & DePree, J. A. (1983). Preliminary exploration of worry: Some characteristics and processes. *Behaviour Research and Therapy, 21*, 9–16. doi:10.1016/0005-7967(83)90121-3
- Brown, T. A., Anthony, M. M., & Barlow, D. H. (1992). Psychometric properties of the Penn State Worry Questionnaire in a clinical anxiety disorders sample. *Behavior Research and Therapy, 30*, 33-37. doi:10.1016/0005-7967(92)90093-V
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*, 822– 848. doi:10.1037/0022-3514.84.4.822

- Chang, E. C. (1998). Cultural differences, perfectionism, and suicidal risk in a college population: Does social problem solving still matter? *Cognitive Therapy and Research, 22*, 237-254. doi:10.1023/A:1018792709351
- Chang, E. C., Sanna, L. J., Chang, R., & Bodem, M. R. (2008). A preliminary look at loneliness as a moderator of the link between perfectionism and depressive and anxious symptoms in college students: Does being lonely make perfectionistic strivings more distressing? *Behavior Research and Therapy, 46*, 877-886. doi: doi:10.1016/j.brat.2008.03.012
- Chelminski, I., & Zimmerman, M. (2003). Pathological worry in depressed and anxious patients. *Journal of Anxiety Disorders, 17*, 533–546. doi:10.1016/S0887-6185(02)00246-3
- Craigie, M. A., Rees, C. S., & Marsh, A. (2008). Mindfulness-based cognitive therapy for generalized anxiety disorder: A preliminary evaluation. *Behavioural and Cognitive Psychotherapy, 36*, 553–568. doi:10.1017/S135246580800458X
- Crawford, J. R., & Henry, J. D. (2004). The Positive and Negative Affect Schedule (PANAS): Construct validity, measurement properties and normative data in a large non-clinical sample. *British Journal of Clinical Psychology, 43*, 245-265. doi:10.1348/0144665031752934
- Dugas, M. J., Gagnon, F., Ladouceur, R., & Freeston, M. H. (1998). Generalized anxiety disorder: A preliminary test of a conceptual model. *Behaviour Research and Therapy, 36*, 215–226. doi:10.1016/S0005-7967(97)00070-3
- Evans, S., Ferrando, S., Findler, M., Stowell, C., Smart, C., & Haglin, D. (2008). Mindfulness-based cognitive therapy for generalized anxiety disorder. *Journal of*

- Anxiety Disorders*, 22, 716-721. doi:10.1016/j.janxdis.2007.07.005
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175-191. Retrieved from <http://brm.psychonomic-journals.org/>
- Flett, G. L., Besser, A., Davis, R. A. & Hewitt, P. L. (2003). Dimensions of perfectionism, unconditional self-acceptance, and depression. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 21(2), 119-138. Retrieved from <http://www.springer.com/psychology/journal/10942>
- Flett, G. L., & Hewitt, P. L. (2002). *Perfectionism: Theory, research, and treatment*. Washington, D.C.: American Psychological Association.
- Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Gray, L. (1998). Psychological distress and the frequency of perfectionistic thinking. *Journal of Personality and Social Psychology*, 75(5), 1363-1381. Retrieved from <http://www.apa.org/pubs/journals/psp/index.aspx>
- Flett, G. L., Hewitt, P. L., & DeRosa, T. (1996). Dimensions of perfectionism, psychosocial adjustment, and social skills. *Personality and Individual Differences*, 20, 143 – 150. doi:10.1016/0191-8869(95)00170-0
- Flett, G. L., Madorsky, D., Hewitt, P. L., & Heisel, M. J. (2002). Perfectionism cognitions, rumination, and psychological distress. *Journal of Rational-Emotive and Cognitive-Behavior Therapy*, 20, 33-47. doi:10.1023/A:1015128904007
- Forman, E. M., Herbert, J. D., Moitra, E., Yeomans, P. D., & Geller, P. A. (2007). A randomized controlled effectiveness trial of acceptance and commitment therapy

and cognitive therapy for anxiety and depression. *Behavior Modification*, *31*(6), 772-799. doi:10.1177/0145445507302202

Goring, H. J., & Papageorgiou, C. (2008). Rumination and worry: Factor analysis of self-report measures in depressed participants. *Cognitive Therapy and Research*, *32*, 554-566. doi:10.1007/s10608-007-9146-x

Grzegorek, J. L., Slaney, R. B., Franze, S., & Rice, K. G. (2004). Self-criticism, dependency, self-esteem, and grade point average satisfaction among clusters of perfectionists and nonperfectionists. *Journal of Counseling Psychology*, *51*(2), 192-200. doi:10.1037/0022-0167.51.2.192

Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour Research and Therapy*, *44*, 1-25. doi:10.1016/j.brat.2005.06.006

Hayes, S. C., Strosahl, K. D., Wilson, K. G., Bissett, R. T., Pistorello, J., Toarmino, D., et al. (2004). Measuring experiential avoidance: A preliminary test of a working model. *The Psychological Record*, *54*, 553-578. doi:10.1007/s10862-008-9082-4

Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology*, *44*, 227-239. doi:10.1348/014466505X29657

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. Retrieved from <http://www.apa.org/pubs/journals/psp/>

- Hewitt, P. L., & Flett, G. L. (2002). *Perfectionism: Theory, research, and treatment*. Washington, D.C.: American Psychological Association.
- Hewitt, P. L., & Flett, G. L. (2007). When does conscientiousness become perfectionism? *Current Psychiatry, 6*(7), 49-64. Retrieved from:
<http://www.jfponline.com/Pages.asp?AID=5135>
- 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. Retrieved from
<http://www.apa.org/pubs/journals/abn/>
- Jackson, D. N. (1984). *Personality Research Form manual* (3rd ed.). Port Huron, MI: Research Psychologists Press.
- Lundh, L. G. (2004). Perfectionism and acceptance. *Journal of Rational-Emotive & Cognitive-Behavior Therapy, 22*(4), 251-265.
doi:10.1023/B:JORE.0000047311.12864.27
- Kabat-Zinn, J. (1994). *Wherever you go there you are*. New York, NY: Hyperion.
- Kim, Y. W., Lee, S. H., Choi, T. K., Suh, S. Y., Kim, B., Kim, C. M., . . . Yook, K. H. (2009). Effectiveness of mindfulness-based cognitive therapy as an adjuvant to pharmacotherapy in patients with panic disorder or generalized anxiety disorder. *Depression and Anxiety, 26*, 601– 606. doi:10.1002/da.20552
- Marlatt, G. A., & Kristellar, J. L. (1999). Mindfulness and meditation. In W. R. Miller (Ed.), *Integrating spirituality into treatment* (pp. 67–84). Washington, DC: American Psychological Association.
- Ma, S. H., & Teasdale, J. D. (2004). Mindfulness-based cognitive therapy for depression:

- Replication and exploration of differential relapse prevention effects. *Journal of Consulting and Clinical Psychology*, 72, 31-40. doi:10.1037/0022-006X.72.1.31
- Masson, A.M., Cadot, M., & Anseau, M. (2003). Failure effects and gender differences in perfectionism. *Encephale*, 29(2), 125-135. Retrieved from http://www.elsevier.com/wps/find/journaldescription.cws_home/709657/description#description
- Meyer, T. J., Miller, M. L., Metzger, R. L., & Borkovec, T. D. (1990). Development and validation of the Penn State Worry Questionnaire. *Behaviour Research and Therapy*, 28, 487-495. doi:10.1016/0005-7967(90)90135-6
- Mills, J., & Blankstein, K. (2000). Perfectionism, intrinsic vs. extrinsic motivation, and motivated strategies for learning: A multidimensional analysis of university students. *Personality and Individual Differences*, 29(6), 1191-1204. doi:10.1016/S0191-8869(00)00003-9
- Molina, S., & Borkovec, T. D. (1994). The Penn State Worry Questionnaire: Psychometric properties and associated characteristics. In G. C. L. Davey & F. Tallis (Eds.), *Worrying: Perspectives on theory, assessment, and treatment* (pp. 265-283). New York: Wiley.
- Napoli, M., Krech, P. R., & Holley, L. C. (2005). Mindfulness training for elementary school students: The attention academy. *Journal of Applied School Psychology*, 21(1), 99-125. doi:10.1300/J008v21n01_05
- Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of depressive episodes. *Journal of Abnormal Psychology*, 100, 569-582. doi:10.1016/S0165-0327(99)00015-4

- Nolen-Hoeksema, S. (2000). The role of rumination in depressive disorders and mixed anxiety/depressive symptoms. *Journal of Abnormal Psychology, 109*, 504–511. doi:10.1037/10021-843X.109.3.504
- Nolen-Hoeksema, S., & Morrow, J. (1991). A prospective study of depression and posttraumatic stress symptoms after a natural disaster: The 1989 Loma Prieta earthquake. *Journal of Personality and Social Psychology, 61*, 115 -121. doi:10.1037/0022-3514.61.1.115
- Nolen-Hoeksema, S., Morrow, J., & Fredrickson, B. L. (1993). Response styles and the duration of episodes of depressed mood. *Journal of Abnormal Psychology, 102*, 20–28. doi:10.1016/j.jad.2006.10.017
- Nunnally, J. C. (1978). *Psychometric Theory*. New York, NY: McGraw-Hill.
- O'Connor, D. B., O'Connor, R. C., Marshall, R. (2007). Perfectionism and psychological distress: Evidence of the mediating effects of rumination. *European Journal of Personality, 21*, 429-452. doi:10.1002/per.616
- Paulhus, D. L. (1988). *Assessing self deception and impression management in self-reports: the Balanced Inventory of Desirable Responding*. Manual available from the author at the Department of Psychology, University of British Columbia, Vancouver BC, Canada V6T 1Y7.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*, 879-891. doi:10.3758/BRM.40.3.879

- Ree, M. J., & Craigie, M. A. (2007). Outcomes following mindfulness-based cognitive therapy in a heterogeneous sample of adult outpatients. *Behavior Change, 24*, 70-86. doi:10.1375/behc.24.2.70
- Roemer, L., Salters, K., Raffa, S., & Orsillo, S. M. (2005). Fear and avoidance of internal experiences in generalized anxiety disorder: Preliminary tests of a conceptual model. *Cognitive Therapy and Research, 29*, 71–88.
doi:10.1007/s10608-005-1650-2
- Schneier, R., Johnson, J., Hornig, C., Liebowitz, M.R., & Weissman, M.M. (1992). Social phobia: Comorbidity and morbidity in an epidemiologic sample. *Archives of General Psychiatry, 49*, 282–288. Retrieved from <http://archpsyc.ama-assn.org/>
- Segerstrom, S. C., Tsao, J. C. I., Alden, L. E., & Craske, M. G. (2000). Worry and rumination: Repetitive thought as a concomitant and predictor of negative mood. *Cognitive Therapy and Research, 24*, 671– 688. doi:10.1023/A:1005587311498
- Shafran, R., & Mansell, W. (2001). Perfectionism and psychopathology: A review of research and treatment. *Clinical Psychology Review, 21*, 879-906.
doi:10.1016/S0272-7358(00)00072-6
- Short, M. M., & Mezo, P. G. (2009). *Investigating the repetitive thought patterns of worry and rumination in relation to negative affect*. Poster presented at the Association for Behavioral and Cognitive Therapies 43nd Annual Convention, New York, United States.
- Short, M. M., & Mezo, P. G. (2010, November). *Independent contributions of mindfulness and self-management skills to negative repetitive thought*. Poster

- presented at the Association for Behavioral and Cognitive Therapies 44th Annual Convention, San Francisco, California, United States.
- Slade, P. D., & Owens, R. G. (1998). A dual process model of perfectionism based on reinforcement theory. *Behavioral Modification, 22*, 372 – 390.
doi:10.1177/01454455980223010
- Starcevic, V. (1995). Pathological worry in major depression: A preliminary report. *Behaviour Research and Therapy, 33*, 55–56. doi:10.1016/0005-7967(93)E0028-4
- Starcevic, V., Berle, D., Milicevic, B., Hannan, A., Lamplugh, C., & Eslick, G. D. (2007). Pathological worry, anxiety disorders and the impact of co-occurrence with depressive and other anxiety disorders. *Journal of Anxiety Disorders, 21*, 1016-1027. doi:10.1016/j.janxdis.2006.10.015
- Statistics Canada (2002). *The Canadian Community Health Survey on Mental Health and Wellbeing*. Retrieved from Statistics Canada: <http://www.statcan.gc.ca/concepts/hs-es/index-eng.htm>
- Stevens, M. J., & Pfost, K. S. (1984). Stress management interventions. *Journal of College Student Personnel, 25*, 269 – 270. Retrieved from: psycnet.apa.org
- Stober, J., & Stober, F. S. (2009). Domains of perfectionism: Prevalence and relationships with perfectionism, gender, age, and satisfaction with life. *Personality and Individual Differences, 46*, 530-535. doi:10.1016/j.paid.2008.12.006
- Treynor, W., Gonzalez, R., & Nolen-Hoeksema, S. (2003). Rumination reconsidered: A psychometric analysis. *Cognitive Therapy and Research, 27*, 247-259.
doi:10.1023/A:1023910315561
- van Rijsoort, S., Emmelkamp, P., & Vervaeke, G. (1999). The Penn State Worry

- Questionnaire and the Worry Domains Questionnaire: Structure, reliability, and validity. *Clinical Psychology and Psychotherapy*, 6, 297-307. Retrieved from <http://ca.wiley.com/WileyCDA/WileyTitle/productCd-CPP.html>
- Watkins, E. R. (2008). Constructive and unconstructive repetitive thought. *Psychological Bulletin*, 143(2), 163-206. doi:10.1037/0033-2909.134.2.163
- Watkins, E., Moulds, M., & Mackintosh, B. (2005). Comparisons between rumination and worry in a non-clinical population. *Behaviour Research and Therapy*, 43, 1577–1585. doi:10.1016/j.brat.2004.11.008
- Watson, D., Clark, L.A., & Carey, G. (1988). Positive and negative affectivity and their relation to anxiety and depressive disorders. *Journal of Abnormal Psychology*, 97, 346-353. Retrieved from <http://www.apa.org/pubs/journals/abn/index.aspx>
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scale. *Journal of Personality and Social Psychology*, 54, 1063-1070. doi:10.1037/0022-3514.54.6.1063

Appendix A

Demographic Information Form



Demographic Information

Participant #: _____

1. Age: _____
2. Sex: ___ Male ___ Female
3. Sexual Orientation: ___ Heterosexual ___ Lesbian/Gay ___ Bisexual ___ Questioning ___ Other <i>please specify</i> _____
4. Ethic Identity: Rank number all that apply (1 for primary ethnicity, 2 for secondary, etc.) ___ Aboriginal (Inuit, Metis, North American Indian) ___ Arab/West Asian (e.g., Armenian, Egyptian, Iranian, Lebanese, Moroccan) ___ Black (e.g., African, Haitian, Jamaican, Somali) ___ Chinese ___ Filipino ___ Japanese ___ Korean ___ Latin American ___ South Asian ___ South East Asian ___ White (Caucasian) ___ Other <i>please specify all that apply in order of ethnic identity (most to least)</i> _____
5. Relationship Status: ___ Married ___ Divorced ___ Committed Relationship ___ Single ___ Other <i>please specify</i> _____

<p>6. Where are you from?</p> <p><input type="checkbox"/> City (population of 10 000 or more)</p> <p><input type="checkbox"/> Town (population of 1 000 – 9999)</p> <p><input type="checkbox"/> Village (population of 100 – 999)</p> <p><input type="checkbox"/> Other (please specify) _____</p>
<p>7. Employment Status:</p> <p><input type="checkbox"/> Full-Time Employment</p> <p><input type="checkbox"/> Part-Time Employment</p> <p><input type="checkbox"/> Unemployed</p>
<p>8. Estimated annual family income:</p> <p><input type="checkbox"/> \$0 - \$ 36,378</p> <p><input type="checkbox"/> \$ 36, 379 - \$72, 756</p> <p><input type="checkbox"/> \$ 72, 757 - \$118, 285</p> <p><input type="checkbox"/> over \$118, 286</p>
<p>9. Educational Status:</p> <p><input type="checkbox"/> Full-Time Student</p> <p><input type="checkbox"/> Part-Time Student</p>
<p>10. Year of University:</p> <p><input type="checkbox"/> First Year <input type="checkbox"/> Second Year <input type="checkbox"/> Third Year <input type="checkbox"/> Fourth Year</p> <p><input type="checkbox"/> Other <i>please specify</i> _____</p>
<p>11. Have you declared a Major? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, what is your major? _____</p> <p><i>Note: If Psychology please indicate if science or arts.</i></p>

12. Have you ever been diagnosed with a psychological, emotional, or psychiatric condition(s)? Yes No

If Yes, please list the name of the condition(s) (if known):

13. Are you currently receiving counselling, therapy, or medication for a psychological, emotional, or psychiatric condition(s)?

Counselling/Therapy Medication Neither

If you answered "Counselling/Therapy" above, please list the name of the condition(s) which you are receiving counselling/therapy for and the type of counselling/therapy you are receiving (if known):

If you answered "Medication" above, please list the name of the condition(s) which you are receiving medication for and the type of medication you are receiving (if known):

Appendix B

Multidimensional Perfectionism Scale



Participant #: _____

MPS

Listed below are a number of statements concerning personal characteristics and traits. Read each item and decide whether you agree or disagree and to what extent.								
1 = Strongly disagree 2 3 4 = Undecided 5 6 7 = Strongly agree		Strongly disagree	Undecided				Strongly agree	
1.	When I am working on something, I cannot relax until it is perfect.	1	2	3	4	5	6	7
2.	I am not likely to criticize someone for giving up too easily.	1	2	3	4	5	6	7
3.	It is not important that people I am close to are successful.	1	2	3	4	5	6	7
4.	I seldom criticize my friends for accepting second best.	1	2	3	4	5	6	7
5.	I find it difficult to meet others' expectations of me.	1	2	3	4	5	6	7
6.	One of my goals is to be perfect in everything I do.	1	2	3	4	5	6	7
7.	Everything that others do must be of top-notch quality.	1	2	3	4	5	6	7
8.	I never aim for perfection in my work.	1	2	3	4	5	6	7
9.	Those around me readily accept that I can make mistakes too.	1	2	3	4	5	6	7
10.	It doesn't matter when someone close to me does not do their absolute best.	1	2	3	4	5	6	7
11.	The better I do, the better I am expected to do.	1	2	3	4	5	6	7
12.	I seldom feel the need to be perfect.	1	2	3	4	5	6	7
13.	Anything I do that is less than excellent will be seen as poor work by those around me.	1	2	3	4	5	6	7
14.	I strive to be as perfect as I can be.	1	2	3	4	5	6	7
15.	It is very important that I am perfect in everything I attempt.	1	2	3	4	5	6	7
16.	I have high expectations for the people who are important to me.	1	2	3	4	5	6	7
17.	I strive to be the best at everything I do.	1	2	3	4	5	6	7

		Strongly disagree			Undecided			Strongly agree
18.	The people around me expect me to succeed at everything I do.	1	2	3	4	5	6	7
19.	I do not have very high standards for those around me.	1	2	3	4	5	6	7
20.	I demand nothing less than perfection of myself.	1	2	3	4	5	6	7
21.	Others will like me even if I don't excel at everything.	1	2	3	4	5	6	7
22.	I can't be bothered with people who won't strive to better themselves.	1	2	3	4	5	6	7
23.	It makes me uneasy to see an error in my work.	1	2	3	4	5	6	7
24.	I do not expect a lot from my friends.	1	2	3	4	5	6	7
25.	Success means that I must work even harder to please others.	1	2	3	4	5	6	7
26.	If I ask someone to do something, I expect it to be done flawlessly.	1	2	3	4	5	6	7
27.	I cannot stand to see people close to me make mistakes.	1	2	3	4	5	6	7
28.	I am perfectionistic in setting my goals.	1	2	3	4	5	6	7
29.	The people who matter to me should never let me down.	1	2	3	4	5	6	7
30.	Others think I am okay, even when I do not succeed.	1	2	3	4	5	6	7
31.	I feel that people are too demanding of me.	1	2	3	4	5	6	7
32.	I must work to my full potential at all times.	1	2	3	4	5	6	7
33.	Although they may not show it, other people get very upset with me when I slip up.	1	2	3	4	5	6	7
34.	I do not have to be the best at whatever I am doing.	1	2	3	4	5	6	7
35.	My family expects me to be perfect.	1	2	3	4	5	6	7
36.	I do not have very high goals for myself.	1	2	3	4	5	6	7
37.	My parents rarely expected me to excel in all aspects of my life.	1	2	3	4	5	6	7
38.	I respect people who are average.	1	2	3	4	5	6	7

		Strongly disagree			Undecided			Strongly agree
39.	People expect nothing less than perfection from me.	1	2	3	4	5	6	7
40.	I set very high standards for myself.	1	2	3	4	5	6	7
41.	People expect more from me than I am capable of giving.	1	2	3	4	5	6	7
42.	I must always be successful at school or work.	1	2	3	4	5	6	7
43.	It does not matter to me when a close friend does not try their hardest.	1	2	3	4	5	6	7
44.	People around me think I am still competent even if I make a mistake.	1	2	3	4	5	6	7
45.	I seldom expect others to excel at whatever they do.	1	2	3	4	5	6	7

Appendix C

Penn State Worry Questionnaire



Participant #: _____

PSWQ

Circle the number that best describes how typical or characteristic each item is of you.					
		Not at all typical	Somewhat typical		Very typical
	1 = Not at all typical of me				
	2				
	3 = Somewhat typical of me				
	4				
	5 = Very typical of me				
1.	If I do not have enough time to do everything, I do not worry about it.	1	2	3	4 5
2.	My worries overwhelm me.	1	2	3	4 5
3.	I do not tend to worry about things.	1	2	3	4 5
4.	Many situations make me worry.	1	2	3	4 5
5.	I know I should not worry about things, but I just cannot help it.	1	2	3	4 5
6.	When I am under pressure I worry a lot.	1	2	3	4 5
7.	I am always worrying about something.	1	2	3	4 5
8.	I find it easy to dismiss worrisome thoughts.	1	2	3	4 5
9.	As soon as I finish one task, I start to worry about everything else I have to do.	1	2	3	4 5
10.	I never worry about anything.	1	2	3	4 5
11.	When there is nothing more I can do about a concern, I do not worry about it any more.	1	2	3	4 5
12.	I have been a worrier all my life.	1	2	3	4 5
13.	I notice that I have been worrying about things.	1	2	3	4 5
14.	Once I start worrying, I cannot stop.	1	2	3	4 5
15.	I worry all the time.	1	2	3	4 5
16.	I worry about projects until they are all done.	1	2	3	4 5

Appendix D

Ruminative Response Scale – Brooding and Reflection



Participant #: _____

RRS-BR

People think and do many different things when they feel sad, blue or depressed. Please read each of the items below and indicate whether you never, sometimes, often, or always think or do each one when you feel sad, down, or depressed. Please indicate what you generally do, not what you think you should do.

	Never	Sometimes	Often	Always
1 = Never 2 = Sometimes 3 = Often 4 = Always				
1. Think "What am I doing to deserve this?"	1	2	3	4
2. Analyze recent events to try to understand why you are depressed.	1	2	3	4
3. Think "Why do I always react this way?"	1	2	3	4
4. Go away by yourself and think about why you feel this way.	1	2	3	4
5. Write down what you are thinking and analyze it.	1	2	3	4
6. Think about a recent situation, wishing it had gone better.	1	2	3	4
7. Think "Why do I have problems other people don't have?"	1	2	3	4
8. Think "Why can't I handle things better?"	1	2	3	4
9. Analyze your personality to try to understand why you are depressed.	1	2	3	4
10. Go some place alone to think about your feelings.	1	2	3	4

Appendix E

Positive and Negative Affect Schedule



Participant #: _____

PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate to what extent you have felt this way during the past few weeks.

	Very slightly	A little	Moderately	Quite a bit	Extremely
1 = Very slightly or not at all 2 = A little 3 = Moderately 4 = Quite a bit 5 = Extremely					
1. Interested	1	2	3	4	5
2. Distressed	1	2	3	4	5
3. Excited	1	2	3	4	5
4. Upset	1	2	3	4	5
5. Strong	1	2	3	4	5
6. Guilty	1	2	3	4	5
7. Scared	1	2	3	4	5
8. Hostile	1	2	3	4	5
9. Enthusiastic	1	2	3	4	5
10. Proud	1	2	3	4	5
11. Irritable	1	2	3	4	5
12. Alert	1	2	3	4	5
13. Ashamed	1	2	3	4	5
14. Inspired	1	2	3	4	5
15. Nervous	1	2	3	4	5
16. Determined	1	2	3	4	5
17. Attentive	1	2	3	4	5

	Very slightly	A little	Moderately	Quite a bit	Extremely
18. Jittery	1	2	3	4	5
19. Active	1	2	3	4	5
20. Afraid	1	2	3	4	5

Appendix F

Depression Anxiety Stress Scales - 21



Participant #: _____

DASS-21

Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

	Not at all	To some degree	To a considerable degree	Very much
0 = Did not apply to me at all 1 = Applied to me to some degree, or some of the time 2 = Applied to me to a considerable degree, or a good part of time 3 = Applied to me very much, or most of the time				
1. I found it hard to wind down.	0	1	2	3
2. I was aware of dryness of my mouth.	0	1	2	3
3. I couldn't seem to experience any positive feeling at all.	0	1	2	3
4. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion).	0	1	2	3
5. I found it difficult to work up the initiative to do things.	0	1	2	3
6. I tended to over-react to situations.	0	1	2	3
7. I experienced trembling (e.g., in the hands).	0	1	2	3
8. I felt that I was using a lot of nervous energy.	0	1	2	3
9. I was worried about situations in which I might panic and make a fool of myself.	0	1	2	3
10. I felt that I had nothing to look forward to.	0	1	2	3
11. I found myself getting agitated.	0	1	2	3
12. I found it difficult to relax.	0	1	2	3
13. I felt down-hearted and blue.	0	1	2	3
14. I was intolerant of anything that kept me from getting on with what I was doing.	0	1	2	3
15. I felt I was close to panic.	0	1	2	3
16. I was unable to become enthusiastic about anything.	0	1	2	3

	Not at all	To some degree	To a considerable degree	Very much
17. I felt I wasn't worth much as a person.	0	1	2	3
18. I felt that I was rather touchy.	0	1	2	3
19. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat).	0	1	2	3
20. I felt scared without any good reason.	0	1	2	3
21. I felt that life was meaningless.	0	1	2	3

Appendix G

Five Facet Mindfulness Questionnaire



Participant #: _____

FFMQ

Please rate each of the following statements using the scale provided. Circle the number that best describes your own opinion of what is generally true for you.						
	1 = Never or very rarely true 2 = Rarely true 3 = Sometimes true 4 = Often true 5 = Very often or always true	Never true	Rarely true	Sometimes true	Often true	Always true
1.	When I'm walking, I deliberately notice the sensations of my body moving.	1	2	3	4	5
2.	I'm good at finding words to describe my feelings.	1	2	3	4	5
3.	I criticize myself for having irrational or inappropriate emotions.	1	2	3	4	5
4.	I perceive my feelings and emotions without having to react to them.	1	2	3	4	5
5.	When I do things, my mind wanders off and I'm easily distracted	1	2	3	4	5
6.	When I take a shower or bath, I stay alert to the sensations of water on my body.	1	2	3	4	5
7.	I can easily put my beliefs, opinions, and expectations into words.	1	2	3	4	5
8.	I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.	1	2	3	4	5
9.	I watch my feelings without getting lost in them.	1	2	3	4	5
10.	I tell myself I shouldn't be feeling the way I'm feeling.	1	2	3	4	5
11.	I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.	1	2	3	4	5
12.	It's hard for me to find the words to describe what I'm thinking.	1	2	3	4	5
13.	I am easily distracted.	1	2	3	4	5
14.	I believe some of my thoughts are abnormal or bad and I shouldn't think that way.	1	2	3	4	5
15.	I pay attention to sensations, such as the wind in my hair or sun on my face.	1	2	3	4	5
16.	I have trouble thinking of the right words to express how I feel about things	1	2	3	4	5
17.	I make judgments about whether my thoughts are good or bad.	1	2	3	4	5
18.	I find it difficult to stay focused on what's happening in the present.	1	2	3	4	5

	Never true	Rarely true	Sometimes true	Often true	Always true
19. When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.	1	2	3	4	5
20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.	1	2	3	4	5
21. In difficult situations, I can pause without immediately reacting.	1	2	3	4	5
22. When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.	1	2	3	4	5
23. It seems I am "running on automatic" without much awareness of what I'm doing.	1	2	3	4	5
24. When I have distressing thoughts or images, I feel calm soon after.	1	2	3	4	5
25. I tell myself that I shouldn't be thinking the way I'm thinking.	1	2	3	4	5
26. I notice the smells and aromas of things.	1	2	3	4	5
27. Even when I'm feeling terribly upset, I can find a way to put it into words.	1	2	3	4	5
28. I rush through activities without being really attentive to them.	1	2	3	4	5
29. When I have distressing thoughts or images I am able just to notice them without reacting.	1	2	3	4	5
30. I think some of my emotions are bad or inappropriate and I shouldn't feel them.	1	2	3	4	5
31. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.	1	2	3	4	5
32. My natural tendency is to put my experiences into words.	1	2	3	4	5
33. When I have distressing thoughts or images, I just notice them and let them go.	1	2	3	4	5
34. I do jobs or tasks automatically without being aware of what I'm doing.	1	2	3	4	5
35. When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.	1	2	3	4	5
36. I pay attention to how my emotions affect my thoughts and behavior.	1	2	3	4	5
37. I can usually describe how I feel at the moment in considerable detail.	1	2	3	4	5
38. I find myself doing things without paying attention.	1	2	3	4	5
39. I disapprove of myself when I have irrational ideas.	1	2	3	4	5

Appendix H

Balanced Inventory of Desirable Responding



Participant #: _____

BIDR

Using the scale below as a guide, circle a number beside each statement to indicate how much you agree with it.

		Not true			Somewhat true			Very true
	1 = Not true							
	2							
	3							
	4 = Somewhat true							
	5							
	6							
	7 = Very true							
1.	My first impressions of people usually turn out to be right.	1	2	3	4	5	6	7
2.	It would be hard for me to break any of my bad habits.	1	2	3	4	5	6	7
3.	I don't care to know what other people really think of me.	1	2	3	4	5	6	7
4.	I have not always been honest with myself.	1	2	3	4	5	6	7
5.	I always know why I like things.	1	2	3	4	5	6	7
6.	When my emotions are aroused, it biases my thinking.	1	2	3	4	5	6	7
7.	Once I've made up my mind, other people can seldom change my opinion.	1	2	3	4	5	6	7
8.	I am not a safe driver when I exceed the speed limit.	1	2	3	4	5	6	7
9.	I am fully in control of my own fate.	1	2	3	4	5	6	7
10.	It's hard for me to shut off a disturbing thought.	1	2	3	4	5	6	7
11.	I never regret my decisions.	1	2	3	4	5	6	7
12.	I sometimes lose out on things because I can't make up my mind soon enough.	1	2	3	4	5	6	7
13.	The reason I vote is because my vote can make a difference.	1	2	3	4	5	6	7
14.	My parents were not always fair when they punished me.	1	2	3	4	5	6	7
15.	I am a completely rational person.	1	2	3	4	5	6	7
16.	I rarely appreciate criticism.	1	2	3	4	5	6	7
17.	I am very confident of my judgments.	1	2	3	4	5	6	7
18.	I have sometimes doubted my ability as a lover.	1	2	3	4	5	6	7

		Not true			Somewhat true			Very true
19.	It's all right with me if some people happen to dislike me.	1	2	3	4	5	6	7
20.	I don't always know the reasons why I do the things I do.	1	2	3	4	5	6	7
21.	I sometimes tell lies if I have to.	1	2	3	4	5	6	7
22.	I never cover up my mistakes.	1	2	3	4	5	6	7
23.	There have been occasions when I have taken advantage of someone.	1	2	3	4	5	6	7
24.	I never swear.	1	2	3	4	5	6	7
25.	I sometimes try to get even rather than forgive and forget.	1	2	3	4	5	6	7
26.	I always obey laws, even if I'm unlikely to get caught.	1	2	3	4	5	6	7
27.	I have said something bad about a friend behind his or her back.	1	2	3	4	5	6	7
28.	When I hear people talking privately, I avoid listening.	1	2	3	4	5	6	7
29.	I have received too much change from a salesperson without telling him or her.	1	2	3	4	5	6	7
30.	I always declare everything at customs.	1	2	3	4	5	6	7
31.	When I was young I sometimes stole things.	1	2	3	4	5	6	7
32.	I have never dropped litter on the street.	1	2	3	4	5	6	7
33.	I sometimes drive faster than the speed limit.	1	2	3	4	5	6	7
34.	I never read sexy books or magazines.	1	2	3	4	5	6	7
35.	I have done things that I don't tell other people about.	1	2	3	4	5	6	7
36.	I never take things that don't belong to me.	1	2	3	4	5	6	7
37.	I have taken sick-leave from work or school even though I wasn't really sick.	1	2	3	4	5	6	7
38.	I have never damaged a library book or store merchandise without reporting it.	1	2	3	4	5	6	7
39.	I have some pretty awful habits.	1	2	3	4	5	6	7
40.	I don't gossip about other people's business.	1	2	3	4	5	6	7

Appendix I

Personality Research Form – Infrequency Scale



Participant #: _____

PRF-IN

Read each statement and decide whether or not it describes you. If you agree with a statement or decide that it does describe you, circle 1 for true. If you disagree with a statement or feel that is not descriptive of you, circle 0 for false.		
0 = False 1 = True	False	True
1. I have never bought anything in a store.	0	1
2. I could easily count from one to twenty-five.	0	1
3. I can run a mile in less than four minutes.	0	1
4. I have never talked to anyone by telephone.	0	1
5. I usually wear something warm when I go outside on a very cold day.	0	1
6. I make all my own clothes and shoes.	0	1
7. I have never brushed or cleaned my teeth.	0	1
8. Things with sugar in them usually taste sweet to me.	0	1
9. Sometimes I see cars near my home.	0	1
10. I have never had any hair on my head.	0	1
11. I have traveled away from my home town.	0	1
12. I have never ridden in an automobile.	0	1
13. I have never felt sad.	0	1
14. I try to get at least some sleep every night.	0	1
15. Sometimes I feel thirsty or hungry.	0	1
16. I have attended school at some time during my life.	0	1

Appendix J

Research Ethics Board Approval Letter

Lakehead
UNIVERSITY

Office of Research

June 02, 2011

Tel 807-343-8931
Fax 807-346-7749

Principal Investigator: Dr. Dwight Mazmanian
Co-Investigator: Megan Short
Psychology
Lakehead University
955 Oliver Road
Thunder Bay, ON P7B 5E1

Dear Dr. Mazmanian and Ms Short:

Re: REB Project #: 015 11-12 / Romeo File No: 1461976
Granting Agency: N/A
Granting Agency Project #: N/A

On behalf of the Research Ethics Board, I am pleased to grant ethical approval to your research project entitled, "Understanding Personality and Mood".

Ethics approval is valid until June 2, 2012. Please submit a Request for Renewal form to the Office of Research by May 2, 2012 if your research involving human subjects will continue for longer than one year. A Final Report must be submitted promptly upon completion of the project. Research Ethics Board forms are available at:

http://research.lakeheadu.ca/ethics_resources.html

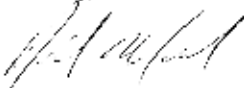
During the course of the study, any modifications to the protocol or forms must not be initiated without prior written approval from the REB. You must promptly notify the REB of any adverse events that may occur.

Completed reports and correspondence may be directed to:

Research Ethics Board
c/o Office of Research
Lakehead University
955 Oliver Road
Thunder Bay, ON P7B 5E1
Fax: (807) 346-7749

Best wishes for a successful research project.

Sincerely,



Dr. Richard Maundrell
Chair, Research Ethics Board

Lakehead Research...CREATING THE FUTURE NOW

955 Oliver Road Thunder Bay Ontario Canada P7B 5E1 www.lakeheadu.ca

Appendix K

Initial Contact Script



Health, Hormones, and Behaviour Lab

Phone: (807) 343-8943

Fax: (807) 343-7734

mshort@lakeheadu.ca

Initial Contact Script

My name is Megan Short and I am a graduate student in the Clinical Psychology Program at Lakehead University. I am currently working on a research project under the supervision of Dr. Dwight Mazmanian of the psychology department. We are conducting a study investigating how personality, thoughts, and behaviours relate to mood. We are looking for participants to complete self-report measures on these constructs, which will take approximately 30 minutes to complete.

If you are interested in being a participant in this study, please feel free to access the website on the bottom of the information letter that is currently being handed out. Your participation in this study is entirely voluntary, and you will receive no penalty for non-participation. If you are in Introductory Psychology, you can receive two bonus marks for completing the study, provided that you email the researchers with your student number, instructor's name, and class time. If you have any questions about the study, please feel free to ask them now. Thank you very much for your time.

Appendix L

Information Letter



Health, Hormones, and Behaviour Lab

Phone: (807) 343-8943
Fax: (807) 343-7734
mshort@lakeheadu.ca

Information Letter

You have been invited to participate in a research study investigating personality, thoughts, and behaviours, in relation to mood. The purpose of this informed consent form is to ensure that you, as the participant, understand the purpose of the study and the nature of your involvement.

Research title: Understanding Personality and Mood

Research personnel: For questions about this study please contact the student researcher, Megan Short (Department of Psychology, Lakehead University, mshort@lakeheadu.ca) or the Supervisor, Dr. Dwight Mazmanian (Department of Psychology, Lakehead University, dmazmani@lakeheadu.ca). Lakehead University's Research Ethics Board has approved the proposal for this research. If you have any ethical concerns about the research (such as the way you have been treated or your rights as a participant), you may contact the Research Ethics Board by telephone at **1-807-343-8283**.

Purpose: The purpose of this study is to provide insight into how certain characteristics of personality, thoughts, and behaviours, may affect experiences and mood.

Task requirements: This study will involve you filling out a demographic form and then a series of eight short questionnaires online. This study should take approximately 30-45 minutes to complete.

Potential risks: You will be placed at no more risk than a person would experience in a normal day. There are no known physical or psychological risks associated with completing the questionnaires in this study. You are under no obligation to continue the study if you experience internal discomfort during any part of it. We understand that completing a psychological study may raise some personal issues.

In the event that this does occur, we ask that you contact the Student Health and Counselling Centre at Lakehead University (UC1007), telephone **1-807-343-8361**, or the Thunder Bay Crisis Response Service, telephone **1-807-346-8282**, where a counsellor will be available to speak with you immediately.

Benefits: Your participation in this study will be contributing toward research on personality, thinking, behaviour, and mood. **You can receive one bonus mark for completing the study, provided that you email the researcher (mshort@lakeheadu.ca) with your name, student number, instructor's name, and class time.** Please be assured that the responses you provide will be in no way linked to your name or contact information. A summary of the research findings can also be made available to you by e-mailing the researcher.

Anonymity and confidentiality: Anonymity will be maintained throughout the study. Your name will not be published in any reports stemming from this research. All forms and data will be stored on a secure computer at Lakehead University for five years for publication purposes. Only persons directly involved with the research will have access to the data, and they will be required to uphold confidentiality. No identifying information will be associated with responses or study results in order to maintain confidentiality and anonymity.

Right to withdraw: Your participation is completely voluntary, you may refuse to complete any part or question, and you may withdraw from this study at any point without any explanation or penalty.

To participate: The data in this study will be used in research publications or for teaching purposes. Please go to the website below to participate in this study. You must be 18 years of age or older.

https://www.surveymonkey.com/s/understanding_personality_and_mood

Appendix M

Informed Consent Form



Health, Hormones, and Behaviour Lab

Phone: (807) 343-8943
Fax: (807) 343-7734
mshort@lakeheadu.ca

Informed Consent Form

You have been invited to participate in a research study investigating personality, thoughts, and behaviours, in relation to mood. The purpose of this informed consent form is to ensure that you, as the participant, understand the purpose of the study and the nature of your involvement.

Research title: Understanding Personality and Mood

Research personnel: For questions about this study please contact the student researcher, Megan Short (Department of Psychology, Lakehead University, mshort@lakeheadu.ca) or the Supervisor, Dr. Dwight Mazmanian (Department of Psychology, Lakehead University, dmazmani@lakeheadu.ca). Lakehead University's Research Ethics Board has approved the proposal for this research. If you have any ethical concerns about the research (such as the way you have been treated or your rights as a participant), you may contact the Research Ethics Board by telephone at 1-807-343-8283.

Purpose: The purpose of this study is to provide insight into how certain characteristics of personality, thoughts, and behaviours, may affect experiences and mood.

Task requirements: This study will involve you filling out a demographic form and then a series of eight short questionnaires online. This study should take approximately 30 minutes to complete.

Potential risks: You will be placed at no more risk than a person would experience in a normal day. There are no known physical or psychological risks associated with completing the questionnaires in this study. You are under no obligation to continue the study if you experience internal discomfort during any part of it. We understand that completing a psychological study may raise some personal issues.

In the event that this does occur, we ask that you contact the Student Health and Counselling Centre at Lakehead University (UC1007), telephone 1-807-343-8361, or the Thunder Bay Crisis Response Service, telephone 1-807-346-8282, where a counsellor will be available to speak with you immediately.

Benefits: Your participation in this study will contribute toward research on personality, thinking, behaviour, and mood. If you are in Introductory Psychology, you can receive two bonus marks for completing the study, provided that you email the researcher (mshort@lakeheadu.ca) with your student number, instructor's name, and class time. A summary of the research findings can also be made available to you by e-mailing the researcher.

Anonymity and confidentiality: Anonymity will be maintained throughout the study. Your name will not be published in any reports stemming from this research. All forms and data will be stored on a secure computer at Lakehead University for five years for publication purposes. Only persons directly involved with the research will have access to the data, and they will be required to uphold confidentiality. No identifying information will be associated with responses or study results in order to maintain confidentiality and anonymity.

Right to withdraw: Your participation is completely voluntary, you may refuse to complete any part or question, and you may withdraw from this study at any point without any explanation or penalty.

Consent: I have read the above description and I understand that the data in this study will be used in research publications or for teaching purposes. By selecting "Agree", I am indicating that that I agree to participate in this study, and that I am 18 years of age or older.

Appendix N

Debriefing Form



Health, Hormones, and Behaviour Lab

Phone: (807) 343-8943
Fax: (807) 343-7734
mshort@lakeheadu.ca

Debriefing Form

Research title: Understanding Personality and Mood

You have just participated in a study that examined the relationships between certain personality characteristics, thoughts, and mood. More specifically, it examined how rumination and worry may explain the relationship between perfectionism and negative mood. Chronic worry is commonly defined as a chain of thoughts that are relatively uncontrollable, negatively affect-laden, and whose outcome is uncertain. Meanwhile, rumination is a coping mechanism for negative affect that involves self-focused attention on past events.

Please be assured that the data you provided will be in no way linked to your name or contact information. All data will remain anonymous and your name will not be published in any reports stemming from this research. Remember that if you are in Introductory Psychology, you can receive two bonus marks for completing the study, provided that you email the researcher (mshort@lakeheadu.ca) with your student number, instructor's name, and class time. To obtain a summary of the results of the study, please e-mail the student researcher (mshort@lakeheadu.ca) and an electronic summary of the results will be sent to you at the completion of the study.

Occasionally, completing a psychological study may raise some internal issues. Any discomfort should naturally decrease as it would anytime you normally worry. However, if you notice any persisting internal discomfort, please contact the Student Health and Counselling Centre at UC1007, telephone **1-807-343-8261**. If you should have a personal emergency, please call the Thunder Bay Crisis Response Service, telephone **1-807-346-8282**, where a counsellor will be available to speak with you immediately.

If at any time you have any further questions or concerns regarding this research, feel free to contact the student researcher, Megan Short, at mshort@lakeheadu.ca.

If you are interested in research in this area, below are excellent references for additional information:

Hewitt, P. L., & Flett, G. L. (1991). Dimensions of Perfectionism in Unipolar Depression. *Journal of Abnormal Psychology, 100*, 98-101. doi:10.1037/0021-843X.100.1.98

Watkins, E., Moulds, M., & Mackintosh, B. (2005). Comparisons between Rumination and Worry in a Non-Clinical Population. *Behaviour Research and Therapy, 43*, 1577-1585. doi:10.1016/j.brat.2004.11.008