2009

EXAMINING THE CONSTRUCT OF PERFECTIONISM: A FACTOR-ANALYTIC STUDY

Agnes Mariann Stairs
University of Kentucky, amannus@uky.edu

ABSTRACT OF DISSERTATION

Agnes Mariann Stairs

The Graduate School
University of Kentucky
2009

EXAMINING THE CONSTRUCT OF PERFECTIONISM: A FACTOR-ANALYTIC STUDY

ABSTRACT OF DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Arts and Sciences
at the University of Kentucky

By
Agnes Mariann Stairs
Lexington, Kentucky

Director: Dr. Gregory T. Smith, Professor of Psychology
Lexington, Kentucky
2009

ABSTRACT OF DISSERTATION

EXAMINING THE CONSTRUCT OF PERFECTIONISM: A FACTOR-ANALYTIC STUDY

The construct of perfectionism is related to many important outcome variables. However, the term "perfectionism" has been defined in many different ways, and items comprising the different existing scales appear to be very different in content. The overarching aim of the present set of studies was to help clarify the specific unidimensional constructs underlying what is called "perfectionism". First, trained raters reliably sorted items from existing measures of perfectionism into nine dimensions. An exploratory factor analysis, followed by a confirmatory factor analysis on an independent sample, resulted in a 9 scale, 61 item measure, called the Measure of Constructs Underlying Perfectionism (M-CUP). The nine scales were internally consistent and stable across time, and they were differentially associated with relevant measures of personality and psychosocial functioning in theoretically meaningful ways.

Keywords: perfectionism, Measure of Constructs Underlying Perfectionism, Five-Factor model, Frost Multidimensional Perfectionism Scale, Hewitt Multidimensional Perfectionism Scale.

Agnes Mariann Stairs
Student's Signature

June 26, 2009
Date

EXAMINING THE CONSTRUCT OF PERFECTIONISM: A FACTOR-ANALYTIC STUDY

By

Agnes Mariann Stairs

Gregory T. Smith
Director of Dissertation

David T.R. Berry
Director of Graduate Studies

June 26, 2009

RULES FOR THE USE OF DISSERTATIONS

Unpublished dissertations submitted for the Doctor's degree and deposited in the University of Kentucky Library are as a rule open for inspection, but are to be used only with due regard to the rights of the authors. Bibliographical references may be noted, but quotations or summaries of parts may be published only with the permission of the author, and with the usual scholarly acknowledgments.

Extensive copying or publication of the dissertation in whole or in part also requires the consent of the Dean of the Graduate School of the University of Kentucky.

A library that borrows this dissertation for use by its patrons is expected to secure the signature of each user.

Name	Date

DISSERTATION

Agnes Mariann Stairs

The Graduate School

University of Kentucky

2009

EXAMINING THE CONSTRUCT OF PERFECTIONISM: A FACTOR-ANALYTIC STUDY

DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Arts and Sciences
at the University of Kentucky

By
Agnes Mariann Stairs

Lexington, Kentucky

Director: Dr. Gregory T. Smith, Professor of Psychology

Lexington, Kentucky

2009

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF FILES

stairsdissertation.pdf……...…….…….439KB

SECTION ONE: INTRODUCTION

Perfectionism is an important psychological construct. However it is measured, increased levels of perfectionism are found in anorexia nervosa (Bastiani, Rao, Weltzin, & Kaye, 1995), bulimia nervosa (Vohs, Bardone, Joiner, Abramson, & Heatherton, 1999), social phobia, panic disorder (Saboonchi & Lundh, 1999), anxiety (Klibert, Langhinrichsen-Rohling, & Saito, 2005; Stober, 1998), depression (Rice & Dellwo, 2001), chronic insomnia (Vincent & Walker, 2000), suicidal ideation (Hamilton & Scheitzer, 2000), and obsessive-compulsive disorder (Frost, Marten, Lahart, & Rosenblate, 1990). Prospective research has found that higher levels of perfectionism predict eating disorders (Lilenfeld, Wonderlich, Riso, Crosby, & Mitchell, 2006) and depression (Hewitt, Flett & Ediger, 1996; Rice & Dellwo, 2001), suggesting that the construct may play a role in the etiology of these disorders. Interestingly, perfectionism also appears to be related to positive outcomes and characteristics, such as self-efficacy, adaptive learning strategies (Mills & Blankstein, 2000), planfulness (Stober, 1998), perceived self-control, and achievement motivation (Klibert et al., 2005).

This brief review of the correlates of perfectionism suggests strongly that perfectionism is an important construct to study. However, it also suggests imprecision in the definition of the construct, as a unidimensional personality construct is unlikely to be related to such wide and varied outcome variables. Indeed, perfectionism has historically been defined and broken down in a myriad of ways, and it is measured by current researchers with a variety of measures, some of which appear to measure, to more or less of a degree, different constructs. The lack of clarity in the definition and measurement of the construct poses a problem for researchers, and Shafran, Cooper, and Fairburn (2002) even suggest that this may be the reason for the lack of progress in understanding how perfectionism operates in the risk process for psychopathology. In fact, several authors have suggested a need for improved clarity in the definition of perfectionism (Shafran et al., 2002; Shafran & Mansell, 2001; Tozzi et al., 2004). Thus, the overarching aim of the present study is to help clarify the specific unidimensional constructs underlying what is called perfectionism, to construct a reliable and valid scale to measure these underlying unidimensional constructs (the Measure of Constructs Underlying Perfectionism; M-CUP), to place these underlying constructs within a comprehensive framework of personality, the Five Factor Model (FFM, Costa & McCrae, 1992), and to examine if these underlying constructs are related differentially to other criterion variables.

In order to advance understanding about the nature and function of perfectionism, it appears important not only to have a clear and agreed-upon definition of the construct, but also to examine specific unidimensional constructs instead of multidimensional constructs composed of several, lower-order facets. If the broad trait of perfectionism actually encompasses several, unidimensional, lower order constructs, then a correlation between the broad trait of perfectionism and a criterion variable does not allow one to know whether the correlation between the specific facets of the broad trait and the criterion variable are strong or weak. Examples of how a total score can provide misleading information have been given by several authors recently (McGrath, 2005; Smith & Combs, in press; Smith, McCarthy, & Zapolski, in press; Smith & Zapolski, 2009; Strauss & Smith, 2009; Widiger and Trull, 2007), and this problem is also suggested by the correlation of perfectionism with both positive and negative outcome

variables reviewed above. The need to disaggregate multidimensional constructs into their specific unidimensional facets has been increasingly recognized (McGrath, 2005; Smith, Fischer, & Fister, 2003; Smith & McCarthy, 1995; Smith et al., in press), and it appears that the construct of perfectionism is in need of such disaggregation.

Currently, the construct of perfectionism is defined and measured in different ways by different researchers. It appears to suffer from both the jingle and jangle fallacies (Block, 1995). The jingle fallacy occurs in instances where two constructs with the same label actually refer to different constructs; in this case, in some instances perfectionism may refer to someone who reacts to making mistakes with increased negative affect, and in other instances to someone who prefers order in their work and surroundings. The jangle fallacy occurs in instances where two constructs with two different labels may actually refer to the same construct; in this case, Frost and colleagues' (Frost et al., 1990) parental expectations and parental criticism facets may be similar to what Hewitt and Flett (1991) call socially prescribed perfectionism.

To the best of the author's knowledge, at least fifteen scales exist which either purport to measure perfectionism or are being used to measure perfectionism. Although a review of each of these scales is beyond the scope of this paper, some of the most popularly used ones will be reviewed here. The Frost Multidimensional Perfectionism Scale (FMPS), the measure of perfectionism developed by Frost and colleagues (1990), is composed of six subscales. Concern over Mistakes refers to the tendency to react negatively to mistakes and to interpret mistakes as meaning failure. Personal Standards refers to the tendency to set very high standards and to place importance on the achievement of those standards for self-evaluation. Doubts about Actions refers to a tendency to feel that projects or tasks are not completed properly or adequately. Parental Expectations refers to the subjective feeling that one's parents have set very high goals. Parental Criticism refers to the subjective feeling that one's parents have been overly critical. Lastly, Organization refers to the tendency to emphasize and prefer order and organization.

The Hewitt Multidimensional Perfectionism Scale (HMPS), the measure of perfectionism developed by Hewitt and Flett (1991), is composed of three subscales. Self-Oriented Perfectionism refers to the tendency to set high standards, strictly evaluate behavior, and to have the motivation to attain perfection. Other Oriented Perfectionism refers to the tendency to set high standards and expect perfect performance from others, and to strictly evaluate others' performance. Lastly, Socially Prescribed Perfectionism refers to the perception that others have unrealistic standards for oneself, that others evaluate one strictly, and that others expect one to be perfect.

There is, of course, some covariation between scores on measures of these two instruments. Self-Oriented Perfectionism appears similar to the Personal Standards and Organization subscales of the FMPS (Shafran & Mansell, 2001), and has been found to have large correlations with Personal Standards (.61 to .62), but only small correlations with Organization (.26-.29; Flett, Sawatzky, & Hewitt, 1995; Frost, Heimberg, Holt, Mattia, & Neubauer, 1993). However, Self-Oriented Perfectionism has also been found to have moderate to large correlations with Concern over Mistakes (.38-.53), and small correlations with Doubts about Actions, Parental Expectations, and Parental Criticism (.16-.27; Flett et al., 1995; Frost et al., 1993). Socially Prescribed Perfectionism appears similar to, and has moderate to large correlations with, the Parental Expectation and

Parental Criticism subscales of the FMPS (.49-.57), but also has moderate to large correlations with Concern over Mistakes (.49-.59), small to moderate correlations with Doubts about Actions (.28-.37), and small correlations with Personal Standards (.16-.28; Flett et al., 1995; Frost et al., 1993; Shafran & Mansell, 2001). Other Oriented Perfectionism does not appear conceptually related to any of the FMPS subscales, but has been found to have moderate correlations with Concern over Mistakes (.22-.42) and Personal Standards (.33-.39), and small correlations with Parental Expectations and Organization (.14-.19; Flett et al., 1995; Frost et al., 1993).

A more recently developed measure of perfectionism, the Almost Perfect Scale-Revised (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001), is an empirically and factor analytically derived scale. It has three subscales, the first of which is Order, which refers to a tendency to prefer order in one's work and surroundings. This scale has been found to correlate to a large degree with FMPS Organization (.87), but it also correlates moderately with HMPS Self-Oriented Perfectionism (.39), and to a small degree with FMPS Personal Standards (.24) and Parental Criticism (.15; Rice, Ashby, & Slaney, 2007). The second subscale of the APS-R is High Standards, which refers to the tendency to set high standards for oneself. It correlates significantly and to a large degree with Self-Oriented Perfectionism (.68) and Personal Standards (.65), moderately with Other Oriented Perfectionism (.32) and Organization (.36), and to a small degree with Socially Prescribed Perfectionism, Concern over Mistakes, Parental Expectations, and Parental Criticism (.15-.26; Rice et al., 2007). The third subscale of the APS-R is Discrepancy, which refers to the subjective perception that one is not meeting one's goals or standards, or that one's actual self is lacking as compared to one's ideal self. Although conceptually distinct form the other scales, it correlates to a large degree with Socially Prescribed Perfectionism (.51), Concern over Mistakes (.62), and Doubts about Actions (.68), moderately with Parental Criticism (.47), and to a small degree with Self-Oriented Perfectionism, Personal Standards, and Parental Expectations (.21-.26; Rice et al., 2007).

Another way of breaking down perfectionism has been into the constructs of personal standards and evaluative concerns/self-critical perfectionism (Dunkley, Blankstein, Masheb, & Grilo, 2006), in which personal standards refers to the tendency to set high standards for oneself and to strive to achieve those standards, while evaluative concerns refers to the tendency to evaluate one's performance in an overly critical manner, the inability to be satisfied with one's performance, and chronic concerns about how others may be evaluating oneself. Although no measure of these constructs has been developed, they are usually measured by the HMPS, FMPS, and the Depressive Experiences Questionnaire (DEQ; Blatt, D'Affliti, & Quinlan, 1976).

From this brief review, one can see the range of content encompassed by measures of perfectionism. Although setting high standards, being critical of oneself, and expecting high performance from others appear to be conceptually distinct constructs, they are all being lumped together under the label of perfectionism, lending lack of clarity to what the construct of perfectionism actually represents. This appears to have been recognized by researchers, and numerous factor analytic studies have been conducted to try to elucidate the specific facets underlying what is being called perfectionism.

Studies have examined subsets of existing measures of perfectionism, although no study has examined all existing measures. In general, what these studies have found is

that two factors emerge—one reflecting a negative, or unhealthy aspect, of perfectionism, and another reflecting a healthy, or positive aspect, of perfectionism. The healthy aspect has been found to encompass Personal Standards, Organization, Self-Oriented Perfectionism, and perhaps Other Oriented Perfectionism, and has been called adaptive perfectionism (Enns, Cox, Sareen, & Freeman, 2001; Rice & Mirzadeh, 2000), healthy perfectionism (Parker & Stumpf, 1995), personal standards perfectionism (Aldea & Rice, 2006; Dunkley, Zuroff, & Blankstein, 2003), and positive striving (Bieling, Israeli, & Antony, 2004; Frost et al., 1993). The unhealthy aspect has been found to encompass Concern over Mistakes, Doubts about Actions, Parental Criticism, Parental Expectations, Socially Prescribed Perfectionism, and DEQ Self-Criticism, and has been called maladaptive perfectionism (Enns et al., 2001; Rice & Mirzadeh, 2000), unhealthy perfectionism (Parker & Stumpf, 1995), self-critical perfectionism (Aldea & Rice, 2006; Dunkley et al., 2003), or maladaptive evaluation concerns (Bieling et al., 2004; Frost et al., 1993).

However, some researchers have found three factors. Pearson and Gleaves (2006) factor analyzed the FMPS, APS-R, Neurotic Perfectionism Scale (NPQ; Mitzman, Slade, & Dewey, 1994), and the Burns Perfectionism Scale (BPS; Burns, 1980) and found three factors. They called the first factor neurotic perfectionism, composed of Concern over Mistakes, Parental Criticism, Doubts about Actions, APS-R Discrepancy, and the NPQ, the second factor normal perfectionism, composed of Personal Standards and APS-R Standards, and the third factor order, composed of Organization and APS-Order. Likewise, Suddarth and Slaney (2001) found a maladaptive factor, composed of Concern over Mistakes, Parental Expectations, Parental Criticism, Doubts about Actions, Socially Prescribed Perfectionism, and APS-Discrepancy, an adaptive factor, composed of Personal Standards, Self-Oriented Perfectionism, Other Oriented Perfectionism, and APS-R High Standards, and an order factor, composed of Organization and APS-R Order.

In summary, most studies have found either two or three factors using factor analysis on various combinations of measures of perfectionism. In addition, research on the correlates of the unhealthy and healthy perfectionism factors suggests that they are related to different criterion variables, supporting their discriminant validity. First, scales which tend to load on the unhealthy factor correlate most strongly with neuroticism, while scales which tend to load on the healthy factor correlate most strongly with conscientiousness (Enns et al., 2001; Flett, Hewitt, Blankstein, & Gray, 1998; Hill, McIntire, & Bacharach, 1997; Parker & Stumpf, 1995; Rice et al., 2007; Stumpf & Parker, 2000).

In addition to scoring higher on neuroticism, individuals who score higher on indices of maladaptive perfectionism have also been found to score higher on negative, or psychopathological outcome variables, such as depression (Aldea & Rice, 2006; Bieling et al., 2004; Enns, Cox, & Clara, 2002; Enns et al., 2001; Rice, Ashby, & Slaney, 1998; Rice & Mirzadeh, 2000), body dissatisfaction, bulimic symptoms (Pearson & Gleaves, 2006), eating disorder symptoms (Ashby, Kottman, Schoen, 1998), anxiety (Aldea & Rice, 2006; Bieling et al., 2004; Schuler, 2000), and obsessive-compulsive disorder symptoms (Aldea & Rice, 2006).

In contrast, in addition to scoring higher on conscientiousness, individuals who score higher on indices of adaptive perfectionism have been found to score higher on

positive outcome variables, such as satisfaction with academic curriculum, academic expectations (Enns et al., 2001; Rice & Mirzadeh, 2000), satisfaction with GPA (Grzegorek, Slaney, Franze, & Rice, 2004), social support (Schuler, 2000), self-efficacy (Ashby & Rice, 2002), and self esteem (Grzegorek et al., 2004).

Thus, there seems to be consistent evidence that indices of unhealthy perfectionism are positively correlated with criterion variables indicative of psychopathology, while indices of healthy perfectionism are positively correlated with criterion variables indicative of adaptive functioning. However, there may be problems with cleaving perfectionism into healthy and unhealthy dimensions. First, although healthy and unhealthy perfectionism have been found to have differential correlates, some studies have found that healthy perfectionism is related to negative outcomes, such as eating disorders (Terry-Short, Owens, Slade, & Dewey, 1995), depression, and anxiety (Aldea & Rice, 2006). Second, healthy and unhealthy perfectionism do not appear to be unidimensional and have loadings from scales which appear very different in content. For example, Concern over Mistakes, which measures a tendency to react negatively to mistakes, and Socially Prescribed Perfectionism, which measures the perception that others have unrealistic standards for oneself, both load on unhealthy perfectionism but appear quite different in content.

Third, in my view, because healthy and unhealthy perfectionism are not unidimensional, they are perhaps more descriptive than explanatory. The terms ‘healthy perfectionism’ and ‘unhealthy perfectionism’ do not refer to trait-like content domains of human functioning; rather, they refer to outcomes or consequences of trait-based behavior. It seems as if the factors of healthy and unhealthy perfectionism are being defined by their correlates, indices of healthy and unhealthy functioning, respectively, instead of being defined by the specific traits they encompass. Thus, it appears important to examine and elucidate what the specific traits are within these factors.

Fourth, it is of course the case that the results of factor analyses depend fully on the variables chosen for entry into the analysis (Block, 1995). Thus, if there are many items entered into the factor analysis that are similar in content and share variance, those items will emerge as one factor. However, if in addition to these items, another content domain of importance is represented by only a single item, or by a small number of items, it may not emerge as a factor because of its under-representation in the analysis. In the case of perfectionism, it may be that many items in various measures reflect what may be described as high standards; perhaps high standards contributes to psychological health, and the high representation of this domain drives the emergence of a factor of healthy perfectionism. However, only a few studies have found a third factor of order (Pearson & Gleaves, 2006; Suddarth & Slaney, 2001), and this may be because of the relative dearth of items representing this construct. Thus, in order to elucidate the facets underlying perfectionism, it appears important that each content area judged to be important is equally represented. In the present study, this was accomplished by writing items to represent content areas equally.

To achieve the aim of clarifying the trait structure underlying perfectionism measures, I have proceeded as follows. First, I have examined the existing definitions of perfectionism, the measures of perfectionism, and the specific items in each measure, and I have developed a theory and content based structure to those items, in which each item is assigned to a single, specified content facet that I believe to be unidimensional. Given

that there has been a great deal of work in this area, resulting in at least fifteen different measures of perfectionism, it appears likely that previous research has captured the content domain underlying perfectionism. Of course, it is important to ascertain that these identified facets are theoretically sound, such that items representing each facet can be reliably sorted into their facets by trained raters.

Thus, the first aim of the study was to identify the facets underlying the construct of perfectionism. In a pilot study, trained raters sorted items from the existing measures of perfectionism onto the nine hypothesized underlying facets of perfectionism. The second aim of the study was to construct a new measure of perfectionism which measures these nine facets. Thus, in part one of the study, items from existing measures of perfectionism which were judged to be representative of each of the nine facets were rewritten to maximize unidimensionality and representativeness of the items. The resulting 86 item pool was administered to a large sample of undergraduates and submitted to exploratory factor analysis. Following this, items which did not load highly on any scale, loaded highly on more than one scale, or detracted from the internal consistency of the scale were discarded, resulting in a 61-item scale called the Measure of Constructs Underlying Perfectionism (M-CUP). The M-CUP was administered to an independent sample and then submitted to confirmatory factor analysis. An overarching hypothesis was that evidence would support the existence of nine separate dimensions instead of an overarching construct of perfectionism; thus, it was hypothesized that the nine factor structure would be supported by both exploratory and confirmatory factor analyses and that a one factor model would prove to be a poor fit to the data.

The third aim of the present study was to show that this new, nine-factor scale of perfectionism is reliable, to place the factors comprising this scale within an established comprehensive framework of personality, the Five Factor Model (FFM, Costa & McCrae, 1992), and to examine if these underlying constructs are related differentially to other criterion variables. Thus, in part two of the study, the M-CUP was administered to another sample of undergraduate students, along with other existing measures of perfectionism, measures of personality, and other relevant measures of psychosocial functioning. It was hypothesized that the new nine factor measure of perfectionism would relate in theoretically relevant and differential ways with measures of personality and psychosocial functioning.

SECTION TWO: PILOT STUDY

Method

Measures

In order to examine the different personality dimensions underlying perfectionism represented in the existing scales of perfectionism, the following scales, and the literature on these scales were examined:

Frost Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990). The FMPS is a 35-item self-report measure of perfectionism consisting of six scales: Concern over Mistakes, Doubts about Actions, Personal Standards, Organization, Parental Expectations, and Parental Criticism. The measure also yields a total scale score, which is the sum of all the subscales except Organization. Internal consistency for the total scale is .90 while internal consistency of the subscales ranges from .77 to .93 (Frost et al., 1990). The factor structure of the FMPS has been supported in several studies (Parker & Adkins, 1995; Purdon, Antony, & Swinson, 1999), while other authors have raised concerns about the factor structure of the FMPS (e.g. Rheaume, Freeston, Dugas, Letarte, & Ladouceur, 1995; Stober, 1998; Stumpf & Parker, 2000).

Hewitt Multidimensional Perfectionism Scale (HMPS; Hewitt & Flett, 1991). The HMPS is a 45-item measure of perfectionism consisting of three scales: Self-Oriented Perfectionism, Socially Prescribed Perfectionism, and Other Oriented Perfectionism (Hewitt & Flett, 1991). Internal consistencies range from .86 to .88 for Self-Oriented Perfectionism, from .74 to .82 for Other Oriented Perfectionism, and from .81 to .87 for Socially Prescribed Perfectionism (Hewitt & Flett, 1991). Correlations between scales are substantial, and range from .25 to .40 (Hewitt & Flett, 1991). The convergent validity, in terms of relationships with other measures of perfectionism and measures of psychopathology, of the HMPS was supported in a sample of college undergraduates (Hewitt & Flett, 1991) and a sample of psychiatric patients (Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991).

Almost Perfect Scale-Revised (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001). The APS-R is an empirically and factor analytically derived measure of perfectionism consisting of 23 items. It consists of three scales: Discrepancy, High Standards, and Order, which have demonstrated good factor structure in a sample of college undergraduates (Slaney et al., 2001), as well as a sample of Indian individuals (Slaney, Chadha, Mobley, & Kennedy, 2000). Internal consistency ranges from .91 to .92 for Discrepancy, .85 for Standards, and .82 to .86 for Order (Slaney et al., 2001).

Perfectionism Questionnaire (PQ; Rheaume et al., 2000). The PQ is a 34 item measure of perfectionism that consists of two scales: perfectionistic tendencies (Healthy Perfectionism) and negative outcomes associated with perfectionism (Dysfunctional Perfectionism; Rheaume, personal communication, April 3, 2008). It was developed based on the concern that many existing perfectionism scales may measure obsessive-compulsive disorder symptoms instead, and thus it attempts to parse out obsessive-compulsive symptoms from its measurement of perfectionism. It was based on the description of perfectionism of Pacht (1984). To the author's best knowledge, the reliability, validity, and factor structure of the PQ have not been examined.

Positive and Negative Perfectionism Scale (PANPS; Terry-Short et al., 1995). The PANPS is a 40-item measure of perfectionism that was intended to measure positive and negative perfectionism as described by Terry-Short et al. (1995). Although an initial factor analysis supported the two factor structure (Terry-Short et al., 1995), a later factor analysis found that the 40 item scale had an inadequate fit with the purported two factor structure of positive and negative perfectionism (Haase & Prapavessis, 2004). Internal consistency for the original scale was .83 for Positive Perfectionism and .81 for Negative Perfectionism (Haase & Prapavessis, 2004).

Burns Perfectionism Scale (BPS; Burns, 1980). The BPS is a 10-item measure of perfectionism that consists of one scale based on the Burns' (1980) conceptualization of perfectionism. Items were developed by modifying items on the Dysfunctional Attitudes Scale (DAS; Weissman & Beck, 1978). Internal consistency of the scale has been found to range from .70 (Hewitt & Dyck, 1986) to .83 (Arrindell, de Vlaming, Eisenhardt, van Berkum, & Kwee, 2002). To the best of the author's knowledge, no studies on the factor structure of the BPS have been conducted.

Depressive Experiences Questionnaire (DEQ; Blatt et al., 1976). The DEQ is a 66-item measure of cognitions hypothesized to be characteristic of individuals who are depressed. In the initial development of the scale, three factors emerged: Dependency, Self-Criticism, and Efficacy. Scoring of the DEQ is based on the results of the initial factor analysis, and each item contributes differentially to each of the three factors (S. J. Blatt, personal communication, March 31, 2008). The Self-Criticism factor has been used to measure self-criticism as an aspect of perfectionism (Dunkley et al., 2003). The DEQ has been critiqued, as the original authors did not use the results of the factor analysis for item selection or analysis. A further concern has been that the high intercorrelation of the three factors may suggest that they may not be independent factors (Bagby, Parker, Joffe, & Buis, 1994). For the present study, only items used in the Bagby et al. (1994) revision, items used in the Santor, Zuroff, & Fielding (1997) revision, and items judged by the present author to be relevant to one of the nine hypothesized dimensions were used.

Setting Conditions for Anorexia Nervosa Scale Perfectionism Scale (SCANS; Slade & Dewey, 1986). The SCANS is a factor-analytically derived measure developed to measure two dimensions of functioning which were hypothesized to contribute to the development of anorexia nervosa: general dissatisfaction with life and perfectionism. For the present study, only the Perfectionism scale was used, which consists of 10 items. To the best of the author's knowledge, no studies other than the original study by Slade and Dewey (1986) have examined the psychometric properties of the SCANS, such as its internal consistency or factor structure.

Neurotic Perfectionism Questionnaire (NPQ; Mitzman, Slade, & Dewey, 1994). The NPQ is a 42-item measure of perfectionism developed to specifically measure neurotic perfectionism. Internal consistency of the scale was .95, and it was able to discriminate between normal and neurotic perfectionists (Mitzman et al., 1994). A concern with this scale that has been raised is that it may not separate out neuroticism and perfectionism adequately, thus one cannot know whether and to what extent the scale measures neuroticism versus perfectionism (Flett & Hewitt, 2002).

*Adaptive/Maladaptive Perfectionism Scale (*AMPS; Rice & Preusser, 2002). The AMPS is a 27-item measure of perfectionism that was developed to measure both adaptive and maladaptive aspects of perfectionism in children and adolescents. It was

developed through adaptation of items from existing perfectionism scales. A factor analysis conducted on a child sample revealed four factors: Sensitivity to Mistakes, Contingent Self-Esteem, Compulsiveness, and Need for Admiration. Internal consistencies for the four scales ranged from .73 to .91. However, a later study with adolescents found a three factor solution: Sensitivity to Mistakes, Need for Admiration, and Compulsiveness (Rice, Leever, Noggle, and Lapsley, 2007).

Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978). The DAS is a 40-item measure of dysfunctional attitudes purported to play a role in depression. The scale appears to comprise two factors: self-criticism or perfectionism, and need for approval (Zuroff, Blatt, Sanislow, Bondi, & Pilkonis, 1999), although other studies have found a three factor solution in a student sample (Calhoon, 1996), and a nine factor solution in a clinical sample (Beck, Brown, Steer, & Weissman, 1991). For the present study, only the 15 items found to load on the perfectionism factor by Imber and colleagues (1990) was used. Internal consistency for the entire scale has been found to range from .87 to .90 (Cane, Olinger, Gotlib, & Kuiper, 1986; Dobson & Breiter, 1983), while internal consistency for the perfectionism factor of Imber and colleagues (1990) was .91.

HEXACO Personality Inventory-Revised Perfectionism Facet (HEXACO-PI-R; Lee & Ashton, 2004, 2006). The HEXACO-PI-R is a measurement of the six factor model of personality. It consists of six domains—Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience—which are divided into four facets each. The Perfectionism facet is a part of the Conscientiousness domain and assesses one's tendency to be thorough and to be concerned with details. The factor structure of the HEXACO-PI-R appears to be good, and the internal consistency for the perfectionism facet was .79 in one study (Lee & Ashton, 2004, 2006).

Perfectionistic Self Presentation Scale (PSPS; Hewitt et al., 2003). The PSPS is a 27-item measure designed to measure the tendency to present oneself as perfect. It is composed of three factor analytically derived subscales: Perfectionistic Self-Promotion, Nondisplay of Imperfection, and Nondisclosure of Imperfection, which were supported by factor analyses across several samples, including student and clinical samples (Hewitt et al., 2003). Internal consistency for the subscales ranged from .78 to .86 (Hewitt et al., 2003).

Perfectionism Cognitions Inventory (PCI; Flett et al., 1998). The PCI is a 25-item measure designed to assess individual differences in the frequency of perfectionistic cognitions. It consists of one unidimensional factor, which has been supported in two studies (Flett et al., 1998; Flett, Hewitt, Whelan, & Martin, 2007). Item loadings onto this factor range from .38 to .75, although most items load .50 or greater. Internal consistency was .95 in one study (Flett et al., 2007).

Eating Disorders Inventory-2 Perfectionism scale (EDI; Garner, 1991). The EDI-2 is a self-report measure consisting of 8 scales measuring different aspects of eating disorder symptoms and eating disorder risk factors. The scales have been shown to have good internal consistency and good convergent and discriminant validity (Garner, Olmsted, & Polivy, 1983), and are frequently used by clinicians for the assessment of eating disorder symptoms (Brookings, 1994). In the present study, only the Perfectionism scale was used. Joiner and Schmidt (1995) have noted that some items on the EDI

Perfectionism scale may reflect Self-Oriented Perfectionism while others may reflect Socially Prescribed Perfectionism, suggesting it may not be a unidimensional scale.

Theoretical Study of Existing Measures of Perfectionism

After examining the literature on the definition and measurement of perfectionism, the items on each of the previously described fourteen scales, and following careful discussion with a colleague, I identified nine separate personality dimensions underlying perfectionism. In identifying these nine hypothesized dimensions, I chose to err on the side of identifying too many dimensions, in order to avoid leaving out any content domain of potential importance. In addition, I identified several other content areas which appear to reflect dimensions that may be related to perfectionism but do not underlie perfectionism per se. I took specific theoretical stances in deciding which items to include as representing perfectionism and which items to not include under the umbrella of perfectionism. Of course, some may disagree with my decisions. However, other authors have also noted the presence of items reflecting constructs related to, but not underlying, perfectionism, on the existing perfectionism scales (Shafran et al., 2002; Shafran & Mansell, 2001). Before a discussion of these nine dimensions, a word about those dimensions judged to be related to, but not underlying, perfectionism, is in order.

One related dimension identified reflected retrospective items about one's parents or family having had high standards or being critical of the person. Many of these items were from the FMPS Parental Expectations and Parental Criticism scales, such as "As a child, I was punished for doing things less than perfect" (Frost et al., 1990). Although some may raise objections to the designation of these scales as reflecting non-perfectionism constructs, it is my belief that, although one's childhood experiences may be related to the development of a trait, they do not reflect the trait itself. Concerns that the Parental Expectations and Parental Criticism scales may not measure perfectionism have been raised by others as well (Shafran & Mansell, 2001).

In addition, other dimensions that were identified to be related to but not underlie perfectionism included the constructs of concern about others' opinions, self-efficacy, neuroticism, and dependency. For example, although several researchers use the DEQ in studies of perfectionism, items on this scale appear to reflect all these content areas. To give another example, items such as "At times I feel hollow and empty inside" and "I often feel lonely/isolated" from the NPQ were thought to reflect dimensions of neuroticism rather than perfectionism.

The nine hypothesized dimensions underlying perfectionism are High Standards, Order, Perfectionism toward Others, Satisfaction, Details and Checking, Reactivity to Mistakes, Dissatisfaction, Perceived Pressure from Others, and Black and White Thinking. Each of these dimensions, and their hypothesized relations to basic personality, will next be discussed in more detail.

The first identified dimension was called High Standards and appears to reflect a tendency to set high standards for oneself and to push oneself to work hard to attain those standards. Many items on the FMPS Personal Standards scale, the HMPS Self-Oriented Perfectionism scale, and the APS-R Standards scale appear to reflect this dimension, and an interview study found that high standards appears central to many individuals' definition of perfectionism who consider themselves perfectionistic (Slaney & Ashby, 1996). Thus, there appears go be good consensus that a dimension of High Standards

exists and underlies perfectionism. As the Personal Standards and Self-Oriented Perfectionism scales have been found to be correlated with the NEO-PI-R Conscientiousness domain (Hill et al., 1997; Rice et al., 2007), this dimension may be hypothesized to be related to that domain. More specifically, High Standards may be hypothesized to be strongly related to the Achievement Striving facet within the Conscientiousness domain.

The second identified dimension appears to reflect a tendency to prefer organization, neatness, and order in one's environment and physical surroundings, and was called Order. Items on the FMPS Organization scale and the APS-R Order scale appear to measure this dimension, and in factor analyses which included both the FMPS and the APS-R (thus increasing the number of items reflecting the dimension), a factor called Order emerged (Pearson & Gleaves, 2006; Suddarth & Slaney, 2001). This factor was also hypothesized to be related to NEO-PI-R Conscientiousness, as the FMPS Organization scale and the APS-R Order scale have been found to correlate with Conscientiousness (Parker & Stumpf, 1995; Rice et al., 2007). More specifically, Order may be hypothesized to be most strongly related to the Order facet within the NEO-PI-R domain of Conscientiousness.

The third dimension appears to reflect a tendency to be thorough, to be concerned with details in one's work, and to check and re-check one's work. It was called Details and Checking. Items on the HEXACO-PI-R Perfectionism facet from the Conscientiousness domain appear to involve this dimension. It was hypothesized to be related to NEO-PI-R Conscientiousness, specifically the Order facet within Conscientiousness.

The fourth dimension appears to reflect the tendency to expect high performance and perfection from others and to strictly evaluate others' performance, and was called Perfectionism toward Others. This dimension reflects typical items on the Other Oriented Perfectionism scale of the HMPS, and was hypothesized to be related to NEO-PI-R Extraversion, more specifically high levels of Assertiveness, and to NEO-PI-R Agreeableness, more specifically low levels of Tender-Mindedness.

The fifth dimension appears to reflect the ability or tendency to experience satisfaction and positive affect when completing something or having accomplished something, and was called Satisfaction. Individuals who are low on this dimension may experience an inability to feel satisfied even when they have accomplished something, received a reward, or done their best. Items measuring Positive Perfectionism from the PANPS (Terry-Short et al., 1995) appear to be similar to this dimension. This dimension was hypothesized to be negatively related to NEO-PI-R Neuroticism and positively related to the NEO-PI-R Extraversion domain facet of Positive Emotions.

The sixth dimension appears to reflect the tendency to feel that one is not meeting one's standards, the tendency to feel that something is never 'good enough' or 'right', and the tendency to feel that something is always 'wrong'. This dimension was called Dissatisfaction. Typical items on the APS-R Discrepancy domain appear to reflect this dimension, and perhaps also items on the FMPS Doubts about Actions scale. This dimension was hypothesized to be related to NEO-PI-R Neuroticism, specifically the Depression and Anxiety facets within that domain.

The seventh dimension appears to reflect the tendency to experience negative affect in response to having made, or perceiving to have made, a mistake. This dimension

was called Reactivity to Mistakes and appears related to the Concern over Mistakes scale of the FMPS. This dimension was hypothesized to be related to NEO-PI-R Neuroticism, specifically the facets of Anxiety, Depression, and Vulnerability.

The eighth dimension appears to reflect the tendency to feel that others have high expectations, expect one to be perfect, or are critical of one's performance. It may also reflect the tendency to feel that if one isn't perfect, others will disapprove or be upset. This dimension was called Perceived Pressure from Others, and appears similar to the HMPS Socially Prescribed Perfectionism scale. It was hypothesized to be related to NEO-PI-R Neuroticism, specifically the Vulnerability facet within this domain.

The ninth, and last, dimension appears to reflect the tendency to engage in black-and-white thinking as related to having high standards, or the tendency to think that if something is not perfect, it is all bad or a failure, and that if one cannot do something perfectly, there is little point in doing it at all. Some items form the FMPS scale, such as "If I do no set the highest standards for myself, I am likely to end up a second-rate person", appear to reflect this dimension, which was called Black and White Thinking. This dimension was hypothesized to be related NEO-PI-R Neuroticism, more specifically the Depression and Anxiety facets within this domain.

In summary, following a literature review and a close review of items on each of the previously described fourteen scales used to measure perfectionism, nine personality dimensions hypothesized to underlie perfectionism were identified. These dimensions are High Standards, Order, Details and Checking, Perfectionism toward Others, Satisfaction, Dissatisfaction, Reactivity to Mistakes, Perceived Pressure from Others, and Black and White Thinking.

Sorting items from existing perfectionism scales onto the nine dimensions

Three graduate students were trained on the nine hypothesized dimensions of perfectionism and their definitions. They were blind to which scales items originally came from and also to which scales or items were hypothesized to reflect each dimension. Raters were trained on one dimension at a time. After training on a dimension, they rated each item from the existing perfectionism scales on the dimension they had just been trained on. After completing ratings on one dimension, they were trained on another dimension, and so on. Ratings were on a scale of 1 to 5, a rating of 5 implying that an item is prototypical of the dimension and a rating of 1 implying that an item does not seem related at all to the dimension. In this way, raters identified items from the previously described fourteen scales which appeared prototypic or very closely related to each domain.

Data analyses

In order to examine whether items from the existing scales of perfectionism were reliably sorted onto the nine hypothesized underlying dimensions, intra-class correlations were run using a two-way mixed model and examining absolute agreement between raters.

Results

Intra-class correlations for the nine hypothesized dimensions were the following: High Standards: .83; Order: .95; Details and Checking: .84; Dissatisfaction: .78; Perceived Pressure from Others: .88; Perfectionism toward Others: .90; Reactivity to Mistakes: .90; Satisfaction: .82; Black and White Thinking: .91.

Pilot study Discussion

Inter-rater agreement for all dimensions, with the exception of Dissatisfaction, was above .80, indicating good inter-rater agreement. In conclusion, items from existing measures of perfectionism were able to be reliably sorted onto the nine hypothesized dimensions of perfectionism.

SECTION THREE: MAIN STUDY PART 1

The second aim of the present study was to construct a new measure of perfectionism (M-CUP) which measures the nine hypothesized facets of perfectionism and to examine the factor structure of this new scale using both exploratory and confirmatory factor analyses.

Construction of the initial item pool

The ratings made by the trained raters were examined for each of the nine dimensions and items were identified which were rated to represent one dimension highly (rated a 5 on that domain by at least 1 other rater, with one exception in which I included an item with a highest rating of 4) and were not rated to represent any other domain highly (rated a 1 or 2 on all other domains by all raters). We identified items to use in the original item pool based on these ratings. Items were also chosen for use in order to maximize representation of the content domain for each dimension; thus, if two items were judged to be almost identical in content, only one item was chosen for use in the original item pool. Based on these criteria, 72 items were chosen: 10 items representing High Standards, 9 items representing Order, 6 items representing Details and Checking, 8 items representing Perfectionism toward Others, 6 items representing Satisfaction, 8 items representing Dissatisfaction, 5 items representing Reactivity to Mistakes, 10 items representing Perceived Pressure from Others, and 10 items representing Black and White Thinking.

Next each of these 72 items was rewritten in order to maximize the unidimensionality and representativeness of each item's respective dimension of perfectionism, as well as to minimize any potential ambiguity in item interpretation by someone responding to the item. For example, the item "I like the challenge of setting very high standards for myself" (PANPS item 40) was rewritten to state "I tend to set very high standards for myself" because the phrase "I like the challenge" was judged to add content other than an individual having high standards for themselves. The item "I cannot stand to see people close to me make mistakes" (HMPS item 27) was rewritten to state "I really don't like to see people close to me make mistakes" in order to decrease the affective loading of the item ("I cannot stand" may be hypothesized to also measure affective reactivity). In addition, because some dimensions had fewer than 8 items representing them, new items were written for some of the dimensions. This was done so that each dimension would be equally represented when entered into a factor analysis. Because these new items had not previously been rated to represent each content domain and had not been used in previous measures of perfectionism, more than one item was written for each dimension for which new items were written. Three new items were written for the Details and Checking dimension, four new items were written for the Satisfaction dimension, three new items were written for the Dissatisfaction dimension, and four new items were written for the Reactivity to Mistakes dimension. The items rewritten from other perfectionism scales and the new items resulted in an initial item pool consisting of 86 items.

Method

Participants

This study was approved by the Institutional Review Board of the University of Kentucky. Participants were 1465 undergraduate psychology students taking part in a screening conducted for all psychology 100 students. Participants received credit toward their research participation requirement for participating in the study. Demographic information was available for approximately half the sample; the available demographic information indicated the sample was biased toward females (Male = 34.7%, Female = 65.3%) and was primarily Caucasian (Caucasian = 86.9%, African American = 8.3%, Other = 4.8%).

Measure

Participants completed the previously mentioned pool of 86 items. Item responses were on a 5-point Likert scale (1 = strongly disagree, 2 = somewhat disagree, 3 = neutral, 4 = somewhat agree, 5 = strongly agree).

Data analysis

Because there were no significant differences between individuals who were missing data and those who were not missing data on any demographic variables, it was concluded that data was missing at random. Missing values were imputed using the expectation-maximization (EM) procedure (Enders, 2006). Next, half the sample (N = 733) was randomly selected for the exploratory factor analysis while the other half of the sample (N = 732) was used for confirmatory factor analysis.

For the exploratory factor analysis, common factor analysis with oblique rotation was conducted, because it was not presumed that the underlying personality dimensions are orthogonal to each other. The best-fitting solution was chosen using the following criteria: eigenvalues greater than 1 and scree plot indications that a set of factors is predominant.

For the confirmatory factor analysis on the second half of the sample, four fit indices were used: the Comparative Fix Index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). Overall evaluation of model fit is made by considering the values of each of the four fit indices. Rules of thumb vary: CFI and TLI values of either .90 or greater (Kline, 2005) or .95 or greater (Hu & Bentler, 1999) are thought to represent very good fit. RMSEA values of .06 or less are thought to indicate a close fit, .08 a fair fit, and .10 a marginal fit and SRMR values of approximately .09 or less tend to indicate good fit (Browne & Cudeck, 1993; Hu & Bentler, 1999).

Results

Exploratory factor analysis

An exploratory factor analysis using common factor analysis with oblique rotation was conducted on the pool of 86 items. Examination of the scree plot and eigenvalues greater than one suggested a 14 factor solution. These fourteen factors explained 63.75% of the variance in the items. Eigenvalues of the first two factors extracted were 17.42 and

13.14 and explained 20.25% and 15.28% of the variance in the items, respectively. Examination of the item loadings on these first two factors revealed, however, that very few items loaded strongly on either of these two factors. For the first extracted factor, only eight items had factor loadings above .2 in the rotated solution. For the second factor, only four items had factor loadings above .2 in the rotated solution. It was concluded that these first two extracted factors likely represented higher order factors. Table 1 presents the factor loadings for each of the 86 items for the 14 extracted factors.

Because a goal of the present study was to construct a scale measuring the unidimensional facets underlying the term perfectionism, items were considered representative of an extracted factor if they loaded highly on their respective factor but also had reasonable simple structure, that is, they did not load highly on any other factor. For the present study, the rule that items must load at least .2 higher on their respective factor than on any other factor was used. Factor loadings meeting this rule are shown in bold in Table 1. Using this rule, the content of items loading on each factor was examined.

Items loading on factor 3 represented a tendency to prefer order and organization and were consistent with the originally hypothesized dimension of Order; this factor was thus named Order. Items loading on factor 4 represented a tendency to experience positive affect after completing or accomplishing something and were consistent with the originally hypothesized dimension of Satisfaction; this factor was thus named Satisfaction. Items loading on factor 5 represented a tendency to check one's work to make sure the details are correct or there are no mistakes; this was consistent with the originally hypothesized dimension of Details and Checking and was thusly named. Items loading on factor 6 represented a tendency to have high standards and expectations for others and were consistent with the originally hypothesized dimension of Perfectionism toward Others; this factor was thus named Perfectionism toward Others. Items loading on factor 7 represented a tendency to have high goals and to set high standards for oneself and were consistent with the originally hypothesized dimension of High Standards; this factor was thus named High Standards. Items loading on factor 8 represented a tendency to not engage in tasks if one cannot do them perfectly. Although this was mostly consistent with the originally hypothesized dimension of Black and White Thinking, the items loading on factor 8 represented a more restricted content domain than originally hypothesized. This factor was thus named Black and White Thinking about Tasks and Activities. Items loading on factor 9 represented a tendency to feel that others have high expectations for oneself or expect one to be perfect; this was consistent with the originally hypothesized dimension of Perceived Pressure from Others and was thus named Perceived Pressure from Others. Items loading on factor 13 represented a tendency to feel that one is not meeting one's own goals and standards or to feel that one's performance is not good enough and were consistent with the originally hypothesized dimension of Dissatisfaction; this factor was thus named Dissatisfaction.

There were no items loading on factor 2 which met criteria for loading on the respective factor at least .2 higher than their loading on any other factor. Examination of items loading on factors 1, 10, 11, 12, and 14 revealed that items loading on these five factors all represented a tendency to react with negative affect to mistakes or when not having done something perfectly. This was consistent with the originally hypothesized dimension of Reactivity to Mistakes. It was hypothesized that this dimension may have

split into several factors secondary to method variance—items loading on factor 14 were all negatively keyed while items loading on factor 11 mentioned failure. An initial analysis of all the items loading on these five factors revealed that a scale composed of all these items would nonetheless have high internal consistency (Cronbach's $\alpha = .85$). Due to the consistency in content of all items loading on factors 1, 10, 11, 12, and 14, it was tentatively assumed that these items may represent one dimension, which was named Reactivity to Mistakes.

Further reduction of the item pool

Internal reliability statistics for the items loading with reasonable simple structure on each factor were examined. Items were dropped from use in a scale if their inclusion detracted from internal consistency; in other words, items were dropped from a scale if their deletion resulted in an increase in Cronbach's alpha for the scale. Using this rule, 9 items were retained for the Order scale, 9 items were retained for the Satisfaction scale, 5 items were retained for the Details and Checking scale, 6 items were retained for the Perfectionism toward Others scale, 6 items were retained for the High Standards scale, 4 items were retained for the Black and White Thinking about Tasks and Activities scale, 6 items were retained for the Perceived Pressure from Others scale, 9 items were retained for the Dissatisfaction scale, and 7 items were retained for the Reactivity to Mistakes scale. Items used in the final scales are denoted by an asterisk in Table 1 and the entire scale is presented in Appendix I.

Exploratory analysis of two higher order factors

Further, the possibility of two higher order scales was examined. An exploratory factor analysis using common factor analysis with oblique rotation was conducted on the 9 extracted scales. Examination of the scree plot and eigenvalues greater than one suggested a two factor solution. The first extracted factor had an eigenvalue of 3.09 and explained 34.37% of the variance in the scales while the second extracted factor had an eigenvalue of 2.10 and explained 23.39% of the variance in the scales. Factor 1 was comprised of the scales Order, Satisfaction, Details and Checking, Perfectionism toward Others, and High Standards; these scales appear to represent a more healthy or positive aspect of perfectionism. Factor 2 was comprised of Black and White Thinking about Tasks and Activities, Perceived Pressure from Others, Dissatisfaction, and Reactivity to Mistakes; these scales appear to represent an aspect of perfectionism that may be related to neuroticism. Factor loadings of the scales are presented in Table 2.

Confirmatory factor analyses

Confirmatory factor analyses were run on the second half of the sample (N = 732). Five different models were tested for fit in the confirmatory factor analysis stage: a base model with the 9 scales of the M-CUP; a model with the 9 scales of the M-CUP, scales 1 to 5 loading on one higher order factor (Ego-Syntonic), and scales 6 to 9 loading on a second higher order factor (Ego-Dystonic); a more parsimonious two-factor model; a model with all 61 items loading on one factor; and a model with all items in scales 1 through 5 loading on one factor and all items in scales 6 through 9 loading on one factor. The difference in the chi-squared statistic was examined for the second model compared

to the first model (9 scales of the M-CUP) to examine whether this model fit significantly worse than the base model.

As described above, the first model tested was a 9 factor solution with the previously constructed scales. All indices indicated good fit (CFI = .90, TLI = .90, RMSEA = .04, SRMR = .05). Loadings of the items on each of the nine factors are presented in Table 3 and showed that all items loaded very highly on their respective factors; with the exception of seven items, all factor loadings were .60 or above and the lowest factor loading was .47 (item 37 on factor 4 Perfectionism toward Others). Correlations between the scales are presented in Table 4.

I then tested the hypothesis that there are two higher order factors. A confirmatory factor analysis was run with the 9 scales as well as two higher order factors, with Order, Satisfaction, Details and Checking, Perfectionism toward Others, and High Standards loading on the first higher order factor and Black and White Thinking about Tasks and Activities, Perceived Pressure from Others, Dissatisfaction, and Reactivity to Mistakes loading on the second higher order factor. Because the scales (and their respective items) loading onto the first higher order factor appeared to measure dimensions underlying perfectionism which did not involve subjective distress, while the scales (and their respective items) loading onto the second higher order factor appeared to measure dimensions underlying perfectionism which had a component of distress, these two higher order factors were tentatively named Ego-Syntonic and Ego-Dystonic, respectively. Fit indices for this model indicated good, although slightly decreased fit (CFI = .89, TLI = .89, RMSEA = .05, SRMR .08). Scale loadings onto the higher order factors were all above .50 (presented in Table 5). The correlation between the two higher order factors was .27, indicating that the factors do not share a substantial amount of variance. The difference in the chi-squared statistic between this model and the base model was significant, indicating this model fit the actual data significantly worse than the base model (χ^2 difference = 302.63, df = 26; $p < .001$), although the difference in other indices of fit between these two models was negligible.

Next, given the evidence for the existence of two higher order factors, the fit of a more parsimonious solution with just 2 factors (the two higher order factors Ego-Syntonic and Ego-Dystonic) was examined. This test was not a hierarchical one; rather, it was a test of whether the 61 items could be explained with 2 factors. Fit indices indicated poor fit (CFI = .56, TLI = .54, RMSEA = .09, SRMR = .12).

Finally, confirmatory factor analyses were run to rule out the hypothesis of the existence of an overarching latent factor of ‘perfectionism’. A model in which all 9 scales were constrained to load onto one higher order factor showed less than adequate fit (CFI = .87, TLI = .86, RMSEA = .05, SRMR = .13). Factor loadings of the 9 scales onto the higher order factor ranged from .02 (suggesting the higher order factor accounted for less than 1% of the variance in the scale) to .98, and factor loadings for 5 scales were less than .3, suggesting the higher order factor accounted for less than 9% of the variance in those 5 scales. Further, a model in which all 61 items were constrained to load onto one higher order factor showed very poor fit (CFI = .33, TLI = .31, RMSEA = .11, SRMR = .17). Factor loadings for 15 items were less than .2 (lowest factor loading = -.042), suggesting the broad factor accounted for less than 4% of the variance in the item. Factor loadings for a further 13 items were less than .3, suggesting the broad factor accounted for less than 9% of the variance in the item. Thus, it does not appear to be the case that the 9

factors, and the content encompassed in the items, are representative of a trait of perfectionism; instead perfectionism appears better explained by several underlying traits.

Examination of scale internal reliability

Internal reliability to the 9 scales was examined for the entire sample (N = 1465). Cronbach's alpha and item-total correlations for each of the nine scales are presented in the second and third columns of Table 6. With the exception of Perfectionism toward Others (α = .79), Cronbach's alpha for all other scales was above .80, indicating good internal consistency (Order α = .96, Satisfaction α = .88, Details and Checking α = .90, High Standards α = .92, Black and White Thinking about Tasks and Activities α = .85, Perceived Pressure from Others α = .87, Dissatisfaction α = .89, Reactivity to Mistakes α = .86). Item total correlations were above .70 for all items in the Order and High Standards scales, above .60 for all items in the Details and Checking and Black and White Thinking about Tasks and Activities scales, and above .50 for all items the Satisfaction, Perceived Pressure from Others, Dissatisfaction, and Reactivity to Mistakes scales. Item total correlations for the Perfectionism toward Others scale ranged from .46-.61. Overall, these statistics indicate good internal consistency and reliability.

Discussion

The core hypothesis of the present study was that an overarching trait of perfectionism does not exist; rather, it was hypothesized that existing measures of perfectionism measure nine traits underlying a domain which is referred to as perfectionism by researchers. These hypotheses were strongly supported in part one of the present study. Results from both exploratory and confirmatory factor analyses were consistent with the a priori hypothesized nine dimensions. The scales created in the present study, the M-CUP, were shown to have good internal consistency and reliability, further supporting the existence of nine dimensions underlying what is referred to as perfectionism. Further, results from confirmatory factor analyses ruled out the hypothesis that a single latent factor of perfectionism underlies all the nine factors found in the present study or all the 61-items of the M-CUP. Thus, it does not appear that a trait of perfectionism exists; instead, it appears that several traits comprise what researchers have referred to as perfectionism.

In addition, evidence for the presence of two higher order factors emerged from both exploratory and confirmatory factor analyses. In both exploratory and confirmatory factor analyses, the scales of Order, Satisfaction, Details and Checking, Perfectionism toward Others, and High Standards loaded onto one higher order factor (Ego-Syntonic) while the scales of Black and White Thinking about Tasks and Activities, Perceived Pressure from Others, Dissatisfaction, and Reactivity to Mistakes loaded onto a second higher order factor (Ego-Dystonic). This finding is consistent with findings of previous researchers who have found that measures of perfectionism or scales within perfectionism measures have a two factor structure; a healthy or adaptive factor, and an unhealthy or maladaptive factor (Aldea & Rice, 2006; Bieling et al., 2004; Dunkley et al., 2003; Enns et al., 2001; Frost et al., 1993; Parker & Stumpf, 1995; Rice & Mirzadeh, 2000). However, a parsimonious model with items loading onto these two higher order factors without the 9 scales provided a poor fit to the data. This suggests that although

research, including the present study, has consistently found the presence of two such higher order factors, one should not consider these two factors as representing unidimensional constructs. Rather, it appears that these two higher order dimensions appear to describe one common element to the scales that load on them, rather than explain the underlying trait of perfectionism.

These findings suggest that instead of referring to perfectionism and using global scale scores, researchers should instead focus on specific, homogeneous, well-defined scales in order to advance research regarding the consequences of high or low levels of the traits underlying perfectionism.

Table 1. Factor loadings for the initial exploratory factor analysis.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I am a person who sets high standards for myself							-**.73***							
I like things to be neat			**.89***											
I want my work to be accurate, even at the expense of time		-.34			-.32		-.22							
I expect others to excel at whatever they do		-.28				**.52***								
I feel great when do well at something		-.27		**.63***										
I often don't live up to my own standards													-**.62***	
I do not get angry if I make a mistake										.20				**.41**
I often feel that people make excessive demands of me									**.53***					
I often conclude that something is completely wrong if it is not perfect		-.27									.31			
I do not have high goals for myself							**.53**							.27
Neatness is of great importance to me			**.80***											
I often check my work carefully to make sure there are no mistakes					-**.82***									
I don't care if someone close to me does not do their best						-.40								.22
I feel great satisfaction when I feel I have perfected something				**.61***										
I rarely feel that what I have done is good enough													-**.52***	
I feel OK if I make a mistake														**.49**
Others expect me to be perfect									**.77***					
I tend to think in terms of "all good or all bad" or "all successful or all failing"											.39			
I have very high goals							-**.81***							
Things should always be put away in their place			**.78***											
I often check my work several times to find any mistakes					-**.87***									
It is important to me that the people I am close to are successful						**.59***								
After completing a task, I feel happy				**.67***										

Table 1 (continued).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
No matter how well I do, I still feel that I could have done better													**-.50***	
When I make a mistake, I feel really bad										**-.58***				
People expect perfection of me									**.76***					
I will not do something if I cannot do it perfectly								**.78***						
My goals are not very high							**.44**							.23
I want things to always be in order			**.81***											
I don't pay much attention to the details in my work					.38									
I really don't like to see people close to me make mistakes						**.51***								
I get excited when I do a good job				**.70***										
It feels like my best is never good enough													**-.59***	
I feel ashamed if I don't perform perfectly								.41		-.21			-.21	
People expect me to succeed at everything I do									**.68***					
I have to do things perfectly-or I shouldn't do them at all								**.84***						
I tend to set very high standards for myself							**-.75***							
I like things to always be organized			**.90***											
Even when writing to a friend, I check it over to make sure there are no errors					**-.48**									
I have high standards for the people who are important to me						**.71***								
Doing a great job is really rewarding				**.67***										
I always tend to feel that something in my work is not right										-.31			-.48	
I become upset when I make a mistake	.30									**-.53***				
People expect high levels of performance from me									**.70***					
I won't do things if I can't do them perfectly								**.62***				.30		
I definitely have high standards							**-.76***							
I like to be orderly in the way I do things			**.76***											

Table 1 (continued).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
It takes me a long time to do something because I check my work many times					**-.70***									
I always want high quality work from others						**.57***						-.26		
Even when I achieve my goals I don't feel satisfied											.24		-.37	
My performance rarely meets my standards													**-.59***	
I become anxious when I make a mistake	.25											-.45		
If I do something that is less than excellent, others will see it as poor work												-.38		
There's no point in doing something if I cannot do it perfectly								**.70***						
I expect high levels of performance from myself							**-.69***							
I try to be a very neat person			**.86***											
It is important to me that even the details be correct in everything that I do			.27		-.38									
I do not have very high standards for others						**-.43**								
I feel satisfied when I accomplish something				**.70***										
Even when I do something very carefully, I often feel that something is still wrong												-.41	-.43	
I become very frustrated when I do not do something perfectly								.20				**-.50***		.22
I feel others get very upset with me if I make a mistake									.28			-.30		
If I fail at something, then I am a failure as a person								.26			.40			
I set extremely high standards for myself							**-.71***							
I try to always be very organized			**.89***											
When I look over something, I often check over the small details					**-.68***									
I expect a lot from my friends						**.46***								
I experience positive feelings after I achieve something				**.73***										
I feel I often fall short of the kind of person I want to be													**-.62***	
I feel crushed after I make a mistake	**.42***													

Table 1 (continued).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I feel that others judge the standard of my work critically	.42								.31					
If one thing goes wrong, I feel that I cannot do anything right	**.34***										.34*			
I am concerned with meeting standards	.33													
I feel that I am an organized person			**.82***											
I may check my work several times to make sure the details are correct					- **.87***									
I feel pleasure when I complete tasks				**.58***										
I often feel dissatisfied with my work/performance													- **.60***	
Mistakes in my work make me very upset	.41													
I feel like my best is never good enough for other people									.23		.27		- **.47***	
I feel like a complete failure if I do not do something perfectly											**.52***		-.20	
I try to work to my full potential at all times					-.21		-.33							
I feel satisfied with my work after I do something well				**.68***										
My work never feels good enough											.34		-.51	
People expect a lot from me							-.22		**.64***					
If I notice I made a mistake in my work, I feel like I failed the whole task											**.45***			
I always feel like there is something wrong in my work/performance											.27		- **.48***	

n = 733; Only loadings above .2 are presented; Items in bold represent items with reasonable simple structure (loading on respective factor higher than loading on other factors by at least .2); * item was used in final scale and confirmatory factor analyses

Table 2. Loadings of 9 scales on two-higher order factors using exploratory factor analysis.

	Factor 1	Factor 2
Order	**.59**	.04
Satisfaction	**.58**	.17
Details and Checking	**.64**	-.03
Perfectionism Toward Others	**.56**	-.18
High Standards	**.78**	-.08
Black and White Thinking about Tasks and Activities	-.04	**-.64**
Perceived Pressure from Others	.28	**-.47**
Dissatisfaction	-.12	**-.80**
Reactivity to Mistakes	.05	**-.85**

n = 733; Loadings presented in bold represent the higher order factor which that scale loaded on.

Table 3. Confirmatory factor analysis. Loadings of items on factors.

	Factor loading
Factor 1 Order	
2. I like things to be neat	.84
7. Neatness is of great importance to me	.81
13. Things should always be put away in their place	.76
21. I want things to always be in order	.79
28. I like things to always be organized	.88
35. I like to be orderly in the way I do things	.85
41. I try to be a very neat person	.89
45. I try to always be very organized	.91
52. I feel that I am an organized person	.85
Factor 2 Satisfaction	
4. I feel great when I do well at something	.61
9. I feel great satisfaction when I feel I have perfected something	.59
16. After completing a task, I feel happy	.63
23. I get excited when I do a good job	.71
30. Doing a great job is really rewarding	.72
42. I feel satisfied when I accomplish something	.74
48. I experience positive feelings after I achieve something	.68
54. I feel pleasure when I complete tasks	.62
58. I feel satisfied with my work after I do something well	.63
Factor 3 Details and Checking	
8. I often check my work carefully to make sure there are no mistakes	.84
14. I often check my work several times to find any mistakes	.86
36. It takes me a long time to do something because I check my work many times	.81
46. When I look over something, I often check over the small details	.66
53. I may check my work several times to make sure the details are correct	.84
Factor 4 Perfectionism Toward Others	
3. I expect others to excel at whatever they do	.61
15. It is important to me that the people I am close to are successful	.67
22. I really don't like to see people close to me make mistakes	.47
29. I have high standards for the people who are important to me	.68
37. I always want high quality work from others	.69
47. I expect a lot from my friends	.54

Table 3 (continued).

	Factor loading
Factor 5 High Standards	
1. I am a person who sets high standards for myself	.79
12. I have very high goals	.83
27. I tend to set very high standards for myself	.80
34. I definitely have high standards	.84
40. I expect high levels of performance from myself	.78
44. I set extremely high standards for myself	.83
Factor 6 Black and White Thinking about Tasks and Activities	
20. I will not do something if I cannot do it perfectly	.76
26. I have to do things perfectly-or I shouldn't do them at all	.80
33. I won't do things if I can't do them perfectly	.70
39. There's no point in doing something if I cannot do it perfectly	.78
Factor 7 Perceived Pressure from Others	
6. I often feel that people make excessive demands of me	.59
11. Others expect me to be perfect	.81
19. People expect perfection of me	.83
25. People expect me to succeed at everything I do	.81
32. People expect high levels of performance from me	.77
59. People expect a lot from me	.68
Factor 8 Dissatisfaction	
5. I often don't live up to my own standards	.59
10. I rarely feel that what I have done is good enough	.63
17. No matter how well I do, I still feel that I could have done better	.55
24. It feels like my best is never good enough	.77
38. My performance rarely meets my standards	.69
49. I feel I often fall short of the kind of person I want to be	.65
55. I often feel dissatisfied with my work/performance	.70
56. I feel like my best is never good enough for other people	.76
61. I always feel like there is something wrong in my work/performance	.77
Factor 9 Reactivity to Mistakes	
18. When I make a mistake, I feel really bad	.60
31. I become upset when I make a mistake	.65
43. I become very frustrated when I do not do something perfectly	.67
50. I feel crushed after I make a mistake	.65
51. If one thing goes wrong, I feel that I cannot do anything right	.74

Table 3 (continued).

	Factor loading
57. I feel like a complete failure if I do not do something perfectly	.76
60. If I notice I made a mistake in my work, I feel like I failed the whole task	.72

n = 732.

Table 4. Correlations between M-CUP scales obtained from confirmatory factor analysis.

	Order	Satis-faction	Details/ Checking	Perf. Toward Others	High Standards	Black/ White Thinking	Perceived Pressure	Dissatis-faction
Order	1.00							
Satis-faction	.36	1.00						
Details/ Checking	.57	.28	1.00					
Perf. Toward Others	.32	.32	.34	1.00				
High Standards	.44	.42	.46	.61	1.00			
Black/ White Thinking	.15	-.08	.26	.22	.19	1.00		
Perceived Pressure	.14	.12	.22	.48	.41	.43	1.00	
Dissatis-faction	-.04	-.13	.07	.13	.05	.59	.43	1.00
Reactivity to Mistakes	.16	.02	.26	.23	.22	.72	.49	.83

For all correlations, $n = 732$.

Table 5. Loadings of the scales onto two higher order factors obtained from confirmatory factor analysis.

	Factor 1	Factor 2
Order	.64	
Satisfaction	.50	
Details and Checking	.66	
Perfectionism Toward Others	.65	
High Standards	.77	
Black and White Thinking about Tasks and Activities		.72
Perceived Pressure from Others		.52
Dissatisfaction		.83
Reactivity to Mistakes		.99

For all loadings, $n = 732$.

Table 6. Internal consistency and corrected item-total correlations for 9 scales in part 1 of main study (N = 1465) and part 2 of main study (N = 687).

	Part 1 (N = 1465)		Part 2 (N = 687)	
	Cronbach's α	Corrected item-total correlation	Cronbach's α	Corrected item-total correlation
Factor 1 Order	.96		.96	
2. I like things to be neat		.84		.81
7. Neatness is of great importance to me		.80		.81
13. Things should always be put away in their place		.76		.80
21. I want things to always be in order		.77		.79
28. I like things to always be organized		.86		.91
35. I like to be orderly in the way I do things		.81		.82
41. I try to be a very neat person		.85		.89
45. I try to always be very organized		.88		.90
52. I feel that I am an organized person		.80		.83
Factor 2 Satisfaction	.88		.92	
4. I feel great when I do well at something		.60		.65
9. I feel great satisfaction when I feel I have perfected something		.59		.64
16. After completing a task, I feel happy		.62		.73
23. I get excited when I do a good job		.67		.74
30. Doing a great job is really rewarding		.66		.76
42. I feel satisfied when I accomplish something		.67		.76
48. I experience positive feelings after I achieve something		.66		.77
54. I feel pleasure when I complete tasks		.58		.62
58. I feel satisfied with my work after I do something well		.62		.74
Factor 3 Details and Checking	.90		.90	
8. I often check my work carefully to make sure there are no mistakes		.79		.73
14. I often check my work several times to find any mistakes		.81		.76

Table 6 (continued).

	Part 1 (N = 1465)		Part 2 (N = 687)	
	Cronbach's α	Corrected item-total correlation	Cronbach's α	Corrected item-total correlation
36. It takes me a long time to do something because I check my work many times		.74		.72
46. When I look over something, I often check over the small details		.64		.75
53. I may check my work several times to make sure the details are correct		.80		.83
Factor 4 Perfectionism Toward Others	.79		.84	
3. I expect others to excel at whatever they do		.53		.45
15. It is important to me that the people I am close to are successful		.59		.66
22. I really don't like to see people close to me make mistakes		.45		.55
29. I have high standards for the people who are important to me		.61		.70
37. I always want high quality work from others		.58		.62
47. I expect a lot from my friends		.46		.69
Factor 5 High Standards	.92		.93	
1. I am a person who sets high standards for myself		.76		.71
12. I have very high goals		.79		.82
27. I tend to set very high standards for myself		.78		.84
34. I definitely have high standards		.81		.84
40. I expect high levels of performance from myself		.75		.79
44. I set extremely high standards for myself		.79		.81
Factor 6 Black and White Thinking about Tasks and Activities	.85		.91	
20. I will not do something if I cannot do it perfectly		.71		.75
26. I have to do things perfectly-or I shouldn't do them at all		.71		.82

Table 6 (continued).

	Part 1 (N = 1465)		Part 2 (N = 687)	
	Cronbach's α	Corrected item-total correlation	Cronbach's α	Corrected item-total correlation
33. I won't do things if I can't do them perfectly		.65		.83
39. There's no point in doing something if I cannot do it perfectly		.72		.81
Factor 7 Perceived Pressure from Others	.87		.89	
6. I often feel that people make excessive demands of me		.53		.54
11. Others expect me to be perfect		.74		.78
19. People expect perfection of me		.74		.79
25. People expect me to succeed at everything I do		.71		.74
32. People expect high levels of performance from me		.71		.72
59. People expect a lot from me		.64		.69
Factor 8 Dissatisfaction	.89		.89	
5. I often don't live up to my own standards		.58		.52
10. I rarely feel that what I have done is good enough		.60		.56
17. No matter how well I do, I still feel that I could have done better		.52		.55
24. It feels like my best is never good enough		.70		.72
38. My performance rarely meets my standards		.66		.70
49. I feel I often fall short of the kind of person I want to be		.63		.70
55. I often feel dissatisfied with my work/performance		.67		.72
56. I feel like my best is never good enough for other people		.69		.69
61. I always feel like there is something wrong in my work/performance		.69		.71
Factor 9 Reactivity to Mistakes	.86		.88	
18. When I make a mistake, I feel really bad		.57		.60
31. I become upset when I make a mistake		.64		.63

Table 6 (continued).

	Part 1 (N = 1465)		Part 2 (N = 687)	
	Cronbach's α	Corrected item-total correlation	Cronbach's α	Corrected item-total correlation
43. I become very frustrated when I do not do something perfectly		.58		.67
50. I feel crushed after I make a mistake		.62		.76
51. If one thing goes wrong, I feel that I cannot do anything right		.64		.67
57. I feel like a complete failure if I do not do something perfectly		.66		.67
60. If I notice I made a mistake in my work, I feel like I failed the whole task		.63		.69

SECTION FOUR: MAIN STUDY PART 2

In part 2 of this study, the M-CUP, measures of personality, measures of perfectionism, and measures of psychosocial outcome variables of interest were administered to a sample of undergraduate students, some of who had also completed the M-CUP (as part of the initial 86 item pool) in part 1 of the main study. First, internal consistency and test-retest reliability of the M-CUP was examined to add further supporting evidence regarding the psychometric properties of the scale. Next, relationships between the 9 subscales of the 61-item measure and other measures of personality, perfectionism, and psychosocial functioning were examined in order to examine the construct validity of the new scale and to place this new scale within a comprehensive framework of personality, the Five Factor Model (FFM, Costa & McCrae, 1992).

Methods

Participants

Participants were 687 undergraduate psychology students who completed the experiment as part of the research requirements for psychology 100. They signed up for the experiment via a website used for psychology 100 research credit participation. A subset of this sample (N = 483) had also completed part 1 of this study, allowing for estimation of test-retest reliability at various time intervals. Participants in this sample were 69.9% female and 30.1% male, suggesting the sample was biased toward females. Participants were primarily Caucasian (Caucasian = 85.6%, African American = 7.6%, Asian American = 2.2%, Hispanic American = 2.2%, Other = 2.5%) and in their first year of college (First year = 63.7%, Second year = 22.2%, Third year = 8.7%, Fourth year = 3.1%, Fifth year or greater = 2.3%). The average age of the participants was 18.93. Reported education level of participants' mothers was the following: college graduate = 43.1%, some college = 23.4%, high school graduate or GED = 16.2%, post college education = 16.2%, and no high school diploma or GED = 1.2%. Reported education level of participants' fathers was the following: college graduate 42.0%, high school graduate of GED = 18.8%, post college education = 18.8%, some college = 17.2%, and no high school diploma or GED = 3.2%.

Measures

Demographics Questionnaire. The demographics questionnaire asked participants to report their gender, age, years of college completed, their mother's and father's occupation, and their race.

Measures of perfectionism

In order to increase comparability between the measures of perfectionism, all the items for all the scales measuring perfectionism were adapted to a five point Likert format ranging from one to five. The five point Likert format was chosen because most of the scales already were in that format.

Measure of Constructs Underlying Perfectionism (M-CUP). The M-CUP is the new measure of constructs underlying perfectionism that was developed in the pilot study and part 1 of the present study. The M-CUP is presented in Appendix I.

Frost Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990). The FMPS was described previously. In the present study, Cronbach's alpha for the subscales of the FMPS ranged from .78 (Doubts about Actions) to .96 (Organization).

Hewitt Multidimensional Perfectionism Scale (HMPS; Hewitt & Flett, 1991). The HMPS was described previously. In the present study, Cronbach's alpha for the subscales of the HMPS ranged from .78 (Other Oriented Perfectionism) to .90 (Self-Oriented Perfectionism).

Almost Perfect Scale-Revised (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001). The APS-R was described previously. In the present study, Cronbach's alpha for the subscales of the APS-R ranged from .88 (Standards) to .95 (Discrepancy).

Perfectionism Questionnaire (PQ; Rheaume et al., 2000). The PQ was described previously. In the present study, Cronbach's alpha for the PQ was .95.

Positive and Negative Perfectionism Scale (PANPS; Terry-Short et al., 1995). The PANPS was described previously. In the present study, Cronbach's alpha for the two subscales of the PANPS was .90 (Positive Perfectionism) and .92 (Negative Perfectionism).

Burns Perfectionism Scale (BPS; Burns, 1980). The BPS was described previously. In the present study, Cronbach's alpha for the BPS was .86.

Depressive Experiences Questionnaire (DEQ; Blatt et al., 1976). The DEQ was described previously. For the present study, only items used in the Bagby et al. (1994) revision of the Self-Criticism scale, items used in the Santor et al. (1997) revision of the Self-Criticism scale, and items judged by the present author to be relevant to one of the nine hypothesized dimensions were used. DEQ scores were calculated based on the Bagby et al. (1994) scoring, the Santor et al. (1997) scoring, and using all the items included in the study. In the present study, Cronbach's alpha for the Santor et al. (1997) scoring was .89 and Cronbach's alpha for the Bagby et al. (1994) revision was .85.

Setting Conditions for Anorexia Nervosa Scale Perfectionism Scale (SCANS; Slade & Dewey, 1986). The SCANS was described previously. In the present study, Cronbach's alpha for the SCANS was .75.

Neurotic Perfectionism Questionnaire (NPQ; Mitzman, Slade, & Dewey, 1994). The NPQ was described previously. In the present study, Cronbach's alpha for the NPQ was .96.

*Adaptive/Maladaptive Perfectionism Scale (*AMPS; Rice & Preusser, 2002). The AMPS was described previously. In the present study, Cronbach's alpha for the subscales of the AMPS ranged from .70 (Compulsiveness) to .84 (Sensitivity to Mistakes).

Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978). The DAS was described previously. For the present study, only the 15 items found to load on the perfectionism factor by Imber and colleagues (1990) were used. In the present study, Cronbach's alpha for the DAS was .93.

HEXACO Personality Inventory-Revised Perfectionism Facet (HEXACO-PI-R; Lee & Ashton, 2004, 2006). The HEXACO-PI-R was described previously. In the present study, Cronbach's alpha for the Perfectionism facet of the HEXACO-PI-R was .79.

Perfectionistic Self Presentation Scale (PSPS; Hewitt et al., 2003). The PSPS was described previously. In the present study, Cronbach's alpha for the scales of the PSPS ranged from .82 (Nondisclosure of Imperfection) to .89 (both Perfectionistic Self Promotion and Nondisplay of Imperfection).

Perfectionism Cognitions Inventory (PCI; Flett et al., 1998). The PCI was described previously. In the present study, Cronbach's alpha for the PCI was .95.

Eating Disorders Inventory-2 Perfectionism scale (EDI; Garner, 1991). The Perfectionism scale of EDI-2 was described previously. In the present study, Cronbach's alpha for the Perfectionism scale of the EDI-2 was .76.

Perfectionism Inventory (PI; Hill et al., 2004). The PI is a factor-analytically derived 59-item scale measuring several facets of perfectionism. It was developed in order to capture more of the content domain underlying perfectionism than either the HMPS and FMPS. It consists of eight scales: Concern over Mistakes, High Standards for Others, Need for Approval, Organization, Perceived Parental Pressure, Planfulness, Rumination, and Striving for Excellence. Cronbach's alpha for the eight scales ranged from .75 to .91 and test-retest reliability over a three to six week interval ranged from .71 to .91 for the eight scales (Hill et al., 2004). In addition, higher order scales called Conscientious Perfectionism and Self-Evaluative Perfectionism, as well as a Total scale score can be calculated. In the present study, Cronbach's alpha for the subscales of the PI ranged from .86 (Striving for Excellence) to .92 (Perceived Parental Pressure).

Measures of personality

Revised NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1992). The NEO-PI-R is a 240 item measure assessing the personality traits in the FFM. It is composed of five domains—Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness—which are divided into six facets each. The NEO-PI-R is a popularly used measure of personality which has demonstrated good internal and external validity. Internal consistencies for each facet of the NEO-PI-R have been found to range from .56 to .81 (Costa & McCrae, 1992). In the present study, Cronbach's alpha for each facet of the NEO-PI-R ranged from .47 to .82.

Experimentally manipulated version of the Conscientiousness scale of the NEO-PI-R (EXP-C; Haigler & Widiger, 2001). The maladaptive revision of the Conscientiousness scale of the NEO-PI-R was created by rewriting each item to be opposite in the direction in which the item was originally keyed. If an item was judged to represent relatively more adaptive or desirable characteristics, the item was rewritten to represent more maladaptive or undesirable characteristics, and vice versa. Because 90% of the items in the Conscientiousness scale were judged to originally reflect adaptive of desirable behavior, 90% of the items were rewritten to represent maladaptive versions of the behaviors assessed. For example the item "I think things through before coming to a decision" was rewritten as "I think about things too much before coming to a decision". In a sample of psychiatric outpatients, scores on this scale correlated .43 with scores on the Conscientiousness scale of the NEO-PI-R and the EXP-C demonstrated stronger correlations with measures of obsessive-compulsive personality traits than the Conscientiousness scale of the NEO-PI-R. In the present study, Cronbach's alpha for the facets of the maladaptive version of the Conscientiousness scale of the NEO-PI-R ranged from .53 to .70.

UPPS-P Impulsivity Scale (UPPS-P; Lynam, Smith, Whiteside, & Cyders, 2006). The UPPS-P is a 59-item scale designed to measure five distinct personality traits which can result in impulsive behavior: Negative Urgency (the tendency to engage in rash acts when experiencing negative affect), (lack of) Perseverance (the ability to persist in tasks despite boredom or fatigue), (lack of) Premeditation (the tendency to think through the consequences of one's actions before one acts), Sensation Seeking (a preference for excitement and stimulation), and Positive Urgency (the tendency to engage in rash acts when experiencing positive affect). The five scales have good internal consistency and show convergent and discriminant validity with relevant problem behaviors (Cyders et al., 2007; Smith, Fischer, et al., 2007; Whiteside, Lynam, Miller, & Reynolds, 2005). In the present study, Cronbach's alpha for the subscales of the UPPS-P ranged from .76 (Perseverance) to .95 (Positive Urgency).

Measures of psychopathology and related constructs

Eating Disorders Examination Questionnaire. (EDE-Q; Fairburn & Beglin, 1994). The EDE-Q is a questionnaire version of a semi-structured interview (EDE; Fairburn & Cooper, 1993) which assesses eating disorder symptoms. Overall scale scores, subscale scores, and ratings of binge eating and purging frequency from the EDE and EDE-Q have been found to be correlated (Fairburn & Beglin, 1994; Elder, et al., 2006). There is considerable evidence for the validity of the EDE-Q, including evidence for convergent validity, superior ability to differentiate recurrent from infrequent bingers, and the ability to validly identify weight and shape concerns (Elder et al., 2006). The EDE-Q subscales of weight concern, shape concern, eating concern, and restraint measure different aspects of the cognitive symptoms of eating disorders. In the present study, Cronbach's alpha for the global scale of the EDE-Q was .96 and for the subscales of the EDE-Q, Cronbach's alpha ranged from .80 (Eating Concerns) to .92 (Shape Concerns).

Schedule of Compulsions, Obsessions, and Pathological Impulses (SCOPI; Watson & Wu, 2005). The SCOPI is a 47-item factor analytically derived multidimensional measure of obsessive compulsive disorder symptoms. It consists of five scales: Obsessive Checking, Obsessive Cleanliness, Compulsive Rituals, Hoarding, and Pathological Impulses. The five factor structure showed good fit across samples of students, adults, and psychiatric patients. Internal consistency ranged from .82 to .91 for the individual scales in a sample of students. The SCOPI was significantly correlated with other measures of OCD symptoms. In the present study, Cronbach's alpha for the total SCOPI scale was .94 and for the SCOPI subscales, Cronbach's alpha ranged from .85 (Hoarding and Pathological Impulses) to .91 (Obsessive Checking).

Structured Clinical Interview for DSM-IV Personality Disorders Personality Questionnaire Obsessive-Compulsive Personality Disorder Items (SCID-IIP; First, Gibbon, Spitzer, Williams, & Benjamin, 1997). The SCID-IIP was designed as a screening questionnaire for use with the Structured Clinical Interview for DSM-IV Personality Disorders (SCID-II). Although originally developed as a screener, recent research suggests that it can be used as a stand-alone measure, with good convergent validity, theoretically consistent correlations with the NEO-PI-R, and significant correlations with observer ratings (Piedmont, Sherman, Sherman, & Williams, 2003). For the present study, only items pertaining to obsessive-compulsive personality disorder

were used. Internal consistency was .53 for the obsessive-compulsive scale in a previous study (Piedmont et al., 2003), as well as in the present study.

Beck Depression Inventory-Second Edition (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is a 21-item measure assessing symptoms of depression over the past two weeks. It is a widely used measure of depression. In a sample of college students, factor analysis supported a two factor solution: cognitive-affective, and somatic (Storch, Roberti, & Roth, 2004), while other studies have found a three factor solution (Osman, Downs, & Barrios, 997; Seignourel, Green, & Schmitz, 2008): negative attitudes, performance difficulties, and somatic elements. Internal consistency ranges from .86 to .92 for the total scale (Hewitt & Norton, 1993; Segal, Coolidge, Cahill, & O'Riley, 2008; Storch et al., 2004), and the BDI-II correlated with other measures of depression (Segal et al., 2008). In the present study, Cronbach's alpha for the BDI-II was .92.

Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988). The BAI is a widely used measure of anxiety symptoms (Piotrowski, 1999) which assesses physical and cognitive symptoms of anxiety. It consists of 21 items. One study found a two factor solution, comprising cognitive and physical symptoms, although the factor structure is not consistent and other studies have found different factor solutions (Hewitt & Norton, 1993). Internal consistency for the total scale was .92 (Beck et al., 1988; Hewitt & Norton, 1993). The BAI was able to discriminate anxious from non-anxious clinical groups (Beck et al., 1988). In the present study, Cronbach's alpha for the BAI was .91.

Childhood Trauma Questionnaire-Short Form (CTQ; Bernstein et al., 2003). The CTQ is a 28-item retrospective measure developed to assess experiences of childhood maltreatment. It consists of five subscales: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. This five-factor model has been supported in several studies and across both undergraduate and clinical populations (Bernstein et al., 2003; Paivio & Cramer, 2004; Scher, Stein, Asmundson, McCreary, & Forde, 2001). Internal consistencies ranged from .91 to .96 for the total scale and .58 to .97 for the subscales (Paivio & Cramer, 2004; Scher et al., 2001). In the present study, they ranged from .59 (Physical Abuse) to .97 (Sexual Abuse) for the subscales. In support of its validity, scores on the CTQ correlated significantly with observational ratings of abuse by individuals' therapists (Bernstein et al., 2003)

Affect Intensity Measure (AIM; Larsen & Diener, 1987). The AIM is a 40-item measure assessing individual differences in how strongly positive and negative emotions are experienced and how emotionally reactive an individual is to environmental factors. Two studies have found that a three factor model comprising of positive affectivity or intensity, negative intensity, and negative affectivity provided the best fit out of several competing models (Bryant, Yarnold, & Grimm, 1996; Simonsson-Sarnecki, Lundh, & Torestad, 2000). The AIM has been found to correlated with borderline personality traits (Flett & Hewitt, 1995; Yen, Zlotnick, & Costello, 2002). For the present study, the three-factor model and scoring of Simonsson-Sarnecki et al. (2000) was used. Internal consistency for the total scale has been found to range from .84 to .87 (Bryant et al., 1996; Flett & Hewitt, 1995), while internal consistency for the three factors ranged from .65 to .90 (Bryant et al., 1996). In the present study, internal consistency for the three factors ranged from .62 (Negative Reactivity) to .91 (Positive Affectivity).

Measures of achievement and well-being

Ryff Psychological Well-Being Scales-Environmental Mastery and Positive Relationships with Others (*Positive Relationships with Others and Environmental Mastery;* Ryff, 1989). The Ryff Psychological Well-Being Scales measure well being across the domains of Autonomy, Environmental Mastery, Personal Growth, Positive Relationships with Others, Purpose in Life, and Self-Acceptance. Scales of varying lengths have been developed and used. For the present study, 3 item versions of the Environmental Mastery and Positive Relationships with Others scales were used. High scorers on the Environmental Mastery scale tend to feel competent in managing their environment and are able to create an environmental context based on their personal needs and values. High scorers on the Positive Relationships with Others scale tend to have warm and satisfying relationships with others. The 3-item scales correlate .70 to .89 with their respective longer 20-item scales and have internal consistency ranging from .33 to .56 (Ryff & Keyes, 1995). In the present study, internal consistencies of the Environmental Mastery and Positive Relationships with Others subscales were .59 and .62, respectively. Although the internal consistency of the 3-item scales is less than adequate secondary to the brevity of these scales, the factorial validity of using 3-item scales has been supported (van Dierendonck, 2004).

Work Preference Inventory Challenge subscale (WPI-Challenge; Amabile, Hill, Hennessey, & Tighe, 1994). The WPI was developed to measure intrinsic and extrinsic motivation. For the present study, the 5-item Challenge subscale was used, which measures a preference for challenge in one's work and life. Cronbach's alpha was .74 in two studies (Amabile et al., 1994; Loo, 2001) and .69 in the present study.

Academic Indices. Participants were asked to report their current GPA, their high school GPA, their goal for their GPA next semester, their satisfaction with their current GPA, their satisfaction with their current school experience, their motivation to achieve a higher (or 4.0) GPA, and their intentions toward attending graduate school in any course of study.

Data analytic strategy

Because there were no significant differences between individuals who were missing data and those who were not missing data on any demographic variables, it was concluded that data were missing at random. Missing values were imputed using the expectation-maximization (EM) procedure (Enders, 2006). Next, reliability and internal consistency of the M-CUP was examined in the present sample. Cronbach's alpha was calculated to examine internal consistency. Then, test-retest reliability was examined by calculating Pearson *r* correlations for scores on the 9 scales at the pre-screening (part 1 of the study) and at part 2 of the study. Because the date participants completed part 1 of the study could only be ascertained to be within a three day period, length of follow up ranged from 2 to 4 days to 89 to 91 days. Test-retest reliability was examined for an approximately one-week follow-up, two to three week follow-up, four to six week follow-up, seven to nine week follow-up, and ten to thirteen week follow-up.

Next, Pearson *r* correlations were calculated for the 9 scales and scales of other measures of perfectionism, measures of personality, and other measures of psychosocial functioning, and patterns of relationships were examined. Conventional definitions for a

small, medium, and large effect sizes are .10, .30, and .50, respectively (Cohen, Cohen, West, & Aiken, 2003).

In addition, in order to understand better the relationship between the constructs measured by the M-CUP and the NEO-PI-R (and to more specifically place the 9 dimensions within the Five Factor Model of personality) interactions between the Neuroticism facets and Conscientiousness facets in predicting the nine dimensions of the M-CUP were examined. I considered an interaction significant if it (a) was significant after controlling for all main effects and for all other Neuroticism facet x Conscientiousness facet interactions and (b) it also proved significant after controlling only for the relevant main effects. I made this latter choice to preclude describing interactions as significant when they were only significant as a result of complex, interaction suppressor effects (such effects cannot be readily described and may not replicate). Thus, I tested all possible interactions between each Neuroticism facet and each Conscientiousness facet (36 interaction terms) in a single hierarchical multiple regression analysis (after each Neuroticism and Conscientiousness facet was entered at Step 1) in predicting each of the 9 scales of the M-CUP. Interaction terms with significant ($p < .05$) beta weights in these analyses were then examined in hierarchical multiple regression analyses with only the Neuroticism and Conscientiousness facet comprising the interaction entered at Step 1 and the interaction term between the two facets entered at Step 2. Interaction terms with significant ($p < .05$) or marginally significant ($p < .08$) beta weights in these stand-alone analyses were then plotted to examine the meaning of the interaction.

Results

Reliability

Internal consistency. Cronbach's alpha and item-total correlations for each of the nine scales of the M-CUP are presented in the fourth and fifth columns of Table 6. Cronbach's alpha for all the scales was above .80, with five scales above .90. As the table shows, item-total correlations were again quite high.

Test-retest reliability. One week test-retest reliability ($n = 70$, Range for interval between administrations: 2 to 11 days) for the 9 scales was the following: Order: .90, Satisfaction: .81, Details and Checking: .81, Perfectionism toward Others: .80, High Standards: .83, Black and White Thinking about Tasks and Activities: .75, Perceived Pressure from Others: .82, Dissatisfaction: .77, Reactivity to Mistakes: .73.

Two to three week test-retest reliability ($n = 103$, Range for interval between administrations: 12 to 25 days) for the 9 scales was the following: Order: .86, Satisfaction: .63, Details and Checking: .76, Perfectionism toward Others: .60, High Standards: .72, Black and White Thinking about Tasks and Activities: .80, Perceived Pressure from Others: .74, Dissatisfaction: .78, Reactivity to Mistakes: .73.

Five to six week test-retest reliability ($n = 71$, Range for interval between administrations: 38 to 46 days) for the 9 scales was the following: Order: .80, Satisfaction: .66, Details and Checking: .65, Perfectionism toward Others: .72, High Standards: .73, Black and White Thinking about Tasks and Activities: .64, Perceived Pressure from Others: .70, Dissatisfaction: .74, Reactivity to Mistakes: .67.

Seven to nine week test-retest reliability (n = 124, Range for interval between administrations: 47 to 67 days) for the 9 scales was the following: Order: .79, Satisfaction: .52, Details and Checking: .67, Perfectionism toward Others: .45, High Standards: .64, Black and White Thinking about Tasks and Activities: .62, Perceived Pressure from Others: .65, Dissatisfaction: .66, Reactivity to Mistakes: .65.

Ten to thirteen week test-retest reliability (n = 115, Range for interval between administrations: 68 to 91 days) for the 9 scales was the following: Order: .77, Satisfaction: .61, Details and Checking: .55, Perfectionism toward Others: .67, High Standards: .75, Black and White Thinking about Tasks and Activities: .67, Perceived Pressure from Others: .76, Dissatisfaction: .70, Reactivity to Mistakes: .77. Overall, results indicate good test-retest reliability.

Intercorrelations between scales

Correlations between the M-CUP scales are presented in Table 7. Overall, inter-correlations between the scales were consistent with the results of the factor analyses described in part 1 of the study. Scales loading onto the Ego-Syntonic higher order factor (Order, Satisfaction, Details and Checking, Perfectionism toward Others, High Standards) were generally significantly inter-correlated but not correlated significantly or as highly correlated with the scales loading onto the Ego-Dystonic higher order factor (Black and White Thinking about Tasks and Activities, Perceived Pressure from Others, Dissatisfaction, Reactivity to Mistakes). Similarly, scales loading onto the Ego-Dystonic higher order factor were generally significantly inter-correlated but were not significantly correlated or correlated as highly with scales loading onto the Ego-Syntonic higher order factor.

Relationships of the 9 scales with existing measures of perfectionism

Table 8 presents the inter-correlations between the M-CUP scales and the other measures of perfectionism administered in this study. Because all the scales in these analyses measure similar and/or related constructs, numerous significant correlations were expected, and were found. Also, as noted before, because many existing measures of perfectionism include multiple constructs within scale scores and thus have not emphasized construct homogeneity within scale scores at much as the M-CUP, it was anticipated that the M-CUP would have good convergent validity but less discriminant validity. Examining the pattern of correlations between the M-CUP scales and existing scales of perfectionism, this was indeed the case: convergent validity was excellent, as the scales of the M-CUP correlated most highly with scales on other measures of perfectionism or related constructs which purport to measure similar constructs. However, discriminant validity was supported in only some cases. For example, in support of excellent convergent validity, the M-CUP Order scale correlated at least .83 with the FMPS Organization scale, the APS-R Order subscale, and the PI Organization scale, all of which measure a tendency to prefer order and organization in one's environment. In support of both convergent and discriminant validity, the M-CUP Satisfaction scale correlated with a large effect size only with the PANPS Positive Perfectionism scale, which measures a construct very closely related to Satisfaction: perfectionistic behavior for positive reinforcement. However, there were also cases in which convergent validity was excellent but discriminant validity was not strongly

supported: M-CUP Reactivity to Mistakes correlated highly with the FMPS Concern over Mistakes scale, the AMPS Sensitivity to Mistakes scale, and the PI Concern over Mistakes scale, all of which measure a tendency to be concerned with or react with negative affect to mistakes or not being perfect. However, the M-CUP Reactivity to Mistakes scale also correlated with a large effect size with numerous other scales, including the PANPS Negative Perfectionism scale, the PSPS Nondisplay of Imperfection scale, the PSPS Nondisclosure of Imperfection scale, the HMPS Socially Prescribed Perfectionism scale, and the PI Rumination scale.

Relationships of the 9 scales with other measures of personality

The correlations between the M-CUP scales, the NEO-PI-R, the maladaptive revision of the Conscientiousness scale of the NEO-PI-R, and the UPPS-P, are presented in Table 9. It was originally hypothesized that, in general, scales of the M-CUP would be related most strongly to the domains and facets of Neuroticism and Conscientiousness; this hypothesis was supported (in addition, specific hypotheses regarding which facets of the NEO-PI-R the M-CUP scales would relate to were also formulated; a table of these hypotheses and whether they were supported or not is presented in Appendix II). The pattern of correlations was striking and clear: the five scales loading onto the Ego-Syntonic higher order factor were consistently correlated with the facets and domain of Conscientiousness, but not with the facets and domain of Neuroticism. For example, in support of both convergent and discriminant validity, the Order and Details and Checking scales were correlated with almost every facet of Conscientiousness but did not have any significant correlations with any facet from any other domain. However, discriminant validity was not always supported: M-CUP Satisfaction and High Standards both correlated significantly with the Anxiety facet of the Neuroticism domain. The significant correlations with Anxiety may reflect that individuals who experience high levels of anxiety may experience a decrease in anxiety after completing something, which might be reflected in a higher score on M-CUP Satisfaction, and that individuals who tend to set high standards for themselves may experience anxiety due to the difficulty of meeting such standards if they are set too high.

Further, the four scales loading onto the Ego-Dystonic higher order factor consistently showed significant and high correlations with facets of the Neuroticism domain and tended to also correlate significantly with facets of the maladaptive version of the Conscientiousness domain of the NEO-PI-R (not with the regular Conscientiousness domain facets). For example, M-CUP Reactivity to Mistakes correlated significantly and with at least a medium effect size with Anxiety, Angry Hostility, Depression, Self-Consciousness, and Vulnerability, as well as maladaptive Competence, maladaptive Dutifulness, maladaptive Achievement Striving, maladaptive Self Discipline, and maladaptive Deliberation.

However, it is important to also look at correlations for specific facets, as none of the four scales loading onto the Ego-Dystonic higher order factor correlated significantly with the Impulsiveness facet of the Neuroticism domain. This supports discriminant validity, as none of the four scales loading onto the Ego-Dystonic higher order factor appear theoretically related to difficulty controlling cravings and urges. However, discriminant validity was not supported in all cases; for example, M-CUP Perceived Pressure from Others, Dissatisfaction, and Reactivity to Mistakes all correlated inversely

and significantly with the Trust facet of the Agreeableness domain. Although the reasons behind the correlations between Dissatisfaction and Reactivity to Mistakes and Trust are unclear, one can see how someone who tends to perceive that others have high expectations of them (M-CUP Perceived Pressure from Others) may have a greater tendency to be skeptical and assume others are dishonest.

Interactions between the Neuroticism and Conscientiousness facets in explaining variance in the M-CUP scales

Six interactions between Neuroticism and Conscientiousness facets correlated significantly or marginally significantly ($p < .08$) with M-CUP scales: Angry Hostility and Achievement Striving in predicting Perceived Pressure from Others ($p < .05$), Self-Consciousness and Achievement Striving in predicting Perceived Pressure from Others ($p < .05$), Vulnerability and Deliberation in predicting Satisfaction ($p < .001$), Anxiety and Order in predicting Dissatisfaction ($p < .08$) and Reactivity to Mistakes ($p < .06$), and Depression and Competence in predicting Details and Checking ($p < .06$). These interactions were then plotted to examine their meaning and are shown in Figure 1 through 6, respectively.

Considering concurrent prediction of Perceived Pressure from Others, high levels of the trait are associated with both (a) high levels of Angry Hostility and low Achievement Striving and (b) high levels of Achievement Striving and low levels of Angry Hostility. In addition, it appears that the effect of going from high to low levels of Self-Consciousness on Perceived Pressure from Others is stronger (the negative slope is steeper) when individuals also have higher levels of Achievement Striving.

For M-CUP Satisfaction, it appears that at high levels of Vulnerability (feeling unable to cope with stress and tending to become panicked in crises), levels of Deliberation (tending to think before acting) are unrelated to M-CUP Satisfaction. However, at low levels of Vulnerability (feeling that one is capable of handling difficult situations), individuals who tend to think before acting have higher levels of M-CUP Satisfaction and thus report experiencing more positive affect after completing or accomplishing something. In contrast, at low levels of Vulnerability, individuals who tend to act without considering the consequences have lower M-CUP Satisfaction scores and thus report experiencing lower levels of positive affect after completing or accomplishing something.

For M-CUP Dissatisfaction, it appears that the relationship between Anxiety and Dissatisfaction is greater for individuals high in Order. At high levels of Anxiety, M-CUP Dissatisfaction is high, and thus individuals tend to report feeling that they are not meeting their standards or that something is always wrong in their work regardless of their tendency to be well-organized or not. However, at low levels of Anxiety, individuals with high Order scores (tend to be neat and well-organized) have lower M-CUP Dissatisfaction scores and thus report lower levels of feeling that they are not meeting their standards or that something is always wrong in their work compared to individuals with low Order scores.

Further, it appears that the relationship between Anxiety and M-CUP Reactivity to Mistakes also varies as a function of Order. An increase in Anxiety leads to more of an increase in Reactivity to Mistakes for individuals high in Order than for individuals low in Order.

Lastly, the relationship between depression and M-CUP Details and Checking varies as a function of Competence. That is, at high levels of Competence (tend to feel capable and effective), individuals appear to engage in high levels of focus on details and checking regardless of their Depression status. But at low levels of Competence (individuals tend to not feel capable and effective and may have a low opinion of their abilities), low levels of Depression are associated with lower scores on Details and Checking.

Relationships of the 9 scales with psychosocial outcome variables

Table 10 presents correlations between the 9 M-CUP scales and other relevant outcome variables.

Relationships with indices of psychopathology. In general, indices of psychopathology were more strongly related to the scales loading onto the Ego-Dystonic higher order factor than the Ego-Syntonic higher order factor. In support of both convergent and discriminant validity, anxiety (BAI) and depression (BDI-II) were significantly related to the scales loading onto the Ego-Dystonic higher order factor but not significantly related to the scales loading into the Ego-Syntonic higher order factor. However, with some exceptions, scales measuring obsessive-compulsive tendencies were significantly correlated with all the M-CUP scales except Satisfaction. Scales that appeared to have particularly strong correlations with the SCOPI scales and the SCID-IIP Obsessive Compulsive Personality Disorder questions were Order, Details and Checking, Dissatisfaction, and Reactivity to Mistakes. Further, the relationship between indices of negative emotional reactivity (AIM Negative Reactivity) and scales loading onto the Ego-Syntonic higher order factor was unexpected and the meaning behind this relationship is unclear.

Measures of eating disturbance generally tended to show significant correlations with Perceived Pressure from Others, Dissatisfaction, and Reactivity to Mistakes, as well as Satisfaction, a scale which loaded onto the Ego-Syntonic higher order factor. Measures of eating disturbance were not significantly related to Order, Details and Checking, Perfectionism toward Others, and High Standards. Frequency of engaging in inappropriate compensatory behaviors (self-induced vomiting or using laxatives or diuretics) and frequency of engaging in strenuous exercise to alter shape or weight were unrelated to the M-CUP scales. The failure to find strong correlations with the M-CUP scales and inappropriate compensatory behaviors is likely due to the low rate (6.4%) of such behavior reported by the sample. Because the distributions of the frequency of experiencing objective binge episodes and engaging in inappropriate compensatory behaviors were significantly skewed, logistic regressions were run with the presence or absence of inappropriate compensatory behaviors and objective binge episodes entered (in separate analyses) as dichotomous predictor variables. The results of these analyses were generally the same as the Pearson *r* correlations described earlier.

Relationship with indices of well-being, academic functioning, achievement. It was expected that indices of well-being would show strong positive correlations with scales loading onto the Ego-Syntonic higher order factor. With the exception of a significant correlation between environmental mastery and M-CUP Order, this was

generally not the case. Instead, both self-reports of positive relationships with others and a feeling of mastery over one's environment were significantly and inversely correlated with M-CUP Black and White Thinking about Tasks and Activities, Dissatisfaction, and Reactivity to Mistakes. However, in support of convergent validity, a tendency to experience positive affect in relation to various situations (AIM Positive Affectivity) was significantly correlated with M-CUP Satisfaction and High Standards.

It was also expected that indices of achievement and academic functioning would be positively related to scales loading onto the Ego-Syntonic higher order factor and not scales loading onto the Ego-Dystonic higher order factor. This hypothesis was partially supported, as not all correlations with the Ego-Syntonic scales were significant and several indices of achievement and academic functioning were also positively and significantly related to M-CUP Perceived Pressure from Others. Current GPA, high school GPA, goal GPA, academic motivation, and intentions for graduate school all generally showed the strongest correlations with M-CUP High Standards. However, Satisfaction with current school experience and GPA showed negative and significant relationships with the M-CUP Dissatisfaction and Reactivity to Mistakes scales, and were unrelated to the Ego-Syntonic scales.

Relationships with a self-reported history of childhood maltreatment. In general, self-reports of maltreatment during childhood (CTQ Total score, including emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect) were significantly correlated with the scales loading onto the Ego-Dystonic higher order factor but were not significantly correlated with scales loading onto the Ego-Syntonic higher order factor. These correlations suggest the hypothesis that maltreatment experiences in childhood may influence the development or expression of the traits measured by the scales loading onto the Ego-Dystonic higher order factor.

However, correlations for the CTQ subscales were less strong, and CTQ Sexual Abuse did not show any significant correlations with any of the M-CUP scales. Because base rates of abuse were low in the current sample, especially for any experience of sexual abuse, and the variables measuring abuse were significantly skewed, logistic regressions were run with the presence or absence of various types of abuse and the CTQ total scale score entered (in separate analyses) as dichotomous predictor variables. The pattern of results for these analyses were generally the same as that found with Pearson *r* correlation coefficients, except that, in addition to the significant findings reported here and in Table 10, emotional neglect emerged as a significant predictor of M-CUP Perceived Pressure from Others ($B = .06$, $SE = .02$, $p < .01$), and physical neglect emerged as a significant predictor of M-CUP Black and White Thinking about Tasks and Activities ($B = .15$, $SE = .04$, $p < .001$).

Part 2 Discussion

Part two of the present study examined the reliability and validity of the M-CUP and its nine scales in a large sample of college undergraduates. Results indicate the M-CUP has good internal consistency, good test-retest reliability, and strong convergent and discriminant validity. Statistics for test-retest reliability and inter-correlations between scales were generally similar to findings for existing scales measuring perfectionism

(APS-R, FMPS, and HMPS; Frost et al., 1990; Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991; Rice & Aldea, 2006; Rice et al., 2007; Rice & Dellwo, 2001; Rice, Leever, Christopher, & Porter, 2006). In support of construct validity, the M-CUP scales were related to conceptually similar scales on other measures of perfectionism or perfectionism related constructs, supporting construct validity.

Part 2 of the present study also succeeded in placing the 9 dimensions underlying the construct of perfectionism within the Five Factor Model of personality. Correlations of the M-CUP scales and the domains and facets of the NEO-PI-R generally showed that the M-CUP scales were most highly related to the Neuroticism and Conscientiousness domains, and the facets within these domains. More specifically, the scales loading onto the Ego-Syntonic higher order factor were generally related to Conscientiousness and the facets within the Conscientiousness domain. The scales loading onto the Ego-Dystonic higher order factor were generally related to Neuroticism domain and facets generally also related, not to the facets within the NEO-PI-R Conscientiousness domain, but to facets of the maladaptive version of the NEO-PI-R Conscientiousness domain. The Ego-Syntonic higher order factor is similar to the healthy or adaptive factor found in other studies, and the Ego-Dystonic higher order factor is similar to the unhealthy or maladaptive factor found in other studies (Aldea & Rice, 2006; Bieling et al., 2004; Dunkley et al., 2003; Enns et al., 2001; Frost et al., 1993; Parker & Stumpf, 1995; Rice & Mirzadeh, 2000). Consistent with the results of the present study, the healthy or adaptive factor has been found to be related to the Conscientiousness domain, while the unhealthy or maladaptive factor has been found to be related to the Neuroticism domain (Enns et al., 2001; Flett et al., 1998; Hill et al., 1997; Parker & Stumpf, 1995; Rice et al., 2007; Stumpf & Parker, 2000). The findings that scales loading onto the Ego-Dystonic higher order factor were related to facets of the maladaptive version of the NEO-PI-R Conscientiousness domain perhaps further clarifies the place of these scales in personality as a whole. It is not that the Ego-Dystonic scales are unrelated to conscientiousness, it is that they tend to be unrelated to adaptive levels of conscientiousness. Instead, they reflect maladaptive, extreme levels of conscientiousness together with the subjective distress of neuroticism.

In addition, the present study found evidence for several interactions between facets of the Neuroticism and Conscientiousness domains in explaining variance in several scales of the M-CUP. These findings suggest the possibility that constructs underlying the domain of perfectionism reflect the joint and interactive operation of a disposition to be conscientious and a disposition to feel distress.

Part 2 of the present study also examined the relationship of the M-CUP scales with relevant psychosocial outcome variables which had been previously found to be related to existing measures of perfectionism. Relationships between the M-CUP scales and these variables generally supported convergent and discriminant validity. In general, indices of psychopathology appear related to scales loading onto the Ego-Dystonic higher order factor, although specific indices of psychopathology had specific and unique relationships with the M-CUP scales. For example, measures of obsessive-compulsive traits were found to be related to all of the scales of the M-CUP except Satisfaction. This highlights the similarities between traits underlying ‘perfectionism’ and obsessive-compulsive tendencies. Previous studies have also found significant relationships between constructs underlying perfectionism with obsessive-compulsive symptoms and

tendencies, although previous studies have highlighted the relationship between obsessive-compulsive tendencies and distress-related constructs (e.g. doubts about actions; Frost et al,. 1990; Frost & Steketee, 1997; Sassaroli et al., 2008).

Measures of eating disturbance were generally found to be related to the M-CUP Satisfaction, Perceived Pressure from Others, Dissatisfaction, and Reactivity to Mistakes scales, although none of the correlations were large. Previous studies have also found relationships between eating disturbance and a perception that others expect perfection of one, concern over mistakes, and doubts about actions, but some previous studies have also found relationships between eating disturbance and high standards for oneself and a preference for organization (Bastiani et al., 1995; Bulik et al,. 2003; Hewitt, Flett, & Ediger, 1995; Sassaroli et al,. 2008), which the present study did not find. These differences may be due to improved discriminant validity of the M-CUP scales over previous measures of constructs underlying perfectionism. Alternatively, the lack of significant correlations between eating disturbance and high standards and a preference for order may be due to the low prevalence of clinically significant eating disturbance in the present sample, especially since many studies examining perfectionism and eating disturbance have examined a clinical sample (e.g. Bastiani et al., 1995; Sassaroli et al., 2008).

In addition, the relationship of eating disturbance with experience of positive affect after completing something (Satisfaction) was unexpected. Evidence regarding the relationship of perfectionistic behavior as a function of positive reinforcement (PANPS Positive Perfectionism scale), a theoretically similar construct, and eating disturbance has been inconsistent (Haase, Prapavessis, & Owens, 1999; Haase, Prapavessis, & Owens, 2002; Terry-Short et al., 1995). However, there is evidence for the relationship of expectancies for reinforcement from thinness or dieting in the etiology of eating disturbance (Annus, Smith, & Masters, 2008; Smith, Simmons, Flory, Annus, & Hill, 2007); it may be that a feeling of reinforcement drives both eating disordered behaviors and perfectionistic behaviors in individuals with eating disturbance.

Indices of academic functioning, such as GPA, were generally found to be related to scales loading onto the Ego-Syntonic higher order factor, as well as Perceived Pressure from Others. Similarly, previous research found that a tendency to set high standards for oneself was related to current and high school GPA, as well as goal GPA (Slaney et al., 2001). In addition, one can hypothesize that in a sample of young adults, most of whom had recently left home to come to college, parental expectations will play a role in academic achievement, which may explain the relationship between indices of academic functioning and Perceived Pressure from Others.

Lastly, it was found that the scales of the M-CUP loading onto the Ego-Dystonic higher order factor were related to a self-report measure of maltreatment experiences in childhood, lending the hypothesis that such experiences may play a role in the development or expression of such traits. However, longitudinal research is needed to examine this causal hypothesis. Interestingly, maltreatment experiences were unrelated to the M-CUP scales loading onto the Ego-Syntonic higher order factor. A history of childhood abuse is related to numerous problems in psychosocial functioning and mental health problems in adulthood (Malinosky-Rummell & Hansen, 1993).

Examining the contributions of childhood maltreatment and other stressful experiences in childhood to the development of distress-related vs. non-distress related

constructs underlying perfectionism, and potential mediator variables, may be a useful avenue for future research. One potential mechanism for the relationship between childhood maltreatment and constructs of the M-CUP loading onto an Ego-Dystonic, or distress-related, dimension is biological: early childhood maltreatment, as a form of extreme, uncontrollable stress, has been found to have numerous effects on the developing brain and through this, may increase emotional reactivity and emotional dysregulation (De Bellis, 2005; De Bellis et al., 2002; Sanchez, 2006; Scott, Wolfe, & Wekerle, 2003; Stairs & Smith, 2009; Teicher, Tomoda, & Andersen, 2006). This process may contribute to heightened levels of neuroticism and, in turn, a set of ego-dystonic traits related to perfectionistic behavior.

Table 7. Correlations between M-CUP scales in part two of the study.

	Order	Satis-faction	Details/ Checking	Perf. Toward Others	High Standards	Black/ White Thinking	Perceived Pressure	Dissatis-faction
Order	1.00							
Satis-faction	.31*	1.00						
Details/ Checking	.50*	.29*	1.00					
Perf. Toward Others	.25*	.33*	.32*	1.00				
High Standards	.40*	.52*	.43*	.39*	1.00			
Black/ White Thinking	.10*	-.07	.15*	.15*	.11	1.00		
Perceived Pressure	.17*	.13*	.19*	.39*	.37*	.31*	1.00	
Dissatis-faction	.02	.01	.07	.10	.04	.50*	.32*	1.00
React-ivity to Mistakes	.13*	.09	.23*	.21*	.18*	.67*	.37*	.71*

For all correlations, $N = 687$; *: correlation was significant at the .01 level.

Table 8. Correlations between the M-CUP scales and other measures of perfectionism

	Order	Satisfaction	Details and Checking	Perf. Toward Others	High Standards	Black/White Thinking	Perceived Pressure	Dissatisfaction	Reactivity to Mistakes
SCANS	**.51***	**.34***	**.53***	**.36***	**.69***	.24*	**.40***	.13	**.31***
PSPS-SP	**.30***	.18*	.28*	.29*	**.36***	**.43***	**.41***	**.39***	**.47***
PSPS-Nondisp	.12	.14*	.19*	.19*	.16*	**.45***	.27*	**.50***	**.56***
PSPS-Nondisc.	.09	-.00	.09	.10	.09	**.44***	.28*	**.51***	**.48***
PANPS-P	**.31***	**.55***	**.37***	**.38***	**.60***	.10	**.36***	.09	.21*
PANPS-N	.17*	.08	.23*	.24*	.26*	**.61***	**.51***	**.73***	**.75***
NPQ	.11	.06	.13	.15*	.16*	**.53***	**.41***	**.73***	**.69***
PQ-PT	**.39***	**.34***	**.47***	**.34***	**.55***	**.33***	**.36***	.29*	**.42***
PQ-NO	.26*	.14*	**.30***	.19*	**.31***	**.57***	**.42***	**.64***	**.69***
HEXACO	**.47***	.28*	**.76***	.28*	**.46***	.15*	.24*	.11	.25*
HMPS-SOP	**.42***	**.32***	**.46***	**.33***	**.60***	**.36***	**.44***	.29*	**.45***
HMPS-OOP	.22*	.18*	.20*	**.62***	**.36***	.20*	**.37***	.09	.26*
HMPS-SPP	.16*	.05	.17*	.26*	.26*	**.44***	**.67***	**.54***	**.56***
FMPS-CM	.11	.07	.16*	.18*	.19*	**.58***	**.40***	**.64***	**.72***
FMPS-PS	**.33***	**.32***	**.39***	**.34***	**.67***	.26*	**.45***	.26*	**.36***
FMPS-DA	.15*	.08	**.32***	.15*	.17*	**.42***	**.31***	**.66***	**.63***
FMPS-O	**.85***	.21*	**.44***	.19*	**.31***	.05	.12	-.03	.10
FMPS-PE	.10	.08	.04	.25*	.23*	.20*	**.54***	**.31***	**.31***
FMPS-PC	.05	-.02	.04	.12	.06	**.31***	**.38***	**.48***	**.40***
EDI-P	.22*	.20*	.24*	**.33***	**.48***	**.39***	**.56***	**.43***	**.50***
DAS	.07	.01	.13	.13*	.13	**.60***	**.35***	**.63***	**.67***
DEQ-T	.07	.08	.10	.13	.13	**.44***	**.35***	**.68***	**.62***
DEQ-S	.07	.09	.10	.14*	.15*	**.43***	**.35***	**.68***	**.62***
DEQ-B	.02	.03	.07	.10	.05	**.43***	**.31***	**.68***	**.57***
BPS	.13*	.14*	.20*	.18*	.25*	**.52***	**.36***	**.57***	**.61***
APSR-S	**.36***	**.38***	**.40***	**.34***	**.67***	.11	**.31***	.10	.20*
APSR-O	**.84***	.21*	**.44***	.20*	**.32***	.07	.14*	-.01	.10
APSR-D	.10	.09	.13	.14*	.15*	**.46***	**.35***	**.78***	**.66***
AMPS-SM	.14*	.08	.21*	.18*	.18*	**.53***	**.35***	**.60***	**.75***
AMPS-CSE	.14*	**.42***	.14*	.13	.22*	**.34***	-.11	**-.41***	**-.32***
AMPS-C	**.64***	**.32***	**.56***	.23*	**.39***	.22*	.20*	.12*	**.32***
AMPS-NA	.22*	.25*	.24*	.29*	**.33***	**.35***	**.40***	**.38***	**.47***
PCI	.23*	.18*	.29*	.24*	**.33***	**.42***	**.39***	**.50***	**.59***
PI-CM	.15*	.07	.19*	.17*	.20*	**.54***	**.35***	**.60***	**.70***
PI-HSO	.20*	.14	.23*	**.44***	.28*	**.34***	**.39***	**.31***	**.38***
PI-NA	.18*	.17*	.27*	.21*	.24*	**.37***	**.34***	**.51***	**.55***
PI-O	**.83***	.20*	**.43***	.19*	.29*	.08	.10	-.01	.10
PI-PP	.05	.11	.09	.29*	.26*	.18*	**.54***	**.33***	**.31***
PI-P	**.37***	.26*	**.43***	.29*	**.36***	.19*	.20*	.16*	.24*
PI-R	.16*	.17*	.26*	.24*	.27*	**.46***	**.38***	**.58***	**.67***
PI-SE	**.30***	.20*	**.43***	.26*	**.45***	**.43***	**.42***	**.41***	**.55***

N = 687 for all correlations except those with the PI, for which *N* = 545; SCANS: Total SCANS Perfectionism Scale score; PSPS-SP: Perfectionistioc Self Presentation Scale Perfectionistic Self Promotion Scale; PSPS-Nondisp: Perfectionistic Self Presentation Scale Nondisplay of Imperfection Scale; PSPS-Nondisc: Perfectionistioc Self Presentation Scale Nondisclosure of Imperfection scale; PANPS-P: Positive

Table 8 (continued).

and Negative Perfectionism Scale Positive perfectionism; PANPS-N: Positive and Negative Perfectionism Scale Negative Perfectionism; NPQ: Neurotic Perfectionism Questionnaire Total score; PQ-PT: Perfectionism Questionnaire Perfectionistic Tendencies; PQ-NO: Perfectionism Questionnaire Negative Outcomes; HEXACO: HEXACO Perfectionism facet; HMPS-SOP: Hewitt Multidimensional Perfectionism Scale Self Oriented Perfectionism; HMPS-OOP: Hewitt Multidimensional Perfectionism Scale Other Oriented Perfectionism; HMPS-SPP: Hewitt Multidimensional Perfectionism Scale Socially Prescribed Perfectionism; FMPS-CM: Frost Multidimensional Perfectionism Scale Concern over Mistakes; FMPS-PS: Frost Multidimensional Perfectionism Scale Personal Standards; FMPS-DA: Frost Multidimensional Perfectionism Scale Doubts about Actions; FMPS-O: Frost Multidimensional Perfectionism Scale Organization; FMPS-PE: Frost Multidimensional Perfectionism Scale Parental Expectations; FMPS-PC: Frost Multidimensional Perfectionism Scale Parental Criticism; EDI-P: Eating Disorders Inventory Perfectionism scale; DAS: Dysfunctional Attitudes Scale Self Criticism scale according to Imber et al. (1990) scoring; DEQ-T: Depressive Experiences Questionnaire items thought relevant to constructs underlying perfectionism; DEQ-S: Depressive Experiences Questionnaire self criticism scale according to Santor et al. (1997) scoring; DEQ-B: Depressive Experiences Questionnaire self cricitism scale according to Bagby et al. (1994) scoring; BPS: Burns Perfectionism Scale total score; APSR-S: Almost Perfect Scale-Revised Standards subscale; APSR-O: Almost Perfect Scale-Revised Order subscale; APSR-D: Almost Perfect Scale-Revised Discrepancy subscale; AMPS-SM: Adaptive and Maladaptive Perfectionism Scale Sensitivity to Mistakes scale; AMPS-CSE: Adaptive and Maladaptive Perfectionism Scale Contingent Self-Esteem scale; AMPS-C: Adaptive and Maladaptive Perfectionism Scale Compulsiveness scale; AMPS-NA: Adaptive and Maladaptive Perfectionism Scale Need for Admiration scale; PI-CM: Perfectionism Inventory Concern over Mistakes scale; PI-HSO: Perfectionism Inventory High Standards for Others scale; PI-NA: Perfectionism Inventory Need for Approval scale; PI-O: Perfectionism Inventory Organization scale; PI-PP: Perfectionism Inventory Perceived Parental Pressure scale; PI-P: Perfectionism Inventory Planfulness scale; PI-R: Perfectionism Inventory Rumination scale; PI-SE: Perfectionism Inventory Striving for Excellence scale; PCI: Perfectionism Cognitions Inventory Total scale score; * $p < .001$ two-tailed; correlations above .3 (medium effect size) are presented in bold; correlations above .5 (large effect size) are presented in bold and underlined.

Table 9. Correlations between the M-CUP scales and the facets and domains of the NEO-PI-R and the Maladaptive version of the Conscientiousness domain as well as the UPPS-P.

	Order	Satisfaction	Details and Checking	Perf. Toward Others	High Standards	Black/White Thinking	Perceived Pressure	Dissatisfaction	Reactivity to Mistakes
Anxiety	.16	.22*	.15	.11	.23*	.15	.21*	**.32***	**.42***
Angry hostility	.06	.00	.02	.12	.03	.24*	.21*	.29*	**.35***
Depression	.01	.07	.03	.07	.07	**.35***	**.31***	**.66***	**.60***
Self-consciousness	.05	.08	.15	.15	.14	**.32***	.26*	**.44***	**.51***
Impulsivity	.00	.05	-.06	.02	.02	.08	.05	.12	.15
Vulnerability	.00	.04	.04	.07	.02	.22*	.17	**.43***	**.41***
Warmth	.13	.23*	.05	.06	.11	-.20*	-.05	-.23*	-.13
Gregariousness	.05	.14	.01	.00	.03	-.16	-.14	-.16	-.11
Assertiveness	.17	.13	.08	.20*	.23*	-.03	.11	-.19*	-.09
Activity	.18	.17	.15	.11	.25*	.11	.14	-.03	.15
Excitement Seeking	.04	.12	.04	-.01	.07	-.08	-.02	-.01	.00
Positive Emotions	.06	.17	.07	.09	.14	-.16	-.02	**-.31***	-.14
Fantasy	-.16	.00	-.11	-.13	-.13	-.21*	-.09	-.08	-.14
Aesthetics	-.01	.18	-.01	.11	.06	-.10	.01	.01	.03
Feelings	.12	**.33***	.17	.16	.24*	-.03	.17	.02	.15
Actions	-.08	-.05	-.08	-.03	-.07	-.14	-.13	-.07	-.11
Ideas	.04	.13	.05	.05	.04	-.06	.09	-.02	.01
Values	-.12	.09	-.06	-.17	-.04	-.20*	-.04	-.02	-.10
Trust	.02	.07	.04	-.06	-.03	-.17	-.24*	**-.35***	-.24*
Straightforward-ness	.16	.01	.13	-.03	.00	-.09	-.14	-.10	-.09
Altruism	.17	.26*	.17	.15	.15	-.14	-.08	-.20*	-.05
Compliance	.04	.05	.10	-.05	.00	-.14	-.10	-.09	-.10
Modesty	.01	-.01	-.01	-.06	-.13	-.01	-.12	.18	.05
Tender-mindedness	.10	.13	.14	.06	.15	-.13	-.03	-.07	-.05
Competence	**.31***	.25*	.25*	.23*	**.31***	-.01	.16	-.29*	-.06
EXP Competence	**.34***	.22*	**.35***	.28*	**.37***	.26*	.28*	.19	**.35***
Order	**.71***	.18	**.37***	.17	.25*	.10	.17	-.05	.10
EXP Order	**.71***	.21*	**.41***	.24*	.27*	.16	.12	.07	.22*
Dutifulness	**.35***	**.33***	**.37***	.22*	**.37***	.13	.18	-.05	.17
EXP Dutifulness	**.33***	.18	**.44***	.22*	**.30***	**.31***	.27*	.18	**.37***
Achievement Striving	**.40***	**.38***	**.41***	.25*	**.58***	.15*	.29*	-.03	.23*

Table 9 (continued).

	Order	Satisfaction	Details and Checking	Perf. Toward Others	High Standards	Black/ White Thinking	Perceived Pressure	Dissatisfaction	Reactivity to Mistakes
EXP Achievement Striving	**.42***	.29*	**.47***	**.31***	**.56***	**.32***	**.41***	.23*	**.46***
Self Discipline	**.34***	.20*	**.32***	.19*	**.36***	.00	.13	-.26*	-.06
EXP Self Discipline	**.46***	.26*	**.42***	**.30***	**.46***	.27*	**.31***	.15	**.39***
Deliberation	**.37***	.22*	**.41***	.19*	.24*	.11	.08	-.08	.10
EXP Deliberation	.21*	.09	**.32***	.18	.19	**.31***	.17	.28*	**.37***
NEO Neuroticism	.07	.11	.08	.13	.12	**.33***	.29*	**.55***	**.58***
NEO Extraversion	.15	.23*	.09	.11	.19*	-.13	-.01	-.22*	-.08
NEO Openness	-.06	.18	-.01	.01	.03	-.19*	.01	-.04	-.04
NEO Agreeableness	.12	.12	.14	-.01	.02	-.17	-.19*	-.17	-.13
NEO Conscientiousness	**.57***	**.35***	**.49***	.28*	**.47***	.11	.22*	-.17	.11
EXP-NEO-PI-R Conscientiousness	**.54***	.27*	**.53***	**.33***	**.46***	**.36***	**.34***	.24*	**.47***
Negative Urgency	-.12	.00	-.15	.00	-.09	.15	.10	.26*	.26*
Lack Premed.	-.29*	-.18	**-.33***	-.17	-.19*	.01	-.03	.02	-.01
Lack Persev.	**-.37***	-.17	**-.31***	-.19*	**-.36***	.19*	-.04	.26*	.18
Sensation Seeking	-.01	.08	-.04	.02	.07	-.10	.05	-.09	-.13
Positive Urgency	-.18	-.15	-.20*	-.07	-.15	.16	.06	.29*	.21*

N = 343 for all correlations with NEO-PI-R and EXP-NEO-PI-R, and 344 for correlations with the UPPS-P; EXP: Maladaptive version of the Conscientiousness of the NEO-PI-R; Negative Urgency: UPPS-P Negative Urgency Scale score; Lack Planning: UPPS-P lack of Premeditation scale score; Lack Persev: UPPS-P lack of Perseverance scale score; Sensation Seeking: UPPS-P Sensation Seeking scale score; Positive Urgency: UPPS-P Positive Urgency scale score; * $p < .001$; correlations above .3 (medium effect size) are presented in bold; correlations above .5 (large effect size) are presented in bold and underlined.

Table 10. Correlation of M-CUP scales with relevant psychosocial outcome variables.

	Order	Satisfaction	Details and Checking	Perf. Toward Others	High Standards	Black/White Thinking	Perceived Pressure	Dissatisfaction	Reactivity to Mistakes
Obsessive Checking	**.31****	.14*	**.35****	.21**	.25**	.27**	.24**	**.38****	**.42****
Obsessive Cleaning	**.38****	.03	.25**	.19**	.11	.18*	.12	.17*	.24**
Compulsive Rituals	**.50****	.08	**.32****	.16*	.25**	.21**	.21**	.19*	.29**
Hoarding	.17*	.07	.15*	.13	.06	.07	.08	.21**	.21**
Pathological Impulses	-.07	-.01	-.10	.07	.03	.18*	.15*	**.34****	.24**
SCOPI Total	**.38****	.10	**.30****	.22**	.21**	.27**	.24**	**.36****	**.41****
OCPD	**.35****	.17*	.29**	.27**	**.31****	.26**	.18*	**.30****	**.36****
BAI	-.03	.04	-.06	.04	.01	.25**	.15*	**.33****	**.38****
BDI	.00	.04	-.01	.01	.05	**.31****	.20**	**.48****	**.45****
EDE-Q Global	.07	.20**	.06	.02	.11	.14	.15*	.14	.17*
EDE-Q Shape Concerns	.07	.17*	.06	.03	.08	.13	.14*	.15*	.18*
EDE-Q Weight Concerns	.05	.17*	.03	.03	.08	.12	.16*	.10	.15*
EDE-Q Eating Concerns	.08	.17*	.06	.03	.08	.21**	.18*	.22**	.24**
EDE-Q Restraint	.09	.19**	.07	.02	.14	.08	.08	.04	.07
Obj. Binge	.05	.03	.06	-.04	.01	.13	.06	.16*	.17*
Subj. Binge	.03	.07	-.02	-.07	.02	.01	-.01	.03	.03
Purging	.06	.08	.03	.04	.04	.01	.05	.12	.02
Exercise	.01	.12	.03	-.03	.05	.00	.05	.00	.00
Pos. Relationships	.05	.07	-.01	.02	.05	-.28**	-.09	**-.38****	-.29**
Environmental Mastery	.16*	.05	.11	-.01	.14	-.26**	-.14	**-.43****	**-.36****
WPI-Challenge	.09	-.01	.21**	.14*	.22**	.10	.15*	.09	.03
AIM Positive Affectivity	.06	**.35****	.04	.13	.18*	-.02	.00	.00	.10
AIM Negative Reactivity	.18*	.20**	.20**	.19**	.14*	.08	.09	.09	.23**
AIM Negative Intensity	.12	.13	.14	.13	.13	.27**	.17*	**.32****	**.39****
Current GPA	.17	.02	.25*	.20	.25*	.09	.23*	-.07	.10
HS GPA	.08	.01	.14	.08	.28**	.03	.16*	-.06	-.02
Goal GPA	.15*	.15*	.21**	.13	**.30****	.04	.19**	-.05	.02
GPA Satisfaction	.07	.01	.11	.00	.10	-.11	.02	-.28**	-.19**
School Satisfaction	.08	.10	.07	-.04	.09	-.13	-.02	**-.30****	-.17*
Academic Motivation	.11	.15*	.15*	.14*	.20**	-.02	.09	.04	.02
Graduate School Intentions	.15*	.12	.15*	.12	.20**	-.02	.14	-.01	-.03

Table 10 (continued).

	Order	Satisfaction	Details and Checking	Perf. Toward Others	High Standards	Black/White Thinking	Perceived Pressure	Dissatisfaction	Reactivity to Mistakes
CTQ Emotional Abuse	-.01	.03	.00	.09	.04	.20**	.20**	.25**	.21**
CTQ Physical Abuse	.08	.05	.02	.11	.11	.13	.16*	.22**	.12
CTQ Sexual Abuse	.02	-.03	.03	.04	.05	.10	.12	.10	.13
CTQ Emot. Neglect	-.04	-.05	-.08	-.02	-.08	.18*	.14	.29**	.19*
CTQ Phys. Neglect	-.01	-.02	-.06	.03	-.01	.13	.08	.22**	.16*
CTQ Total	.00	-.01	-.03	.06	.02	.21**	.19**	**.30****	.22**

N = 344 for all correlations except current GPA (N = 140); Obsessive Checking: SCOPI Obsessive Checking scale; Obsessive Cleaning: SCOPI Obsessive Cleaning Scale; Compulsive Rituals: SCOPI Compulsive Rituals Scale; Hoarding: SCOPI Hoarding scale; Pathological Impulses: SCOPI Pathological Impulses scale; SCOPI Total: SCOPI total score; OCPD: SCID-IIP Obsessive Compulsive Personality Disorder items; BAI: Beck Anxiety Inventory total score; BDI: Beck Depression Inventory total score; EDE-Q Global: Total score on Eating Disorders Examination Questionnaire; EDE-Q Shape Concerns: Eating Disorders Examination Questionnaire Shape concerns scale; EDE-Q Weight Concerns: Eating Disorders Examination Questionnaire Weight Concerns scale; EDE-Q Eating Concerns: Eating Disorders Examination Questionnaire Eating Concerns scale; EDE-Q Restraint: Eating Disorders Examination Questionnaire Restraint scale: Obj. Binge: Self-reported number of objective binge episodes in past 28 days on Eating Disorders Examination Questionnaire; Subj. Binge: Self-reported number of subjective binge episodes in past 28 days on Eating Disorders Examination Questionnaire; Purging: Total number of purging episodes (self-induced vomiting, laxative use, diuretic use) in last 28 days reported on Eating Disorders Examination Questionnaire; Exercise: Total number of days of strenuous exercise undertaken to alter shape or weight in last 28 days reported on Eating Disorders Examination Questionnaire; Pos. Relationships: Ryff Psychological Well-Being scales Positive Relationships with Others scale; Environmenal Mastery: Ryff Psychological Well-Being scale Environmental Mastery scale; WPI-Challenge: Work Preference Inventory Challenge scale; AIM Positive Affectivity: Affect Intensity Measure Positive Affectivity scale; AIM Negative Reactivity: Affect Intensity Measure Negative Reactivity scale; AIM Negative Intensity: Affect Intensity Measure Negative Intensity scale; Current GPA: current self-reported college grade point average; HS GPA: self-reported high school grade point average; Goal GPA: goal grade point average for the end of the semester; GPA Satisfaction: satisfaction with current grade point average; School Satisfaction: satisfaction with current school experience; Academic Motivation: motivation to achieve a higher grade point average than current grade point average; Graduate School Intentions: intentions toward attending graduate school in any course of study; CTQ Emotional Abuse: Childhood Trauma Questionnaire Emotional Abuse scale; CTQ Physical Abuse: Childhood Trauma Questionnaire Physical Abuse scale; CTQ Sexual Abuse: Childhood Trauma Questionnaire Sexual Abuse scale; CTQ Emot. Neglect: Childhood Trauma Questionnaire Emotional Neglect scale; CTQ Phys. Neglect: Childhood Trauma Questionnaire Physical Neglect scale; CTQ Total: Childhood Trauma Questionnaire Total score; * $p < .01$; ** $p < .001$; correlations above .30 (medium effect size) are presented in bold; correlations above .5 (large effect size) are presented in bold and underlined.

Figure 1. Interaction of Angry Hostility and Achievement Striving in predicting M-CUP Perceived Pressure from Others

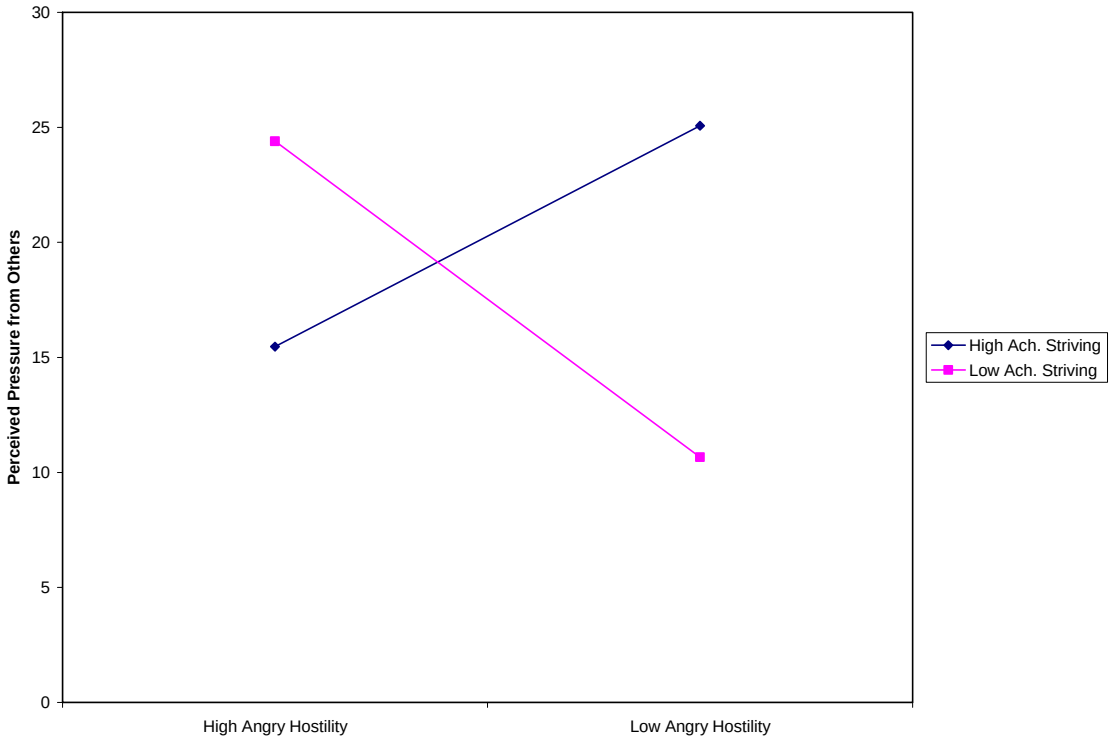


Figure 2. Interaction of Self-Consciousness and Achievement Striving in predicting M-CUP Perceived Pressure from Others

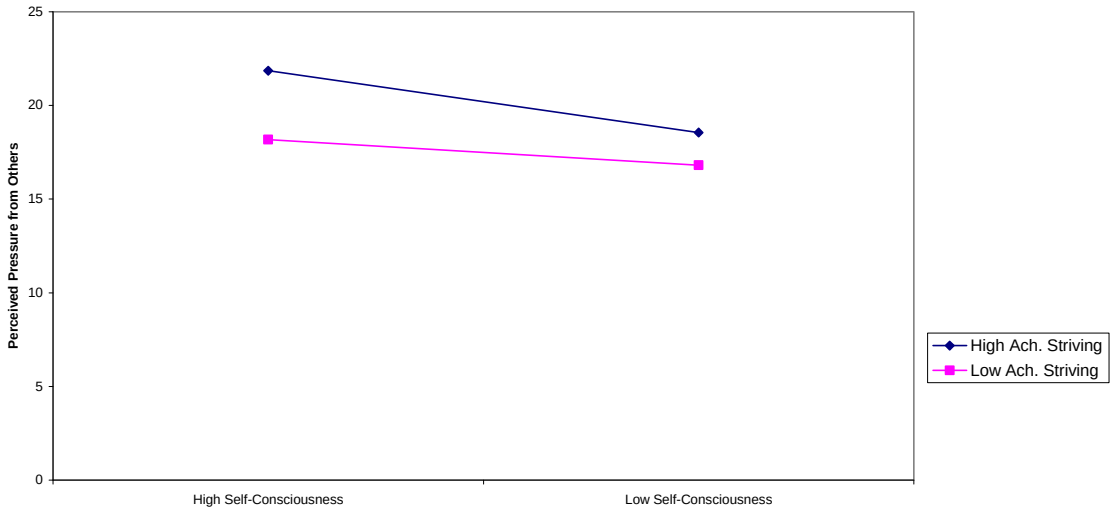


Figure 3. Interaction of Vulnerability and Deliberation in predicting M-CUP Satisfaction

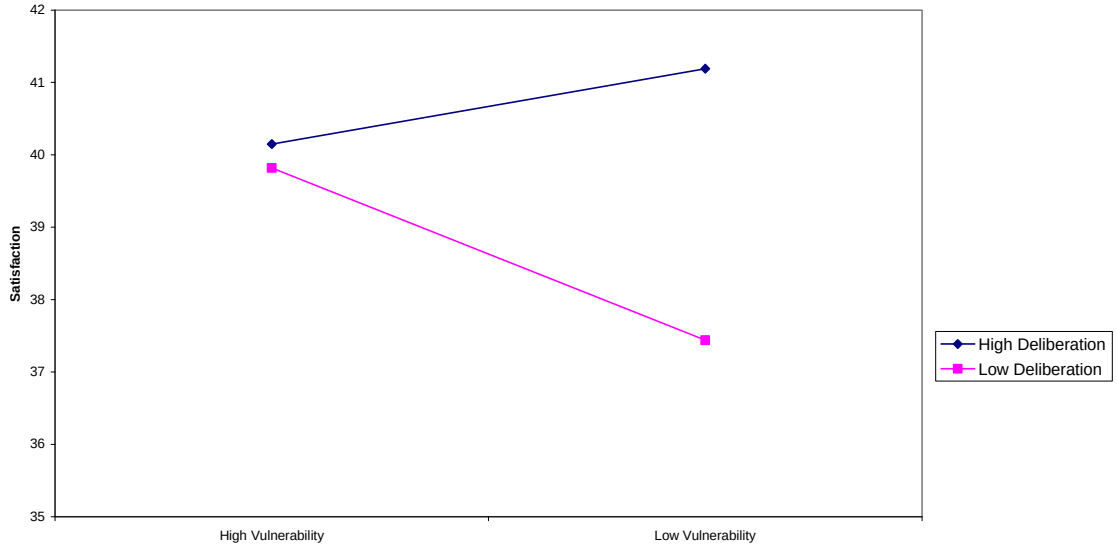


Figure 4. Interaction of Anxiety and Order in predicting M-CUP Dissatisfaction

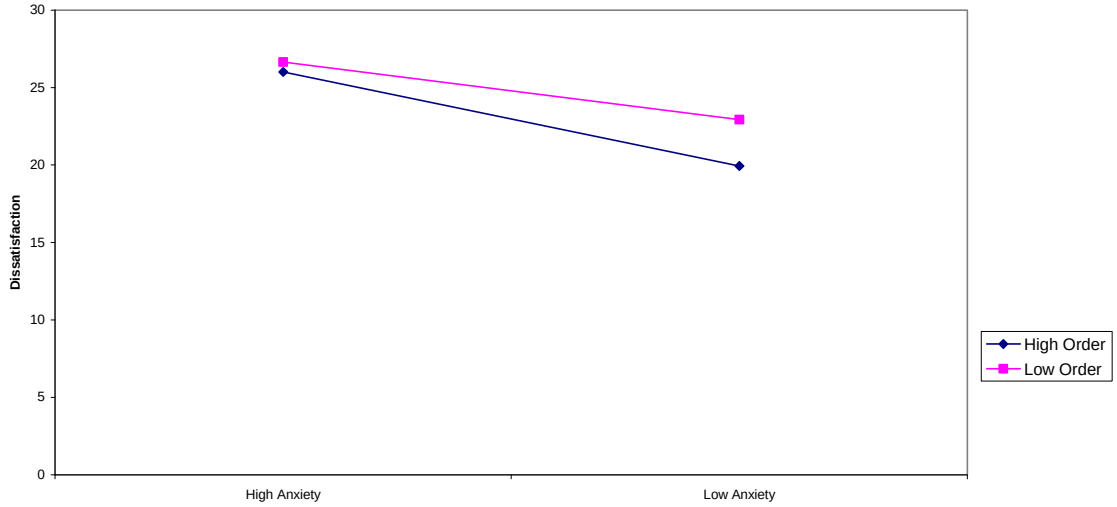


Figure 5. Interaction of Anxiety and Order in predicting M-CUP Reactivity to Mistakes

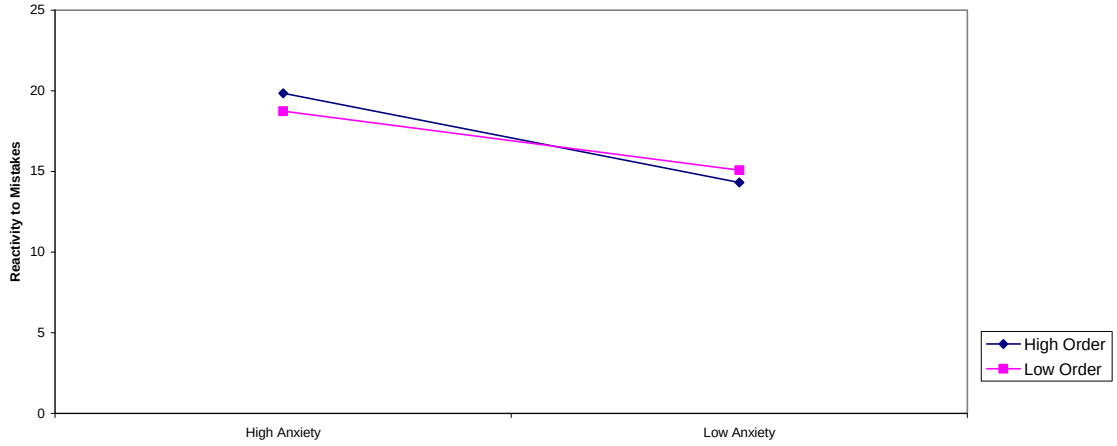
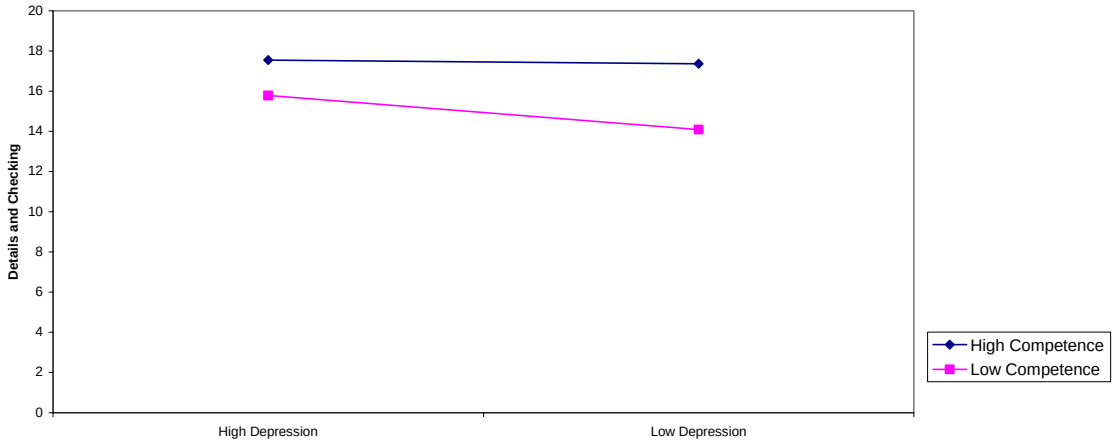


Figure 6. Interaction of Depression and Competence in predicting M-CUP Details and Checking



SECTION FIVE: GENERAL DISCUSSION

The focus of the present study was on clarifying the meaning of perfectionism, identifying the specific unidimensional traits underlying the concept of perfectionism, creating a reliable and valid scale measuring these traits, and examining the relationship of these traits to other measures of personality. Because at least 15 scales measuring perfectionism have been published, it was assumed that these scales likely already capture the entire content domain underlying perfectionism. After a review of the relevant literature and scales, nine traits underlying perfectionism were identified. These nine dimensions were: Order, a tendency to prefer order and organization in one's environment; Satisfaction, a tendency to experience positive affect after completing or accomplishing something; Details and Checking, a tendency to check one's work to make sure the details are correct and there are no mistakes; Perfectionism toward Others, a tendency to have high standards and expectations for others; High Standards, a tendency to set high goals or standards for oneself; Black and White Thinking about Tasks and Activities, a tendency to not engage in tasks if one cannot do them perfectly; Perceived Pressure from Others, a tendency to feel that others have high expectations for one or expect one to be perfect; Dissatisfaction, a tendency to feel that one is not meeting one's goals or standards or that one's performance is not good enough; and Reactivity to Mistakes, a tendency to react with negative affect to mistakes or something not perfect.

The first major finding of the present study concerns the question of the existence of a trait of perfectionism. It appears that a broad trait of perfectionism does not exist, but is rather a descriptive umbrella term encompassing several separate and unidimensional traits. The M-CUP was created to represent a summary of relevant constructs underlying perfectionism represented in existing scales purporting to measure such a construct. Both confirmatory and exploratory factor analyses strongly supported a nine-factor solution while a one-factor solution provided a poor fit to the data. This finding echoes suggestions and findings by previous researchers that the construct of perfectionism is multidimensional and consists of several separate constructs rather than representing a unidimensional trait (Hewitt, Flett, Besser, Sherry, & McGee, 2003; Tozzi et al., 2004).

Second, the present study showed that the scale created to measure these nine constructs underlying the umbrella term of perfectionism, the M-CUP, was internally consistent, temporally stable, and has good convergent and discriminant validity. The nine scales of the M-CUP were related to the Five Factor Model (Costa & McCrae, 1992) in theoretically consistent ways. The nine scales of the M-CUP were also found to be related to relevant psychosocial outcome variables in theoretically consistent ways. These findings strongly support the reliability and construct validity of the M-CUP.

Thus, the M-CUP appears to be a reliable and valid summary measure of the constructs underlying perfectionism which are represented to more or less of a degree by other measures of perfectionism. High Standards, Order, and Reactivity to Mistakes are represented in several existing measures of perfectionism, and Perfectionism toward Others, Perceived Pressure from Others, and Dissatisfaction are represented in some existing measures of perfectionism. However, no measure other than the HEXACO specifically measures a construct similar to Details and Checking (although items on other scales may represent the construct); no previously existing scale measures the construct of Satisfaction, although the PANPS Positive Perfectionism scale measures a

similar construct; and no measure has a scale similar to Black and White Thinking about Tasks and Activities, although several scales (e.g. BPS) have items which appear to represent the construct. In addition, the M-CUP can be understood to be a measure of personality: it does not measure non-personality constructs, such as those related to childhood experiences, nor does it have items related to such constructs, such as experiencing pressure or criticism from one's parents. These constructs are represented in several existing measures of perfectionism, such as the FMPS, the PI, and the EDI Perfectionism scale.

Third, the present study found strong evidence for two higher order factors (Ego-Syntonic and Ego-Dystonic) encompassing the scales of the M-CUP. It appears that these scales are descriptive rather than explanatory. In other words, it is believed that the scales underlying each higher order factor are not alternate expressions of the same construct but rather represent different constructs that share variance with each other. Theoretically, one can see how, for example, the construct of Order is different from the construct of Perfectionism toward Others and that these are not alternate expressions of the same construct. In addition, (a) loadings of the nine factors on the two higher-order domains were not uniformly high: the domains do not fully represent the lower-order traits; and (b) a model with just the items on the Ego-Dystonic scales loading onto an Ego-Dystonic factor and the items on the Ego-Syntonic scales loading onto an Ego-Syntonic factor provided a poor fit to the data. The nature of the shared variance between the Ego-Syntonic and Ego-Dystonic scales is not fully known at this time. However, it does appear that the Ego-Syntonic scales tend to share high levels of conscientiousness and the Ego-Dystonic scales tend to share high levels of neuroticism and high levels of maladaptive conscientiousness.

Because the nine scales are separate, and are not alternate indicators of a common higher-order factor, it is not appropriate to analyze data using a single score to reflect all nine scales or to reflect all five Ego-Syntonic or all four Ego-Dystonic scales. Doing so risks obscuring important and specific relationships for two main reasons. First, focusing on an aggregate scale score can provide misleading information when individual patterns across the subscale scores vary. For example, one person with an average score on the Ego-Syntonic higher order factor may have high scores on Order and Details and Checking, but a low score on Perfectionism toward Others. A second person with the same score on the Ego-Syntonic higher order factor may score highly on the Perfectionism toward Others and High Standards scales but have little need for order and organization (Order). Examining the correlates of Ego-Syntonic perfectionism with these two individuals will lend unclear findings, as the two individuals do not share high levels of the same personality traits.

Second, it was found in the present study that each of the nine scales of the M-CUP demonstrated unique correlations with measures of personality and psychosocial outcome variables that may have been obscured had one focused on only the higher order factors. For example, neither Satisfaction or Perfectionism toward Others were significantly related to Order, even though other Ego-Syntonic scales were. Because the scales are different from each other, it is recommended that researchers identify a priori the specific and unidimensional constructs of interests to them and use scales that measure those specific unidimensional constructs rather than rely on scales that contain items measuring multiple constructs, some of interest and some not.

It is believed that with an increased emphasis on construct homogeneity and increased clarity and specificity in the identification of constructs underlying the umbrella term perfectionism, research on the personality underpinnings of various types of psychopathology will advance at a faster rate. To take the example of eating disorders, which has been strongly linked to 'perfectionism' (Bastiani et al., 1995; Bulik, Sullivan, Fear, & Pickering, 2000; Srinivasagam et al., 1995), a massive amount of research has been conducted on the genetic underpinnings of these disorders with surprisingly disappointing and inconsistent results (Monteleone & Maj, 2008). Many authors have argued that a focus on specific and unidimensional personality traits may help in the search for biological underpinnings to anorexia nervosa and bulimia nervosa (Bacanu et al., 2005; Bulik, 2005; Klump & Gobrogge, 2005; Monteleone & Maj, 2008).

Of course, the findings of the present study regarding the reliability and validity of the M-CUP, and its correlations with measures of personality and relevant psychosocial outcome variables, are in need of replication. Other limitations of the present study include the following. First, a sample of college undergraduates was used which was biased toward females; thus, the present sample is not representative of the general population. It is possible that reliability indices and correlations with variables of interest will be different in a community sample or a sample with different demographic characteristics. Second, the present study was not a clinical sample and thus rates of mental health problems were low and distributions of some measures of mental health problems were skewed. It is possible that this may have either distorted findings or led to Type I error. Future research should examine the correlates of the M-CUP in clinical samples with disorders of importance to constructs measured by the M-CUP, such as obsessive-compulsive disorder and eating disorders. Third, the present study was cross-sectional. The concurrent relationships between the M-CUP scales and basic personality suggest the hypothesis that individual differences in basic personality lead to individual differences in perfectionism-related traits: longitudinal research is needed to investigate this possibility. Fourth, all the measures in the present study were self-report, paper and pencil measures. Thus, all measures used in the present study share method variance, which could lead to spurious results or overestimation of relationships. Research is needed which examines the correlates of the M-CUP scales using multiple methods (such as interview or behavioral observations) according to Campbell and Fiske's (1959) multi-trait multi-method matrix methodology.

References

Aldea, M. A., & Rice, K. G. (2006). The role of emotional dysregulation in perfectionism and psychological distress. *Journal of Counseling Psychology, 53,* 498-510.

Amabile, T.M., Hill, K.G., Hennessey, B.A., & Tighe, E.M. (1994). The Work Preference Inventory: Assessing intrinsic and extrinsic motivational orientations. *Journal of Personality and Social Psychology, 66,* 950-967.

Annus, A. M., Smith, G. T., & Masters, K. (2008). Manipulation of thinness and restricting expectancies: Further evidence for a causal role of thinness and restricting expectancies in the etiology of eating disorders. *Psychology of Addictive Behaviors, 22,* 278-287.

Arrindell, W. A., de Vlaming, I. H., Eisenhardt, B. M., van Berkum, D. E., & Kwee, M. G. (2002). Cross-cultural validity of the Yale-Brown Obsessive Compulsive Scale. *Journal of Behavior Therapy and Experimental Psychiatry, 33,* 159-176.

Ashby, J. S., Kottman, T., Schoen, E. (1998). Perfectionism and eating disorders reconsidered. *Journal of Mental Health Counseling, 20,* 261-271.

Ashby, J. S., & Rice, K. G. (2002). Perfectionism, dysfunctional attitudes, and self-esteem: A structural equations analysis. *Journal of Counseling and Development, 80,* 197-203.

Bacanu, S-A., Bulik, C. M., Klump, K. L., Fichter, M. M., Halmi, K. A., Keel, P., et al. (2005). Linkage analysis of anorexia and bulimia nervosa cohorts using selected behavioral phenotypes as quanititative traits of covariates. *American Journal of Medical Genetics Part B: Neuropsychiatric Genetics, 139,* 61-68.

Bagby, R. M., Parker, J. D. A., Joffe, R. T., & Buis, T. (1994). Reconstruction and validation of the depressive experiences questionnaire. *Assessment, 1,* 59-68.

Bastiani, A. M., Rao, R., Weltzin, T., & Kaye, W. H. (1995). Perfectionism in anorexia nervosa. *International Journal of Eating Disorders, 17,* 147-152.

Beck, A. T., Brown, G., Steer, R. A., & Weissman, A. N. (1991). Factor analysis of the Dysfunctional Attitude Scale in a clinical population. *Psychological Assessment: A Journal of Consulting and Clinical Psychology, 3,* 478-483.

Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56,* 893-897.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Beck Depression Inventory-Second Edition manual.* San Antonio, TX: The Psychological Corporation.

Bernstein, D. P., Stein, J. A., Newcomb, M. D., Walker, E., Pogge, D., Ahluvalia, T., et al. (2003). Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child Abuse and Neglect, 27,* 169-190.

Bieling, P. J., Israeli, A. L., & Antony, M. M. (2004). Is perfectionism good, bad, or both? Examining models of the perfectionism construct. *Personality and Individual Differences, 36,* 1373-1385.

Blatt, S. J. (March 31, 2008). Personal communication.

Blatt, S. J., D'Affliti, J. P., & Quinlan, D. M. (1976). Experiences of depression in normal young adults. *Journal of Abnormal Psychology, 85,* 383-389.

Block, J. (1995). A contrarian view of the five-factor approach to personality description. *Psychological Bulletin, 117,* 187-215.

Brookings, J. B. (1994). Eating Disorder Inventory-2. In D. Keyser & R. C. Sweetland (Eds.), *Test Critiques* (pp. 226-233). Austin, TX: Pro-Ed.

Browne, M.W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K.A. Bollen & J.S. Long (Eds.), *Testing structural equation models* (pp.136–162). Newbury Park, CA: Sage.

Bryant, F. B., Yarnold, P. R., & Grimm, L. G. (1996). Toward a measurement model of the Affect Intensity Measure: A three factor structure. *Journal of Research in Personality, 30,* 223-247.

Bulik, C.M. (2005) Exploring the gene-environment nexus in eating disorders. *Journal of Psychiatry and Neuroscience, 30,* 335-338.

Bulik, C. M., Sullivan, P. F., Fear, J. L., & Pickering, A. (2000). Outcome of anorexia nervosa: Eating attitudes, personality, and parental bonding. *International Journal of Eating Disorders, 28,* 139-147.

Bulik, C. M., Tozzi, F., Anderson, C., Mazzeo, S. E., Aggen, S., & Sullivan, P. F. (2003). The relation between eating disorders and components of perfectionism. *American Journal of Psychiatry, 160,* 366-368.

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

Calhoon, S. K. (1996). Confirmatory factor analysis of the Dysfunctional Attitude Scale in a student sample. *Cognitive Therapy and Research, 20,* 81-91.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait multimethod matrix. *Psychological Bulletin, 56,* 81-105.

Cane, D. B., Olinger, L. J., Gotlib, I. H., & Kuiper, N. A. (1986). Factor structure of the Dysfunctional Attitude Scale in a student population. *Journal of Clinical Psychology, 42,* 307-309.

Cohen, J., Cohen, P., West, S.G., & Aiken, L.S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences.* 3rd edition. Lawrence Erlbaum Associates: New Jersey, USA.

Costa, P. T., & McCrae, R. R. (1992). *Revised NEO Personality Inventory Manual.* Odessa, FL: Psychological Assessment Resources.

Cyders, M.A., Smith, G.T., Spillane, N. S., Fischer, S., Annus, A.M., & Peterson, C. (2007). Integration of impulsivity and positive mood to predict risky behavior: Development and validation of a measure of positive urgency. *Psychological Assessment, 19,* 107-118.

De Bellis, M. D. (2005). The psychobiology of neglect. *Child Maltreatment, 10,* 150-172.

De Bellis, M. D., Keshavan, M. S., Shifflett, H., Iyengar, S., Beer, S. R., Hall, J., et al. (2002). Brain structures in pediatric maltreatment-related posttraumatic stress disorder: A sociodemographically matched study. *Biological Psychiatry, 52,* 1066-1078.

Dobson, K. S., & Breiter, H. J. (1983). Cognitive assessment of depression: Reliability and validity of three measures. *Journal of Abnormal Psychology, 92,* 107-109.

Dunkley, D. M., Blankstein, K. R., Masheb, R. M., & Grilo, C. M. (2006). Personal standards and evaluative concerns dimensions of "clinical" perfectionism: A reply to Shafran et al.. (2002, 2003) and Hewitt et al. (2003). *Behaviour Research and Therapy, 44,* 63-84.

Dunkley, D. M., Zuroff, D. C., & Blankstein, K. R. (2003). Self-Critical perfectionism and daily affect: Dispositional and situational influences on stress and coping. *Journal of Personality and Social Psychology, 84,* 234-252.

Elder, K. A., Grilo, C. M., Masheb, R. M., Rotschild, B. S., Burke-Martindale, C. H., & Brody, M. (2006). Comparison of two self-report instruments for assessing binge eating in bariatric surgery candidates. *Behavior Research and Therapy, 44,* 545-60.

Enders, C. (2006). A primer on the use of modern missing-data methods in psychosomatic medicine research. *Psychosomatic Medicine, 68,* 727-736.

Enns, M. W., Cox, B. J., & Clara, I. (2002). Adaptive and maladaptive perfectionism: Developmental origins and associations with depression proneness. *Personality and Individual Differences, 33,* 921-935.

Enns, M. W., Cox, B. J., Sareen, J., & Freeman, P. (2001). Adaptive and maladaptive perfectionism in medical students: A longitudinal investigation. *Medical Education, 35,* 1034-1042.

Fairburn, C. G., & Beglin, S. J. (1994). Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders, 16,* 363-370.

Fairburn, C. G., & Cooper, Z. (1993). The Eating Disorder Examination. In C. G. Fairburn & G. T. Wilson (Eds.). *Binge Eating: Nature, assessment and treatment* (pp. 317-360). New York: Guilford Press.

First, M. B., Gibbon, M., Spitzer, R. L., Williams, J. B., & Benjamin, L. S. (1997). *User's guide for the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II).* Washington DC: American Psychiatric Press.

Flett, G. L., & Hewitt, P. L. (1995). Criterion validity and psychometric properties of the Affect Intensity Measure in a psychiatric sample. *Personality and Individual Differences, 19,* 585-591.

Flett, G. L., & Hewitt, P. L. (2002). Perfectionism and maladjustment: An overview of theoretical, definitional, and treatment issues. In G. L. Flett and P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment.* Washington, DC: 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,* 1363-1381.

Flett, G. L., Hewitt, P. L., Whelan, T., & Martin, T. R. (2007). Perfectionism Cognitions Inventory: Psychometric properties and associations with distress and deficits in cognitive self-management. *Journal of Rational Emotive and Cognitive Behavior Therapy, 25,* 255-277.

Flett, G. L., Sawatzky, D. L., & Hewitt, P. L. (1995). Dimensions of perfectionism and goal commitment: A further comparison of two perfectionism measures. *Journal of Psychopathology and Behavioral Assessment, 17,* 111-124.

Frost, R. O., Heimberg, R. G., Holt, C. S., Mattia, J. I., & Neubauer, A. L. (1993). A comparison of two measures of perfectionism. *Personality and Invidiual Differences, 14,* 119-126.

Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research, 14,* 449-468.

Frost, R. O., & Steketee, G. (1997). Perfectionism in obsessive-compulsive disorder patients. *Behavior Research & Therapy, 35,* 291-296.

Garner, D. M. (1991). *Eating Disorder Inventory-2.* Odessa, Florida: Psychological Assessment Resources, 1991.

Garner, D. M., Olmsted, M. P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders, 2,* 15-34.

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,* 192-200.

Haase, A. M., & Prapavessis, H. (2004). Assessing the factor structure and composition of the Positive and Negative Perfectionism Scale in sport. *Personality and Individual Differences, 36,* 1725-1740.

Haase, A. M., Prapavessis, H., & Owens, R. G. (1999). Perfectionism and eating attitudes in competitive rowers: Moderating effects of body mass, weight classification, and gender. *Psychology and Health, 14,* 643-657.

Haase, A. M., Prapavessis, H., & Owens, R. G. (2002). Perfectionism, social physique anxiety and disordered eating: A comparison of male and female elite athletes. *Psychology of Sport and Exercise, 3,* 209-222.

Haigler, E.D., & Widiger, T.A. (2001). Experimental manipulation of NEO-PI-R items. *Journal of Personality Assessment, 77,* 339-358.

Hamilton, T. K., & Schweitzer, R. D. (2000). The cost of being perfect: Perfectionism and suicide ideation in university students. *Australian and New Zealand Journal of Psychiatry, 34,* 829-835.

Hewitt, P. L., & Dyck, D. G. (1986). Perfectionism, stress, and vulnerability to depression. *Cognitive Therapy and Research, 10,* 137-142.

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

Hewitt, P.L., Flett, G. L., Besser, A., Sherry, S.B., & McGee, B. (2003). Perfectionism is multidimensional: A reply to Shafran, Cooper and Fairburn (2002). *Behaviour Research and Therapy, 41,* 1221-1236.

Hewitt, P. L., & Flett, G. L., & Ediger, E. (1995). Perfectionism traits and perfectionistic self-presentation in eating disorder attitudes, characteristics, and symptoms. *International Journal of Eating Disorders, 18,* 317-326.

Hewitt, P. L., Flett, G. L., & Ediger, E. (1996). Perfectionism and depression: Longitudinal assessment of a specific vulnerability hypothesis. *Journal of Abnormal Psychology, 105,* 276-280.

Hewitt, P. L., Flett, G. L., Sherry, S. B., Habke, M., Parkin, M., Lam, R. W., et al. (2003). The interpersonal expression of perfection: Perfectionistic self-presentation and psychological distress. *Journal of Personality and Social Psychology, 84,* 1303-1325.

Hewitt, P. L., Flett, G. L., Turnbull-Donovan, W., & Mikail, S. F. (1991). The Multidimensional Perfectionism Scale: Reliability, validity, and psychometric properties in psychiatric samples. *Psychological Assessment, 3,* 464-468.

Hewitt, P. L., & Norton, G. R. (1993). The Beck Anxiety Inventory: A psychometric analysis. *Psychological Assessment, 5,* 408-412.

Hill, R.W., Huelsman, T. J., Furr, R. M., Kibler, J., Vicente, B. B., & Kennedy, C. (2004). A new measure of perfectionism: The Perfectionism Inventory. *Journal of Personality Assessment, 82,* 80-91.

Hill, R. W., McIntire, K., & Bacharach, V. R. (1997). Perfectionism and the Big Five factors. *Journal of Social Behavior and Personality, 12,* 257-270.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6,* 1-55.

Imber, S. D., Pilkonis, P. A., Sotsky, S. M., Elkin, I., Watkins, J. T., Collins, J. F., et al. (1990). Mode specific effects among three treatments for depression. *Journal of Consulting and Clinical Psychology, 58,* 352-359.

Joiner, T. E., & Schmidt, N. B. (1995). Dimensions of perfectionism, life stress, and depressed and anxious symptoms: Prospective support for diathesis-stress but not specific vulnerability among male undergraduates. *Journal of Social and Clinical Psychology, 14,* 165-183.

Klibert, J. J., Langhinrichsen-Rohling, J., & Saito, M. (2005). Adaptive and maladaptive aspects of self-oriented versus socially prescribed perfectionism. *Journal of College Student Development, 46,* 141-156.

Kline, R. B. (2005). *Principles and practice of structural equation modeling.* New York: Guilford Press.

Klump, K.L., & Gobrogge, K.L. (2005). A review and primer of molecular genetic studies of anorexia nervosa. *International Journal of Eating Disorders, 37,* S43-S48.

Larsen, R. J., & Diener, E. (1987). Affect intensity as an individual difference characteristic: A review. *Journal of Research in Personality, 21,* 1-39.

Lee, K., & Ashton, M. C. (2004). Psychometric properties of the HEXACO Personality Inventory. *Multivariate Behavioral Research, 39,* 329-358.

Lee, K., & Ashton, M. C. (2006). Further assessment of the HEXACO Personality Inventory: Two new facet scales and an observer report form. *Psychological Assessment, 18,* 182-191.

Lilenfeld, L. R. R., Wonderlich, S., Riso, L. P., Crosby, R., & Mitchell, J. (2006). Eating disorders and personality: A methodological and empirical review. *Clinical Psychology Review, 26,* 299-320.

Loo, R. (2001). Motivational orientations toward work: An evaluation of the Work Preference Inventory (Student form). *Measurement and Evaluation in Counseling and Development, 33,* 222-232.

Lynam, D. R., Smith, G. T., Whiteside, S. P., & Cyders, M. A. (2006). *The UPPS-P: Assessing five personality pathways to impulsive behavior* (Technical report). West Lafayette: Purdue University.

Malinosky-Rummell, R., & Hansen, D. J. (1993). Long-term consequences of childhood physical abuse. *Psychological Bulletin, 114,* 68-79.

McGrath, R. E. (2005). Conceptual complexity and construct validity. *Journal of Personality Assessment, 85,* 112-124.

Mills, J. S., & Blankstein, K. R. (2000). Perfectionism, intrinsic vs extrinsic motivation, and motivated strategies for learning: A multidimensional analysis of university students. *Personality and Individual Differences, 29,* 1191-1204.

Mitzman, S. F., Slade, P., & Dewey, M. E. (1994). Preliminary development of a questionnaire designed to measure neurotic perfectionism in the eating disorders. *Journal of Clinical Psychology, 50,* 516-522.

Monteleone, P., & Maj, M. (2008). Genetic susceptibility to eating disorders: Associated polymorphisms and pharmacogenetic suggestions. *Pharmacogenomics, 9,* 1487-1520.

Osman, A., Downs, W. R., & Barrios, F. X. (1997). Factor structure and psychometric characteristics of the Beck Depression Inventory-II. *Journal of Psychopathology and Behavioral Assessment, 19,* 359-376.

Pacht, A. R. (1984). Reflections on perfection. *American Psychologist, 39,* 386-390.

Paivio, S. C., & Cramer, K. M. (2004). Factor structure and reliability of the Childhood Trauma Questionnaire in a Canadian undergraduate student sample. *Child Abuse and Neglect, 28,* 889-904.

Parker, W. D., & Adkins, K. K. (1995). A psychometric evaluation of the Multidimensional Perfectionism Scale. *Journal of Psychopathology and Behavioral Assessment, 17,* 323-334.

Parker, W. D., & Stumpf, H. (1995). An examination of the Multidimensional Perfectionism Scale with a sample of academically talented children. *Journal of Psychoeducational Assessment, 13,* 372-383.

Pearson, C. A., & Gleaves, D. H. (2006). The multiple dimensions of perfectionism and their relation with eating disorder features. *Personality and Individual Differences, 41,* 225-235.

Piedmont, R. L., Sherman, M. F., Sherman, N. C., & Williams, J. E. G. (2003). A first look at the Structured Clinical Interview for DSM-IV Personality Disorders Screening Questionnaire: More than just a screener? *Measurement and Evaluation in Counseling and Development, 36,* 150-160.

Piotrowski, C. (1999). The status of the Beck Anxiety Inventory in contemporary research. *Psychological Reports, 85,* 261-262.

Purdon, C., Antony, M. M., & Swinson, R. P. (1999). Psychometric properties of the Frost Multidimensional Perfectionism Scale in a clinical anxiety disorders sample. *Journal of Clinical Psychology, 55,* 1271-1286.

Rheaume, J. (April 3, 2008). Personal communication.

Rheaume, J., Freeston, M. H., Dugas, M. J., Letarte, H., & Ladouceur, R. (1995). Perfectionism, responsibility, and obsessive-compulsive symptoms. *Behaviour Research and Therapy, 33,* 785-794.

Rheaume, J., Freeston, M. H., Ladouceur, R., Bouchard, C., Gallant, L., Talbot, F., et al. (2000). Functional and dysfunctional perfectionists: Are they different on compulsive-like behaviors. *Behaviour Research and Therapy, 38,* 119-128.

Rice, K. G., & Aldea, M. A. (2006). State dependence and trait stability of perfectionism: A short term longitudinal study. *Journal of Counseling Psychology, 53,* 205-212.

Rice, K. G., Ashby, J. S., & Slaney, R. B. (1998). Self-esteem as a mediator between perfectionism and depression: A structural equations analysis. *Journal of Counseling Psychology, 45,* 304-314.

Rice, K. G., Ashby, J. S., & Slaney, R. B. (2007). Perfectionism and the Five-Factor model of personality. *Assessment, 14,* 385-398.
Rice, K. G., & Dellwo, J. P. (2001). Within-semester stability and adjustment correlates of the Multidimensional Perfectionism Scale. *Measurement and Evaluation in Counseling and Development, 34,* 146-156.
Rice, K. G., Leever, B. A., Christopher, J., & Porter, J. D. (2006). Perfectionism, stress, social (dis)connection: A short-term study of hopelessness, depression, and academic adjustment among honors students. *Journal of Counseling Psychology, 53,* 524-534.
Rice, K. G., Leever, B. A., Noggle, C. A., & Lapsley, D. K. (2007). Perfectionism and depressive symptoms in early adolescence. *Psychology in the Schools, 44,* 139-156.
Rice, K. G., & Mirzadeh, S. A. (2000). Perfectionism, attachment, and adjustment. *Journal of Counseling Psychology, 47,* 238-250.
Rice, K. G., & Preusser, K. J. (2002). The Adaptive/Maladaptive Perfectionism Scale. *Measurement and Evaluation in Counseling and Development, 34,* 210-222.
Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology, 57,* 1069-1081.
Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology, 69,* 719-727.
Saboonchi, F., Lundh, L-G., & Ost, L-G. (1999). Perfectionism and self-consciousness in social phobia and panic disorder with agoraphobia. *Behaviour Research and Therapy, 37,* 799-808.
Sanchez, M. M. (2006). The impact of early adverse case on HPA axis development: Nonhuman primate models. *Hormones and Behavior, 50,* 623-631.
Santor, D. A., Zuroff, D. C., & Fielding, A. (1997). Analysis and revision of the Depressive Experiences Questionnaire: Examining scale performance as a function of scale length. *Journal of Personality Assessment, 69,* 145-163.
Sassaroli, S., Lauro, L. J. R., Ruggiero, G. M., Mauri, M. C., Vinai, P., & Frost, R. (2008). Perfectionism in depression, obsessive-compulsive disorder and eating disorders. *Behaviour Research and Therapy, 46,* 757-765.
Scher, C. D., Stein, M. B., Asmundson, G. J. G., McCreary, D. R., & Forde, D. R. (2001). The Childhood Trauma Questionnaire in a community sample: Psychometric properties and normative data. *Journal of Traumatic Stress, 14,* 843-857.
Scott, K. L., Wolfe, D. A., & Wekerle, C. (2003). Maltreatment and trauma: Tracking the connections in adolescence. *Child and Adolescent Psychiatric Clinics of North America, 12,* 211-230.
Schuler, P. A. (2000). Perfectionism and the gifted adolescent. *Journal of Secondary Gifted Education, 11,* 183-196.
Segal, D. L., Coolidge, F. L., Cahill, B. S., & O'Riley, A. A. (2008). Psychometric properties of the Beck Depression Inventory-II (BDI-II) among community dwelling older adults. *Behavior Modification, 32,* 3-20.
Seignourel, P. J., Green, C., & Schmitz, J. M. (2008). Factor structure and diagnostic efficiency of the BDI-II in treatment seeking substance users. *Drug and Alcohol Dependence, 93,* 271-278.

Shafran, R., Cooper, Z., & Fairburn, C. G. (2002). Clinical perfectionism: A cognitive-behavioral analysis. *Behaviour Research and Therapy, 40,* 773-791.

Shafran, R., & Mansell, W. (2001). Perfectionism and psychopathology: A review of research and treatment. *Clinical Psychology Review, 21,* 879-906.

Simonsson-Sarnecki, M., Lundh, L-G., & Torestad, B. (2000). Factor structure and validity of the Affect Intensity Measure in a Swedish sample. *Personality and Individual Differences, 29,* 337-350.

Slade, P. D., & Dewey, M. E. (1986). Development and preliminary validation of the SCANS: A screening instrument for identifying individuals at risk of developing anorexia and bulimia nervosa. *International Journal of Eating Disorders, 5,* 517-538.

Slaney, R. B., & Ashby, J. S. (1996). Perfectionists: Study of a criterion group. *Journal of Counseling and Development, 74,* 393-398.

Slaney, R. B., Chadha, N., Mobley, M., & Kennedy, S. (2000). Perfectionism in Asian Indians: Exploring the meaning of the construct in India. *The Counseling Psychologist, 28,* 10-31.

Slaney, R. B., Rice, K. G., Mobley, M., Trippi, J., & Ashby, J. S. (2001). The Revised Almost Perfect Scale. *Measurement and Evaluation in Counseling and Development, 34,* 130-145.

Smith, G. T., & Combs, J. (in press). Issues of construct validity in psychological diagnoses. In T. Millon, R. F. Krueger, and E. Simonsen (Eds.), *Contemporary Directions in Psychopathology: Toward the DSM-V and ICD-11*. New York: Guilford Press.

Smith, G. T., Fischer, S., Cyders, M. A., Annus, A. M., Spillane, N. S., & McCarthy, D. M. (2007). On the validity and utility of discriminating among impulsivity-like traits. *Assessment, 14,* 155-170.

Smith, G. T., Fischer, S., & Fister, S. M. (2003). Incremental validity principles of test construction. *Psychological Assessment, 15,* 467-477.

Smith, G. T., & McCarthy, D. M. (1995). Methodological considerations in the refinement of clinical assessment instruments. *Psychological Assessment, 7,* 300-308.

Smith, G. T., McCarthy, D. M., & Zapolski, T. C. B. (in press). On the value of homogeneous constructs for construct validation, theory testing, and the description of psychopathology.

Smith, G. T., Simmons, J. R., Flory, K., Annus, A. M., & Hill, K. K. (2007). Thinness and eating expectancies predict subsequent binge eating and purging behavior among adolescent girls. *Journal of Abnormal Psychology, 116,* 188-197.

Smith, G. T., & Zapolski, T. C. B. (in press). Construct validation of personality measures. In J. N. Butcher (Ed.), *Oxford Handbook of Personality Assessment.* New York: Oxford University Press.

Srinivasagam, N. M., Kaye, W. H., Plotnicov, K. H., Greeno, C., Weltzin, T. E., & Rao, R. (1995). Persistent perfectionism, symmetry, and exactness after long-term recovery from anorexia nervosa. *American Journal of Psychiatry, 152,* 1630-1634.

Stairs, A. M. A., & Smith, G. T. (2009). An integrative theory of eating disorder vulnerability.
Manuscript in revise and resubmit status at *Psychological Bulletin.*
Stober, J. (1998). The Frost Multidimensional Perfectionism Scale revisited: More perfect with four (instead of six) dimensions. *Personality and Individual Differences, 24,* 481-491.
Storch, E. A., Roberti, J. W., & Roth, D. A. (2004). Factor structure, concurrent validity, and internal consistency of the Beck Depression Inventory-Second Edition in a sample of college students. *Depression and Anxiety, 19,* 187-189.
Strauss, M. E., & Smith, G. T. (2009). Construct validity: Advances in theory and methodology. *Annual Review of Clinical Psychology, 5,* 89-113.
Stumpf, H., & Parker, W. D. (2000). A hierarchical structural analysis of perfectionism and its relation to other personality characteristics. *Personality and Individual Differences, 28,* 837-852.
Suddarth, B. H., & Slaney, R. B. (2001). An investigation of the dimensions of perfectionism in college students. *Measurement and Evaluation in Counseling and Development, 34,* 157-165.
Teicher, M. H., Tomoda, A., & Andersen, S. L. (2006). Neurobiological consequences of early stress and childhood maltreatment: Are results from human and animal studies comparable? *Annals of the New York Academy of Sciences, 1071,* 313-323.
Terry-Short, L. A., Owens, R. G., Slade, P. D., & Dewey, M. E. (1995). Positive and negative perfectionism. *Personality and Individual Differences, 18,* 663-668.
Tozzi, F., Aggen, S. H., Neale, B. M., Anderson, C. B., Mazzeo, S. E., Neale, M. C., et al. (2004). The structure of perfectionism: A twin study. *Behavior Genetics, 34,* 483-494.
Van Dierendonck, D. (2004). The construct validity of Ryff's Scales of Psychological Well-Being and its extension with spiritual well-being. *Personality and Individual Differences, 36,* 629-643.
Vincent, N. K., & Walker, J. R. (2000). Perfectionism and chronic insomnia. *Journal of Psychosomatic Research, 49,* 349-354.
Vohs, K. D., Bardone, A. M., Joiner, T. E., Abramson, L. Y., & Heatherton, T. F. (1999). Perfectionism, perceived weight status, and self-esteem interact to predict bulimic symptoms: A model of bulimic symptom development. *Journal of Abnormal Psychology, 108,* 695-700.
Watson, D., & Wu, K. D. (2005). Development and validation of the Schedule of Compulsions, Obsessions, and Pathological Impulses (SCOPI). *Assessment, 12,* 50-65.
Weissman, A. N., & Beck, A. T. (1978). Development and validation of the dysfunctional attitude scale: A preliminary investigation. Paper presented at the 86th Annual Convention of the American Psychological Association, August-September 1978, Toronto, Ontario, Canada.
Whiteside, S. P., Lynam, D. R., Miller, J. D., & Reynolds, S. K. (2005). Validation of the UPPS Impulsive behavior scale: A four-factor model of impulsivity. *European Journal of Personality, 19,* 559-574.

Widiger, T. A., & Trull, T. J. (2007). Plate tectonics in the classification of personality disorder: Shifting to a dimensional model. *American Psychologist, 62,* 71-83.
Yen, S., Zlotnick, C., Costello, E. (2002). Affect regulation in women with borderline personality disorder traits. *Journal of Nervous and Mental Disease, 190,* 693-696.
Zuroff, D. C., Blatt, S. J., Sanislow, C. A., Bondi, C. M., & Pilkonis, P. A. (1999). Vulnerability to depression: Reexamining state dependence and stability. *Journal of Abnormal Psychology, 108,* 76-89.

Appendix I
M-CUP

Please read each of the following items carefully and mark the response that best corresponds to your agreement or disagreement using the following scale. Please circle the appropriate number. There are no right or wrong answers.

1	2	3	4	5
Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree

1. I am a person who sets high standards for myself	1	2	3	4	5
2. I like things to be neat	1	2	3	4	5
3. I expect others to excel at whatever they do	1	2	3	4	5
4. I feel great when I do well at something	1	2	3	4	5
5. I often don't live up to my own standards	1	2	3	4	5
6. I often feel that people make excessive demands of me	1	2	3	4	5
7. Neatness is of great importance to me	1	2	3	4	5
8. I often check my work carefully to make sure there are no mistakes	1	2	3	4	5
9. I feel great satisfaction when I feel I have perfected something	1	2	3	4	5
10. I rarely feel that what I have done is good enough	1	2	3	4	5
11. Others expect me to be perfect	1	2	3	4	5
12. I have very high goals	1	2	3	4	5
13. Things should always be put away in their place	1	2	3	4	5
14. I often check my work several times to find any mistakes	1	2	3	4	5
15. It is important to me that the people I am close to are successful	1	2	3	4	5
16. After completing a task, I feel happy	1	2	3	4	5
17. No matter how well I do, I still feel that I could have done better	1	2	3	4	5
18. When I make a mistake, I feel really bad	1	2	3	4	5
19. People expect perfection of me	1	2	3	4	5
20. I will not do something if I cannot do it perfectly	1	2	3	4	5
21. I want things to always be in order	1	2	3	4	5
22. I really don't like to see people close to me make mistakes	1	2	3	4	5
23. I get excited when I do a good job	1	2	3	4	5
24. It feels like my best is never good enough	1	2	3	4	5

25. People expect me to succeed at everything I do	1	2	3	4	5
26. I have to do things perfectly-or I shouldn't do them at all	1	2	3	4	5
27. I tend to set very high standards for myself	1	2	3	4	5
28. I like things to always be organized	1	2	3	4	5
29. I have high standards for the people who are important to me	1	2	3	4	5
30. Doing a great job is really rewarding	1	2	3	4	5
31. I become upset when I make a mistake	1	2	3	4	5
32. People expect high levels of performance from me	1	2	3	4	5
33. I won't do things if I can't do them perfectly	1	2	3	4	5
34. I definitely have high standards	1	2	3	4	5
35. I like to be orderly in the way I do things	1	2	3	4	5
36. It takes me a long time to do something because I check my work many times	1	2	3	4	5
37. I always want high quality work from others	1	2	3	4	5
38. My performance rarely meets my standards	1	2	3	4	5
39. There's no point in doing something if I cannot do it perfectly	1	2	3	4	5
40. I expect high levels of performance from myself	1	2	3	4	5
41. I try to be a very neat person	1	2	3	4	5
42. I feel satisfied when I accomplish something	1	2	3	4	5
43. I become very frustrated when I do not do something perfectly	1	2	3	4	5
44. I set extremely high standards for myself	1	2	3	4	5
45. I try to always be very organized	1	2	3	4	5
46. When I look over something, I often check over the small details	1	2	3	4	5
47. I expect a lot from my friends	1	2	3	4	5
48. I experience positive feelings after I achieve something	1	2	3	4	5
49. I feel I often fall short of the kind of person I want to be	1	2	3	4	5
50. I feel crushed after I make a mistake	1	2	3	4	5
51. If one thing goes wrong, I feel that I cannot do anything right	1	2	3	4	5
52. I feel that I am an organized person	1	2	3	4	5
53. I may check my work several times to make sure the details are correct	1	2	3	4	5

54. I feel pleasure when I complete tasks	1	2	3	4	5
55. I often feel dissatisfied with my work/performance	1	2	3	4	5
56. I feel like my best is never good enough for other people	1	2	3	4	5
57. I feel like a complete failure if I do not do something perfectly	1	2	3	4	5
58. I feel satisfied with my work after I do something well	1	2	3	4	5
59. People expect a lot from me	1	2	3	4	5
60. If I notice I made a mistake in my work, I feel like I failed the whole task	1	2	3	4	5
61. I always feel like there is something wrong in my work/performance	1	2	3	4	5

Scoring:
No items are reverse scored.

Order: 2, 7, 13, 21, 28, 35, 41, 45, 52

Satisfaction: 4, 9, 16, 23, 30, 42, 48, 54, 58

Details and Checking: 8, 14, 36, 46, 53

Perfectionism toward Others: 3, 15, 22, 29, 37, 47

High Standards: 1, 12, 27, 34, 40, 44

Black and White Thinking about Tasks and Activities: 20, 26, 33, 39

Perceived Pressure from Others: 6, 11, 19, 25, 32, 59

Dissatisfaction: 5, 10, 17, 24, 38, 49, 55, 56, 61

Reactivity to Mistakes: 18, 31, 43, 50, 51, 57, 60

Appendix II

Hypotheses regarding the relationship of the M-CUP scales with facets of the NEO-PI-R

	Hypotheses	Supported?
Order	+ Conscientiousness + Order	Yes Yes
Satisfaction	+ Extraversion +Positive Emotions - Neuroticism	Yes No No
Details and Checking	+ Conscientiousness + Order	Yes Partly
Perfectionism toward Others	+ Extraversion + Assertiveness - Agreeableness - Tender-mindedness	No Yes No No
High Standards	+ Conscientiousness + Achievement Striving	Yes Yes
Black and White Thinking about Tasks and Activities	+ Neuroticism + Depression + Anxiety	Yes Yes No
Perceived Pressure from Others	+ Neuroticism + Vulnerability	Yes No
Dissatisfaction	+ Neuroticism + Depression + Anxiety	Yes Yes Yes
Reactivity to Mistakes	+ Neuroticism + Depression + Anxiety + Vulnerability	Yes Yes Yes Yes

Vita

Agnes Mariann Stairs

Place of Birth: Szeged, Hungary
Date of Birth: November 30, 1981

Education

Washington University in St. Louis — B.A, Psychology, Dance, German
St. Louis, MO — May 2004

Professional Positions

University of Kentucky:

Therapist-
Jesse G. Harris Psychological Services Center — Fall 2005-May 2009

Practicum Student-
University of Kentucky Counseling and Testing Center — Aug. 2005-June 2006

Assessment Coordinator-
Jesse G. Harris Psychological Services Center — July 2006-July 2007

Healthy Relationships Group Co-Leader
Hope Center — August 2006-May 2007

Master's Level Technician
University of Kentucky Neurology — May 2007-June 2008

Psychology Intern

Ad Hoc Reviewer
Eating Behaviors
Journal of Abnormal Psychology
Journal of Clinical Epidemiology
Journal of Personality and Social Psychology
Patient Education and Counseling
Psychological Assessment
Spanish Journal of Psychology

Teaching Assistant — Fall semester 2007 and Spring semester, 2008
Research Methods
Department of Psychology, University of Kentucky

Scholastic and Professional Honors

Research Challenge Trust Fund Fellowship, University of Kentucky — 2008-2009

Award for Exceptional Clinical Performance, University of Kentucky	2008
Presidential Fellowship, University of Kentucky	2007-2008
Multi-Year Fellowship, University of Kentucky	2004-2007
Daniel R. Reedy Quality Achievement Award, University of Kentucky	2004-2007
Phi Beta Kappa, Washington University in St. Louis	2004
Sigma Xi, Washington University in St. Louis	2004
Lien Honorary Scholar, Washington University in St. Louis	2000-2004

Professional Publications

Journal Articles:

Smith, G. T., Spillane, N. S., & **Annus, A. M.** (2006). Implications of an emerging integration of universal and culturally-specific psychologies. *Perspectives on Psychological Science, 1,* 211-233.

Annus, A. M., Smith, G. T., Fischer, S., Hendricks, M., & Williams, S.F. (2007). Associations among family-of-origin food related experiences, expectancies, and disordered eating. *International Journal of Eating Disorders, 40*(2), 179-186.

Smith, G. T., Simmons, J. R., Flory, K., **Annus, A. M**., & Hill, K.K. (2007). Thinness and eating expectancies predict subsequent binge eating and purging behavior. *Journal of Abnormal Psychology, 116*(1), 188-197.

Cyders, M. A., Smith, G. T., Spillane, N. S., Fischer, S., **Annus, A. M.**, & Peterson, C. (2007). Integration of impulsivity and positive mood to predict risky behavior: Development and validation of a measure of positive urgency. *Psychological Assessment, 19,* 107-118.

Fischer, S., Smith, G.T., Hendricks, M., & **Annus, A.M.** (2007). The relationship of neuroticism and urgency to negative consequences of alcohol use in women with bulimic symptoms. *Personality and Individual Differences, 43*(5), 1199-1209.

Smith, G. T., Fischer, S., Cyders, M. A., **Annus, A. M**., Spillane, N. S., & McCarthy, D. M. (2007). On the Validity and Utility of Discriminating Among Impulsivity-Like Traits. *Assessment, 14*(2), 155-170.

Annus, A. M., Smith, G. T., & Masters, K. (2008). Manipulation of thinness and restricting expectancies: Further evidence for a causal role of thinness and restricting expectancies in the etiology of eating disorders. *Psychology of Addictive Behaviors, 22,* 278-287.

Annus, A. M., & Smith, G. T. (2009). Learning experiences in dance class predict adult eating disturbance. *European Eating Disorders Review, 17,* 50-60.

Zapolski, T. C. B., **Annus, A. M.**, Fried, R. E., Combs, J. L., & Smith, G. T. (2009). The measurement of dispositions to rash action in children. Manuscript submitted for publication.

Fischer, S., Smith, G. T., **Annus, A. M.**, & Hendricks, M. (2009). Explaining the higher levels of problems from alcohol consumption among eating disordered women. Manuscript submitted for publication.

Stairs, A. M., & Smith, G. T. (2009). An integrative theory of eating disorder vulnerability. Manuscript in revise and resubmit status at *Psychological Bulletin*.

Book Chapters:

Smith, G. T., **Annus, A. M.**, & Zapolski, T. C. B. (2007). Theory and test validation: A practical example. In M. Lange (Ed.), *Leading-edge psychological tests and testing research* (pp. 51-70). New York: Nova Science Publishers.

Smith, G. T., Spillane, N. S., & **Stairs, A. M.** (in press). An emerging integration of universal and culturally specific psychologies and its implications for the study of psychopathology. In A. Gari and K. Mylonas (Eds.), *Quod erat demonstrandum: From Herodotus' ethnographic journeys to cross-cultural research.* Athens: Pedio.

Papers Presented at Scientific Meetings:

Cyders, M. A., Smith, G. T., Spillane, N. S., Fischer, S., & **Annus, A. M.** (2005, June). Development and validation of a measure of positive urgency and its relation to drinking behaviors. Poster presented at the annual meeting of the Research Society on Alcoholism, Santa Barbara, CA.

Fischer, S., Smith, G. T., Cyders, M. A., Spillane, N. S., **Annus, A. M.**, & Hendricks, M. (2005, June). Integrating dispositional and learning risk factors for addictive behaviors. Poster presented at the annual meeting of the Research Society on Alcoholism, Santa Barbara, CA.

Smith, G. T., Flory, K., Simmons, J., & **Annus, A. M**. (2006, June). Thinness and eating expectancies predict subsequent binge eating and purging behavior among adolescent girls. Paper presented at the 2006 International Conference on Eating Disorders, Barcelona, Spain.

Fischer, S., Smith, G. T., Hendricks, M., & **Annus, A. M**. (2006, June). The role of trait urgency and expectancies in problem drinking and binge eating: Implications for comorbidity of alcohol dependence and eating disorders. Paper presented at the 2006 International Conference on Eating Disorders, Barcelona, Spain.

Annus, A. M., Smith, G. T., Fischer, S., Williams, S., & Hendricks, M. (2006, June). Associations among family and peer food-related experiences, learning about eating and dieting, and the development of eating disorders. Poster presented at the 2006 International Conference on Eating Disorders, Barcelona, Spain.

Smith, G. T., Spillane, N. S., & **Annus, A. M.** (2006, July). Implications of an emerging integration of universal and culturally-specific psychologies. In S. Heine & A. Norenzayan (Chairs), "Considering universals and variability in cross-cultural psychology," symposium conducted at the annual meeting of the International Association for Cross-Cultural Psychology, Isle of Spetses, Greece.

Annus, A. M., Smith, G. T., Masters, K. (2007, March) Manipulation of thinness and restricting expectancies: Further evidence for a causal role of thinness and restricting expectancies in the etiology of eating disorders. Paper presented at the Kentucky Psychological Association Student Conference, Lexington, KY.

Annus, A. M., Smith, G. T., Masters, K. (2007, October). Manipulation of thinness and restricting expectancies: Further evidence for a causal role of thinness and restricting expectancies in the etiology of eating disorders. Poster presented at the annual meeting of the Eating Disorders Research Society, Pittsburgh, PA.

Zapolski, T. C., **Annus, A. M.,** Fried, R. E., Combs, J. L., & Smith, G. T. (2008, July). The disaggregation of impulsivity in children. Poster presented at the annual meeting of the Research Society on Alcoholism.

Zapolski, T.C.B., Stairs, A.M., Fried, R.E., Combs, J.L., & Smith, G.T. (2009, July). Parental reports of personality risk factors in their children. Paper to be presented at the annual international meeting of the Research Society on Alcoholism, San Diego, CA.