Psychological Distress and the Frequency of Perfectionistic Thinking

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Five studies tested the hypotheses that there are individual differences in the frequency of automatic thoughts involving perfectionism and that these thoughts are associated with psychological distress. Research with the Perfectionism Cognitions Inventory (PCI) established that this new measure has adequate psychometric properties, and high PCI scorers tend to spontaneously report perfectionistic thoughts in naturalistic situations. Additional research confirmed that frequent perfectionism thoughts account for unique variance in distress, over and above variance predicted by standard measures of negative automatic thoughts and trait perfectionism measures. Overall, the findings support the view that personality traits involved in depression and anxiety have a cognitive component involving perfectionistic thoughts and that activation of this cognitive personality component contributes to distress.

Over the past two decades, there have been several important developments in research and theory on the role of automatic thoughts and related cognitive processes in emotion distress. Initial work testing predictions from Beck's (1967) cognitive model found that a preponderance of negative automatic thoughts was associated with depression (see Hollon & Kendall, 1980). This work was supplemented by theoretical accounts and investigations of the role of an absence of positive thoughts in depression (Ingram & Wisnicki, 1988; Kendall, Howard, & Hays, 1989; Schwartz & Garamoni, 1986). More recently, Nolen-Hoeksema and her colleagues have focused on a ruminative response style as a coping tendency that contributes to the persistence of depression (Nolen-Hoeksema, Parker, & Larson, 1994).

In the current article, we reexamine the role of ruminative processes in psychological distress by considering the argument that certain personality traits can also be assessed in terms of frequency of thinking. Specifically, the present research investigated the possibility that there are individual differences in the frequency of perfectionistic cognitions and that the tendency to experience frequent perfectionism thoughts is associated with elevated levels of psychological distress.

The notion that perfectionists are characterized by frequent cognitions about the attainment of ideal standards is consistent with descriptions of the cognitive preoccupations of introjective individuals (Blatt & Shichman, 1983). Blatt and Shichman (1983) observed that introjective individuals ruminate excessively about failures to meet personal standards and maintain a sense of control, whereas dependent, anaclitic individuals are believed to experience frequent thoughts about interpersonal experiences. A tendency to ruminate about the inability to attain perfectionistic standards is also in keeping with evidence indicating that the ideal self functions as a self-schema that facilitates the recall of perfectionistic content (Hewitt & Genest, 1990). According to Hewitt and Genest (1990), the ideal self-schema is especially likely to encode and process information that indicates that perfection has not been obtained.

Several additional sources converge to suggest that certain perfectionists should indeed be characterized by frequent ruminations that reflect the attainment of standards. For example, at a descriptive level, clinical accounts suggest that perfectionists frequently experience thoughts with perfectionistic themes (e.g., Barrow & Moore, 1983; Guidano & Liotti, 1983). Empirical evidence has been provided by Frost and associates. Frost and Henderson (1991) had a sample of 40 female athletes complete various measures, including the multidimensional perfectionism inventory developed by Frost, Marten, Lahart, and Rosenblate (1990). These women also provided structured reports of their thoughts 24 hr before competition. The authors found that perfectionists reported a greater propensity to experience such cognitive reactions as "Images of me making a mistake clog my mind" and "I dream of being perfect." In a subsequent study, Frost et al. (1997) asked students to monitor their daily thoughts. They found that perfectionists reported a greater frequency of thoughts about highly important mistakes.
In addition to descriptive and empirical evidence, theories of goal-directedness and cognitive processing (e.g., Klinger, 1977; Kuhl, 1984; Martin & Tesser, 1989) and theories of stress and cognition (Pennebaker, 1989) suggest that perfectionism should have a ruminative component. The link between perfectionism and ruminative thought can be analyzed within the context of incompleteness theories of rumination (for a review, see Gold & Wegner, 1995). For example, Martin and Tesser (1989) argued that rumination occurs after the frustration of not reaching a salient goal, especially if a person has reached the stage of "end-state thinking." According to these authors, end-state thinking occurs when "individuals think not about different ways of attaining the goal, but about the goal objects themselves and the feelings associated with them" (Martin & Tesser, 1989, p. 314).

Ruminative thoughts and end-state thinking tend to emerge when a person cannot engage in instrumental behaviors that will move the person closer to attaining his or her goal (Martin & Tesser, 1989; McIntosh, Harlow, & Martin, 1995). In the case of perfectionists, this would be especially likely to happen when it begins to become apparent that perfection will not be attained. A similar formulation was provided by Klinger (1977), who argued that an individual is likely to ruminate about goals that involve a high level of commitment but are beyond his or her reach (also see Klinger, 1996). According to these theoretical accounts, perfectionists should be especially prone to rumination involving the attainment of their goals. Because perfection is an impossible goal to attain, yet the perfectionist is highly focused on and committed to his or her goals (Hewitt & Flett, 1991b), it stands to reason that perfectionists should experience numerous thoughts reflecting their failure to attain perfection, along with counterfactual thoughts about "what might have been." This form of thinking may be conceptually similar to the negative introspection, ruminative processes, and analytical, high-level thinking about the self that characterize individuals with persistent, elevated depression and high trait levels of negative affectivity (see Pennebaker, 1989; Watson & Clark, 1984).

Finally, the possibility that the perfectionism construct has a cognitive element is in keeping with the vast literature on achievement motivation. Perfectionism is typically regarded as an achievement-based construct that involves the tenacious pursuit of goals of personal importance (Hewitt & Flett, 1993b). An extensive literature on achievement motivation and its correlates indicates that cognitive imagery involving the attainment or non-attainment of goals is a key element of achievement motivation (see McClelland, 1961).

The current research was designed to extend the existing literature in two respects. At present, although there has been some initial work on cognitive processing of perfectionistic information (Hewitt & Genest, 1990), there have been no attempts to examine the frequency of perfectionistic cognitions as a personality variable. Existing measures of perfectionism (e.g., Burns, 1980; Frost et al., 1990; Hewitt & Flett, 1991b; Johnson & Slaney, 1996) focus more globally on the degree of trait levels of perfectionism with no attempt to measure levels of ongoing cognitive activity involving perfectionism and goal attainment, despite observations that perfectionists are preoccupied with frequent automatic thoughts and images involving the need to be perfect (Frost & Henderson, 1991; Moore & Barrow, 1986). Consequently, one goal of the present research was to develop a reliable and valid measure of automatic perfectionistic thoughts. Such a measure would represent an indirect assessment of the frequency with which individuals make evaluative comparisons at the cognitive level between the ideal, perfectionistic self and the current self or the current situation. A preoccupation with ruminative thoughts about the self is believed to reflect an underlying tendency to focus analytically on current aspects of the self and the environment rather than goal-directed modes of action (Kuhl, 1984).

A related purpose of the present research was to use this measure to test the hypothesis that frequent perfectionistic thinking is associated significantly with psychological distress in terms of elevated symptoms of depression and anxiety. Several studies have indicated that trait levels of perfectionism are associated with depression and distress in clinical and subclinical samples (e.g., Flett, Hewitt, Blankstein, & Mosher, 1991; Frost et al., 1990; Hankin, Roberts, & Gotlib, 1997; Hewitt & Flett, 1991a, 1993a; Hewitt, Flett, & Ediger, 1996), leading major theorists such as Blatt (1995) to describe perfectionism as highly destructive. A tendency to engage in excessive perfectionistic thinking should be associated with depressive tendencies because constant rumination about perfectionistic standards would serve to highlight possible discrepancies between the actual self and the perfectionistic ideal self and could lead to heightened levels of self-focused attention and self-reflection. In addition, a tendency to engage in frequent perfectionistic thinking could promote cognitive biases such as "all or none" thinking (Burns, 1980). Finally, according to the availability heuristic (Tversky & Kahneman, 1973), frequent perfectionistic thinking could increase the likelihood that perfectionists will consistently use stringent criteria when evaluating themselves.

Individual differences in the frequency of perfectionistic cognitions were investigated in a series of five studies. This research addressed the following issues: (a) Are there personality differences in perfectionistic thought frequency, and can these differences be assessed in a reliable manner? (b) Is there a relation between individual differences in perfectionistic thought frequency and poor psychological adjustment? and (c) If there is a link between perfectionism cognitions and maladjustment, can levels of perfectionistic thought frequency account for unique variance in depressive symptomatology over and above trait dimensions of perfectionism, neuroticism, and general measures of automatic thoughts?

### Study 1

In Study 1, the primary focus was on developing the new measure—the Perfectionism Cognitions Inventory (PCI)—with the caveat that our main purpose was to understand more about the nature of perfectionism as a personality construct. This new measure was developed using the construct validation approach (Jackson, 1970).

The participants in Study 1 completed the Automatic Thoughts Questionnaire (ATQ; Hollon & Kendall, 1980) and the Automatic Thoughts Questionnaire—Positive (ATQ-P; Ingram & Wisniewski, 1988), in addition to the PCI. These measures were included primarily to test the hypothesis that a high frequency of perfectionism cognitions would be associated with a high level of negative automatic thoughts about the self. An associ-
tion between perfectionistic thoughts and negative self-thoughts would be in keeping with our belief that perfectionism cognitions arise, in part, from a concern that the present self is discrepant in a negative sense from the ideal self. In addition, there are other indications that perfectionists are high in self-criticism (Blatt, 1995; Hewitt & Flett, 1990; Hewitt & Flett, 1993a) and that they tend to be dissatisfied with their degree of goal attainment (Mor, Day, Flett, & Hewitt, 1995).

Finally, the participants in this study also completed a measure of depressive symptomatology. In addition to allowing examination of the relation between perfectionistic thought frequency and self-reported distress, the inclusion of this measure allowed us to test whether individual differences in perfectionistic thought frequency could account for unique variance in depression scores after taking into account variance due to the existing measures of automatic thoughts.

Method

Materials and Procedure

We generated items for the PCI independently on the basis of available literature, experience with perfectionists, and general understanding of the perfectionism construct. Items were generated to reflect direct references to perfectionism (e.g., I should be perfect) and to upward striving defined in absolute terms (e.g., I can always do better, even if things are almost perfect) and in relative terms involving social comparison (e.g., I have to be the best). The social comparison content reflected the competitive orientation exhibited by extreme perfectionists (Flett, Hewitt, Blankstein, & Dynin, 1994). Additional PCI items tapped an individual's awareness of being imperfect and not attaining high goals (e.g., Why can't I be perfect?). In total, 55 items were constructed. These items were corrected for clarity, duplicates were deleted, and some items were rephrased. This resulted in a pool of 36 potential items.

Participants

Sample 1. In the initial phase of this study, a sample of 234 undergraduate students (86 men and 148 women) in a first-year psychology course were administered the 36 items. The mean age of the participants was 21.23 years. The instructions were patterned after the previous ATQ measures. Specifically, participants were told the following:

Listed below are a variety of thoughts about perfectionism that sometimes pop into people's heads. Please read each thought and indicate how frequently, if at all, the thought occurred to you over the last week. Please read each item carefully and circle the appropriate number, using the scale below.

Participants made ratings varying from not at all (0) to all of the time (4). Participants also completed the ATQ, the ATQ-P, and the Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979).

The ATQ (Hollon & Kendall, 1980) is a 30-item scale that presents individuals with a series of negative thoughts. Respondents must indicate the frequency with which they have experienced these negative thoughts during the past week.

The ATQ-P (Ingram & Wisnicki, 1988) consists of a series of 30 positive thoughts. The ATQ-P was completed with respect to the thoughts experienced during the previous week. The BDI (Beck et al., 1979) is a 21-item instrument measuring the behavioral, cognitive, motivational, and vegetative symptoms of depression.

Sample 2. In the subsequent phase of this study, a sample of 747 students (208 men and 539 women) from an introductory psychology class at the University of Winnipeg completed the PCI as part of a large mass assessment. Their mean age was 20.2 years. The version of the PCI used in this study was the final version of the measure, which is described subsequently. The main purpose of Sample 2 was to assess the structure of the PCI in a large sample.

Results

Psychometric Analyses and Item Reduction

Initially, analyses were performed to select the best items from the larger pool of items administered to the participants in Sample 1. Following recommendations by Jackson (1970), items were retained if the mean item endorsement was not too low (greater than 0.5) or not too high (lower than 3.5). Eleven items with excessively high or low endorsements were dropped from further consideration. The remaining items were subjected to a principal-components analysis. It was found that all 25 items loaded .61 or higher on a large first component that accounted for 51.3% of the variance (eigenvalue = 12.83). Two smaller components also emerged and accounted for 6.6% and 5.0% of the variance. Because the items making up these components were complex in that they had significant loadings on the first component as well, it was decided to focus on the large first component.

The alpha coefficient (Cronbach, 1951) of the 25 PCI items in Sample 1 was .96. The mean interitem correlation was .49. This value approached but did not exceed the cutoff point of .50 that Briggs and Cheek (1986) identified as an indication that scale items are overly redundant.

There was no gender difference in mean PCI scores. The respective means for men and women were 35.41 (SD = 23.19) and 38.25 (SD = 22.01).

The replicability of the previous results was investigated by conducting a principal-components analysis on the responses to the 25 PCI items that were administered to the large sample of 747 students from the University of Winnipeg. This analysis confirmed that the scale consists of one large component with loadings ranging from .38 to .75, most loadings being .50 or greater. The 25 PCI items are displayed in Table 1, along with their loadings, means, and standard deviations. The eigenvalue for this component was 9.39, and it accounted for 37.6% of the variance. Overall, the results indicated that the PCI is essentially unidimensional. Three smaller components with eigenvalues of 1.75, 1.48, and 1.23 were obtained, but each component had few items with significant loadings of .40 or greater, and these items had significant loadings on the first component as well as one of the other components. The components were not rotated because we did not hypothesize any underlying causal structure involving two or more components.1

The respective means for men and women were 43.08 (SD = 17.98) and 43.91 (SD = 19.18). This difference was not statistically significant.

Correlational Analyses

In the next set of analyses, we examined how perfectionism cognitions related to other measures of automatic cognitions

1 Highly similar results were obtained when separate factor analyses were conducted on the data provided by women and men. These results are available from Gordon L. Flett on request.
Note. N = predictors composed of the three automatic thoughts measures from Sample 1 to examine the unique contribution of perfectionism cognitions were linked = 23.90, \( F_{p} < .001 \). Examination of the individual predictors showed that all three measures accounted for significant variance in symptom scores in the expected direction. The respective \( F \) values were 75.88 for ATQ scores (\( \beta = .54 \)), 19.88 for ATQ-P scores (\( \beta = -.21 \)), and 10.48 for PCI scores (\( \beta = .21 \); all ps < .01).

**Discussion**

The results of our first study supported the hypothesis that there are identifiable individual differences in the frequency of perfectionism cognitions and that these differences can be measured with an adequate degree of reliability and validity. Initial research conducted with the PCI indicated that this measure is unidimensional and has a high level of internal consistency when administered to student samples.

Additional analyses confirmed that there is a significant positive association between the frequency of perfectionistic thinking and self-reports of depressive symptoms. A tendency to experience perfectionistic cognitions may not be entirely negative in that high PCI scorers reported a greater frequency of positive automatic thoughts. At the same time, it must be acknowledged that a more robust association was obtained between the PCI and the ATQ measure of negative self-thoughts.

The results of the regression analysis provided perhaps the clearest demonstration of the need to examine frequent perfectionistic thoughts in depression. Examination of the data from participants who were administered various measures of automatic thoughts indicated that the PCI accounted for unique variance in depression symptom scores after variance due to the

and depression. The sum of responses to the 25 items retained on the PCI was used as the measure of perfectionism cognitions. The correlations among the measures are shown in Table 2. It can be seen that the PCI was correlated positively with depressive symptoms in the total sample, \( r = .52, p < .001 \). Similar findings tended to emerge for men and women.

As can be seen in Table 2, individuals with more frequent perfectionistic cognitions also reported more frequent negative and positive automatic thoughts. A regression analysis with PCI scores as the outcome measure and both automatic thoughts measures within the same predictor block indicated that significant variance was predicted by both negative automatic thoughts, \( F = 203.99, p < .01 \), and positive automatic thoughts, \( F = 23.90, p < .01 \), but perfectionistic cognitions were linked most closely with negative thoughts.

**Hierarchical Regression With Cognitions Measures Predicting Depression**

Finally, a hierarchical regression analysis was performed on the data from Sample 1 to examine the unique contribution of PCI scores when predicting depressive symptoms. A block of predictors composed of the three automatic thoughts measures was entered and accounted for a significant amount of variance, \( R^2 = .53, F = 85.83, p < .001 \).

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Note. Correlations were analyzed using two-tailed tests and were based on the responses of 86 men and 148 women. ATQ = Automatic Thoughts Questionnaire—Negative; ATQ-P = Automatic Thoughts Questionnaire—Positive; BDI = Beck Depression Inventory. *p < .05. **p < .01. ***p < .001.
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existing measures of automatic thoughts had been taken into account. Thus, the initial data indicated that the tendency to engage in frequent ruminations about perfection is a correlate of depressive symptomatology in university students, and it is not redundant with more general measures of positive and negative automatic thoughts.

Study 2

The purpose of Study 2 was to examine the psychometric properties of the PCI in greater detail in various samples. The first sample in Study 2 completed the PCI, along with measures of response style, Type A behavior, and self-punitiveness. Response style was assessed to determine the extent to which the PCI is contaminated by a tendency to engage in impression management. The remaining measures were used to establish concurrent validity. Perfectionists have been described as having Type A features (Flett et al., 1994; Westra & Kuiper, 1996), with a tendency to be self-punitive (Hewitt & Flett, 1991b). Thus, the PCI should be correlated significantly with these personality tendencies.

Participants in our second sample completed the PCI at two time points separated by a 3-month interval to allow examination of the temporal stability of perfectionistic thought frequency. Evidence of test–retest reliability would suggest that the tendency to experience frequent perfectionistic thoughts is a relatively persistent feature associated with perfectionism, despite the general belief that automatic thoughts are states that reflect the activation of latent self-schemas (Beck, Epstein, & Harrison, 1983).

A third sample of participants completed the PCI and the same measure of impression management given to the first sample to further examine this response bias issue. Also, participants in this sample completed a measure of imaginal processes, as well as measures of symptom distress, negative affect, positive affect, and life satisfaction. The measure of imaginal processes was included to further examine the nature of perfectionistic thinking. Imaginal processes typically involve daydreams with various types of content. Past research on imaginal processes and depression has shown that depressed individuals tend to report a greater frequency of daydreams involving themes of guilt and fear of failure (Cundiff & Gold, 1979). Because daydreams can be conceptualized as a cognitive tendency to think about idealized circumstances or preferred outcomes (Singer & Antrobus, 1972), perfectionists with high PCI scores should have higher scores on measures of imaginal processes. The measure of imaginal processes used in this study included a subscale tapping fear of failure imagery. It was expected that the PCI would be associated most strongly with this aspect of imaginal processing because fear of failure and worry are central to the experience of perfectionism (Flett, Hewitt, Blankstein, & Mosher, 1991; Flett, Hewitt, Endler, & Tassone, 1994; Pacht, 1984), and we believe that perfectionistic cognitions are experienced primarily when an individual is concerned about the discrepancy between ideal standards and personal characteristics.

Finally, measures of symptom distress, affect, and life satisfaction were included to further examine the validity of our new measure and to test some important hypotheses about the nature of perfectionistic cognitions. The inclusion of measures of mood state and life satisfaction enabled us to test both the affective and cognitive components of subjective well-being (see Pavot & Diener, 1993). A tendency to experience frequent perfectionistic cognitions should be linked with negative affect, given the link between perfectionism cognitions and depression in Study 1, as well as the fact that a key component of negative affectivity is the tendency to ruminate about mistakes (see Watson & Clark, 1984). If perfectionism cognitions arise, in part, from an awareness about the discrepancy between the actual self and ideal standards of perfection, then there should also be a negative association between frequent perfectionism cognitions and life satisfaction. Life satisfaction has been described as a cognitive process that involves the mental comparison of current life quality with personal standards (Diener, 1984; Pavot & Diener, 1993). Individuals with frequent perfectionism cognitions should have relatively low levels of life satisfaction because of the cognitive salience of perfectionistic standards and the nonattainment of these high standards.

Method

Sample and Procedure

Sample 1. As noted earlier, Sample 1 was administered the PCI and related measures for the purposes of examining validity and social desirability. Forty-four undergraduate students (17 men and 27 women) with a mean age of 21.61 years (SD = 3.32) completed the PCI and various measures designed to examine the validity and degree of social desirability bias associated with the scale. These participants completed the PCI, the revised Attitudes Toward Self Scale (Carver, LaVoie, Kuhl, & Ganellen, 1988), Form T of the Jenkins Activity Survey (Jenkins, Zyzanski, & Rosenman, 1971), and the impression management subscale of the Balanced Inventory of Desirable Responding (Paulhus, 1984). These measures are described subsequently.

The revised Attitudes Toward Self Scale (Carver et al., 1988) is a 15-item measure of four dimensions of self-deceptive tendencies: high self-standards (e.g., I set higher goals for myself than other people seem to), self-criticism (e.g., I get angry with myself if my efforts don’t lead to the results I wanted), overgeneralization (e.g., When even one thing goes wrong I begin to wonder if I can do well at anything at all), and perseveration on failure experiences (e.g., If I fail at something, I think about that particular failure for a long time afterward). Past results indicate that overgeneralization is the component with the strongest correlation with dysphoria (see Flett, Hewitt, & Mittelstaedt, 1991).

The Jenkins Activity Survey is a well-known self-report measure of Type A behavior. It was included because of evidence indicating a tendency for Type A individuals to endorse perfectionistic standards (Flett, Hewitt, Blankstein, et al., 1994).

The Balanced Inventory of Desirable Responding impression management scale is a 20-item measure of the tendency to engage intentionally in the deception of others (Paulhus, 1984). The inventory also includes a 20-item measure of self-deception. In Sample 1, only the impression management subscale was used. In Sample 3 (described subsequently), both the impression management and self-deception subscales were used.

Sample 2. The second sample was composed of 73 students (23 men and 50 women) in introductory psychology at the University of Winnipeg. As part of a larger prospective study, each participant completed the PCI on two occasions separated by a 3-month interval.

Sample 3. The third sample consisted of 154 students (31 men and 123 women) in introductory psychology at the University of Toronto at Mississauga. Participants completed the PCI, the Balanced Inventory of Desirable Responding, the short form of the Imaginal Processes Inventory (Singer & Antrobus, 1970), an abbreviated version of the Hopkins
Symptom Checklist (Green, Walkey, McCormick, & Taylor, 1998), the Positive Affect and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988), and the Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). The abbreviated Imaginal Processes Inventory assesses lack of attentional control or mind wandering, fear of failure imagery, and positive daydreaming. The measure has adequate psychometric properties, including factorial validity (see Huta & Tanaka, 1983–1984).

The abbreviated Hopkins Symptom Checklist provides a measure of negative affectivity (labeled *general feelings of distress*; e.g., feeling blue), a measure of somatic distress (e.g., pains in the lower part of your back), and a measure of performance difficulty (e.g., difficulty in speaking when you are excited). Green et al. (1988) reported that the three subscales represent three distinct factors with alpha coefficients (Cronbach, 1951) of .75 or greater in a student sample.

The PANAS is a brief 20-item measure with 10 adjective items that assess positive affect (e.g., interested and proud) and 10 adjective items that assess negative affect (e.g., ashamed and nervous). Participants in this study completed the PANAS with respect to the same time frame as the PCI (i.e., the previous week). Internal consistency values of .84 or higher have been reported for both affect scales, and PANAS scores have been shown to correlate with related measures of distress (see Watson, Clark, & Tellegen, 1988).

The Satisfaction With Life Scale is a five-item measure of overall satisfaction with one's life. Item content is directly relevant to concerns about meeting ideals (e.g., In most ways my life is close to ideal). Extensive information attests to the measure's reliability and validity (see Pavot & Diener, 1993).

**Results**

**Sample 1**

Correlations computed between the PCI and the other measures provided evidence of the scale's validity. PCI scores were correlated positively with the Attitudes Toward Self Scale subscales measuring high standards, $r = .55$, $p < .001$; self-criticism, $r = .57$, $p < .001$; overgeneralization, $r = .43$, $p < .001$; and failure perseveration, $r = .56$, $p < .001$. In addition, PCI scores were correlated significantly with total Type A scores, as assessed by the Jenkins scale, $r = .33$, $p < .05$. There was no significant association between the PCI and the Balanced Inventory of Desirable Responding impression management subscale, $r = -.10$, *ns*.

**Sample 2: Test–Retest Reliability**

The respective means for the PCI were 43.56 ($SD = 18.57$) at Time 1 and 40.73 ($SD = 18.01$) at Time 2. The 3-month test–retest reliability ($r$) of the instrument was .67 ($p < .01$).

**Sample 3**

In terms of correlations, scores on the PCI were not associated significantly with impression management, $r = .13$, *ns*, but there was a modest negative association between perfectionism cognitions and self-deception, $r = -.27$, $p < .01$. These data suggest that high self-deceivers are less troubled by thoughts involving themes of the need for perfectionism.

Correlations with the Imaginal Processes Inventory provided further evidence of the validity of the PCI. The PCI was correlated positively with the fear of failure subscale, $r = .42$, $p < .01$; the daydreaming subscale, $r = .25$, $p < .01$; and the lack of attentional control subscale, $r = .22$, $p < .01$.

Finally, the expected correlations were obtained between the PCI and the well-being measures. A greater frequency of perfectionism cognitions was associated with Hopkins Symptom Checklist indexes of general distress, $r = .54$, $p < .01$; performance difficulty, $r = .51$, $p < .01$; and somatic distress, $r = .31$, $p < .01$. Perfectionism cognitions were unrelated to positive affect, $r = -.02$, *ns*, but the frequency of perfectionism cognitions was associated with negative affect, $r = .51$, $p < .01$, and with lower life satisfaction, $r = -.32$, $p < .01$.

**Discussion**

The primary goal of Study 2 was to examine the validity of the PCI in detail. Substantial evidence of the measure's psychometric properties was obtained in this study. The PCI had adequate test–retest reliability and was not associated with a measure of impression management. Additional results indicated that people with more frequent perfectionism cognitions also tended to exhibit Type A characteristics and elements of self-punitiveness. Particularly noteworthy was the positive link between frequency of perfectionism cognitions and the indexes of self-criticism and failure perseveration. The association between perfectionism cognitions and self-criticism supports the contention that perfectionism cognitions arise, in part, from a defensive and self-punitive concern about one's current performance or personal characteristics being discrepant from perfectionistic standards. Similarly, the link with failure perseveration suggests that perfectionism cognitions are likely to be triggered when a failure is encountered, and the impact of the failure may be magnified by a tendency for perfectionists to engage in obsessive ruminating. The link between perfectionistic thoughts and concern about failures was also indicated by the results involving the imaginal processes measures. Separate analyses with the Imaginal Processes Inventory subscales revealed that high scorers on the PCI were especially likely to report images involving fear of failure. This finding accords with previous evidence of a pervasive link between perfectionism and fear of failure and further supports the contention that the experience of frequent perfectionistic cognitions is a response to concerns about the inability to meet salient standards.

Consistent with expectations, strong positive correlations were found between the PCI and the Hopkins Symptom Checklist measures of general feelings of distress and performance difficulty. The correlation between the PCI and general symptoms of distress replicates the finding in Study 1 in that many items on the Hopkins Symptom Checklist general distress measure tap depressive symptoms. The current study extended the earlier findings by showing that there is a more modest but significant correlation between the PCI and somatic difficulties and that there is a strong association between the experience of perfectionism cognitions and performance difficulties. Excessive rumination is a factor that is often associated with performance impairment and an inability to initiate instrumental activities (see Morrow & Nolen-Hoeksema, 1990). Our data suggest that perfectionism cognitions may reflect a particular type of cognitive interference that disrupts performance in various settings.
Perfectionism are associated with depressive symptoms and recollections arise, in part, from concerns about not meeting ideal standards. These data are consistent with our claim that perfectionism comparison of one’s current life situation and personal standards, these data are consistent with our claim that perfectionism cognitions arise, in part, from concerns about not meeting ideal standards of perfection.

Study 3

Taken together, the results of the first two studies indicate that it is possible to measure the frequency of perfectionism cognitions with an adequate degree of reliability and validity, and it is important to do so because frequent thoughts involving perfectionism are associated with depressive symptoms and related indexes of distress. Although these data provide insights into the cognitive processes involved in perfectionism, some important questions about the nature of perfectionistic cognitions remain to be addressed. One issue is whether evidence can be obtained for the existence of perfectionistic cognitions in naturalistic settings. That is, it remains to be established whether high and low PCI scorers actually do differ in the thoughts that they spontaneously experience. This issue was tested in Study 3 by having participants with varying PCI scores keep a daily record of their naturally occurring dysfunctional thoughts over a 3-day period. These thoughts were then analyzed according to the number of spontaneous references to perfectionism-relevant content.

A related purpose of Study 3 was to examine the extent to which spontaneous mentions of negative and positive thoughts about the self are associated with perfectionism cognitions, as assessed with the PCI and the diary method. Given the link between perfectionism and structured measures of self-critical tendencies evident in the first two studies, it was expected that individuals with more frequent perfectionism cognitions would also report a greater number of negative thoughts about themselves.

Method

Sample

The sample consisted of 56 first-year psychology students (15 men and 41 women) from the University of Winnipeg. Their mean age was 25.41 years.

Procedure

Participants were told that they were going to be asked to complete a diary for 3 days. First, however, they were asked to complete a battery of pretest measures, including the PCI.

Next, participants were given a detailed instruction session by Paul L. Hewitt on how to use Beck’s diary measure of dysfunctional thoughts (Beck et al., 1979). The daily dysfunctional thoughts records require individuals to first note any actual event leading to an unpleasant emotion or a stream of thoughts, daydreams, or recollections leading to an unpleasant emotion. The individual then specifies the emotion or emotions experienced and lists the automatic thoughts that preceded the emotion. This instrument has been used successfully in various research projects. For example, it has been used to examine the link between depression and spontaneous attributions (Riskind, Castellon, & Beck, 1989). As noted earlier, in the current study, diary content was analyzed primarily to estimate the number of thoughts involving perfectionism, as well as the number of negative thoughts about the self.

Scoring of Dysfunctional Thoughts

The expressed thoughts were scored by two graduate student raters who were unaware of each individual’s level of perfectionism, as assessed by the PCI. The raters were instructed to tabulate the number of thoughts with perfectionism themes. In addition, the raters tabulated the number of positive, negative, and neutral thoughts in three content areas (self-referent, other referent, and situation referent) according to a framework used by Fichten (1986). Two of the three content areas (i.e., self-referent and situation referent) are comparable to categories used to analyze the thoughts expressed in achievement situations (see Blankstein, Toner, & Flett, 1989). Content involving perfectionistic thoughts was defined broadly in a manner consistent with the content of the PCI and with existing trait measures (Frost et al., 1990; Hewitt & Flett, 1991b). A thought was recorded as reflecting perfectionism if it involved a direct reference to striving for perfection, a concern with mistakes (e.g., What if I make a mistake?), or the need for organization (see Frost et al., 1990). In light of the interpersonal aspects of perfectionism (Frost et al., 1990; Hewitt & Flett, 1991b), thought content involving high expectations from others or a concern about meeting other people’s unrealistic expectations was also included. Finally, consistent with certain content in the PCI thoughts were also scored as perfectionistic if they reflected the need to improve oneself to maximize potential (i.e., I need to do better) or an awareness of the need to be more perfect in relative terms involving social comparison (i.e., I have to be the best). The raters were trained in the scoring of thoughts until a high degree of agreement between ratings was obtained. As was the case in earlier research (e.g., Blankstein et al., 1989), better than 90% agreement was obtained between raters.

Results

Overall, it was found that the participants’ diaries contained an average of 14.51 thoughts over a 3-day period. The three most frequent thought categories were negative thoughts about the self ($M = 3.79$), negative thoughts about other people ($M = 2.57$), and neutral thoughts about the self ($M = 2.27$). Thoughts involving perfectionism themes constituted a relatively small proportion (i.e., 7.11%) of the total number of thoughts ($M = 1.04$).

The main correlational findings of interest are displayed in Table 3. Correlations were computed between the PCI and the 10 thought categories. The resulted showed that the PCI was correlated positively with the number of perfectionism thoughts expressed, $r = .41, p < .01$. Contrary to expectations, however, it should be noted that this effect was no longer significant ($p < .15$) when conducting partial correlations taking into account individual differences in the total number of thoughts reported. This outcome reflects the fact that those who reported perfectionistic thoughts had a general tendency to report more thoughts in highly relevant categories.
the PCI was not correlated significantly with the number of thoughts in any other category.

Further analyses focused solely on diary content. It was found that the number of spontaneously expressed thoughts reflecting perfectionism was associated with certain other thought categories. Specifically, a greater number of perfectionistic thoughts was associated with the number of negative self-thoughts, \( r = .36, p < .01 \), and neutral self-thoughts, \( r = .37, p < .01 \). Further examination of the thought categories involving the self showed that the number of positive thoughts about the self was correlated with the number of positive thoughts about other people, \( r = .27, p < .05 \). The only other correlations of note were the significant positive associations between the number of neutral self-thoughts and positive and negative thoughts about situational factors (see Table 3).

**Discussion**

The results of Study 3 provided additional support for the contention that perfectionism cognitions are an identifiable component of the perfectionism construct. A diary study was conducted to assess the link between the PCI and perfectionism cognitions that were spontaneously produced. It was found that the PCI was indeed associated with the number of perfectionistic thoughts contained in the diary. In fact, some participants provided thought content that very closely resembled PCI content (e.g., Why can't I be more perfect? I think about not being able to play an instrument perfectly). The association between the PCI and diary content constitutes evidence of the predictive validity of our new measure.

However, some caveats must be noted. First, it must be acknowledged that the total number of perfectionistic thoughts constituted only a relatively small percentage of the number of thoughts reported by participants even though we used a broad definition of perfectionistic thoughts. It may be presumed that a greater number of perfectionistic thoughts would have been reported if we had placed participants in an experimental situation that involved an explicit focus on achievement and evaluative standards, perhaps with the use of priming cues, given the fact that contextual factors influence the accessibility of thought content (Clark, 1988). This procedure was not adopted because we wanted to establish the presence of these thoughts in a naturalistic setting.

Second, our attempt to replicate the association between perfectionism cognitions and negative self-thoughts resulted in an equivocal pattern of findings. In our earlier studies, we found a robust link between perfectionism and automatic negative thoughts (see Study 1), as well as an association between perfectionism cognitions and measures of self-criticism and perseverative thought about failure (see Study 2). In contrast, the current study found that the PCI was not correlated significantly with the number of negative self-thoughts that were spontaneously expressed. However, there was a significant positive correlation between the number of perfectionistic thoughts that were produced spontaneously and the number of negative self-thoughts and neutral self-thoughts about the self.

Why did the measure of spontaneous thoughts involving negative self-thoughts correlate significantly with the number of perfectionistic thoughts when assessed with the diaries but not with the number of perfectionistic thoughts, as assessed by the PCI? This difference could be due to substantive reasons; perfectionistic thoughts and negative self-thoughts may be linked more closely when both perfectionism thoughts and self-thoughts in involve the same events. Several methodological factors also may have contributed to these findings, including the many differences between structured and unstructured methods of assessment (Blankstein et al., 1989) and the timing of assessments. Klinger, Bartu, and Maxeiner (1980) observed that people probably do not consciously process material and experience discrete thoughts reflecting current concerns and goals during most of the time that the concern or goal exists; rather, they do so when the goal is being abandoned. Although speculative, perhaps the perfectionism cognitions expressed in the diaries relate more closely to negative self-evaluative statements because these cog-

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(i.e., self-negative thoughts, self-neutral thoughts, negative thoughts about others, and positive thoughts about the situation).

**Note.** Correlations were based on the responses of 56 participants. Correlations greater than .35 are significant at the \( p < .01 \) level.

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<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
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<th>3</th>
<th>4</th>
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<th>6</th>
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<th>8</th>
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<td>5. Self-neutral</td>
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<td>.07</td>
<td>.10</td>
<td>.04</td>
<td>.35</td>
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</tbody>
</table>

**Table 3**

*Correlations Among the Perfectionism Cognitions Inventory (PCI) and Spontaneous Thought Categories: Study 3*
nitions were expressed by the subset of perfectionists who were in the process of abandoning their goals.

Clearly, future attempts to illustrate the spontaneous presence of perfectionistic thoughts, or thoughts related to other personality traits, must be conducted with some recognition of the complexity of this issue. When considering the nature of measures such as the PCI, it is important to keep in mind the possibility that structured measures of automatic thoughts may actually reflect the salience of particular thoughts or implicit theories about the thoughts rather than the frequency of thoughts (see Clark, 1988; Glass & Armkoff, 1982).

These observations notwithstanding, it is important to reiterate that the main finding of this study was that perfectionistic cognitions could be detected with measures other than the PCI. This study provides empirical confirmation for case descriptions (e.g., Barrow & Moore, 1983; Burns & Beck, 1978) emphasizing the tendency for certain perfectionists to ruminate obsessively about themes involving the attainment of high standards.

Study 4

The evidence thus far indicates that there are detectable individual differences in perfectionism cognitions and that, for the most part, these perfectionism cognitions are associated in the expected manner with measures of automatic thoughts and imaginal processes. In the final two studies, we examined further the link between perfectionism cognitions and psychological distress. Study 4 addressed the issue of whether the structured measure of perfectionism cognitions could account for unique variance in depressive symptomatology after variance associated with multidimensional trait measures of perfectionism had been removed. This is important to demonstrate because a central premise guiding our research is that the tendency to experience frequent perfectionism cognitions is an important feature of the perfectionism construct that is not assessed by existing multidimensional trait measures. If so, then it should be the case that the PCI accounts for a significant amount of variance in depressive symptom scores that is not accounted for by trait measures, even though the PCI and trait self-oriented perfectionism share a focus on high standards for the self.

Research with trait perfectionism measures has found an equivocal association between self-oriented perfectionism and depression. Whereas some studies have found a positive association, other studies have found a negative or negligible association between self-oriented perfectionism and depression (e.g., Flett, Hewitt, Blankstein, & Mosher, 1991; Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Hewitt & Flett, 1991a, 1993a; Westra & Kuiper, 1996). Some authors have gone so far as to suggest that self-oriented perfectionism is not necessarily associated with poor adjustment and that it may be adaptive under certain circumstances (see Frost et al., 1993; Slaney, Ashby, & Trippi, 1995). When should self-oriented perfectionism be associated with greater susceptibility to depression? It has been suggested previously that depression is elevated among those self-oriented perfectionists who have experienced recent life stressors, especially in the achievement domain (Flett, Hewitt, Blankstein, & Mosher, 1995; Hewitt & Flett, 1993a; Hewitt et al., 1996). A related possibility is that depressive symptoms are evident among the subset of self-oriented perfectionists who experience troubling cognitions about the need to attain perfection. This would be in keeping with self-regulation and self-discrepancy models of depression (e.g., Bandura, 1986; Higgins, Bond, Klein, & Strauman, 1986) as well as descriptive accounts (Burns & Beck, 1978) maintaining that depressive reactions are likely to ensue when a person with high standards becomes cognitively aware of the fact that he or she is not meeting these unrealistic standards.

In the current study, three separate samples of students completed the PCI, along with the Multidimensional Perfectionism Scale (MPS; Hewitt & Flett, 1991b) and a measure of depressive symptoms. The measure of depressive symptomatology was varied among the samples to examine the link between perfectionism cognitions and levels of depressive symptoms with alternative measures of psychological distress. In addition, the third sample of students completed both the Hewitt and Flett version of the MPS and the Frost et al. (1990) version.

A distinguishing feature of Study 4 is that it also included a psychiatric sample (Sample 4, described subsequently). Although it has been suggested that the study of personality and depression symptoms is valid and relevant in students (see Vredenburg, Flett, & Krames, 1993), it is nevertheless important to examine the clinical relevance of the PCI in psychiatric patients. A psychiatric sample was used to examine the psychometric properties of the PCI when administered to individuals with more severe levels of psychopathology. The data from these individuals were also used to test the hypothesis that frequent perfectionistic thinking would be associated with increased depressive symptomatology among psychiatric patients. In addition, we investigated whether the frequency of perfectionistic thinking accounts for variance in depression scores that is not accounted for by existing perfectionism measures. The participants in the clinical sample also completed the PCI, a measure of depressive symptomatology, and both multidimensional perfectionism inventories (Frost et al., 1990; Hewitt & Flett, 1991b).

Method

Sample 1

Sample 1 consisted of 311 students (80 men and 231 women) in introductory psychology at the University of Toronto at Mississauga. They had a mean age of 20.6 years. All participants completed the PCI, the MPS, and the Inventory to Diagnose Depression (Zimmerman & Coryell, 1987, 1988) as part of a mass assessment. The Inventory to Diagnose Depression is a self-report measure that is regarded as a significant improvement over other measures because it includes all of the symptoms of major depressive disorder contained in the Diagnostic and Statistical Manual of Mental Disorders (revised third edition; DSM-III-R; American Psychiatric Association, 1987).

The MPS is a 45-item measure designed to measure self-oriented perfectionism (e.g., One of my goals is to be perfect in everything I do), other-oriented perfectionism (e.g., If I ask someone to do something, I expect it to be done flawlessly), and socially prescribed perfectionism (e.g., The people around me expect me to succeed at everything I do).

Sample 2

Sample 2 consisted of 144 students (67 men and 77 women) in introductory psychology at the University of Toronto at Mississauga.
Participants completed the PCI, the MPS, and the BDI, as described earlier. The mean age of the sample was 20.63 years.

Sample 3

This sample was composed of 117 students (47 men and 70 women) in introductory psychology at the University of Toronto at Mississauga. They had a mean age of 21.3 years. Participants completed the same measures as the participants in Sample 2. They also completed another trait perfectionism measure (described later).

Sample 4

Sample 4 participants were 62 psychiatric patients (36 men and 26 women) from Brockville Psychiatric Hospital. The sample was composed of 27 inpatients and 35 outpatients with a mean age of 38.1 years and an average of 11.50 years of education. A heterogeneous clinical sample was chosen to ensure adequate variation in PCI scores; use of homogenous clinical samples to assess personality constructs may result in biased statistics (see Kline, 1987). The most frequent primary diagnoses made by each patient’s psychiatrist, according to DSM-III-R criteria (American Psychiatric Association, 1987), were depression (34%) and schizophrenia (21%). An additional 11% of the patients had a personality disorder. The remaining patients had a widespread variety of diagnoses including adjustment reaction, alcohol–drug dependence, and anxiety disorder, although patients with organicity were not included. The reliability of diagnoses was not confirmed by a second clinician because this study focused on the responses of the sample as a whole rather than on a comparison of patients with particular diagnoses.

A smaller sample of 28 psychiatric patients completed the PCI twice with a 3-month interval to allow assessment of the stability of the PCI in a clinical sample. Participants were recruited randomly and paid $10 for taking part. Participants were excluded from the study if they had less than an eighth-grade education or a current psychosis.

Materials and Procedure

The participants in the third and fourth samples completed the PCI, the BDI, the MPS, and the Frost Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990) in a random order. The FMPS is a 35-item measure of six perfectionism components: concern over mistakes (e.g., I should be upset if I make a mistake), personal standards (e.g., I have extremely high goals), parental expectations (e.g., My parents set very high standards for me), parental criticism (e.g., My parents never tried to understand my mistakes), doubts about actions (e.g., I usually have doubts about the simple everyday things I do), and organization (e.g., I am a neat person).

Results

Sample 1

The alpha coefficient of the PCI in this sample (n = 311) was estimated at .94, with a mean interitem correlation of .40. There was no significant gender difference in mean scores. The respective means for men and women were 42.78 (SD = 20.60) and 45.22 (SD = 19.64).

Correlational analyses confirmed that the PCI was correlated significantly with self-oriented perfectionism, \( r = .66, p < .01 \); other-oriented perfectionism, \( r = .26, p < .01 \); and socially prescribed perfectionism, \( r = .35, p < .01 \). In terms of correlations with the Inventory to Diagnose Depression, significant positive correlations were obtained between depression symptoms and all of the perfectionism measures. Scores on the Inventory to Diagnose Depression were correlated with socially prescribed perfectionism, \( r = .36, p < .01 \); perfectionism cognitions, \( r = .35, p < .01 \); self-oriented perfectionism, \( r = .18, p < .01 \); and other-oriented perfectionism, \( r = .13, p < .05 \).

A hierarchical regression analysis was conducted to establish whether the PCI could account for unique variance in depression symptom scores after variance due to trait levels of perfectionism had been removed. A predictor block consisting of the three MPS dimensions accounted for 13% of the variance in Inventory to Diagnose Depression scores, \( F = 15.51, p < .001 \). The only significant individual predictor within the block was socially prescribed perfectionism, \( F = 34.02, p < .001, \beta = .36 \). Subsequent entry of the PCI showed that it accounted for 6% of the remaining variance in Inventory to Diagnose Depression scores, \( F_{\text{change}} = 23.49, p < .001, \beta = .34 \), with a higher frequency of perfectionistic cognitions being associated with greater depression.

Sample 2

Correlations computed with the data obtained from Sample 2 (n = 144) provided more evidence of the PCI’s validity. The PCI was associated significantly with self-oriented perfectionism, \( r = .69, p < .001 \); other-oriented perfectionism, \( r = .45, p < .001 \); and socially prescribed perfectionism, \( r = .46, p < .001 \). The pattern of correlations was similar for men and women.

As expected, a significant correlation was obtained between the PCI and the BDI, \( r = .28, p < .01 \). Separate examination showed that the correlation was significant for men, \( r = .42, p < .01 \), but not for women, \( r = .20, ns \).

The hierarchical regression with BDI score as the outcome variable indicated that the MPS predictor block was significant, accounting for 11.6% of the variance, \( F = 6.10, p < .01 \). The only significant predictor within the block was socially prescribed perfectionism, \( F = 15.93, p < .01, \beta = .36 \). Subsequent entry of the PCI showed that it accounted for an additional 4.3% of the variance, \( F_{\text{change}} = 7.13, p < .01, \beta = .32 \).

Sample 3

The correlations between the PCI and the separate dimensions that make up the MPS and FMPS are shown in Table 4 for Sample 3 (n = 117). There were few gender differences, so only the results for the total samples are reported. It can be seen in Table 4 that the PCI was correlated significantly with self-oriented, other-oriented, and socially prescribed perfectionism. As for the FMPS dimensions, the PCI was also correlated significantly with all of the measures from this inventory. The strongest associations were between the PCI and concerns about mistakes and between the PCI and personal standards.

The PCI and BDI were correlated significantly among university students in Sample 3. Separate correlations also examined the association between depression and the subscales of the MPS and the FMPS. Analyses revealed that the BDI was correlated significantly with socially prescribed perfectionism, \( r = .33, p < .001 \); doubts about actions, \( r = .43, p < .001 \); parental
Table 4
Correlations Between the Perfectionism Cognitions Inventory and Other Measures of Perfectionism and Depression Symptomatology in Patients and Students: Study 4

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<thead>
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<tr>
<td>Self-oriented</td>
<td>.52***</td>
<td>.69**</td>
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<tr>
<td>Other oriented</td>
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<td>.41***</td>
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<td>.67***</td>
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<tr>
<td>FMPS dimensions</td>
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<td></td>
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<td>Concern over mistakes</td>
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<td>.64***</td>
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<tr>
<td>High standards</td>
<td>.41***</td>
<td>.49**</td>
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<tr>
<td>Doubts about actions</td>
<td>.38**</td>
<td>.42***</td>
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<td>Organization</td>
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<td>.32**</td>
<td>.26**</td>
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<td>Distress scale</td>
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<tr>
<td>Depression symptoms</td>
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<td>.30**</td>
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</table>

Note. Correlations were analyzed using two-tailed tests and were based on the responses of 62 patients (36 men and 26 women) and 117 students (47 men and 70 women). MPS = Hewitt and Flett Multidimensional Perfectionism Scale; FMPS = Frost Multidimensional Perfectionism Scale.

Hierarchical Regression Analyses

Additional analyses with the data from Sample 3 assessed whether the PCI accounted for unique variance in depression symptom scores after removal of variance due to the MPS and the FMPS. The results are shown in Table 5. In the first analysis, the MPS was entered as the first predictor block. The MPS block accounted for 18.1% of the variance in BDI scores, \( F = 8.34, p < .001 \) (see Table 5). Examination of the individual predictors within the block showed that greater depressive symptomatology was associated with higher levels of socially prescribed perfectionism, \( F = 21.25, p < .001 \), and lower levels of other-oriented perfectionism, \( F = 6.26, p < .05 \). Subsequent entry of the PCI showed that it accounted for 5.3% of the remaining variance, \( F \) change = 7.78, \( p < .01 \).

The analysis was repeated by substituting the FMPS measures for the MPS. It can be seen in Table 5 that the FMPS block accounted for 22.2% of the variance in BDI scores, \( F = 5.23, p < .001 \), with doubts about actions being the individual predictor that was significant within the block, \( F = 12.78, p < .001 \). Subsequent entry of the PCI showed that it accounted for a marginally significant predictor, accounting for 2.2% of the remaining variance, \( F \) change = 3.17, \( p < .08 \).

Sample 4

The final analyses in this study focused on perfectionism cognitions in psychiatric patients (\( n = 62 \)). Psychometric analyses indicated that the PCI had a high level of internal consistency in this clinical sample. The Cronbach alpha coefficient was .95, and the mean interitem correlation was .42. The overall scale mean was 44.68 (\( SD = 23.40 \)). Consistent with the college student data, there was no mean gender difference in PCI scores. The mean for men was 43.51 (\( SD = 22.42 \)), and the mean for women was 46.35 (\( SD = 25.11 \)).

As for the stability of perfectionistic cognitions in psychiatric patients, analyses of the data from the subsample (\( n = 28 \)) showed that PCI scores at Time 1 were correlated significantly with PCI scores at Time 2, \( r = .85, p < .001 \). This high level of temporal stability is not uncommon for measures of automatic thoughts (see Ingram, Kendall, Siegle, Guarino, & McLaughlin, 1995).

The concurrent validity of our new scale among clinical patients was examined by correlating PCI scores with the scores obtained with the two multidimensional perfectionism measures. The correlational findings are displayed in Table 4. Investigation of the correlations with the MPS dimensions in the total showed that the PCI was correlated with both self-oriented and socially prescribed perfectionism. Other-oriented perfectionism yielded the only gender difference; PCI scores were correlated with other-oriented perfectionism for men, \( r = .40, p < .05 \), but not for women, \( r = .04, n.s. \).

Correlations were also computed between the PCI and dimensions represented on the Frost perfectionism measure. As can be seen in Table 4, the PCI was correlated significantly with all of the measures derived from the FMPS, with the exception of the organization subscale.

Associations With Depressive Symptomatology

Examination of the MPS dimensions in the clinical sample showed that depression was correlated significantly with socially prescribed perfectionism, \( r = .37, p < .01 \). Examination
of the FMPS dimensions revealed that depression symptoms were associated with concern over mistakes, $r = .36, p < .01$, and doubts about actions, $r = .36, p < .01$. No other correlations were significant.

The results of the hierarchical regression analyses for the clinical sample are shown in Table 6. In the first analysis, the MPS was entered as the first predictor block. The MPS block accounted for 29.0% of the variance in BDI scores, $F = 7.92, p < .01$. Once again, examination of the individual predictors within the block showed that greater depressive symptomatology was associated with higher socially prescribed perfectionism, $F = 20.80, p < .01$, and lower other-oriented perfectionism, $r = 8.04, p < .01$. Subsequent entry of the PCI showed that it accounted for a marginally significant 4% of the remaining variance, $F$ change = 3.43, $p < .08$.

The analysis was repeated by substituting the FMPS measures for the MPS. It can be seen in Table 6 that the FMPS block accounted for 27.7% of the variance in BDI scores, $F = 3.51, p < .05$. Examination within the predictor block showed that concern about mistakes was associated with higher levels of depressive symptoms, $F = 7.29, p < .01$, but the high personal standards component was associated with lower levels of depressive symptoms, $F = 5.83, p < .05$. Subsequent entry indicated that the PCI accounted for 8.0% of the remaining variance, $F$ change = 7.28, $p < .01$, with greater perfectionism cognitions associated with greater symptoms of depression.

**Discussion**

The results of Study 4 provided insight into several interrelated issues. First, our results confirmed that the PCI is associated with trait indexes of perfectionism. Analyses with the trait measures indicated that self-oriented perfectionism was the MP trait dimension associated most closely with reports of frequent perfectionism cognitions, whereas concern over mistakes was the FMPS dimension associated most strongly with the experience of perfectionism cognitions. The link with self-oriented perfectionism reflects the content of the PCI, which focuses primarily on self-relevant cognitions involving the need to be perfect. The link with concern over mistakes is in keeping with past results suggesting that concern about mistakes reflects a tendency to ruminate and have a difficult time forgetting errors (e.g., Frost & Henderson, 1991).

Given that there is a substantial association between automatic perfectionism cognitions and trait perfectionism, a key goal of this study was to determine, in both subclinical and clinical samples, whether levels of perfectionistic thought frequency could account for unique variance in depression symptom scores and above the variance accounted for by existing trait measures of perfectionism. The overall pattern of results indicated that levels of automatic perfectionism thoughts is a unique predictor of depressive symptoms, both in students and in patients. The findings with students indicated that the PCI accounted for significant variance in depression symptom scores over and above the variance predicted by Hewitt and Flett’s (1991b) MPS dimensions.

Regression analyses involving the FMPS trait dimensions showed that the PCI accounted for a marginally significant amount of unique variance in BDI scores in students (see Sample 3). However, the subsequent analysis of data from psychiatric patients showed that the PCI did account for significant variance in BDI scores among more severely distressed individuals, over and above the variance predicted by the FMPS. Thus, the bulk of the available evidence indicates that the PCI is related to trait perfectionism dimensions, but the PCI does not overlap to the extent that it does not predict unique variance in self-reported levels of depression symptoms.

**Study 5**

Our final study addressed three goals. First, in addition to depressive symptoms, we also examined the link between the PCI and symptoms of anxiety. Extensive evidence indicates that anxious individuals are especially likely to experience intrusive thoughts that interfere with their cognitive processes and goal-directed performances (see Blankstein et al., 1989; Sarason, Pierce, & Sarason, 1996). Perfectionism is probably involved given the association (described earlier) between perfectionism and fear of failure imagery (see Study 2). At the theoretical level, a link between perfectionism cognitions and measures of anxiety and worry would be expected according to a model put forth by Borkovec, Metzger, and Puzinsky (1986). According to Borkovec et al. (1986), worry is experienced when there is a discrepancy between desired goals or future plans and the current self or the current state of affairs. Negative emotion is likely to be experienced when there is a large discrepancy between goals and the current situation, and these negative emotions prompt negative images of future possibilities. Perfectionism is highly relevant to this model because perfectionists should be especially likely to experience large discrepancies between their goals and the current situation as a result of their unrealistic standards.
Our second goal was to examine the link between perfectionism cognitions and trait neuroticism. A link between the PCI and neuroticism would be expected for several reasons, in addition to our notion that automatic thoughts involving perfectionism are due, in part, to the recognition that one is not attaining perfection. Perfectionism is associated with trait neuroticism (Hill, McIntire, & Bacharach, 1997), and a focus on the inadequacies of the self is regarded as a central element of neurotic forms of perfectionism (see Hamachek, 1978; Terry-Short, Owens, Slade, & Dewey, 1995). Thus, in the present study, we investigated the link between the PCI and neuroticism, along with the related issue of whether the PCI could account for unique variance in anxiety and depression over and above trait neuroticism.

Our final goal was to examine how perfectionistic thought frequency related to other cognitive response dimensions, in addition to thought frequency. Parkinson and Rachman (1981) established that intrusive thoughts vary not only in their perceived frequency but also on other identifiable dimensions. Additional response dimensions include the degree of sadness associated with a distressing thought, the levels of worry and guilt associated with the thought, the perceived difficulty associated with removing the thought, and beliefs about the self-relevance of the thought. The dimensional measures of perceived sadness, worry, and guilt reflect the fact that cognition, affect, and motivation are interrelated and emotions influence or contribute to cognitive products (see Klinger, 1989).

Clark, Feldman, and Channon (1989) have illustrated the potential usefulness of including other cognitive response dimensions. For instance, Clark et al. (1989) reported that the response dimensions just outlined can be rated meaningfully with respect to both depressive statements (e.g., thoughts or images of being worthless) and anxious statements (e.g., thoughts or images of a personally embarrassing, humiliating, or painful experience).

In Study 5, two samples of students were assessed in terms of levels of perfectionism cognitions and symptoms of depression and anxiety. In addition, students in the first sample completed a measure of trait neuroticism, whereas students in the second sample also responded to the depressive and anxious statements making up the Clark et al. (1989) measure. That is, participants rated the degree of frequency, sadness, guilt, and worry associated with these thoughts, as well as the difficulty associated with removing the thoughts and the degree of self-relevance. It was expected that the PCI would be associated with depression symptoms and depressive cognitions, as well as with anxiety and anxiety cognitions. Because depression involves themes of dejection about the past or one’s current situation, whereas anxiety involves the threat of aversive events in the future (Beck et al., 1979; Dombeck, Siegle, & Ingram, 1996), the expected pattern of results would indicate not only that ruminative thoughts about perfectionism involve a concern about not meeting high standards in the past and in the current situation but that such thoughts are also linked with worry about the inability to achieve these standards or to avoid mistakes in the future.

Finally, consistent with our general approach throughout this research, we used hierarchical regression analyses to address three relevant questions: (a) Do perfectionism cognitions account for significant variance in anxiety and depression over and above trait neuroticism? (b) Do perfectionism cognitions account for unique variance in depressive symptomatology after removing variance due to depressive cognition response domains, as assessed by the Clark et al. (1989) measure? and (c) Do perfectionism cognitions account for unique variance in symptoms of anxiety after removing variance due to anxiety cognition response domains? If so, this would further attest to the variable’s predictive usefulness.

Method

Participants

Sample 1. The participants in this sample were 69 students (54 women, 14 men, and 1 person who did not indicate gender) from an introductory psychology class at York University. Their mean age was 20.8 years.

Sample 2. The participants were 140 first-year university students (62 men and 78 women) from an introductory psychology class at the University of Toronto at Mississauga. Their mean age was 20.7 years.

Materials and Procedure

Sample 1. Participants completed the PCI, the neuroticism subscale of the Eysenck Personality Questionnaire—Revised (Eysenck & Eysenck, 1991), and the short version of the Mood and Anxiety Symptom Questionnaire (MASQ; Watson & Clark, 1991). The Eysenck neuroticism scale is a trait measure of a stable, higher order factor reflecting emotional instability (Eysenck & Eysenck, 1991). The abbreviated MASQ is a 62-item measure stemming from the tripartite model (see Watson, Clark, & Carey, 1988). The MASQ provides two general distress factors that are common to both anxiety and depression (referred to as general distress: anxiety and general distress: depression). It also measures an anxious arousal factor with symptoms of somatic tension and hypervigilance that are specific to anxiety and an anhedonic depression factor with items involving loss of interest and an absence of positive affect that are specific to depression. Initial research indicates that the various subscales have adequate psychometric properties (Watson et al., 1995).

Sample 2. In total, participants completed four measures in a random order. In addition to the PCI and the BDI, participants completed the Distressing Thoughts Questionnaire (DTQ; Clark & Teasdale, 1985) and the Beck Anxiety Inventory (Beck, Epstein, Brown, & Steer, 1988).

The DTQ provides separate measures of distressing thoughts involving themes of depression and anxiety. Individuals are provided with six depressive items (e.g., thoughts or images of what I am or may in the future be wrong with my health). Each item is rated on six response dimensions: frequency (i.e., How often does this thought or image enter your mind?), sadness (i.e., How sad or unhappy does this thought or image make you feel?), worry (i.e., How worried does this thought or image make you feel?), removal (i.e., How difficult is it for you to remove this thought or image from your mind?), guilt (i.e., How guilty does this thought or image make you feel when you enter your mind?), and belief (i.e., How much do you believe that this thought or image is actually true of you?). In total, individuals make 72 nine-point ratings of these items. The Beck Anxiety Inventory is a 21-item measure of the cognitive and physiological symptoms of anxiety (Beck et al., 1988).
Results

Sample 1

Correlational analyses confirmed that there was a substantial association between the PCI and trait neuroticism, $r = .48, p < .001$. The two measures had similar links with the MASQ measures. The PCI was associated with general distress: depression ($r = .53, p < .001$), general distress: anxiety ($r = .59, p < .001$), and anxious arousal ($r = .56, p < .001$), but the link with anhedonic depression was marginally significant ($r = .22, p < .08$). Trait neuroticism was also associated with anhedonic depression ($r = .49, p < .001$), general distress: depression ($r = .50, p < .001$), general distress: anxiety ($r = .54, p < .001$), and anxious arousal ($r = .40, p < .01$).

Sample 2

Correlational analyses examined the association between the PCI and the measures of anxiety, depression, anxious thinking, and depressive thinking. Analyses of the data from the total sample showed that higher PCI scores were correlated significantly with symptoms of depression, $r = .39, p < .01$, and anxiety, $r = .50, p < .01$. In addition, as illustrated in Table 7, scores on the PCI were correlated with all of the depressive thoughts measures, with correlations ranging from .30 to .47. Similarly, PCI scores were correlated significantly with all of the anxious thoughts measures, with correlations ranging from .35 to .44. It is not altogether surprising that the PCI was correlated with all of the DTQ depressive thoughts and anxious thoughts measures because the results also showed that the respective subscales of the DTQ were highly intercorrelated, with most intercorrelations greater than .70. Earlier work has shown that the DTQ subscales are highly intercorrelated (Clark, 1986). The key analyses were hierarchical regressions that tested whether the PCI could account for unique variance in adjustment accounts when entered after neuroticism (Sample 1) and DTQ measures (Sample 2).

Hierarchical Regressions: Sample 1

The MASQ general distress: depression measure was the outcome measure in the first analysis. Trait neuroticism accounted for 24.5% of the variance, $F = 21.80, p < .001$. Subsequent entry of the PCI indicated that it accounted for an additional 10.8% of the variance, $F$ change = 11.10, $p < .01$.

The same analysis was repeated with the MASQ anhedonic depression measure as the outcome. Neuroticism was highly significant and accounted for 24.3% of the variance, $F = 21.52, p < .001$, but the PCI did not predict significant unique variance.

Regarding the MASQ general distress: anxiety measure, trait neuroticism accounted for 28.9% of the variance, $F = 27.25, p < .001$. Subsequent entry of the PCI revealed that it accounted for an additional 14.7% of the variance, $F$ change = 17.21, $p < .001$. Finally, trait neuroticism accounted for 16.0% of the variance in anxious arousal scores, $F = 12.71, p < .001$, and the PCI accounted for an additional 17.6% of the variance, $F$ change = 17.52, $p < .001$.

Hierarchical Regressions: Sample 2

In the first analysis, the outcome measure was BDI score. The depressive thinking measures from the DTQ were entered as a first predictor block, and they accounted for 37.3% of the variance in BDI scores, $F = 13.16, p < .01$. Although the PCI was correlated significantly with all DTQ depressive thoughts subscales, it was still found that the PCI accounted for a significant 2% of unique variance, $F$ change = 4.44, $p < .05$.

In the second analysis, Beck Anxiety Inventory scores were the outcome measure. The anxious thinking measures from the DTQ were entered as a first predictor block, and they accounted for 20.4% of the variance in Beck Anxiety Inventory scores, $F = 5.68, p < .01$. Once again, even though the PCI was correlated significantly with all DTQ anxious thinking subscales and the DTQ measures were already in the equation, it was still found that the PCI accounted for a significant 10.8% of unique variance, $F$ change = 20.78, $p < .01$.

Discussion

The results of Study 5 confirmed that individuals who experience frequent perfectionism cognitions also report greater levels of both anxiety and depression symptomatology and a greater frequency of thoughts or images involving content related to themes of anxiety and depression. Whereas past research with trait measures (i.e., the FMPS) has shown that there is a stronger association between perfectionism and depressive symptoms than between perfectionism and anxiety symptoms in students (Minarik & Ahrens, 1996), our data indicated that automatic thoughts involving perfectionism may have a stronger association with symptoms of anxiety than with symptoms of depression, at least in student samples. For instance, the analyses involving the MASQ revealed that the PCI was correlated signifi-

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Note. Correlations were analyzed using two-tailed tests and were based on the responses of 62 men and 78 women. Except as noted, correlations were significant at $p < .01$.

* Significant at $p < .05$. 

Table 7: Correlations Between the Perfectionism Cognitions Inventory and Cognitive Response Dimensions, Depression Symptoms, and Anxiety Symptoms: Study 5
trait depression is believed to involve declarative statements and negative affect. As noted earlier, in terms of thought content, depression is believed to involve declarative statements about the past or current situation (e.g., I am a failure), whereas anxiety is believed to involve a sense of dread and fearful questions about the future (e.g., I wonder if I will fail?). Given the link with symptoms of both depression and anxiety in the present study, it appears reasonable to conclude that high PCI scorers are concerned jointly with a previous or current inability to attain perfectionistic standards, as well as anticipatory fears and worries that such standards will not be met in the future.

General Discussion

The present research demonstrated that individual differences in the perceived frequency of perfectionistic thoughts can be assessed with an adequate degree of reliability and validity in both subclinical and clinical samples. More important, it was established that reports of frequent perfectionistic thinking are associated with higher levels of depressive symptomatology and anxiety, as well as more general forms of negative affectivity and life dissatisfaction. The maladaptive nature of perfectionistic thoughts is highlighted by the fact that perfectionism thought frequency predicts significant variance in adjustment scores, even after variance due to other measures known to be associated with increased levels of depressive and anxious symptomatology has been removed.

The current findings have many practical and theoretical implications. At the practical level, they suggest that an important treatment focus for certain individuals is the amelioration of persistent thoughts involving perfectionism. That is, treatment programs should not only strive to reduce overall levels of perfectionism, but they should also focus directly on the perfectionist’s tendency to engage in excessive cognitive rumination about the need to attain perfection. Cognitive–behavioral interventions may be particularly useful in this regard (see Burns & Beck, 1978), although, as indicated earlier, recent research by Blatt et al. (1995) attests to the possible difficulty associated with removing persistent perfectionistic thoughts.

The theoretical implications of the current findings are equally important. As noted earlier, some initial data indicate that the ideal self functions as a schema that is involved in the cognitive processing of available information (Hewitt & Genest, 1990). This finding raises the interesting possibility that a key individual–differences variable is the extent to which people engage actively in rumination about the attainment or failure to attain high standards. One interpretation of the current findings is that certain perfectionistic individuals are preoccupied cognitively with personal and social standards. These individuals may be more likely to interpret ambiguous feedback as reflecting a clear success or failure, and they may encode event outcomes at a deeper level of processing than do individuals who are less preoccupied with perfectionistic thinking. Although these observations are admittedly speculative, one reasonable interpretation of the current findings is that perfectionists differ from nonperfectionists in terms of degree of perfectionism as well as the cognitive salience of perfectionism. Consequently, it can be argued that subsequent models of the association between perfectionism and emotional well-being should include both types of variables.

More generally, the current findings are significant because they highlight the importance of a broader approach to the study of personality and emotional well-being. Current research on personality and depression has focused exclusively on the absolute level of traits such as autonomy and sociotropy (see Flett, Hewitt, Endler, & Bagby, 1995). There have been no empirical attempts to address the possibility that these various traits also include a cognitive element that involves the frequency of cognitive processing or rumination, even though theoretical accounts (e.g., Klinger, 1977) suggest that personality variables have a perceivable cognitive component. That is, the autonomous person may not only desire autonomy and achievement; he or she may also ruminate about personal capabilities and circumstances or events that interfere with autonomy and achievement goals. Also, the sociotropic, dependent person may be characterized both by strong affiliative needs and, episodically, by thoughts about interpersonal relationships that stem perhaps from relational schemas (see Baldwin, 1992). Recent empirical developments are consistent with this observation. For instance, Langston and Sykes (1997) used various procedures to document the cognitive correlates of the traits in the five-factor model. Similarly, the results of our research suggest that the perceived frequency of cognitive rumination is a central feature of certain personality traits and that there is a need to measure
individual differences in the reported frequency of specific cognitions. Future attempts to study depression and personality traits such as autonomy and sociotropy should include variables that measure individual differences in the degree of ruminative thought stemming from these traits.

**Directions for Future Research**

The present research has addressed several issues pertaining to individual differences in the frequency of perfectionistic thinking, but many important research issues remain to be investigated. One line of research should further investigate the nomological network to clarify the underlying nature of perfectionistic thinking. Research is needed to elucidate the origins and characteristics of perfectionistic thinking and the factors that distinguish those perfectionists who engage in extensive rumination and those who report relatively low rumination. One possibility that could be tested in future research is that the reported presence of perfectionism cognitions, relative to general dispositional measures, could be used to identify those perfectionistic individuals who are "traited" on the perfectionism construct. Traitedness refers to individual differences in the relevance or centrality of personality traits (see Britt, 1993). Individuals who are traited on dimensions such as perfectionism, in comparison with those individuals who are not traited, may exhibit a chronic tendency to ruminate about themes that are relevant to the dimension in question. Similarly, perfectionism cognitions about the need to attain high standards may prove to be a key variable that distinguishes "normal" and "neurotic" perfectionists (Hamachek, 1978) and perfectionists with high versus low levels of ego involvement.

Another issue of importance is whether it is possible to apply a multidimensional perspective to the study of perfectionistic thinking, in light of indications that the perfectionism construct is multidimensional at the trait level (Frost et al., 1990; Hewitt & Flett, 1991b). As discussed earlier, the current study focused primarily on perfectionistic thoughts involving the self. A multidimensional approach can be applied to the study of different forms of perfectionism (i.e., self vs. social), and it can be used to compare the varying role of personal and social cues in triggering perfectionistic thoughts.

Another key issue for future research involves the trait versus state aspect of perfectionistic cognitions. Historically, negative automatic thoughts have usually been regarded as states (Beck et al., 1983). Although it is likely that perfectionism cognitions have a large state component, the possibility must be acknowledged that perfectionism cognitions reflect enduring traits for some individuals. Regarding the stability issue, we obtained test–retest reliabilities of .67 in the student sample and .85 in the psychiatric sample. If automatic thoughts are state-like entities that occur when a life situation activates the self-schema, the apparent temporal stability of the PCI suggests that the underlying cognitive structure is activated chronically in some perfectionists who experience persistent ruminative thoughts. A key goal of future research in our laboratory will be to examine perfectionism cognitions from a trait–state perspective to determine whether these thoughts are best viewed as traits or states.

Finally, further investigation is needed to clarify the link between perfectionism thinking and maladjustment. An investigation of perfectionism cognitions and other forms of negative affect, such as guilt, shame, and hostility, would provide further insight into the nature of perfectionistic thinking. Additional insight would also be provided by investigations designed to establish whether perfectionistic thinking is associated with vulnerability to depression and anxiety (in terms of initial susceptibility to depression and anxiety) and the long-term persistence of anxiety and depression in distressed individuals.

**Summary**

A program of research was conducted with student and clinical samples to demonstrate the presence of individual differences in the frequency of perfectionistic cognitions. Evidence was obtained to indicate that frequent perfectionism cognitions are experienced by those perfectionists who are aware of the discrepancy between their ideal standards and their actual characteristics. Subsequent examination of the association between the frequency of perfectionism cognitions and maladjustment confirmed that the tendency to experience frequent thoughts involving themes of perfectionism is linked with symptoms of depression and anxiety, and levels of perfectionism cognitions account for variance in symptom scores that is not predicted by existing measures of automatic cognitions or trait levels of perfectionism. Overall, these results suggest that the field of personality and psychological adjustment may be advanced considerably by future theoretical and empirical attempts to assess the excessive cognitive ruminations associated with certain personality traits.

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