

# **THE PERFECTIONISM COGNITIONS INVENTORY: PSYCHOMETRIC PROPERTIES AND ASSOCIATIONS WITH DISTRESS AND DEFICITS IN COGNITIVE SELF-MANAGEMENT**

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**ABSTRACT:** Two studies were conducted to examine the psychometric properties and correlates of the Perfectionism Cognitions Inventory (PCI) when administered to clinical samples. The PCI is a 25-item measure of automatic thoughts with themes involving perfectionism and beliefs that perfection should be attained. Analyses indicated that the PCI is unidimensional and it has adequate internal consistency. Correlational analyses confirmed that the PCI is associated with psychological distress and deficits in cognitive self-management, including lack of self-reinforcement, lack of a positive self-focus, and perfectionistic inflexibility. Moreover, tests of incremental validity revealed that the PCI accounts for unique variance in levels of anxiety and depression symptoms after removing variance attributable to trait perfectionism dimensions. Overall, the findings suggest that automatic thoughts involving perfectionistic themes can be assessed in a reliable and valid manner in clinical samples. Moreover, it is important to assess perfectionism cognitions as a supplement to trait perfectionism measures when evaluating the role of perfectionism in psychological distress and associated deficits in cognitive self-control.

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This research was supported by major research grants from Health Canada and the Social Sciences and Humanities Research Council (SSHRC) of Canada to the first two authors, and a Canada Research Chair in Personality & Health awarded to the first author. The fourth author, Thomas Martin, is now deceased and this paper is dedicated to his memory.

**KEY WORDS:** perfectionism; automatic thoughts; self-management; self-control; anxiety; depression; alcoholism.

## INTRODUCTION

Although the perfectionism literature has increased exponentially in recent years (see Flett & Hewitt, 2002), most existing research investigations have focused on the trait components of perfectionism. A central theme guiding our research is that the perfectionism construct is exceedingly complex and other important aspects remain to be investigated. For instance, recent research in our laboratory has demonstrated the significance of assessing individual differences in perfectionistic self-presentation (see Hewitt et al., 2003). Another line of investigation involves the assessment of individual differences in automatic, perfectionistic thoughts, as assessed by the Perfectionism Cognitions Inventory (Flett, Hewitt, Blankstein, & Gray, 1998). Cognitive rumination over mistakes and imperfections has been noted often in the perfectionism literature (e.g., Frost & Henderson, 1991; Frost et al., 1997; Guidano & Liotti, 1983).

Regarding the Perfectionism Cognitions Inventory (PCI), Flett et al. (1998) observed that there is a need to develop specific measures of automatic thoughts that reflect personality factors associated with vulnerability to psychological distress, as a supplement to general indices of automatic thoughts, such as the Automatic Thoughts Questionnaire (Hollon & Kendall, 1980) and the Positive Automatic Thoughts Questionnaire (see Ingram, Kendall, Siegle, Guarino, & McLaughlin, 1995; Ingram & Wisnicki, 1988). Researchers have extended and refined the automatic thoughts construct by identifying specific automatic thoughts domains (e.g., Snyder, Crowson, Houston, Kurylo, & Poirer, 1997) and specific automatic thought dimensions (e.g., Safren et al., 2000). Our PCI is based on the premise that perfectionists who sense a discrepancy between their actual self and the ideal self, or their actual level of goal attainment and high ideals will tend to experience automatic thoughts that reflect perfectionistic themes (see Flett et al., 1998). It is believed that perfectionists with high levels of perfectionism cognitions are especially susceptible to negative affect in the form of depression about failure to attain perfection in the past, as well as in the form of anxiety about the likelihood of failing to attain perfection in the future.

The PCI has a range of item content that reflects direct thoughts about the need to be perfect, as well as thoughts of an individual's cognitive awareness of his or her imperfections. Several thoughts on the PCI such as "I should be perfect," "I should never make the same mistake twice," and "I must be efficient at all times" are very much in keeping with general observations by Ellis (2002) about perfectionism and irrational thinking. Much of the automatic thought content comes in the forms of "shoulds" and "oughts" that reflect a pressure to live up to real or imagined expectations.

How does the PCI differ from other existing measures of perfectionism? Current measures of perfectionism (e.g., Frost, Marten, Lahart, & Rosenblate, 1991; Hewitt & Flett, 1991, 2004) were designed to assess enduring trait dispositions. For instance, the Multidimensional Perfectionism Scale (Hewitt & Flett, 1991, 2004) assesses trait perfectionism directed generally at the self (i.e., self-oriented and socially prescribed perfectionism) or at others (i.e., other-oriented perfectionism). In contrast, the PCI has been described as a measure that assesses perfectionism "...from a unique cognitive perspective" (Enns & Cox, 2002, p. 50). The PCI focuses on *the frequency of thoughts* involving themes of perfection and imperfection (i.e., the degree of cognitive activity) that has occurred during the previous week. That is, the PCI is a measure that specifically identifies the automatic thoughts associated with perfectionism. The PCI is more "state-like" than existing trait measures, and reflects the fact that automatic thoughts, relative to dysfunctional attitudes and other personality vulnerabilities, are believed to have more of a surface level and situation-specific nature (see Furlong & Oei, 2002; Kwon & Oei, 1994; Rude & Rehm, 1991). Thus, PCI scores could fluctuate somewhat as a reflection of current concerns and recent experiences connoting a sense of perfection or imperfection.

In its current form, the PCI is a 25-item inventory of the frequency of perfectionistic thoughts. Initial data attest to the psychometric properties of this instrument. A principal components analysis of item responses from 747 university students confirmed that the measure is unidimensional with a high level of internal consistency (Flett et al., 1998). Other research showed that the PCI is correlated significantly with multidimensional trait measures of perfectionism. Finally, Flett et al. (1998) reported that the PCI was correlated significantly with indices of anxiety and depression, and it accounted for unique variance in distress, even after using existing trait

measures of perfectionism and general measures of negative automatic thoughts to remove variance in adjustment scores.

More recently, Flett, Madorsky, Hewitt, and Heisel (2002) administered the PCI to a sample of 65 university students and showed that perfectionism cognitions were associated with the experience of intrusive cognitions following a stressful event and with the ruminative response style that contributes to the persistence of depression (see Nolen-Hoeksema, 1991). The PCI was also correlated significantly with general symptoms of depression and anxiety in this sample. Subsequent research has linked high PCI scores in students with elevated levels of anxiety sensitivity, including fears of cognitive dyscontrol (Flett, Greene, & Hewitt, 2004).

Previous research with the PCI has focused mostly on student samples and there has been a relative paucity of research on perfectionism cognitions in clinical samples. One exception is a study conducted by Flett et al. (1998; Study 4) in which 62 psychiatric patients completed the PCI, the Hewitt and Flett (1991) Multidimensional Perfectionism Scale, the Frost et al. (1990) Multidimensional Perfectionism Scale, and a measure of depressive symptoms. Psychometric tests found that the measure had a high internal consistency (alpha of .95) and a three month test-retest reliability of .85. It was also found that the PCI was correlated with depressive symptoms, and with trait measures of perfectionism. Moreover, the PCI accounted a significant 8% of unique variance in depression scores after removing variance associated with the Frost Multidimensional Perfectionism Scale. However, in a separate analysis, the PCI accounted for 4% of unique variance in depression scores after removing variance associated with the Hewitt and Flett Multidimensional Perfectionism Scale, but this effect was only marginally significant.

Another study by Ferrari (1995) examined the correlates of the PCI in a sample of 65 adults with a reported history of diagnosed disorders involving obsessive-compulsive symptoms. This study found that the PCI had a high level of internal consistency and was correlated with self-reports of obsessions and compulsions.

In general, these data attest to the potential usefulness of the PCI in clinical samples, but it is evident that the clinical relevance of this inventory requires much more extensive investigation. Accordingly, we conducted two studies to test a variety of issues. First, we tested the psychometric properties of this scale, including the factor structure and internal consistency of the PCI when administered to psychiatric

patients, including a large clinical sample in Study 1. The validity of the PCI in clinical samples was also re-examined in Study 1 and Study 2 by assessing its correlation with other measures of perfectionism.

Second, in Study 2, we investigated the link between perfectionism cognitions and self-reported deficits in cognitive self-management. Specifically, we examined the association between the PCI and self-control measures believed to be associated with excessive standard setting.

Finally, as a test of incremental validity, we re-examined the ability of the PCI, relative to trait measures of perfectionism, to predict unique variance in psychological distress. Incremental validity is the "... degree to which a measure predicts a phenomenon of interest, relative to other measures" (see Haynes & Lench, 2003, p. 456). Both the PCI and a self-report measure of depressive symptoms were administered to participants in Study 1 and in Study 2. In addition, participants in Study 1 completed a self-report measure of anxiety. The inclusion of measures of anxiety and depression in Study 1 also enabled us to conduct an initial test of the specificity of the PCI in a clinical sample. That is, we sought to determine whether individual differences in the frequency of perfectionistic thoughts could account for unique variance in depression after removing variance from anxiety, and vice versa.

## STUDY 1

### METHOD

#### *Participants and Procedure*

An heterogeneous sample of 258 psychiatric patients (134 women, 124 men) was included in the sample. According to DSM-III-R criteria, the most common diagnoses in this sample were major depressive disorder (27.0%), schizophrenia (14.3%), and personality disorder (10.4%). Other diagnoses included alcoholism, adjustment disorder with depressed mood, adjustment disorder with anxious mood, and generalized anxiety disorder. A heterogeneous clinical sample was chosen to ensure adequate variation in PCI scores; use of homogeneous clinical samples to assess personality constructs may result in biased statistics (see Kline, 1987). Also note that no attempt was made to establish the reliability of these diagnoses because we were not attempting to compare levels of perfectionism in individuals with specific diagnoses in this particular study.

Participants completed the 25 PCI items. The PCI instructions were patterned after the previous ATQ measures, which have been shown to have adequate psychometric properties (Glass & Arnkoff, 1997). 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 from "0" to "4" with response options varying from "not at all" to "all of the time." Note that the 25 items of the PCI were selected on the basis of extensive item analyses, including ratings of the appropriateness of scale content by perfectionism researchers (see Flett et al., 1998).

In addition to completing the PCI, a subset of 105 participants completed the Multidimensional Perfectionism Scale, the Beck Anxiety Inventory, and the Beck Depression Inventory. The Multidimensional Perfectionism Scale is a 45-item measure of self-oriented, other-oriented, and socially prescribed perfectionism (Hewitt & Flett, 1991). Psychometric analyses have confirmed the validity and reliability of the subscale when administered to clinical samples (Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991).

The Beck Anxiety Inventory (BAI) is a 21-item measure of the cognitive and physiological symptoms of anxiety (Beck, Epstein, Brown, & Steer, 1988). Data suggest that it is reliable and valid (Hewitt & Norton, 1993).

The Beck Depression Inventory (BDI) is a 21-item instrument measuring the behavioral, cognitive, motivational, and vegetative symptoms of depression (Beck, Rush, Shaw, & Emery, 1979). This scale is one of the most widely used measures of the severity of depression symptoms and many studies have demonstrated its reliability and validity (Beck, Steer, & Garbin, 1988).

## RESULTS

### *Psychometric Analyses*

Initially, a principal components analysis of the 25 PCI items and subsequent scree test were conducted. The results indicated that the PCI consists primarily of one large component. This component had an eigenvalue of 11.84 and accounted for 47.4% of the variance in

responses. All 25 items had significant loadings of .41 or greater on this component. The scale had a high level of internal consistency with an obtained Cronbach alpha of .95 and a mean inter-item correlation of .44. This value is slightly above the optimal level but is consistent with the position that the scale consists of only one factor (Briggs & Cheek, 1986).

The overall mean for the scale was 46.79 ( $SD = 24.49$ ). Comparison by gender indicated that significantly higher scores ( $p < .001$ ) were reported by women ( $M = 50.13$ ,  $SD = 25.74$ ) versus men ( $M = 42.51$ ,  $SD = 21.81$ ).

### *Associations with the MPS, Anxiety, and Depression*

Pearson correlation coefficients were computed between the PCI and the other measures of perfectionism, anxiety, and depression. Evidence of concurrent validity was obtained in that the PCI was associated significantly with all of the MPS dimensions ( $r$ 's ranging from .37 to .63). Moreover, it was found that the PCI was correlated significantly with both anxiety,  $r = .42$ ,  $p < .001$ , and with depression,  $r = .48$ ,  $p < .001$ .

### *Hierarchical Regression Analyses Testing Incremental Validity*

Next, hierarchical regression analyses examined whether the PCI could account for unique variance in the adjustment measures, after removing variance due to trait levels of perfectionism, as assessed by the MPS. The BAI was the outcome measure in the first analysis. The MPS measures were entered as a predictor block and accounted for 16% of the variance,  $p < .01$ . As can be seen in Table 1, the only significant predictor within the block was socially prescribed perfectionism,  $F = 7.32$ ,  $p < .001$ . Addition of the PCI in the subsequent block explained an additional 8% of the variance in BAI scores,  $F = 6.28$ ,  $p < .01$ .

The BDI was the outcome measure in the second analysis. The MPS measures were entered as a predictor block and accounted for 17% of the variance,  $p < .01$ . As can be seen in Table 2, once again, the only significant predictor within the block was socially prescribed perfectionism,  $F = 7.44$ ,  $p < .001$ . Addition of the PCI in the subsequent block explained an additional 7% of the variance in BDI scores,  $F = 5.96$ ,  $p < .01$ .

**Table 1****Hierarchical Regression Analyses with MPS Subscales and PCI as Predictors of Anxiety and Depression**

<i>Predictor</i>	$R^2$	$R^2$ change	<i>Beta</i>	<i>F</i>
<i>Predicting Anxiety</i>				
MPS predictor block	.16	.16**		
Self-oriented			.00	.00
Other-oriented			-.11	-1.92
Socially prescribed			.44	7.32**
PCI	.24	.08**	.41	6.28**
<i>Predicting Depression</i>				
MPS predictor block	.17	.17**		
Self-oriented			-.07	1.22
Other-oriented			-.23	-3.98
Socially prescribed			.45	7.44**
PCI	.24	.07**	.38	5.96**

*Note.* \* $p < .05$ ; \*\* $p < .01$ . The following abbreviations were used: MPS (Multidimensional Perfectionism Scale) and PCI (Perfectionism Cognitions Inventory).

*Hierarchical Regression Analyses Testing the Specificity Issue*

Finally, hierarchical regression analyses were conducted to examine the important issue of whether the PCI accounted for unique variance in anxiety after removing variance due to levels of depres-

**Table 2****Hierarchical Regression Analyses Predicting Anxiety and Depression**

<i>Predictor</i>	$R^2$	$R^2$ change	<i>Beta</i>	<i>F</i>
<i>Predicting Anxiety</i>				
BDI	.37	.37**	.61	14.80**
PCI	.41	.04**	.22	5.00**
<i>Predicting Depression</i>				
BAI	.37	.37**	.61	14.80**
PCI	.41	.04**	.21	4.70*

*Note.* \* $p < .05$ ; \*\* $p < .01$ . The following abbreviations were used: PCI (Perfectionism Cognitions Inventory), BAI (Beck Anxiety Inventory) and BDI (Beck Depression Inventory), and MPS (Multidimensional Perfectionism Scale).



sion, and, conversely, whether the PCI accounted for unique variance in depression after removing variance due to anxiety. In the first analysis, BAI anxiety measure was the outcome measure. Initially, BDI scores were entered as the first predictor in the equation. The results are shown in Table 2. The BDI accounted for 37% of the variance in BAI scores. The PCI scores were entered next and accounted for an additional 4% of the variance,  $F = 5.00$ ,  $p < .01$ . Similarly, it can be seen in Table 2 that the analysis with BDI score as the criterion variable revealed that the PCI accounted for an additional 4% of the variance in BDI scores after removing variance due to levels of anxiety,  $F = 4.70$ ,  $p < .05$ .

## DISCUSSION

The first goal of this research was to examine the psychometric properties of the PCI in a clinical sample. The results were consistent with the conclusion that the PCI consists of one large component. Additional results indicated that the measure has an adequate degree of internal consistency and concurrent validity, in terms of its association with the trait MPS dimensions. The pattern of correlations with the MPS was somewhat different from the results reported by Flett et al. (1998), who found that other-oriented perfectionism and the PCI were not significantly correlated in their clinical sample.

Another goal of this research was to examine the incremental validity of the PCI in a clinical sample. The utility of this measure was addressed in two ways. First, we examined whether the PCI could account for unique variance in anxiety and depression scores after removing variance associated with the MPS trait dimensions. Analyses indicated that the PCI did indeed account for a significant degree of remaining variance in anxiety and depression scores, over and above the variance predicted by the trait measures. This qualifies the results reported by Flett et al. (1998) who found in their clinical sample that the PCI was only marginally significant as a predictor of unique variance in depression when entered after the MPS. In the present study, the PCI predicted a significant degree of unique variance in both depression and anxiety. Overall, our results suggest that therapeutic interventions should attempt to reduce not only trait levels of perfectionism, but also there is a need to focus directly on perfectionistic cognitions. In addition, the magnitude of the association between perfectionism and distress may be underestimated to

the extent that investigators focus on trait perfectionism and fail to assess other aspects of perfectionism, such as the frequency of perfectionistic thoughts.

The utility of the PCI was demonstrated further in specificity analyses that examined whether scores on this scale could predict levels of anxiety after controlling levels of depression and vice versa. The results showed that the PCI did indeed account for a significant degree of remaining variance in both anxiety and depression, even though there was a substantial association between these measures of distress. Although other research has shown an association between perfectionism and both anxiety and depression (e.g., Hewitt & Flett, 1991), the current findings provide some new insights. First, these data indicate that perfectionism cognitions should not be regarded as simply a manifestation of the experience of anxious or depressive states. If perfectionism cognitions were simply a feature of negative affectivity, then it is unlikely that the PCI would have predicted remaining variance in anxiety and depression after variation due to negative affectivity had been removed.

Second, our results clarify the nature of the perfectionism construct itself. It is generally accepted among cognitive researchers that anxiety represents a concern with threats in the future, while depression represents a concern about lost opportunities and disappointments in the past or present (see Kendall & Ingram, 1989). Given the links with anxiety and depression that were detected in the present study, it is reasonable to infer that perfectionists with frequent ruminations are characterized jointly by dejection about past and current concerns involving themes of imperfection, as well as anticipatory concerns about the likelihood of being less than perfect in the future. Studies on mixed anxiety and depression have indicated that patients with high levels of both anxiety and depression are at increased risk for more severe mood and anxiety disorders (Katon & Roy-Byrne, 1991) and it may be the case that frequent perfectionistic cognitions contribute to the heightened distress of individuals with mixed forms of anxiety and depression.

In summary, our data indicated that the PCI is a unidimensional measure that has acceptable reliability and validity when administered to a clinical sample. Moreover, this measure predicts significant variance in anxiety and depression that is not accounted for by other measures of perfectionism or adjustment.

## STUDY 2

Study 2 was conducted to investigate levels of perfectionistic thinking and trait perfectionism in a sample comprised of recovering alcoholics. Descriptive analyses suggest that alcoholics suffer from excessively high levels of perfectionism (Glantz & McCourt, 1983; Nerviano & Gross, 1983), and there are indications that perfectionism is adopted as a defensive coping strategy by patients receiving treatment for alcoholism (Ramsey, 1987; Robertson, Fournet, Zelhart, & Estes, 1988). Analyses of response profiles have identified a subtype of alcoholics who are described as being high in depression, hopelessness, and extreme forms of perfectionistic self-standards (Gilberstadt & Duker, 1965; Marks, Seeman, & Haller, 1974). A link between perfectionistic tendencies and alcoholism would also be expected on the basis of Hull's (1981) model of the role of self-focused attention in drinking behavior. According to Hull, excessive drinking is an attempt to alleviate the negative affect associated with discrepancies between the actual and the ideal self among those with a drinking problem (see Berg, 1971); presumably the gap between the actual and ideal self is especially large for people who are perfectionists (see Hewitt & Genest, 1990).

In terms of existing research, past investigation has suggested a link between perfectionism and symptoms of alcohol and drug abuse (Hewitt & Flett, 1991). In addition, a previous study examined the role of perfectionism in attempted suicide among patients diagnosed with alcoholism (Hewitt, Norton, Flett, Callender, & Cowan, 1999). Unfortunately, previous research in this area is limited in that it has not included a measure such as the PCI.

In Study 2, we conducted a further evaluation of the incremental validity issue by comparing the PCI and the MPS in terms of their relative ability to predict levels of depressive symptoms. Consistent with our earlier findings, it was expected that the PCI would account for unique variance in depression, over and above the variance attributable to the MPS. A measure of anxiety was not included in this study. The ability of cognitive factors to predict depression among alcoholics is an important issue in its own right given that co-morbid depression contributes to poorer prognosis after receiving treatment for alcoholism (Brown, Evans, Miller, Burgess, & Mueller, 1997). Given growing evidence that dysfunctional attitudes (including perfectionistic attitudes) are elevated in alcoholics suffering from

high levels of depression (Brown et al., 1997; Kahler, Ramsey, Read, & Brown, 2002; Ramsey, Brown, Read, & Brown, 2002), it seems important to assess the link between perfectionism and depression in recovering alcoholics.

Another important goal of Study 2 was to investigate the link between perfectionism cognitions and deficits in cognitive self-management and self-control in individuals with a past history of self-control problems. Past theorists have suggested that perfectionistic individuals may suffer from deficits in elements of self-control (Kanfer & Hagerman, 1981) and a tendency to set excessively high standards is a core element of the self-control model of depression (see Rehm, 1977). Specifically, perfectionists are believed to be low in self-reinforcement and they exhibit poor self-management tendencies, perhaps reflecting a general tendency to be self-critical (see Blatt, 1995). To our knowledge, there have been few empirical attempts in a clinical sample to investigate how the various perfectionism dimensions relate specifically to the self-management variables included in self-control models of maladjustment (see Kanfer, 1971; Kanfer & Hagerman, 1981; Rehm, 1977). Consequently, this issue was also investigated in Study 2. Participants completed a self-reinforcement scale and a measure of cognitive self-management (Rude, 1989) that included a subscale assessing inflexible perfectionism. The relevance of self-control variables among people suffering from alcoholism has been shown by several authors, including Cernovsky (1989).

## METHOD

### *Participants*

The sample consisted of 80 patients recovering from alcoholism (34 men, 46 women). Their mean age was 38.09 years ( $SD = 10.11$ ). The mean length of sobriety was 27.86 months ( $SD = 39.76$ ). Overall, participants were quite heterogeneous in terms of their self-reported history of relapse, but most had at least one relapse ( $M = 1.04$ ).

### *Materials and Procedure*

The participants were obtained from three sources in the Toronto area. Specifically, participants were recruited from the "community phase" program of the Donwood Institute, the Jean Tweed Treatment

Centre, and meetings conducted by Alcoholics Anonymous chapters in the Toronto area. Unfortunately, we were unable to obtain more specific information about the types of ongoing treatment received by individual participants.

Participants were given a package of questionnaires comprised of the PCI, the MPS (Hewitt & Flett, 1991), the Self-Reinforcement Questionnaire (Heiby, 1983), the Cognitive Self-Management Test (CSMT; Rude, 1989), and the CES-D Depression Scale (Radloff, 1977). The PCI and MPS are described above.

The Self-Reinforcement Scale (Heiby, 1983) is a 30-item true-false measure of the frequency of positive self-statements over the past week. It yields a total score, as well as separate scores for positive self-evaluation, self-reward, self-praise, lack of self-criticism, and lack of a negative emotional response to criticism. This scale has been associated with depressive symptoms (e.g., Sato & Heiby, 1992; Schill & Kramer, 1991).

The CSMT measures feelings of self-efficacy in approaching new situations and style of self-talk in depressed individuals (Rude, 1989). The scale is comprised of four cognitive self-management factors that tap the presence of a positive focus (e.g., I usually give myself a pat on the back for even small accomplishments), self-blame (e.g., If I do something wrong, I tend to make myself suffer for it), task efficacy (e.g., once I set my mind to do something, I'm confident that I will do it), and cognitive inflexibility due to perfectionism (e.g., I'm reluctant to scale my goals down even when I can't seem to attain them). Although the CSMT has not been used extensively, it was included in light of the stated importance of defining perfectionism in a way that emphasizes the inflexibility and rigidity of perfectionists (see Shafran, Cooper, & Fairburn, 2002; Shafran & Mansell, 2001). As for the instrument, Rude (1989) found that the CSMT factors were associated significantly with conceptually similar measures of self-control, and CMST scores have been found to be sensitive to the effects of a social skills and cognitive self-control treatment for depression (Rude, 1986). We focused on the CSMT factors rather than a total score because of the low internal consistency reported by Rude (1989) for the total score.

Finally, the CES-D (Radloff, 1977) is a 20-item scale that measures symptoms of depression. Scores may range from 0 to 60, with higher scores indicating greater depressive symptomatology. It was used instead of the BDI to rule out the possibility that the findings of Study 1 were due to the specific content of the BDI.

## RESULTS

Initial analyses examined the psychometric properties of the various measures. The PCI had high internal consistency ( $\alpha = .95$ ). The high level of internal consistency raises the possibility that it may be possible in future research to develop a short form that still has an adequate degree of reliability.

Although certain subscales of the self-reinforcement scale had low internal consistency, due, in part, to the reduced number of items and the true-false format, the overall scale had an internal consistency of .86. The alphas for the subscales ranged from .48 to .77. The alphas for the CSMT subscales ranged from .64 to .79.

Examination of the perfectionism means provides insight into the nature of this sample. Perfectionism scores were elevated compared to previous norms, especially for the PCI and the interpersonal MPS dimensions. The distinguishing features appeared to be the extreme levels of perfectionism cognitions as well as socially prescribed perfectionism ( $M = 63.70$ ,  $SD = 11.06$ ) and other-oriented perfectionism ( $M = 65.84$ ,  $SD = 11.06$ ). Whereas the patients in Study 1 had a PCI mean of 46.79 ( $SD = 24.49$ ), the current sample had a mean PCI score of 53.59 ( $SD = 22.80$ ). Self-oriented perfectionism scores were also slightly elevated ( $M = 75.20$ ,  $SD = 13.99$ ).

The correlations between the perfectionism measures and the other measures are shown in Table 3. This table shows that the most robust correlations involved the PCI. The PCI was correlated significantly with depression,  $r = .41$ ,  $p < .01$ , and it was correlated negatively with almost all of the self-reinforcement measures, with the exception of self-reward. Analyses involving the indices of poor cognitive self-management showed that the PCI was associated with a lack of a positive focus,  $r = -.46$ ,  $p < .01$ , and excessive self-blame,  $r = .45$ ,  $p < .01$ .

The CSMT measure of inflexible perfectionism was associated strongly with the PCI,  $r = .51$ ,  $p < .01$ . In addition, inflexible perfectionism was correlated with self-oriented perfectionism,  $r = .43$ ,  $p < .01$ , and to a lesser degree with socially prescribed perfectionism,  $r = .26$ ,  $p < .05$ .

As for the MPS dimensions, self-oriented perfectionism was associated with an absence of positive self-talk and a tendency to be self-critical and self-blaming. Self-oriented perfectionism was not correlated significantly with depressive symptoms, however.

**Table 3**  
**Correlations between Perfectionism and Measures  
of Depression and Self-Control in Study 2**

<i>Measures</i>	<i>PCI</i>	<i>Perfectionism Measures</i>		
		<i>Self</i>	<i>Other</i>	<i>Social</i>
Depressive symptoms	.41**	.13	-.06	.16
Self-reinforcement	-.33**	-.18	.02	-.22*
Positive self-evaluation	-.37**	-.12	.07	-.16
Self-reward	-.01	.02	.20	-.06
Self-talk	-.31**	-.27*	-.19	-.24*
Lack of criticism	-.45**	-.26*	-.09	-.21
Neg. resp. to criticism	-.42**	-.20	-.04	-.27*
CSMT-positive focus	-.46**	-.09	.04	-.15
CSMT-task efficacy	.03	.18	.21	-.06
CSMT-self-blame	.45**	.31**	.05	.23*
CSMT-perfectionism	.51**	.43**	.12	.26*

*Note.* \* $p < .05$ , \*\* $p < .01$ . The following abbreviations were used: PCI (Perfectionism Cognitions Inventory), Self (Self-Oriented Perfectionism), Other (Other-Oriented Perfectionism), Social (Socially Prescribed Perfectionism), Neg. Resp to Criticism (Negative Response to Criticism), and CSMT (Cognitive Self-Management Test).

Other-oriented perfectionism was unrelated to the self-control measures. Socially prescribed perfectionism was associated with an overall absence of self-reinforcement, in the form of a lack of positive self-talk and emotional self-statements. Socially prescribed perfectionism was also associated with self-blame, but not with depressive symptoms.

Although it was not our main focus, it should be noted that depression was correlated with a lack of self-reinforcement,  $r = -.58$ ,  $p < .01$ . CES-D scores were also linked with a less positive self-focus,  $r = -.45$ ,  $p < .01$ , less self-efficacy,  $r = -.36$ ,  $p < .01$ , greater self-blame,  $r = .45$ ,  $p < .01$ , and inflexible perfectionism,  $r = .51$ ,  $p < .01$ .

#### *Hierarchical Regression Testing Incremental Validity*

Consistent with the pattern of correlations, a hierarchical regression analysis with depressive symptoms as the outcome measure found that the three MPS dimensions accounted for a nonsignificant

5% of variance in CESD scores. However, subsequent entry of the PCI scale accounted for an additional 19% of the variance in depression scores,  $F$  change = 18.58,  $p < .001$ , highlighting the incremental validity of the PCI.

## DISCUSSION

Overall, several new findings emerged from this study. First, the current sample was significantly higher than normative samples on all aspects of perfectionism, and this was especially the case with perfectionism cognitions. These data suggest that unresolved issues involving perfectionistic tendencies are evident among patients recovering from alcoholism and the frequent experience of perfectionism cognitions may contribute to the distress reported by a significant proportion of these individuals.

Consistent with predictions from self-control models, the correlational analyses provided general support for an association between perfectionism and negative tendencies involving deficits in cognitive self-management. The PCI was the perfectionism measure that most strongly correlated with deficits in self-control. This measure was associated with low self-reinforcement and a negative orientation to cognitive self-management that generalized across most CSMT variables. High scorers on the PCI were characterized by reduced levels of positive self-evaluation and a tendency to engage in excessive self-blame and self-criticism, consistent with the description of self-critical perfectionists provided by Blatt (1995). Our data attest to the validity of our new instrument and support past observations of the problems in self-control experienced by perfectionists with adjustment difficulties.

Particularly noteworthy was the significant association detected between the PCI and the measure of inflexible perfectionism. This finding suggests that individuals with frequent, perfectionistic thoughts may indeed have rigid and ingrained standards that could prove difficult to alter in therapeutic contexts. An unwillingness or inability to alter standards and cognitive processes associated with these standards may be one of the reasons why perfectionism is a factor that disrupts short-term treatments for depression, including cognitive-behavioral treatments (see Blatt, Quinlan, Pilkonis, & Shea, 1995; Blatt & Zuroff, 2002).



Overall, the pattern of correlations obtained in Study 2 is quite revealing in terms of the relative characteristics of the PCI and trait measures of perfectionism (see Table 3). Comparisons indicate that the results obtained with the PCI are often quite different, relative to the MPS findings, with the correlations involving the PCI tending to be somewhat more robust. This was perhaps best illustrated by our findings with the CES-D; analyses showed that the PCI was one of the few perfectionism measures that was associated with depressive symptoms, and a hierarchical regression analysis confirmed that the PCI accounted for a significant degree of unique variance of depressive symptoms when entered after a predictor block comprised of the trait MPS measures. The three MPS dimensions were not associated significantly with depressive symptoms in this sample, either in terms of the correlations or in terms of the regression analysis. The lack of an association with socially prescribed perfectionism was surprising given that this factor is linked consistently with depression (see Sherry, Hewitt, Flett, & Harvey, 2003).

In the current study, the CSMT inflexible perfectionism subscale was the only other perfectionism measure that was associated significantly with depression. The inflexible perfectionism subscale captures an unwillingness or inability to alter rigidly held standards. An important starting point for interventions may be to assess the extent to which the distressed perfectionist is ready to relinquish and modify their extreme goals and standards. More generally, the significant associations between the cognitive perfectionism measures and depression in this sample of patients recovering from alcoholism point to the need to include an explicit focus on perfectionistic thoughts in cognitive-behavioral treatments of depression in alcoholism (see Brown et al., 1997; Glantz & McCourt, 1983). An emphasis on perfectionism could be incorporated within the ABC technique phase of existing cognitive-behavioral treatments for depression in alcoholism (see Brown et al., 1997).

## SUMMARY

Collectively, the results of our two studies indicated that the PCI is a valid and reliable measure of individual differences in the frequency of automatic, perfectionistic thoughts. The PCI was found to consist of one component that had a high degree of internal

consistency. We also found that the PCI was correlated with theoretically related measures, such as trait measures of perfectionism and measures of self-control deficits.

Analyses that focused on personality predictors of depression and anxiety indicated the PCI has substantial incremental validity and it is not redundant with trait measures of perfectionism when both types of measures are administered to clinical patients. The results of our two studies showed that the PCI accounts for unique variance in measures of anxiety and depression, and, relative to trait perfectionism measures, it may be a more robust predictor of distress.

We believe that the PCI is a useful measure that provides unique information about the cognitive characteristics of perfectionists, and it reflects a broad view of the perfectionism construct that includes a role not only for the trait dimensions of perfectionism, but also for the frequent experience of automatic, perfectionistic thoughts that may reflect an ideal self-schema dominated by perfectionistic themes. To cite but one example of how it might be useful to consider this aspect of the construct, consider the recent cognitive-behavioral model outlined by Shafran et al. (2002), which emphasizes the cognitive biases associated with perfectionism (e.g., overgeneralization). We feel strongly that any cognitive-behavioral model of perfectionism that purports to address cognitive-behavioral factors involved in the persistence of perfectionism should also include an explicit emphasis on the degree of active and ongoing cognitive processing in the form of frequent automatic thoughts involving the need to attain perfection. Accordingly, the model outlined by Shafran et al. (2002) would be enhanced considerably by incorporating a focus on automatic, perfectionistic thoughts as a supplement to the cognitive biases described in this model.

The current research represents our initial attempt to demonstrate the clinical usefulness of the PCI. Clearly, several issues involving the use of PCI with clinical samples remain to be tested. For instance, an important issue for future research is the extent to which the PCI can be used as a measure of treatment outcome in clinical samples. If it is indeed the case that automatic thoughts are accessible to change (see Furlong & Oei, 2002), then it seems reasonable to assume that the PCI should be more sensitive to clinical change than trait measures of perfectionism, and the use of the PCI is a viable way of assessing the efficacy of cognitive interventions that are designed specifically to ameliorate irrational thoughts and

self-directed demands such as “I must be perfect.” To the extent that these perfectionism cognitions reflect an underlying perfectionistic self-schema, intervention attempts should focus on modifying this aspect of the self, as well as the irrational importance attached to attaining perfection (see Ellis, 2002).

In summary, two studies evaluated the psychometric characteristics and correlates of the PCI. Our results indicated that the PCI assesses meaningful individual differences in the frequency of perfectionistic cognitions in that the PCI is associated with elevated levels of anxiety and depression, and with associated deficits in cognitive self-management. Moreover, the PCI has incremental validity in clinical samples in that it accounts for unique variance in levels of psychological distress, over and above the variance attributable to trait perfectionism dimensions. Collectively, these findings suggest that researchers and clinicians should include the PCI if they are seeking to adopt a broad perspective that takes into account potentially significant aspects of the perfectionism construct.

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