J Rat-Emo Cognitive-Behav Ther
DOI 10.1007/s10942-007-0067-0

ORIGINAL ARTICLE

Perfectionism, and Cognitions, Affect, Self-esteem, and Physiological Reactions in a Performance Situation

Avi Besser · Gordon L. Flett · Paul L. Hewitt · Jonathan Guez

Abstract The current paper describes the results of an experiment in which 200 students who varied in levels of trait perfectionism performed a laboratory task and then were assessed in terms of levels of state affect, state self-esteem, and state automatic thoughts. Independent variables included task difficulty (high versus moderate level of difficulty) and performance feedback independent of their actual level of performance (positive or negative). Analyses also examined objective levels of performance (i.e., the number of errors on the task) and initial confidence in performance. Analyses showed that the experience of state automatic thoughts involving perfectionism were associated with negative automatic thoughts, negative affective reactions, and lower state self-esteem. Analyses of changes in mood and self-esteem showed generally that participants high in socially prescribed perfectionism had increased levels of dysphoria and anxiety and lower levels of state self-esteem following the experience of negative performance feedback or after having a relatively poor performance. Analyses of the physiological measures found

Authorship among the Avi Besser and Gordon L. Flett are equal. The Canada Research Chair program funded Gordon Flett. We extend our appreciation to Maya Grinshpan and Ariel Sculsky from Sapir Academic College, Israel, for their invaluable assistance in data collection.

A. Besser (✉)
Department of Behavioral Sciences, Sapir Academic College, D. N. Hof Ashkelon 79165, Israel
e-mail: besser@mail.sapir.ac.il

G. L. Flett
Department of Psychology, York University, 4700 Keele Street, Toronto, ON, Canada M3J 1P3
e-mail: gflett@yorku.ca

P. L. Hewitt
Department of Psychology, University of British Columbia, 2136 West Mall, D.T. Kenny Building, Vancouver, BC, Canada V6T 1Z4

J. Guez
Department of Behavioral Sciences, Achva Academic College, Shikmim, Israel

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

increased systolic blood pressure among self-oriented perfectionists who had poorer performance and among socially prescribed perfectionists who had received negative feedback about their performance. The results for heart-rate changes yielded a less clear pattern, though there was evidence that participants with high socially prescribed perfectionism had increased heart rate if they received negative feedback and were relatively low in confidence. Collectively, these findings illustrate that how perfectionists react in challenging situations varies as a function of actual performance, performance feedback, and feelings of personal efficacy.

Keywords Perfectionism · Cognition · Performance-feedback · Self-esteem · Self-efficacy · Automatic thoughts · Anxiety · Depression · Hostility

Introduction

In a previous paper (see Besser et al. 2004), we noted that there are relatively few studies of how perfectionists respond to performance feedback. This paucity of research is surprising given that a central premise of research and theory on perfectionism is that it is essential to examine how perfectionists respond when they have encountered negative performance feedback that implies possible deficiencies in the self. While there has been an extensive focus on whether perfectionism has an adaptive side to it, perhaps a more important question is what happens when people believed to be characterized by "adaptive perfectionism" encounter unfavorable circumstances that suggest that they are not meeting the exceptionally high standards and perfectionistic demands that are central to their sense of self and identity.

Consider, for instance, the following account of how perfectionism and falling short of expectations influenced Michelangelo. This is another illustration of how famous people may have remarkable achievements yet not seemingly incorporate this into a more positive self-view:

> "As he was nearing the end of his life, Michelangelo began working on what many people believe to be his most important work, the Florentine Pietà. After working intensely for almost a decade, he entered his studio one day and took a sledgehammer to the sculpture. He broke away the hands and legs and nearly shattered the work before his assistants dragged him away. Why did Michelangelo attempt to destroy one of his greatest creations, a statue that has been described as among the finest works of the Renaissance? Disillusioned and isolated in the last decades of his life, Michelangelo had a heightened sense of perfectionism that was exacerbated by his failure to live up to the expectations of his father, who viewed being a sculptor as akin to being a manual laborer. Michelangelo, it seems, had self-esteem issues" (Robins and Trzesniewski 2005, p. 158).

Unfortunately, if alive today, Michelangelo would have plenty of company. Although there have been few experimental demonstrations of precisely what happens when perfectionists feel their efforts are not going to result in achieving

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

their impossibly high goals, there are numerous other anecdotal accounts of the distress and dissatisfaction with the self and performance of debilitating forms of perfectionism.

Given the limited research in this area, the current paper describes the results of a controlled experiment in which participants varying in levels of perfectionism attempted a task that was more or less challenging and then received positive or negative performance feedback independent of their actual level of performance. This feedback was received in an interpersonal context (i.e., the presence of another person). We extended our past research in this area by assessing not only cognitive and affective reactions, but also state changes in self-esteem and physiological responses. The specific hypotheses tested are outlined below after a brief overview of past research on how perfectionists respond to performance feedback.

Perfectionism and Reactions in Performance Situations

Hewitt et al. (1989) conducted the initial study of how perfectionists react to performance feedback. They gave negative feedback about task performance on a series of challenging cognitive tasks to perfectionists and nonperfectionists and they varied the ego importance of the feedback. Perfectionism was assessed with the Burns Perfectionism Scale (Burns 1980). Participants were told that good performance was relatively important or unimportant. A measure of depressed mood was completed before and after the tasks were attempted. Hewitt et al. (1989) found that perfectionism was associated with increased levels of depressed mood only in the ego-involving, important condition.

Flett et al. (1994/1995) conducted an experiment in which participants completed the Multidimensional Perfectionism Scale (MPS; Hewitt and Flett 1991) and an anagram task that was described in terms that made the task either high versus low in ego involvement. The MPS assesses self-oriented perfectionism (i.e., demands on the self to be perfect), other-oriented perfectionism (i.e., demanding perfection from others), and socially prescribed perfectionism (i.e., the perception that others demand perfection from the self). The main dependent measures were indices of state anxiety and various measures of situational appraisal, including perceived situational threat. Flett et al. (1994/1995) found that socially prescribed perfectionism was associated with higher state anxiety, but only under high ego involvement. Self-oriented perfectionism was unrelated to state anxiety in either experimental condition. Also, students with elevated levels of socially prescribed perfectionism tended to perceive greater threat in both experimental conditions.

Frost and Marten (1990) performed an experiment with 51 undergraduate women that examined how individuals differing in levels of perfectionism responded to conditions of high versus low evaluative threat. Participants performed a writing task under conditions of high versus low evaluative threat. Dependent measures included performance level and state affective reactions. Frost and Marten (1990) found considerable differences between the participants

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

in the two experimental conditions. They reported that perfectionists, relative to nonperfectionists, had greater negative affect when the evaluative aspects of the performance task were made highly salient. Moreover, objective judges concluded that the perfectionists in the high evaluative threat condition produced work that was of lower quality.

Subsequently, Frost et al. (1995) reported a laboratory study of reactions to mistakes in which participants with high versus low levels of concern over mistakes (COM) were induced to make either a high versus low number of mistakes. Several differences emerged in the high mistakes condition, and there were relatively few between-subjects differences in the low mistakes condition. Participants with a high COM did not make more mistakes in the difficult condition, but they reacted to their mistakes with more negative affect, lower self-confidence, and a greater sense of personal imperatives (i.e., that they should have done better).

More recently, Besser et al. (2004) conducted an experiment in which students who varied in levels of trait perfectionism performed a laboratory task of varying levels of difficulty. Participants received either negative or positive performance feedback, independent of their actual level of performance. Analyses of pre-task and post-task measures of negative and positive affect showed that individuals with high self-oriented perfectionism experienced a general increase in negative affect after performing the task, and self-oriented perfectionists who received negative performance feedback were especially likely to report decreases in positive affect. Additional analyses showed that self-oriented perfectionists who received negative feedback responded with a cognitive orientation characterized by performance dissatisfaction, cognitive rumination, and irrational task importance. In contrast, there were relatively few significant differences involving other-oriented and socially prescribed perfectionism. Collectively, these data are in keeping with the view that self-oriented perfectionism is a vulnerability factor involving negative cognitive and affective reactions following failure experiences that reflect poorly on the self.

The current study is patterned after the previous Besser et al. (2004) investigation with the same laboratory task being used. However, we examined several new issues. First, in the previous study, the experimental situation emphasized personal standards and focus on the self; socially evaluative cues were minimized by having the participant receive feedback via computer while alone. In contrast, the social evaluation context was emphasized in the current study. That is, the participant received performance feedback couched in terms of social comparison ("Your performance was below average") while in the physical presence of the experimenter. Our previous experiment yielded few significant differences involving socially prescribed perfectionism as socially prescribed perfectionism is more relevant in situations where social evaluation is emphasized.

Second, several of the dependent measures used in the previous experiment were also assessed in the current investigation (e.g., mood ratings of negative and positive affect). Consistent with our earlier investigation, the current study included an assessment of a broader range of negative affective states (anxiety, depression, and hostility) as well as positive affect. However, several additional measures were also

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

obtained. One of our goals was to examine state cognitive reactions in a specific performance situation. Accordingly, participants completed current measures of automatic thoughts (i.e., perfectionistic thoughts, negative thoughts about the self, and positive thoughts about the self). This was accomplished by creating abbreviated state versions of the Perfectionism Cognitions Inventory (Flett et al. 1998), the Automatic Thoughts Questionnaire (Hollon and Kendall 1980), and the positive thoughts version of the Automatic Thoughts Questionnaire (Ingram and Wisnicki 1988). Ingram et al. (1995) described how it is possible and meaningful to adapt existing measures for use in specific situational contexts and assess automatic thoughts "in situ."

Another objective of the current study was to examine possible fluctuations among perfectionists in state self-esteem as a function of performance feedback. Several authors have established a link between dimensions of perfectionism and deficits in self-esteem in general (e.g., Flett et al. 1991; Preusser et al., 1994; Rice et al. 1998). This research has established a consistent link between socially prescribed perfectionism and low self-esteem (e.g., Flett et al. 1991) while the link between self-oriented perfectionism and self-esteem is inconsistent across studies. To our knowledge, past research has not examined state self-esteem and perfectionism. We hypothesized in the current investigation that decreases in state levels of performance and social self-esteem would be reported by participants with high levels of socially prescribed and self-oriented perfectionism following the receipt of negative performance feedback.

Perhaps the most unique goal of the current study was to examine how perfectionism combines with performance feedback and task difficulty to influence physiological responses (i.e., blood pressure and heart-rate). A central premise of the perfectionism literature is the notion that perfectionists are characterized by relatively high levels of stress and are highly reactive to stressful situations. Over time, this should result in negative health consequences for stressed perfectionists. Previously, Martin and associates found that trait perfectionism was associated with health problems, especially among those individuals with relatively low levels of self-efficacy (see Martin et al. 1996). At present, previous research has not examined the physiological reactions of perfectionists to challenging and threatening performance situations. Accordingly, in the current study, the self-report measures were supplemented with objective assessments of heart rate and blood pressure. A possible link between perfectionism and elevated blood pressure is suggested by recent evidence showing that focusing on the irrational belief "I must perform well" is indeed associated with elevated blood pressure (see Harris et al. 2006). In the present study, it was expected generally that participants with highly levels of perfectionism, particularly those elevated in socially prescribed perfectionism, would react to a more difficult performance situation and the experience of negative feedback with the more extreme physiological reactions that reflect the pressure they are under. Given past indications that lower self-efficacy may moderate the link between perfectionism and health symptoms (Martin et al. 1996), we postulated that the negative reactions of perfectionists to poor performance and negative feedback would be exacerbated among those participants who relatively low in confidence about their ability to perform.

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

Method

Participants

The participants were 200 students (100 women, 100 men) from an Israeli Academic College. They were volunteers from a second year psychology course, as well as some volunteers from an introductory psychology course who took part in this study for course credit. The mean age of participants was 23.63 years (SD = 2.92).

Procedure

Participants signed an informed consent to participate in a six-part experiment "evaluation of cognitive performance on a computer" and were then seated in a chair facing a computer monitor in a small testing room. The instructions before each part were given by the experimenter and were also displayed on the computer monitor.

Participants were assigned randomly to one of four possible conditions. The independent variables were Task difficulty (moderate versus difficult) and Feedback condition (positive versus negative). There were 50 participants (25 men, 25 women) in each condition. All participants completed computerized versions of the MPS, the Visual Analogue Scale (VAS) and a measure of State Self-Esteem (performance self-esteem and social self-esteem) and an item assess their Confidence by using the computer's mouse to mark their choices. The VAS was used to assess state affect levels. In addition, estimates of baseline psychological measures (HR, SYSBP and DYSBP) were taken[1]. The order of the presentation of the Multidimensional Perfectionism Scale, VAS, and state self-esteem items was automatically randomized. Ratings were recorded automatically in an output ASCI file. Order of screen presentation of the questionnaires was automatically randomized. Participants shifted from one screen to another by hitting an "*OK*" button that appeared when all items were completed, using the computer's mouse. Subsequently, a computerized Choice Reaction Time (CRT) task patterned after one used by Naveh-Benjamin et al. (2000) was presented.

Variations of this CRT task have been used in cognitive research to evaluate reactions to task demands at the information encoding stage (see Craik et al. 1996; Naveh-Benjamin et al. 1998; Naveh-Benjamin et al. 2003; Naveh-Benjamin et al. in press). This is an attention-demanding task that requires participants to carry out the task as quickly and as accurately as possible. In the current study, following Naveh-Benjamin et al. (2000), the CRT task involved a visual display on a computer screen and manual responses on an external box. The display consisted of either three or six boxes, arranged horizontally. A large white rectangle appeared at

[1] We used a fully automatic blood pressure monitor for measurement on the wrist (the OMRON RX-I) operating on the oscillometric principle and convert the information into a digital reading. This monitor does not require an inflation bulb or stethoscope so measurements are easy obtain. It is easy to use reads in 30 s and the error is ±10 mmHg which is highly accurate.

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

random in one of the boxes, and the participant's task was to press the corresponding key on the external button box. The response caused the white rectangle to move immediately to one of the other boxes, at random; the rectangle never appeared in the same box on successive CRT trials. The goal was to carry out the task as quickly and as accurately as possible. The task was thus a continuous CRT task; it was performed for 180 s. The computer recorded both the accuracy and speed of the participants' responses (in milliseconds). Participants were first given a description of the task in the experiment and the CRT task was practiced for two trials of 30 s in both decision difficulties (three or six choices). This stage allowed participants to recognize that there are two possible decision-making tasks of varying difficulties to perform: "easy" (three choices) or "hard" (six choices), and that they would randomly receive only one of them in the following stage. Next, participants were asked to rate how confident they were about their ability to perform the task they are about to complete—which they weren't aware of its level of difficulty—(i.e., performance expectations) and then they were presented with the task in the level of difficulty they were initially assigned (three or six choices), and were asked to perform as "quickly and as accurately as possible." Not surprisingly, previous research (Naveh-Benjamin et al. 2000) indicates that more mistakes are made, and reaction time is higher when performing the six choices task.

Task completion was followed by the receipt of positive or negative feedback. The feedback received was independent of participants' objective performance and appeared on a full screen with large and colored fonts. Along all stages the examiner was apparent in the room and was seated to the side of the participant.

Participants in the negative feedback condition obtained the following full screen note: "*Sorry, your performance is below average"* while participants in the positive feedback condition received the following full screen note: "*Well done, your performance is above average."*

Next, immediately, physiological measures (HR, SYSBP and DYSBP) were again taken. Participants then shifted to the next screen and were asked to complete the VAS, state self-esteem again and also the items for the state versions of the PCI and the ATQ and ATQ-P were administered. Finally, two post-task evaluations (difficulty for self, difficulty for others) to check the difficulty condition and one post-task evaluation manipulation check (i.e. feedback reliability) to evaluate the feedback manipulation were rated.

Measures

Multidimensional Perfectionism Scale

The Multidimensional Perfectionism Scale (MPS: Hewitt and Flett 1991, 2004) has three subscales of 15 items each. Respondents make seven-point ratings of statements reflecting *self-oriented perfectionism* (e.g., One of my goals is to be perfect in every thing 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., My family expects me to be perfect). The MPS subscales have

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

adequate reliability and validity (Hewitt and Flett 1991, 2004). In the current study, the three dimensions had adequate internal consistency, with respective alpha coefficients of .84, .77, and .88 for self-oriented, other-oriented, and socially prescribed perfectionism.

The Visual Analogue Scale

Current affect was assessed pre-task performance post-test performance after subjects received feedback, using the Visual Analogue Scale (VAS: Albersnagel 1988), composed of 18 mood adjectives. The participant is asked to indicate how he or she is feeling "at the moment" by placing a vertical mark on each 80-mm line anchored at 0% and 100% with opposing labels for each adjective (e.g., *not at all sad to extremely sad*). The four affective states assessed were: *dysphoria* (depressed, sad, blue, and lost), *hostility* (hostile, irritable, annoyed, and disagreeable), *anxiety* (anxious, nervous, uneasy, and tense), and *positive affect* (happy, glad, pleased, and cheerful). The alpha coefficients in the current study for the pre-task measures were .88 for dysphoria, .81 for hostility, .84 for anxiety, and .86 for positive affect. The alpha coefficients in the current study for the post-task affect measures were .83 for dysphoria, .86 for hostility, .83 for anxiety, and .81 for positive affect.

State Self-esteem

State self-esteem was measured using a modified version of the Current Thoughts Scale (Heatherton and Polivy 1991). The version used in this study consisted of the items tapping performance self-esteem and social self-esteem. Appearance self-esteem was not assessed. The alpha coefficients in the current study were .84 and .82 for pre-task and .85 and .83 for post-task for performance and social self-esteem, respectively.

Perfectionism Cognitions Inventory

An 18-item state version of the Perfectionism Cognitions Inventory was constructed with some new items and original items taken from the original measure. Participants were asked to indicate the extent to which they experienced such thoughts as "My performance should be flawless," "I've got to stop making mistakes," and "Why can't I be perfect?" Respondents must provide ratings of the extent to which each thought is being experienced currently or during the task itself. The alpha coefficient for this newly created state version was .89 in the current study. The original Perfectionism Cognitions Inventory was developed originally by Flett et al. (1998) to reflect activation of the ideal self (see Hewitt and Genest 1990) and cognitive awareness of the need to perfect and concern about the inability to achieve perfection.

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

State ATQ and ATQ-P

State versions of the automatic thoughts measures were also completed. Overall, 11 items were culled from Automatic Thoughts Questionnaire (Hollon and Kendall 1980) and 10 items were taken from the Automatic Thoughts Questionnaire – Positive scale (Ingram and Wisnicki 1988). Items were selected based on their apparent face validity and relevance to the current task situation. Respondents rated the frequency of the current experience of negative thoughts such as "I'm a loser," "I'm a failure," and "I'm so disappointed in myself," as well as positive thoughts such as "There's nothing to worry about," "I've accomplished a lot," and "I enjoy a challenge." The respective alpha coefficients in the current study were .80 and .78 for the state ATQ and ATQ-P.

Finally, manipulation checks were included to assess perceptions of task difficulty for self and for others, and the perceived believability of performance feedback. Reaction times (RTs in milliseconds) and number of choice errors were recorded automatically during the task to obtain objective performance measures.

Results

The first set of analyses examined the effectiveness of the manipulated experimental conditions. We used measures of objective performance and two post-task evaluations (difficulty for self, difficulty for others) to check the difficulty condition and one post-task evaluation manipulation check (i.e. feedback reliability) to evaluate the feedback manipulation.[2]

Task Difficulty Effect on Objective Performance

The first analyses assessed whether the CRT three versus six choice conditions actually resulted in different levels of objective performance. We conducted *t*-tests for independent samples with CRT three versus six choices as the independent variable and objective performance criteria (mistakes and RT scores) as the dependent variables.

Objective Measures

Analyses revealed significant differences with three choices yielding significantly fewer mistakes ($t[198] = 4.27$, $P < .00001$; $M = 2.27$, $SD = 2.68$ and $M = 5.11$, $SD = 6.09$ respectively) and significantly faster reaction times (RTs) than the six

[2] In a preliminary MANOVA, no significant differences were obtained for participants under easy or difficult task or for participants under positive or negative feedback in levels of MPS or Time-1 self-esteem or Time-1 affect measures scores nor task difficulty × feedback interaction effects on these scores. Thus significant effects for the study manipulations should not be attributed to possible initial differences in participants' MPS personality scores or T1 levels of self-esteem or T1 levels of affects.

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

choices (t[198] = 18.13, $P < .00001$; M = 543.80, SD = 87.26 and M = 873.82, SD = 159.44 respectively).

Subjective Measures

Analyses revealed significant differences with participants who performed the CRT six choices version reporting the task as being significantly harder for them than participants who performed the three choice version (t[198] = 14.63, $P < .00001$; M = 3.19, SD = 1.25 and M = 1.25, SD = .44 respectively). Similarly, participants who performed the CRT six choices version reported the task as being harder for others than did participants who performed the three choices version (t[198] = 21.42, $P < .00001$; M = 4.22, SD = .85 and M = 1.83, SD = .73 respectively). Results also indicated that participants who received positive feedback reported the feedback to be more believable) than did participants in the negative feedback condition (t[198] = 4.93, $P < .00001$; M = 4.74, SD = 1.90 and M = 3.37, SD = 2.02 respectively).

These analyses confirmed that the task and feedback conditions are different in level of objective and subjective difficulty. Accordingly, in the hierarchical multiple regressions (HMRs) described below, the actual number of mistakes was used as the objective performance variable because a hypersensitivity to mistakes is an integral aspect of the perfectionism construct.

Automatic Thoughts, Affect, and State Self-Esteem within Experimental Conditions

We examined the associations among the state measures within each experimental condition before conducting our main analyses. The intercorrelations among measures are shown in Table 1. It was found in each condition that the state PCI and negative automatic thoughts were strongly associated (r's ranging from .57 to .61). Regarding the affect measures, it can be seen that in the two negative feedback conditions, state PCI and state ATQ were associated significantly with greater dysphoria, anxiety, and hostility, and less positive affect. These same two measures were associated robustly across all four conditions with lower performance and social self-esteem.

Given the lack of information on how trait perfectionism relates to state perfectionism measures, we also examined the link between the MPS and the state PCI in the four experimental conditions. The state PCI was not associated significantly with trait perfectionism for participants in the positive feedback, moderate difficulty condition. In contrast, in the negative feedback, moderate difficult condition, the state PCI was linked with both self-oriented perfectionism (r = .39, $P < .01$) and socially prescribed perfectionism (r = .39, $P < .01$). Associations were also found in the difficult negative feedback condition between the state PCI was linked with both self-oriented perfectionism (r = .32, $P < .05$) and socially prescribed perfectionism (r = .26, $P < .07$). More striking were the

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

Table 1 Correlations among the PCI, ATQ, and the time-2 affective states and self-esteem for the 4 study condition samples

Variable	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
Easy negative										Easy positive								
1. PCI–State	–									–								
2. ATQ-positive	–.00	–								.33*	–							
3. ATQ-negative	.61**	–.46**	–							.61**	–.19	–						
4. Dysphoria	.48**	–.32*	.60**	–						.29*	–.34*	.57**	–					
5. Anxiety	.40**	–.04	.47**	.72**	–					.24	–.07	.39**	.72**	–				
6. Hostility	.29*	.11	.20	.55**	.60**	–				.21	.04	.38**	.66**	.71**	–			
7. Positive affect	–.53**	.48**	–.64**	–.69**	–.51**	–.20	–			–.16	.43**	–.42**	–.53**	–.37**	–.10	–		
8. Performance SE	–.42**	.52**	–.65**	–.60**	–.32*	–.17	.67**	–		–.46**	.20	–.61**	–.63**	–.31*	–.28*	.42**	–	
9. Social SE	–.74**	.27*	–.68**	–.53**	–.41**	–.22	.63**	.58**	–	–.65**	–.00	–.63**	–.58**	–.45**	–.42**	.26	.66***	–
Difficult negative										Difficult Positive								
1. PCI–State	–									–								
2. ATQ-positive	.33*	–								–.20	–							
3. ATQ-negative	.57**	–.17	–							.60**	–.55**	–						
4. Dysphoria	.42**	–.19	.65**	–						.27	–.42**	.55**	–					
5. Anxiety	.44**	–.07	.53**	.63**	–					.35**	–.31*	.49**	.59**	–				
6. Hostility	.39**	–.09	.56**	.62**	.69**	–				.03	–.31*	.40**	.70**	.31*	–			
7. Positive affect	–.42**	.28*	–.60**	–.66**	–.39**	–.23	–			–.14	.49**	–.42**	–.57**	–.36**	–.18	–		
8. Performance SE	–.38**	.31*	–.65**	–.58**	–.50**	–.52**	.41**	–		–.31*	.56**	–.58**	–.64**	–.34*	–.35**	.41**	–	
9. Social SE	–.57**	.15	–.63**	–.55**	–.49**	–.43**	.39**	.70**	–	–.49**	.38**	–.69**	–.67**	–.62**	–.28*	.50**	.71***	–

Note: * $P < .05$; ** $P < .01$, * $P < .001$ (two-tailed test)

Journal : Small-ext 10942
Article No. : 67
MS Code : 67
Dispatch : 25-9-2007
LE
CP
Pages : 23
TYPESET
DISK

associations in the positive feedback, difficult condition. The state PCI was linked with both self-oriented perfectionism ($r = .46$, $P < .01$) and socially prescribed perfectionism ($r = .61$, $P < .01$). These data suggest that state automatic thoughts reflecting the need to be perfect relate to trait perfectionism when the situation is challenging, either in terms of difficulty level or negative feedback has been received.

Prediction of Changes in Affect, Self-esteem, and Physiology

Changes over time from pre-test levels were assessed via Hierarchical Multiple Regressions (HMRs) (Cohen and Cohen 1983). Each regression equation included the following steps: In the first step, Time-1 measures were entered thus controlling for baseline levels of affect, self-esteem, and physiological measures. In the next step, the task difficulty and feedback were entered as dummy variables (0 = easy and 1 = difficult and 0 = negative and 1 = positive, respectively) along with the objective performance (errors/mistakes) and confidence. The two MPS variables (self-oriented and socially prescribed perfectionism) were entered in the second step. Other-oriented perfectionism was not included due to its limited relevance in this study. In the next step all two-way interactions among each of the two MPS variables and task difficulty, feedback, objective performance (errors/mistakes), and confidence were entered. And, in the final step, the three-way interactions were entered.

Models for Changes in Affect

Dysphoria

After controlling for pre-task dysphoria ($\beta = .88$, $P < .0001$, $F[1,198] = 680.54$, $P < .0001$), a significant increase in dysphoria was found for participants who received negative feedback ($\beta = –.07$, $P < .05$; $F[5,194] = 137.37$, $P < .0001$). The main effects of self-oriented and socially prescribed perfectionism were not significant ($F[7,192] = 97.75$, $P < .0001$). Next, significant 2-way interactions were obtained for socially prescribed perfectionism × objective performance, socially prescribed perfectionism × condition, self-oriented perfectionism × confidence, and for self-oriented perfectionism × socially prescribed perfectionism ($\beta = –.61$, $P < .004$, $\beta = .37$, $P < .02$, $\beta = –.34$, $P < .04$ and $\beta = –43$, $P < .05$ respectively; $F[22,177] = 33.83$, $P < .0001$). Finally, no significant three-way interactions were obtained. The final regression explained significantly 78% (adjusted) of the variance in post-task dysphoria ($F[33,166] = 22.11$, $P < .0001$). Plotting the significant interactions according to Cohen and Cohen's (1983) recommendations showed that: (a) high socially prescribed perfectionism was associated with increased dysphoria when performance was poorer (i.e., a greater number of actual errors) but significantly less when performance was better, and socially prescribed perfectionism was associated with increased post-task dysphoria in the difficult task condition,

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

relative to the easier task condition (b) Self-oriented perfectionism was associated with greater post-task dysphoria among participants with low confidence, relative to those with greater confidence; and (c) socially prescribed perfectionism was unexpectedly associated with increased post-task dysphoria associates when levels of self-oriented perfectionism were relatively low, as opposed to elevated self-oriented perfectionism.

Anxiety

After controlling for pre-task anxiety ($\beta = .59$, $P < .0001$, $F[1,198] = 105.03$, $P < .0001$), a significant decrease in anxiety was found for participants who performed the easy task ($\beta = -.16$, $P < .01$; $F[5,194] = 22.92$, $P < .0001$). There were no significant effects for trait perfectionism nor were significant 2-way interactions detected. Next, significant three-way interactions were obtained for socially prescribed perfectionism × confidence × feedback, confidence × task difficulty × objective performance and for self-oriented perfectionism × feedback × confidence. The final regression explained significantly 38% (adjusted) of the variance in post-task anxiety ($F[33,166] = 4.71$, $P < .0001$). The same procedures were use to plot the significant interactions. Examination of the interaction effects involving perfectionism revealed that: (a) high socially prescribed perfectionism was associated with substantial increases in anxiety among participants with relatively low confidence but who received positive feedback. Also, participants with high socially prescribed perfectionism and high confidence who received negative feedback had substantial increases in anxiety; (b) high self-oriented perfectionism was linked with increased post-task anxiety among those participants who had poorer objective performance and lower initial confidence, but this was not evident for those who had higher confidence. It was also found that participants with relatively low self-oriented perfectionism who performed well but had low confidence had a greater increase in post-task anxiety than did those with high confidence.

Hostility

After controlling for pre-task hostility ($\beta = .66$, $P < .0001$, $F[1,198] = 152.30$, $P < .0001$), no significant effect was found for feedback, difficulty, confidence or performance ($F[5,194] = 31.29$, $P < .0001$). Next, a significant main effect of perfectionism was found only for socially prescribed perfectionism ($\beta = .11$, $P < .05$, $F[7,192] = 23.08$, $P < .0001$), and a significant 2-way interaction was obtained for self-oriented perfectionism × socially prescribed perfectionism ($F[22,177] = 8.11$, $P < .0001$). Next a significant three-way interaction was obtained for confidence × task difficulty × objective performance. The final regression explained significantly 46% (adjusted) of the variance in post-task hostility ($F[33,166] = 6.16$, $P < .0001$). Investigation of the significant interaction involving perfectionism showed that greater self-oriented perfectionism was associated with

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

less post-task hostility when levels of socially prescribed perfectionism were low rather than high.

Positive Affect

After controlling for pre-task positive affect ($\beta = .77$, $P < .0001$, $F[1,198] = 284.11$, $P < .0001$), a significant increase in positive affect was found for participants who received positive feedback ($\beta = .17$, $P < .0001$) and for participants that were relatively high in confidence ($\beta = -.10$, $P < .03$) ($F[5,194] = 66.97$, $P < .0001$). Next, as in the previous analysis, a significant main effect of perfectionism was found only for socially prescribed perfectionism ($\beta = .11$, $P < .03$, $F[7,192] = 51.26$, $P < .0001$). Next, significant 2-way interactions were obtained for socially prescribed perfectionism × objective performance, socially prescribed perfectionism × feedback, and for socially prescribed × task difficulty ($F[22,177] = 17.71$, $P < .0001$). No significant three-way interactions were obtained. The final regression explained significantly 66% (adjusted) of the variance in post-task positive affect ($F[33,166] = 12.44$, $P < .0001$). Examination of the significant interactions revealed that: (a) high objective performance was associated with increased positive affect when socially prescribed perfectionism was low rather than high; (b) when feedback was positive, increased positive affect was associated with high and low socially prescribed perfectionism; however, under negative feedback, high socially prescribed perfectionism was associated with decreases in positive affect and this was less apparent for those with low socially prescribed perfectionism; (c) with the easier task, low socially prescribed perfectionism, relative to high socially prescribed perfectionism, was associated with increased positive affect but this effect was reduced in the difficult task condition.

Models for Changes in Self-esteem

Performance Self-esteem

After controlling for pre-task performance self-esteem ($\beta = .82$, $P < .0001$, $F[1,198] = 414.34$, $P < .0001$), a significant effect was found for feedback with participants received positive feedback reported significantly higher performance self-esteem ($\beta = .11$, $P < .007$). Also, participants with lower levels of confidence reported greater decreases in post-task performance self-esteem ($\beta = -.14$, $P < .001$) ($F[5,194] = 95.85$, $P < .0001$). The main effects block found a significant effect for only socially prescribed perfectionism ($\beta = -.11$, $P < .03$, $F[7,192] = 70,31$, $P < .0001$). Next, a significant 2-way interaction was obtained for socially prescribed perfectionism × feedback ($F[22,177] = 22.76$, $P < .0001$). Finally, significant three-way interactions were obtained for socially prescribed perfectionism × task difficulty × objective performance and for confidence × feedback × objective performance. The final regression explained significantly 72%

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

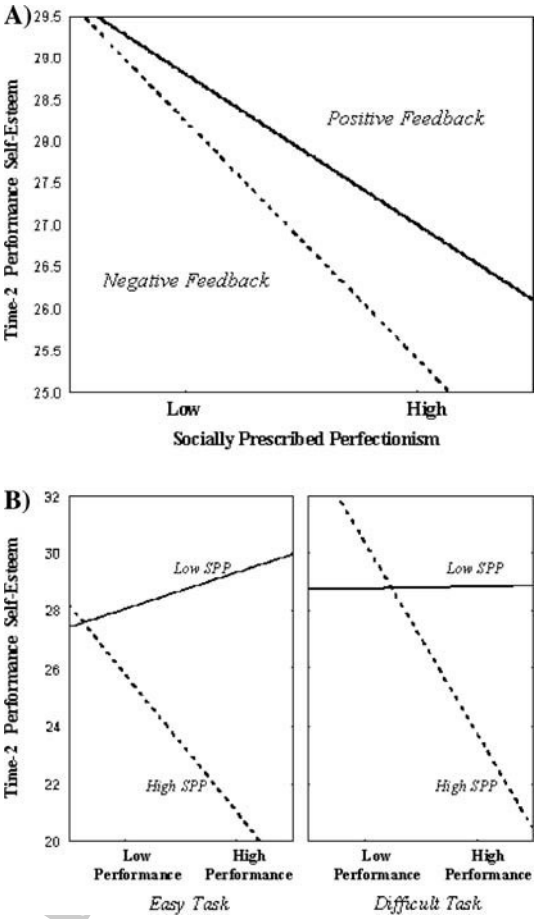

Fig. 1 Predicting changes in performance self-esteem. *Note:* SPP = Socially prescribed perfectionism

(adjusted) of the variance in post-task performance self-esteem (F[33,166] = 16.15, $P < .0001$). Further inspection by plotting the significant interactions involving perfectionism showed that (a) socially prescribed perfectionism was associated with low post-task performance self-esteem and this was significantly stronger under negative feedback (see Fig. 1a); and (b) with the easier or more difficult task, lower objective performance was associated with lower performance self-esteem among participants with higher levels of socially prescribed perfectionism (see Fig. 1b).

Social Self-esteem

After controlling for pre-task social self-esteem ($\beta = .85, P < .0001, F$[1,198] = 494.16, $P < .0001$), no significant effect was found for feedback, difficulty, confidence or performance (F[5,194] = 102.03, $P < .0001$). As for perfectionism, once again no effect was found for self-oriented perfectionism but reduced self-esteem was linked only with socially prescribed perfectionism ($\beta = -.11$, $P < .02$, F[7,192] = 76.58, $P < .0001$).

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

Next, a significant 2-way interaction was obtained for socially prescribed perfectionism × task difficulty (F[22,177] = 24.55, $P < .0001$). Finally, significant three-way interactions were obtained for socially prescribed × confidence × objective performance and for confidence × task difficulty × objective performance. The final regression explained significantly 74% (adjusted) of the variance in post-task dysphoria (F[33,166] = 18.53, $P < .0001$). Examination of the three-way interaction effect involving perfectionism showed that high socially prescribed perfectionism was associated with low social self-esteem when objective performance and confidence were relatively low.

Models for Changes in Physiological Measures

Heart Rate (Beat per Minute)

After controlling for pre-task HR ($\beta = .78$, $P < .0001$, F[1,198] = 308.384, $P < .0001$), no significant effects were found for feedback, difficulty, confidence or performance (F[5,194] = 61.33, $P < .0001$). There was also no significant effects found for self-oriented or socially prescribed perfectionism F[7,192] = 43.74, $P < .0001$) and no significant 2-way interactions were obtained (F[22,177] = 14.37, $P < .0001$). However, significant three-way interactions were obtained for socially prescribed perfectionism × confidence × feedback and for self-oriented perfectionism × objective performance × feedback. The final regression explained significantly 61% (adjusted) of the variance (F[33,166] = 10.49, $P < .0001$). Examination of the significant interaction involving socially prescribed perfectionism showed that high socially prescribed perfectionists with relatively low confidence had higher HR under negative feedback but significantly lower increases in HR when they received positive feedback. Further analyses of the interaction effect involving self-oriented perfectionism found a less clear pattern. That is, high self-oriented perfectionists with low objective performance had higher HR when the feedback was positive (i.e., incongruent) while low self-oriented perfectionists with low objective performance had increased HR when the feedback was negative.

Systolic Blood Pressure (mmHg)

After controlling for pre-task SYSBP ($\beta = .48$, $P < .0001$, F[1,198] = 6.18, $P < .01$), no significant effects were found for feedback, difficulty, confidence or performance (F[5,194] = 2.83, $P < .02$). There were also no significant effects for self-oriented or socially prescribed perfectionism, F[7,192] = 2.26, $P < .03$). However, significant 2-way interactions were obtained for self-oriented perfectionism × objective performance and for socially prescribed perfectionism × feedback (F[22,177] = 2.20, $P < .05$). Next no significant three-way interactions were obtained (F[33,166] = .80, *ns*). The final regression explained significantly 14% (adjusted) of the variance in post-task SYSBP. Plotting the significant 2-way self-oriented perfectionism × performance and socially prescribed perfectionism × feedback interactions showed that (a) high self-

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

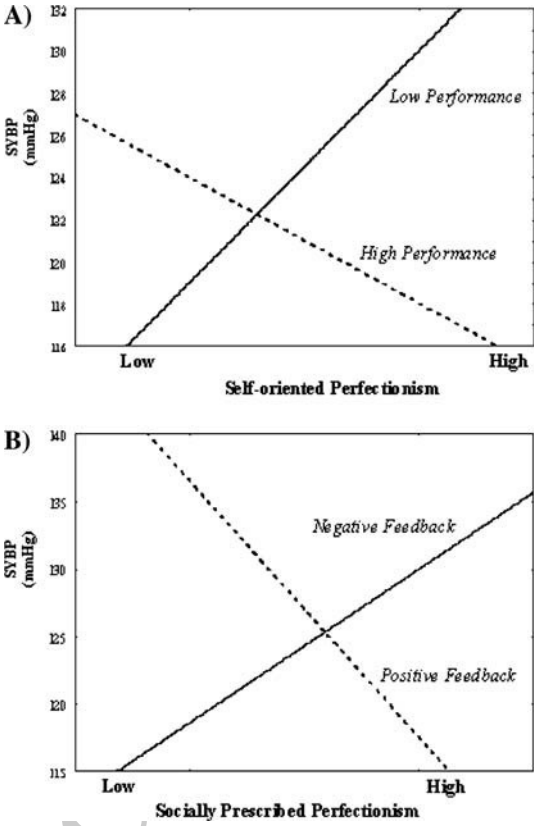

Fig. 2 Predicting changes in systolic blood pressure

oriented perfectionism was associated with increased SYSBP when objective performance was relatively poor, but this was not evident among the self-oriented perfectionists who performed relatively well (see Fig. 2a); and (b) high socially prescribed perfectionism was associated with increased SYSBP under negative feedback but not when positive feedback was received (see Fig. 2b)

For the prediction of Diastolic blood pressure (mmHg) beyond the significant effect of pre-task DYSBP no other significant effects were found.

Discussion

The current study was designed to address several issues involving perfectionism that have not been addressed in previous research. These issues were examined within the context of an experiment in which participants attempted a task that varied in level of difficulty. Participants received nonveridical positive or negative feedback about performance. In addition to these independent variables, we were also able to assess actual performance (i.e., number of errors) and self-reported confidence in attempting the task. The task itself is one that we have used in our past

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

research (see Besser et al. 2004) and it has been used extensively in previous research on cognitive processes.

Our first goal was to examine the feasibility of developing a state measure of perfectionism-related cognitions and to then explore the factors associated the experience of perfectionistic thoughts in this performance situation context. Our analyses confirmed that meaningful individual differences in the state levels of perfectionistic automatic thoughts could be assessed. More importantly, it was found across the four experimental conditions that higher scores on the state PCI measure were associated robustly with scores on the state ATQ measure, indicating that those participants who experienced thoughts about the need to obtain perfection also reported a preponderance of negative thoughts about the self while in the performance situation. This pattern of findings is in keeping with past conceptualizations of perfectionistic automatic thoughts as not only activating an ideal self-schema with perfectionistic content, but also highlighting negative features of the self that underscore the discrepancy between the actual self and the ideal, perfect self. Analyses with the trait MPS dimensions showed that these automatic thoughts were associated with higher levels of self-oriented and socially prescribed perfectionism in every experimental condition except the one condition involving an easier task and the receipt of positive feedback.

In addition, both the PCI and ATQ state measures were associated robustly with demonstrably lower levels of state self-esteem and various forms of negative affect. The association between the state ATQ and reduced state self-esteem attests to the validity of the state measure used in the current study because the ATQ has a built-in focus on the negative self-concept (see Hollon and Kendall 1980). More intriguing is the strong associations between the state PCI and reduced levels of state self-esteem. It is worth noting that this link between PCI and reduced state self-esteem was found both in terms of performance self-esteem and social self-esteem, but the associations tended to be stronger between the PCI and reduced social self-esteem. This association with social self-esteem may have been due somewhat to the presence of experimental cues that emphasized social evaluation. The association between perfectionistic cognitions and social self-esteem merits further investigation. Recent evidence in general suggests that the experience of certain negative automatic thoughts associated typically with depression actually contribute to feelings of shame (see Borton and Casey 2006). Perhaps perfectionists with negative automatic thoughts are highly cognizant of a sense that they ought to be perfect, and the distinction between ideal standards and ought standards is blurred for these individuals, especially in a context that emphasizes social evaluation cues.

As expected, the state PCI was associated with elevated levels of dysphoria, and this was evident across all four experimental conditions, but the pattern of correlations revealed that the link between the state PCI and dysphoria was stronger when participants had received negative feedback. Interestingly, the state PCI was associated with state hostility in the two negative feedback conditions; in contrast, it was not associated significantly with hostility in the positive feedback conditions. The association between perfectionistic cognitions and hostility could reflect an interpersonal sensitivity among perfectionists who tend to react negatively to unfair evaluations. This association with hostility is intriguing in light of recent evidence

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

illustrating that depression-prone people have a form of cognitive vulnerability that also includes elevated levels of anger and hostility (see Ingram et al. 2007).

Trait Perfectionism, Level of Task Difficulty, and Feedback Valence

Our main goal in the current study was to explore how participants varying in levels of trait perfectionism responded to the variations in task difficulty and feedback valence in terms of their affective reactions, evaluative reactions to the self (i.e., sense of self-esteem), and physiological reactions. Overall, there were fewer significant interaction effects involving self-oriented perfectionism versus the numerous significant interaction effects involving socially prescribed perfectionism. This pattern of outcomes contrasts with the previous study by Besser et al. (2004); in our earlier investigation, we found primarily that differences were related to self-oriented perfectionism.

Analyses of the affective responses in the current study indicated that trait perfectionism interacted with experimental conditions to influence dysphoria, anxiety, and positive affect, and most, but not all, of the obtained interactions were generally in keeping with predictions. For instance, high levels of socially prescribed perfectionism were associated with increased dysphoria and reductions in positive affect in the difficult task condition and when more errors were actually made. In addition, reductions in positive affect were found among socially prescribed perfectionists who received negative feedback. Increases in anxiety were found among participants with high socially prescribed perfectionism who avowed higher confidence but then received negative feedback. Higher levels of post-task anxiety were also found among participants with high self-oriented perfectionism but lower actual performance and lower initial confidence in performance. In contrast, meaningful interaction effects were not found in terms of changes in levels of hostility.

As for fluctuations in state self-esteem, a similar pattern was obtained for the performance self-esteem and social self-esteem measures. These similar findings likely reflect the significant associations between these measures across the four experimental conditions (*r*'s ranging from .58 to .71). Greater reductions in performance self-esteem and social self-esteem were found among participants who made a greater number of mistakes and who had elevated socially prescribed perfectionism, though low confidence was also required in order for socially prescribed perfectionists to have lower social self-esteem. Also, elevated socially prescribed perfectionism was associated with lower post-task performance self-esteem following the receipt of negative feedback. There were no significant interaction effects involving self-oriented perfectionism for changes in self-esteem.

The analyses conducted with the physiological measures showed that the results varied substantially depending on the dependent measure in question. Analyses with the blood pressure measures found no significant effects involving diastolic blood pressure, but there was meaningful effects obtained with the measure of systolic blood pressure. Specifically, high levels of socially prescribed perfectionism were associated with increased levels of systolic blood pressure following the

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

receipt of negative performance feedback but not positive performance feedback. This finding suggests that people with high socially prescribed perfectionism are responsive at a physiological level when critical comments or other forms of negative feedback are received in a manner that would convey that expectations are not being met. This type of physiological reactivity without the actual expression of stress or distress could contribute to health problems among socially prescribed perfectionists.

There was also a highly significant interaction effect involving self-oriented perfectionism. In this instance, increased levels of systolic blood pressure were found among self-oriented perfectionists who had poorer objective performance, regardless of whether the task itself was more or less difficult. This pattern of findings is in keeping with our earlier results showing the negative responses of self-oriented perfectionists to performance failure, and, in general, these data are in keeping with diathesis-stress interpretations of perfectionism that highlight the need to examine perfectionism and actual performance (see Hewitt and Flett 2002). One implication of these data is that the positive or negative impact of perfectionism needs to be examined with respect to other relevant factors, such as related differences in performance or skill levels, performance feedback, and performance expectations.

It should be noted that while it was not predicted in the current study, evidence that our findings were specific to one type of blood pressure measure is not problematic. Other studies have found evidence of individual differences in systolic blood pressure but not in diastolic blood pressure or vice versa (see Harris et al. 2006; Jorgensen et al. 1996). The key here is to establish in subsequent research whether a similar pattern emerges, and, as indicated by Jorgensen et al. (1996), we should allow for the role of numerous other factors that contribute to the association between personality factors and high blood pressure.

A less pristine pattern of results emerged from the analyses of the heart-rate data, and this is not the first study to find that the results were stronger with blood pressure measures than with heart-rate measures (see Zeller et al. 2004). Our data indicated increased heart rate was found among socially prescribed perfectionists who had relatively low confidence and who received negative feedback; however, socially prescribed perfectionists who had low confidence but received positive feedback had much smaller increases in heart rate. However, there was also a significant interaction effect involving self-oriented perfectionism that was not in keeping with predictions. These mixed findings notwithstanding, it is apparent that the association between perfectionism and physiological indices merits additional investigation in future research. Subsequent investigations should incorporate some methodological improvements (e.g., continuous assessments of heart-rate and blood pressure using more refined technology of monitoring) and there is also a need to examine physiological responses in naturalistic contexts by assessing such measures as ambulatory blood pressure. Given that the findings of the current study varied across perfectionism dimensions, it is important that research on perfectionism and stress-related physiological reactions involves separate analyses of the various perfectionism dimensions.

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

Theoretical and Practical Implications

There are many implications that follow from the results of the current study. We will mention only a few due to space limitations. First, it is evident from a conceptual standpoint that when the results of this study and our previous investigation (see Besser et al. 2004) are both taken into account that it is important to evaluate the reactions and responses of perfectionists as a function of the outcomes and situational pressures they are experiencing. Theoretical accounts of perfectionism must allow for and incorporate situational factors and stressors. Moreover, given how the results varied across the different dimensions of perfectionism, it is important to distinguish the various dimensions of perfectionism within these conceptualizations.

Second, in terms of practical concerns, it is apparent from a practical perspective that perfectionists are at risk, not only in terms of psychological distress, but also in terms of deficits in self-esteem that are triggered by performance deficits and unfavorable performance feedback, and possible health-related problems related to their physiological responses. Counseling and therapy interventions should be multi-faceted and address not only the perfectionistic tendencies themselves, but also issues involve the self-concept and harsh self-evaluative standards. The robust associations among perfectionistic thoughts, negative automatic thoughts, and deficits in self-esteem and their links with various forms of distress can be regarded as support for previous suggestions that cognitive-behavioral interventions should focus directly on removing perfectionism and associated negative cognitive self-statements but there is also a need to foster a more positive unconditional sense of self-acceptance (see Flett et al. 2003; Scott 2007).

In summary, the results of the current experiment yielded several findings that extend the existing literature on perfectionism. First, it was established that current state measures of perfectionism cognitions are experienced in a challenging performance situation, and these automatic thoughts are associated with other negative thoughts about the self, deficits in self-esteem, and feelings of psychological distress. Second, comparisons of pre-test and post-test measures showed that changes in distress, self-esteem, and physiological responses occur when people with high levels of socially prescribed perfectionism encounter failure feedback and have a performance marred by mistakes. Additional findings suggested that level of self-confidence is a factor that moderates the association between perfectionism and affective reactions. Collectively, our results illustrate the need to evaluate perfectionism along with other factors that may activate the perfectionist's tendency to react with psychological distress and be dissatisfied not only with their performance, but also with their personal characteristics.

References

Albersnagel, F. A. (1988). Velten and musical mood induction procedures: A comparison with accessibility of thought associations. *Behaviour Research and Therapy*, *26*, 71–96.

Besser, A., Flett, G. L., & Hewitt, P. L. (2004). Perfectionism, cognition, and affect in response to performance failure versus success. *Journal of Rational-Emotive and Cognitive-Behavior Therapy, 22*, 301–328.

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

Borton, J. L. S., & Casey, E. C. (2006). Suppression of negative self-referent thoughts: A field study. *Self and Identity, 5*, 230–246.

Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.

Craik, F. I. M., Govoni, R., Naveh-Benjamin, M., & Anderson, N. D. (1996). The effects of divided attention on encoding and retrieval processes in human memory. *Journal of Experimental Psychology: General, 125*, 159–180.

Flett, G. L., Besser, A., Davis, R., & Hewitt, P. L. (2003). Dimensions of perfectionism, unconditional self-acceptance, and depression. *Journal of Rational-Emotive and Cognitive-Behavior Therapy, 21*, 119–138.

Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Gray, L. (1998). Psychological distress and the frequency of perfectionistic thinking. *Journal of Personality and Social Psychology, 75*, 1363–1381.

Flett, G. L., Hewitt, P. L., Blankstein, K. R., & O'Brien, S. (1991). Perfectionism and learned resourcefulness in depression and self-esteem. *Personality and Individual Differences, 12*, 61–68.

Flett, G. L., Hewitt, P. L., Endler, N. S., & Tassone, C. (1994/1995). Perfectionism and components of state and trait anxiety. *Current Psychology, 13*, 326–350.

Frost, R. O., & Marten, P. A. (1990). Perfectionism and evaluative threat. *Cognitive Therapy and Research, 14*, 559–572.

Frost, R. O., Turcotte, T., Heimberg, R. G., & Mattia, J. I. (1995). Reactions to mistakes among subjects high and low in perfectionistic concern over mistakes. *Cognitive Therapy and Research, 19*, 195–205.

Harris, S., Davies, M. F., & Dryden, W. (2006). An experimental test of a core REBT hypothesis: Evidence that irrational beliefs lead to physiological as well as psychological arousal. *Journal of Rational-Emotive and Cognitive-Behavior Therapy, 24*, 113–124.

Heatherton, T. F., & Polivy, J. (1991). Development and validation of a scale for measuring state self-esteem. *Journal of Personality and Social Psychology, 60*, 895–910.

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

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

Hewitt, P. L., & Flett, G. L. (2004). *Multidimensional Perfectionism Scale: Technical manual*. Toronto: Multi-Health Systems Inc.

Hewitt, P. L., & Genest, M. (1990). The ideal-self: Schematic processing of perfectionistic content in dysphoric university students. *Journal of Personality and Social Psychology, 59*, 802–808.

Hewitt, P. L., Mittelstaedt, W. M., & Wollert, R. (1989). Validation of a measure of perfection. *Journal of Personality Assessment, 53*, 133–144.

Hollon, S. D., & Kendall, P. C. (1980). Cognitive self-statements in depression: Development of an automatic thoughts questionnaire. *Cognitive Therapy and Research, 4*, 383–395.

Ingram, R. E., Kendall, P. C., Siegle, G., & Guarino, J. (1995). Psychometric properties of the Positive-Automatic Thoughts Questionnaire. *Psychological Assessment, 7*, 495–507.

Ingram, R. E., Trenary, L., Odom, M., Berry, L., & Nelson, T. (2007). Cognitive, affective, and social mechanisms in depression risk: Cognition, hostility, and coping style. *Cognition and Emotion, 21*, 78–94.

Ingram, R .E., & Wisnicki, K. S. (1988). Assessment of positive automatic cognition. *Journal of Consulting and Clinical Psychology, 56*, 698–902.

Jorgensen, R. S., Johnson, B. T., Kolodziej, M. E., & Schreer, G. E. (1996). Elevated blood pressure and personality: A meta-analytic review. *Psychological Bulletin, 120*, 293–320.

Martin, T. R., Flett, G. L., Hewitt, P. L., Krames, L., & Szanto, G. (1996). Personality correlates of depression and health symptoms: A test of a self-regulation model. *Journal of Research in Personality, 31*, 264–277.

Naveh-Benjamin, M., Craik, F. I. M., Gavrilescu, D., & Anderson, N. P. (2000). Asymmetry between encoding and retrieval processes: Evidence from divided attention and a calibration analysis. *Memory and Cognition, 28*, 956–976.

Naveh-Benjamin, M., Guez, J., & Marom, M. (2003). The effects of divided attention at encoding on item and associative memory. *Memory & Cognition, 31*, 1021–1035.

Journal : Small-ext 10942 | Dispatch : 25-9-2007 | Pages : 23
Article No. : 67 | LE | TYPESET
MS Code : 67 | CP | DISK

Naveh-Benjamin, M., Guez, J., & Sorek, S. (in press). The effects of divided attention on encoding processes in memory: Mapping the locus of the interference. *Canadian Journal of Experimental Psychology*.

Naveh-Benjamin, M., Craik, F. I. M., Guez, J., & Dori, H. (1998). Effects of divided attention on encoding and retrieval processes in human memory: Further support for an asymmetry. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 24*, 1091–1104.

Preusser, K., Rice, K., & Ashby, J. (1994). The role of self-esteem in mediating the perfectionism-depression connection. *Journal of College Student Development, 35*, 88–93.

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

Robins, R. W., & Trzesniewski, K. H. (2005). Self-esteem development across the lifespan. *Current Directions in Psychological Science, 14*, 158–162.

Scott, J. (2007). The effect of perfectionism and unconditional self-acceptance on depression. *Journal of Rational-Emotive and Cognitive-Behavior Therapy, 25*, 35–64.

Zeller, A., Handschin, D., Gyr, M. B., Martina, B., & Battegay, E. (2004). Blood pressure and heart rate of students undergoing a medical licensing examination. *Blood Pressure, 13*, 20–24.

Journal : **Small-ext 10942** Dispatch : **25-9-2007** Pages : **23**
Article No. : **67** □ LE □ TYPESET
MS Code : **67** ☑ CP ☑ DISK