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Perfectionism and Psychological Distress: Evidence of the Mediating Effects of Rumination[†]

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Abstract

Three studies investigated the role of ruminative tendencies in mediating the effects of multidimensional perfectionism (Hewitt & Flett, 1991) on psychological distress. Study 1 (Sample 1, N = 279; Sample 2, N = 224) and Study 2 (N = 205) found evidence, cross-sectionally and prospectively, that brooding ruminative response style either fully or partially mediated the effects of socially prescribed and self-oriented perfectionism on psychological distress, depression and hopelessness levels. In addition, Study 3 (N = 163) confirmed these mediation effects for socially prescribed perfectionism in relation to depression and hopelessness, 2 months later, after initial levels of distress were controlled. Overall, these findings provide evidence that brooding ruminative response style is an important mechanism that can explain, in part, the relationship between perfectionism and distress. Copyright © 2007 John Wiley & Sons, Ltd.

Key words: perfectionism; rumination; suicide; depression; hopelessness; brooding; reflection; private self-consciousness; stress; ruminative response style

INTRODUCTION

Over the last 25 years, perfectionism has been identified as an important dispositional variable in explaining individual differences in psychological distress (e.g. Blatt, 1995; Hewitt & Flett, 1991; Pacht, 1984; Shafran & Mansell, 2001), including depression (e.g. Chang & Sanna, 2001; Hewitt, Flett, & Ediger, 1996), hopelessness, (e.g. Hewitt, Flett, Callander, & Cowan, 1998; O'Connor & O'Connor, 2003), suicidal behaviour (e.g. Hewitt, Flett, & Turnbull-Donovan, 1992; Hunter & O'Connor, 2003) and general psychological adjustment (e.g. Chang & Rand, 2000). During this time, researchers have agreed that perfectionism is most usefully operationalised as a multidimensional construct (Hewitt & Flett, 1996; Frost, Marten, Lahart, & Rosenblate, 1990). As a result, two scales, both

entitled the Multidimensional Perfectionism Scale have been developed by Hewitt and Flett (1991) and Frost et al. (1990) respectively, to assess these dimensions[1]. Specifically, Hewitt and Flett (1996, 1991) developed a three dimensional measure which assesses: socially prescribed perfectionism, self-oriented perfectionism and other-oriented perfectionism. Socially prescribed perfectionism taps beliefs about the excessive expectations we perceive significant others have of us and self-oriented perfectionism centres on the standards we set for ourselves. Other-oriented perfectionism is the extent to which we possess high expectations and standards for other people's behaviour. Whereas, Frost and colleagues (1990) operationalised the perfectionism construct along one major dimension (concern over mistakes) and five smaller related dimensions (i.e., high standards, doubts about actions, organisation, high parental expectations and parental criticism).

Despite these alternative conceptualisations of perfectionism, converging evidence shows that the aforementioned dimensions are associated with various indices of psychological distress (Dunkley et al., 2000; Hewitt et al., 1992, 1996; O'Connor & O'Connor, 2003; O'Connor et al., 2004)[2]. This has led several authors to conceptualise perfectionism as a vulnerability factor within a diathesis-stress paradigm (e.g. Chang & Rand, 2000; Hewitt, Flett, & Ediger, 1996; O'Connor & O'Connor, 2003; O'Connor & Sheehy, 2001). However, less research has attempted to elucidate the potential *mechanisms* which mediate the destructive effects of perfectionism.

One promising line of enquiry, though, relates to the assessment of individual differences in automatic perfectionistic thoughts (see Flett, Hewitt, Blankstein, & Gray, 1998). Flett and colleagues (1998) reasoned that trait perfectionists are characterised by experiencing frequent cognitions about the perceived discrepancy between their actual self and ideal self. Furthermore, they examined whether individual differences in ruminative processes, characterised by frequency of perfectionistic thinking, were associated with psychological distress. Their results showed that frequency of perfectionistic thinking is an important feature of the perfectionism construct and, more importantly, that it accounts for unique variance over and above the trait assessments of perfectionism (Flett et al., 1998; Study 4). More recently, Flett, Madorsky, Hewitt, and Heisel (2002) found evidence that the frequency of perfectionistic thinking, rumination and socially prescribed perfectionism was significantly associated with Clark and Watson's (1991) measures of general depression, anxiety and anxious arousal. Self-oriented perfectionism was found only to be related to general depression, and other-oriented perfectionism was unrelated to any of the outcome measures. They also found that after controlling for levels of rumination (as measured by the Brief Response Styles Questionnaire), the relationship between trait perfectionism (socially prescribed and self-oriented perfectionism) and distress was rendered non-significant thereby pointing to a rumination-as-mediator relationship. Although the Flett et al. (2002) study employed partial correlational analyses, it did not test for mediation effects directly (cf., Baron and Kenny, 1986; Kenny, Kashy, & Bolger, 1998).

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[1]Please note: other multidimensional measures of perfectionism exist such as the Almost Perfect Scale; see Slaney et al. (2001) for further detail.

[2]We direct the reader to the recent debate about whether perfectionism is best operationalised as a unidimensional or multidimensional construct and the extent to which its role is adaptive or maladaptive (see Dunkley, Blankstein, Masheb, & Grilo, 2006; Hewitt, Flett, Besser, Sherry, & McGee, 2003; Miquelon, Vallerand, Grouzet, & Cardinal, 2005; Shafran, Cooper, & Fairburn, 2002). However, as these issues are not central to the current paper, they are not discussed at length here. Nonetheless, the implications of the current findings for this debate are considered in the General Discussion section.

Therefore, this underpinned the need to replicate and extend their finding by conducting formal mediational analyses.

The Flett et al. findings fit with the individual differences literature that has identified rumination as an important predictor of (i) an individual's tendency to become depressed and of (ii) the duration of a depressive episode (e.g. Lyubomirsky, Caldwell, & Nolen-Hoeksema, 1998; Nolen-Hoeksema, 1991; Nolen-Hoeksema & Morrow, 1993). Naturalistic studies have shown that people who tend to ruminate when distressed are more likely to experience protracted symptoms of depression compared to individuals who do not (e.g. Nolen-Hoeksema & Morrow, 1993). Indeed, experimental studies which induce rumination in individuals experiencing distress have also shown that rumination interferes with interpersonal problem-solving and it has adverse effects on mood (Lyubomirsky & Nolen-Hoeksema, 1995). In addition, Nolen-Hoeksema, Larson, and Grayson (1999) showed that gender differences in rumination appear to account for the well-established gender differences in depression. Therefore, a supplementary focus of this research is to examine whether the associations between trait perfectionism, ruminative response style and psychological distress are different in men and women.

However, despite this important work, researchers have recently suggested that the Ruminative Responses Scale, the self-report measure of rumination typically employed to measure ruminative coping, is contaminated with depression and distress-related items (e.g. Conway, Csank, Holm, & Blake, 2000). In order to address this issue, Treynor, Gonzalez, and Nolen-Hoeksema (2003) reconsidered the Ruminative Responses Scale by removing depression-related items and performed a secondary analysis of data from Nolen-Hoeksema, Larson, and Grayson (1999) in order to examine the exact nature of the relationship between this measure of rumination and depression. Using factor analytic techniques, these authors found that the revised, uncontaminated measure captured two aspects of rumination: reflection and brooding. More importantly, and central to the current paper, they identified the brooding component to be associated with greater levels of depression in cross-sectional and longitudinal analyses. Treynor et al. (2003) also suggest, in their reconsideration of the rumination construct, that the brooding component reflects 'a passive comparison of one's current situation with some unachieved standard' (p. 256). Therefore, given this new construct's emphasis on evaluating the perceived discrepancy between actual and ideal standards, it is likely that the brooding component is associated with trait perfectionism. Consequently, we have circumscribed our study to the investigation of the relationship between brooding ruminative response style and perfectionism.

Moreover, the recent work conducted by Flett et al. (2002) is important because, for the first time, it has identified the general tendency to use a ruminative response style as a potential mechanism that may transmit the destructive effects of trait perfectionism. However, before firm conclusions are drawn, two potential limitations of the Flett et al. (2002) study ought to be addressed. First, the sample was composed exclusively of (young) college students (mean age = 21.26 years) and, second, the sample size was comparatively small ($n = 65$) and it was comprised, for the most part, of females (including only 12 males). Consequently, one could question the generalisability of the findings as well as the robustness of the mediation effects. Therefore, to address these issues the first study in the current paper aimed to build upon and extend the work of Flett et al. (2002) by, (i) including a larger and more representative sample of men and women, (ii) recruiting college and non-college students (in order to provide a greater age range), (iii) examining the efficacy of an uncontaminated rumination measure by removing depression/

distress-related items from the analyses and (iv) investigating explicitly whether the relationship between trait perfectionism and psychological distress is *mediated* via brooding ruminative tendencies.

Another issue that requires further attention is whether rumination mediates *each* of the three dimensions of Hewitt and Flett's scale: Socially prescribed and self-oriented perfectionism have previously been found to correlate moderately with rumination (see Flett et al., 2002), whereas, no association has been found with other-oriented perfectionism. Therefore, an additional aim of this paper is to examine whether Hewitt and Flett's three dimensions of perfectionism each are significantly associated with the rumination measure (and psychological distress).

In sum, the present paper has two main aims: (a) to examine whether the maladaptive effects of trait perfectionism are mediated by the brooding ruminative response style, and (b) to test whether the predicted mediating effects of rumination are consistent across Hewitt and Flett's three dimensions of perfectionism. Three studies are reported. The first and second studies examine, cross-sectionally and prospectively, the relationship between trait perfectionism, rumination and psychological distress and depressive symptoms across three separate samples of men and women. The third study examines, prospectively, whether the tendency to ruminate can mediate the effects of trait perfectionism on levels of hopelessness and depressive symptoms, after initial levels of distress are controlled, 2 months later.

STUDY 1

Method

Participants and procedure
Two samples of participants (Sample 1, $N = 279$ [138 women and 137 men; 4 participants did not report gender], Sample 2, $N = 224$ [114 women, 110 men]) were recruited from college and non-college populations in the UK to complete a questionnaire about 'stress and health'. The college population was recruited from café bars and refectories on the campus at two British Universities (43% of Sample 1; 41% of Sample 2). The non-college population was recruited via emails to a number of organisations and from University technical, clerical and cleaning staff. The mean age of Sample 1 was 33.64 years (range 17–64 years). Men and women did not differ significantly in age, t (273) = 1.38, *ns*. The mean age of Sample 2 was 27.92 years (range 18–59 years). Men ($M = 26.05$ years, $SD = 8.32$) were significantly, t (222) = 3.00, $p < 0.01$, younger than the women ($M = 29.71$, $SD = 9.85$). We did not collect details of the racial-ethnic composition of our samples; however, the college students and non-college students in this locality are predominantly White, representing 91.8% and 95.5% of the population, respectively (Office for National Statistics, 2001). Prior to beginning the study, all participants were informed that participation was voluntary, confidential and that even if they agreed, they could withdraw at any stage without explanation. To control for transfer effects, the order of presentation of the measures was counterbalanced. Ethical approval had been obtained from the University Psychology Department's ethics committee.

In Sample 1, participants completed measures of trait perfectionism, rumination and psychological distress (the General Health Questionnaire). In Sample 2, participants

completed the same measures of perfectionism and rumination, and a measure of depressive symptoms, the Center for Epidemiologic Studies Depression scale (see below).

Measures
Trait perfectionism.   The Multidimensional Perfectionism Scale (MPS) is a 45-item measure of perfectionism, with 15 questions assessing each of the three dimensions of perfectionism (MPS; Hewitt & Flett, 1991, 1996). Self-oriented perfectionism (MPS-Self) is defined as a strong motivation to be perfect, all-or-nothing thinking and self-reported high achievement expectations (e.g. 'One of my goals is to be perfect in everything I do'). Socially prescribed perfectionism (MPS-Social) measures the degree of belief that others hold unrealistically high expectations of one's behaviour and that they would only be satisfied with these standards (e.g. 'The people around me expect me to succeed at everything I do'). Other-oriented perfectionism (MPS-Other) assesses the degree to which an individual sets unrealistic standards for others (e.g. 'If I ask someone to do something, I'd expect it to be done flawlessly'). Respondents are asked to rate each statement on a 7-point Likert-type scale ranging from 1 (disagree) to 7 (agree). The MPS has been shown to exhibit acceptable reliability and validity (Hewitt & Flett, 1991). Internal reliability for the MPS-Self, MPS-Social and MPS-Other scales in the present sample was good (Sample 1: Cronbach's $\alpha = 0.91$, 0.85, 0.78, respectively; Sample 2: Cronbach's $\alpha = 0.77$, 0.83, 0.75, respectively).

Rumination
Rumination was assessed using a 10-item version of the Ruminative Responses Scale developed by Nolen-Hoeksema (see Treynor et al., 2003 for more detail). This measure included the 5-items that form the brooding ruminative response style component (e.g. Think 'Why do I have problems other people don't have?') and 5-items that were identified by Treynor et al. as being depression-related items (e.g. 'Think about how sad you feel'). Therefore, the latter 5-items were removed to eliminate the conceptual overlap between brooding ruminative response style and the distress-related outcome measures. All items are rated on a Likert-type scale from 0 (almost never) to 3 (almost always). The internal reliability and discriminant validity of this brooding ruminative response style scale has been reported by Treynor et al. (2003). Internal reliability for the brooding response style scale in Sample 1 and 2 was good (Cronbach's $\alpha = 0.82$, 0.78; respectively).

Psychological distress (Sample 1)
Psychological distress was assessed using the 28-item General Health Questionnaire (GHQ; Goldberg & Williams, 1988). The GHQ has 4 subscales consisting of 7 items measuring somatic symptoms (e.g. 'been getting any pains in your head'), anxiety (e.g. 'been getting edgy and bad-tempered'), social dysfunction (e.g. 'been able to enjoy normal day-to-day activities') and depression (e.g. 'been thinking of yourself as a worthless person'). Each item is scored on a 4-point scale from 'not at all' extending to 'much more than usual'. Higher scores indicate greater psychological distress. Reliability and validity data are reported by Goldberg and Williams (1988) and O'Connor, Cobb, and O'Connor (2003). The GHQ has also been found to be reliable and valid across 15 centres around the world and significantly related to the Composite Internal Diagnostic Interview (Goldberg et al., 1997) and the Clinical Interview Schedule (Sarasola, Merino, & Majallou, 1992). Internal reliability for the scale with this sample ranged from $\alpha = 0.78$–0.90.

Depression (Sample 2)

Depression was measured using the 20-item Center for Epidemiologic Studies Depression (CES-D) scale (Radloff, 1977). Respondents are asked to rate each statement (e.g. 'I thought that my life had been a failure') on a four-point Likert-type scale ranging from 0 (Rarely, less than 1 day) to 3 (Most of the time, 5–7 days). The CES-D has been shown to exhibit good reliability and factorial and discriminant validity properties (see Breslau, 1985; Orme, Reis, & Herz, 1986). Internal reliability for the CES-D in this sample was good (Cronbach's $\alpha = 0.89$).

Statistical analysis

Descriptive statistics were calculated and Pearson's product-moment correlations were used to investigate the relationship between all study variables. Hierarchical linear regressions were used to test for mediation effects (Baron & Kenny, 1986; Kenny et al., 1998). Collinearity diagnostics and residuals checks were performed for all regression analyses. Given that the distribution of scores on the GHQ-depression scale was positively skewed, a logarithmic transformation was performed on these data to correct the distribution (Tabachnick & Fidell, 2001). The absolute scores are reported in Table 1 and the transformed scores are included in the correlational and hierarchical regression analyses.

Results

Sample 1

Descriptive statistics and zero-order bivariate correlations for all study variables are presented in Table 1 and separately for men and women in Table 2.[3] In the total sample, socially prescribed and self-oriented perfectionism were positively correlated with each of the study variables. Other-oriented perfectionism was significantly associated with socially prescribed and self-oriented perfectionism but it was not correlated with the brooding ruminative response style measure or any of the outcome measures. Brooding was positively correlated with all the study variables with the exception of other-oriented perfectionism. Inspection of Table 2 shows a very similar pattern of associations for men and women. In particular, it is worth noting that the magnitude of the coefficients between brooding and the outcome variables is substantively the same for men and women.

Testing mediation effects

Following the procedure outlined by Baron and Kenny (1986) and Kenny et al. (1998) to test for mediation, hierarchical regressions were performed for each dependent variable to examine mediation effects. According to Kenny et al. (1998), mediation is demonstrated when the following conditions are met: (1) the independent variable (i.e. trait perfectionism) affects the mediator (i.e. brooding ruminative response style); (2) the independent variable affects the dependent variable (i.e. psychological distress); (3) the mediator affects the dependent variable when the independent variable is controlled for and; (4) full mediation is confirmed when the association between the independent and

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[3]In all of the studies, the means for each of the measures were within the range for non-clinical samples reported elsewhere in the literature (e.g., Chang & Rand, 2000; Goldberg & Williams, 1998; Morrison & O'Connor, 2005).

Table 1. Zero-order correlation coefficients, means and standards deviations for main study variables for total sample (Study 1, Sample 1; $N = 279$)

	1	2	3	4	5	6	7	8
1. MPS-Social	—							
2. MPS-Self	0.54***	—						
3. MPS-Other	0.36***	0.50***	—					
4. Brooding	0.41***	0.21***	0.11	—				
5. GHQ-Som	0.21***	0.16**	0.01	0.37***	—			
6. GHQ-Anx	0.38***	0.21***	0.05	0.54***	0.53***	—		
7. GHQ-Dys	0.28***	0.12*	−0.02	0.37***	0.45***	0.45***	—	
8. GHQ-Dep	0.39***	0.15*	0.10	0.54***	0.31**	0.52***	0.34***	—
Mean	52.57	65.13	54.68	1.12	6.88	6.42	7.81	1.95
SD	13.49	16.81	12.12	0.62	4.78	4.48	2.59	3.47

Note: MPS-Social, socially prescribed perfectionism; MPS-Self, self-oriented perfectionism; MPS-Other, other-oriented perfectionism; GHQ-Som, somatic symptoms; GHQ-Anx, anxiety and insomnia; GHQ-Dys, social dysfunction; GHQ-Dep, depression.
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

dependent variable is reduced to non-significance after the effect of the mediator is controlled for. If only conditions 1–3 are met *partial* mediation is indicated. We also conducted a Sobel test to confirm mediation in each case (following Preacher & Leonardelli, 2001).

For all of the outcome measures, each dimension of perfectionism (e.g. socially prescribed perfectionism) was entered separately as a predictor variable into the regression equation at step 1, in order to test condition 2, followed by the brooding ruminative response style measure at step 2, to test conditions 3 and 4. The mediator was also

Table 2. Zero-order correlation coefficients, means and standards deviations for main study variables for males and females separately (Study 1, Sample 1; 138 women and 137 men)

	1	2	3	4	5	6	7	8
1. MPS-Social	—	0.55***	0.32***	0.39***	0.23**	0.40***	0.29**	0.42***
2. MPS-Self	0.52***	—	0.41***	0.16	0.23**	0.21*	0.21*	0.16
3. MPS-Other	0.41***	0.58***	—	0.08	0.08	0.13	0.08	0.07
4. Brooding	0.39***	0.24**	0.12	—	0.37***	0.58***	0.39***	0.56***
5. GHQ-som	0.20*	0.11	−0.04	0.38***	—	0.54***	0.45***	0.34***
6. GHQ-anx	0.36***	0.22*	−0.02	0.51***	0.52***	—	0.43***	0.57***
7. GHQ-dys	0.25***	0.03	−0.10	0.33***	0.46***	0.48***	—	0.36***
8. GHQ-dep	0.35***	0.14	0.12	0.53***	0.30***	0.46***	0.32***	—
Mean (females)	52.81	65.97	54.82	1.17	6.57	6.52	7.78	2.11
SD	14.11	15.17	11.62	0.58	4.27	4.52	2.53	3.45
Mean (males)	52.33	64.40	54.67	1.09	7.26	6.38	7.87	1.83
SD	12.75	16.63	12.53	0.65	5.26	4.47	2.67	3.55

Note: Male coefficients below the diagonal, female coefficients above the diagonal; MPS-Social, socially prescribed perfectionism; MPS-Self, self-oriented perfectionism; MPS-Other, other-oriented perfectionism; GHQ-Som, somatic symptoms; GHQ-Anx, anxiety and insomnia; GHQ-Dys, social dysfunction; GHQ-Dep, depression.
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

separately regressed onto the predictor variable, in order to test condition 1 and reported at the beginning each block of analyses (e.g. for socially prescribed perfectionism and then self-oriented perfectionism etc.). The results of the main regression analyses (testing conditions 2–4) for each of the GHQ subscales are presented in Table 3. Note that the mediation analysis reported below includes the entire sample. Consistent with the correlation coefficients conducted separately for males and females (see Table 2), the results of the hierarchical regression analyses were substantively the same for men and women. Therefore, for the sake of brevity, these results are not reported.

Socially prescribed perfectionism
Initial regression analysis showed that socially prescribed perfectionism significantly affected brooding indicating that condition 1 for mediation was met ($\beta = 0.41$ $p < 0.001$).

For GHQ-somatic symptoms, the hierarchical regression analysis showed that step 1 accounted for 4% of the variance, $F(1, 277) = 12.70$, $p < 0.001$, indicating that individuals higher on socially prescribed perfectionism ($\beta = 0.21$ $p < 0.001$), reported greater levels of somatic symptoms (see Table 3). When brooding entered the equation at step 2, it explained an additional 10% of the variance, $F(1, 276) = 30.49$, $p < 0.001$), and reduced the beta weight for socially prescribed perfectionism to non-significance ($\beta = 0.07$, *ns*), indicating mediation. A Sobel test confirmed full mediation ($Z = 4.58$, $p < 0.001$).

For GHQ-anxiety, socially prescribed perfectionism ($\beta = 0.38$, $p < 0.001$) predicted 14% of the variance, $F(1, 277) = 46.04$, $p < 0.001$. Brooding ($\beta = 0.46$, $p < 0.001$) entered the equation at step 2 and explained an additional 18% of the variance, $F(1, 276) = 71.48$, $p < 0.001$, and substantially reduced the beta weight for socially prescribed perfectionism ($\beta = 0.19$, $p < 0.001$), although, not to non-significance. Therefore, given that condition 4 was not met, partial mediation is indicated. A Sobel test confirmed partial mediation ($Z = 5.90$, $p < 0.001$).

For GHQ-dysfunction, at step 1, socially prescribed perfectionism ($\beta = 0.28$, $p < 0.001$) explained 8% of the variance in GHQ dysfunction scores, $F(1, 277) = 23.08$, $p < 0.001$, and this effect was partially mediated ($\beta = 0.15$, $p < 0.05$) when brooding ($\beta = 0.30$, $p < 0.001$) was entered at step 2, $F(1, 276) = 25.16$, $p < 0.001$. A Sobel test confirmed partial mediation ($Z = 4.31$, $p < 0.001$).

Finally for GHQ-depression, the regression analysis showed that at step 1, socially prescribed perfectionism ($\beta = 0.41$, $p < 0.001$) explained 17% of the variance, $F(1, 277) = 56.68$, $p < 0.001$. When brooding entered the model at step 2, it explained an additional 24% of the variance and partially mediated ($\beta = 0.20$, $p < 0.001$) the effects of socially prescribed perfectionism on GHQ-depression, $F(1, 276) = 110.66$, $p < 0.001$. A Sobel test confirmed partial mediation ($Z = 6.47$, $p < 0.001$).

Self-oriented perfectionism
Initial regression analysis showed that self-oriented perfectionism significantly affected brooding indicating that condition 1 for mediation was met ($\beta = 0.21$ $p < 0.001$).

For GHQ-somatic symptoms, the analysis showed that step 1 accounted for 3% of the variance, $F(1, 277) = 7.00$, $p < 0.01$, indicating that individuals higher on self-oriented perfectionism ($\beta = 0.16$ $p < 0.01$) reported greater levels of somatic symptoms (see Table 3). When brooding entered the equation at step 2, it explained an additional 12% of the variance, $F(1, 276) = 37.48$, $p < 0.001$), and reduced the beta weight for self-oriented perfectionism to non-significance ($\beta = 0.08$, *ns*), indicating mediation. A Sobel test confirmed full mediation ($Z = 2.83$, $p < 0.001$).

Table 3. Hierarchical regression analyses testing the mediating effects of brooding on the relationship between socially prescribed perfectionism (left panel), self-oriented perfectionism (right panel) and psychological distress (Study 1, Sample 1; $N = 279$)

Socially prescribed perfectionism

	Predictor	β (step 1)	β (step 2)	ΔR² for step[¶]	Total R²
			GHQ-Somatic		
Step 1	MPS-Social	0.21***	0.07	0.04***	
Step 2	Brooding		0.34***	0.10***	0.14
			GHQ-anxiety		
Step 1	MPS-Social	0.38***	0.19**	0.14***	
Step 2	Brooding		0.46***	0.18***	0.32
			GHQ-dysfunction		
Step 1	MPS-Social	0.28***	0.15*	0.08***	
Step 2	Brooding		0.30***	0.08***	0.16
			GHQ-depression		
Step 1	MPS-Social	0.41***	0.20***	0.17***	
Step 2	Brooding		0.53***	0.24***	0.41

Self-oriented perfectionism

	Predictor	β (step 1)	β (step 2)	ΔR² for step[¶]	Total R²
			GHQ-Somatic		
Step 1	MPS-Self	0.16**	0.08	0.03**	
Step 2	Brooding		0.35***	0.12***	0.15
			GHQ-anxiety		
Step 1	MPS-Self	0.21***	0.10*	0.05***	
Step 2	Brooding		0.52***	0.25***	0.30
			GHQ-dysfunction		
Step 1	MPS-Self	0.12*	0.05	0.01*	
Step 2	Brooding		0.36***	0.12***	0.13
			GHQ-depression		
Step 1	MPS-Self	0.19**	0.06	0.04**	
Step 2	Brooding		0.60***	0.34***	0.38

Note: MPS-Social, socially prescribed perfectionism; MPS-Self, self-oriented perfectionism.
[¶] = significance level for *F* change.
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

For GHQ-anxiety, self-oriented perfectionism ($\beta = 0.21$, $p < 0.001$) predicted 5% of the variance, $F(1, 277) = 12.83$, $p < 0.001$. Brooding ($\beta = 0.52$, $p < 0.001$) entered the equation at step 2 and explained an additional 25% of the variance, $F(1, 276) = 99.91$, $p < 0.001$, and substantially reduced the beta weight for self-oriented perfectionism ($\beta = 0.10$, $p < 0.05$), although, not to non-significance. Therefore, partial mediation is indicated. A Sobel test confirmed partial mediation ($Z = 3.05$, $p < 0.001$).

For GHQ-dysfunction, at step 1, self-oriented perfectionism ($\beta = 0.12$, $p < 0.05$) explained 1% of the variance in GHQ dysfunction scores, $F(1, 277) = 4.07$, $p < 0.05$, and this effect was fully mediated ($\beta = 0.05$, *ns*) when brooding ($\beta = 0.36$, $p < 0.001$) was entered at step 2, $F(1, 276) = 38.86$, $p < 0.001$. A Sobel test confirmed mediation ($Z = 2.84$, $p < 0.001$).

Finally for GHQ-depression, the regression analysis showed that at step 1, self-oriented perfectionism ($\beta = 0.19$, $p < 0.01$) explained 4% of the variance, $F(1, 277) = 10.11$, $p < 0.01$. When brooding entered the model at step 2, it explained an additional 34% of the variance and fully mediated ($\beta = 0.60$, $p < 0.001$) the effects of self-oriented perfectionism ($\beta = 0.06$, *ns*) on GHQ-depression, $F(1, 276) = 152.72$, $p < 0.001$. A Sobel test confirmed mediation ($Z = 3.10$, $p < 0.001$).

Other-oriented perfectionism
Other-oriented perfectionism was not found to be significantly associated with any of the GHQ outcome variables or the rumination measure (see Table 1). Therefore, no further tests of mediation were conducted.

Sample 2
Descriptive statistics and zero-order bivariate correlations for study variables are presented for the whole sample in Table 4 and separately for men and women in Table 5. Socially prescribed perfectionism was positively correlated with each of the study variables. Self-oriented perfectionism was significantly correlated with socially prescribed perfectionism, other-oriented perfectionism and brooding, but not with depression. Other-oriented perfectionism was also significantly associated with all study variables except depression. Brooding was found to be positively correlated with all study variables. Consistent with sample 1, Table 5 shows a very similar pattern of associations between the study variables for men and women separately, albeit the magnitude of the coefficients between brooding and the outcome variables was marginally larger in the female sample. When the mediation analysis was performed separately the results were again found to be very similar, therefore, only the findings for the entire sample are reported below.

Socially prescribed perfectionism
Initial regression analysis showed that socially prescribed perfectionism significantly affected brooding indicating that condition 1 for mediation was met ($\beta = 0.38$ $p < 0.001$).

The hierarchical regression analysis showed that at step 1, when socially prescribed perfectionism entered the equation ($\beta = 0.40$, $p < 0.001$), it significantly explained 16% of the variance in reported depressive symptoms (see Table 6). When brooding was entered at step 2, it explained an additional 17% of the variance ($\beta = 0.44$, $p < 0.001$) in the model, $F(1, 221) = 54.42$, $p < 0.001$, and substantially reduced the beta coefficient for socially prescribed perfectionism, although not to non-significance ($\beta = 0.23$ $p < 0.001$). There-

Table 4. Zero-order correlation coefficients, means and standards deviations for main study variables for total sample (Study 1, Sample 2; $N = 224$)

	1	2	3	4	5
1. MPS-Social	—				
2. MPS-Self	0.47***	—			
3. MPS-Other	0.44***	0.44***	—		
4. Brooding	0.38***	0.26***	0.22**		
5. CES-D	0.40***	0.07	0.06	0.53***	—
Mean	53.44	69.94	55.53	1.62	14.70
SD	11.66	14.91	11.73	0.88	10.71

Note: MPS-Social, socially prescribed perfectionism; MPS-Self, self-oriented perfectionism; MPS-Other, other-oriented perfectionism; CES-D, Centre for Epidemiologic Studies—Depression scale.
$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

fore, given that condition 4 was not met, partial mediation is indicated. A Sobel test confirmed partial mediation ($Z = 4.69$, $p < 0.001$).

Self-oriented and other-oriented perfectionism

Self-oriented and other-oriented perfectionism levels were not found to be significantly associated with depressive symptoms (see Table 3). Therefore, no further tests of mediation were conducted.

Discusssion

Following the procedures outlined by Kenny et al. (1998), this study, for the first time, found support for the notion that the maladaptive effects of trait perfectionism are, partially and in some cases, fully mediated by the brooding component of rumination. For socially prescribed perfectionism, four out of the five regression equations found evidence of partial mediation, and one found evidence of full mediation, on a range of psychological distress measures. For self-oriented perfectionism, two out of four regression equations found

Table 5. Zero-order correlation coefficients, means and standards deviations for main study variables for male and females separately (Study 1, Sample 2; 114 women and 110 men)

	1	2	3	4	5
1. MPS-Social	—	0.52***	0.51***	0.44***	0.48***
2. MPS-Self	0.41***	—	0.48***	0.28**	0.12
3. MPS-Other	0.33***	0.40***	—	0.31**	0.17
4. Brooding	0.31**	0.20*	0.12	—	0.59***
5. CES-D	0.25**	−0.07	−0.12	0.38***	—
Mean (female)	53.53	71.76	55.42	1.79	16.41
SD	13.13	14.65	11.75	0.91	11.90
Mean (male)	53.35	67.85	55.65	1.43	12.72
SD	9.76	15.01	11.75	0.79	8.78

Note: Male coefficients below diagonal, female coefficients above diagonal. MPS-Social, socially prescribed perfectionism; MPS-Self, self-oriented perfectionism; MPS-Other, other-oriented perfectionism; CES-D, Centre for Epidemiologic Studies—Depression scale.
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

Table 6.   Hierarchical Regression Analyses Testing the Mediating Effects of Brooding on the relationship between Trait Perfectionism and Depression and Hopelessness levels (Study 1, 2 and 3)

	Predictor	β (step 1)	β (step 2)	β (step 3)	ΔR^2 for step	Total R^2
		CES-Depression (Study 1, Sample 2)				
Step 1	MPS-Social	0.40***	0.23***		0.16***	
Step 2	Brooding		0.44***		0.17***	0.33
		SPS[¶] Hopelessness (Study 2)				
Step 1	MPS-Social	0.37***	0.19*		0.14***	
Step 2	Brooding		0.43***		0.16***	0.30
		SPS Suicidal Ideation (Study 2)				
Step 1	MPS-Social	0.39***	0.26**		0.15***	
Step 2	Brooding		0.31***		0.07***	0.22
		SPS[¶] Hopelessness (Study 2)				
Step 1	MPS-Self	0.26**	0.14		0.07**	
Step 2	Brooding		0.44***		0.18***	0.25
		SPS Suicide ideation (Study 2)				
Step 1	MPS-Self	0.27**	0.16		0.07**	
Step 2	Brooding		0.40***		0.15***	0.22
		CES-Depression - Time 2 (Study 3)				
Step 1	CES-D T1	0.63***	0.54***	0.43***	0.40***	
Step 2	MPS-Social		0.19*	0.14	0.03*	
Step 3	Brooding			0.21*	0.02*	0.45
		Beck Hopelessness - Time 2 (Study 3)				
Step 1	Hopelessness-T1	0.81***	0.77***	0.74***	0.66***	
Step 2	MPS-Social		0.11*	0.07	0.01*	
Step 3	Brooding			0.10[†]	0.01[†]	0.68

Note: MPS-Social, socially prescribed perfectionism; MPS-Self, self-oriented perfectionism; CES-D, Centre for Epidemiologic Studies—Depression scale.
[¶] = SPS, Suicide Probability Scale.
[†]$p < 0.10$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

evidence of full mediation, and two found evidence of partial mediation. In addition, Study 1 showed that socially prescribed perfectionism, generally explained over twice as much variance in the outcome measures and was more strongly and consistently associated with psychological distress, compared to self-oriented perfectionism. Moreover, other-oriented perfectionism was found to be unrelated to any of the psychological distress measures or the brooding ruminative response style. These latter findings are unsurprising and are similar to Flett et al. (2002) and O'Connor and O'Connor (2003) who have found consistently that socially prescribed perfectionism, when compared to self-oriented and other-oriented perfectionism has the strongest relationship with distress and rumination. Taken together, these results suggest that the social dimension of perfectionism is the most pernicious and its effects are, at the very least, partially mediated via the brooding ruminative response style.

Across two samples, the direct influence of socially prescribed perfectionism on *depressive* symptoms was substantially reduced, when the rumination measure entered the equation. It is also worth noting that, this effect did not generalise to the other dimensions of trait perfectionism, in particular other-oriented perfectionism. Despite being significantly associated with brooding, self-oriented perfectionism (in Sample 2) and other-oriented perfectionism (in Samples 1 and 2) were unrelated to depressive symptoms. Moreover, the identification of socially prescribed perfectionism as the most consistent predictor of psychological outcome, in the current samples, is in keeping with the growing

body of literature that indicates its importance in predicting vulnerability to clinical depression and suicide risk (e.g. Hewitt et al., 1994, 1998; Hunter & O'Connor, 2003; Shafran & Mansell, 2001). However, to the best of our knowledge, no research to date has investigated whether the well-established relationship between perfectionism and suicide risk (in addition to depressive symptoms) is also mediated via ruminative response style. Therefore, in order to extend these findings to the parasuicide and suicide research area, another study was deemed necessary in which the rumination-as-mediator hypothesis was tested in relation to hopelessness and suicide ideation–established correlates of suicidality (cf., MacLeod, Rose, & Williams, 1993; O'Connor & Sheehy, 2000).

A supplementary goal of this study was to examine whether the associations between trait perfectionism, ruminative response style and psychological distress were different in men and women. Our findings suggested that the association between perfectionism, rumination and psychological distress operate similarly in men and women across a range of outcome variables. Moreover, when the mediation analysis was conducted separately, the results were substantively the same indicating that brooding ruminative response style has the capacity to partially and at times fully mediate the effects of perfectionism in men and women. These findings contrast with previous research (e.g. Nolen-Hoeksema, Larson, & Grayson, 1999) and may reflect differences between healthy and clinical samples. For example, large differences in the associations between perfectionism, ruminative response style and psychological distress may only be observed in samples experiencing clinically significant levels of distress. Consequently, as the study of gender differences is not central to the current research its role is not further investigated here, however, future studies should examine the relationship between gender, perfectionism and ruminative response style in clinical populations.

It is also worth noting that the impact of perfectionism seemed to vary as a function of the measure of psychological adjustment assessed—socially prescribed and self-oriented perfectionism were found to be better predictors of anxiety and depression than somatic symptoms and social dysfunction. This is broadly consistent with the literature reviewed in the Introduction and indicates that the effects of trait perfectionism are more likely to play a role in psychological distress processes as opposed to somatic and social dysfunction processes. Therefore, the subsequent studies reported in this paper will focus on exploring the links between perfectionism and brooding and more conventional measures of psychological distress.

Two caveats relating to Study 1 require further attention. Both investigations, thus far presented, have employed cross-sectional designs and the study variables have been completed contemporaneously and as such, it is possible that transfer effects may have confounded the observed relationships. Therefore, in order to overcome these potential criticisms, a prospective study was conducted, wherein participants completed measures of trait perfectionism and brooding ruminative response style at Time 1 and then, 8 weeks later, their levels of hopelessness and suicidal ideation were measured.

STUDY 2

Method

Participants and procedure
Two hundred and eleven college students (155 women and 56 men) from a UK university were given a brief introduction of what the study would require and invited to take part in a

prospective study related to 'stress and health'. The college students were recruited from intact classes. At Time 1, all participants completed measures of trait perfectionism and brooding ruminative response style. At Time 2, 8 weeks later, 151 participants (109 females, 42 Males) completed measures of hopelessness and suicidal ideation. Participants were followed up 8 weeks later as it was felt that this was a sufficient time period to allow for a good range of variability in distress levels. The mean age of the sample was 24.05 years (range 17–54 years). Men ($M = 23.07$ years, $SD = 9.08$) and women ($M = 24.41$, $SD = 8.64$) did not differ significantly, $t (209) = 0.98$, *ns*. Those who did not complete the Time 2 measures did not differ significantly from those who did in terms of age, $t (209) = 1.50$, *ns*, and gender, $\chi^2 (1) = 0.75$, *ns*. We did not collect details of the racial-ethnic composition of our sample; however, the college students in this locality are predominantly White, representing 95% of the student population (Office for National Statistics, 2001). All those who were approached agreed to participate. To ensure anonymity, but to allow for the follow-up, participants were instructed to create a unique code to facilitate subsequent matching of questionnaires across the two time points. Ethical approval was obtained from the University Psychology Department's ethics committee. Men and women did not differ significantly on any of the study variables.

Measures
Perfectionism, and rumination.   Trait perfectionism and brooding ruminative response style were assessed using the same measures outlined in Study 1. All measures were internally consistent (Cronbach's α range $= 0.72$–0.91).

Hopelessness and suicidal ideation
Hopelessness and suicidal ideation were measured via the respective subscales of the Suicide Probability Scale (SPS; Cull & Gill, 1982). Both subscales have good test-retest reliability and good construct validity (Cull & Gill, 1982). Participants are asked to rate the frequency of their subjective experience on a 4-point Likert-type scale ranging from 'none or a little of the time' (1) to 'most or all of the time' (4). The hopelessness scale consists of 12 items (e.g. 'I look forward to the future with hope and enthusiasm') whereas the suicidal ideation subscale has 8 items (e.g. 'I feel so lonely I cannot stand it'). Both scales demonstrated good internal consistency in the present sample (Cronbach's $\alpha = 0.87$ and 0.89 for hopelessness and suicidal ideation, respectively).

Results

Descriptive statistics and zero-order bivariate correlations for study variables are presented in Table 7. Socially prescribed and self-oriented perfectionism were positively correlated with all the study variables. Other-oriented perfectionism was also significantly associated with all study variables except the brooding measure.

Testing mediation effects
To investigate whether rumination mediates the relationship between trait perfectionism and hopelessness and suicidal ideation, 8 weeks later, a series of hierarchical regressions were used as outlined in Study 1 (see Table 6). Again brooding was separately regressed onto each predictor variable as described earlier.

Table 7. Zero-order correlation coefficients, means and standards deviations for main study variables (Study 2; $N = 151$)

	1	2	3	4	5	6
1. MPS-Social	—					
2. MPS-Self	0.58***	—				
3. MPS-Other	0.47***	40***	—			
4. Brooding	0.40***	0.27***	0.08	—		
5. Hopelessness	0.36***	0.25**	0.16*	0.49***	—	
6. Suicidal Ideation	0.39***	0.28***	0.18*	0.41***	0.70***	—
Mean	53.28	62.59	54.95	1.33	19.04	9.43
SD	12.95	14.53	11.52	0.76	6.04	2.93

Note: MPS-Social, socially prescribed perfectionism; MPS-Self, self-oriented perfectionism; MPS-Other, other-oriented perfectionism.
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

Socially prescribed perfectionism

Initial regression analysis showed that socially prescribed perfectionism significantly affected brooding indicating that condition 1 for mediation was met ($\beta = 0.40, p < 0.001$).

For hopelessness, socially prescribed perfectionism ($\beta = 0.37, p < 0.001$) significantly predicted 14% of the variance, $F(1, 149) = 19.6, p < 0.001$. Brooding ruminative response style ($\beta = 0.43, p < 0.001$) entered the equation at step 2, $F(1, 148) = 25.32, p < 0.001$, and partially mediated the effects of socially prescribed perfectionism ($\beta = 0.19, p < 0.05$) explaining a further 16% of the variance (see Table 6). A Sobel test confirmed partial mediation ($Z = 3.53, p < 0.001$).

For suicidal ideation 8 weeks later, the results of this analysis showed that at step 1, socially prescribed perfectionism ($\beta = 0.39, p < 0.001$) significantly predicted 15% of the variance, $F(1, 149) = 21.83, p < 0.001$. When brooding was entered at step 2, it explained an additional 7% of the variance ($\beta = 0.31, p < 0.001$) in the model, $F(1, 148) = 18.15, p < 0.001$, and in turn, substantially reduced the beta weight for socially prescribed perfectionism, albeit not to non-significance ($\beta = 0.26, p < 01$) (see Table 6). A Sobel test confirmed partial mediation ($Z = 2.84, p < 0.01$).

Self-oriented and other-oriented perfectionism

The initial regression analysis showed that self-oriented perfectionism significantly affected brooding indicating that condition 1 for mediation was met ($\beta = 0.27 \, p < 0.001$).

For self-oriented perfectionism there was evidence of full mediation for hopelessness and suicidal ideation (see Table 6). Self-oriented perfectionism predicted 7% of hopelessness and suicidal ideation at time 2. However, the addition of brooding explained an additional 18% and 15% of hopelessness and suicidal ideation variance, respectively, reducing the perfectionism-distress beta to non-significance. Sobel Tests confirmed mediation ($Z = 2.94, p < 0.01, Z = 2.84, p < 0.01$, respectively). Other-oriented perfectionism was not associated with any of the outcome variables, therefore, no further analyses were carried out.

Discussion

The results of this second study have demonstrated additional support for the notion that ruminative tendencies partially mediate the effects of socially prescribed perfectionism in

relation to alternative measures of psychological distress (i.e. correlates of suicidality), in a prospective study. In addition, consistent with Study 1, the effects of self-oriented perfectionism were found to be fully mediated by the brooding ruminative response style. However, it is worth noting that the percentage of variance explained by self-oriented perfectionism was approximately half that of socially prescribed perfectionism. Nevertheless, these findings reduce the likelihood that contemporaneous measurement and transfer effects accounted for the relationships observed in Study 1. Together these findings are important because they extend our ruminator-as-mediator hypothesis to the broad area of understanding hopelessness and suicidality. However, an even more stringent test of the mediation hypothesis would be to determine whether we could predict *changes* in psychological distress levels over time. To do so, it would require a replication of Study 2's findings, after controlling for initial levels of distress. Therefore, in a final study, we made three changes to the existing design. We re-employed the CES-D depressive symptoms measure to replicate the findings from Study 1, as well as including an alternative, well validated and frequently utilised measure of hopelessness (i.e. Beck Hopelessness Scale; Beck, Weissman, Lester, & Trexler, 1974). Third, we measured hopelessness and depressive symptoms at two time points, 2 months apart, therefore allowing for the investigation of change in psychological distress.

STUDY 3

Method

Participants and procedure

One hundred and sixty-three college students (135 women and 28 men) from a UK university were given a brief introduction of what the study would require and invited to take part in a prospective study related to 'stress and health'. The college students were recruited from café bars and refectories on campus. At Time 1, 183 participants completed measures of trait perfectionism, brooding ruminative response style, initial levels of depressive symptoms and hopelessness. At Time 2, 8 weeks later, 148 (117 females, 23 Males) completed the same two measures of psychological distress. An 8-week follow-up was chosen again to provide a sufficient time period to allow for a good range of variability in distress levels. The mean age of the sample was 20.05 years (range 19–31 years). Men ($M = 20.14$ years, $SD = 1.58$) and women ($M = 20.03$, $SD = 1.39$) did not significantly differ, $t(161) = 0.38$, *ns*. Those who did not complete the Time 2 measures did not differ significantly from those on any of the main study variables, $F(5, 157) = 1.89$, *ns*, and completion status was not associated with gender, $\chi^2(1) = 0.65$, *ns*. We did not collect details of the racial-ethnic composition of our sample; however, the college students in this locality are predominantly White, representing 95% of the student population (Office for National Statistics, 2001). Prior to beginning the study, all participants were informed that participation was voluntary, confidential and that even if they agreed, they could withdraw at any stage without explanation. To control for transfer effects, the order of presentation of the measures was counterbalanced at both time points. To ensure anonymity, but to allow for the follow-up, participants were instructed to create a unique code to facilitate subsequent matching of questionnaires across the two time points. Ethical approval was obtained from the University Psychology Department's ethics committee. Men and women did not differ significantly on any of the study variables.

Measures

Perfectionism, brooding and depression. Trait perfectionism, brooding and depression were assessed using the Multidimensional Perfectionism Scale (Hewitt & Flett, 1991, 1996), the Brooding subscale based upon the work of Treynor et al. (2003) and the Center for Epidemiologic Studies Depression (CES-D) scale (Radloff, 1977), respectively. Details of these measures are outlined in Studies 1 and 2. Internal reliability for the MPS-Self, MPS-Social, MPS-Other, brooding and depression scales in the present sample was good (Cronbach's $\alpha = 0.72$, 0.77, 0.78, 0.83 and 0.88 respectively).

Hopelessness

Hopelessness was measured using the 20-item Beck Hopelessness Scale (BHS; Beck, Weissman, Lester, & Trexler, 1974). Respondents are asked to indicate either agreement or disagreement with statements that assess pessimism for the future. Higher scores represent elevated hopelessness. This is a reliable and valid measure that has been shown to predict suicide risk (e.g. Beck et al., 1974; Holden & Fekken, 1988). The scale range is 0–20. In the present study, internal consistency was good (Kuder-Richardson $20 = 0.86$).

Results

Descriptive statistics and zero-order bivariate correlations for study variables are presented in Table 8. All of the variables were significantly intercorrelated with four exceptions: Other-oriented perfectionism was not correlated with brooding, CES-D or hopelessness at time 2. Self-oriented perfectionism was not significantly associated with hopelessness at time 2.

Testing mediation effects

To investigate whether the brooding ruminative response style mediates the relationship between trait perfectionism and change in hopelessness and depressive symptoms, 8 weeks later, a series of hierarchical regressions were used as outlined in Study 1, with one exception (see Table 6). To investigate the change in hopelessness and depressive symptoms, initial levels of these variables were entered in the first step of the regression. Similar to studies 1 and 2, brooding was separately regressed onto each predictor variable in order to test condition 1 for mediation.

Socially prescribed perfectionism

The initial regression analysis showed that socially prescribed perfectionism significantly affected brooding indicating that condition 1 for mediation was met ($\beta = 0.49$ $p < 0.001$).

The results of the hierarchical regression analysis showed that, unsurprisingly, depressive symptoms at time 1 significantly predicted 40% of the time 2 depression variance, $F(1,138) = 90.58$, $p < 0.001$. When socially prescribed perfectionism was entered at step 2, it significantly explained an additional 3% of the variance in the model, $F(1,137) = 6.30$, $p < 0.05$. In step 3, the addition of the brooding measure reduced the beta weight for socially prescribed perfectionism ($\beta = 0.14$, *ns*) to non-significance (consistent with full mediation) (see Table 6). A Sobel test confirmed full mediation ($Z = 2.25$, $p < 0.05$).

For hopelessness, initial levels significantly predicted 66% of the time 2 hopelessness variance, $F(1,138) = 271.17$, $p < 0.001$. When socially prescribed perfectionism was entered at step 2, it significantly explained an additional 1% of the variance in the model,

Table 8. Zero-order correlation coefficients, means and standards deviations for main study variables (Study 3; $N = 140$)

	1	2	3	4	5	6	7	8
1. MPS-Social	—							
2. MPS-Self	0.41***	—						
3. MPS-Other	0.23**	0.31***	—					
4. Brooding	0.49***	0.26**	0.03	—				
5. CES-D (T1)	0.47***	0.17*	−0.11	0.66***	—			
6. Hopelessness (T1)	0.35***	0.06	−0.07	0.48***	0.59***	—		
7. CES-D (T2)	0.38***	0.14	−0.04	0.50***	0.55***	0.81***	—	
8. Hopelessness (T2)	0.44***	0.21*	0.02	0.56***	0.63***	0.45***	0.56***	—
Mean	52.94	66.71	52.67	1.37	19.44	4.22	19.22	4.38
SD	11.44	13.43	9.19	0.61	9.89	4.00	9.18	4.07

Note: MPS-Social, socially prescribed perfectionism; MPS-Self, self-oriented perfectionism; MPS-Other, other-oriented perfectionism; CES-D, Center for Epidemiologic Studies Depression Scale; T1 = Time 1, T2—Time 2. *p < 0.05; **p < 0.01; ***p < 0.001.

$F(1,137) = 4.77$, $p < 0.05$. In step 3, the addition of brooding reduced the beta weight for socially prescribed perfectionism ($\beta = 0.07$, *ns*) to non-significance (consistent with full mediation), although, this step was only marginally significant ($p = 0.08$). (see Table 5). A Sobel test confirmed that this mediating effect missed conventional significance ($Z = 1.69$, $p < 0.10$).

Self-oriented and other-oriented perfectionism
Neither self-oriented nor other-oriented perfectionism significantly predicted depressive symptoms or hopelessness at Time 2 when Time 1 depressive symptoms and hopelessness were controlled, therefore, no further mediation analyses were conducted.

Discussion

The results of this final study provided further support for the notion that the brooding ruminative response tendency has the capacity to mediate the effects of socially prescribed perfectionism in relation to naturally occurring changes in depressive symptomatology. For hopelessness, the introduction of brooding also mediated the influence of socially prescribed perfectionism, although, this effect missed conventional statistical significance. This study also found that, after controlling for initial levels of distress, self-oriented and other-oriented perfectionism did not significantly predict variance in either outcome measure. The latter findings are consistent with Chang & Rand (2000) and O'Connor and O'Connor (2003), who in two samples of college students, failed to find significant associations between self-oriented and other-oriented perfectionism and several measures of psychological distress and hopelessness. In contrast, Hewitt and Flett (1993) found that socially prescribed *and* self-oriented perfectionism were significantly associated with depression in two clinical samples. Although, in this study and later work (e.g. Hewitt et al., 1996), it is becoming increasingly clear that the relationship between perfectionism and distress (in particular depression) is not straightforward and that the dimensions of perfectionism seem to interact with different stressors to differentially predict psychological vulnerability. This issue is discussed further in the General Discussion.

More importantly, however, the results of the current studies consistently indicate that the effects of the social dimension of Hewitt and Flett's conceptualisation of perfectionism may not always be *directly* associated with depressive symptomatology and hopelessness. Instead, they suggest that a brooding ruminative response style may, fully or in part, explain the relationship between trait perfectionism and psychological distress. In other words, psychopathology, in this context, may not always be directly related to the dispositional tendency to perceive that other people are unrealistic in their expectations for the self *per se*, but that, the subsequent brooding ruminative response to negative events –which may be driven by perfectionistic tendencies–may lead to the experience of protracted symptoms of depression and hopelessness. The theoretical issues raised by these findings are discussed in the final section.

GENERAL DISCUSSION

The results described herein make a substantial theoretical contribution to our understanding of trait perfectionism. When considered alongside Flett et al.'s work on perfectionistic cognitions, our findings indicate that brooding ruminative response style may represent a separate 'automatic thinking' pathway linked to trait perfectionism. Flett et al. (1998) identified automatic perfectionistic thinking (as measured by the Perfectionistic Cognitions Inventory; PCI) as an important component of perfectionism that significantly explained unique variance in psychological distress. Moreover, in a recent cross-sectional study, these researchers found that trait perfectionism was no longer significantly correlated with psychological distress after rumination was controlled for, whereas, perfectionistic cognitions remained significantly associated with distress (Flett et al., 2002).

The current findings, taken together with Flett and colleagues' work, suggest that brooding ruminative response style is a pre-eminent mechanism which transmits the effects of trait perfectionism and it should be distinguished from automatic perfectionistic thinking. Moreover, these findings indicate that trait perfectionists are characterized by the tendency to experience frequent and repetitive thoughts about their behaviour, shortcomings and problems which are not necessarily restricted to self-relevant cognitions about the need to be perfect. In other words, our findings show that trait perfectionism contributes to a more general brooding ruminative response, which in part, explains the relationship between perfectionism and distress. The existence of such a close relationship between trait perfectionism and ruminative processes is in itself not problematic for previous perfectionism research. Instead it points to the need for future investigations of the relationship between perfectionism and psychological distress to include a measure of brooding ruminative response style. More generally, if psychological processes that link maladaptive personality traits to psychological distress are to be fully understood, our data suggest the need to not only assess the deposition at trait level, but also to examine general cognitive components that may transmit the deleterious aspects of the trait in question.

We also found that socially prescribed perfectionism was most strongly associated with brooding, whereas, Flett et al. (1998) found that self-oriented perfectionism was most closely aligned with perfectionistic thinking. This is important as it increases our understanding of the perfectionism-brooding relationship and suggests that one is able to distinguish between perfectionists who are more likely to engage in excessive rumination

from those who are not based upon differences in their perfectionistic focus (i.e. social vs. self). One interpretation of this finding is that individuals who worry about excessive expectations they perceive others hold for them are driven to ruminate because of a lack of control. This is in keeping with work conducted by Nolen-Hoeksema et al. (1999) who have argued that high ruminators are concerned with being able to control their environment, and as such, rumination may reflect attempts to gain control over disturbing circumstances in their life. Therefore, given that beliefs about excessive expectations from significant others are unlikely to be perceived as being under the social perfectionist's control, it follows that socially prescribed perfectionists are likely to be motivated to engage in frequent rumination in order to make an effort to gain control over their environment. It is also worth noting that rumination is distinct from other forms of coping, for example Garnefski and Kraaij (2006) found that rumination was distinct from catastrophising, self-blame and other-blame.

Our results have also shown that self-oriented perfectionism is significantly, but less strongly associated with brooding and it exhibited fewer consistent effects on psychological distress across our four different samples compared with socially prescribed perfectionism. The former may reflect in part the generic nature of the rumination measure and that the cognitive component linked to self-oriented perfectionism is primarily focused on self-relevant cognitions about the need to be perfect (as measured by the PCI) and not about interpersonal cognitions (cf., Flett et al., 1998). The latter may reflect a measurement issue—we did not assess stress levels in our studies. Diathesis-stress theorists would correctly posit that the role of self-oriented perfectionism in explaining psychological distress may only become pre-eminent in the presence of high stress (cf., Hewitt et al., 1996; Chang & Rand, 2000). Consequently, any conclusions about the function of self-oriented perfectionism ought to be tempered until additional investigations are conducted under conditions of high and low stress.

These findings also contribute directly to the recent debate relating to whether perfectionism is best operationalised as a unidimensional or multidimensional construct and whether its role is exclusively adaptive or maladaptive (cf., Dunkley et al., 2006; Hewitt et al., 2003; Miquelon et al., 2005; Shafran et al., 2002). Shafran and colleagues (2002) have argued for a return to a unidimensional approach to the study of perfectionism, whereas, Hewitt, Flett and colleagues (2003) robustly reject these assertions and maintain that a multidimensional approach is still warranted (see also Dunkley et al., 2006). At the heart of the matter is Shafran and colleagues' suggestion that perfectionism is best characterised from a self-focused perspective and that interpersonal dimensions should only be regarded as correlates of perfectionism and not central to 'clinical perfectionism'. However, Hewitt and others disagree, citing classic theorists who claim that there is an abundance of historical, clinical and empirical evidence to support a multidimensional conceptualisation of perfectionism comprised of interpersonal as well as self-imposed dimensions (Hewitt et al., 2003). In the context of the current conceptual debate, therefore, across four separate samples, we found that the interpersonal dimension—socially prescribed perfectionism—had the largest effect (partially and fully mediated via brooding ruminative response style) on several outcome variables (see also O'Connor, 2006). In addition, the observation that self-oriented perfectionism is more closely associated with perfectionistic thinking and that socially prescribed perfectionism is more strongly aligned with brooding indicates the existence of dimension specific mediators of the trait perfectionism—psychological distress relationship. Therefore, taken together, we believe that these results support the multidimensional conceptualisation of perfectionism, which

highlights the importance of concern over acceptance and perceptions of excessive expectations by others, as well as the standards we set for ourselves.

Our results are also important because they are not consistent with recent theorising about the existence of a dual-process model of perfectionism (Miquelon et al., 2005; Slade & Owens, 1998; see also Flett & Hewitt, 2006). For example, Miquelon and colleagues (2005) espouse a dual-process model to account for the different relationships between self-oriented/socially prescribed perfectionism and distress: They have suggested that self-oriented perfectionism is adaptive because it is associated with self-determined forms of motivation, which are related, in turn, to positive psychological adjustment. They have also argued that socially prescribed perfectionism is maladaptive because it is associated with non-self-determined forms of motivation, which are predictive of negative psychological adjustment. Whereas, across all three studies reported herein, we found self-oriented perfectionism *and* socially prescribed perfectionism to be both *positively* associated with brooding. We acknowledge, however, that the magnitude of the self-oriented perfectionism-brooding correlation coefficients were reliably smaller than those for socially prescribed perfectionism. Nonetheless, the present research indicates that self-oriented perfectionism, in the current context, is not adaptive, contrary to Miquelon and colleagues' findings. Notwithstanding our findings, it is important to note that there is evidence to suggest that the adaptive/maladaptive effects of self-oriented perfectionism change as a function of specific moderators (e.g. type of stress; Hewitt et al., 1996; coping, conscientiousness; O'Connor & O'Connor, 2003, 2004). Consequently, a fuller investigation of the dual-process model is required before firm conclusions can be proffered.

The results also add to the wider rumination–depression/distress literature because they demonstrate that the Ruminative Responses Scale's 'depression/distress uncontaminated' measure of brooding is internally consistent and it has the capacity to predict psychological distress, thereby supporting the previous work by Nolen-Hoeksema and colleagues. This is particularly noteworthy as it supports the research of Treynor and colleagues and highlights the importance of the brooding component within their revised two-factor model of rumination. These findings also indicate that brooding is maladaptive within this context. However, it would be interesting to investigate whether the impact of the second factor, reflection is adaptive as suggested. Furthermore, the brooding and reflection distinction suggested by Treynor et al mirrors, to a large extent, the rumination-reflection distinction identified by Trapnell and Campbell (1999) for private self-consciousness. These authors argue that the private self-consciousness trait consists of two dimensions (rumination and reflection) that are differentially related to psychological adjustment and self-regulation. Their rumination dimension (similar to brooding) has been found to be associated with psychological distress (e.g., depression, anxiety), whereas, their reflection dimension has been found to be associated with intellectual traits (e.g. need for cognition, need for self-knowledge).

As well as the valuable theoretical implications already outlined, the current work has clear practical implications. Our results suggest that the treatment of individuals high on trait perfectionism should target both their tendency to engage in excessive brooding about negative events as well as their tendency to experience a high frequency of perfectionistic thoughts. Cognitive behavioural interventions should, therefore, adopt a dual-pronged approach: striving to reduce (i) persistent thoughts about negative emotions/events and (ii) thoughts linked to the attainment or failure to obtain high standards.

Finally, we acknowledge a limitation of the studies presented in this paper. We recognise that none of the studies described employed a truly longitudinal design. Using Cole and Maxwell's (2003) nomenclature, Study 3 is best described as a 'half-longitudinal' design in that the predictor (trait perfectionism) and the mediator (brooding) were assessed only at time 1. A 'true' longitudinal design requires multiple waves of data collection in which all study variables are assessed at each time point (see Cole & Maxwell, 2003). Notwithstanding this criticism but, arguably of more importance when testing for mediation, in Study 3, we measured prior levels of psychological distress which meant that we were able to control for a possible 'third variable' confound, thus reducing the likelihood of yielding spuriously inflated estimates of perfectionism-rumination-distress relations. Nonetheless, future research ought to build upon and extend the current findings by employing at least three waves of data collection (see Cole and Maxwell for further detail).

To conclude, the results outlined in this paper have provided strong evidence in support of our central hypothesis that the maladaptive effects of trait perfectionism on measures of psychological distress are partially mediated and in some cases, fully mediated via brooding ruminative response style. Specifically, this effect was found to hold consistently for socially prescribed perfectionism but not for self-oriented perfectionism (and not at all for other-oriented perfectionism). These findings warrant replication in clinical and sub-clinical populations.

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