

# Predicting short-term outcome in well-being following suicidal behaviour: The conjoint effects of social perfectionism and positive future thinking

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Received 22 March 2006; received in revised form 9 November 2006; accepted 21 November 2006

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## Abstract

This study investigated an integrative, psychological model of suicidality involving the relationship between perfectionism and future thinking to predict short-term outcome in well-being following a suicidal episode. Two hundred and sixty-seven adults hospitalized following a self-harm episode completed a range of clinical and psychological measures in hospital and were followed up approximately two months after discharge. Hierarchical regression analyses confirmed that, among the suicidal self-harmers who had a history of repetitive self-harm ( $n = 65$ ), outcome among low social perfectionists changed as a function of positive future thinking such that outcome was better for those high on positive thoughts compared with those low on positive future thoughts. There was no such positive change in outcome among the high social perfectionists. There were also no significant interactive effects evident among the non-repetitive self-harmers ( $n = 61$ ). These findings extend recent research to suggest that socially prescribed perfectionism and positive future thinking (but not negative future thinking) are implicated in outcome following repetitive suicidality. Implications for theory and clinical practice are discussed.

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*Keywords:* Suicidal; Perfectionism; Future thinking; Entrapment; Cry of pain

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## Introduction

Suicide rates have risen in many Western countries in recent decades (Cantor, 2000). Indeed, public concern with the changing scale of the problem is reflected in the publication in the USA and UK of national suicide prevention strategies and targets. Although the reduction of suicide is the ultimate objective, much attention has been focused on suicide attempt history as it is the best predictor of subsequent completed suicide (Maris, 1991).

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*Perfectionism, future thinking and suicidal behaviour*

There has been increased recognition that we need to move beyond the classic psychiatric diagnostic categories if we are to further understand the aetiology of suicidal behaviour (van Heeringen, 2001). As a result, there is a growing body of knowledge to support diathesis-stress models of psychological distress and, more recently, of suicidality (Baumeister, 1990; Chang & Sanna, 2001; O'Connor, O'Connor, & Marshall, 2006). In effect, these models posit that dispositional psychological vulnerabilities, when activated by stress, render an individual at risk of suicidality. To this end, one such vulnerability trait, perfectionism, has been shown to be associated with psychological distress in clinical and non-clinical populations (e.g., Blatt, 1995; Chang & Sanna, 2001; Hewitt & Flett, 1991; O'Connor & O'Connor, 2003).

Over the years, a number of scales have been developed to measure perfectionism. However, since the 1990s, Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (MPS) has probably been the most widely used and is employed in the present study. Their scale consists of three dimensions: socially prescribed perfectionism, self-oriented perfectionism and other-oriented perfectionism. Socially prescribed perfectionism (or social perfectionism) taps beliefs about the excessive expectations we perceive significant others have of us; self-oriented perfectionism focuses 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. Taking an overview of this literature, it is reasonable to conclude that social perfectionism is the most robust correlate of psychological distress as there are inconsistent findings involving the other two dimensions (Flett & Hewitt, 2002; O'Connor, 2006; Shafran & Mansell, 2001). However, there is a current debate about (i) the merits or otherwise of employing multidimensional measures of perfectionism which incorporate interpersonal domains and (ii) whether the interpersonal dimensions are associated with but are not integral elements of perfectionism (Dunkley, Blankstein, Masheb, & Grilo, 2006; Hewitt, Flett, Besser, Sherry, & McGee, 2003; Shafran, Cooper, & Fairburn, 2002, 2003).

Although a detailed critique of the current debate is beyond the scope of this paper, it is worth noting Dunkley and colleagues' (Dunkley et al., 2006) response to Shafran, Hewitt and colleagues. They put forward an alternative conceptualization of perfectionism, characterized by two higher order (latent) dimensions of perfectionism: personal standards (PS), and evaluative concerns (EC) perfectionism. PS perfectionism involves the setting of high standards and goals for oneself whereas EC perfectionism "involves overly critical evaluations of one's own behavior, an inability to derive satisfaction from successful performance, and chronic concerns about others' criticism and expectations" (EC includes socially prescribed perfectionism). We propose to investigate the extent to which our findings fit with this conceptualization of perfectionism.

There are also a number of pragmatic and empirical issues which warrant comment. First, many of the perfectionism studies have been cross-sectional (see Shafran & Mansell, 2001, for a review); second, few have focused on behavioural outcomes of psychological distress, for example suicidal behaviour (e.g., Hewitt, Norton, Flett, Callander, & Cowan, 1998; Hunter & O'Connor, 2003) and third, fewer still have attempted to predict psychological outcome following suicidal behaviour specifically (Enns, Cox, & Inayatulla, 2003). Indeed, to our knowledge (O'Connor, 2006), no studies have investigated outcome following an act of self-harm in adults (i.e., in an acute sample of suicidal adults). Fourth, almost no studies have investigated the extent to which state-like cognitions interact with perfectionism to exacerbate or buffer against distress (O'Connor & Forgan, 2006). This is surprising as recent research suggests that positive cognitions about the future are implicated in hopelessness and suicidality (MacLeod, Pankhania, Lee, & Mitchell, 1997; O'Connor & Cassidy, 2006). Specifically, MacLeod and colleagues found that parasuicide patients, when compared with healthy controls, reported fewer positive thoughts for the future but did not differ in terms of the number of negative thoughts that they were worried about (MacLeod et al., 1997). What is more, consistent with existing models of suicidality (e.g., O'Connor, 2003; Williams, 2001), in healthy populations, positive future cognitions moderate the social perfectionism–hopelessness relationship such that those with low positive thinking and high social perfectionism exhibit elevated hopelessness (O'Connor, O'Connor, O'Connor, Smallwood, & Miles, 2004).

Although we have independently replicated MacLeod's findings (Hunter & O'Connor, 2003; O'Connor et al., 2004), none of the studies to date have considered suicidal intent or whether the effect holds across self-harm patients with and without self-harm history. The present study, therefore, represents the first

prospective study to investigate the future thinking–perfectionism effect in a sample of parasuicide patients who reported *suicidal intent* and have different *self-harm histories*.

### *Theoretical context: escape, entrapment and the cry of pain model*

The conceptualization of suicidal behaviour as driven by need for social (or self) approval coupled with an inability to think positively about the future is consistent with two psychological models of suicidal behaviour. The first, Baumeister's (1990) escape from self- model posits that failure to attain (either self or) socially imposed unrealistic standards stimulates a chainlike process including self-blame, negative self-awareness, negative affect and a desire to escape painful self-awareness which renders suicide likely. In the second model (the cry of pain model), Williams proposes that suicidal behaviour is reactive, a response to a stressful situation that has three components: defeat, no escape and no rescue (Williams 2001, Williams, Barnhofer, Crane, & Beck, 2005; Williams, Crane, Barnhofer, & Duggan, 2005)—it is a form of entrapment.

Beyond the empirical rationale presented above, the theoretical rationale for studying socially prescribed perfectionism and positive future thinking independently as well as hypothesizing an interaction is derived from both escape theory and the cry of pain model, as follows. First, according to escape theory, suicide risk is increased if an individual perceives a shortfall between their present and past levels of quality (of life) or when they experience “private feelings that one cannot live up to what others expect” (Baumeister, 1990, p. 92).

Second, the central tenet of the cry of pain model is that suicide risk increases as a function of three judgments made about a stressful situation: (i) that the stressful situation causes feelings of defeat, rejection and loss, (ii) that the situation is inescapable and (iii) that there are no opportunities for rescue. Crucially, the cry of pain model posits that these three judgments are affected by information processing deficits/biases (e.g., positive future thinking) and individual differences factors (e.g., perfectionism). Thus, perfectionism and positive future thinking, as determinants-in-part of the cry of pain judgments, are implicated in suicide risk. Specifically, we posit that higher levels of perfectionism increase one's sensitivity to environmental cues that signal defeat, rejection and loss and low levels of positive future thinking (akin to reasons for living) project entrapment into the future. In other words, when one looks to the future, as a consequence of the impaired positive future thinking, such individuals can see no end to the entrapment and hopelessness ensues, with suicide rendered more likely.

Third, in respect of the moderating hypothesis, the cry of pain model is explicit; it states that the presence of rescue factors (e.g., positive future thinking) should moderate or attenuate the deleterious effect of inescapability on one's wish to die—indeed, this moderating pathway has been supported by data from a clinical case-control study (O'Connor, 2003). Therefore, given that perfectionism impacts upon one's defeat and entrapment judgments, in the present study, we predicted that positive future thinking (a rescue factor) would attenuate the social perfectionism–suicide risk relationship.

### *The present study*

In short, for the present study, we recruited patients from a general hospital following a self-harm episode and measured their psychological well-being in hospital and again two months later. Indeed, few studies in suicidology have assessed the *short-term* course of post-suicide attempt psychological symptoms (Jallade, Sarfati, & Hardy-Bayle, 2005). We aimed to determine whether positive future thinking moderated the perfectionism–psychological distress relationship. As we were interested in well-being at time 2, we paid particular attention to the protective effects of positive future thinking. Furthermore, given that suicidal intent rather than the seriousness of a self-harm episode is often a better predictor of repetitive suicide attempts and completed suicide, we focused on those self-harmers who reported suicidal intent (Hawton, 2000; Skegg, 2005). Consequently, we hypothesized that (i) those suicidal participants who reported *high* levels of positive future thinking and *low* levels of social perfectionism at baseline would report best outcome in hopelessness and suicidal ideation at time 2 and (ii) negative future thinking would not predict time 2 distress.

In addition, (iii) we sought to determine whether an established pattern of self-harm presentations (i.e., repetitive versus not repetitive self-harm history) influenced the future thinking–perfectionism interaction, tentatively hypothesizing that the interaction would be stronger among repetitive self-harmers. Such analyses

are timely, given the repeated calls for researchers to look at suicidal subgroups (like repeaters and non-repeaters) in acknowledgement of the heterogeneity of the suicidal population (see Leenaars, DeLeo, & Diekstra, 1997). Our rationale for expecting differences between the two groups (repetitive and non-repetitive self-harmers) was informed by the following research (e.g., MacLeod et al., 2004; Malone et al., 2000; O'Connor, Armitage, & Gray, 2006; van Heeringen, 2001; Young et al., 1999) has shown that repetitive self-harmers are more vulnerable to psychological disturbance than non-repetitive self-harmers and as result, we hypothesized that the two suicide risk factors (i.e., future thinking and social perfectionism) should have a stronger effect on the well-being of the repeaters versus non-repeaters. We made no specific predictions about the other dimensions of perfectionism.

## Method

### *Participants and procedure*

We recruited patients from a general hospital following an episode of self-harm and measured their psychological well-being then and again two months later. Two hundred and sixty-seven adults (16 years of age and older) who were seen by the Liaison Psychiatry service the morning after presenting at the Royal Infirmary of Edinburgh (at the Accident and Emergency department and Combined Assessment Unit Toxicology ward) following acute self-poisoning (90%), physical self-injury (7%) or both (3%) were recruited to the study. The majority of patients were recruited from the Combined Assessment Unit (89%). Exclusions were limited to participants who were unfit for interview, unable to give informed consent or unable to understand English. This did not represent a consecutive sample; rather it reflects the practical limitations of recruiting via a general hospital. Ten percent of participants who were approached declined to take part. There were 149 females and 118 males with an overall mean age of 35.1 years ( $SD = 13.3$ , range = 16–78 years). The men and women did not differ significantly in age,  $t(265) = 1.32$ , *ns*. Twenty-nine percent ( $n = 76$ ) of the participants had no history of self-harm, 25% ( $n = 66$ ) had self-harmed once in the past, 17% ( $n = 44$ ) two or three times in the past and 30% ( $n = 81$ ) four or more times.

Potential participants were approached in the acute receiving ward or Accident and Emergency department and invited to participate in the study. The researcher gave a brief introduction outlining the nature of the assessment and highlighted that participation was voluntary, confidential and refusal would not interfere with their treatment protocol. Ethical approval had been obtained from the Local Research Ethics Committee and the University Department of Psychology.

At Time 1, patients were interviewed in hospital, usually within 24 h of admission. The future thinking task was always administered first to reduce contamination effects followed by measures of perfectionism, mood (i.e., anxiety and depression), hopelessness and suicidal thinking but the order of presentation of these measures was counterbalanced. At Time 2, on average two months later ( $M = 8.2$  weeks,  $SD = 6.6$ ), patients were contacted again and asked to complete the Beck Hopelessness Scale (BHS; Beck, Weissman, Lester, & Trexler, 1974) and the suicide ideation subscale of the Suicide Probability Scale (Cull & Gill, 1988). To maximize follow-up, we made concerted efforts to contact all participants via post, email and telephone.

### *Baseline measures*

*Future thinking:* The future-thinking task (FTT; MacLeod et al., 1997) requires participants to think of potential future experiences across three time periods—the next week (including today), the next year and the next 5–10 years. This is completed for positive and negative future thoughts. On each occasion, participants have 1 min to think of future experiences for a given time period; this is repeated until all six time  $x$  valence periods are assessed. Before administration of FTT, all participants complete the standard verbal fluency task—to control for general cognitive fluency—in which they have to generate as many words as possible to three letters (F, A, S), with 1 min allowed per letter. Consistent with previous research (MacLeod et al., 1997), the time periods for positive and negative future thinking are aggregated to yield total positive (PFT) and negative future thinking (NFT) scores.

*Perfectionism:* The MPS (Hewitt & Flett, 1991) is a 45-item measure of perfectionism, with 15 questions assessing each of three dimensions of perfectionism: (i) self-oriented perfectionism (MPS-Self), 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”); (ii) socially prescribed perfectionism (MPS-Social) assesses 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”); and (iii) other-oriented perfectionism (MPS-Other) is the degree to which an individual sets unrealistic standards for others (e.g., “If I ask someone to do something, I 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 test–retest reliability and construct validity and is stable over three months (Hewitt & Flett, 1991). The three scales yielded good internal consistency in the present investigation (Cronbach’s  $\alpha = .72, .92, .82$  for MPS-Self, MPS-Social and MPS-Other, respectively).

*Suicidal ideation:* Suicidal ideation was assessed using the suicidal ideation subscale of the Suicide Probability Scale (Suicidal ideation-T1; Cull & Gill, 1988). The subscale is comprised of 8 items pertaining to suicidal cognitions, negative affect and presence of a suicide plan (e.g., “I feel that people would be better off if I were dead”). The scale has good reliability and validity (Cull & Gill, 1988). Cronbach’s  $\alpha = .88$ .

*Suicidal intent:* All participants were asked about the current self-harm episode, specifically regarding whether they had intended to end their life. Responses were classified into ‘Yes’, ‘No’ or ‘Don’t know/ambivalent’. For analytic purposes, the responses were dichotomized into ‘Yes’ or ‘No/Don’t know/ambivalent’.

*History of self-harm:* All participants were asked whether they had engaged in self-harm in the past. For multivariate analyses, we collapsed those who had never or only once previously self-harmed into one group (i.e., non-repetitive self-harmers) and the other participants into a second group (i.e., repetitive self-harmers). We chose more than one previous episode to determine inclusion in the repetitive self-harm group to ensure that we differentiated sufficiently between episodic (infrequent) and repetitive self-harm.

*Hopelessness:* Hopelessness was measured using the 20-item BHS (BHS-T1; Beck et al., 1974). Respondents are asked to indicate either agreement or disagreement with statements that assess pessimism for the future (e.g., “I look forward to the future with hope and enthusiasm”). This is a reliable and valid measure. In the present study, internal consistency was good (Kuder–Richardson-20 = .92).

*Depression and anxiety:* The Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) consists of 14 questions, seven corresponding to the anxiety subscale (e.g., “Worrying thoughts go through my mind”) and seven corresponding to the depression subscale (e.g., “I look forward with enjoyment to things”). The HADS is a reliable and valid measure of affect. Internal consistency ( $\alpha$ ) for depression and anxiety was = .77 and .77, respectively.

### Follow-up measures

Participants completed the BHS (BHS-T2;  $\alpha = .94$ ) and Suicide Ideation subscale of the Suicide Probability Scale (Suicidal ideation-T2;  $\alpha = .88$ ) at Time 2. Two months was deemed to be a suitable time period for follow-up, as this allows for substantial recovery following the self-harm episode, to test the central hypotheses, and it should minimize attrition.

### Statistical analyses

First, we describe the sample (correlations, means and SDs) and report any differences in psychological well-being as a function of group (i.e., repetitive self-harm history/no repetitive self-harm history), intention (suicidal intent/no suicidal intent) and time (i.e., baseline/time 2). Next, we conduct two sets of regression analyses with those participants who intended to end their lives, to determine whether perfectionism and future thinking predicted hopelessness and suicidal ideation at Time 2. Consistent with other studies on future thinking, we adopted a medium-to-large effect size of .30. As a result, setting alpha at .05, power at .80 with six predictors (i.e., the number of predictors in the main hierarchical regression analyses), G-Power estimates that

53 participants are required in each group at Time 2 (i.e., the repetitive and non-repetitive intentional self-harm groups). This criterion is met in the present study.

## Results

### Descriptive statistics

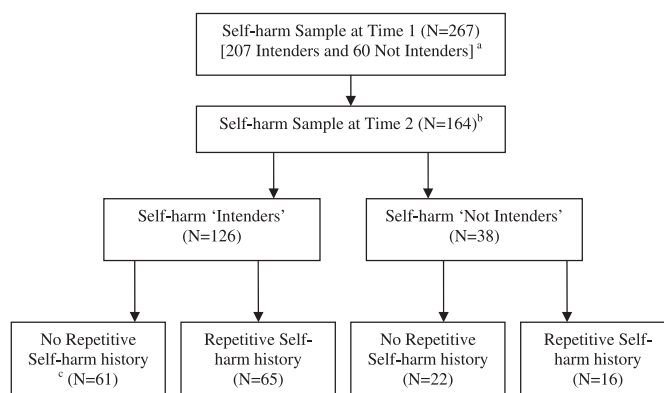
Of the initial sample, 164 (61%) completed measures at both time points, at Time 1 (T1) and at Time 2 (T2), approximately two months later and the majority of participants reported suicidal intent (see Fig. 1). Our follow-up rate compares favourably to other studies in the field (e.g., Walker, Joiner, & Rudd, 2001; Wingate, Van Orden, Joiner, Williams, & Rudd, 2005). Those who did not complete the T2 measures did not differ significantly from those who did in terms of age,  $t(265) = 1.04$ , *ns*, marital status,  $\chi^2(2) = 1.6$ , *ns* and gender,  $\chi^2(1) = .90$ , *ns*. They also did not differ significantly in any of the other T1 variables (i.e., hopelessness, suicidal ideation, perfectionism, anxiety, depression or future thinking; range:  $t(265) = .02$ – $1.91$ , *ns*) except that those who were not followed up were significantly more socially perfectionist ( $t(265) = 2.33$ ,  $p < .05$ ). Critically, the groups did not differ in terms of self-harm history ( $\chi^2(1) = .62$ , *ns*) or suicidal intent ( $\chi^2(1) = .59$ , *ns*). As anticipated, participants reported significantly lower levels of hopelessness and suicidal ideation at T2 compared with T1,  $t(163) = 4.59$ ,  $p < .001$  and  $t(163) = 7.5$ ,  $p < .001$ , respectively. There were also no significant correlations between standard verbal fluency and suicidal thinking or hopelessness at T1 or T2 ( $r = .022$  to  $.082$ , *ns*).

### Correlations and hierarchical and regression analyses

As the focus of the study is on individuals with suicidal intent, all forthcoming analyses are limited to these individuals. Zero-order correlations, means and standard deviations for the baseline and outcome variables are presented in Table 1.

### Predicting outcome following suicidal behaviour

We conducted a series of hierarchical regression analyses to determine whether future thinking moderated the relationship between perfectionism and hopelessness and suicidal ideation. As we are particularly interested in whether perfectionism and future thinking model are similar across different self-harm history



Note. <sup>a</sup>Intenders and Not intenders refers to self-reported suicidal intent. <sup>b</sup>The profile of participants followed up at Time 2 did not differ from the profile at Time 1 in terms of intention and self-harm history. <sup>c</sup>No repetitive self-harm is defined as none or single self-harm history in the past. Repetitive self-harm is defined as two or more self-harm episodes in the past.

Fig. 1. Characteristics of self-harm sample.

Table 1  
Correlations and means and SDs for all of the study variables for the suicide intenders who completed measures at both time points by self-harm group

	Suicidal-T1	Suicidal-T2	BHS-T1	BHS-T2	Depression	Anxiety	PFT	NFT	Social	Self	Other
Suicidal-T1	—	.378**	.501***	.367**	.385**	.163	-.247*	-.275*	.214	.080	.030
Suicidal-T2	.459***	—	.432***	.698***	.407***	.130	-.310*	-.189	.136	.051	-.028
BHS-T1	.471***	.436***	—	.389***	.457***	.310*	-.143	-.188	.444***	.029	-.009
BHS-T2	.315*	.755***	.539***	—	.337**	.100	-.315**	-.123	.139	-.009	-.176
Depression	.543***	.349**	.530***	.343**	—	.315*	-.265*	-.225	.183	-.020	-.019
Anxiety	.421***	.071	.267*	-.017	.447***	—	-.154	-.113	.240	-.174	.069
PFT	-.176	-.263*	-.434***	-.270*	-.257*	.059	—	.748***	.107	.185	.294*
NFT	.124	-.081	.006	-.025	.033	.358**	.619***	—	.090	.135	.155
Social	.262*	.122	.321*	.209	.220	.367**	-.054	.173	—	.425***	.239
Self	-.070	-.068	-.239	-.110	-.080	.098	.152	.125	.428***	—	.280*
Other	-.129	-.085	-.026	-.038	-.057	-.079	-.114	.127	.014	.239	—
Mean (SD)-N <sup>a</sup>	19, 56 (5.75)	14.82 (6.62)	12.56 (5.00)	10.26 (6.13)	11.03 (4.91)	13.93 (4.98)	3.84 (3.19)	3.26 (2.82)	62.87 (13.53)	66.51 (17.61)	51.07 (9.17)
Mean (SD)-R <sup>b</sup>	23.55 (5.33)	18.98 (7.39)	15.11 (3.84)	12.46 (5.58)	12.06 (4.50)	15.18 (4.12)	3.49 (3.03)	3.97 (3.04)	64.88 (12.96)	67.94 (17.87)	51.38 (10.67)

Note: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . Repetitive self-harmers above the diagonal; non-repetitive self-harmers below the diagonal. R<sup>a</sup> = repetitive group; N<sup>a</sup> = non-repetitive group. Suicidal-T1 = suicidal ideation Time 1; Suicidal-T2 = suicidal ideation Time 2; BHS-T1 = hopelessness Time 1; BHS-T2 = hopelessness Time 2; PFT = positive future thinking; NFT = negative future thinking; Social = socially prescribed perfectionism; Self = self-oriented perfectionism; Other = other-oriented perfectionism.

populations, we conducted separate regression analyses with the (i) repetitive and (ii) non-repetitive self-harm participants who intended to kill themselves.

All predictor variables were mean centred before entry into the regression analyses. To remove variance associated with initial levels of hopelessness (or suicidal ideation) and mood, BHS-T1 (or Suicidal Ideation-T1), depression (T1) and anxiety (T2) were entered in the first step of each regression. One of the three dimensions of perfectionism (MPS-Self; MPS-Social or MPS-Other) was entered at step 2 followed by either positive or negative future thinking at step 3. Finally, the relevant multiplicative term (e.g., MPS-Social  $\times$  positive future thinking) was entered at the fourth step, to test for the interaction effects (see Miles & Shevlin, 2001).

#### *Testing positive future thinking as a moderator of the perfectionism–outcome relationship*

Only the regression analyses involving MPS-Social yielded significant interactions in the final models among those suicidal participants who had a history of repetitive self-harm. None of the interactions concerning the non-repetitive self-harmers were significant (see Table 2). In both the suicidal thinking and hopelessness regressions, the positive future thinking and MPS-Social interaction were significant predictors,  $\beta = .356$ ,  $t(64) = 2.72$ ,  $p < .01$  and  $\beta = .286$ ,  $t(64) = 2.08$ ,  $p < .05$ , respectively, along with positive future thinking,  $\beta = -.294$ ,  $t(64) = 2.45$ ,  $p < .05$  and  $\beta = -.329$ ,  $t(64) = 2.66$ ,  $p < .01$ , respectively (see Table 2). Depression ( $\beta = .260$ ,  $t(64) = 2.13$ ,  $p < .05$ ) and MPS-Social ( $\beta = .273$ ,  $t(64) = 2.00$ ,  $p < .05$ ) were additional predictors of suicidal ideation.

To probe the interactions, consistent with Aiken and West (1991), we plotted regression lines of best fit at high (one standard deviation above the mean) and low levels (one standard deviation below the mean) of MPS-Social and positive future thinking. Next, we conducted further tests separately on the high and low MPS-Social lines to determine whether they differed significantly from zero. This revealed that the low MPS-Social slope for hopelessness,  $\beta = -.710$ ,  $t(64) = -2.82$ ,  $p = .007$  and suicidal ideation,  $\beta = -.768$ ,  $t(64) = -3.21$ ,  $p = .002$  differed significantly from zero but neither of the high MPS-Social slopes did,  $\beta = .053$ ,  $t(64) = .28$ , *ns* and  $\beta = .18$ ,  $t(64) = 1.00$ , *ns*. In other words, as illustrated in Fig. 2, psychological disturbance among the low social perfectionists changed as a function of positive future thinking such that outcome was better for those high on positive thoughts compared with those low on positive future thoughts. Conversely, irrespective of level of positive future thinking, outcome among the high social perfectionists did not change for the better. However, another interpretation of Fig. 2 could be that either high MPS-Social or low positive future thinking are sufficient in and of themselves to predict a poor outcome (as levels of hopelessness and suicide ideation appear to be roughly equivalent whether the participant has high perfectionism, low positive thinking or both). There were no other significant main effects or interactions beyond the initial levels of distress.

#### *Testing negative future thinking as a moderator of the perfectionism–outcome relationship*

We conducted similar regression analyses with negative future thinking as a moderator. There was no evidence for moderation in any of these analyses. Without exception, baseline distress and/or depression were the only significant predictors of T2 suicidality or hopelessness.

## **Discussion**

This study yielded clear evidence to support the central hypotheses. For repetitive self-harm patients, the interaction between socially prescribed perfectionism and positive future thinking predicted psychological well-being two months following a suicidal episode, beyond the variance explained by initial levels of mood and distress. Specifically, this is the first ever study to show that repetitive suicidal self-harm patients who reported low social perfectionism and high positive future thinking following a suicidal episode exhibited the best outcome in terms of hopelessness and suicidal thinking two months later. Moreover, we have illustrated that the interaction between social perfectionism and positive future thinking predicts suicidal risk prospectively in an acute adult clinical population.



Table 2

Hierarchical regression analyses testing the moderating effects of positive future thinking on the relationship between perfectionism and hopelessness/suicidal ideation among suicide intending self-harm patients

	Non-repetitive self-harmers				Repetitive self-harmers			
	Variable	R <sup>2</sup>	Final beta	t	Variable	R <sup>2</sup>	Final beta	t
<i>Predicting hopelessness (BHS-T2)</i>								
Step 1	BHS-T1	.338	.463	3.17**	BHS-T1	.187	.243	1.73
	Anxiety-T1		-.253	-1.89	Anxiety-T1		-.113	-.94
	Depression-T1		.177	1.25	Depression-T1		.170	1.31
Step 2	Social	.349	.089	.70	Social	.188	.209	1.35
Step 3	PFT	.349	.023	.18	PFT	.242	-.329	-2.66**
Step 4	Social × PFT	.355	.086	.69	Social × PFT	.294	.286	2.08*
Step 1	BHS-T1	.338	.524	3.64***	BHS-T1	.187	.310	2.35*
	Anxiety-T1		-.222	-1.68	Anxiety-T1		-.084	-.67
	Depression-T1		.168	1.19	Depression-T1		.159	1.18
Step 2	Self	.341	.059	.51	Self	.188	.008	.07
Step 3	PFT	.341	.000	.00	PFT	.242	-.218	-1.58
Step 4	Self × PFT	.346	.078	.68	Self × PFT	.244	-.052	-.40
Step 1	BHS-T1	.338	.514	3.63***	BHS-T1	.187	.298	2.25*
	Anxiety-T1		-.238	-1.87	Anxiety-T1		-.072	-.59
	Depression-T1		.177	1.25	Depression-T1		.157	1.17
Step 2	Other	.339	-.035	-.31	Other	.215	-.090	-.72
Step 3	PFT	.339	.007	.06	PFT	.251	-.237	-1.63
Step 4	Other × PFT	.340	-.029	-.26	Other × PFT	.253	.050	.37
<i>Predicting suicidal ideation (Suicidal-T2)</i>								
Step 1	Suicidal-T1	.255	.411	2.85**	Suicidal-T1	.223	.223	1.87
	Anxiety-T1		-.173	-1.19	Anxiety-T1		-.078	-.674
	Depression-T1		.156	1.04	Depression-T1		.260	2.13*
Step 2	Social	.257	.024	.178	Social	.224	.273	2.00*
Step 3	PFT	.273	-.127	-1.00	PFT	.258	-.294	-2.45*
Step 4	Social × PFT	.275	.039	.30	Social × PFT	.342	.356	2.72**
Step 1	Suicidal-T1	.255	.416	2.93**	Suicidal-T1	.223	.215	1.72
	Anxiety-T1		-.142	-1.01	Anxiety-T1		-.003	-.03
	Depression-T1		.148	.99	Depression-T1		.271	2.10*
Step 2	Self	.255	.021	.17	Self	.224	.092	.77
Step 3	PFT	.272	-.153	-1.23	PFT	.258	-.250	-1.81
Step 4	Self × PFT	.282	.103	.86	Self × PFT	.266	.101	.78
Step 1	Suicidal-T1	.255	.420	2.94**	Suicidal-T1	.223	.224	1.84
	Anxiety-T1		-.180	-1.32	Anxiety-T1		-.037	-.32
	Depression-T1		.162	1.10	Depression-T1		.239	1.86
Step 2	Other	.257	-.061	-.518	Other	.224	.090	.73
Step 3	PFT	.275	-.151	-1.23	PFT	.254	-.317	-2.22*
Step 4	Other × PFT	.285	-.104	-.89	Other × PFT	.290	.222	1.71

Note: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ , Suicidal-T1 = suicidal ideation Time 1; Suicidal-T2 = suicidal ideation Time 2; BHS-T1 = hopelessness Time 1; BHS-T2 = hopelessness Time 2; PFT-positive future thinking; NFT-negative future thinking; Social = socially prescribed perfectionism; Self = self-oriented perfectionism; Other = other-oriented perfectionism.

### How the findings relate to previous research

These findings are also consonant with previous research, in particular the studies conducted by Hewitt, Flett, O'Connor and colleagues (Hewitt, Flett, & Weber, 1994, 1998; Hewitt, Flett, Sherry, & Caelian, 2006; Hunter & O'Connor, 2003; O'Connor & Forgan, 2006; O'Connor et al., 2004) and they support Hewitt et al.'s (2006) assertion that, within this conceptualization of perfectionism, social perfectionism is the dimension which is most robustly related to suicidality. These data also support the conceptualization of suicidality in

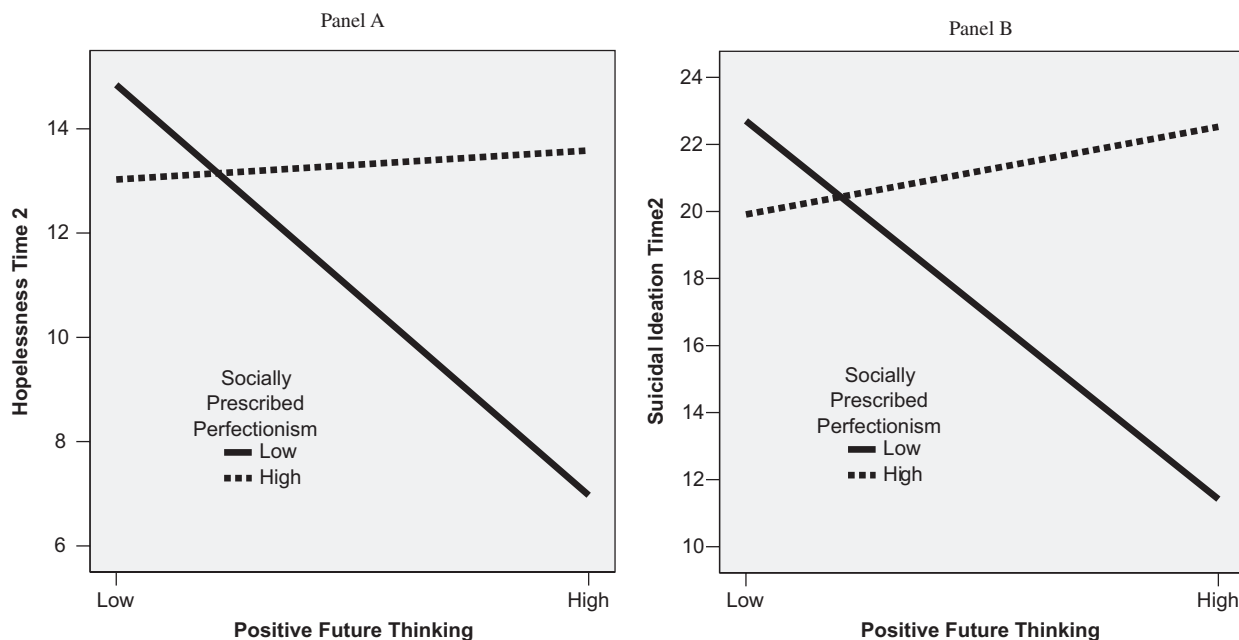


Fig. 2. Positive future thinking as a moderator of the social perfectionism–distress relationship among the repetitive self-harm group.

terms of escape theory (Baumeister, 1990) and the cry of pain model (Williams, 2001). However, with respect to the former, the present study suggests that escape theory can be refined. According to Baumeister, the first step in the chainlike process which potentially culminates in suicidal behaviour is when, during stressful times, we fall short of our expectations or standards. Baumeister also suggests that this perceived shortfall can be as a result of self-imposed standards or a sense of other people's expectations. In the light of our data, therefore, it would be reasonable to specify that it is the impact of an individual's view of other people's expectations rather than self-imposed standard-setting (as assessed via the self-oriented perfectionism subscale) which is predominant in escapist suicide risk.

With respect to the broader implications, as this study did not include other measures of perfectionism or related constructs, in particular Blatt's self-criticism dimension, additional more wide ranging conclusions about the relations between perfectionism and suicide risk cannot be proffered. Indeed, a recent review of the perfectionism–suicide risk literature (O'Connor, 2006) concluded that, aggregating all of the findings across clinical and non-clinical studies, there was consistent evidence that self-critical evaluative concerns perfectionism (i.e., a higher order factor representing socially prescribed perfectionism, self-criticism, concern about mistakes and doubts about actions) was implicated in suicide risk. In this light, therefore, the present findings add support to the notion that social perfectionism—a component of self-critical evaluative concerns perfectionism—is pertinent to outcome following a suicidal episode (see Dunkley et al., 2006). However, more research is required to determine whether, as Alden, Dunkley and colleagues posit (Alden, Ryder, & Mellings, 2002; Dunkley et al., 2006), that self-criticism accounts, in large part, for the relationship between MPS-Social/Self and psychological distress. Indeed, these authors would suggest that self-criticism is the active ingredient in perfectionism.

There is also sound evidence for Williams' model of suicide (Williams, 2001). The cry of pain model moves beyond escape per se to incorporate the states of entrapment and defeat (Gilbert & Allan, 1998). In this conceptualization of suicidality, it is the *interaction* between the desire to escape from a situation characterized by feelings of defeat and rejection and not having the internal or external resources to escape, which is pertinent to suicide risk. Therefore, according to our data, a higher level of positive future thinking reduces the sense of entrapment resulting in the individual believing that they have more to look forward to, and consequently, they have reasons for living which is associated with a better outcome.

One apparent difference between the present findings and those of O'Connor et al.'s (2004) analogue study is also worthy of comment. In the latter study, O'Connor et al. found that only social perfectionism and its interaction with positive future thinking predicted distress whereas in the present study, there were independent effects of social perfectionism, positive future thinking as well as the associated interaction in the prediction of suicidal ideation. Although one might be tempted to conclude that, in the present study, the absence of both positive future thinking and social perfectionism were two independent risk factors for continued psychological disturbance, such a conclusion would be premature. First, direct comparison between the studies is not possible, O'Connor et al.'s (2004) study was cross-sectional, it controlled for perceived stress and it employed a non-clinical population. Second, the difference in sample characteristics is particularly important (i.e., suicidal clinical versus healthy non-clinical), as the mean social perfectionism score for both samples is markedly different ( $M = 52.44$ ,  $SD = 13.33$  and  $M = 65.2$ ,  $SD = 13.8$ , for O'Connor et al., 2004 and the present study, respectively). Therefore, it is likely that the two studies are sampling from different areas of the distribution. Third, the apparent independent effects of the two predictors are not actually independent, rather they are contingent upon the presence of the interaction.

### *Clinical implications*

There are a number of implications of this study. First, we should redouble our efforts to evaluate evidence-based interventions to modify trait perfectionism. To our knowledge, none of the treatment programmes developed to this end has been evaluated rigorously (e.g., Antony & Swinson, 1998). We also support Shafran et al.'s (2002, 2003) assertion that it is only when we focus on the specific mechanisms implicated in the onset and maintenance of perfectionism that we will have any success in terms of treatment interventions.

Second, this study adds to the growing body of evidence highlighting the importance of positive cognitions in psychological research and therapy (e.g., Fredrickson & Losada, 2005; MacLeod et al., 1997). We would suggest that the evaluation of rigorous interventions which attempt to modify positive future thinking is warranted. Third, these data also fit with self-regulatory theory (Carver & Scheier, 1998) which argues that one's ability to identify, pursue and attain goals is central to adaptive and effective self-regulation. Fourth, given that suicidal individuals often experience harsh social environments and high levels of trauma, stress and abuse (see O'Connor & Sheehy, 2000), it would be interesting to determine the extent to which high scores on socially prescribed perfectionism reflect a trait characteristic and to what extent they may reflect the reality of their social environment.

Future research should also look closely at the relationship between future thinking, perfectionism and self-harm history. It may well be that a larger sample is required to detect a small effect in the non-repetitive self-harm group. Assessment of suicidal intent requires comment. In the present study, we asked patients whether they intended to end their lives, it may have been better to employ Beck's Scale for Suicide Ideation which takes into account medical and circumstantial factors (Beck, Kovacs, & Weissman, 1979).

Two potential limitations of this study are worthy of comment. On the whole, those participants who we followed up were similar to those who we were unable to assess at Time 2. However, the latter scored significantly higher on social perfectionism compared with the former. In our view, rather than being a limitation, this adds more weight to the present conclusions as it suggests that the statistical effect would have been more powerful if more of the repetitive self-harm patients had been followed up. We also counter potential criticisms that the follow-up was not long enough. First, few studies in suicidology have assessed the *short-term* course of post-suicide attempt psychological symptoms (e.g., Bronisch, 1992; Jallade et al., 2005; Sarfati, Bouchaud, & Hardy-Bayle, 2003; Van Praag & Plutchik, 1985; Walker et al., 2001). Indeed, the few which have, have tended to limit such short-term follow-up to no more than one month (e.g., Jallade et al., 2005; Sarfati et al., 2003). Second, as is the case in the present study, so long as there is evidence of substantial change in outcome during the follow-up period, the specific timeframe is not pertinent to the testing of the theoretical questions.

It is also important, however, to extend the present research to determine whether positive future thinking and social perfectionism predict *long-term* recovery. After all, we only focused on the immediate aftermath of a suicidal episode. It would also be worth determining whether these variables are sufficiently sensitive to predict repetitive suicidal behaviour and completed suicide. To conclude, this study yields good evidence that

social perfectionism and positive future thinking are implicated in the short-term course following a suicidal crisis.

## Acknowledgements

This study was funded by the Economic and Social Research Council, UK (Award Number: RES-000-22-1134). Many thanks to the anonymous reviewers and the action editor for extremely helpful comments on an earlier draft of this manuscript.

## References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Alden, L. E., Ryder, A. G., & Mellings, T. M. B. (2002). Perfectionism in the context of social fears: Towards a two-component model. In G. L. Flett, & P. L. Hewitt (Eds.), *Perfectionism: Theory, research and treatment* (pp. 373–391). Washington, DC: American Psychological Association; pp.
- Antony, M. M., & Swinson, R. P. (1998). *When perfect isn't good enough: Strategies for coping with perfectionism*. Oakland, CA: New Harbinger Publications.
- Baumeister, R. F. (1990). Suicide as escape from self. *Psychological Review*, *97*, 90–113.
- Beck, A. T., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: The hopelessness scale. *Journal of Consulting & Clinical Psychology*, *42*, 861–865.
- Beck, A. T., Kovacs, M., & Weissman, A. (1979). Assessment of suicidal ideation: The scale for suicide ideation. *Journal of Consulting and Clinical Psychology*, *47*, 343–352.
- Blatt, S. J. (1995). The destructiveness of perfectionism. Implications for the treatment of depression. *American Psychologist*, *50*, 1003–1020.
- Bronisch, T. (1992). Does an attempted suicide actually have a cathartic effect? *Acta Psychiatrica Scandinavica*, *86*, 228–232.
- Cantor, C. (2000). Suicide in the western world. In K. Hawton, & K. van Heeringen (Eds.), *The international handbook of suicide and attempted suicide*. Chichester, UK: Wiley.
- Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behaviour*. New York: Cambridge University Press.
- Chang, E. C., & Sanna, L. J. (2001). Negative attributional style as a moderator of the link between perfectionism and depressive symptoms: Preliminary evidence for an integrative model. *Journal of Counseling Psychology*, *47*, 129–137.
- Cull, J. G., & Gill, W. S. (1988). *Suicide probability scale (SPS) manual*. Los Angeles: Western Psychological Services.
- Dunkley, D. M., Blankstein, K. R., Masheb, R. M., & Grilo, C. M. (2006). Personal standards and evaluative concerns dimensions of “clinical” perfectionism: A reply to Shafran et al. (2002, 2003) and Hewitt et al. (2003). *Behaviour Research and Therapy*, *44*, 63–84.
- Enns, M. W., Cox, B. J., & Inayatulla, M. (2003). Personality predictors of outcome for adolescents hospitalized for suicidal ideation. *Journal of American Academy of Child and Adolescent Psychiatry*, *42*, 720–727.
- Flett, G. L., & Hewitt, P. L. (Eds.). (2002). *Perfectionism: Theory, research and treatment* (pp. 393–406). Washington, DC: APA.
- Fredrickson, B. L., & Losada, M. F. (2005). Positive affect and the complex dynamics of human flourishing. *American Psychologist*, *60*, 678–686.
- Gilbert, P., & Allan, S. (1998). The role of defeat and entrapment (arrested flight) in depression: An exploration of an evolutionary view. *Psychological Medicine*, *28*, 585–598.
- Hawton, K. (2000). General hospital management of suicide attempters. In K. Hawton, & K. van Heeringen (Eds.), *The International Handbook of Suicide and Attempted Suicide* (pp. 519–537). London: Wiley.
- 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., & Weber, C. (1994). Dimensions of perfectionism and suicide ideation. *Cognitive Therapy and Research*, *18*, 439–460.
- Hewitt, P. L., Norton, G. R., Flett, G. L., Callander, L., & Cowan, T. (1998). Dimensions of perfectionism hopelessness, and attempted suicide in a sample of alcoholics. *Suicide and Life-threatening Behaviour*, *28*, 395–406.
- Hewitt, P. L., Flett, G. L., Besser, A., Sherry, S. B., & McGee, B. (2003). Perfectionism is multidimensional: A reply to Shafran, Cooper & Fairburn (2002). *Behaviour Research and Therapy*, *41*, 1221–1236.
- Hewitt, P. L., Flett, G. L., Sherry, S. B., & Caelian, C. (2006). Perfectionism dimensions and suicide behaviour. In T. E. Ellis (Ed.), *Cognition and suicide: Theory, research, and practice*. Washington, DC: APA.
- Hunter, E. C., & O'Connor, R. C. (2003). Hopelessness and future thinking in parasuicide: The role of perfectionism. *British Journal of Clinical Psychology*, *42*, 355–365.
- Jallade, C., Sarfati, Y., & Hardy-Bayle, M. C. (2005). Clinical evolution after self-induced or accidental traumatism: A controlled study of the extent and the specificity of suicidal catharsis. *Journal of Affective Disorders*, *85*, 283–292.
- Leenaars, A. A., DeLeo, D., Diekstra, R. F. W., et al. (1997). Consultations for research in suicidology. *Archives of Suicide Research*, *3*, 139–151.

- MacLeod, A. K., Pankhania, B., Lee, M., & Mitchell, D. (1997). Parasuicide, depression, and the anticipation of positive and negative future experiences. *Psychological Medicine*, 27, 973–977.
- MacLeod, A. K., Tata, P., Tyrer, P., Schmidt, U., Davidson, K., & Thompson, S. (2004). Personality disorder and future thinking in parasuicide. *Journal of Personality Disorders*, 18, 459–466.
- Malone, K. M., Oquendo, M. A., Haas, G. L., Ellis, S. P., Li, S. H., & Mann, J. J. (2000). Protective factors against suicidal acts in major depression: Reasons for living. *American Journal of Psychiatry*, 157, 1084–1088.
- Maris, R. F. W. (1991). Introduction to a special issue: Assessment and prediction of suicide. *Suicide and Life-Threatening Behaviour*, 21, 1–17.
- Miles, J., & Shevlin, M. (2001). *Applying regression and correlation*. London: Sage.
- O'Connor, R. C. (2003). Suicidal Behaviour as a cry of pain: Test of a psychological model. *Archives of Suicide Research*, 7, 297–308.
- O'Connor, R. C. (2006). The relations between perfectionism and suicide risk: A systematic review. Submitted for publication.
- O'Connor, R. C., Armitage, C. J., & Gray, L. (2006). The role of clinical and social cognitive variables in parasuicide. *British Journal of Clinical Psychology*, 45, 465–481.
- O'Connor, R. C., & Cassidy, C. (2006). Predicting hopelessness: The interaction between optimism/pessimism and specific future expectancies. *Cognition and Emotion*, in press.
- O'Connor, R. C., & Forgan, G. (2006). Suicidal thinking and perfectionism: The role of goal adjustment and behavioural inhibition/activation systems (BIS/BAS). *Journal of Rational-Emotive Cognitive-Behaviour Therapy*, in press.
- O'Connor, D. B., O'Connor, R. C., & Marshall, R. (2006). Perfectionism and psychological distress: Evidence of the mediating effects of rumination. *European Journal of Personality*, in press.
- O'Connor, R. C., & O'Connor, D. B. (2003). Predicting hopelessness and psychological distress: The role of perfectionism and coping. *Journal of Counseling Psychology*, 50, 362–372.
- O'Connor, R. C., O'Connor, D. B., O'Connor, S. M., Smallwood, J., & Miles, J. (2004). Hopelessness, stress and perfectionism: The moderating effects of future thinking. *Cognition and Emotion*, 18, 1099–1120.
- O'Connor, R., & Sheehy, N. (2000). *Understanding suicidal behaviour*. Leicester: BPS Blackwell.
- Sarfati, Y., Bouchaud, B., & Hardy-Bayle, M. C. (2003). Cathartic effect of suicide attempts not limited to depression. A short-term prospective study after deliberate self-poisoning. *Crisis*, 24, 73–78.
- Shafran, R., Cooper, Z., & Fairburn, C. G. (2002). Clinical perfectionism: A cognitive-behavioural analysis. *Behaviour Research and Therapy*, 40, 773–791.
- Shafran, R., Cooper, Z., & Fairburn, C. G. (2003). “Clinical Perfectionism” is not “multidimensional perfectionism”: A reply to Hewitt, Flett, Besser, Sherry, & McGee. *Behaviour Research and Therapy*, 41, 1217–1220.
- Shafran, R., & Mansell, W. (2001). Perfectionism and psychopathology: A review of research and treatment. *Clinical Psychology Review*, 21, 879–906.
- Skegg, K. (2005). Self-harm. *The Lancet*, 366, 1471–1483.
- Van Heeringen, K. (2001). Towards a psychobiological model of the suicidal process. In K. van Heeringen (Ed.), *Understanding Suicidal Behaviour* (pp. 136–159). Chichester, UK: Wiley.
- Van Praag, H., & Plutchik, R. (1985). An empirical study on the ‘cathartic effect’ of attempted suicide. *Psychiatry Research*, 16, 123–130.
- Walker, R. L., Joiner, T. E., & Rudd, M. D. (2001). The course of post-crisis suicidal symptoms: How and from whom is suicide ‘cathartic’? *Suicide and Life-Threatening Behaviour*, 31, 144–152.
- Williams, J. M. G. (2001). *Suicide and attempted suicide*. London, UK: Penguin.
- Williams, J. M. G., Barnhofer, T., Crane, C., & Beck, A. T. (2005). Problem solving deteriorates following mood challenge in formerly depressed patients with a history of suicidal ideation. *Journal of Abnormal Psychology*, 114, 421–431.
- Williams, J. M. G., Crane, C., Barnhofer, T., & Duggan, D. (2005). Psychology and suicidal behaviour: Elaborating the entrapment model. In K. Hawton (Ed.), *Prevention and treatment of suicidal behaviour: From science to practice*. Oxford: Oxford University Press.
- Wingate, L. R., Van Orden, K. A., Joiner, T. E., Williams, F. M., & Rudd, M. D. (2005). Comparison of compensation and capitalization models when treating suicidality in young adults. *Journal of Consulting and Clinical Psychology*, 73, 756–762.
- Young, M. A., Fogg, L. F., Scheftner, W., Fawcett, J., Akiskal, H., & Maser, J. (1999). Stable trait components of hopelessness: Baseline and sensitivity to depression. *Journal of Abnormal Psychology*, 105, 155–165.
- Zigmond, A. S., & Snaith, R. P. (1983). The hospital anxiety and depression scale. *Acta Psychiatrica Scandinavica*, 67, 361–370.