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# Hopelessness: the role of depression, future directed thinking and cognitive vulnerability

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**Abstract** *Previous research has suggested that parasuicides are impaired in their ability to generate positive future experiences. This study aimed to look at the relationship between future experiences, cognitive vulnerability and hopelessness in parasuicides and matched hospital controls. Parasuicides (N = 20) and matched hospital controls (N = 20) were assessed the day following an episode of deliberate self-harm on measures of hopelessness, depression, anxiety, cognitive vulnerability and future directed thinking. The parasuicides differed from hospital controls on measures of depression, hopelessness and negative cognitive style in the predicted direction. Future positive thinking, depression and negative cognitive style explained 70.5% of the hopelessness variance. Future positive thinking was not correlated with either depression or negative cognitive style, whereas negative cognitive style was correlated with depression and hopelessness. Future directed thinking contributes to hopelessness independently of depression and does not seem to be associated with cognitive vulnerability.*

## Introduction

Hopelessness, defined as the degree to which an individual is pessimistic about the future, is thought to mediate the relationship between depression and suicidal behaviour (for a review, see O'Connor & Sheehy, 2000). It is operationalized, almost exclusively, via the Beck Hopelessness Scale (BHS; Beck *et al.*, 1974), a 20-item, true/false forced choice questionnaire—the higher the score, the more hopeless the respondent is thought to be; for example, 'My future seems dark to me' or 'Things just don't work out the way I want them to'. Despite its clinical importance, for many years this measure remained virtually unchallenged, and as a result some argued that hopelessness lacked conceptual clarity, beyond that original postulated (MacLeod *et al.*, 1993). Accordingly, MacLeod and colleagues devised a personal future fluency task, an objective measure of the degree to which an individual can generate positive and negative future thoughts. MacLeod *et al.* (1997; 1993) found that parasuicides (individuals who engage in deliberate self-harm irrespective of intention) are impaired in their ability to generate positive future thoughts, compared to controls drawn from either hospital or non-hospital populations. Notably, they do not generate more future negative experiences than non-parasuicides even when depression is controlled for. In short, it seems that positive

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future thinking, a component of hopelessness, can differentiate between suicidal and non-suicidal individuals independent of depression.

Future thinking is derived from hopelessness which, in turn, is drawn from the cognitive vulnerability theories; hence this paper set out to address the relationship between cognitive vulnerability, future thinking and hopelessness. The cognitive vulnerability theories, specifically hopelessness theory (Abramson *et al.*, 1989), posit that particular cognitive styles bestow vulnerability to depression and hopelessness. The theory describes the depressogenic inferential style—the tendency to attribute negative events to stable and global causes. In the presence of interpersonal stressors such individuals show increases in suicidality (Joiner & Rudd, 1995). Abramson and colleagues recently expanded their measure of inferential style (ASQ; Peterson *et al.*, 1982) to include 24 hypothetical events and two additional cognitive vulnerability inferences: inferences about the consequences and implications for self-worth. This new measure, the Cognitive Style Questionnaire (CSQ; Abramson *et al.*, 1990) has yet to be administered to a clinical population but has been shown, with college students, to predict suicidality, measured by structured interview and self-report (Abramson *et al.*, 1998). This study sought, for the first time, to investigate whether cognitive style is involved in the development of future thinking as well as hopelessness, by assessing a group of parasuicides and matched hospital controls.

We hypothesized that: (1) compared with hospital controls, parasuicides would exhibit impaired thinking for positive but not for negative future experiences, independent of depression (thereby replicating MacLeod *et al.*'s findings); (2) negative cognitive style would be associated with positive future thinking (as would be assumed by cognitive vulnerability theories); (3) negative cognitive style would be associated with hopelessness independent of depression (given that negative cognitive style and depression are separate constructs); and (4) future thinking, depression and negative cognitive style would independently contribute to hopelessness (and, conversely, positive cognitive style, anxiety and future negative thoughts would *not* contribute to hopelessness variance).

## Method

### *Participants*

Parasuicide patients presenting to a Glasgow hospital with an episode of deliberate self-harm (ICD-codes X60–X84) were considered for inclusion in the study. However, only those patients who were admitted overnight, via the accident and emergency department, to the acute receiving wards were included in the study. During the study period, 20 parasuicides were assessed the day following admission. This did not represent a consecutive sample but rather a reflection of the practical limitations of recruiting patients via a general hospital. We recruited 20 hospital controls matched for sex, age and socio-economic status. The hospital controls, recruited from the same acute receiving wards, were patients admitted via accident and emergency, presenting with physical problems.

The mean ages of the parasuicides (M = 35.6 years, SD = 12.18) and the control group (M = 37.6 years, SD = 12.14) did not differ significantly ($t(38) = -0.520$, NS). The gender distribution was similar; there were 11 men and nine women in the parasuicide group, and 13 men and seven women in the control sample ($\chi^2$ (1) = 0.417, NS). There was also no significant difference in socio-economic status, assessed according to occupation ($\chi^2$ (3) = 1.78, NS) or marital status ($\chi^2$ (2) = 0.144, NS). The control group was also no more likely to be in employment than the parasuicides ($\chi^2$ (2) = 0.41, NS). A sample size of $N = 40$ was considered large enough (Lockhart, 1998), yielding 95% power to obtain a significant

difference in hopelessness across the groups (see Williams, 1996, for norms employed), at $p < 0.05$ level of significance.

*Materials and procedure*

All participants were given a brief introduction of what the assessment would require and invited to participate. We highlighted that participation was voluntary, confidential and refusal would not interfere with their treatment protocol. Ethical approval had been obtained from the University Hospital Trust and all those who participated signed a written consent form.

*Measures*

The parasuicides and the matched hospital controls completed the following measures: Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983), Beck Hopelessness Scale (BHS; Beck *et al.*, 1974), a modified version of the Cognitive Style Questionnaire (CSQ; Abramson *et al.*, 1990) and a measure of future thinking based on the work of MacLeod and colleagues (MacLeod *et al.*, 1997; 1993). The HADS consists of 14 questions, seven corresponding to the anxiety sub-scale and seven corresponding to the depression sub-scale. The maximum score for each sub-scale is 21. The BHS is a 20-item (true/false) scale with a maximum score of 20. The HADS and BHS have been demonstrated to exhibit good reliability and validity elsewhere (Zigmond & Snaith, 1983 and Young *et al.*, 1992, respectively). The future thinking task (FTT) requires participants to think of potential future experiences across three time periods—the next week, the next year and the next five to ten years. This is completed for positive as well as negative future thoughts. On each occasion, participants have one minute to think of future experiences for a time period; this is repeated until all six time × valence periods are assessed (see MacLeod *et al.* 1993; 1997, for further details). Beforehand, participants complete the standard verbal fluency task (Lezak, 1976), in which they have to generate as many words as possible to three letters (F, A, S) with one minute allowed *per* letter. In the revised version of the FTT (MacLeod *et al.*, 1997), participants are asked to rate each future thought on how likely it is to happen and how they would feel at the time, on a seven-point scale. For the sake of brevity, only the frequency of future thoughts is reported here.

The CSQ is a modified version of the Attributional Style Questionnaire (ASQ; Peterson *et al.*, 1982), wherein participants rate positive and negative events along the attributional dimensions of internality, stability and globality from 1 to 7. In addition to the ASQ items, the CSQ assesses two additional inferences derived from the cognitive vulnerabilities to depression, identified in the hopelessness theory (Abramson *et al.*, 1989): inferences about consequences and self-worth implications of the events. For example, 'How likely is it that [an event] will lead to other negative things happening to you? [consequence]'. The second modification of the CSQ is to increase the number of hypothetical events to 24; we felt that this was too many and administered an abridged version of six in total: three positive and three negative events. Further, we modified the events such that they were appropriate for a hospital population. The presentation of the positive and negative conditions of the CSQ and the future thinking task was counterbalanced across participants. The duration of testing varied considerably, from 45 minutes to one hour. Demographic details were obtained from the hospital records and the initial interview with the participants.

## Results

Two-way ANOVAs were conducted to determine whether parasuicides differed from hospital controls and to investigate possible gender interactions. The parasuicides differed significantly from the hospital controls on measures of hopelessness ($F(1,36) = 13.75$, $p = 0.001$), depression ($F(1,36) = 26.27$, $p = 0.0001$) and anxiety ($F(1,36) = 10.90$, $p = 0.002$) in the predicted direction (see Table 1). The CSQ, calculated as a composite score (stability + globality + consequences + self-implication) for negative and positive events (see Abramson *et al.*, 1998) had relatively good internal consistency, $\alpha = 0.71$ and 0.64 for negative and positive composites, respectively. The mean score for negative cognitive style ($F(1,36) = 5.74$, $p = 0.022$) was approaching significance,[1] such that the parasuicides score higher than the controls; no such trend was evident for the cognitive style for positive events. The expected interaction between frequency of future thoughts (positive/negative future thoughts for next week + next year + next 5 to 10 years) and participant group (parasuicide/control) was not significant, although the trend was in the hypothesized direction. Specifically, the parasuicides were no more likely, than the controls, to generate more negative thoughts for the future. However, compared to the controls, they were impaired in generating positive future thoughts, albeit not significantly so (see Table 1). The groups did not differ in terms of standard verbal fluency ($t(38) = 1.25$, NS). There was only one significant gender × group interaction, for anxiety. Male controls (M = 3.57, SD = 1.81) were significantly more anxious than female controls (M = 10.54, SD = 3.99).

All variables[2] were entered into a stepwise multiple regression, with hopelessness as the dependent variable. The resultant three variable regression models accounted for 70.5% of the hopelessness variance ($R^2 = 0.705$). Depression, itself, explained more than 50% ($R^2$ change = 0.510) of the hopelessness variance and positive future thoughts and negative cognitive style added 13.8% ($R^2$ change = 0.138) and 5.7% ($R^2$ change = 0.057) respectively. As predicted, negative future thoughts, cognitive style for positive events and anxiety scores were excluded from the model and did not account for any additional variance.

Future positive thoughts (FPT) was not significantly correlated with depression ($r = -0.140$, NS), nor negative cognitive style ($r = 0.097$, NS); FPT seems to contribute independently to hopelessness (see Table 2). Negative cognitive style was highly correlated with depression ($r = 0.531$, $p < 0.01$) and hopelessness ($r = 0.512$, $p < 0.01$), yet it added

**Table 1.** *Mean scores (standard deviations in parentheses) for variables by group and levels of significance*

| Variable | Parasuicides ($N = 20$) | Hospital controls ($N = 20$) | $F$ | $p$ |
|---|---|---|---|---|
| Hopelessness | 9.35 (6.23) | 4.00 (3.74) | 13.75 | **0.001** |
| Depression | 11.00 (3.70) | 3.70 (3.33) | 26.27 | **0.0001** |
| Anxiety | 11.55 (4.73) | 8.10 (4.77) | 10.90 | **0.002** |
| CSQ.Neg | 1.95 (0.51) | 1.60 (0.52) | 5.74 | 0.022 |
| CSQ.Pos | 1.93 (0.36) | 1.99 (0.36) | 0.002 | 0.961 |
| FTPosTOT | 7.25 (6.10) | 8.30 (6.0) | 2.34 | 0.135 |
| FTNegTOT | 5.90 (3.78) | 3.85 (4.38) | 0.291 | 0.593 |

*Note.* CSQ.Neg: Negative cognitive style; CSQ.Pos: Positive cognitive style; FTPosTot: Positive future thoughts; FTNegTot: Negative future thoughts.

* Significance levels are main effects of group derived from two-way ANOVAs (group × gender). To reduce the likelihood of making a Type I error, $p < 0.01$ was taken as the critical level of significance.

**Table 2.** *Correlations between hopelessness and predictor variables*

| | Hopelessness | Anxiety | Depression | CSQ.NEG | CSQ.POS | FTPosTOT | FTNegTOT |
|---|---|---|---|---|---|---|---|
| Hopelessness | 1.000 | 0.592** | 0.696** | 0.512** | − 0.151 | − 0.446** | 0.069 |
| Anxiety | 0.592** | 1.000 | 0.779** | 0.579** | 0.199 | − 0.212 | 0.137 |
| Depression | 0.696** | 0.779** | 1.000 | 0.531** | 0.074 | − 0.140 | 0.241 |
| CSQ.NEG | 0.512** | 0.579** | 0.531** | 1.000 | 0.091 | 0.097 | 0.370* |
| CSQ.POS | − 0.151 | 0.199 | 0.074 | 0.091 | 1.000 | 0.208 | 0.033 |
| FTPosTOT | − 0.446** | − 0.212 | − 0.140 | 0.097 | 0.208 | 1.000 | 0.618** |
| FTNegTOT | 0.069 | 0.137 | 0.241 | 0.370* | 0.033 | 0.618** | 1.000 |

** Pearson correlation is significant at 0.01.
* Pearson correlation is significant at 0.05.

**Table 3.** *Stepwise multiple regression analysis predicting hopelessness scores*

| Step/predictor | $R$ | $R^2$ | Increment to $R^2$ | $F$ for change | Final $\beta$ |
|---|---|---|---|---|---|
| Depression | 0.71 | 0.510 | 0.510 | 38.53 | 0.50 |
| Future positive thoughts | 0.81 | 0.648 | 0.138 | 33.09 | − 0.42 |
| Negative cognitive style | 0.84 | 0.705 | 0.570 | 27.851 | 0.288 |

independently to the amount of hopelessness variance explained. This model is represented in Table 3. Correlations were also carried out separately for the parasuicides and the controls, and for the most part the significant correlations remained. However, the correlations for negative cognitive style, future thinking and hopelessness and negative cognitive style and depression in the control group did not yield significance. This supports the diathesis-stress models (e.g. Brown & Harris, 1989), which posit that relationships between variables may only become evident in times of high psychological distress.

## Discussion

To our knowledge this is the first study that has looked at cognitive style (as measured by CSQ), future thinking and hopelessness in a suicidal population. Independent of MacLeod *et al.* (1997), we have evidence to support the notion that positive future directed thinking interacts with hopelessness separately from depression. Second, it seems that, contrary to the hypothesis, negative cognitive style is not associated with one's ability to generate positive future experiences. These two findings have direct implications for clinical practice, in the development of interventions to combat parasuicidal behaviour. Interventions aimed at modifying habitual cognitive style for negative events will have no impact on the future thinking–hopelessness pathway; rather they will effect, for the most part, the negative cognitive style–depression–hopelessness pathway.

Unlike MacLeod's previous work on future thinking, we found no significant difference between the parasuicides and the controls in terms of positive future thoughts, albeit the predicted trend was evident. This may be an artefact of the population from which the hospital controls were drawn. Some of the hospital controls had been admitted for quite serious physical problems (e.g. intravenous drug use), whereas the hospital controls examined elsewhere (MacLeod *et al.*, 1997; 1993) had been admitted to hospital presenting with *minor*

physical complaints. Future research should address this, and investigate the pattern of future thinking in an IV drug using population, compared with parasuicides and controls. The hypothesis that negative cognitive style would be associated with hopelessness independent of depression was supported. However, despite its large correlation with depression, negative cognitive style still contributed (5.7%) independently to explain hopelessness. The group × gender interaction for anxiety levels in the control group is interesting. It supports the traditional stereotype of men, that they become more anxious than women, when presented with similar circumstances.

It seems that both positive future thinking and negative cognitive style are involved in the aetiology of hopelessness but positive future thinking has its impact irrespective of cognitive style. If future thinking is central to predicting hopelessness and suicidal behaviour, and it is not mediated by negative cognitive style, then it is incumbent on us to investigate further its development and maintenance. One possible pathway through which future thinking may act is via perfectionistic tendencies. These have been implicated already in psychopathology, albeit primarily with non-clinical populations (Hewitt & Flett, 1991). This avenue of research is amenable to considerable exploration.

The relationship between cognitive style, future thinking and hopelessness is complex. As yet, we are unclear what factors are implicated in impaired future positive thinking. What is evident is that cognitive vulnerability, characterized by negative cognitive style, does not mediate the development of future thinking. However, this study was cross-sectional in nature, therefore it was beyond its scope to elucidate the prospective pathway between cognitive style, depression and hopelessness. Hence, longitudinal studies are essential to tease out these relationships; for instance, we have yet to determine whether cognitive dysfunction is a cause or consequence of depression. The answer to this question, at the very least, will inform the identification and treatment of individuals at risk from depression and suicidal behaviour. Some may argue about the 'transient' nature of self-report measures (Davies, 1997), and yes indeed this is a consideration. However, studies must be practicable; all methods of investigation have their limitations, including the psychiatric assessment which decides a patient's treatment protocol.

## Notes

[1] To reduce the likelihood of making a Type I error, the level of significance was set at $p < 0.01$.

[2] The following variables were log 10 transformed: depression, anxiety, cognitive style.

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