RUNNING HEAD: Positive expectancies, hopelessness and suicidal ideation

A comparison of specific positive future expectancies and global hopelessness as

predictors of suicidal ideation in a prospective study of repeat self-harmers

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Abstract

Background. Hopelessness and the lack of positive future expectancies have been related to suicidality. This is the first study to compare the power of positive future expectancies and global hopelessness in the prediction of suicidal ideation. In short, are specific positive expectancies or global hopelessness attitudes more closely related to suicidality?

Method. One hundred and forty four adults hospitalized following a suicidal self-harm episode completed a range of clinical and psychological measures in hospital and were followed up approximately 2.5 months after discharge. All participants reported at least one other self-harm episode in addition to the index episode.

Results. Hierarchical regression analyses confirmed that specific positive future expectancies were better predictors of Time 2 suicidal ideation than global hopelessness. In addition, as hypothesized, negative future thinking was not independently associated with suicidal ideation.

Limitations. Short-term follow-up.

Conclusions.   Specific, idiographic expectancies for positive events (i.e., positive future thinking) are more important predictors of suicidal ideation than global attitudes of hopelessness. Unlike global hopelessness, they provide more options for intervention (e.g., identifying life goals and plans). These findings are particularly noteworthy given the widespread use of measures of global hopelessness. The theoretical and clinical implications are discussed.

Key Words: hopelessness; suicidal; future thinking; self-harm; prospective

Introduction

Approximately one million people kill themselves globally per annum (World Health Organization, 2000) and a history of self-harm is the best predictor of completed suicide (Maris, 1991). Moreover, as many as two thirds of those who complete suicide have attempted suicide at least once previously (e.g., Appleby et al., 1999; Isometsa & Lonnqvist, 1998). Consequently, research in suicidology, including the present study, often focuses on non-fatal suicide attempters to improve our understanding of the etiology of suicidal ideation and behaviour.

Hopelessness, Future Expectancies and Suicidality

Studies focused on global hopelessness, defined as global attitudes of pessimism for the future, have been common and fruitful in suicide research for many decades. Indeed, the link between hopelessness and suicide is powerful and well established, such that it is a key risk factor for suicidality (Beck et al., 1990; Kazdin et al.,1983; O'Connor & Sheehy, 2000; 2001). Moreover, global hopelessness mediates the relationship between depression and suicidality (Salter & Platt, 1990), as well as predicting suicidal repetition (Petrie et al.,1988) and completed suicide (Beck et al., 1989). However, up until the 1990s (MacLeod et al., 1993) it was not clear which components of pessimism for the future were most pernicious. Specifically, is the absence of positive expectancies for the future functionally equivalent to the presence of the negative expectancies for the future – and indeed are these two conceptualizations of the future differentially associated with suicide risk?

To investigate this issue, MacLeod and colleagues devised the Future Thinking Task (MacLeod et al.,1997) which requires participants to generate (within time constraints) events that they are looking forward to (positive future expectancies) and those which they are worried about (negative future expectancies). In a series of

studies, MacLeod and others thereafter found that positive and negative future expectations are not functionally equivalent and that the lack of positive future thinking is particularly associated with suicide risk, while negative future expectations, for the most part, are not independently associated with suicidality (MacLeod et al., 1998, 1997, 1993; Hunter & O'Connor, 2003; O'Connor et al., 2007, 2004, 2000). In short, suicidal individuals are impaired at generating positive future expectancies. What is more, the specific and deleterious effect of the lack of positive future thinking is independent of verbal fluency, depression and negative attributional style (MacLeod et al., 1997; O'Connor et al., 2000; O'Connor & Cassidy, 2007).

Theoretical Context

The conceptualization of suicidal behaviour as an inability to generate positive future expectations fits with a predominant model of suicidal behaviour: The Cry of Pain model (Williams, 2001; Williams et al., 2005a,b; see also O'Connor, 2003). Williams' model builds upon Baumeister's *Suicide as Escape from Self* (1990) account of suicide by viewing suicidal risk as a response to entrapment rather than escape per se. In short, the Cry of Pain model argues that suicidal behaviour is reactive, a response to a stressful situation that has three components: defeat, no escape and no rescue. Accordingly, if you have fewer positive future expectancies (low potential rescue), this may increase your suicide risk because it increases the likelihood that you perceive yourself to be in state of entrapment which is inescapable. Specifically, we would argue that enjoyable and meaningful things (i.e., positive future thoughts), if present, would rescue people from their misery, despair and unbearable psychological pain – thereby reducing thoughts of entrapment. In addition, one's capacity to generate and pursue future expectations is akin to the

identification, pursuit and attainment of goals as described by Carver and Scheier in their model of self-regulation (e.g., Carver & Scheier, 1998).

Despite the growing corpus of cross-sectional, case-control and prospective studies drawn from both clinical and non-clinical populations which demonstrates this positive future thinking effect, it has yet to be determined whether positive future thinking is indeed a proximal, prospective predictor of suicidality beyond the effects of hopelessness–an established suicide risk factor. Consequently, the central aim of this study is to compare the relative importance of global, self-report hopelessness (as assessed by the Beck Hopelessness Scale; Beck et al., 1974) and specific, idiographic expectancies for positive events (i.e., positive future thinking) in the prediction of suicidal ideation.

The present study

In the present investigation, we recruited repeat self-harm patients who completed a range of clinical and psychological measures within 24 hours of a self-harm episode and then followed them up again, on average, 2.5 months later. We limited our inclusion to repeaters given that a history of self-harm is a stronger predictor of repetitive self-harm and completed suicide than no self-harm history (e.g., Appleby et al., 1999). In addition, given that the suicidal intent of a self-harm episode rather than the seriousness is often a better predictor of repeat suicidal behaviour and completed suicide, we focussed on those self-harmers who reported suicidal intent (Hawton, 2000; Skegg, 2005). As the main aim of the present study was to test empirical research questions rather than to determine clinical outcome per se, we chose a relatively short follow-up period (i.e., 2.5 months) to minimize participant attrition but at the same time allowing for a significant change in our outcome variable (i.e.,

suicidal ideation) between Time 1 and Time 2 (similar to Spirito et al., 2003; O'Connor et al., 2007).

In short, we addressed one central research question. Are specific positive future expectancies more important than global attitudes of hopelessness in the prediction of suicidal ideation? In addition, we hypothesised that negative future expectancies would not be independent predictors of suicidal ideation.

Method

Participants and Procedure

We recruited patients from a general hospital following an episode of self-harm (ICD codes X60-X84) and measured their psychological well-being then and again 2.5 months later. Two hundred and thirty seven adults (16 years of age or 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 (89%), physical self-injury (8%) or both (4%) were recruited to the study. Exclusions were limited to participants who reported no previous self-harm history, who did not report suicidal intent, who were unfit for interview (e.g., psychotic), unable to give informed consent (e.g., medically unfit to give informed consent) or unable to understand English. All participants reported having self-harmed at least once prior to the present episode; 78 (33.1%) had self-harmed once previously, 38 (16.1%) twice previously, 25 (10.1%) had self-harmed 3 times in the past and 96 (40.7%) had self-harmed four or more times previously. The majority of patients were recruited from the Combined Assessment Unit (90%). The profile of participants recruited from A&E (10%) was similar to that of those recruited from the Combined Assessment Unit. Consistent with other such studies (e.g., MacLeod et al., 1997), this did not represent a

consecutive sample; rather it reflects the practical limitations of recruiting via a general hospital. The present sample is not representative of all self-harmers who present to general hospital (which would include first-time self-harmers and those who do not admit suicidal intent). Approximately ten percent of participants who were approached declined to take part. There were 151 females and 86 males with an overall mean age of 36.9 years (SD=13.0, range=16 to 73 years). The men (M=39.8, SD=11.6) were significantly older than the women (M=35.2, SD=13.4), $t(235)=2.78$, $p<.01$.

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 National Health Services Research Ethics Committee and the University Department.

At Time 1, patients were interviewed in hospital, usually within 24 hours of admission. The future thinking task was always administered first to reduce contamination effects followed by measures of hopelessness, anxiety, depression and suicidal thinking but the order of presentation of these measures was counterbalanced. At Time 2, on average 2.5 months later (*M*=9.8 weeks, *SD*=6.2), patients were contacted again and asked to complete the suicide ideation subscale of the Suicide Probability Scale (Cull & Gill, 1988). The Suicide Probability Scale was included as it is a recognized predictor of suicide risk (e.g., Larzelere et al., 1996; Witte et al., 2005) and it has been shown to be sensitive to changes in suicidality (e.g., Rudd et al., 1996). To maximize follow-up, we made concerted efforts to contact all participants via post, email and telephone.

Baseline Measures

Positive Expectancies. Positive expectancies were recorded via the Future Thinking Task (FTT; MacLeod et al., 1997). This requires participants to think of potential future experiences across three time periods–the next week (including today), the next year and the next five to ten years. This is completed for positive and negative future thoughts (i.e., positive and negative valence). On each occasion, participants have one minute 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 one minute 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, i.e., the total number of positive and negative thoughts per participant.

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"). Respondents are asked to indicate how often they feel the statement applies to them from none or a little of time (1) to most or all of the time (4).   Maximum score is 32. The scale is reliable and valid (Cull & Gill, 1988). Cronbach's α=.82.

Hopelessness. Hopelessness was measured using the 20-item Beck Hopelessness Scale (BHS; 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"). Higher scores represent elevated

hopelessness. This is a reliable and valid measure that has been shown to predict eventual suicide (Beck et al., 1985; 1974). In the present study, internal consistency was very good (Kuder-Richardson–20 = .87).

Suicidal Intent. All participants were asked for details about the current self-harm episode, specifically regarding whether they had intended to end their life. We employed the suicidal intent question from Beck's Suicide Intent Scale (Beck, Schuyler, & Herman, 1974). For analytic purposes, only those who answered 'yes' during the clinical interview were included in this study.

Anxiety and Depression.   The Hospital Anxiety and Depression Scale (HADS) was employed to measure anxiety (e.g., "Worrying thoughts go through my mind") and depression (e.g., "I look forward with enjoyment to things"; Zigmond & Snaith, 1983). It consists of 14 questions, seven each to measure depression and anxiety. The HADS is a reliable and valid measure of affect. Internal consistency (α) for depression and anxiety was .71 and .70, respectively.

Follow-up Measures

Participants completed the suicide ideation subscale of the Suicide Probability Scale (Suicidal ideation-T2; α =.93) at Time 2.

Statistical Analyses

First, we describe the sample (correlations, means and SDs) and then we present a the hierarchical regression analysis with those participants who completed measures at Time 1 and Time 2, to probe the central research question. In addition, as age and sex differences exist in respect of affect and suicidality (O'Connor & Sheehy, 2000), we controlled for their potential effects in all multivariate analyses.

Results

Of the initial sample, 61% (*n*=144) completed measures at both time points, at

Time 1 (Time 1) and Time 2 (T2), approximately 2.5 months later therefore all

forthcoming analyses are circumscribed to these individuals. Our follow-up rate

compares favorably to other studies in the field (e.g., Walker et al., 2001; Wingate et

al., 2005). Those who did not complete the T2 measures did not differ significantly

from those who did in terms of age, $t(235)$=.791, *ns*, marital status, χ^2 (2)=3.71 *ns* and

sex, χ^2 (1)=.15, *ns*. They also did not differ significantly in any of the other T1

variables (i.e., suicidal ideation, hopelessness, depression, anxiety or future thinking;

range: $t(235)$=.19 to 1.59, *ns*). Critically, the groups did not differ in terms of self-

harm history, χ^2 (3)=.58, *ns*. The majority of those who did not participate failed to

respond to our correspondence and/or telephone calls concerning Time 2 completion.

A small number formally declined to participate in the follow-up (n=2) and two

people died during the study period (one died by suicide and one of liver cancer). As

anticipated, participants reported significantly lower levels of suicidal ideation at T2

(M=17.47, SD=7.54) compared with T1 (M=22.45, SD=5.58), $F(1, 142)$=55.18,

p<.001, and there was no gender difference nor gender x time interaction. There were

also no significant correlations between standard verbal fluency and suicidal thinking

at T1 or T2 (*r*=-.062 and =-.105, *ns,* respectively).

[Insert Table 1 about here]

Correlations and Hierarchical Regression Analyses

Zero-order correlations, means and standard deviations for the baseline and

outcome variables are presented in Table 1. As expected, suicidal thinking (at T1 and

T2) was positively correlated with each measure of mood (i.e., depression, anxiety

and hopelessness). Baseline hopelessness was negative correlated with positive future

thinking but it did not co-vary with negative future thinking. Positive future thinking also correlated negatively with suicidal-T2, hopelessness and depression. Negative future thinking was only weakly correlated with anxiety and suicidal-T2.

[Insert Table 2 about here]

Testing The Relative Strength of Positive Future Thinking and Global Hopelessness as Predictors of Time 2 Suicidal Ideation.[2]

To ensure a rigorous test of the respective strengths of positive future expectancies and global hopelessness in predicting T2 suicidal ideation, we controlled for the effects of sex, age, baseline depression, anxiety and suicidal ideation in the first step of the hierarchical regression analysis (see Table 2). Next, hopelessness was entered as a predictor of Time 2 suicidal ideation at step 2, followed by positive future thinking at step 3.

As is evident in Table 2, after controlling for sex, age, baseline depression, anxiety and suicidal ideation, T1 hopelessness is a significant predictor of T2 suicidal ideation at step 2, β=.284, t(143)=2.74, p<.01. However, positive future thinking is a significant predictor of T2 suicidal ideation at step 3, β=-.251, t(143)=-3.10, p<.01, and hopelessness is reduced to non-significance, β=.186, t(143)=1.76, *ns*
It is also noteworthy that, not only does positive future thinking render hopelessness a non-significant predictor but it explains an additional 5% suicide ideation variance (Cohen's f^2 =.07)–a small-to-moderate effect size (Cohen, 1992).

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[2] Given the heterogeneous nature of self-harm, for the present purposes we circumscribed our analyses to suicidal repeaters. Our sample forms part of a larger sample of self-harmers. Indeed, when the analyses are conducted aggregating non-suicidal as well as suicidal self-harmers and first-timers as well as repeaters, similar trends are found to those reported here, however, on the whole, they do not meet conventional levels of significance.

Testing Negative Future Thinking as an Independent Predictor of Suicidal Ideation

As predicted negative future thinking did not predict Time 2 suicidal ideation independent of positive future thinking, β=-.069, t(143)=-.750, *ns*

Discussion

There was clear support for the central hypothesis. Positive future thinking was a stronger predictor of Time 2 suicidal ideation independent of age, sex, baseline mood and suicidal ideation than hopelessness. This suggests that specific, idiographic expectancies for positive events are clearer predictors of suicidal ideation than global, self-report hopelessness. In addition, as predicted, there was no independent effect of negative future thinking.   This is the first study to demonstrate that positive future thinking is a proximal predictor of suicidal ideation beyond the effects of hopelessness. Pessimism for the future characterized by the lack of specific positive future expectancies is especially pernicious in suicidality (MacLeod et al., 1997; Hunter & O'Connor, 2003; O'Connor & Cassidy, 2007). Moreover, the deleterious consequences of future expectancies are valence-specific, as negative future expectancies are not independently predictive of suicidal ideation.

It could be argued that the findings merely reflect the fact that global hopelessness is assessed on the same scale as suicidal ideation and, therefore, the main reason why positive future thinking emerges as a better predictor of suicidal ideation is largely a measurement issue. In other words, because the variance shared by future thinking and the other Likert-type response measures is considerably less than that between hopelessness and each of the other Time 1 measures, when T1 variance is removed, future thinking is statistically more likely to explain addditional T2 suicidal ideation variance. However, over and above this measurement issue, it is precisely because positive future thinking is a measure of performance (comprised of specific

cognitions) relatively uncontaminated by shared variance and mood-congruent response biases that we are able to better understand the relationship between future thinking and suicidal ideation (MacLeod, personal communication). The pre-eminence of positive future thinking in the prediction of suicidal ideation is particularly important given the widespread use of measures of global hopelessness to assess suicide risk. The unexpected lack of correlation between positive future thinking and time one suicidal ideation may reflect the fact that the lack of positive future thinking does not have a deleterious effect in the immediate aftermath of suicidal episode when medical concerns rather than concerns about the future take precedence.

The present findings are consistent with the Cry of Pain model of suicidal behaviour (Williams, 2001; O'Connor, 2003). Within the context of this model, our findings suggest that the lack of positive future thinking may act to elevate suicide risk by increasing the likelihood that one sees no way out of a situation which they perceive as inescapable. Specifically, the relative poverty of enjoyable and meaningful things in the future (i.e., few positive future thoughts) is akin to a paucity of reasons for living, which, if present may rescue people from misery, despair and psychological pain by reducing feelings of entrapment. It is also important to note, though, that positive future thoughts not only act as rescue factors from psychological pain but they directly contribute to the quality of one's life[3]. The positive future thinking effect is also notable as it translates into a small-to-moderate effect size (Cohen, 1992). Indeed, following a recent critique of behavioural medicine research, Rutledge and Loh (2004) highlighted the considerable, clinical implications of small statistical effects (e.g., aspirin). In addition, the power of the positive future thinking

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[3] Many thanks to one of the reviewers for this suggestion.

effect is all the more striking as it predicts psychological outcome at Time 2 (2.5

months following index episode) while controlling for initial suicidal ideation, mood,

age and sex.

Implications

There are also a number of clinical implications from this research. First, our data

suggest a specific cognitive-behavioural mechanism (i.e., positive expectancies–

suicidal behaviour) on which a treatment intervention could be developed.

Specifically, a major advantage of the future thinking task over global measures of

hopelessness is that the completion of the task provides concrete suggestions which

could be incorporated into clinical interventions, for example, the identification of life

goals and plans (MacLeod, personal communication). Indeed, MacLeod and

colleagues recently demonstrated that positive future thinking could be improved in

self-harm patients in the short-term (MacLeod et al., 1998).

Second, whereas global hopelessness is concerned with a generalized state of

pessimism for the future, an advantage of the positive future thinking effect is that it

points to specific positive cognitions embedded in different future-oriented time

frames which, if modified, (i.e., increase one's positive future expectations) could

reduce suicide risk. In other words, it ought to be possible to tailor an intervention,

preferably within a problem-solving framework (Townsend et al., 2001), based on an

individual's positive future expectancies. A similar approach has been employed

successfully by Jobes in his Collaborative Assessment and Management of Suicidality

model (CAMS; Jobes, 2006) wherein patients are asked to identify reasons for living

and dying and these are addressed in treatment.   With respect to Williams' model of

suicidal behaviour, our data highlight a cognitive mechanism, positive future thinking,

which can explain, in part, how in the absence of rescue factors, entrapment may lead

to suicidal behaviour. They also reinforce Carver and Scheier's position that one's ability to identify, pursue and attain goals is central to adaptive self-regulation (Carver & Scheier, 1998).   Finally, Williams and colleagues have previously demonstrated that deficits in autobiographical memory are related to the specificity of future thinking and autobiographical memory biases are linked to impaired social problem-solving (Williams et al., 1996; Pollock & Williams, 2001). Consequently, it would be interesting to determine to extent to which interventions aimed at modifying overgeneral autobiographical memory biases decrease suicide risk by increasing positive future thinking.

Although the present study had a number of strengths, two potential limitations require comment. First, it may be argued that the duration between Time 1 and Time 2 was not long enough. However, we disagree. Few studies have assessed the *short-term* course of psychological symptoms following a suicidal episode and those which have usually limited follow-up to no more than one month (e.g., Jallade et al., 2005; Sarfati et al., 2003). Also, as the primary aim of this study is empirical and theoretical–to determine the relative strength of global hopelessness and specific future expectancies in the prediction of suicidal ideation–the specific timeframe is not central to the testing of the hypotheses. Rather, it is essential that there are significant changes in well-being between Time 1 and Time 2 to tease out the relationships between variables. Second, our assessment of suicidal intent is noteworthy. To minimise the testing load, we asked participants whether the index self-harm episode was intended to end their lives: we employed the suicidal intent question from Beck's Suicidal Intent Scale (Beck et al., 1974). We believe that this is a valid method of suicidal intent assessment because it is also consistent with O'Carroll et al.'s (1996) definition of suicide attempt (by determining that the patient intended at some non-

zero level to kill him/herself), it has face validity and it is easy to administer.

Moreover, to minimize demand characteristics, we highlighted to participants that we

were researchers, independent of the clinical team. However, we do acknowledge that

the use of the complete Beck Suicidal Intent Scale which records medical and

circumstantial factors would have strengthened the findings.

There are a number of implications for future research. Despite employing a

prospective study design, we were unable to disentangle the causal relations between

variables. Therefore, future research could usefully address this by conducting

experimental studies to determine whether, for example, the experimental

enhancement of positive future thinking leads to decreased suicidality over time. It

would also be useful to determine the extent to which other personality and cognitive

factors are implicated in the etiology of positive future thinking. Although we

focused on the months immediately following the self-harm episode, it would be

clinically useful to extend the follow-up period. For example, do positive future

expectations predict suicidal ideation over the longer term? Indeed, do they predict

repeat suicidal behaviour and completed suicide?

Conclusion

This is the first study to demonstrate that positive future expectancies are proximal

predictors of suicidal ideation. Specific, idiosyncratic future positive expectancies are

better predictors of suicidality than global hopelessness independently of baseline

mood, suicidal ideation, age and sex. The findings are also consistent with the Cry of

Pain model of suicidal behaviour and suggest a cognitive mechanism which could be

integrated into a treatment trial to reduce suicidal risk.

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Table 1. *Correlations, Means and SDs for All The Study Variables*

	Suicidal-T1	Suicidal-T2	Hopelessness	Depression	Anxiety	PFT	NFT
Suicidal-T1	-						
Suicidal-T2	.399***	-					
Hopelessness	.575***	.463***	-				
Depression	.362***	.340***	.566***	-			
Anxiety	.258***	.212**	.357***	.354***	-		
PFT	-.058	-.347***	-.340***	-.269**	-.042	-	
NFT	.040	-.174*	-.007	-.074	.144*	.570***	-
Mean (SD)	22.45(5.58)	17.47(7.54)	14.60(4.57)	12.75(4.35)	15.33(3.96)	2.61(2.34)	2.95(2.32)

Note. *$p<.05$, **$p<.01$, ***$p<.001$. Suicidal-T1=suicidal ideation at Time 1, Suicidal-T2=suicidal ideation at Time 2, PFT=Positive Future Thinking Total, NFT=Negative Future Thinking Total

Table 2. *Hierarchical Regression Analysis Testing the Mediating Effects of Positive Future Thinking (PFT) on the Relationship between Hopelessness and Time 2 Suicidal Ideation Among Suicidal Self-Harmers*

Step	Variable	β at step	ΔR^2 for step	Total R^2
Step 1	Age	.058		
	Sex	-.034		
	Depression	.205*		
	Anxiety	.061		
	Suicidal-T1	.326***	.211***	.211***
Step 2	Age	.038		
	Sex	-.037		
	Depression	.099		
	Anxiety	.028		
	Suicidal-T1	.203*		
	Hopelessness	.284**	.041**	.252***
Step 3	Age	-.002		
	Sex	-.001		
	Depression	.062		
	Anxiety	.051		
	Suicidal-T1	.241*		
	Hopelessness	.186		
	PFT	-.251**	.049**	.301***

Note. *p<.05, **p<.01, ***p<.001. Suicidal-T1=suicidal ideation at Time 1, PFT=Positive Future Thinking Total