

RUNNING HEAD: Self-regulation of unattainable goals in suicide attempters

Self-regulation of unattainable goals in suicide attempters: the relationship between
goal disengagement, goal reengagement and suicidal ideation

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Abstract

There is growing interest in models of adaptive self-regulation. Recent research suggests that goal disengagement and goal reengagement (i.e., goal adjustment) are implicated in the self-regulation of emotion. This study extends the self-regulation research to investigate the utility of goal adjustment in understanding suicidal risk. To this end, two hundred adults hospitalised following a suicidal episode completed a range of clinical and psychological measures in hospital and were followed up approximately 2.5 months after discharge (Time 2). Hierarchical regression analyses showed that goal reengagement predicted suicidal ideation at Time 2. In addition, the lack of goal reengagement was especially pernicious when reported concomitantly with high disengagement. These predictive effects were independent of baseline mood, attempt status and suicidal intent. The theoretical and clinical implications are discussed.

Key words: goal adjustment; suicidal; self-regulation; self-harm; prospective

Introduction

“Goals give meaning to people’s lives, [that] understanding the person means understanding the person’s goals” (Carver, 2004, p.14)

In recent decades there has been considerable interest in understanding self-regulation (e.g., Baumeister & Vohs, 2004; Carver & Scheier, 1998, 1981; Heckhausen & Schulz, 1995; Hoyle, Kernis, Leary, & Baldwin, 1999), defined as “the many processes by which the psyche exercises control over its functions, states and inner processes” (Vohs & Baumeister, 2004, p.1). Indeed, one of the processes thought to be central to adaptive self-regulation is goal pursuit, one’s ability to identify, pursue and attain goals (Carver & Scheier, 1998; O’Connor & Cassidy, 2007; O’Connor & Forgan, 2007; Sheldon, Ryan, Deci, & Kasser, 2004). More recently, however, adaptive self-regulation has been extended to include the opposite of goal pursuit, namely one’s capacity to relinquish unattainable personal goals (Wrosch, Scheier, Carver, & Schulz, 2003a; Wrosch, Scheier, Miller, Schulz, & Carver, 2003b). The rationale for this extension is straightforward: it is a burden on resources if we continue to direct effort at a target goal which is unattainable (Carver & Scheier, 1998; Wrosch & Scheier, 2003). As a result, Wrosch and others proposed that there are more benefits to disengaging from unattainable goals (goal disengagement) and re-directing attention towards other attainable goals (goal reengagement; Wrosch et al., 2003a,b). Consistent with this standpoint, in a series of studies, Wrosch and colleagues (2003b) demonstrated that not only were goal disengagement and goal reengagement associated with high subjective well-being but that goal disengagement and goal reengagement could have interactive effects. For example, in a sample of undergraduates, goal reengagement was particularly associated with subjective well-

being when the students had difficulties disengaging from unattainable goals (Wrosch et al., 2003b, Study 2). Conversely, though, Wrosch et al. (2003b, Study 2) also found that disengagement from unattainable goals was deleterious among older people if they had difficulties re-engaging in new goals. In short, they concluded that if older adults have few alternative new goals, it may be better for them to continue to pursue an unattainable goal than to have no active goal pursuit (Wrosch et al., 2003b, Study 2).

Taking the findings from the younger and older samples together illustrates (i) the utility of studying goal disengagement and goal reengagement (i.e., goal adjustment) in the context of emotional self-regulation and (ii) highlights that the role of goal reengagement and goal disengagement is population-specific. Therefore, in the present study, we aimed to extend the existing self-regulation evidence base by investigating the utility of goal adjustment in predicting emotional outcome in a sample of suicide attempters. Our rationale for extending the goal adjustment paradigm to suicide attempters is also informed by a previous study conducted by our group (O'Connor & Forgan, 2007) and by the research evidence on positive future thinking (MacLeod et al., 1993, 1997, 1998; O'Connor et al., 2000, 2007, 2008). In the former study, we yielded evidence from a cross-sectional study of college students that goal reengagement was an important construct in the suicidal process (O'Connor & Forgan, 2007); specifically that it was a proximal predictor of suicidal ideation.

In respect of the positive future thinking literature, it is now generally accepted that suicidal individuals differ from non-suicidal individuals in terms of their capacity to generate future thoughts of positive valence: A number of research groups have now shown that suicidal ideation and behaviour are characterised by impaired positive future thinking rather than a preponderance of negative future thinking (MacLeod et

al., 1993, 1997, 1998; Hunter & O'Connor, 2003; O'Connor et al., 2000, 2007, 2008; Williams et al., 2008). Indeed, if one integrates the future thinking and adaptive self-regulation literatures, it is reasonable to suggest that positive future thoughts and goal reengagement may represent different operationalisations of the same construct (i.e., future personal goals). Based on this rationale, we hypothesised that low levels of goal reengagement (rather than goal disengagement) would be particularly pertinent in understanding suicidal risk. However, the negative impact of low goal reengagement is likely to be more pernicious when experienced concomitantly with high levels of disengagement. Such a view is consistent with Carver and Scheier's concept of complete disengagement: "...if an acceptable substitute goal is lacking, people sometimes take steps to disengage more quickly and more completely. This may be the essence of the impulse to commit suicide." (Carver & Scheier, 1998, p.351). To our knowledge, this is the first study to directly test Carver & Scheier's postulation.

The present study

In the present investigation, we recruited suicidal patients who completed a range of clinical and psychological measures within 24 hours of a suicidal episode and then followed them up again, on average, 2.5 months later. As the suicidal intent of a self-harm episode is a better predictor of repeat suicidal behaviour and completed suicide than seriousness of the attempt, we did not include non-suicidal self-harmers (Hawton, 2000; Skegg, 2005). Given the empirical focus of this study, we chose a relatively short follow-up period (i.e., 2.5 months) to minimise participant attrition but at the same time to allow 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., 2008).

Aims

In the light of previous research, we formulated two research hypotheses. First, we hypothesised that goal reengagement would be a stronger predictor of suicidal ideation at Time 2 than goal disengagement and second, we hypothesised that the interaction between goal disengagement and goal reengagement would be especially deleterious. Specifically, consistent with complete disengagement (Carver & Scheier, 1998), we hypothesised that high levels of goal disengagement concomitant with low levels of goal reengagement would predict elevated suicidal thinking 2.5 months following a suicidal episode.

Method

Participants and Procedure

We recruited patients from a general hospital following a suicidal episode (ICD codes X60-X84) and measured their psychological well-being then and again 2.5 months later. Three hundred and twenty nine patients (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 (90%), physical self-injury (6%) or both (4%) were recruited to the study. Those patients 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 were excluded.

Attempt Status: Eighty four participants (25.5%) had never attempted before, 81 (24.6%) were single attempters and 164 (49.9%) were multiple attempters (i.e., history of two or more lifetime attempts). The majority of patients were recruited from the Combined Assessment Unit (89%). The profile of participants recruited from A&E (11%) 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. Approximately ten percent of participants who were approached declined to take part. There were 189 females (57.4%) and 140 males with an overall mean age of 35.3 years ($SD=13.7$, range=16 to 84 years). The men ($M=38.2$, $SD=13.6$) were significantly older than the women ($M=33.2$, $SD=13.4$), $t(327)=3.36$, $p<.001$.

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 order of presentation of the clinical and psychological measures was counterbalanced. At Time 2, on average 2.5 months later ($M=10.1$ weeks, $SD=6.9$), 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 recognised 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 suicidal ideation (e.g., Rudd et al., 1996; O'Connor & Noyce, 2007). To maximise follow-up, we made concerted efforts to contact all participants via post, email and telephone.

Of the initial sample, 61% ($n=200$) 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 favourably 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, $t(327)=1.00$, *ns*, marital status, $\chi^2(2)=1.92$ *ns* and sex, $\chi^2(1)=.48$, *ns*. With one exception, they also did not differ significantly in any of the T1 variables (i.e., depression, anxiety or goal adjustment; range: $t(327)=.33$ to 1.26 , *ns*): Those who completed T2 were significantly more suicidal at baseline ($M=21.50$, $SD=6.00$) compared to those who did not ($M=20.00$, $SD=6.12$), $t(327)=2.21$, $p<.05$. However, the groups did not differ in terms of attempt status, $\chi^2(2)=.64$, *ns*. The majority of those who did not participate failed to respond to our correspondence and/or telephone calls concerning T2 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).

Baseline Measures

Goal Adjustment. The goal adjustment scale (Wrosch et al., 2003b) is a 10-item instrument that consists of two subscales: (i) goal disengagement (4 items) and, (ii) goal reengagement (6 items). Goal disengagement measures one's perceived difficulty in reducing effort and relinquishing commitment toward unobtainable goals (e.g., "It's easy for me to reduce my effort toward the goal"[reverse scored]). The goal reengagement subscale taps one's perceived ability to reengage in other new goals if they face constraints on goal pursuits (e.g., "I think about other new goals to pursue"). Both subscales were internally consistent (Cronbach's $\alpha=.86$ and $.72$ for reengagement and disengagement, 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”). 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 $\alpha=.85$.

Suicidal Intent. All participants were asked 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 (i.e., those who were ambivalent about their intent were excluded).

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 .76 and .77, respectively.

Follow-up Measures

Participants completed the suicide ideation subscale of the Suicide Probability Scale (Suicidal ideation-T2; $\alpha=.94$) 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 (T1) and Time 2 (T2), to probe the two hypotheses. In addition, as age and sex differences exist in respect of affect and suicidal ideation (O’Connor & Sheehy, 2000) and as attempt history is an important predictor of future problems (Haw,

Bergen, Casey & Hawton, 2007), we controlled for their potential effects in all multivariate analyses.

Results

As anticipated, participants reported significantly lower levels of suicidal ideation at T2 ($M=16.81$, $SD=7.47$) compared with T1 ($M=21.50$, $SD=6.00$), $F(1, 198)=86.70$, $p<.001$, and there was no gender difference nor gender x time interaction.

[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 anxiety, depression and attempt status. Goal reengagement was negatively correlated with all other variables whereas goal disengagement was only correlated, positively, with attempt status and suicidal thinking at T2, i.e, increased goal disengagement was associated with increased suicidal ideation. The correlation between goal reengagement ($r=-.315$, $p<.001$) and suicidal thinking was stronger than that between goal disengagement and suicidal thinking ($r=.155$, $p<.05$), $t(197)=398$, $p<.001$.

[Insert Table 2 about here]

Does Goal Adjustment Predict Time 2 Suicidal Ideation

To ensure a rigorous test of the goal adjustment–T2 suicidal ideation relationship, we controlled for the effects of sex, age, attempt status, baseline depression, anxiety and suicidal ideation in steps 1 and 2 of the hierarchical regression analysis (see Table 2). Next, goal disengagement and reengagement were entered at step 3 followed by the disengagement x reengagement multiplicative term at step 4.

As is evident in Table 2, after entering sex, age, attempt status, baseline depression, anxiety and suicidal ideation, T1 suicidal ideation is a significant predictor of T2 suicidal ideation at step 2, $\beta=.340$, $t(198)=4.35$, $p<.001$. However, goal reengagement, $\beta=-.141$ (198)= $p<.05$ but not disengagement, $\beta=.113$, $t(198)=1.83$, *ns*, is a significant predictor of T2 suicidal ideation in the next step. In the final model, though, the disengagement x reengagement interaction is significant, $\beta=-.232$, $t(198)=-3.56$, $p<.001$ as well as goal reengagement, $\beta=-.149$, $t(198)=-2.30$, $p<.05$.

[Insert Figure 1 about here]

To investigate the goal reengagement x disengagement interaction, consistent with Aiken & West (1991), we plotted the regression lines of best fit at high (1 standard deviation above the mean) and low (1 standard deviation below the mean) levels of reengagement/disengagement (see Figure 1). We conducted further tests separately on the slopes of the high- and low disengagement/reengagement lines to determine whether they were significantly different from zero. These post hoc tests revealed that the high disengagement line differed significantly from zero, $\beta=-.359$, $t(199)=-4.03$, $p<.001$ whereas the low line did not, $\beta=.061$, $t(199)=.71$, *ns*. In short, those participants who reported high levels of goal disengagement were significantly more suicidal at Time 2 if they also reported low levels of goal reengagement at baseline compared to those who reported high levels of reengagement.

It is also noteworthy that the inclusion of the goal adjustment variables together with their associated interaction term explained approximately 7% additional suicide ideation variance (Cohen's $f^2=.11$) which approximates to a medium effect size (Cohen, 1992). As goal disengagement was not a significant predictor of T2 suicidal ideation in the final model further testing of the relative strength of the goal reengagement/disengagement–suicidal ideation is redundant.

Discussion

There was clear support for the two hypotheses. Goal reengagement was a stronger predictor of Time 2 suicidal ideation than goal disengagement. In addition, those who reported high levels of goal disengagement coupled with low levels of goal reengagement at baseline exhibited significantly higher suicidal ideation at follow-up compared with those who reported high levels of goal reengagement and high disengagement. To our knowledge, this is the first clinical study to yield empirical evidence in support of Carver and Scheier's concept of complete disengagement (Carver & Scheier, 1998). Within a self-regulatory framework, our findings suggest that suicidal individuals disengage from unattainable goals but importantly, they do not engage in concomitant new goal pursuit. Needless to say, future research should attempt to uncover why these individuals cease to engage in novel goal pursuit. For example, is the cause motivational (e.g., the belief that new goal pursuit will be fruitless and end in failure) or situational (e.g., there are no alternative, attainable goals) or both? As goal engagement is thought to be a fundamental component of human development which provides purpose and meaning in life (Carver & Scheier, 1998; Ryff, 1989; Scheier & Carver, 2001; Wrosch et al., 2003b) it is unsurprising that frustrated goal pursuit is implicated in suicidal risk. This frustrated goal pursuit is likely to be akin to reasons for living which are important suicide protective factors (Jobes, 2006; Linehan et al., 1983).

More generally, our results provide further support for adaptive self-regulation as operationalised by Wrosch and colleagues (Wrosch et al., 2003a,b). They highlight the utility of goal pursuit and relinquishment in emotional self-regulation and reinforce the earlier research that the extent and direction of the interactive relationship between goal reengagement and disengagement is population-specific.

We have also extended to a clinical sample O'Connor and Forgan's (2007) finding that goal reengagement is a stronger, independent predictor of suicidal risk than goal disengagement. It is also noteworthy that the interactive goal adjustment pattern reported herein overlaps with that found in a community sample of older adults (Wrosch et al., 2003b, Study 2). In the latter study, lower levels of subjective well-being were experienced by those older adults who had disengaged from unattainable goals *but* who had difficulty finding new goals to pursue. It would be theoretically and conceptually interesting to investigate further how goal management processes change as a function of age, sex and emotional well-being.

The size of the goal adjustment effect is also notable as the additional suicidal ideation variance explained is closer to a medium than a small effect size (Cohen, 1992). Indeed, following a recent critique of behavioural medicine research, Rutledge and Loh (2004) highlighted the clinical implications of even small statistical effects (e.g., aspirin). In addition, the effect is all the more significant as it predicts suicidal ideation at Time 2 (2.5 months following index episode) while controlling for initial suicidal ideation, attempt status, mood, age and sex. Finally, although attempt status is often found to be a key predictor of future morbidity (e.g., Haw et al., 2007), our findings suggest that past history does not account for the relationship between goal adjustment and future suicidal ideation.

Implications and Limitations

There are a number of implications from this research. First, our data suggest a specific cognitive-behavioural mechanism (i.e., goal adjustment–suicidal behaviour) which could form the basis for a treatment intervention. Interventions which focus on improving one's capacity to engage in novel goals could yield fruit. Indeed, given the growing evidence that interpersonal problem-solving interventions

offer most psychotherapeutic promise for suicidal individuals (e.g., Townsend et al., 2001), it may be advantageous to incorporate goal reengagement skills specifically into such treatment trials. Second, the findings suggest that if a suicidal person has difficulty reengaging in novel goals it is preferable for them to continue to engage with unattainable goals (i.e., not to disengage). Although this may seem counter-intuitive, our findings are consistent with Carver and Scheier's concept of complete disengagement and the findings suggest that low disengagement in such circumstances is protective. In addition, future research ought to address whether one's capacity to switch attention and resources to a new goal (i.e., goal reengagement) impairs interpersonal problem-solving. Are there neuropsychological and psychophysiological correlates of goal reengagement impairment? Furthermore, it would be helpful to determine empirically that goal reengagement/disengagement are distinct psychological constructs which are new additions to existing models of suicidal behaviour. Finally, it would be useful to investigate the extent to which goal adjustment relates to hopelessness. Based on our data and previous work on positive future thinking (e.g., O'Connor et al., 2004), we would hypothesise that hopelessness may be characterised by low levels of goal reengagement more than high levels of goal disengagement.

Three potential limitations require comment. First, although we limited follow-up to 2.5 months, to minimise attrition, future research could usefully explore the longer term impact of goal adjustment on suicidal risk. Nonetheless, it is worth noting that few studies have assessed the *short-term* outcome following a suicidal episode (e.g., Jallade et al., 2005; Sarfati et al., 2003). In addition, as this is the first study to address goal adjustment in an acute clinical sample, our focus was primarily on the empirical hypotheses rather than clinical outcome per se. Second, to reduce the

testing load on participants, we employed a minimal assessment of suicidal intent (the suicidal intent question from Beck's Suicidal Intent Scale; Beck et al., 1974).

Although we believe that this is a valid method of suicidal intent assessment, we accept that it would be desirable to incorporate the complete Beck Suicidal Intent Scale into the protocol. Finally, despite obtaining a decent follow-up rate (of 61%) comparable to similar studies elsewhere (Wingate et al., 2005), it is important to note that those who completed measures at both time points were more suicidal at baseline than those who dropped out of the study. Consequently, our findings may only be applicable to a sub-group of suicide attempters who report comparatively high levels of suicidal ideation.

Conclusion

This is the first study to yield evidence from a clinical sample in support of Carver and Scheier's concept of complete disengagement. Our findings demonstrate the powerful effects of goal reengagement and the multiplicative effects of goal disengagement and reengagement in the suicidal process. In short, when there are difficulties with novel goal pursuit, it is advantageous to maintain engagement with unattainable goals. The findings are also consistent with a predominant model of emotional self-regulation and they point to 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	Anxiety	Depression	Reengagement	Disengagement	Attempt Status
Suicidal-T1	-						
Suicidal-T2	.484***	-					
Anxiety	.391***	.236***	-				
Depression	.487***	.376***	.459***	-			
Reengagement	-.364***	-.315***	-.207***	-.331***	-		
Disengagement	.112	.155*	.065	-.029	.035	-	
^a Attempt Status	.385***	.317***	.271***	.191**	-.158*	.143*	-
Mean (SD)	21.50 (6.00)	16.81 (7.47)	14.64 (4.44)	12.20 (4.79)	18.88 (4.33)	10.90 (3.26)	1.25 (.84)

Note. * $p < .05$, *** $p < .001$. Suicidal-T1=suicidal ideation at Time 1, Suicidal-T2=suicidal ideation at Time 2, Reengagement=Goal Reengagement, Disengagement=Goal Disengagement; ^aAttempt Status=history of previous attempts (i.e., none, single attempt, multiple attempts). Although attempt status is categorical, as it is a key variable in the literature, we have included it in the correlation analyses. Similar findings are found using Spearman's rho.

Table 2. *Hierarchical Regression Analyses Predicting Time 2 Suicidal Ideation Among Suicide Attempters from Demographics, Attempt Status, Mood, Goal Reengagement and Disengagement*

Step	Variable	β at step	ΔR^2 for step	Total R^2
Step 1	Age	-.071	.106***	.106***
	Sex	-.019		
	Attempt Status	.323***		
Step 2	Age	.004	.175***	.281***
	Sex	-.030		
	Attempt Status	.163*		
	Depression	.194*		
	Anxiety	-.024		
	Suicidal-T1	.340***		
Step 3	Age	.018	.027*	.308***
	Sex	-.027		
	Attempt Status	.146*		
	Depression	.179*		
	Anxiety	-.031		
	Suicidal-T1	.296***		
	Goal Disengagement	.113		
Step 4	Goal Reengagement	-.141*	.043***	.351***
	Age	.004		
	Sex	-.088		
	Attempt Status	.131		
	Depression	.193**		
	Anxiety	-.040		
	Suicidal-T1	.300***		
	Goal Disengagement	.036		
	Goal Reengagement	-.149*		
	Goal Disengagement x Goal Reengagement	-.232***		

Note. * $p < .05$, *** $p < .001$. Suicidal-T1=suicidal ideation at Time 1; Attempt Status=history of previous attempts (i.e., none, single attempt, multiple attempts)

Figure 1

Moderation Between Goal Reengagement and Goal Disengagement for Predicting Suicidal Ideation at Time 2

