

Research report

# Recurrence of suicidal ideation across depressive episodes

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## Abstract

**Background:** In recent years it has become clear that depression is a recurrent disorder, with the risk of recurrence in those with two or more episodes being as high as 90%. This has prompted interest in the consistency of individual depressive symptoms across consecutive episodes, an issue that is important for symptoms such as suicidal ideation, where a past history may give important indicators of future behaviour.

**Methods:** We prospectively examined 69 individuals with a history of Major Depression, over 12 months, 38 of whom experienced a recurrence of major depression during the follow-up period.

**Results:** Spearman's rank order correlations between severity ratings of each symptom of major depression during a previous episode and severity ratings at recurrence showed significant associations for *suicidality*, *guilt or worthlessness* and *thinking difficulties* only. Weighted kappa coefficients indicated relatively low levels of agreement across episodes for most diagnostic symptoms, with suicidality showing the strongest relationship. Using a broad definition of suicidality — any reporting of thoughts of death or suicide during episode — a much higher level of agreement ( $\kappa = .64$ ) was found, with 83% of individuals falling into the same category (suicidal/non-suicidal) at both episodes.

**Limitations:** This study was based on a relatively small sample and examines re-emergence of suicidal ideation in the absence of suicidal behaviour.

**Conclusions:** This study provides preliminary evidence of cross-episode consistency in the recurrence of suicidal ideation, in line with the differential activation theory of suicidality in depression.

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**Keywords:** Suicidal ideation; Major depression; Differential activation; Recurrence; Episodes; Consistency

## 1. Introduction

It has recently been suggested that the differential activation theory of depressive relapse might be extended to the explanation of recurrence of suicidal ideation

and behaviour (Lau et al., 2004). Differential Activation Theory (Teasdale, 1988) suggests that during episodes of depression associations are formed between sad mood and a constellation of negative dysfunctional beliefs and cognitive processing biases. With each episode of depression that occurs, the network of depressive cognitions becomes strengthened, elaborated and increasingly accessible. As a result, even relatively small increases in sad mood gain the capacity to activate this depressogenic thinking pattern (e.g. Segal et al., 1996), increasing

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vulnerability to recurrences and later episodes of depression that are more autonomous of major negative life events (Post, 1992; Van Heeringen et al., 2000). Suicidal ideation represents an extremely severe form of negative self-referent thinking, whereas many other *diagnostic* symptoms of depression (e.g. appetite disturbance, sleep disturbance, psychomotor agitation or retardation) are less cognitive in nature. As a consequence, of all the diagnostic symptoms of depression, it is perhaps particularly likely that suicidal ideation will become part of the processing pattern that is reactivated by low mood, leading to the consistent re-emergence of suicidality across depressive episodes (Williams et al., 2005).

The differential activation theory of suicidality suggests that once an individual has experienced suicidal ideation or engaged in suicidal behaviour during one episode of depression, the likelihood that they will experience it again during subsequent episodes is markedly increased. The fact that the number of past episodes of suicidal behaviour an individual has engaged in is predictive of repetition is consistent with this view (e.g. Sakinofsky, 2000 for review). However relatively few studies have considered recurrence of suicidal ideation in individuals with major depression (MDD) who have not engaged in suicidal behaviour, despite there being a widespread assumption that suicidal ideation recurs consistently across episodes in this group.

Recent studies that have examined the consistency of individual symptoms of depression across episodes have tended to find a lack of stability in symptom reporting. For example Lewinsohn et al. (2003) examined individuals experiencing recurrent depression during their teens and early twenties. Results indicated that *across the sample as a whole* the profile of symptoms did not change a great deal between adolescence and early adulthood. However, amongst those who experienced at least two episodes of depression during the study period ( $n=224$ ), kappa coefficients assessing *within individual* agreement in symptom reporting across episodes (defined as presence of absence of symptoms according to DSM criteria) were low, ranging from  $\kappa=.01$  to  $\kappa=.32$ . Recurrent thoughts of death or suicide yielded a kappa of just  $\kappa=.23$ . In another study, the association between the severity ratings of a range of symptoms of depression taken during two separate episodes of MDD were examined in 78 psychiatric inpatients (Oquendo et al., 2004). Using the Hamilton Rating Scale, Pearson's correlation coefficients computed for each individual symptom (adjusted for overall episode severity) ranged from  $r=-.04$  to  $r=.41$ , the only statistically significant correlations being for depersonalization/derealisation, somatic anxiety and genital symptoms. In this study the correlation

for suicidal ideation/behaviour, at approximately  $r=.30$ , was again comparatively low and not statistically significant. However both studies focused on special populations (adolescents/young adults, inpatients) and so it remains unclear whether suicidality and other diagnostic symptoms of depression would show similar low levels of consistency in broader patient groups.

Although consistency of suicidal ideation across episodes of depression would not necessarily imply that a differential activation model of suicidality was at work (it could for example be the case that individuals have different, but stable, predispositions to experience suicidal ideation across depressive episodes) at least moderate consistency is a necessary precondition for such a model. The first aim of this study was therefore to examine suicidal ideation, as well as the other symptoms of major depression, for the extent to which their presence in a past episode predicted their presence at a recurrence. Second we considered the nature of change in individuals who were inconsistent in the severity of suicidality across episodes.

## 2. Methods

### 2.1. Participants

Patients were recruited from community health centres, and by media announcements at three sites: Toronto, Cambridge (UK) and Bangor (UK) as part of a trial of a psychological intervention to prevent relapse in depression (Teasdale et al., 2000). Patients were included in the trial if they met enhanced DSM III-R criteria for Recurrent Major Depression, having a history of two or more previous episodes of major depression in the absence of mania or hypomania. All had received antidepressant medication for the treatment of at least one of these episodes. In addition, it was required that at least two of the past episodes had occurred in the past five years, with at least one of the episodes having occurred in the past two years. All participants had been in recovery/remission (symptom-free) for at least 12 weeks prior to the baseline assessment (hence no individuals were excluded from the trial as a result of suicidality during depression). Further details of this sample can be found in Teasdale et al. (2000).

For the current analysis, we selected those patients who, having given informed consent, had been allocated to the Treatment as Usual arm of the trial ( $N=69$ ). Details of what 'treatment as usual' included in this instance are given in Teasdale et al. (2000, Table 2, page 620). Patients were assessed every two months over the 14 months of the trial to assess whether they had suffered a recurrence of

MDD, with questions at each follow-up interview covering the period since the previous assessment. Clinical interviews were given by doctoral level psychologists and an experienced psychiatric social worker (using the SCID, First et al., 1996). In addition to assessing the presence or absence of each depressive symptom, using the SCID, interviewers rated each symptom's severity. Symptom severity ratings were made on anchored scales (based on Hamilton and Newcastle Scale items) ranging from zero to six or zero to seven (anchoring for suicidality is shown in Table 3). Symptom severity ratings were obtained for the most recent episode of MDD prior to entry into the treatment trial (the 'previous' episode) and at each interview during follow-up. Reliability Interviews were tape recorded and all those interviews where patients met criteria for relapse or recurrence were sent with control tapes to an independent, psychiatric assessor who was blind to treatment allocation. The kappa for inter-rater agreement on the presence or absence of major depression was .74, representing good to excellent agreement.

Where symptoms of depression meeting diagnostic criteria for MDD were identified at two or more consecutive follow-up interviews referring to the same episode, data from the interview which recorded the most severe symptoms of MDD were selected to represent the recurrent episode and were used for analysis. Where more than one recurrence of MDD occurred during follow-up, only data from the first recurrence were used.

### 3. Results

#### 3.1. Characteristics of those experiencing a recurrence of MDD during follow-up

Of the 69 patients allocated to treatment as usual, 38 (56%) experienced a recurrence of depression, 28 did not experience a recurrence, and three were lost to follow-up. Probability of recurrence was highly dependent on number of prior episodes, with percentage recurrence for those patients with two prior episodes being 31% (5/16), for those with three prior episodes, 56% (10/18); for those with four or more prior episodes, 72% (23/32). Patients who experienced a recurrence of MDD during follow-up did not differ from those who did not in age, proportion of females or age of onset of first depressive episode.

The sample of those who relapsed was comprised of 31 women and 7 men and had a mean age of 47.53 years (SD=8.68). The median number of prior depressive episodes at entry to the trial was four ( $M=6.54$ ,  $SD=5.53$ , range 2–24). The average time to recurrence from the beginning of follow-up was 18 weeks (range 1–

49 weeks). The means (SDs) for each of the symptoms of MDD at the previous episode and at recurrence are shown in Table 1. Total symptom severity scores (summed severity ratings on each item of the SCID interview) at each episode were calculated. Overall severity of depression at the previous episode ( $M=55.38$ ,  $SD=7.56$ ) was higher than at recurrence ( $M=50.25$ ,  $SD=7.30$ ), a difference that was statistically significant,  $t(34)=4.52$ ,  $p<.001$ . However severity at the previous episode was significantly correlated with severity at recurrence,  $r(35)=.59$ ,  $p<.001$ . For ratings of suicidality it should be noted that only one individual reached a score of 5 on the suicidality rating for their recurrent episode (corresponding to severe ideation or a non-medically serious suicidal gesture with communicative intent), with none scoring above 4 during the previous episode. Therefore the current analyses focus on a sample experiencing recurrent suicidal ideation in the absence of suicidal behaviour.

#### 3.2. Correlations between symptoms during previous episode and at recurrence

Spearman's rank order correlation coefficients ( $r_s$ ) were computed to examine the association between the severity of each symptom of depression as rated at the previous episode and the severity rated at recurrence (see Table 2). Sad mood and loss of interest or pleasure were excluded since, by definition, one or both must be present to a high degree for a recurrence to be recorded, limiting range on these variables. *Suicidality*,  $r_s(35)=.61$ ,  $p<.001$ , *worthlessness or guilt*,  $r_s(35)=.39$ ,  $p<.05$

Table 1  
Mean levels of depressive symptoms at a previous episode of major depression and at first recurrent episode

	Previous episode	Recurrence
Depressed mood	5.17 (.92)	4.53 (.95)
Anhedonia	5.11 (.99)	5.03 (.79)
Loss of appetite	2.97 (1.93)	3.32 (1.63)
Increased appetite	2.24 (1.74)	1.82 (1.64)
Weight loss	2.06 (1.41)	1.74 (.95)
Weight gain	2.09 (1.69)	1.42 (1.03)
Insomnia	4.12 (1.37)	3.55 (1.39)
Hypersomnia	2.76 (1.73)	2.39 (1.67)
Agitation	2.77 (1.57)	2.18 (1.49)
Retardation	2.80 (1.53)	3.08 (1.32)
Fatigue	4.66 (.73)	4.00 (1.16)
Guilt	3.49 (1.44)	3.29 (1.45)
Worthlessness	4.40 (.91)	3.82 (1.27)
Concentration	4.43 (.91)	4.11 (1.09)
Indecisiveness	3.66 (1.11)	3.47 (1.06)
Suicidality	2.49 (1.42)	2.30 (1.08)

Table 2

Spearman's rank order correlation coefficients and weighted kappas for each symptom of major depression as reported for a previous episode of depression and at recurrence

Symptoms and aggregate symptoms	Spearman's rho	Weighted kappa
Appetite or weight disturbance	.22	.21
<i>Decreased appetite</i>	.40*	.30
<i>Increased appetite</i>	.33 <sup>a</sup>	.41
<i>Weight loss</i>	.25	.19
<i>Weight gain</i>	.32 <sup>a</sup>	.26
Sleep disturbance	.07	.13
<i>Insomnia</i>	.27	.28
<i>Hypersomnia</i>	.18	.11
Psychomotor agitation or retardation	.17	.22
<i>Agitation</i>	.08	.04
<i>Retardation</i>	.12	.17
Worthlessness or guilt	.39*	.30
<i>Guilt</i>	.27	.25
<i>Worthlessness</i>	.23	.24
Indecisiveness or difficulty concentrating	.43*	.31
<i>Indecisiveness</i>	.16	.11
<i>Concentration</i>	.40*	.14
Fatigue	.11	.02
Suicidal ideation	.61***	.40

<sup>a</sup> = trend, \* =  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  (unadjusted).

To ensure family-wise alpha of  $p < .05$ , only individual alphas of  $p < .003$  should be considered significant.

and *indecisiveness or concentration difficulties*  $r_s (.35) = .43$ ,  $p < .05$  were the only DSM symptom criteria to show significant associations between severity at the previous episode and severity at recurrence. A large number of correlations were computed, increasing the probability of type 1 error. To ensure a family-wise alpha of  $p < .05$ , significance levels for individual correlations should be set at less than  $p = .003$ . Thus only severity of suicidal ideation remains significantly correlated across episodes once a correction for multiple comparisons is applied.<sup>1</sup>

### 3.3. Consistency of symptoms: weighted kappas

Weighted kappa coefficients were next calculated to examine consistency of reporting of symptom severity across episodes. As shown in Table 2, weighted kappas were relatively low for all DSM symptom criteria,

ranging from  $\kappa = .02$  in the case of fatigue to  $\kappa = .40$  for suicidal ideation.<sup>2</sup>

### 3.4. Nature of change in suicidal ideation across episodes

Across the sample as a whole there was a reduction in mean level of suicidality reported from previous episode to recurrence,  $t(34) = 2.03$ ,  $p = .05$ . Ratings for severity of suicidal ideation at each episode are shown in Table 3. As can be seen from the table, of the 14 individuals who reported *no* thoughts of death or suicide during their previous episode, 11 (79%) also reported no such thoughts at recurrence. Similarly of the 21 individuals *who did* report thoughts of death or suicide during their previous episode, 18 (86%) also did so at recurrence, although the reported severity of these thoughts differed in a number of cases. That is, using a broad definition of suicidality encompassing both wishes for death and thoughts, plans or actions aimed at ending one's life, only six out of 35 individuals moved between categories, three becoming suicidal from previous episode to recurrence and three becoming non-suicidal. The kappa coefficient for presence of absence of suicidality at the previous episode and at recurrence, computed on the basis of this broad definition of suicidality (any versus none), was highly significant,  $\kappa(35) = .64$ ,  $p < .001$ .

## 4. Discussion

Relatively few published studies have explored the consistency of single symptoms of major depression across depressive episodes. Those that have done so suggest that consistency of symptoms from one episode to the next is generally quite low (e.g. Oquendo et al., 2004; Lewinsohn et al., 2003; Roberts et al., 1995). An underlying assumption of the differential activation model of recurrent suicidal ideation however is that once suicidal ideation has entered the processing configuration activated during a depressive episode it will re-emerge, with relative consistency, in subsequent depressive episodes (Lau et al., 2004). Indeed it is suggested that of all the diagnostic symptoms of major depression, suicidality may be one of the most consistent, due to the fact that it is very cognitive in nature. With this in mind the study reported here had two aims: first to look specifically at the degree of association between suicidal ideation, and other symptoms of depression, across depressive

<sup>1</sup> This does not imply that suicidal ideation was significantly *more* consistent across depressive episodes than other symptoms. Rather all depressive symptoms show low to moderate correlation across episodes, in line with other studies in this area.

<sup>2</sup> Weighted kappa coefficients of less than .2 are regarded as indicative of poor agreement, between .21 and .40 fair agreement, .41 to .60 moderate agreement, .61 to .80 good agreement and .81 and above very good agreement.

Table 3  
Contingency table showing severity ratings of suicidal ideation during a previous episode of depression and at recurrence

Previous episode	Recurrence				
	None	Slight	Mild	Moderate	Severe
None	11	2	1		
Slight	1	1	2		
Mild		2	2	1	
Moderate	2	3	4		1
Severe			1	1	

'None' anchored as 'no thoughts of death or suicide'; 'Slight' anchored as 'occasional thoughts of death ('I would be better off dead', 'I wish I was dead')'; 'Mild' anchored as 'frequent thoughts that would be better off dead or occasional thoughts of suicide'; 'Moderate' anchored as 'often thinks of suicide or has thought of a specific method'; 'Severe' anchored as 'often thinks of suicide and has thought of, or mentally rehearsed, a plan or has made a non-medically serious suicidal gesture with communicative intent'.

episodes, and second to examine what form inconsistencies in suicidality across episodes take, when they arise.

In the current study the correlation between level of suicidal ideation during a previous episode of MDD and at recurrence was moderate to large. Indeed, suicidal ideation was the only symptom of depression to remain significantly correlated across episodes following correction for multiple comparisons. Weighted kappas, which take into account agreement in rated severity as well as presence or absence of symptoms, on the other-hand, suggested only fair consistency between the previous episode and recurrence. How can these findings be reconciled? Once suicidal ideation has entered the processing configuration active during depressed mood, it is likely to manifest itself again when depression recurs. However, the reported *severity* of this suicidal ideation may fluctuate across episodes. As a result when a broad definition of suicidality is employed (the presence of at least occasional thoughts of own death or suicide) agreement across episodes is much higher. Few individuals (<20%) shifted category from suicidal to non-suicidal (or vice-versa) between the previous episode and recurrence, using this definition.

An overall reduction in severity of suicidality from previous episode to recurrence was noted. This may reflect both real changes in the severity of ideation across episodes and artefacts of the measurement procedures. For example in the current study information on the previous episode was collected via retrospective report (Lifetime SCID), whereas information on recurrent episodes was captured during the episode or very soon afterwards (within 2 months). One possibility is that careful screening throughout the follow-up period identified less severe episodes of depression that would

otherwise have gone unreported. If patients themselves have a higher threshold for reporting of episodes of depression then previous episodes may in general have been more severe. It is also possible that patients may have underplayed the severity of *current* suicidal ideation (assessed during periods of recurrence) because of fear of intervention or hospitalisation, a concern that would not influence retrospective reports of prior episodes. Future prospective research examining the emergence of suicidal ideation across consecutive depressive episodes would shed more light on to this matter.

What explains the apparent inconsistency between this and other studies? One explanation can be found in the criteria for defining a symptom as diagnostic. If researchers are concerned with the phenomenology of suicidality across depressive episodes, they will choose to employ a broad definition, encompassing the whole range of suicidal ideation from relatively fleeting wishes for death to recurrent thoughts of suicide and rehearsed and elaborated plans of how to bring it about. In such a case (as shown in this study) the consistency across episodes can be found to be relatively high. However, many of the individuals classified as 'suicidal' using this definition would not fulfil DSM criteria for the suicidality as a diagnostic feature of depression. So if researchers are interested in *diagnostically significant* symptoms as the criterion for agreement (as was the case for the study of Lewinsohn et al., 2003) then consistency of ideation across episodes may not be shown. The decision of which criteria to use depends on the research question being asked.

Another possible explanation for the discrepancy between this study and previous studies, relates to the different populations under examination. For example Oquendo et al. (2004) recruited individuals who were inpatients at the first assessment, either as a consequence of depression-related functional impairment or due to the presence of severe suicidal ideation or behaviour. As a result their sample is likely to have been much more severely ill, with many individuals completing their first assessment at the time of a suicidal crisis. The sample in the current study was comprised of individuals who had not engaged in suicidal behaviour, and there may be marked differences between patterns of recurrence in these two groups. For example Joiner (2002) has highlighted the fact that initial episodes of deliberate self-harm may act to decrease the fear-inducing properties and increased the calming properties of the behaviour, resulting in greater likelihood of repetition. Such a process is much less likely to feature in recurrent suicidal ideation. More generally, consistency of suicidal ideation is likely to be dependent in part on the point at which

suicidality is assessed, the population investigation, the method of assessment and other external factors.

Differential activation theory suggests that risk of future suicidality is dependent on the extent to which suicidal thoughts and plans have become part of the processing pattern that is reactivated when low mood re-occurs. This suggestion is in line with the observation that worst-point suicidal ideation has a greater capacity than current suicidal ideation to predict future suicidal behaviour (e.g. Beck et al., 1999). From the differential activation perspective worst-point suicidal ideation can be regarded as an indicator of latent capacity — the extent to which suicidal thoughts have become elaborated in the past and hence the potential that has existed for such thoughts to become part of the processing pattern available to be reactivated during future episodes of depression. Although the current study identified cross-episode variations in severity of suicidal ideation the broad consistency in presence of suicidal ideation across episodes does support the wisdom of enquiring about worst point suicidality rather than focusing only on current levels of suicidal ideation, when making judgements about future suicide risk.

Being based on a relatively small sample, the results of this study will require replication before firm conclusions can be drawn. Indeed it is likely that in larger samples with greater power, significant associations would emerge for other diagnostic symptoms, particularly worthlessness and guilt — cognitive symptoms of depression which showed moderate levels of association across episodes in the current sample and for which differential activation theory would predict consistency. Nevertheless these results provide preliminary evidence to suggest that once suicidal thoughts have occurred during an episode of depression, they are very likely to occur again when depression reappears, albeit sometimes in sub-threshold form. Further research might consider in more detail the time course over which suicidal ideation emerges, for example whether it emerges more rapidly in later episodes, relative to first episodes of suicidal depression. Given the capacity of suicidal thoughts to escalate and dissipate rapidly, their presence, even at low levels should indicate cause for concern and the need for frequent monitoring.

If these results are reliable, they will be the first to show that suicidal ideation, once it has become a feature of depression, can become one of its most persistent features across episodes, an important precondition for a differential activation theory of suicidality. The data imply that it may be beneficial for therapists to target beliefs and cognitive processes associated with suicid-

ality (for example a reported absence of reasons for living, lack of hope for the future, difficulties identifying positive future events) as a pre-emptive measure in individuals with major depression who report even minimal suicidal ideation at any presentation. Such measures are likely to have beneficial effects on depressed mood and may also reduce the probability that suicidal ideation will become such a persistent feature during future depressive episodes.

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