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Suicidal behaviour among primary-care patients with depressive disorders

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ABSTRACT

Background. Most national suicide prevention strategies set improved detection and management of depression in primary health care into a central position. However, suicidal behaviour among primary-care patients with depressive disorders has been seldom investigated.

Method. In the Vantaa Primary Care Depression Study, a total of 1119 primary-care patients in the City of Vantaa, Finland, aged 20 to 69 years, were screened for depression with the Primary Care Evaluation of Mental Disorders (PRIME-MD) questionnaire. Depressive disorders were diagnosed with the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I), and the 137 patients with depressive disorder were included in the study. Suicidal behaviour was investigated cross-sectionally and retrospectively in three time-frames: current, current depressive episode, and lifetime. Current suicidal ideation was measured with the Scale for Suicidal Ideation (SSI), and previous ideation and suicide attempts were evaluated based on interviews plus medical and psychiatric records.

Results. Within their lifetimes, 37% (51/137) of the patients had seriously considered suicide and 17% (23/137) attempted it. Lifetime suicidal behaviour was independently and strongly predicted by psychiatric treatment history and co-morbid personality disorder, and suicidal behaviour within the current episode was predicted most effectively by severity of depression.

Conclusions. Based on these findings and their convergence with studies of completed suicides, prevention of suicidal behaviour in primary care should probably focus more on high-risk subgroups of depressed patients, including those with moderate to severe major depressive disorder, personality disorder or a history of psychiatric care. Recognition of suicidal behaviour should be improved. The complex psychopathology of these patients in primary care needs to be considered in targeting preventive efforts.

INTRODUCTION

Most national suicide prevention strategies challenge primary care to improve detection and management of depression (Taylor *et al*. 1997; Althaus & Hegerl, 2003) as it is the most important single risk factor for suicide (Cheng *et al*. 2000). However, although poor recognition of milder depression in particular is a well-known problem in primary care (Thompson *et al*. 2001), it is not clear whether those, perhaps more severe, depressions that eventually lead to suicide have in fact remained unrecognized and untreated in primary care. In addition, whether the risk for suicidal behaviour is evenly distributed, with most depressions indicating a meaningfully high risk for suicide, or rather clustered into recognizable high-risk subgroups, is not well known. For suicide prevention, these questions are fundamental.

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Suicidal behaviour during depression – ideation, suicide attempts, and completed suicides – represents a continuum where completed suicides more frequently relate to severe depression, psychiatric co-morbidity (Foster *et al*. 1997) and treatment in psychiatric settings (Isometsä *et al*. 1994*b*, 1995; Hoyer *et al*. 2004). Suicidal ideation and attempts indicate a risk of completion, and severe suicide attempts share most of their risk factors with completed suicides (Beautrais, 2001), thus serving as relatively valid proxy outcomes. Therefore, investigating risk factors for non-fatal suicidal behaviour is also likely to provide information about those risk factors for completed suicides.

Few studies exist on suicidal behaviour among primary-care patients with depression. One questionnaire study (Ahrens *et al*. 2000) reports ideation among one-third of them. Studies on suicide attempters report scarce communication of suicidal ideation (Houston *et al*. 2003), even if one-third of them had received treatment for depression in primary care, and another third had had a recent contact there (Haw *et al*. 2002). Although there are psychological autopsy studies of unselected suicides in primary care (Owens *et al*. 2004), the only one focusing on depression in primary or other medical care (Isometsä *et al*. 1994*a*) found the majority to be males with psychiatric co-morbidity and untreated depression, and whose intent had rarely been communicated, particularly during the final consultation preceding suicide (Isometsä *et al*. 1995). Overall, suicide mortality among depressed patients seems lower in primary care than in psychiatric settings (Simon & VonKorff, 1998).

To our knowledge, no previous study has comprehensively investigated suicidal behaviour in primary-care patients with depression. We examined the prevalence and risk factors for current and lifetime non-fatal suicidal behaviour, hypothesizing that higher severity of depression, psychiatric co-morbidity and a history of psychiatric care would all independently predict suicidal behaviour.

MATERIAL AND METHOD

The Vantaa Primary Care Depression Study (PC-VDS) is a naturalistic cohort study concerning depressive disorders, accepted by the pertinent ethical committee in December 2001. It forms a collaborative research project between the Department of Mental and Alcohol Research of the National Public Health Institute, Helsinki, and the Primary Health Care Organization of the City of Vantaa, Finland. The catchment area comprises a population of 63 400, served by 30 general practitioners with population-based responsibility. The methodology is described in detail elsewhere (Vuorilehto *et al*. 2005).

Patient sampling and study cohort

In the first stage between 2 January and 31 December 2002, 1119 consecutive patients aged 20–69 years received the screening questionnaire of the Primary Care Evaluation of Mental Disorders (PRIME-MD; Spitzer *et al*. 1994) in general practitioners' waiting rooms. Altogether 375 patients had positive screen results, having answered 'yes' to either of the questions concerning depressed mood or anhedonia during the past month: (1) feeling down, depressed or hopeless; (2) having little interest or pleasure in doing things. Over the telephone we ensured that at least one core symptom of major depressive disorder (MDD) was present according to the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I/P; First *et al*. 2001). We excluded patients with diagnosed psychosis (other than depressive), bipolar or organic mood disorder, or who were receiving current treatment in psychiatric care.

In the second stage, after receiving written informed consent, we interviewed all the 175 potentially eligible patients face-to-face using the SCID-I/P with psychotic screen. Inclusion criteria were current (1) MDD, (2) dysthymia, (3) subsyndromal MDD with two to four depression symptoms (minimum one core symptom) and lifetime MDD, and (4) minor depression otherwise similar to subsyndromal MDD but without MDD history. Distress or functional impairment was required for all. The final cohort of 137 patients comprised 91 (66%) with MDD, 32 (23%) with subsyndromal MDD, and 14 (10%) with minor depression. Dysthymia was regarded as subsyndromal MDD or minor depression according to the history of MDD. The joint diagnostic reliability for current depressive disorders was excellent (kappa 1·0 for depression diagnoses). The mean

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age was 45·3 years; 76% were women, 35% were living alone, and 20% were unemployed (Vuorilehto *et al*. 2005). Patients who refused to participate in the study (15%) did not differ significantly in age or gender from those who consented.

Suicidal behaviour

Suicidal behaviour was investigated in three time-frames: (1) current suicidal ideation, (2) ideation and attempts within the ongoing depressive episode, and (3) lifetime ideation and attempts. The Scale for Suicidal Ideation (SSI; Beck *et al*. 1979) was used for current ideation. The SSI is an observer-rated scale with 19 items quantifying the intensity of current conscious suicide ideation: the extent of the wish to die, the desire to make an actual suicide attempt and details of any plans. The SSI also assesses internal deterrents to an active attempt, and subjective feelings of control and/or 'courage' regarding an attempt. Each item consists of three statements of ascending intensity. Here, suicidal ideation refers to patients who scored $\geqslant 6$ on the SSI. Suicidal behaviour during the ongoing depressive episode and lifetime suicidal behaviour was reconstructed from medical and psychiatric records and by questioning the patient about having seriously considered or attempted suicides. By definition, a suicide attempt had to involve at least some degree of intent to die; self-harm with no suicidal intention was not classified as a suicide attempt.

Other research instruments

Current and lifetime psychiatric disorders were assessed with use of the SCID-I/P and the Structured Clinical Interview for DSM-IV Axis II Disorders (SCID-II; First *et al*. 1997). Observer and self-report scales included the 17-item Hamilton Depression Rating Scale (HAMD; Hamilton, 1960), the 21-item Beck Depression Inventory (BDI; Beck *et al*. 1961), the Beck Anxiety Inventory (BAI; Beck *et al*. 1988), and the Beck Hopelessness Scale (HS; Beck *et al*. 1974). A self-report questionnaire, medical records and the interview were used to assess chronic medical illnesses.

Treatment history

The number of visits with the primary-care doctor and notes about suicidal ideation were calculated from medical records of the preceding year. Consultation about depressive symptoms with the doctor during the current episode was asked about in the interview. Lifetime treatment history for depression was reconstructed from the interview and medical and psychiatric records.

Data analysis

We used the Statistical Package for the Social Sciences (SPSS) software, version 11.0 (SPSS Inc., Chicago, IL, USA). The hypotheses were tested by constructing, for each time-frame, nominal regression models where suicidal behaviour served as the dependent variable in three mutually exclusive categories: non-suicidal patients (the reference group), suicidal ideators without attempts, and suicide attempters. The predetermined independent variables comprised gender, age, HAMD, BAI, HS, substance use disorder, personality disorder, chronic somatic disease, suicide attempts, and any lifetime psychiatric care interchangeably with in-patient care. For the final models we omitted the non-significant variables. To avoid circularity, we omitted the suicidality items of the HAMD and BDI. In univariate analyses we used Pearson's χ^2, Fischer's exact test, one-way analysis of variance (ANOVA) and the Kruskal–Wallis test; we present these analyses without a Bonferroni correction for descriptive purposes.

RESULTS

Current suicidal ideation in SSI

At the time of the interview, 18% (25/137) of the subjects scored high on the SSI ($\geqslant 6$); almost all were MDD patients (23/137). However, in only 24% (6/25) of these subjects were there remarks about suicidal ideation in the medical records of the preceding year. Four of them had attempted suicide within the current episode and 11 earlier. In a binominal regression model prior psychiatric treatment was the strongest predictor of high SSI after adjustment for gender [odds ratio (OR) 19·60, 95% confidence interval (CI) 4·052–94·806, $p<0·001$], other predictors were younger age (OR 0·919, 95% CI 0·873–0·968, $p=0·001$), hopelessness (HS: OR 1·162, 95% CI 1·031–1·311, $p=0·014$), and

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Table 1. *Symptom severity and diagnosis of 137 primary-care patients with depressive disorder according to suicidal behaviours in two time perspectives*

	Within the ongoing depressive episode				Over the patients' lifetime			
	No suicidal behaviour *n* (%)	Suicidal ideation *n* (%)	Suicide attempt *n* (%)	*p* value[a]	No suicidal behaviour *n* (%)	Suicidal ideation *n* (%)	Suicide attempt *n* (%)	*p* value[a]
Total	104 (76)	27 (20)	6 (4)		86 (63)	28 (20)	23 (7)	
Gender, male	27 (26)	6 (22)	0		24 (29)	5 (18)	4 (17)	
Age years, mean (S.D.)	46·2 (13·5)	40·4 (14·1)	51·8 (13·0)		46·2 (13·2)	42·1 (15·2)	45·6 (13·7)	
Symptom severity								
HAMD score, mean (S.D.)	14·7 (4·8)	17·5 (4·4)	20·7 (5·5)	<0·001[b]	14·8 (5·0)	17·0 (4·8)	16·4 (4·8)	
BDI score, mean (S.D.)	16·2 (7·8)	25·8 (8·7)	33·0 (15·1)	<0·001[b]	16·1 (8·0)	23·3 (9·0)	23·4 (12·5)	<0·001[b]
BAI score, mean (S.D.)	15·0 (11·8)	21·1 (10·9)	31·8 (19·5)	<0·001[b]	14·7 (11·4)	19·9 (11·3)	21·6 (16·3)	0·026[b]
HS score, mean (S.D.)	7·7 (5·1)	11·7 (4·3)	13·5 (5·3)	<0·001[b]	7·6 (5·9)	11·0 (5·0)	10·5 (5·4)	0·004[b]
Current depression diagnosis				0·010[c]				0·026[c]
MDD	61 (59)	25 (92)	5 (83)		52 (60)	23 (82)	16 (70)	
Subsyndromal MDD	29 (28)	2 (7)	1 (17)		20 (23)	5 (18)	7 (30)	
Minor depression	14 (13)	0	0		14 (15)	0	0	

S.D., Standard deviation; HAMD, Hamilton Depression Rating Scale score without suicidality item; BDI, Beck's Depression Inventory score without suicidality item; BAI, Beck's Anxiety Inventory score; HS, Beck's Hopelessness Scale score; MDD, major depressive disorder.
[a] *p* values for differences between groups if significant at the level <0·05, df = 2.
[b] Tested with analysis of variance (ANOVA).
[c] Tested with Fisher's exact test.

more severe depression (HAMD: OR 1·144, 95% CI 1·003–1·306, $p = 0·046$). A history of suicide attempts instead of a history of psychiatric care was associated with a high SSI when adjusted to the model (OR 9·08, 95% CI 2·545–32·391, $p = 0·001$).

Suicidal behaviour within the ongoing depressive episode

Suicidal ideation was seen in 24% (33/137) of the patients in the ongoing episode when the investigation was also extended to those 13% (18/134) with former suicidal ideation. Altogether 4% (6/137) of the patients had attempted suicide during the episode; they all were women with markedly severe current symptoms of depression, anxiety and hopelessness (Table 1). Both ideation and attempts clustered with abundant co-morbidity (Table 2). The depression had been recognized by doctors in all patients with suicide attempts, and in 70% (19/27) of patients with only ideation. Most of the ideators [70% (19/27)] and attempters [83% (5/6)] had already received antidepressive medication, but history of specialized psychiatric care, especially in-patient care during the current episode, was very common only among attempters [83% (5/6) and 67% (4/6) respectively]. During earlier episodes, the ideators had also received specialized treatment [67% (18/27)] (Table 3). In a nominal regression model suicidal behaviour was strongly associated with psychiatric treatment during earlier episodes; other predictors were younger age, severity of depression symptoms, and co-morbid personality disorders (Table 4).

Lifetime suicidal behaviour

Within their lifetimes 37% (51/137) had had suicide ideation and 17% (23/137) suicide attempts. All attempters had experienced suicide ideation. More than half of the lifetime ideators [54% (15/28)] and most lifetime attempters 83% (19/23) had consulted their doctor about depressive symptoms during the current episode, and the majority received antidepressive medication [54% (15/28) of ideators and 74% (17/23) of attempters]. Lifetime suicidal behaviour was associated with a current MDD diagnosis and severe symptoms of depression, anxiety and hopelessness (Table 1), personality disorders (Table 2) and the psychiatric treatment history (Table 3). The majority [73% (33/51)] of those with lifetime suicidal behaviour had received treatment in psychiatric care, which had a very strongly predictive

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Table 2. *Co-morbidity of 137 primary-care patients with depressive disorder according to suicidal behaviours in two time perspectives*

	Within the ongoing depressive episode				Over the patients' lifetime			
	No suicidal behaviour *n* (%)	Suicidal ideation *n* (%)	Suicide attempt *n* (%)	*p* value[ab]	No suicidal behaviour *n* (%)	Suicidal ideation *n* (%)	Suicide attempt *n* (%)	*p* value[bc]
Current co-morbidity								
Any psychiatric co-morbidity	70 (67)	26 (96)	6 (100)	0·001	54 (63)	26 (93)	22 (97)	<0·001
Anxiety disorder	43 (41)	13 (48)	3 (50)		33 (38)	12 (43)	14 (61)	
Substance use disorder	11 (11)	5 (19)	2 (33)		9 (11)	4 (14)	45 (22)	
Any personality disorder	45 (43)	22 (82)	4 (67)	0·001	32 (37)	19 (68)	20 (87)	<0·001
Cluster A	4 (3)	3 (11)	0 (0)		4 (5)	0 (0)	3 (13)	
Cluster B	22 (21)	13 (48)	4 (67)	0·002	14 (16)	11 (39)	14 (61)	<0·001
Cluster C	28 (27)	14 (52)	2 (33)	0·040	21 (24)	12 (43)	11 (48)	0·040
Chronic medical illness	45 (43)	13 (48)	6 (100)	0·022	35 (41)	15 (54)	14 (61)	
Lifetime co-morbidity								
Anxiety disorder	56 (54)	18 (67)	59 (50)		44 (51)	17 (61)	16 (70)	
Substance use disorder	28 (27)	14 (52)	3 (50)	0·026	21 (24)	11 (39)	13 (56)	0·010

Cluster A, Odd-eccentric personality disorders; Cluster B, dramatic-emotional personality disorders; Cluster C, anxious-fearful personality disorders.

[a] *p* values for differences between groups if significant at the level <0·05, df = 2.
[b] Tested with Fisher's exact test.
[c] Tested with Pearson χ^2, two-sided.

Table 3. *Treatment history and former suicidal behaviour of 137 primary-care patients with depressive disorder according to suicidal behaviours in two time perspectives*

	Within the ongoing depressive episode				Over the patients' lifetime			
	No suicidal behaviour *n* (%)	Suicidal ideation *n* (%)	Suicide attempt *n* (%)	*p* value[a]	No suicidal behaviour *n* (%)	Suicidal ideation *n* (%)	Suicide attempt *n* (%)	*p* value[a]
Treatment within the ongoing episode								
Number of visits[b], mean (S.D.)	5·5 (3·7)	7·3 (6·3)	13·8 (8·4)	0·029[c]	5·3 (3·6)	7·3 (6·0)	8·7 (6·5)	0·049[c]
Consultation about depression[d]	58 (56)	19 (70)	6 (100)	0·047[e]	49 (57)	15 (54)	19 (83)	
Antidepressive medication	38 (37)	19 (70)	5 (83)	<0·001[e]	30 (35)	15 (54)	17 (74)	0·001[f]
Psychiatric care	11 (11)	7 (26)	5 (83)	<0·001[e]	8 (9)	7 (25)	8 (34)	0·005[e]
Psychiatric in-patient	0	1 (3)	4 (67)	<0·001[e]	0	1 (4)	4 (17)	0·001[e]
Treatment prior to the ongoing episode								
Psychiatric care	34 (33)	18 (67)	3 (50)	0·003[e]	22 (26)	14 (50)	19 (83)	<0·001[f]
Psychiatric inpatient	8 (8)	5 (18)	3 (50)	0·007[e]	4 (5)	2 (7)	10 (43)	<0·001[e]
Suicidal behaviour prior to the ongoing episode								
Suicide attempt	10 (10)	7 (26)	3 (50)	<0·001[e]				
Suicidal ideation	18 (17)	15 (55)	4 (66)	0·006[e]				

[a] *p* values for differences between groups if significant at the level <0·05, df = 2.
[b] Number of visits to the primary-care doctor within the past year.
[c] Tested with the Kruskal–Wallis test.
[d] Consultation with the primary-care doctor about symptoms of depression.
[e] Tested with Fisher's exact test.
[f] Tested with Pearson χ^2, two-sided.

value for suicide attempts in a multi-nominal regression model (Table 5). Being unemployed or living alone was not associated with suicidal behaviour.

DISCUSSION

We found that within their lifetimes, 37% of primary-care patients with depressive disorders

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Table 4. *Predictors for suicidal behaviours during the ongoing depressive episode among 137 primary-care patients with depressive disorder in the multi-nominal regression model*

Variable	No suicidal behaviour ($n=104$) OR	Suicidal ideation ($n=27$) OR (95% CI)	*p* value	Suicide attempt ($n=6$) OR (95% CI)	*p* value
Age	1·0	0·948 (0·911–0·987)	0·010	1·011 (0·934–1·093)	N.S.
Gender	1·0	4·927 (0·313–3·080)	N.S.	*	
HAMD	1·0	1·173 (1·042–1·320)	0·008	1·249 (1·036–1·507)	0·020
Personality disorder	1·0	4·115 (0·077–0·760)	0·015	2·227 (0·066–3·072)	N.S.
Lifetime psychiatric care	1·0	24·952 (0·020–2·111)	0·012	4·878 (0·020–2·111)	N.S.

OR, Odds ratio; CI, confidence interval; N.S., not significant, HAMD, Hamilton Depression Rating Scale score without suicidal item.
* The group consists of only women.

Table 5. *Predictors for lifetime suicidal behaviours among 137 primary-care patients with depressive disorder in the multi-nominal regression model*

Variable	No suicidal behaviour ($n=86$) OR	Suicidal ideation ($n=28$) OR (95% CI)	*p* value	Suicide attempt ($n=23$) OR (95% CI)	*p* value
Age	1·0	0·978 (0·945–1·012)	N.S.	0·990 (0·950–1·033)	N.S.
Gender	1·0	0·568 (0·180–1·797)	N.S.	0·438 (0·109–1·757)	N.S.
Personality disorder	1·0	3·012 (0·129–0·853)	0·022	8·621 (0·0898–0·467)	0·002
Lifetime psychiatric care	1·0	2·740 (0·143–0·934)	0·036	18·608 (0·0110–0·261)	<0·001

OR, Odds ratio; CI, confidence interval; N.S., not significant.

had seriously considered suicide, and 17% had attempted it. Non-fatal suicidal behaviour clustered almost exclusively in those with moderate to severe major depressive disorder, psychiatric co-morbidity with personality disorders, and a history of psychiatric care. Most of these patients were already receiving treatment for depression, but their suicidal ideation had commonly remained unrecognized.

The present study represents the primary care in a Finnish city, including all patients with a depressive disorder irrespective of prior recognition of their depression. Refusals were few, the reliability of the diagnosis of a depressive disorder excellent, and the full spectrum of co-morbid Axis I and Axis II diagnoses was assigned with SCID-I/P and the SCID-II for DSM-IV. Suicidal behaviour was evaluated in three time-frames, with use of a validated psychometric scale (SSI), the patients' own reports, medical plus psychiatric records. To the extent comparison is possible, our findings are in line with the scarce previous research on suicidal behaviour in primary care. Some limitations exist, however. Because of the relative infrequency of suicidal behaviour some subgroups remained small despite a fairly large screened patient population. This concerns especially the patients with suicidal behaviour during the ongoing episode. Nevertheless, the main findings were statistically highly significant and consistent. In addition, the generalizability of the findings outside Finnish primary-care settings needs to be established by replication elsewhere, and preferably within a larger sample. Moreover, the cross-sectional nature of the study limits our ability to make causal inferences. Finally, when applying our results to suicide prevention, it should be noted that in this study we only investigated non-fatal suicidal behaviour. Despite the largely overlapping clinical risk factors for suicide attempts and completed suicides, these populations are known to be distinguished at least by age, gender and method (Beautrais, 2001).

We found that non-fatal suicidal behaviour clustered in a subgroup of patients with characteristics that had made their depression recognizable even without screening. Severe symptoms of depression were present especially in those with recent suicidal behaviour, and in all time-frames suicidal behaviour was associated

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with personality disorder. Thus, the suicidal depressed patients in primary care appear very similar to both unselected suicide attempters (Hawton *et al*. 2003) and completed suicides (Foster *et al*. 1997; Cavanagh *et al*. 2003; Arsenault-Lapierre *et al*. 2004) in their psychiatric characteristics. As in completed suicides among patients with depression (Simon & VonKorff, 1998; Hoyer *et al*. 2004), non-fatal suicidal behaviour in our study associated strongly with prior psychiatric care, either due to preceding attempts or other psychopathology. The presence of at least one of these risk indicators – personality disorder, prior treatment in psychiatric care, or moderate to severe depression – had 94% sensitivity for any lifetime suicidal behaviour. Personality disorder or prior psychiatric treatment had 100% sensitivity for lifetime suicide attempts in our sample.

From the viewpoint of prevention of suicidal behaviour in primary care, undifferentiated screening or even improved quality of care of all depression may not be the optimal preventive strategy. At least non-fatal suicidal behaviour appears to cluster in high-risk patients already receiving care, although the suicidal ideation itself often remains unnoticed. This latter finding is also fully convergent with findings from psychological autopsy studies of completed suicides, as lack of communication of intent, despite having contact with primary care, is more the rule than an exception (Isometsä *et al*. 1995). Given their sometimes complex psychopathology and prior efforts taken in psychiatric care, suicidal patients may often have treatment needs that are difficult to face in primary care, sometimes even in specialist settings. Precisely what treatment in which setting would best benefit them remains uncertain. The pharmacological and psychosocial methods used in specialist care demand long-term adherence, which may exceed resources. Standard antidepressant therapy in primary care is a partial solution. Effective treatments that take into account the complex psychopathology need to be developed and evaluated.

CONCLUSION

Based on findings from the present study and previous research on completed suicides among primary-care patients with depression, characteristics related to suicidal ideation, attempts or completion appear to converge and overlap. Efforts to prevent suicidal behaviour among primary-care patients with depression should probably be more focused on high-risk subgroups, including those with moderate to severe major depressive disorder, personality disorder or a history of psychiatric care. Recognition of not only depression *per se* but also suicidal behaviour among depressed patients should be improved. The complex psychopathology of suicidal depressed patients in primary care needs to be considered in targeting preventive efforts.

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DECLARATION OF INTEREST

None.

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