Factors associated with suicidal ideation in the general population: five-centre analysis from the ODIN

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ABSTRACT

Background: Very few studies have examined the cross-national prevalence of suicidal ideation in the general population or variables associated with it.

Methods: As part of a 5 country (The ODIN study) two stage epidemiological study of depressive disorder a random sample of over 12,000 were screened using the Beck depression Inventory. This study represents a detailed analysis of item 9 of that questionnaire, which measured the severity of suicidal ideation using 4 questions beginning with "I don't have thoughts of killing myself" and concluding with "I would kill myself if I had the chance".

Results: Age, marriage, concern by others and severity of depressed mood independently increased or decreased the odds of suicidal ideation overall. An interaction between life events and social supports was identified although this behaved differently in men and women. For serious suicidal ideation only concern by others and severity of depression was independently associated with it. The study does not allow for interpretation of the direction of the association.

Conclusion: A number of social, clinical and demographic variables were independently associated with all suicidal ideation and with serious suicidal ideation. Longitudinal studies are required to confirm whether these are risk factors for or the result of suicidal ideation or have some other relationship.

Risk factors for suicidal ideation in the general population: a five centre analysis from the ODIN study

Just as there are international differences in the prevalence of deliberate self-harm (Schmidtke et al 1996) and in completed suicide (Cantor et al 1996), so international differences in the prevalence of suicidal ideation are recognized. However, most of these have been identified as a result of single country studies, making replicative interpretation difficult. It is possible that the reported differences may be due to variations in methodology, differences between the sampling frames, cross-national differences in the willingness to admit suicidal ideation or in the individual risk and protective factors for each country. Only two studies have made cross-national comparisons of suicidal ideation using a single methodology and both measured lifetime rates. Weissman et al (1999) found a wide variation, ranging from a life-time prevalence of 2.09% in Beiruit to over 18% in Christchurch, New Zealand whilst Bertolote et al (2005) found that Chenna, China had the lowest (2.6%) and Durban, Australia the highest (25.4%) rate for suicidal ideation.

Among the social or psychological variables that have been found to be independently associated with suicidal ideation are depressive symptoms (Goldney et al 2000, Turvey et al 2002), decrease in income (Turvey et al 2002), unemployment (Hintikka et al 2001; Gunnell et al 2004) and traumatic life events (Goldney et al 2000). Whether all of these are risk factors for, or the consequence of, suicidal ideation or related in some other way is uncertain although the longitudinal study by Fanous et al (2004) confirmed the independent predictive value of recent life events and psychopathology.

Of note, none of these community studies have specifically examined the severity of suicidal ideation but it is likely that this will vary as it does in clinical practice from being a passive death wish to a fully formed plan for death, with the latter being of most clinically significance.

The aim of this study was to examine the prevalence of suicidal ideation in six urban and rural European sites (in preparation) and to evaluate which variables might independently explain geographic differences. A further aim was to explore the severity of suicidal ideation in these sites and to identify variables that may be associated with severe suicidal ideation since understanding the risk or protective variables separating milder suicidal ideation from clinically serious ideation is important in targeting appropriate interventions.

This study tested two hypotheses

1. that variation in the prevalence of suicidal ideation between countries could be explained by a common set of social, demographic and clinical variables.

2. that variation in the prevalence of serious suicidal ideation between countries could be explained by a common set of associated social, clinical and demographic variables.

Methods

Sites: The present cross-sectional study forms part of a large investigation involving five countries in Europe: The Outcome of Depression International Network (ODIN). Details of the methods are provided elsewhere (Dowrick et al 1998). The broad aim of the ODIN study was to examine the prevalence of depressive disorders, to identify risk factors and to compare the impact of psychological interventions by re-interviewing subjects at 6 and 12 months after the index evaluation.

The countries participating in this study and for which data is available for the present analysis were Britain (rural – North Wales, referred to hereafter as Wales), Ireland (urban – Dublin and rural – County Laois), Spain (urban only- Santander), Norway (urban - Oslo and rural - Rakkestad) and Finland (urban – Turku and rural - Marttila). The definition of rural was of a centre of population of no more that 15,000 with at least 20% on economically active citizens engaged in occupations directly related to fishing, forestry or agriculture.

Screening and risk factors: Adults aged between 18 and 64 were selected from the general population and screened for possible cases of depressive disorder (adjustment disorder, single and recurrent depressive episode, bipolar and persistent affective disorder) using the Beck Depression Inventory (BDI) (Beck et al 1961).

In addition subjects completed a measure of social support – The Oslo Social Support Scale (Nosikov and Gudex 2003). This measured perceived concern shown be others (from none to a lot 1-5), ease in obtaining practical help from neighbours (from very difficult to very easy 1-5) and people to count on when serious personal problems arise (none to 5 or more 1-4)**.** Life events over the previous 6 months were measured by the List of Threatening experiences (Brugha et al 1985) in which the person responds yes or no to a list of 12 events). Socio-demographic details including age, sex, marital status were also obtained. Those instruments not already available in the language of the subjects were translated by the study group and then back translated by a professional translator.

The present study consists of an analysis of item 9 of the BDI in the screened sample and covering the previous two weeks. Variables that were associated with suicidal ideation include those items measured during the screening phase i.e. demographic data, life events and social supports. Severity of depressed mood was also included in the analysis using the BDI total score minus the score for item 9 since its inclusion might have led to a spurious association between suicidal ideation and severity of depression. Details of question 9 of the BDI are provided in table 1.

Suicidal ideation was measured using the response to questions SI (suicidal ideation)1, SI2, SI3 and SI4. Two broad analyses were carried out – the first comparing the non-ideators (SI-1) with all the ideators (SI-2,3,4) and the second, a subgroup analysis of those with any suicidal ideation, comparing the milder (SI-2) with the serious ideators (SI-3,4).

Table 1 near here

Statistical Analysis: Routine data management, including the description of results, was carried out using SPSS for Windows, version 8 (1998). Logistic regression analyses were carried out using the logistic command in Stata (version 8) (StatCorp, 2003). Stratification (i.e. the sampling design) was allowed for in the logistic regression models by the inclusion of Country and urban/rural differences in all models.

Results

Questionnaires were sent to 12,396 people, of whom 7950 responded yielding a response rate of 64.1% with variations between sites from 55.3% for Ireland to 74.2% for Spain. The response rates for Finland, Norway and Wales were 64.9%, 62% and 61.5% respectively. Among non-responders gender significant differences were apparent in Wales (men 35% vs women 26%), Ireland (52% vs 39%), and Norway (39% vs 30%) but not in Finland (39% vs 40%) or Spain (8% vs 9%). Response rate increased with age in Wales (53% among 18-24 year olds to 68% among 55-64 year olds), Ireland (42% and 59% respectively) and Finland (67% and 77% respectively) but not in Spain (84% and 86% respectively) or Norway (59% and 66% respectively).

Among responders suicidal ideation was reported by 7.4% in Norway, 2.3% in Spain, 7.4% in Wales, 9.8% in Finland and 14.6% in Ireland. Details of the weighted prevalence of suicidal ideation and of serious suicidal ideation is presented elsewhere (Casey, Dunn et al in preparation).

Variables associated with suicidal ideation

Certain variables were identified as significantly discriminating those with and without suicidal ideation in each site. These are shown in Table 2.

Table 2 near here

The discriminators appear to differ between the various sites although some, such as the presence of life events, concern shown by others, having people to count on and severity of depressive symptoms are common to all countries. Sex was significant only in Spain whilst urban/rural differences were significant only in Norway.

A series of logistic regressions were carried out to investigate the independent influence of these variables, together with country, on suicide ideation. The starting point was to fit a model containing only the main effects of all variables listed in table 2 (results not shown). At the second stage we tested for all the potential two-way interactions between the variables involving sex and involving country by adding them one at a time to the main-effects model. None was statistically significant except for the life events-by-sex interaction. In particular, there was no statistically significant country-by-sex interaction nor country-by-urban interaction (results not shown) demonstrating that the variables associated with suicidal ideation did not differ significantly between countries and that the sample could be considered as a whole.

The results of fitting the final model (including the non-significant main effects and the significant interactions, but excluding the non-significant interactions) are shown in Table 3.

Table 3 near here

Using Spain (Santander) as the reference country (i.e. odds-ratio – OR - fixed to be 1.0) there are still statistically significant between country differences. All of the Northern European countries have significantly more suicidal ideation than Spain with odds-ratios ranging from 2.23 for the Wales (p=0.004) to 3.45 for Finland (p=0.000). Urban-rural differences have disappeared, but all of the other discriminators are highly statistically significant. The odds of having suicide ideation is increased by depression (a BDI score of 13+; OR 16.32 p=0.000) but decreased by being older (age 30+; OR 0.58, p=0.000), being married (OR 0.66, p=0.000), having someone who is concerned for you (OR 0.34, p=0.001) and having people to count on (OR 0.64, p=0.049).

The part of the table that needs more care in its interpretation is that reporting the joint effects of life events, having access to help for these life events, and sex (i.e. the events-by-sex interactions). In the absence of life events, women are less likely to have suicidal thoughts than men (OR 0.57, p=0.003).

For those experiencing life events the effects of having help differs between men and men. In men, having a life event, but with help, significantly increases the association with suicidal thoughts when compared to those without events (OR 1.72, p=0.001) whilst having a life event, but without help, seems to have very little effect on the odds of having suicidal thoughts when compared to those without events (OR 1.18, p=0.582). However, in women having a life event but with help does not increase the association with suicidal ideation (OR 1.29, p=0.284) whilst experiencing an event without help is highly statistically significant (OR 3.03, p=0.005). In other words lack of help shows an increased association with suicidal thoughts in women who experience life events but among men who experience an event a lack of help makes no difference to suicidal ideation whilst help with events increases the association.

Variables associated with serious suicidal ideation

Since the BDI assesses suicidal ideation of varying severity ranging from none to passive death wishes to an active wish to end life, a subgroup analysis was carried out to ascertain which variables were associated with clinically serious ideation by comparing the combined statements "I would like to kill myself" (SI-3) and "I would kill myself if I had the chance" (SI-4) with "I have thoughts of killing myself but I would not carry this out" (SI-2) for each country individually and for the sites combined using univariate analysis. Those who had no suicidal ideation (SI-1) were excluded. Thus, the sample used for these analyses was much smaller than that used for Table 3.

Table 4 near here

In table 4 it can be seen that a pattern emerges of differing associations with clinically serious suicidal ideation in the five sites studied and in the total combined. Severity of depression was significant only in Spain and Norway, urbanicity for Finland, only people to count on and help with life events were significant in Ireland and Finland.

Because of different associations with serious suicidal ideation across countries the independent effects of these variables were investigated using multiple logistic regression. Similar to the analysis for any suicidal ideation reported above, the starting point was to enter all the variables and then each country-by-risk factor interaction was added in turn to this model (results not shown). This failed to find any statistically significant country-risk factor interaction, demonstrating that the variables associated with serious suicidal ideation did not differ statistically between the countries. It was thus appropriate to consider the sample as a whole and the results of the final model are shown in table 5.

Table 5 near here

The only variables that were independently associated with serious suicidal ideation were concern shown by others, which lowered the odds (OR 0.31, p=0.014) and high BDI score which increased the odds (OR 3.78, p=0.005). Thus, that after allowing for the independent effects of the other discriminators there were no statistically significant between country differences in the odds of having serious suicidal ideation when compared to milder suicidal ideation.

Discussion

This study is unique in that it is the only one to evaluate the risk factors for suicidal ideation in the general population at several international sites using similar methodology, thereby enhancing the validity of the cross-national comparisons. It is also the first study to specifically examine the variables associated with serious suicidal ideation in a multinational setting.

However it is also important to acknowledge the weaknesses of this investigation. The first is that only a limited number of variables were examined in testing their relationship

with suicidal ideation and in particular the failure to include substance abuse may be a deficiency in view of the increased risk of suicidal thoughts in this group (Gunnell et al 2004). Socio-economic and employment status were not examined either although these variables have been shown to be significantly associated with suicidal ideation (Hintikka et al 2001, Gunnell et al 2004). However those variables that were included in this study have been found, in the existing literature, to be associated with suicidal ideation and/or behaviour (Fanous et al 2004, Goldney et al 2001, Turvey et al 2002). The cross-sectional design of this study is also a limitation since it does not allow us to demonstrate if the variables shown to be associated with suicidal ideation are risk factors or if they represent some other relationship. Thirdly, this design, involving a sample from the general population, does not allow measurement of the duration of suicidal ideation or of its full clinical significance since it might be fleeting or protracted, associated with established psychiatric disorder or with transient reactions to stressful events as occurs in clinical practice although the separate examination of serious suicidal ideation does add additional information not available from other similar studies. Fourthly, the small sample size especially for the subgroup with serous suicidal deviation suggest a cautions interpretation of the results as the presence of a type 2 error cannot be excluded. Finally, the variable response rate between sites and the poorer response among men as compared to women especially in Wales and Ireland may have introduced hidden biases in the results although it is not possible to speculate on how the final models might have differed from those presented since neither site nor sex emerged as significant on multivariate analysis. Nevertheless the possibility cannot be totally discounted.

Variables associated with suicidal ideation

The failure to find any country by variable interaction suggests that a common set of variables independently determined suicidal ideation irrespective of the site, thus supporting our first hypothesis. However a caveat also exists in that this may represent a type 2 error due to underpowering. On multivariate analysis our study identified the role of being married and of negative life events in lowering and increasing, respectively, the odds of having suicidal ideation and these findings that are similar to those of others (Weissman et al 1999 and Fanous et al 2004). Multivariate analysis further showed that having people to count on and others who show concern reduced the odds of suicidal thoughts, confirming as others have done (Alexopoulos et al 1999; Turvey et al 2002) the importance of social supports. Increasing age (>30) was found on multivariate analysis to also reduce the odds of suicidal thoughts, a finding at variance with that of other studies (Fanous et al 2004).

The differential between men and women in relation to life events and help with these as identified in the interaction was an unexpected finding in this study and has not been reported before. Interpreting this finding is complex. Firstly, it is not possible to confirm the direction of the association in either sex since this was a cross-sectional rather than a longitudinal study.

In relation to the role of help with life events and suicidal ideation in women, two possibilities exist. Having help with events may act as a buffer against the negative impact of life events in women and lower their risk of suicidal ideation; alternatively it may be that those who develop suicidal ideation and/or low mood in the presence of a life events are less able to access help as either of these may have a negative impact on social networks. It is also possible that lack of social support may stem from a depressive perception (itself associated with suicidal ideation) rather than being a true cause.

For men it is possible that having social supports is an indicator of pre-existing vulnerability and thereby associated with a higher risk of suicidal ideation. Another possibility is that for men having social supports increases the likelihood of being exposed to relationship related life events that ultimately lead to suicidal ideation. It is not the intention or purpose of this study to attempt to unravel these questions but clearly this finding requires replication, in the first instance, and then further analysis to explain these between-sex differences.

Variables associated with serious suicidal ideation

This subgroup analysis examined the differences between those with milder suicidal ideation and those with serious ideation as this distinction is clinically important yet is incompletely understood and has received little attention in general population studies with some few exceptions Turvey et al 2002; Renberg 2001). For those with serious suicidal ideation the odds ratios indicate some variability across countries although these differences were not statistically significant. Thus the apparent differences between the countries found on univariate analysis might be the result of random fluctuations between the samples from the five countries, and lack of statistical power for the within-country significance tests. Multiple logistic regressions failed to find any country by risk factor interactions demonstrating that, as in the case of any suicidal thoughts, there is little or no evidence that the effects of the variables associated with serious suicidal thoughts vary from one country to another, supporting our second hypothesis. Another explanation may lie in the underpowering of this part of the study to identify other variables independently associated with serous suicidal ideation when compared to that which is milder.

For all counties combined, multivariate testing identified two variables of interest - concern shown by others which lowered the odds and severity of depression which increased the odds although the importance of depressed mood was less for serious suicidal ideation (OR 3.78) when compared to suicidal ideation in general (OR 16.32), a finding that was somewhat surprising. As with suicidal ideation overall, the same caveats exist in relation to demonstrating the direction of the association between concern shown by others and serious suicidal ideation. Clearly longitudinal studies are required to address these questions.

Clinical Implications

A common set of variables were associated with all suicidal ideation, and with serious suicidal, across the countries studied

The relationship between life events and social supports in relation to suicidal ideation differed between men and women

Severity of depressed mood increased the odds of having any suicidal ideation while concern shown by others decreased the odds

Limitations

The limited number of variables measured in this study precludes a fuller understanding of the variables associated with suicidal ideation

The cross-sectional nature of this study does not allow elucidation of whether these variables were risk-inducing or risk-reducing or had some other relationship to suicidal ideation.

The absence of follow-up prevents evaluation of the duration of suicidal ideation and of the necessity for intervention

Table 1 Item 9 of Beck Depression Inventory

I don't have thoughts of killing myself	SI-1
I have thoughts of killing myself but I would not carry this out	SI-2
I would like to kill myself	SI-3
I would kill myself if I had the chance	SI- 4

Table 2

Variables associated with suicidal ideation by country

	Ireland N=431		**Spain** N=1245		**Wales** N=1170		**Finland** N=1915		**Norway** N=2949		**Total** N=7710	
	%	P-value	%	P-value	%	P-value	%	P-value	%	P-value	%	P-value
Sex M F	12.5 16.5	0.25	1.1 3.4	0.007	7.7 7.6	0.950	10.9 8.8	0.132	8.1 6.9	0.208	8.1 8.1	0.675
Urban Rural	14.9 14.4	0.89	2.2 -	N/A	- 7.4	N/A	10.1 9.4	0.619	8.7 6.2	0.009	8.3 7.9	0.32
Age 15-29 30+	22.4 12.3	0.01	2.3 2.2	0.940	10.4 6.9	0.090	10.1 9.7	0.806	9.6 6.8	0.012	9.3 7.7	0.027
Life events 0 ≥ 1	2.2 25.5	<0.001	1.3 3.5	0.009	3.8 13.4	<0.001	6.3 14.3	<0.001	6.4 13.8	<0.001	4.7 13.7	<0.001
Marital status Married* Not married	10.6 21.2	0.003	1.8 2.8	0.019	5.1 14.2	<0.001	8.6 12.2	0.06	5.3 11.9	<0.001	6.2 11.8	<0.001
People to count on Somebody Nobody	12.4 55	<0.001	2.1 5.9	0.137	7.2 14.8	<0.001	9.1 24.1	<0.001	6.7 28.1	<0.001	7.4 25.3	<0.001
Concern shown by others Some None	7 20.1	<0.001	1.7 2.3	<0.001	4.2 10	<0.001	6.5 10.8	<0.001	12.6 25.3	<0.001	4.5 10.1	<0.001
Help with life events ** Lots/some None	24.1 43.5	0.048	2.9 5	0.246	13.7 18.5	0.350	13.5 26.9	0.002	12.6 25.3	0.002	12.9 19.7	<0.001
BDI 0-12 ≥ 13	4.9 46.1	P<0.001	0.8 36.7	<0.001	2 33.7	<0.001	4.9 38.9	<0.001	2.7 41.1	<0.001	2.9 40.6	<0.001

* Married includes cohabiting

** This applies to those participants who have reported one or more life events.

Table 3

Logistic regression analysis of variables associated with suicidal ideation

Any thoughts of suicide	**Odds Ratio**	**P-value**	**(95% Conf. Interval)**
Spain	1.00 (Reference)		
Norway	2.81	<0.001	(1.77, 4.47)
Finland	3.45	<0.001	(2.18, 5.46)
Wales	2.23	0.004	(1.30, 3.83)
Ireland	3.38	<0.001	(1.94, 5.87)
Urban	0.96	0.768	(0.75, 1.23)
Age>30	0.58	<0.001	(0.45, 0.75)
Married	0.66	<0.001	(0.52, 0.82)
Concern shown by others	0.34	0.001	(0.18, 0.62)
People you can count on	0.64	0.049	(0.41, 1.00)
BDI	16.32	<0.001	(13.00, 20.48)
Women with no LE[1]	0.57	0.003	(0.39, 0.83)
LE with help in men[2]	1.72	0.001	(1.23, 2.39)
LE without help in men[2]	1.18	0.582	(0.66, 2.10)
LE with help in women[3]	1.29	0.284	(0.81, 2.06)
LE without help in women[3]	3.03	0.005	(1.40, 6.59)

[1] LE = Life events
[2] Reference category ‘men without LE’
[3] Reference category ‘women without LE’

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Table 4

Variables associated with serious suicidal ideation by country

	Ireland N=63	Spain N=28	Finland N=187	Norway N=219	Wales N=87	Total N=629
Age <30 30+	9.1% 9.8% p=0.932	25% 20% p=0.771	6.7% 9.9% p=0.516	10.4% 14.5% p=0.418	5% 6% p=0.870	9% 11.5% p=0.375
Sex M F	12% 7.9% p=0.587	0% 28.6% p=0.111	8.4% 9.8% p=0.746	13.3% 113.2% p=0.988	11.9% 0% p=0.017	11.1% 10.6% p=0.840
Marital status Not married Married	 8.6 10.7 p=0.773	 20 23.1 p=0.843	 12.7 6.5 p=0.147	 11 14.8 p=0.403	 9.8% 2.2% p=0.140	 11.8% 9.7% p=0.401
Life events 0 1+	 0% 7.7% p=0.565	 22.2% 21.1% p=0.940	 8.6% 7.2% p=0.74	 7.4% 17.1% p=0.200	 3.6% 6.9% p=0.540	 7.3% 11.9% p=0.123
People to count on Somebody Nobody	 4 27.3 p=0.011	 19.2 50 p=0.307	 7.2 25% p=0.009	 12.2 20% p=0.275	 4.9% 25% p=0.093	 24.6% 9% p<0.001
Concern by others Some None	 16.7 8.2 p=0.375	 10 27.8 p=0.272	 0% 10.8 p=0.064	 15.9 12.2 p=0.514	 0% 7.8% p=0.180	 7.8% 11.5% p=0.216
Help with events* Lots/Some None	 0% 30% p<0.001	 16.7% 28.6% p=0.539	 4.9% 19% p=0.03	 18.1% 15% p=0.739	 4.4% 10% p=0.484	 9.1% 22.4% p<0.001
Urban Rural	10.3% 8.8% p=0.838	N/A	13.5% 4.4% p<0.030	14.5% 11.6% p=0.525	N/A 5%	14% 7.5% p=0.009
BDI 0-12 13+	0% 12.8% p=0.587	0% 33.3% p=0.039	6.3% 11.2% p=0.243	2.9% 18% p=0.002	0% 7.4% p=0.223	3.6% 14.1% p<0.001

* This applies to those participants who have reported one or more life events.

Table 5
Logistic regression analysis of variables associated with serious suicidal ideation

Serious suicidal thoughts	Odds Ratio	P-value	(95% Conf. Interval)
Spain	1.00 (reference)		
Norway	0.76	0.636	(0.24, 2.41)
Finland	0.47	0.219	(0.14, 1.56)
Wales	0.37	0.204	(0.08, 1.72)
Ireland	0.30	0.122	(0.07, 1.38)
Urban	1.52	0.254	(0.74, 3.13)
Woman	0.83	0.561	(0.44, 1.56)
Age 30+	0.84	0.629	(0.41, 1.72)
Married	0.88	0.703	(0.47, 1.67)
People	0.59	0.232	(0.25, 1.40)
Concern	0.31	0.014	(0.12, 0.79)
LE with help	1.17	0.691	(0.53, 2.59)
LE without help	1.45	0.457	(0.54, 3.88)
BDI (13+)	3.78	0.005	(1.50, 9.51)

References

Alexopoulos GS, Bruce ML, Hull J et al **(1999)**. Clinical determinants of suicidal ideation and behaviour in geriatric depression. Archives of General Psychiatry. **56 (**11), 1048-1053.

Ayuso-Mateos, JL, Vasquez-Barquero, JL., Dowrick, C. et al **(2001)**. Depressive disorders in Europe: Prevalence from the ODIN study. British Journal of Psychiatry. **179**, 308-316.

Beck, A., Ward, C., Mendelson, M. et al. **(1961)**. An inventory for measuring depression. Archives of General Psychiatry. **4,** 561-571.

Brugha, T., Bebbington, P., Tennant, C. et al. **(1985).** The List of Threatening Experiences: a subset of 12 life event categories with considerable long-term contextual threat. Psychological Medicine. **15,** 189-194.

Cantor, C.H., Leenaars, A.A., Lester, D. et al **(1996)**. Suicide trends in eight predominantly English-speaking countries 1960-1989. Social Psychiatry and Psychiatric Epidemiology. **31**. 364-373.

Dowrick, C., Casey, P., Dalgard, O. et al **(1998)**. The Outcomes of Depression International Network (ODIN): Background, methods and field trials. British Journal of Psychiatry. **172,** 359-363.

Fanous, A.H., Prescott, C.A. and Kendler, K.S. **(2004).** The prediction of thoughts of death or self-harm in a population-based sample of female twins. Psychological Medicine. **34**, 301-312.

Gili-Planas, M., Roca-Bennasar, M., Ferrer-Perez, V. and Bernardo-Arroyo, M. **(2001)**. Suicidal ideation, psychiatric disorder and medical illness in a community epidemiological study. Suicide and Life Threatening Behaviour. **31** (2), 207-213.

Goldney, R.D., Wilson, D., Dal Grande, E. et al **(2000)**. Suicidal ideation in a random community sample: attributable risk due to depression and psychological and traumatic events. Australia and New Zealand Journal of Psychiatry. **34** (1): 98-106.

Goldney, R.D., Fisher, L.J., Wilson, D.H. and Cheok, F. **(2001).** Suicidal ideation and health related quality of life in the community. Medical Journal of Australia. **175** (10), 546-549.

Gunnell, D., Harbord, R., Singleton, N. et al **(2004)**. Factors influencing the dvelopment and amelioration of suicidal thoughts in the general population. Cohort Study. British Journal of Psychiatry. **185,** 385-393.

Hintikka, J., Pesonen,T., Saarinen,P. et al **(2001)**. Suicidal ideation in the Finnish general population. A 12-month follow-up study. Social Psychiatry and Psychiatric Epidemiology. **36** (12), 590-594.

Kessler, RC., Borges, G., Walters, EE et al **(1999)**. Prevalence of and risk factors for lifetime suicide attempts in the National Co-morbidity Survey. Archives General Psychiatry. **56**, 617-626.

Nosikov, A. and Gudex, C. **(2003)**. EUROHIS: Developing Common Instruments for Health Surveys. IOS Press, Ohmsha, Amsterdam.

Renberg, E.S. (2001). Self-reported life-weariness, death-wishes, suicidal ideation, suicidal plans and suicide attempts in general population surveys in the north of Sweden 1986 and 1996. Social Psychiatry and Psychiatric Epidemiology. **36,** 429-435.

Schmidtke, A., Bille-Brahe, U., DeLeo, D. et al **(1996)** Attempted suicide in Europe:rates, trends and sociodemographic characteristics of suicide attempters during the period 1989-1992. Results of the WHO/EURO Multicetnre Study on Parasuicide. Acta Psychiatrica Scandinavica. **93** (5). 327-338.

StataCorp **(2003)**. Stata Statistical Software: Release 8.0. College Station TX: Stata Corporation.

Statistical Package for the Social Sciences **(1998)**. SPSS inc. U.S., Chicago.

Turvey, C., Stromquist, A., Kelly, K. et al. **(2002)**. Financial loss and suicidal ideation in a rural community sample. Acta Psychiatrica Scandanavica. **106,** 373-380.

Weissman, M.M., Bland, R.C., Canino, G.J.et al **(1996)**. Cross-national epidemiology of major depression and bipolar disorder. Journal of the American Medical Association. **276,** 293-299.

Weissman, M.M., Bland, R.C., Canino, G.J. et al **(1999)**. Prevalence of suicidal ideation and suicide attempts in nine countries. Psychological Medicine. **29,** 9-17.

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