Epidemiology of suicide attempts in a psychiatric setting in Northern Italy

Epidemiologia dei tentati suicidi in un Servizio di Salute Mentale del Nord Italia (Rovigo)

S. Zanone Poma[1], E. Toniolo[1], A. Grossi[1], R. Pizzo[1], S. Cocchio[2], V. Baldo[2]

[1] Mental Health Department, Local Health Authority (ULSS 18) of Rovigo, Italy; [2] Department of Environmental Medicine and Public Health, Institute of Hygiene, University of Padua, Italy

Summary

Objectives

An observational study was carried out to investigate suicide attempts in the period from January 1, 2006 to December 31, 2010 in the population of legal age from the territory of Rovigo in Northern Italy.

Methods

All intentional self-poisoning or self-injury events, irrespective of motivation, that came to the attention of Mental Health Services was recorded. Personal data (age, sex, marital status, occupation, educational level and family composition), clinical data (main diagnostic group, method used in the attempt, previous contact with the Service, previous suicide attempts, site of first psychiatric consultation) were recorded for every person encountered by the psychiatrist involved in the first evaluation. All the people recruited were also asked to fill in a self-administered interview composed of three questionnaires: QD - questionnaire of depression by CBA – cognitive behavioral assessment; BSI – borderline syndrome index and RFL – reason for living inventory.

Results

Two-hundred and sixty-five suicide attempts with a psychiatric evaluation were considered in a population of 149,300 people over a period of 5 years. A higher distribution in females and younger people was found. There is a high percentage of unemployed people (23.1%), especially among males (29.3%) (χ^2 test:4.02; $p < .05$). In the majority of cases the means of the suicidal attempt is drug poisoning (59%) and violent methods (hanging, gas poisoning, jumping, fire arms and drowning) represent the 25.2% of all the sample, with a higher percentage for male subjects (35.9%; OR: 2.66 [95% CI: 1.34-5.29]). The great majority of people were assessed in Emergency Rooms (64.1%) and after the psychiatric evaluation, 69.2% of the people were hospitalized in psychiatric wards. The main diagnostic group is personality disorders (33.3%) followed by mood disorders (24.4%): there is a significant sex difference with more females with mood disorders (χ^2 test: 6.88; $p < .01$) and more males with alcohol/substance disorders (χ^2 test: 19.4; $p < .01$). In 40.6% of cases had at least one contact with Mental Health Services before while a relevant percentage of people (43.2%) had a positive history for previous attempts. People with a positive history of suicidal attempts were at major risk of borderline personality (OR: 2.01 [95% CI: 1.02-3.95]) while it was less evident in people with a higher presence of reason for living by the RFL questionnaire ($p < 0.05$; adjusted OR: 0.39 [95% CI: 0.16-0.94]).

Conclusions

The findings confirm data in the literature on suicide attempts in Western populations and provide the state of the art at the local and national level. The investigation stresses the established evidence that a large proportion of suicide attempters do not pertain to the population usually served by Mental Health facilities. It also suggests a possible discrimination of different profiles among those attempting suicide. Some indications for future prevention planning emerge: it is possible to differentiate two levels of prevention with a "selected prevention" on males, unemployed individuals and those who do not come to the attention of mental health professionals, and an "indicated prevention" for patients with a positive history of suicidal attempts.

Key words

Suicide-attempt • Epidemiology • Mental-Health Service

Introduction

Suicidal behaviour, spanning from self-harm without injuries to completed suicide [1], is recognized as a serious public health problem [2]. In Europe, suicide is one of the first three causes of death in 15- to 44-year-old individuals [3]. Italian data from 2007 show 6.3 suicides every 100,000 inhabitants per year [4], with a larger number in Northern regions [5]. The rates in Italy decreased from 1980 to 2002, and at the same time an increasing use of highly lethal methods was observed [6].

Epidemiological data show two patterns considering suicide attempts or completed suicides. A clear-cut difference emerges on incidence, age/sex distribution and methods of attempts, but the major risk factors are common: lack

Correspondence
Stefano Zanone Poma, Centro di Salute Mentale, viale Tre Martiri 89, 45100, Rovigo, Italy • E-mail: zanone.stefano@azisanrovigo.it

of an affective relationship, changes in living situation or living in an institution, unemployment, mental disorder, alcohol or substance abuse, low socio-economic status and previous suicide attempts [7].

The greatest predictor of eventual suicide is a personal history of suicide attempts [8], which can be found in about 40% of suicides [9]. The relative risk is much higher in the first year, but remains significantly high even after 15 years [10]. The rate of suicide attempts is considered to be at least 10 times that of suicide [11], but its estimation is inaccurate as national registers are available only for suicide cases. The majority of cases do not come to the attention of Health Services, and many remain unknown even to relatives and friends. In a pyramidal projection, the proportion of attempts seen by Mental Health Services is located on the top [12].

In Italy, the data show a rate of suicidal behaviour (included suicide attempts) that is lower than that registered in Northern Europe, and in line with the Mediterranean area [13]. A study performed in Padua (Veneto-Italy) in hospital-admitted subjects found a rate ranging from 59.2 to 93.6 per 100,000/year considering two different periods: 1992-1996 and 2002-2006, respectively [14]. In a previous study carried out by our group, a rate of 36.4 per 100,000/year was estimated in individuals admitted to the general hospital of Rovigo (Veneto-Italy) for parasuicide acts [15]. To date, these investigations account for the literature on the epidemiology of suicide attempts in Italy.

An observational population-based study was carried out to investigate suicide attempts in the five-year period from January 1, 2006 to December 31, 2010. The population of this study consisted of the residents of legal age (≥ 18-year olds) from the territory of Rovigo's Public Health Unit. On December 31, 2009 they numbered 149,300, while the entire population was 175,129. This territory is located in the Veneto region in the North of Italy and is a rural area with prevailing agricultural and small industrial activities; its population density is 175/km^2, and the proportion of elderly people is significantly higher than that in Italy. In the Rovigo area, a suicide rate of 11.7 cases/100,000/year was recorded during the period from 1999-2007 [16].

Methods

The sample consists of suicide attempts (during the period 2006-2010) by residents of legal age (≥ 18-year-olds) from the area of the Local Health Authority that were assessed with psychiatric evaluation. Each intentional self-poisoning or self-injury, irrespective of motivation, that came to the attention of Mental Health Services (i.e. people that committed a suicide attempt and after that were referred to a psychiatrist for an evaluation) was recorded, and individuals were asked to participate in the study. Personal data (age, sex, marital status, occupation, educational level and family composition), clinical data (main diagnostic group, method used in the attempt, previous contact with the Service, previous suicide attempts, site of first psychiatric consultation) were recorded for each participant encountered by the psychiatrist in the first evaluation. All individuals recruited were also asked to complete a self-administered interview composed of three questionnaires: QD (*Questionnaire of Depression*) by CBA (*Cognitive Behavioral Assessment*, Italian version) [17] with a cut-off of 15 or more in a 24-item scale; BSI (*Borderline Syndrome Index*) [18] with a cut-off of 24 or more in a 52-item scale; RFL (*Reason For Living Inventory*) [19], with a total score plus 5 factors scores, that are obtained with the average of all the responses in a Likert-scale from 1 to 6 (from the lowest to the maximum of reason for living). For this latter questionnaire, scores of more than 3.50 were considered positive for a presence of reasons for living. Due to the relatively small sample, it was taken into account only the RFL-total score. The Paykel scale for recent life-events was also recorded [20]. Questionnaires were chosen on a practical basis: they are all self-administered, and relatively easy and quick to use. They were collected in the psychiatric ward or the out-patient centre by a nurse previously trained to assist patients in completing the questionnaires.

Data were summarized as frequencies and percentages for categorical data (and as means ± SD for continuous data). The incidence rate was estimated considering the average number for one year of all cases encountered and referred to the population of legal age (≥ 18-year-olds) from the territory of Rovigo's Public Health Unit. Analyses were performed using a χ^2 test or Fisher's exact test, and Student's t-test as appropriate. A p value of $p < 0.05$ was considered significant (and odds ratio [OR] with a 95% confidence interval [CI] was calculated). A multivariate logistic regression analysis was carried out to determine variables that were independently associated with repetition of attempts, use of violent methods and outcomes by psychometric questionnaires. Due to the small sample (n = 150), some variables were aggregated in less categories for the analysis of questionnaires. Analyses were performed using the Statistical Package for the Social Sciences (SPSS ver. 18, Chicago, Illinois, USA). All participants were informed about the nature of the study, and in particular that data would be aggregated in anonymous manner.

Results

The total number of suicide attempts during the five year period was 265, recorded in 234 subjects; 21 repeated the act several times with an average of 2.48 acts per person. The average rate of suicide attempts per year

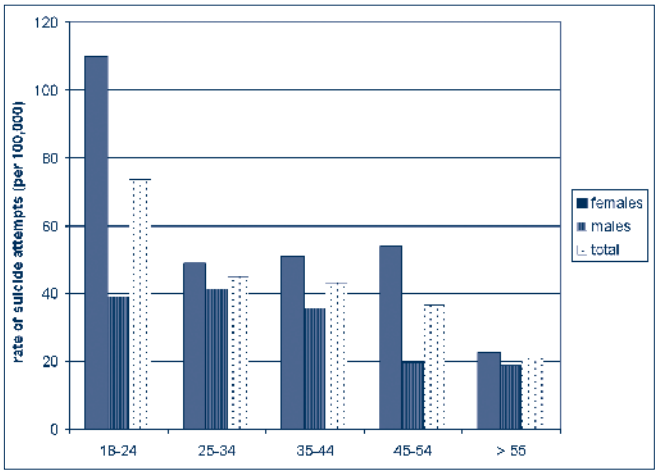

FIGURA 1.
Incidence by age and sex (cases per 100,000/year) of suicide attempts seen by the Mental Health Service of Rovigo (period 2006/10). *Tassi per età e sesso dei casi (per 100.000 abitanti/anno) di tentati suicidi visti dal Dipartimento di Salute Mentale di Rovigo nel periodo 2006/10.*

was 53, and thus the estimated incidence was 35.5 cases/100,000/year (referred to legal age population of the area, corresponding to 149,300 people).
There were 92 males with 99 acts (37.36%) and 142 females with 166 acts (62.64%) with an average age of 43.94 (± 16.80) and no differences between males and females (Student's t-test: 0.28; p = 0.77). The incidence rate referred to the population was 42.7 cases/100,000/year for females and 27.7 cases/100,000/year for males. As shown in Figure 1, the rate of suicide attempts decreases with age, and this was particularly true for females (in age range 18-24 years a rate of 110.1 cases/100,000/year was found for females).
Considering marital status, the majority (59.4%) were unmarried (single, divorced or widowed), and this was more evident for males than females (χ^2 test: 4.13; $p < 0.05$). In 77.8% of the sample a low school grade had been achieved (up to 8 years of education). There was a high percentage of unemployed individuals (23.1%), especially among males (29.3%) (χ^2 test: 4.02; $p < 0.05$), and people in non-professional conditions (students, housewives and retired) (35.0%) (Table I).
In the majority of cases, the means of the suicidal attempt was drug poisoning (59%), followed by self harm by cutting oneself with sharpened objects (10.7%); less frequently attempts were carried out by hanging (6.4%), gas poisoning (5.6%) and poisoning with chemical products (5.1%). Overall, violent methods (hanging, gas poisoning, jumping, fire arms and drowning) represented 25.2% of the sample, with a higher percentage for male subjects (35.9% with violent methods). The large majority of people were assessed in Emergency Rooms (64.1%); 14.1% of the sample consisted of people who referred directly to Mental Health out-patient facilities. After psychiatric evaluation, 69.2% of those were hospitalized in psychiatric wards. A third were diagnosed with personality disorders (diagnosis recorded in patients' files), representing the main diagnostic group, followed by mood disorders (24.4%) and adjustment disorders (18.4%). There was a significant gender difference with more females with mood disorders (χ^2 test: 6.88; $p < 0.01$), and more males with alcohol/substance disorders (χ^2 test: 19.4; $p < 0.01$). 40.6% of cases had at least one contact with Mental Health Services before the evaluation related to the suicide attempt; therefore, about 60% of people who had attempted suicide were new cases for Mental Health Service. A relevant percentage of people (43.2%) had a positive history for previous attempts (Table I).
One hundred and fifty people were assessed with psychometric questionnaires. The main reasons for not completing the questionnaires were drop-outs (37%) and patient refusals (31%). The distribution of this population (n = 150) was different from the entire sample with regard to three variables: people who completed the investigation with psychometric questionnaires had a higher educational level (χ^2 test: 6.58; $p < 0.01$), more frequently hospitalized (χ^2 test: 4.46; $p < 0.05$), and a diagnosis of mood disorders was more frequent (χ^2 test: 6.46; $p < 0.05$). In this sample, 38.3% was positive for depressive symptoms by the QD questionnaire, and 46.1% had higher score by the BSI questionnaire. Reasons for living (RFL questionnaire) were found in 53.2% of the sample. The Paykel scale accounts for stressful life events in the past six-months, and four of five subjects reported at least one stressful event; the majority reported a single event (72.7%).
Logistic multivariate analysis with dependent variable "violent methods" versus "non-violent methods" revealed a statistically significant correlation: men were at higher risk for using violent methods ($p < 0.01$; adjusted OR: 2.66 [95% CI: 1.34-5.29]). There was also a slight trend (although it did not reach statistical significance) for correlation between violent methods and unemployment condition. Logistic multivariate analysis with dependent variable "repetition of attempts" showed a statistically significant correlation ($p < 0.01$; adjusted OR: 3.50 [95% CI: 1.85-6.62]) with previous contacts with Mental Health Services. Logistic multivariate analysis revealed that those subjects with a major presence of depressive symptoms by the QD questionnaire were less frequently hospitalized ($p < 0.05$; adjusted OR: 2.82 [95% CI: 1.15-5.88]), while those with more reasons of living by the RFL questionnaire have more probability of not being hospitalized ($p < 0.05$; adjusted OR: 0.36 [95% CI: 0.14-0.89]). A positive history of previous attempts corre-

TABLE I.
Personal and clinical data (with percentage of distribution) of 234 subjects with a suicide attempt that were assessed by the Mental Health Service of Rovigo (periodo 2006/10) [*in bold, the statistically significant differences between sexes*]. *Dati socio-demografici e clinici (con relative percentuali) dei 234 soggetti con un tentato suicidio valutati dal Dipartimento di Salute Mentale di Rovigo nel periodo 2006/10 [in grassetto, le differenze statisticamente significative tra i sessi].*

Variable		Sex				Total (n = 234)	
		Females (n = 142)		Males (n = 92)			
		n	(%)	n	(%)	n	(%)
Age range							
	< 24	22	(15.5)	10	(10.9)	32	(13.7)
	25-34	26	(18.3)	20	(21.7)	46	(19.7)
	35-44	29	(20.4)	24	(26.1)	53	(22.6)
	45-54	32	(22.5)	13	(14.1)	45	(19.2)
	> 55	33	(23.2)	25	(27.2)	58	(24.8)
Marital status							
	Married	60	(42.3)	27	(29.3)	87	(37.2)
	Not-married	**77**	**(54.2)**	**62**	**(67.4)**	139	(59.4)
	N. A.	5	(3.5)	3	(3.3)	8	(3.4)
Educational level							
	Lower (up to 8 years)	109	(76.8)	73	(79.3)	182	(77.8)
	Upper	28	(19.7)	16	(17.4)	44	(18.8)
	N. A.	5	(3.5)	3	(3.3)	8	(3.4)
Professional condition							
	Working	45	(31.7)	31	(33.7)	76	(32.5)
	Not-professional	57	(40.1)	25	(27.2)	82	(35.0)
	Unemployed	**27**	**(19.0)**	**27**	**(29.3)**	54	(23.1)
	N. A.	7	(4.9)	2	(2.2)	9	(3.8)
First assessment							
	Emergency room	97	(68.3)	53	(57.6)	150	(64.1)
	Psychiatric out-patients facilities	20	(14.1)	13	(14.1)	33	(14.1)
	Intensive care	11	(7.8)	14	(15.2)	25	(10.7)
	Other hospital Dpts	7	(4.9)	4	(4.4)	11	(4.7)
	Home	7	(4.9)	8	(8.7)	15	(6.4)
Psychiatric hospitalization after the suicide attempt							
	No	50	(35.2)	22	(23.9)	72	(30.8)
	Yes	92	(64.8)	70	(76.1)	162	(69.2)
Clinical diagnosis							
	Mood disorders	**43**	**(30.3)**	**14**	**(15.2)**	57	(24.4)
	Personality disorders	51	(35.9)	27	(29.3)	78	(33.3)
	Psychosis	10	(7.0)	10	(10.9)	20	(8.5)
	Adjustment disorders	26	(18.3)	17	(18.5)	43	(18.4)
	Alcohol/substance disorders	**5**	**(3.5)**	**20**	**(21.7)**	25	(10.7)
	Dementias	4	(2.8)	2	(2.2)	6	(2.6)
	Mental retardation	3	(2.1)	2	(2.2)	5	(2.1)
Previous contact with Mental Health Services							
	No	84	(59.2)	55	(59.8)	139	(59.4)
	Yes	58	(40.8)	37	(40.2)	95	(40.6)

(continues)

(Table I follows)

Variable		Sex				Total (n = 234)	
		Females (n = 142)		Males (n = 92)			
		n	(%)	n	(%)	n	(%)
Method used							
	Drug poisoning	95	(66.9)	43	(46.7)	138	(59.0)
	Self-harm with sharpened objects	14	(9.9)	11	(12.0)	25	(10.7)
	Gas poisoning	4	(2.8)	9	(9.8)	13	(5.6)
	Fire arms	1	(0.7)	3	(3.3)	4	(1.7)
	Hanging	4	(2.8)	11	(12.0)	15	(6.4)
	Jumping	6	(4.2)	4	(4.3)	10	(4.3)
	Chemical products	6	(4.2)	4	(4.3)	10	(4.3)
	Drowning	9	(6.3)	3	(3.3)	12	(5.1)
	Others	23	(2.1)	4	(4.4)	7	(3.0)
Violent methods							
	No	116	(81.7)	59	(64.1)	175	(74.8)
	Yes	**26**	**(18.3)**	**33**	**(35.9)**	59	(25.2)
Previous attempts							
	No	77	(54.2)	56	(60.9)	133	(56.8)
	Yes	65	(45.8)	36	(39.1)	101	(43.2)

lates with borderline symptoms by the BSI questionnaire ($p < 0.05$; adjusted OR: 2.01 [95% CI: 1.02-3.95]), while it was less evident in people with a higher presence of reason for living by the RFL questionnaire ($p < 0.05$; adjusted OR: 0.39 [95% CI: 0.16-0.94]).

Discussion

The well-established findings in the literature are confirmed by the present study in the area of Rovigo (Northern Italy). Suicide attempts were more common in females and younger people [13]. A high frequency of unemployment, non-married status (single, widowed or divorced), and low educational level were more common [21-23]. Considering that in the Veneto region unemployment rates fluctuated between 3.3% and 5.8% during the years of the study [24], the present sample is characterized by at least 4 times the unemployment rate of the general population. Some gender differences were found: males were more frequently unmarried and unemployed; they had been diagnosed less frequently with mood disorders, but more frequently with alcohol/substance disorders and were more prone to use violent methods. These data suggest different profiles for attempters: males were more influenced by social conditions and alcohol while considering to take their own lives. The choice for violent methods by males and the association between lethality of method and intention to die find conflicting data in literature [25 26]. More than 70% of suicide attempters acknowledged stressful life events in the preceding six months. This, associated with the fact that the majority of people (n = 139; 59.4%) were at their first contact with mental health professionals, brings attention to a phenomenon that appears crisis-like [27 28]. This interpretation is reinforced by the relative low presence of major psychiatric disorders: there was a considerable proportion of adjustment disorders (n = 43; 18.4%) and alcohol/substance disorders (n = 25; 10.7%). In addition, the major diagnostic group is represented by personality disorders, which is frequently an inaccurate diagnosis [29] and has a poor stability over time [30]. Since suicide attempts tend to repeat and are highly associated with the risk of completed suicide [7], the challenge for preventive strategies is to reach those people in crisis without social support and without a help-seeking attitude [31].

There was a considerable proportion of subjects (n = 101; 43.2%) with a positive history of suicidal attempts. The individuals are at major risk of having a borderline personality (BSI questionnaire) and less willingness to live (RFL questionnaire), but are more likely to attend Mental Health Services. People with previous attempts represent a sub-population with poorer psychological balance, which suggests a dedicated prevention in this group [32 33]. Subjects who were hospitalized after the attempt had a lower perception of depressive symptoms by the QD questionnaire and a higher motivation to live using the RFL questionnaire. This was an unexpected outcome, although one possible explanation is that the situation influenced the responses, especially with self-administered questionnaires. One hypothesis is that non-hospitalized individuals might have a poorer perception of their psychological status in the aftermath of a suicidal crisis. An-

other explanation is that psychiatrists considered not only psychopathology in their evaluations, and therefore decided to admit people with other risk factors (e.g., low social support) to the psychiatric ward. While questioning the psychometric power of the questionnaires used, these results strengthen the outcomes of multivariate analysis in subjects with previous attempts (see above).

The major limitation of this study is that the population of the present work pertains only to a portion of all suicide attempts. Considering the population of legal age of the area, an incidence of 35.5 suicide attempts per 100,000/year can be estimated: taking into account that the suicide rate in the entire population of the area is 11.7 cases/100,000/year, the proportion found is far from that indicated in literature (at least 10 suicide attempts for every suicide) [11]. Nevertheless, a comparison might be made with two studies from the nearby area of Padua [14], considering that they are geographically and culturally close and have similar demographical features. The incidence found in the periods 1992-1996 and 2002-2006 was 59.2 and 93.6 cases/100,000/year, respectively: in both cases, the samples were all represented by suicide attempts referred to a general hospital, irrespective of any psychiatric evaluation. In a previous work of our group, an incidence of 36.4 parasuicides presented to the general hospital (per 100,000/year) was found: this was a retrospective study on medical electronic files, with all the possible biases and missing data for this kind of investigation [15]. Another limitation of the present work is represented by the different distribution of the people that completed psychometric evaluation. This fact prevents us from generalizing the results of the questionnaires to the entire sample. It also gives more weight to the impossibility to know how people that do not come to the attention of mental health professionals would have resulted in the variables explored. Moreover, while we found some interesting data related to violent methods, the actual lethality was not assessed.

Despite the above limitations, the present investigation stresses the established evidence that a large proportion of suicide attempters do not pertain to the population usually served by Mental Health facilities. It also suggests a possible discrimination of different profiles among those attempting suicide. Social factors may play a role in addition to mental disorders and psychological pain. This is confirmed by the limited function of psychometric tools in assessing risk. A sub-population of people with a tendency to repeat suicidal acts could also be highlighted. Considering these data, some indications for prevention programmes emerge. As suggested by Nordentoft [34], it is possible to differentiate two levels of prevention: *selected prevention* on males, unemployed individuals and those who do not come to the attention of mental health professionals, and *indicated prevention* for patients with a positive history of suicidal attempts. While this latter strategy can be limited to specialist settings, selected prevention needs multiple contributions and large-scale projects involving different territorial agencies [35 36].

In conclusion, the present findings confirm the data in the established literature on suicide attempts in Western populations [7 37], and provide the state of the art at local and national level and give indications for future prevention planning.

Acknowledgements

The authors wish to thank the Cariparo Foundation ("Fondazione Cassa di Risparmio di Padova e Rovigo") for its financial support and Drs. Francesca Siviero and Silvia Vicentini (Mental Health Department, Local Health Authority of Rovigo) for their valuable work during all the phases of the study.

References

1 Silverman MM, Berman AL, Sanddal ND, et al. *Rebuilding the tower of Babel: a revised nomenclature for the study of suicide and suicidal behaviors Part 2: suicide-related ideations, communications, and behaviors*. Suicide Life-Threat Behav 2007;37:264-77.

2 Mann JJ. *A current perspective of suicide and attempted suicide*. Ann Intern Med 2002;136:302-11.

3 UE. *DG Health and Consumer Protection - Green Paper*. Bruxelles: European Union Commission 2005.

4 WHO data: http://www.who.int/mental_health/media/ital.pdf/

5 DATA from Italian National Institute of Statistics: http://www.istat.it/en/ and http://www.cnel.it/wizard

6 Vichi M, Masocco M, Pompili M, et al. *Suicide mortality in Italy from 1980 to 2002*. Psychiatry Res 2010;175:89-97.

7 Welch SS. *A review of the literature on the epidemiology of parasuicide in the general population*. Psychiatr Serv 2001;52:368-75.

8 Crandall C, Fullerton-Gleason L, Aguero R, et al. *Subsequent suicide mortality among emergency department patients seen for suicidal behaviour*. Acad Emerg Med 2006;13:435-42.

9 Nordentoft M, Breum L, Munch L, et al. *High mortality by natural and unnatural causes: a 10-year follow-up study of patients admitted to a poisoning treatment center after suicide attempts*. BMJ 1993;306:1637-41.

10 Hawton K, Zahl D, Weatherall R. *Suicide following deliberate self-harm: follow-up of patients who presented to a general hospital*. Br J Psychiatry 2003;182:537-42.

11 De Leo D, Cerin E, Spathonis K, et al. *Lifetime risk of suicide ideation and attempts in an Australian community: prevalence, suicidal process and help-seeking behaviour*. J Affect Disord 2005;86:215-24.

12 Suokas J, Lönnqvist J. *Selection of patients who attempted suicide for psychiatric consultation*. Acta Psychiatr Scand 1991;83:179-83.

13 Bernal M, Haro JM, Bernert S, et al. *Risk factors for suicidal-*

ity in Europe: results from the ESEMED study. J Affect Disor 2007;101:27-34.

14 Kõlves K, Vecchiato T, Pivetti M, et al. *Non-fatal suicidal behaviour in Padua, Italy, in two different periods: 1992-1996 and 2002-2006*. Soc Psychiatry Psychiatr Epidemiol 2011;46:805-11.

15 Zanone Poma S, Magno N, Belletti S, et al. *Parasuicide in Rovigo (North of Italy) during the period 2000-2005*. J Prev Med Pub Health 2007;48:79-82.

16 Veneto Region. *I suicidi nel Veneto: analisi delle schede di morte*. Bollettino informativo del Sistema Epidemiologico Regionale del Veneto 2008;3:5-8. http://www.ser-veneto.it/public/File/documents/bollettino/ies200803.pdf.

17 Sanavio E, editor. *Le Scale CBA. Cognitive Behavioural Assessment: un modello di indagine psicologica multidimensionale*. Milano: Raffaello Cortina 2002.

18 Conte HR, Plutchik R, Karasu TB, et al. *A self-report borderline scale: discriminative validity and preliminary norms*. J Nerv Ment Dis 1980;168:428-35.

19 Linhean MM, Goodstein JL, Nielsen SL, et al. *Reasons for staying alive when you are thinking of killing yourself: the reasons for living inventory*. J Consul Clin Psychol 1983;51:276-86.

20 Baratta S, Colorio C, Zimmermann-Tansella C. *Inter-rater reliability of the Italian version of the Paykel Scale of stressful life events*. J Affect Disor 1985;8:279-282.

21 Carter GL, Page A, Clover K, et al. *Modifiable risk factors for attempted suicide in Australian clinical and community samples*. Suicide and Life-Threat Behav 2007;37:671-680.

22 Masocco M, Pompili M, Vichi M, et al. *Suicide and marital status in Italy*. Psychiatr Q 2008;79:275-85.

23 Haw C, Hawton K. *Living alone and deliberate self-harm: a case-control study of characteristics and risk factors*. Soc Psychiatry Psychiatr Epidemiol 2011;46:1115-25.

24 Data from the Italian National Institute of Statistics: http://dati.istat.it/Index.aspx

25 Haw C, Hawton K, Houston K, et al. *Correlates of relative lethality and suicidal intent among deliberate self-harm patients*. Suicide and Life-Threat Behav 2003;33:353-64.

26 Nordentoft M, Branner J. *Gender differences in suicidal intent and choice of method among suicide attempters*. Crisis 2008;29:209-12.

27 Pompili M, Innamorati M, Szanto K, et al. *Life events as precipitants of suicide attempts among first-time suicide attempters, repeaters, and non-attempters*. Psychiatry Res 2011;186:300-5.

28 Pompili M, Innamorati M, Serafini G, et al. *Suicide attempters in the emergency department before hospitalization in a psychiatric ward*. Perspect Psychiatr Care 2011;47:23-34.

29 Tyrer P, Coombs N, Ibrahimi F, et al. *Critical developments in the assessment of personality disorder*. Br J Psychiatry 2007;49:S51-9.

30 Baca-Garcia E, Perez-Rodriguez MM, Basurte-Villamor I, et al. *Diagnostic stability of psychiatric disorders in clinical practice*. Br J Psychiatry 2007;190:210-6.

31 Mann JJ, Apter A, Bertolote J, et al. *Suicide prevention strategies: a systematic review*. JAMA 2005;294:2064-74.

32 Vaiva G, Ducrocq F, Meyer P, et al. *Effect of telephone contact on further suicide attempts in patients discharged from an emergency department: randomised controlled study*. BMJ 2006;332:1241-5.

33 Guthrie E, Kapur N, MackwayJones K, et al. *Randomised controlled trial of brief psychological intervention after deliberate self poisoning*. BMJ 2001;323:1-5.

34 Nordentoft M. *Crucial elements in suicide prevention strategies*. Prog Neuropsychopharmacol Biol Psychiatry 2011;35:848-53.

35 Hegerl U, Althaus D, Schmidtke A, et al. *The alliance against depression: 2-year evaluation of a community-based intervention to reduce suicidality*. Psychol Med 2006;36:1225-33.

36 Ono Y, Awata S, Iida H, et al. *A community intervention trial of multimodal suicide prevention program in Japan: a Novel multimodal Community Intervention program to prevent suicide and suicide attempt in Japan, NOCOMIT-J*. BMC Public Health 2008;8:315.

37 de Klerk S, van Noorden MS, van Giezen AE, et al. *Prevalence and correlates of lifetime deliberate self-harm and suicidal ideation in naturalistic outpatients: the Leiden routine outcome monitoring study*. J Affect Disord 2011;133:257-64.