

Original Research

Suicide Ideators and Attempters – Differences and Risk Factors for the Use of Violent Methods at Admission in a Psychiatric Ward

Sara Malta Vacas^{1,*}, Ana Rita Carvalho^{1,✉,*}, Cláudia Mota Pinto¹, Catarina Klut¹, Maria João Heitor^{1,2}

¹ Department of Psychiatry and Mental Health, Beatriz Ângelo Hospital. Avenida Carlos Teixeira, 3, 2674-514 Loures, Portugal.

² Institute of Preventive Medicine and Public Health, Faculty of Medicine, University of Lisbon. Av. Professor Egas Moniz, 1649-028, Lisboa, Portugal.

* *These Authors contributed equally to this work*

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Abstract: OBJECTIVES: The study addressed two major issues: (1) how patients admitted to a psychiatric ward with suicide ideation differ from patients who attempted suicide in the last 24–48 hours and (2) which characteristics are associated with violent methods in the suicide attempt. METHODS: Data from all patients admitted for suicide ideation or attempt were collected, including sociodemographic and clinical variables (psychiatric diagnosis and history of substance use disorder, method utilized, precipitating factor, seasonality of the episode, length of inpatient stay, history of suicidal attempts and nonsuicidal self-injuries (NSSI), family history of suicide attempts). Results were calculated using chi-square with Fisher's exact tests, independent sample t-test and multiple logistic regression analyses. RESULTS: A total of 106 admissions (58 ideators and 48 attempters) were identified. Attempters (compared to ideators) were significantly more frequently male, retired or unemployed, had more frequently a psychotic diagnosis and a history of drug use disorder and less frequently previous suicide attempts. Attempters who used violent methods (compared to those who used deliberate self-poisoning) were significantly more often male, had a psychosis diagnosis and a superior length of inpatient stay but had less frequently previous NSSI. Independent risk factors for attempted suicide included psychosis diagnosis and history of drug use disorder. Female gender was protective. CONCLUSIONS: This study provides a characterization of suicide ideators and attempters in a sample of psychiatric inpatients. The identification of risk factors and its early recognition are crucial interventions for suicide prevention.

Keywords: *suicide, suicide ideation, suicide attempt, violent methods, psychiatry inpatients*

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Suicide is among the leading causes of death worldwide (World Health Organization, 2017). Globally, more than 800,000 people die due to suicide each year. It is estimated that for each adult who dies of suicide there are likely to be more than 20 others who made one or more suicide attempts (WHO, 2014).

Portugal presents relative low suicide rates compared to remaining countries of Europe (Saraiva B, 2014). In 2016 the suicide rate was 9.4 per 100.000 population (PORDATA, 2017). This rate is higher than 10 in most European countries. However, Portugal still presents inaccurate statistics for causes of death, with approximately 10% rate of deaths of unknown cause so the true standardized suicide rates are probably higher than the official current value (Saraiva B, 2014).

✉ Dr. Ana Rita Carvalho, Department of Psychiatry and Mental Health, Beatriz Ângelo Hospital. Avenida Carlos Teixeira, 3, 2674-514 Loures, Portugal. Email address: anaritagcarvalho@gmail.com

Suicidal behavior is a major public health issue, but it is often difficult to discriminate components of the suicidal spectrum (Pompili et al., 2014). One reason for limited progress in suicide prevention may be a lack of knowledge about the transition from suicidal thoughts to suicidal actions. Klonsky and May suggest that an “ideation-to-action” framework should guide all suicide research (Klonsky & May, 2014). Among suicide ideators, the conditional probability of ever making a suicide plan is 33.6% and of ever making a suicide attempt is 29.0%. The probability of attempt among ideators with a plan is 56.0% but only 15.4% among those without a plan (Nock et al., 2008). In clinical practice, suicidal ideation, including both verbal and non-verbal manifestations, represent a common clinical emergency in psychiatry (Yoon, Won, Lee, Jung, & Roh, 2014) and it has been reported that up to 80% patients had contact with primary care clinicians within one year of their death (Stene-Larsen & Reneflot, 2017). It is therefore critical to identify which suicide ideators are at greatest risk of acting on their thoughts (Klonsky & May, 2014). Assessing the detailed profile of suicidal ideators and attempters can be greatly helpful in improving the suicide risk evaluation and its prevention. Many risk factors for suicide have been identified. In a study in 17 countries, suicide is more prevalent among men, whereas nonsuicidal self-injury (NSSI) is more prevalent among women and persons who are young, unmarried and less educated. The presence of a psychiatric disorder is among the most consistently reported risk factors for suicidal behavior. The presence of a prior mental disorder is associated with significantly increased risk of suicidal behaviors, even after controlling for sociodemographic factors, characteristics of suicidal behaviors, and country of residence (Nock et al., 2008). Among ideators, the risk of making an attempt is highest for those with substance use and impulse-control disorders, suggesting that these disorders are most strongly associated with acting on suicidal thoughts when they are present (Nock et al., 2008). History of prior suicidality was significantly associated with highly elevated odds of 12-month suicide ideation in both developed and developing countries (Borges et al., 2010). A history of suicidal behavior in first-degree relatives is also a significant risk factor either for attempted or completed suicide (Pompili et al., 2014). Suicide is directly linked to a suicide attempt that results from a complex process including interacting biological, psychological, familial, socioeconomic status, and cultural circumstances (Wasserman, 2016). Precipitating events help to explain what compels high-risk individuals to commit suicide. A variety of stressful, negative life events may serve

as situational triggers for suicide (Overholser, Braden, & Dieter, 2012). A study from Sweden demonstrated that the risk of suicide was particularly high among those who attempted suicide by violent methods such as hanging, drowning, jumping from height or using firearms (Runeson, Tidemalm, Dahlin, Lichtenstein, & Langstrom, 2010). The relative risk for completed suicide was six times greater after an attempt by hanging and four times greater after an attempt by drowning than after an attempt by deliberate self-poisoning (DSP). A British study showed that patients who had made non-fatal suicide attempts by hanging had higher suicide intent and fewer used alcohol compared with patients who had used DSP (Hawton, Bergen, Casey, & Simkin, 2008). In addition, a Norwegian study showed that patients who use violent methods had more often psychosis, less anxiety disorders and affective disorders (Persett, Grimholt, Ekeberg, Jacobsen, & Myhren, 2018).

Method

Study design

The aim of this observational cross-sectional study was to perform a sociodemographic and clinical characterization of psychiatric inpatients admitted for either suicide ideation or a recent suicide attempt. Specifically, the study addressed two major issues: (1) the extent to which patients admitted to a psychiatric ward with suicide ideation differ from patients who attempted suicide in the last 24–48 hours and (2) which characteristics are associated with suicide attempt with DSP and with violent methods.

The study was approved by the Ethics Committee for Health of the Beatriz Ângelo Hospital. This research was conducted under the Helsinki declaration code of ethics.

Patients and Variables

For the purpose of this study, we included all patients with 18 years and older admitted to the Psychiatric Inpatient Unit of the Hospital Beatriz Ângelo, Portugal, between January 2017 and December 2017.

A search of the electronic database of the hospital (Soarian Clinicians v3.2) was conducted for all patients admitted for suicide ideation or suicide attempts. This database contains all sociodemographic and clinical information for every patient.

Data were collected using a standardized study protocol. The protocol included sociodemographic (age, gender, nationality, civil status, educational status, and employment situation) and clinical (psychiatric diagnosis, presence of suicidal ideation

or suicidal attempt, method utilized on the attempt, precipitating factor, seasonality of the episode, length of inpatient stay, history of previous suicidal attempts and nonsuicidal self-injuries, history of alcohol use disorder and drug use disorders and history of suicide attempts in family members) variables.

Definitions

In this study, we defined suicide ideation as the presence of active thoughts about killing oneself not accompanied by preparatory behavior reported during the clinical interview. Patients with suicide ideation were included in the ideators group.

A suicide attempt was defined according to the revised nomenclature described by Silverman et al (Silverman, Berman, Sanddal, O'Carroll P, & Joiner, 2007a, 2007b); that is, a self-destructive act with some degree of intent to end one's life and some identifiable injuries. Patients were included in the attempters group if (i) they were admitted because of recent suicide attempt; (ii) the intent to die was clearly evaluated, and at least one out of three conditions was present: (a) explicit statements related to one's own intent to take one's life, (b) statements related to the perception of the high lethality of one's own act, or (c) actions taken against the possibility of rescue during the act; and (iii) the act resulted in physical injuries requiring admission to an emergency department or the necessity of any medical treatment (Silverman et al., 2007a, 2007b). Nonsuicidal self-injury (NSSI) was considered to refer to the intentional destruction of one's own body tissue without suicidal intent and for purposes not socially sanctioned (Klonsky, 2007; Nock, 2009).

The International Classification of External Causes of Injuries (ICECI) (WHO, 2004), which is designed to enable a systematic description of how injuries occur and to assist injury prevention, defined proximal risk factor as the most recent crisis that led to the self-harm incident and categorized some proximal risk factors. Thus, proximal risk factors could be regarded as precipitating factors or triggering factors of suicide.

Psychiatric diagnosis was classified in the following main diagnostic groups according to the International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10) (WHO, 2016): F10-F19 - Mental and behavioural disorders due to psychoactive substance use, F20-F29 - Schizophrenia, schizotypal and delusional disorders (psychosis), F30-F39 - Mood [affective] disorders, F60-F69 - Disorders of adult personality and behaviour. We did not use a structured diagnostic interview. The diagnoses were extracted

from the clinical assessment of the psychiatric consultants, from medical and psychiatric records. Regarding the analysis of the suicide method used, we divided the patients between those who utilized violent methods (hanging, drowning, jumping from heights, using firearms, cutting, or others) and those who did DSP. In the current study, self-poisoning is defined as "poisoning by drugs, medicaments and biological substances" according to the ICD-10.

Statistical Analysis

Descriptive statistics were performed using frequencies, percentages, frequency tables for qualitative variables and mean with Standard Deviation (SD) for quantitative variables. In order to evaluate the differences in proportions between groups (suicide ideators versus suicide attempters and violent methods versus DSP) the chi-square tests (χ^2) with one-way Fisher's exact tests was used. Independent sample t- test was performed to compare normally distributed variables. Then, a multivariate analysis was performed using logistic regression in order to assess the potential predictors of attempted suicide. The covariates included in the final model were selected through the Hosmer and Lemeshow procedure, by inserting variables with a univariate p-value <0.25 as the main criterion (18). Results are expressed as Odds Ratios (OR) or Adjusted Odds Ratios (AOR) with 95% Confidence Intervals (95% CI). Statistical significance level was set at $p \leq 0.05$. All statistical analyses were performed using SPSS 24.0 (Armonk, NY: IBM Corp.).

Results

A total of 106 admissions (56,6% of woman; mean age of 47,4 years old with a minimum value of 18 years and a maximum value of 82 years) to the psychiatric inpatient unit for suicide attempt or suicide ideation were identified, from a total of 377 admissions (28,1%). Of those, 58 corresponded to suicide ideators and 48 to suicide attempters.

Differences between groups

The descriptive analysis and the differences between suicide attempters and suicide ideators are reported in Table 1.

Attempters (compared to suicide ideators) were more frequently male ($p < 0,001$), retired or unemployed ($p 0,015$). Importantly, regarding the diagnosis, there was a significant difference between attempters and ideators. The former group had more frequently a diagnosis of non-affective psychotic disorder (ICD-10, F20-29) ($p 0,002$) and a history of drug use disorder ($p 0,018$),

and less frequently a history of suicide attempts ($p < 0,001$).

However, groups did not differ with regard to age, educational status, marital status, nationality, seasonality of episodes, history of non-suicidal deliberate self-harm, history alcohol use disorder, history of suicide attempts in family members and length of inpatient stay.

Concerning those who attempted suicide, we performed a further analysis comparing the suicide attempters who utilized violent methods and those who did a DSP. Regarding the results of these analysis, the differences between groups are reported in Table 2.

Table 1. Differences between groups (suicide ideators versus suicide attempters)

	Suicide Ideators (n=58)	Suicide Attempters (n=48)	<i>p Value</i>
Age	48,05 ± 16.34	46,56 ± 18,54	0,665
Female	77,6%	31,1%	<0,001
Educational status			0,546
0 years	7,1%	2,1%	
0-4 years	26,8%	23,4%	
5-6 years	12,5%	14,9%	
7-9 years	21,4%	31,9%	
10-12 years	17,9%	21,3%	
Superior education	14,3%	6,4%	
Retired or Unemployed	53,4%	77,1%	0,015
Single, divorced or widower	66,7%	60,9%	0,680
Nationality not Portuguese	10,3%	4,2%	0,288
Autumn/Winter episodes	55,2%	41,7%	0,178
ICD 10 F20-29 (Psychosis)	5,2%	25%	0,002
History of nonsuicidal self-injury	27,6%	29,2%	0,779
History of suicide attempts	48,3%	29,2%	0,001
History of alcohol use disorders	12,1%	16,7%	0,581
History of drug use disorders	8,6%	27,1%	0,018
History of suicide attempts in family members	13,6%	12,2%	1,000
Length of inpatient stay	12,79 ± 11,89	17,92 ± 26,95	0,225

Groups did not differ with regard to age, employment status, marital status, nationality, seasonality of episodes, history of suicide attempts, history of alcohol use disorders, history of drugs use disorders and history of suicide attempts in family members.

Nevertheless, attempters who used violent methods (compared to those who used DSP) were more often male ($p < 0,013$), had between 0 to 6 years of education or attended university or were the less or the more educated (in contrast to those

who used DSP who had more frequently 6 to 12 years of educations) (p 1,016). Moreover, attempters who used violent methods had significantly more frequently a diagnosis of non-affective psychotic disorder (ICD-10: F20-29) (p

0,001) and less frequently a history of non-suicidal self-injury (NSSI) (p 0,008), had a psychiatric condition as a precipitating factor (as opposed to a relationship conflict) (p 0,008) and a superior length of inpatient stay (p 0,002).

Table 2. Differences between groups (violent methods versus Deliberated Self Poisoning)

	Violent Methods (n=18)	Deliberated Self poisoning (n=31)	<i>p Value</i>
Age	55,94 ± 17,17	42,23 ± 18,40	0,640
Male	55,6%	19,4%	0,013
Educational status			0,016
0 years	0,0%	3,3%	
0-4 years	38,9%	16,7%	
5-6 years	27,8%	6,7%	
7-9 years	16,7%	40,0%	
10-12 years	5,6%	30,0%	
Superior education	11,1%	3,3%	
Retired or Unemployed	77,8%	77,4%	1,000
Single, divorced or widower	50,0%	69,0%	0,229
Nationality not Portuguese	100%	95,9%	0,526
Autumn/Winter episodes	44,4%	38,7%	0,768
ICD 10 F20-29 (Psychosis)	55,6%	6,5%	0,001
Precipitating Factors			0,008
Relationship conflict	23,5%	58,1%	
Physical problem	5,9%	3,2%	
Psychiatric condition	70,6%	25,8%	
Financial problem	0,0%	12,9%	
History of nonsuicidal self-injury	5,6%	41,9%	0,008
History of suicide attempts	22,2%	32,3%	0,527
History of alcohol use disorders	16,7%	32,3%	0,322
History of drug use disorders	11,1%	19,4%	0,693
History of suicide attempts in family members	11,8%	12,5%	1,000
Length of inpatient stay	29,33 ± 41,00	12,35 ± 10,58	0,002

Risk Factors for Attempted Suicide

We performed a multivariate analysis using logistic regression to assess the potential predictors of attempted suicide. We included in the final model the variables with a univariate p-value <0.25 as the main criterion, according to the Hosmer and Lemeshow procedure.

Table 3 shows the multivariate correlates of attempted suicide in patients admitted to the psychiatric ward.

In the multivariate model, independent increased risk factors included: ICD-10 F20-29 (psychosis) diagnosis (AOR 15,898: CI 95% 2,794-90,450) and

history of drug use disorder (6,091: 1,220-30,396). The only independent decreased risk factor was the female gender (0,085: 0,027-0,264). In other words, suicide attempters (compared to patients who reported suicide ideation) were (1) around sixteen times more likely to have an ICD-10 F20-29 (psychosis) diagnosis (figure 1); (2) around six times more likely to have a history of drug use disorder and (3) around twelve times less likely to be female. The variables employment status, seasonality of episodes, history of suicide attempts and length of inpatient stay were not significant when controlling for the presence of other variables.

Table 3 Multiple Logistic Regression Model for Patients admitted to a Psychiatric Ward of a General-Hospital after suicide attempt: Adjusted Odds Ratios (AOR) with 95% Confidence Intervals (95% CI)

Variable	Coefficient (β)	SE	Wald χ^2	p Value	AOR	95% CI
Female Gender	-2,464	0,578	18,166	<0,001	0,085	(0,027-0,264)
Employment Status	0,467	0,580	0,649	0,421	1,596	(0,512-4,972)
Autumn/Winter episodes	-0,675	0,525	1,650	0,199	0,0509	(0,182-1,426)
ICD-10 Psychiatric Diagnosis			9,961	0,019		
ICD-10 F20-29 (Psychosis)	2,766	0,887	9,725	0,002	15,898	(2,794-90,450)
History of suicide attempts	-0,061	0,220	0,077	0,781	0,941	(0,612-1,447)
History of drug use disorders	1,529	0,781	3,838	0,016	6,091	(1,220-30,396)
Length of inpatient stay	0,019	0,017	1,243	0,265	1,019	(0,986-1,052)

Coefficient= the mathematical weightings of the explanatory variables in the equation (the regression coefficient or -weight); SE= estimated precision of the coefficients; 95% CI 95% confidence intervals for the coefficients; Wald (χ^2)= the Wald test statistic calculated from the data to be compared with the 2 distribution with 1 degree of freedom; AOR - Adjusted Odds Ratio controlled for other variables in the model; 95% CI the 95% confidence interval for the estimated odds ratio.

Discussion

Our study sought to characterize suicide ideators and suicide attempters admitted to an inpatient psychiatric unit either for a recent suicide attempt or for suicide ideation. Also, among those who attempted suicide we wanted to discriminate between those which utilized violent methods or DSP.

To our knowledge, this is the first study in portuguese population that aims to discriminate both between suicide ideators and suicide attempters and between those which utilized violent methods and DSP. There are some recent studies about suicide behaviors in Portugal concerning special populations like elderly, adolescents, medical students and psychiatry trainees (Coentre, Faravelli, & Figueira, 2016;

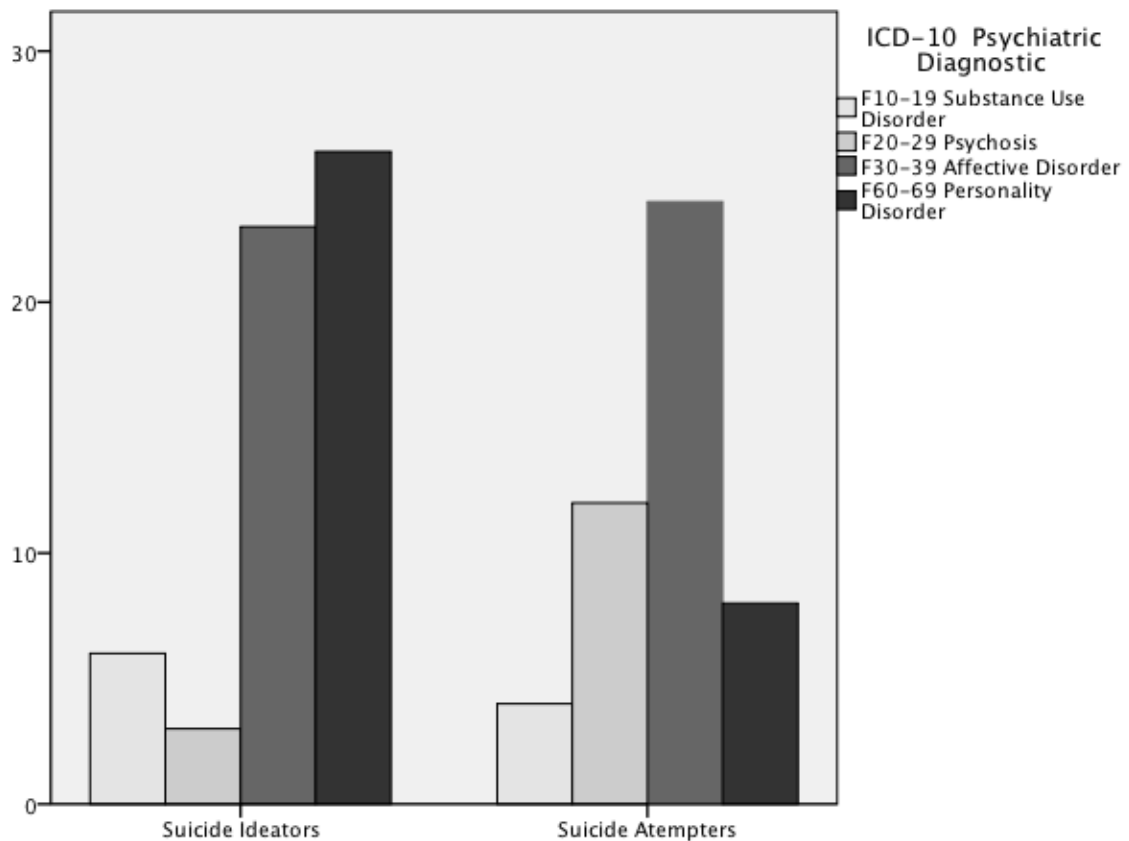
Guerreiro et al., 2009; Marques, Roberto, et al., 2015; Ponte, Almeida, & Fernandes, 2014). One study conducted in a Portuguese psychiatry emergency room evaluated the suicidal intentionality with the Pierce Suicide Intent Scale and concluded that a high intentionality level was significantly associated with male gender, family history of suicide, divorced or widowed marital status and severe mental illness (Marques, Guerreiro, & Sampaio, 2015). Table 3 shows the multivariate correlates of attempted suicide in patients admitted to the psychiatric ward.

In the multivariate model, independent increased risk factors included: ICD-10 F20-29 (psychosis) diagnosis (AOR 15,898: CI 95% 2,794-90,450) and history of drug use disorder (6,091: 1,220-30,396). The only independent decreased risk factor was the female gender (0, 085: 0,027-0,264). In other words, suicide attempters (compared to patients who reported suicide ideation) were (1) around sixteen times more likely to have an ICD-10 F20-29

(psychosis) diagnosis (figure 1); (2) around six times more likely to have a history of drug use disorder and (3) around twelve times less likely to be female. The variables employment status, seasonality of episodes, history of suicide attempts and length of In our study, suicidal ideation and attempt were responsible for over a quarter of all admissions to the psychiatric inpatient unit. Attempters were more often male, retired or unemployed, more likely to have a diagnosis of non-affective psychotic disorder, a history of substance use disorder and less previous suicide attempts when compared to suicide ideators.

The use of violent methods was positively correlated with male gender, lower or higher education, a diagnosis of non-affective psychotic disorder and a longer length of stay. That group was also less likely to have a history of NSSI or a recent relationship conflict as a precipitant factor. The psychiatric condition itself was identified as being the main trigger for the behaviour.

Figure 1. Differences between ideators and attempters according with ICD-10 Psychiatric Diagnosis



Gender

Our results show that male gender was strongly associated with both being a suicide attempter (versus a suicide ideator) and with the utilization of violent methods of suicide attempt (hanging, drowning, jumping from heights, using firearms, cutting, or others). Freeman et al. (2017) examined gender differences in suicide intent in a large European cross-national sample and explored whether gender differences existed across age, country and suicide method (Freeman et al., 2017). Their results support the hypothesis that males would demonstrate a higher frequency of serious suicide attempts than females. Other studies found females to have a lower suicide intent to die than males (Denning, Conwell, King, & Cox, 2000; Harriss, Hawton, & Zahl, 2005; Hjelmeland et al., 2000) despite other findings illustrating no difference in suicide intent between males and females (Canetto & Sakinofsky, 1998; Moscicki, 1994; Rapeli & Botega, 2005).

However, despite these results may be in line with ours regarding the higher frequency of utilization of violent methods of suicide attempt between men, none of those studies compared the groups of ideators and attempters concerning the gender.

Pompili et al. (2014) characterized suicide ideators and suicide attempters admitted to a psychiatric ward either for a recent suicide attempt or for ongoing suicide ideation with 50 years or older. They found no differences between ideators and attempters regarding gender (Pompili et al., 2014). The apparent disparity between Pompili's and our results may be explained, at least partially, by the distinct age samples.

The reasons that explain gender differences in suicide behavior are not clear. One hypothesis is that females attempt suicide earlier in the evolution of psychiatric morbidity than males, have a lower intent to die, and more often a desire to communicate distress or change their social environment (Freeman et al., 2017). These gender-specific beliefs and attitudes towards self-harm may partially explain the low rates of suicidal behaviour amongst young men and their high rates of suicide mortality (Marttunen et al., 1995; Yamada et al., 2007), however, more research needs to be conducted in this area in order to develop concrete theories to support prevention efforts.

Psychiatric Diagnosis – Psychosis

In our study, the presence of an ICD-10 F20-29 (psychosis) psychiatric diagnosis was strongly associated with both being a suicide attempter (versus a suicide ideators) and the utilization of violent methods of suicide attempt.

The reasons why psychotic symptoms so strongly predict suicidal behavior are not entirely clear. Kelleher et al (2013) (Kelleher et al., 2013) found that symptom burden and multimorbidity were no longer significantly associated with suicide attempt once we adjusted for psychotic symptoms. So, they proposed that, although psychotic symptoms are a marker of risk for suicidal behavior, nonpsychotic psychiatric symptom burden and multimorbidity may be partial mechanisms that underlie this relationship. Thus, psychotic symptoms may be a marker of increasing severity of psychopathology, including increased nonpsychotic psychiatric symptom burden and multimorbidity, that indexes risk for suicidal behavior. A number of other possible mechanisms may contribute to this relationship. Some research, for example, has suggested that individuals who experience psychotic symptoms have increased sensitivity to stress, in terms of affective reactions to life events (Lataster et al., 2009), as well as poorer coping skills (Lin et al., 2011), which may contribute to a greater risk of suicidal behavior when faced with acute life stressors. Other potential mechanisms may be shared risk factors for suicidal behavior and psychotic symptoms, including childhood traumatic experiences, such as physical and sexual abuse (Afifi et al., 2008; Bebbington et al., 2011; Dube, Anda, & Felitti, 2001; Read, Perry, Moskowitz, & Connolly, 2001; Shevlin, Dorahy, & Adamson, 2007).

An important clinical implication of these findings is the need for a careful assessment of psychotic symptoms (both attenuated and frank) in patients with both psychotic and nonpsychotic disorders, as this should be considered a key element of suicide risk assessment. An important research implication is that all future studies on suicidal behavior should incorporate a measure of psychotic symptoms. Further community and clinical research on suicidal behavior and psychotic symptoms will be useful, including research on underlying mechanisms that might explain this relationship and research that provides targets for intervention.

History of Drug Use Disorders

We found that the presence of a history of drug use disorder was associated with increased odds of attempted suicide, so that suicide attempters were six times more likely to have a history of drug use disorder compared with suicide ideators. Nevertheless, we found no association between the presence of a history of drug use disorder and the type of suicide method utilized.

Substance use disorders are among the most frequent psychiatric disorders found in suicides. In psychological autopsy studies between 19% and 63% of all suicides suffered from substance use

disorders, mostly from alcohol use disorders. In those studies, substance use disorders, including alcohol, were associated with an increased suicide risk (OR range 3.3-7.0) in younger and in older age groups (Schneider, 2009). In other studies, in developed and developing groups of nations, alcohol use disorders were associated with increased OR of ideation (range 2.0-2.5) and attempt (2.6-3.7), and drug use disorders were associated with increased risk of ideation (2.3-3.0) and attempt (2.0-4.0). Alcohol dependence increased suicide ideation with an OR of 1.5. Those drinking alcohol prior to the suicide attempt had ORs in the range of 6.2-9.6 (Borges & Loera, 2010). Many studies have investigated the specific relation between substance use disorders and risk for suicide and also proposed models to understand its role on suicidal behavior (Bagge & Sher, 2008; Hufford, 2001; Kuramoto, 2010). These models have described the relationship as causal or as coexisting due to a third factor. The causal relationship considers that substance use increases the likelihood of suicidal behavior regardless of other known risk factors, whereas the coexisting relationship model considers substance use as a marker of some personality proneness to suicide like impulsiveness or as a consequence of other known risk factors, such as depressed mood or negative life events (Borges & Loera, 2010). In this context, some studies suggested that disorders characterized by impulse-control difficulties and anxiety may be important in predicting the transition from suicidal thoughts to suicide attempts (Borges et al., 2010; Nock et al., 2008). Research has focused on distal and proximal pathways. In the proximal pathway, the acute use of substances (intoxication) has been studied, whereas in the distal pathway it has been the chronic use. Current evidence points to a causal role of alcohol and drug use disorders exerting a distal effect on suicidal behavior and this relationship may be mediated by impulsivity, hopelessness, interpersonal disruptions and major depression, this last especially in alcohol dependents. Evidence for the proximal role of alcohol and drug use, as triggers of suicidal behavior, are still very limited (Borges & Loera, 2010; Conner & Duberstein, 2004; Gonzalez, Bradizza, & Collins, 2009). Surprisingly,

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our groups did not differ in history of alcohol use disorders. Further studies are needed to better understand the specific risk factors for attempted suicide in this population.

Limitations

Limitations of this study include its small sample size, which may affect the generalization of results. We did not use any standardized psychometric instrument for assessing lethality. Although all patients reported injuries of various degrees as a result of their suicide attempts, accurate measures of lethality could not be retrospectively obtained. Another limitation of the present study is that we collected the subjects' information from their medical records and did not use objective methods like structured interviews when we assessed their psychiatric diagnoses and precipitating factors for suicide attempts. Furthermore, the assessment of the variables was retrospective in nature and thus subject to recall bias. However, clinical registries are rigorous and provide complete and detailed information about the patients.

In conclusion, this study provides a characterization of suicide ideators and suicide attempters in a sample of psychiatric inpatients, distinguishing both groups. Several studies suggested that both suicide ideation and suicide attempts are risk factors for completed suicide. We found that male gender, history of drug use disorder and the diagnosis of psychosis increase suicide risk which make those patients a clinical concern. The identification and early recognition of risk factors are crucial and allow for interventions for effective suicide prevention.

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