

Is Drug Use Related to the Choice of Potentially More Harmful Methods in Suicide Attempts?

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ABSTRACT

OBJECTIVE: To identify whether drug abuse is a risk factor for potentially more harmful methods of suicide attempts that could predict suicide completion in the future. **Methods:** The study involved the assessment of 86 patients who attempted suicide and who were admitted to the emergency ward of a Southwestern Brazilian general hospital. **Results:** Most patients were women (84.9%), young adults (30.53 ± 10.4 years), and single (61.6%). Recent drug use was reported by 53.5%, and 25.6% reported the use of drugs during the 24-hour period immediately before the suicide attempt. Most patients (75.6%) ingested pills when attempting suicide—a method considered potentially less harmful. Hanging, jumping, gas inhaling, and wrist cutting accounted for 22.2% of the attempts. Considering dual diagnoses, 54.7% presented with a depressive disorder, 8.1% with a disorder on the impulse control spectrum, and 26.7% reported an associated clinical condition. Recent drug use was predictive of the severity of the suicide attempt, as it was reported by 81% of those who engaged in more harmful attempts and by 46.2% of those who used less harmful methods ($P < 0.01$; odds ratio = 4.96; confidence interval: 1.5–16.4). **Conclusion:** The identified variables associated with the use of potentially more harmful methods in suicide attempts were gender (male), presence of an impulsive control disorder, and recent use of psychoactive drugs.

KEYWORDS: suicide, substance misuse, drugs, impulse control disorder, risk factor

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Introduction

Suicide is a major public health problem worldwide, and in some places, it is a leading cause of death.¹ It is also a major cause of years of potential life lost, surpassing diabetes, liver disease, and human immunodeficiency virus infection.² The clinical management of suicide risk among attempters is a complicated task. Hopelessness, often present in those with severe depressive illness, and previous suicide attempts are particularly strong and independent prospective risk factors for suicide.² It is estimated that about 10,000 individuals die annually in Brazil due to suicide.³ From 2004–2009, it was detected that there was an 8.6% increase of suicide mortality among young people in Sao Paulo, Brazil, the 6th largest city

in the world.⁴ Hanging and firearms were the leading methods used by men.⁴

Some studies suggest that substance use disorders represent an additional risk to suicidality,⁴ and comorbid affective disorders among addicts represent a cumulative additional risk.⁵ Several studies have focused on gender differences on suicidal behavior.^{6–8} Women have a great tendency to present with both self-aggressive behavior and suicidal attempts,^{6–8} and this is often true since adolescence.⁷ Interestingly, men and women have different risk factors for suicidal behavior.⁶

The main objective of the present study is to describe the characteristics of a sample of patients who attempted suicide



and to identify whether substance abuse is a risk factor for potentially more harmful attempts, assuming that these factors could predict suicide completion in the future.

Methods

Sample. All patients attending the emergency ward of the Sao Paulo Hospital (Sao Paulo, Brazil) in 2009 due to a suicide attempt were included in the study. The patients were interviewed by trained residents and they were administered a structured questionnaire for the assessment of their suicide risk. Patients and their families were told of the objectives of the study, and that they were allowed to refuse participation in the study. Those included in the sample signed an informed consent form. This research was approved by the Ethical Committee of Federal University of São Paulo.

Measures. All patients were evaluated by a psychiatry resident and by a trained psychiatrist when they were admitted to the emergency ward. Both evaluated the same patient separately and then compared their findings. Discrepancies were solved by conducting a thorough interview with the patient. The interview was a semistructured interview based on the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* criteria in order to investigate psychiatric diagnoses. In addition, a sociodemographic questionnaire was used to assess patients' gender, age, living conditions, marital status, and years of education.

Data analysis. Data were analyzed using the software, SPSS 11.0 (IBM Corporation, Armonk, NY, USA). Chi-square tests were used to compare categorical variables and Student's *t*-test was used to compare continuous variables. Independent variables were stratified in a first step that is comprised of demographic variables, and in a second step that is comprised of both behavioral and diagnostic variables. A logistic regression model was used to identify possible confounders, as well as variable interactions. Statistical relevance was considered for a two-tailed (0.05) level of significance ($P < 0.05$).

Results

The sample consisted of 86 patients, 13 (15.1%) of which were men and 73 (84.9%) of which were women. The participants' mean age was 30.53 ± 10.4 years, with 53 (61.6%) participants who were single and 25 (29.1%) who were married. Most of them (70.9%) were Catholic and only six (7.0%) reported having no religious affiliation. In terms of educational background, 19 had a university degree (22.1%), 34 completed high school (39.5%), 31 completed primary school (36.1%), and only two reported not having completed any formal schooling (2.3%). Twelve participants (14.0%) were students, 27 (31.4%) were unemployed, 45 (52.3%) were workers, and only one (1.2%) was retired. In terms of living conditions, 29 (33.7%) reported living alone, whereas 57 (66.3%) were living with friends or relatives.

Only 20 patients (23.3%) reported having suicidal thoughts prior to the attempt and 16 (18.6%) reported that other relatives had completed suicide. Most patients (87.1%)

reported having never attempted suicide before. Nineteen patients (22.2%) used methods that were potentially more harmful when attempting suicide: hanging (1.2%); jumping (3.5%); gas inhaling (3.5%); and wrist cutting (14%). Sixty-five patients (75.6%) ingested pills when attempting suicide—a method considered potentially less harmful. In two cases (2.2%), the method could not be properly identified. Considering the severity of the method used in the suicide attempt, 76.9% of men attempted suicide by means of potentially more harmful methods, whereas only 15.1% of women used these potentially more harmful methods ($P = .001$; odds ratio [OR] = 3.68; confidence interval [CI]: 1.36–9.98). The severity of the attempt was not related to civil status, religious affiliation, educational background, or living alone.

Scores on the Center for Epidemiologic Studies depression screening scale (CES-D) ranged from 21–52, with all patients scoring higher than the 15-point cut-off score for depression. The mean score of the sample was 36.08 ± 7.5 . By the time of admission to the emergency ward, 46 (53.5%) patients were diagnosed as having a depressive disorder, four (4.6%) were diagnosed with bipolar disorder, one (1.2%) was diagnosed with dysthymia, four (4.6%) were diagnosed with substance dependence, one (1.2%) was diagnosed with generalized anxiety disorder, one (1.2%) with panic disorder, three (3.5%) with an eating disorder, and one (1.2%) with histrionic personality disorder. In addition, seven (8.1%) had at least one diagnosis on the impulse control spectrum (except for bipolar disorder), and 23 (26.7%) had an associated clinical condition. In terms of medical conditions, 13 (15.2%) of the patients presented with hypertension and 12 (14.0%) presented with other clinical conditions, but only two (2.3%) had a central nervous system disease (one of them a left temporal lobe tumor [1.2%] and the other epilepsy [1.2%]). A diagnosis of being depressed or the presence of an associated clinical condition were not related to the severity of the attempt, but subjects fulfilling the diagnostic criteria for any disorder along the impulse control spectrum were more prone to attempt suicide by means of potentially more harmful methods ($P < 0.05$; OR = 0.377; CI: 0.17–0.81).

Concerning the use of psychoactive drugs, 46 (53.5%) reported recent drug use, but only 22 (25.6%) reported the use of drugs during the 24-hour period immediately before the suicide attempt. In terms of recent substance use, 34.8% of those reporting recent drug use did attempt suicide through potentially more harmful methods, whereas only 12.5% of those that reported not having used drugs in the last month were involved in more harmful attempts ($P = 0.023$; OR = 1.34; CI: 1.05–1.71). Among those that used potentially more harmful methods, 81% reported having used psychoactive substances in the month before the attempt, while among those using less harmful methods, 46.2% reported having used psychoactive drugs during that same period ($P < 0.01$; OR = 4.96; CI: 1.5–16.4).

All interviewees reported recent alcohol use, so the isolated effect of alcohol could not be established in this



sample. In addition, no relationship could be established between the severity of the attempt and the use of drugs during the 24-hour period prior to the act. On the other hand, concerning the use of other psychoactive substances (besides alcohol) in the 30-day period preceding the suicide attempt, more severe attempts were observed among 43.5% of drug users and among only 14% of nonusers. Thus, one can state that the recent use of drugs was predictive of more severe suicide attempts.

Discussion

We observed that male attempters tended to choose potentially more harmful suicide methods when compared to female attempters. Indeed, male suicide is more predominant than female suicide in most countries, and one of the putative reasons for explaining this difference is precisely the chosen method.⁹

Although suicide risk tends to be lower among married people, not only in Brazil,¹⁰ but worldwide,¹¹ we could not identify whether civil status differences in our sample were predictive of different levels of risk in terms of the chosen method for the attempt. The limited sample size may have been responsible for this finding. Another possible reason could be that gender differences may have masked civil status influence as a confounder.

Psychiatric conditions in general, and depressive disorders more specifically, are predictive of higher risk for suicide completion.^{2,12,13} In our sample, all patients presented with depressive symptoms, although a few more than half of patients scored positively for depression. The severity of the attempt was not associated with depression. Other than substance misuse, the only class of diagnoses related to the choice of potentially more harmful methods was the presence of a disorder along the impulse control spectrum. Indeed, impulsiveness seems to play a central role in suicidal acts.

In our study, although the use of drugs on the day of the attempt (acute intoxication) was not related to the severity of the attempt, the choice of potentially more harmful methods tended to be more frequent among those who had used drugs in the preceding month (recent use). It is still unclear whether this is a causal relationship or not, as this cannot be determined from the current study. Alternatively, we can suppose that both events may be epiphenomena related to the presence of an impulsive control disorder.

This study emphasizes the need for the careful monitoring of specific groups that present with a higher risk for completing suicide, such as men, those with impaired impulse control, and recent users of psychoactive drugs.

Limitations. Some limitations of this study must be taken into consideration when interpreting the results. As mentioned above, small sample size is a weakness of this research. It is important to mention, however, that this is not a sample, as all patients attending the emergency ward due to suicide attempt

during 2009 were included in the study. Another important aspect is that this is a cross-sectional study; thus, no cause—effect relationship can be achieved.

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Author Contributions

Conceived and designed the experiments: DXS, MDP, JGS, LQO. Analyzed the data: DXS, JGS, LQO. Wrote the first draft of the manuscript: MPD, TMF. Contributed to the writing of the manuscript: TMF, DXS. Agree with manuscript results and conclusions: DXS, MDP, JGS, TMF. Jointly developed the structure and arguments for the paper: TMF, DXS. Made critical revisions and approved final version: DXS, LQO. All authors reviewed and approved of the final manuscript.

DISCLOSURES AND ETHICS

As a requirement of publication the authors have provided signed confirmation of their compliance with ethical and legal obligations including but not limited to compliance with ICMJE authorship and competing interests guidelines, that the article is neither under consideration for publication nor published elsewhere, of their compliance with legal and ethical guidelines concerning human and animal research participants (if applicable), and that permission has been obtained for reproduction of any copyrighted material. This article was subject to blind, independent, expert peer review. The reviewers reported no competing interests.

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