

Profile of methods in suicide attempts: trends and implications for prevention. Jujuy, northwestern of Argentina
Perfil de métodos en intentos de suicidio: tendencias e implicancias para la prevención. Jujuy, noroeste de Argentina

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Abstract: This article reports the first description of the methods profile in suicide attempts conducted up to date in Jujuy (Argentina), and a discussion of its implications for prevention. The study was epidemiological and transversal. Data set include all suicide attempts (n = 481) psychologically assisted during two biennia at the Emergency Service of the main hospital. Using a single method was prevalent (84%) in all age ranges and in both sexes, but combining methods it is characterized by males ($p < .05$). Self-poisoning by medications (39.8%) and self-harm by cuts (27.3%) were the most frequent in both sexes. Non-violent methods were prevalent in both sexes, although males tended to use more violent and potentially more lethal methods. Some of the identified methods might be prevented simply by limiting their availability (e.g., medications, especially psychotropic, alcoholic beverages, jumping sites, firearms). Instead, other methods (e.g., hanging, gases, cleaning products, etc.) are difficult to be restricted.

Key words: methods, suicide, attempted, sex, age, prevention

Resumen: Se realizó la primera descripción del perfil de métodos en intentos suicidas en Jujuy (Argentina) y se discutieron sus implicancias para prevención. El estudio fue epidemiológico, transversal. Se incluyeron todos los intentos suicidas asistidos psicológicamente durante dos bienios en el Servicio de Guardia del principal hospital (n = 481). Usar un solo método fue prevalente (84%) en todas las franjas etarias y ambos sexos, pero combinar métodos caracterizó a masculinos ($p < .05$). Auto-envenenamiento con medicamentos (39.8%) y auto-lesión mediante cortes (27.3%) fueron los más frecuentes en ambos sexos. Métodos no violentos fueron prevalentes en ambos sexos, aunque masculinos tendieron a usar métodos más violentos y potencialmente más letales. Algunos métodos de los hallados podrían ser objeto de intervenciones preventivas que limiten su disponibilidad (e.g. medicamentos, especialmente psicofármacos, bebidas alcohólicas, lugares de salto, armas de fuego). En cambio, otros métodos (e.g. ahorcamiento, gases, productos de limpieza, etc.) parecen de difícil restricción.

Palabras clave: métodos, intento de suicidio, sexo, edad, prevención

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Introduction

Many suicide deaths are attributed to environmental or contextual factors. In this sense, access to suicidal methods is an important risk factor and their availability is one of the most important issues in the choice of a specific method (Ajdacic-Gross et al., 2008). Additional, individual-specific circumstances –such as emotional and affective impulses, and cognitive abilities– may also influence the way the suicidal act is performed and the method by which it is performed (Deisenhammer et al., 2016). However, there is enough evidence that the availability of methods, such as firearms, medications, drugs, carbon monoxide sources (Milner, Witt, Maheen, & LaMontagne, 2017) and railways (Too, Spittal, Bugeja, McClure, & Milner, 2016), among others, is related to an increase in the baseline risk of suicide. In addition, there is growing evidence showing that the availability reduction of a specific suicidal method is conducive to reduce the overall suicide rates (Daigle, 2005). International data suggest that restricting access to suicidal methods is more urgent and technically more feasible than ever before (Ajdacic-Gross et al., 2008). This is based on the idea that if individuals have a preference for a specific suicidal method and if, fundamentally, they experience short-term suicidal crises, restricting access to a specific method should not be leading to an increase in it substitution by other methods (Daigle, 2005; Law, Svetcic, & De Leo, 2014; Skegg & Herbison, 2009). Some aspects related to the executive functions, such as the cognitive flexibility and decision-making, which seem to be impaired in suicidal individuals, may contribute to explain the effectiveness of the access restriction to suicidal methods in suicide prevention (Bridge et al., 2012; Deisenhammer et al., 2016; Dombrowski et al., 2010; Jollant et al., 2005). However, it should be noted that restricting access to potentially lethal methods is not always a useful or applicable recommendation. For example, in countries such as New Zealand, which has one of the highest rates of youth suicide among

developed countries (Beautrais, 2003), the remarkable increase in youth suicide rates during 1977-1996 were largely due to the emergence of a multiplicity of suicide methods, such as hanging and poisoning by vehicle exhaust gas, which are widely available and difficult to restrict (Beautrais, 2000).

Suicide attempts are the strongest predictors of suicide. Mainly, repeated suicidal behaviors are one of the major risk factors for renewed suicide attempts as well as for completed suicide (Beghi, Rosenbaum, Cerri, & Cornaggia, 2013). Thus, the acute processes leading to nonfatal suicidal behavior are often used as an approximate model of completed suicide (Deisenhammer et al., 2016; Beautrais, 2003), although correspondences are neither total nor univocal and it is clear that attempted and completed suicide differ from one another in some important aspects (Beautrais, 2003), such as those related to sex and age (Brent, Baugher, Bridge, Chen, & Chiappetta, 1999; Móscicki, 1994). According to some data, methods in suicide attempts are fluctuating and unpredictable (Owens et al., 2015), and the first attempt method would not predict future attempts (Bhaskaran et al., 2014). However, there is contradictory evidence showing the existence of associations between some specific methods used in suicide attempts with those subsequently used (Bergen et al., 2012; Miller et al., 2013; Runeson, Tidelman, Dahlin, Lichtenstein, & Långström, 2010). In addition, certain features of the suicide attempts methods that have been identified indicate some degree of stability in the method choice through repeated suicide attempts (Deisenhammer et al., 2016; Huang, Wu, Chen, & Wang, 2014). Therefore, restricting access to suicide methods has revealed as a recommendable strategy in most of the preventive programs (Sarchiapone, Mandelli, Iosue, Andrisano, & Roy, 2011).

In the province of Jujuy (north westernmost of Argentina) suicide rates are high (Dirección General de Epidemiología Jujuy, 2013) and suicide attempts are highly prevalent among psychologically assisted cases at the main emergency medical service

(López Steinmetz, 2015). However, the profile of the methods used in suicide attempts has remained unknown until now. In view of the above, and given that preventive actions are required in this field, the aim of this study was to describe the local profile of the methods used in suicide attempts and to discuss its potential usefulness and implications for prevention.

Materials and Methods

Field of study, type of study, and data source

This study was epidemiological and descriptive, the design was retrospective and cross-sectional, and involved quantitative data processing. The study procedure was approved by the Provincial Bioethics Committee (Jujuy, January 08, 2012). The data sources were the written records of psychological assistances from the Emergency Service of the Pablo Soria Hospital (HPS), Jujuy. The HPS is the main public hospital in the province, which assists patients of both sexes older than 15 years. Until July 2012, it was the unique hospital in the whole province providing mental health emergency assistance.

Sample and analysis categories

The considered samples included the records of all cases psychologically assisted by attempted suicide during two biennium (2007-2008 and 2011-2012). The selection of this period was based on an accidental sampling type (Grasso, 1999). Coding cases (and non-cases) was set according to the following definition of attempted suicide: self-inflicted and potentially harmful behavior that does not result in death but for which there is an obvious intention, either explicit or implicit, to die (O'Carroll et al., 1996). Thus, the sample dataset consisted of $n = 481$ cases, including 293 (60.9%) female and 188 (39.1%) male cases. The mean age (mean, \pm standard deviation) was 27 years in both sexes (27.3, \pm 10.5) and females (26.9, \pm 10.1), and 28 years old in male cases (27.9, \pm 11) (López Steinmetz, 2017a). 19% of the sample had a

history of previous suicide attempts and 28% had received some diagnosis of a mental disorder (Lopez Steinmetz, 2017b), of which substance-related disorders (24%) and mood disorders (20%) were the most frequent (Lopez Steinmetz, 2017b, n.d.).

The profile of methods used in suicide attempts was analyzed according to: 1) the employed methods: simple-combined; and 2) the method types. 1) "Simple use" grouped cases using a single method to perform the suicide attempt, while "combined use" grouped cases consisting on the use of different methods employed simultaneously. 2) The types of methods recorded were grouped according to the ICD-10 classification (World Health Organization, 1994) for intentional self-harm (codes X60-X84). The method types identified in the sample dataset only correspond to codes X60-X65, X67-X70, X72, X76, X78, and X80. Therefore, the cases were classified into the following categories of method types: intentional self-poisoning (or self-intoxication) by medications (X60, X61, X63, and X64); intentional self-poisoning by narcotics and psychodysleptics (i.e., illegal drugs; X62); intentional self-poisoning by alcohol (X65); intentional self-poisoning by gases (i.e., carbon monoxide and vehicle exhaust gas; X67); intentional self-poisoning by pesticides (X68); intentional self-poisoning by other chemicals and noxious substances (e.g. cleaning products; X69); intentional self-harm by hanging, strangulation, and suffocation (X70); intentional self-harm by firearm discharge (i.e., handgun; X72); intentional self-harm by fire and flames (X76); intentional self-harm by sharp object (X78); intentional self-harm by jumping from a high place (X80).

Since sex and age are typically highlighted as crucial factors determining the characterization of attempted and completed suicides (Brent et al., 1999; Móscicki, 1994), the profile of employed methods in suicide attempts was also characterized by these two main demographic factors. Sex was analyzed as a dichotomous variable: female-male (by convention, used as female-male equivalents). The age distribution was analyzed in terms of

age ranges, composed by strata of 10 years of age (total range: 15-74 years old).

Statistical analysis

Descriptive statistics (frequencies, percentages, proportions, mode, ratio) were used. Associations between methods (simple-combined use; types of methods) and main demographic factors (sex; age) were calculated with the Chi-square test (χ^2). The statistical significance level was set at $p \leq .05$. When statistically significant associations were found, the strength of these associations was determined by the Cramer V coefficient (V). The R Studio version 3.1.1 (2014-07-10) was used to perform analyses.

Results

Simple-combined use of methods in suicide attempts

Totals and sex. The majority of cases (84%) involved the use of only one method for suicide attempt (table 1). The sex ratio (female-male) was 1.8 to 1 in the group that used a single method, whereas it was 0.7 to 1 in the group that combined the use of methods. The ratio according to use of methods (simple-combined) was 7.9 to 1 in female cases and 3.3 to 1 in male cases. The differences found by method use and sex were statistically significant ($\chi^2 (1) = 12.5, p < .05$). The strength of this association was of $V =$

0.2. The use of single methods for suicide attempt characterized the female cases, whereas the combined methods characterized the male cases.

Table 1.

Suicide attempt cases according to the use of simple or combined methods and sex

Sex	Methods used		Total
	Simple	Combined	
Female	260 (88.7%)	33 (11.3%)	293 (100%)
Male	144 (76.6%)	44 (23.4%)	188 (100%)
Both sexes	404 (84%)	77 (16%)	481 (100%)

$\chi^2 (1) = 12.5, p < .05, V = 0.2.$

Age ranges and sex. The mode by age was 19.5 years old in the both groups employing the single and the combined methods. The single method cases for suicide attempt predominated in all age ranges. There were no cases combining methods for suicide attempt in the 55-64 and 65-74 age ranges of the female sex, nor in the 45-54 and 65-74 age ranges of the male sex (table 2). No significant differences were found in the use of methods by age ranges in both sexes ($\chi^2 (4) = 2.1, p > .05$), nor in females ($\chi^2 (4) = 1.9, p > .05$), and males ($\chi^2 (4) = 6.1, p > .05$) when analyzed separately.

Table 2.
Suicide attempt cases according to the use of methods (simple or combined) and age ranges in each sex and in both sexes

Age ranges	Females (n = 293) Methods used		χ^2
	Simple	Combined	
15-24	145 (55.8%)	16 (48.5%)	1.9 (4), $p > .05$
25-34	64 (24.6%)	9 (27.3%)	
35-44	34 (13.1%)	6 (18.2%)	
45-54	11 (4.2%)	2 (6.1%)	
55-64	4 (1.5%)	0 (0%)	
65-74	2 (0.8%)	0 (0%)	
Total	260 (100%)	33 (100%)	
Age ranges	Males (n = 188) Methods used		χ^2
	Simple	Combined	
15-24	68 (47.2%)	28 (63.6%)	6.1 (4), $p > .05$
25-34	42 (29.2%)	10 (22.7%)	
35-44	17 (11.8%)	5 (11.4%)	
45-54	12 (8.3%)	0 (0%)	
55-64	3 (2.1%)	1 (2.3%)	
65-74	2 (1.4%)	0 (0%)	
Total	144 (100%)	44 (100%)	
Age ranges	Both sexes (n = 481) Methods used		χ^2
	Simple	Combined	
15-24	213 (52.7%)	44 (57.1%)	2.1 (4), $p > .05$
25-34	106 (26.2%)	19 (24.7%)	
35-44	51 (12.6%)	11 (14.3%)	
45-54	23 (5.7%)	2 (2.6%)	
55-64	7 (1.7%)	1 (1.3%)	
65-74	4 (1%)	0 (0%)	
Total	404 (100%)	77 (100%)	

Types of methods used in suicide attempt

Totals and sex. Due to the use of combined methods, the total number of recorded methods (n = 575) was greater than the total number of suicide attempted cases (n = 481). In both sexes and females, the mode by methods was intentional self-poisoning by medications, followed by intentional self-harm

by sharp objects. In the male sex, the mode by method was intentional self-harm by sharp objects, followed by intentional self-poisoning by medications (table 3). It is worth to mention that 55.5% of the intentional self-poisoning by medications (X60, X61, X63 and X64) in both sexes (58.4% in the female sex, 46.4% in the male sex) corresponded to the use of psychotropics (X61) (data not presented).

Statistically significant differences were found in the use of certain types of methods by sex ($\chi^2(8) = 73.9, p < .05$). The strength of this association was of $V = 0.4$. Female cases were mainly characterized by the use of intentional self-poisoning with medications, while male cases were characterized by the use of intentional self-harm by hanging, strangulation, or suffocation, and by

intentional self-poisoning with alcohol. It is worth to mention that self-poisoning by alcohol and self-poisoning by illegal drugs was mainly used in male cases, employed as an enhancer when combining with other methods (data not presented).

Table 3.
Types of methods registered in suicide attempt cases according to sex

Types of methods*	Sex		
	Female	Male	Both sexes
Medications (X60, X61, X63, X64)	173 (51.3%)	56 (23.5%)	229 (39.8%)
Illegal drugs (X62)	6 (1.8%)	10 (4.2%)	16 (2.8%)
Alcohol (X65)	18 (5.3%)	35 (14.7%)	53 (9.2%)
Gases (X67)	2 (0.6%)	1 (0.4%)	3 (0.5%)
Pesticides (X68)	23 (6.8%)	10 (4.2%)	33 (5.7%)
Cleaning products (X69)	6 (1.8%)	1 (0.4%)	7 (1.2%)
Hanging, strangulation, suffocation (X70)	12 (3.6%)	27 (11.3%)	39 (6.8%)
Firearm discharge (X72)	0 (0%)	3 (1.3%)	3 (0.5%)
Fire and flames (X76)	1 (0.3%)	4 (1.7%)	5 (0.9%)
Sharp objects (X78)	76 (22.5%)	81 (34%)	157 (27.3%)
Jumping from a high place (X80)	20 (5.9%)	10 (4.2%)	30 (5.2%)
Total	337 (100%)	238 (100%)	575 (100%)

$\chi^2(8) = 73.9, p < .05, V = 0.4$

* Classification according to World Health Organization (1994).

Age ranges and sex. The mode according to method types was intentional self-poisoning by medications in all age groups of both sexes and the female sex, whereas it was intentional self-harm by sharp objects in almost all age groups (except 65-74 years old) of the male sex (table 4). There were no statistically significant differences in the use of certain method types in both sexes ($\chi^2(15) = 17.1, p > .05$), nor in females ($\chi^2(10) = 12.8, p > .05$), and

in males ($\chi^2(10) = 16.5, p > .05$) when analyzed separately.

It should be noted that based on the full cases corresponding to intentional self-poisoning by medications (X60, X61, X63, and X64), the percentages that specifically corresponded to self-poisoning with psychotropics (X61) in each age group were as follows: Both sexes: 41.8% in 15-24 years old, 62.9% in 25-34, 84.4% in 35-44, 61.5% in 45-54, and 50% in both 55-64 and 65-74; Female

sex: 44.7% in 15-24 years old, 65.3% in 25-34, 84.6% in 35-44, 70% in 45-54, 50% in 55-64, and 100% in 65-74; Male sex: 32% in 15-24 years old, 57.1% in 25-34, 83.3% in 35-44, 33.3% in 45-54, while it was not used in the age ranges 55-64 and 65-74.

Table 4.
Suicide attempts cases according to types of methods used and age ranges in each sex and in both sexes

Types of methods*	Females					
	Age ranges					
	15-24	25-34	35-44	45-54	55-64	65-74
Medications (X60, X61, X63, X64)	85 (47%)	49 (57%)	26 (55.3%)	10 (62.5%)	2 (50%)	1 (33.3%)
Illegal drugs (X62)	3 (1.7%)	2 (2.3%)	1 (2.1%)	0 (0%)	0 (0%)	0 (0%)
Alcohol (X65)	9 (5%)	5 (5.8%)	3 (6.4%)	1 (6.2%)	0 (0%)	0 (0%)
Gases (X67)	1 (0.5%)	0 (0%)	0 (0%)	0 (0%)	1 (25%)	0 (0%)
Pesticides (X68)	13 (7.2%)	4 (4.6%)	5 (10.6%)	1 (6.2%)	0 (0%)	0 (0%)
Cleaning products (X69)	5 (2.8%)	1 (1.2%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Hanging, strangulation, suffocation (X70)	7 (3.9%)	1 (1.2%)	1 (2.1%)	1 (6.2%)	1 (25%)	1 (33.3%)
Fire and flames (X76)	0 (0%)	1 (1.2%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Sharp objects (X78)	47 (26%)	18 (20.9%)	8 (17%)	2 (12.5%)	0 (0%)	1 (33.3%)
Jumping from a high place (X80)	11 (6.1%)	5 (5.8)	3 (6.4%)	1 (6.2%)	0 (0%)	0 (0%)
Total	181 (100%)	86 (100%)	47 (100%)	16 (100%)	4 (100%)	3 (100%)
$\chi^2 (10) = 12.8, p > .05$						
Types of methods*	Males					
	Age ranges					
	15-24	25-34	35-44	45-54	55-64	65-74
Medications (X60, X61, X63, X64)	25 (19.5%)	21 (32.8%)	6 (22.2%)	3 (25%)	0 (0%)	1 (50%)
Illegal drugs (X62)	8 (6.2%)	2 (3.1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Alcohol (X65)	22 (17.2%)	9 (14.1%)	2 (7.4%)	0 (0%)	2 (40%)	0 (0%)
Gases (X67)	1 (0.8%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Pesticides (X68)	1 (0.8%)	4 (6.2%)	3 (11.1%)	2 (16.7%)	0 (0%)	0 (0%)
Cleaning products (X69)	0 (0%)	0 (0%)	1 (3.7%)	0 (0%)	0 (0%)	0 (0%)
Hanging, strangulation, suffocation (X70)	18 (14.1%)	3 (4.7%)	4 (14.8%)	1 (8.3%)	1 (20%)	0 (0%)
Firearm discharge (X72)	1 (0.8%)	0 (0%)	0 (0%)	1 (8.3%)	0 (0%)	1 (50%)
Fire and flames (X76)	2 (1.6%)	2 (3.1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Sharp objects (X78)	44 (34.4%)	21 (32.8%)	10 (37%)	4 (33.3%)	2 (40%)	0 (0%)
Jumping from a high place (X80)	6 (4.7%)	2 (3.1%)	1 (3.7%)	1 (8.3%)	0 (0%)	0 (0%)
Total	128 (100%)	64 (100%)	27 (100%)	12 (100%)	5 (100%)	2 (100%)
$\chi^2 (10) = 16.5, p > .05$						
Types of methods*	Both sexes					
	Age ranges					
	15-24	25-34	35-44	45-54	55-64	65-74
Medications (X60, X61, X63, X64)	110 (35.6%)	70 (46.7%)	32 (43.2%)	13 (46.4%)	2 (22.2%)	2 (40%)
Illegal drugs (X62)	11 (3.6%)	4 (2.7%)	1 (1.3%)	0 (0%)	0 (0%)	0 (0%)
Alcohol (X65)	31 (10%)	14 (9.3%)	5 (6.8%)	1 (3.6%)	2 (22.2%)	0 (0%)
Gases (X67)	2 (0.6%)	0 (0%)	0 (0%)	0 (0%)	1 (11.1%)	0 (0%)
Pesticides (X68)	14 (4.5%)	8 (5.3%)	8 (10.8%)	3 (10.7%)	0 (0%)	0 (0%)
Cleaning products (X69)	5 (1.6%)	1 (0.7%)	1 (1.3%)	0 (0%)	0 (0%)	0 (0%)
Hanging, strangulation, suffocation (X70)	25 (8.1%)	4 (2.7%)	5 (6.8%)	2 (7.1%)	2 (22.2%)	1 (20%)
Firearm discharge (X72)	1 (0.3%)	0 (0%)	0 (0%)	1 (3.6%)	0 (0%)	1 (20%)
Fire and flames (X76)	2 (0.6%)	3 (2%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Sharp objects (X78)	91 (29.4%)	39 (26%)	18 (24.3%)	6 (21.4%)	2 (22.2%)	1 (20%)
Jumping from a high place (X80)	17 (5.5%)	7 (4.7%)	4 (5.4%)	2 (7.1%)	0 (0%)	0 (0%)
Total	309 (100%)	150 (100%)	74 (100%)	28 (100%)	9 (100%)	5 (100%)
$\chi^2 (15) = 17.1, p > .05$						

* Classification according to World Health Organization (1994).

Discussion and Conclusions

This study analyzed the profile of methods used in the total of 481 cases of psychologically assisted suicide attempts during two biennial periods in the Emergency Service of the main public hospital of Jujuy. It was found that most cases involved the use of a unique method for attempt suicide. This pattern was observed in all age ranges. This is in agreement with the findings of a recent study showing that the use of single methods for suicide attempt is a common and predominant (63.1%) practice (Deisenhammer et al., 2016). However, in the present study such prevalence was even higher (84%). Nevertheless, the use of a single method particularly characterized female cases. In contrast, male cases were characterized by combining methods as well as by the use of more violent and potentially lethal methods for suicide attempts (methods such as self-harm by hanging, strangulation or suffocation, by firearm discharge, and by fire and flames). In this sense, other studies have reported that non-fatal attempts by combined methods are related to latter completed suicide (Birtwistle, Kelley, House, & Owens, 2017) and that male subjects use more lethal methods for attempting suicide than females (Beautrais, 2003; Brent et al., 1999). These two aspects together may entirely or partially explain the typically higher suicide rates in males than females and the prevalence of suicide attempts in the female sex (Móscicki, 1994). Indeed, some previous studies have suggested that the choice of more lethal methods by males may contribute to these high suicide rates (Brent et al., 1999). On the other hand, others studies have proposed that the gender differences in the final issue (completed or attempted suicide) of attempted suicide – at least in young people making serious attempts – are fully explained by the method choice, and have suggested that the highest suicide rates observed among males in Western societies arise on cultural preferences determined by the gender concerning the method choices; even if other gender-specific factors, such as the aggressiveness and the use of drugs, may

contribute to such rates in some contexts (Beautrais, 2003). In the province of Jujuy there are official statistics on suicide rates but not on suicide attempts. According to the considerations above, local data also report higher suicide rates in males than females (Dirección General de Epidemiología Jujuy, 2013). Regarding suicide attempts, in a previous local study (López Steinmetz, 2017a) we found that female cases prevail over male cases, but we have also found this female preponderance in the whole record of any other assistance cases for psychological consultations in the Emergency Service. In addition, despite that the differences found by sex did not reach statistical significance, the ratio of masculinity was higher in attempted suicide than in other reasons for psychological consultation in the Emergency Service. These earlier findings, along with the results presented here, suggest that sex preferences in the choice of methods may partly, but not completely, explain the differences observed in local prevalence of completed and attempted suicide.

The present study revealed the frequent use of alcohol as a suicide attempt method. This suggests that the strengthening of public policies such as the alcoholic beverage sale restrictions to underage people, could be useful for the prevention of suicide attempts, in addition to its obvious usefulness for the prevention of alcohol-related disorders. Data also revealed that male cases were characterized by the use of alcohol and illegal drugs as the preferred methods, which were used mainly as enhancers of other methods. In this regard, in a previous analysis (López Steinmetz, 2017b) we found that substance-related disorders, especially alcohol dependency, characterized male cases of suicide attempts. Taken together, these findings suggest a possible interrelationship between diagnoses of mental disorder and methods in male suicide attempts. In this regard, numerous previous studies have highlighted the associations between: suicide and drug overdose (Bohnert, Roeder, & Ilgen, 2010); suicide and alcohol consumption, whether intoxication (Norström & Rossow,

2016), or alcohol dependence (Wilcox, Conner, & Caine, 2004); acute alcohol use and an increased likelihood of attempted suicide, particularly at high doses (Borges et al., 2010); suicide attempts and an increased likelihood of substance dependency (Agrawal et al., 2017). At the same time, it was reported that among those attempting suicide, alcoholics and drug users are most often male (Hawton, Simkin, & Fagg, 1997). In addition, evidence indicates that the substance users attempting suicide are more likely to report an overdose and vice versa, which allowed to suggest that this relation might be partially explained by the fact that the overdose is a method commonly used for suicide (Bohnert, Roeder, & Ilgen, 2011).

The findings presented herein are in agreement with other previous studies also reporting self-poisoning by medications and self-harm by sharp objects as the most frequent methods in suicide attempts (Birtwistle et al., 2017; Miller et al., 2013). Besides, as reported in the study of Lilley et al. (2008), contrary to popular belief, self-harm by sharp objects occurred in a greater proportion of men than women. Data are also consistent with studies reporting a prevalence of self-poisoning by medications in female cases (Beautrais, 2003; Mateos Rodriguez, Huerta Arroyo, & Benito Vellisca, 2007), as a frequent use of psychotropic medications (Mateos Rodríguez et al., 2007). Results also show that medications in general, and more particularly psychotropics, were widely available to be used as non-violent methods in suicide attempts. These findings are potentially useful for defining prevention strategies based on the restriction of the accessibility to medications, e.g., by strengthening controls on medication selling in order to reduce trades without prescription.

Evidence show that those repeating suicide attempts employ in most cases (67%) (Lilley et al., 2008), or at least in a high percentage (46.5%) (Deisenhammer et al., 2016), the same type of methods in earlier than later episodes. At the same time, evidence indicate that persons who initially use a non-violent method in the first suicide attempt

show greater stability in the method choice in subsequent attempts (Deisenhammer et al., 2016; Huang et al., 2014). In particular, the self-poisoning method is the least likely to change in repeated suicide attempts (Owens et al., 2015). On the other hand, other studies revealed that the majority of subjects attempting suicide had received medical treatment prior to the attempt, thus they may had acceded to prescribed drugs, which suggest that the stability in the method choice may be explained by its presumably greater availability (Deisenhammer et al., 2016). In this regard, it is worth to mention that 23% of the dataset analyzed in the present study was under medical treatment before or at the time of the suicide attempt—due to mental disorders (19.7%) (López Steinmetz, 2017b) or due to organic diseases (3.3%) (López Steinmetz, n.d.)—, hence they could had access to prescribed drugs. In these cases, it is important for preventive purposes to delegate the medication control to an adult in charge.

If the use of a non-violent method in the first suicide attempt indeed predicts the stability of the method in about a half of the subsequent attempts (Deisenhammer et al., 2016), and bearing in mind that the restricted access to a specific method would not be leading to an increase in the substitution by other methods (Daigle, 2005; Law et al., 2014; Skegg & Herbison, 2009), then, the observed high frequency of non-violent methods—such as self-poisoning by medications, by cleaning products, by gases, and by pesticides, as well as self-harm by sharp object allows us to suggest that many local suicide attempts could be prevented by limiting the access to. However, some of these methods are complicated to be restricted in the practice. In addition, previous studies have already shown that some of the features typically characterizing suicide attempts in foreign casuistry do not characterize the local casuistry (López Steinmetz, 2015, 2017a, 2017b), consequently, the above discussed inferences should be considered with caution and further researches reveal necessary in order to test such hypothesis and the stability of methods in the local data.

As noted above, violent methods were not prevalent. Nevertheless, some final clues are being highlighted in this regard. For preventive purposes, some violent methods, such as self-harm by hanging, strangulation or suffocation (6.8%), and by fire and flames (0.9%), are difficult to be restricted. Others, such as self-harm by jumping from a high place (5.2%), are likely easier restrictable. Consistent with foreign studies showing that the restriction to access a suicide point does not move the problem to another location (Daigle, 2005; Law et al., 2014; Skegg & Herbison, 2009), in further local researches it would be necessary to determine which jumping sites are the most used in attempted and completed suicides in order to limit access.

Authors' participation:

a) Conception and design of the work; b) Data acquisition; c) Analysis and interpretation of data; d) Writing of the manuscript; e) Critical review of the manuscript.

L.C.L.S. has contributed in a,b,c,d, e.

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