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trends.denise@gmail.com

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da Cruz Pires, Maria Cláudia; Falcão Raposo, Maria Cristina; Pires, Marcela; Botelho Sougey,
Everton; Coelho Bastos Filho, Othon

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Stressors in attempted suicide by poisoning: a sex comparison

Estressores na tentativa de suicídio por envenenamento: uma comparação entre os sexos

Maria Cláudia da Cruz Pires,¹ Maria Cristina Falcão Raposo,² Marcela Pires,¹
Everton Botelho Sougey,³ Othon Coelho Bastos Filho⁴

Abstract

Introduction: To identify stressors in attempted suicide by poisoning and to analyze differences between men and women.

Method: This quantitative, comparative, cross-sectional study evaluated 110 patients aged between 14 and 78 years. The following instruments were used: standardized Mini International Neuropsychiatric Interview (MINI) version 5.0.0 and an interview form specifically designed for the study.

Results: 70% of the suicide attempters were female; mean age was 28.1 years; 98.2% presented at least one psychiatric disorder. Among the stressors assessed, significant differences were observed between men and women for: not having a spouse, 72.7% among men and 54.5% among women; attempted suicide planning, 66.7% among men and 46.8% among women; being under the influence of alcohol during the attempted suicide, 51.5% among men and 26.0% among women; harmful use of alcohol, 42.4% in men and 22.1% in women; sexual abuse, 22.1% in women and 6.1% in men.

Conclusions: Women presented a three times higher number of attempted suicides by poisoning. The identification of stressors with significant differences between sexes in the high-risk population here described can help define and organize strategies aimed at suicide prevention. Similar studies should be conducted in the general population.

Keywords: Attempted suicide, poisoning, sex, stressors.

Resumo

Introdução: Identificar estressores na tentativa de suicídio por envenenamento e analisar diferenças entre homens e mulheres.

Método: Estudo quantitativo, transversal e comparativo que avaliou 110 pacientes, com idades entre 14 e 78 anos. Os instrumentos de avaliação utilizados foram: entrevista padronizada Mini International Neuropsychiatric Interview (MINI), versão 5.0.0, e formulário de entrevista desenvolvido especificamente para o estudo.

Resultados: 70% dos pacientes eram mulheres; a idade média foi de 28,1 anos; 98,2% apresentavam pelo menos um transtorno psiquiátrico. Dentre os estressores avaliados, foram observadas diferenças significativas entre os sexos para: ausência de convívio conjugal, 72,7% entre homens e 54,5% entre mulheres; planejamento da tentativa de suicídio por envenenamento, 66,7% nos homens e 46,8% nas mulheres; estar sob o efeito de álcool durante a tentativa de suicídio por envenenamento, 51,5% entre os homens e 26,0% entre as mulheres; uso nocivo de bebidas alcoólicas, 42,4% dos homens e 22,1% das mulheres; abuso sexual, 22,1% das mulheres e 6,1% dos homens.

Conclusões: As mulheres apresentaram três vezes mais tentativas de suicídio por envenenamento do que os homens. A identificação de estressores com diferença significativa entre os sexos na população de risco aqui estudada oferece subsídios para a definição e prospecção de estratégias específicas para a prevenção do suicídio. Outros estudos similares na população geral devem ser realizados.

Descritores: Tentativa de suicídio, envenenamento, sexo, estressores.

¹ Doutoranda, Programa de Pós-Graduação em Neuropsiquiatria e Ciências do Comportamento, Universidade Federal de Pernambuco (UFPE), Recife, PE, Brazil. ² Professora, Departamento de Estatística, UFPE. ³ Coordenador, Programa de Pós-Graduação em Neuropsiquiatria e Ciências do Comportamento, UFPE. ⁴ Professor titular, Psiquiatria, UFPE e Universidade de Pernambuco (UPE), Recife, PE, Brazil.

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Introduction

Suicidal behaviors have been the subject of studies from a wide range of scientific and literary fields. The topic is broad and controversial, and has produced a great diversity of opinions. The present article focuses on attempted suicide as defined by the World Health Organization (WHO), i.e., intentional acts of self-harm that do not result in death.¹

The rates of suicide and attempted suicide are underestimated,² and they are considered a worldwide public health problem.³ Unfortunately, over only one year (2009), the number of cases of self-poisoning treated at a public hospital in the city of Recife, northeastern Brazil, reached a mean of three new patients/day (age 14 years and older) requiring medical assistance for this specific cause.⁴

Identification of the most frequent stressors present in each sex in a sample selected from a population at risk for suicide attempt would provide a realistic and useful contribution taking into consideration the scarcity of financial resources available for use in public health policies aiming at more effective preventive interventions.

Although there are not official data on the rates of attempted suicide, some studies have estimated that each completed suicide may be preceded by up to 40 suicide attempts.⁵ Thirty to 50% of completed suicides have a history of previous suicide attempts, with a 100-times higher risk of suicide for subjects who attempted suicide in the previous year when compared with the general population not presenting such a history.² Moreover, among previous suicide attempters, the chance of recurrence over 1 year after the attempt may range from 15 to 25%, whereas 10% will complete suicide over the subsequent 10 years.⁶

Stressors such as arguments with close contacts, breaking up a relationship, unemployment,⁷ death of family members, legal or work problems, in addition to other factors, some of which remain to be known, may combine with other risk conditions, especially common mental disorders affecting the attempters themselves or their first-degree relatives, and may provoke an increase in the chance of completing or attempting suicide.⁸ Therefore, experiencing neglect or loss could be considered a triggering or facilitating factor of attempted suicide, regardless of sex.^{9,10}

Self-poisoning, especially with household chemicals, is among the most frequent methods of attempted suicide, as shown by Sougey et al.¹¹ Those authors have described that the methods of suicide vary according to cultural factors, ease of access to lethal agents, and the intentionality of the act.¹¹ Even though underreported, self-poisoning by prescription drugs and pesticides are the leading causes of intoxications, according to data

collected by the Brazilian National System of Toxic and Pharmacological Information (Sistema Nacional de Informações Tóxico-Farmacológicas, SINITOX, www.fiocruz.br/sinitox).¹²

The objective of this study was to identify stressors associated with attempted suicide by poisoning and to analyze differences according to sex.

Method

This study was approved by the Research Ethics Committees of Hospital da Restauração and Universidade Federal de Pernambuco, both in Recife, northeastern Brazil. The study had a descriptive, quantitative, analytical, cross-sectional cohort design, and was conducted with patients who had attempted suicide by poisoning.

The hospital where the study was carried out is the largest public hospital in the state of Pernambuco, and since 2005 it works together with the Toxicological Treatment Center (Centro de Atendimento Toxicológico, CEATOX), affiliated with the Brazilian Network of Toxicological Information Centers (Rede Nacional dos Centros de Informações Toxicológicas, RENACIAT). Cases treated at the CEATOX are entered into a database that is also accessed by SINITOX and by the Brazilian Health Surveillance Notification System (Sistema de Notificações em Vigilância Sanitária, NOTIVISA), of the National Health Surveillance Agency (Agência Nacional de Vigilância Sanitária, ANVISA), which help identify intoxication cases.¹²

The study population originated from cases treated at Hospital da Restauração between January and August 2009. Among the 947 patients who had attempted suicide by poisoning and survived, 110 male and female patients were randomly selected for assessment.

The following instruments were used to assess patients: 1) The Mini International Neuropsychiatric Interview (MINI) was used to diagnose psychiatric conditions; and 2) an interview form specifically designed for the present study, filled in during an interview, was used to collect data on sociodemographic characteristics, clinical history, personal and family information, and some life curve data (from childhood to elderly).

The data collected were used to create a database, analyzed using the Statistical Package for the Social Sciences (SPSS), version 13.0. The outcomes of interest were univariate and bivariate distributions expressed as absolute and percentage frequencies. Descriptive data were calculated as mean and standard deviation. Pearson's chi-square test for independence was used to analyze associations according to sex, at a significance level of 5%. In some cases, significance levels below 10% were also considered.

Results

The main demographic characteristics of the sample are described in Table 1. Most patients were women (70%). Age ranged from 14 to 78 years among females and from 14 to 50 years among males; mean age was 28.1 years. Among men, 72.7% did not have a spouse/partner, compared with 54.5% of the women (statistical significant difference at 7.4%). Financial dependence was more common among women, accounting for 62.3% of the patients, compared with 48.5% of men.

Table 2 shows the frequency of mental disorders and lifetime traumatic events, with rates as high as 93.5% for women and 84.8% for men with mental disorders in the family ($p = 0.079$). Psychiatric disorders were present in all male patients and in 97.4% of the female patients. Psychiatric comorbidities were identified in 72.7% of men and 59.7% of women. Childhood trauma was present in 64.9% of women and 57.6% of men. Childhood sexual abuse was confirmed by 22.1% of

women and only 6.1% of men, at a significant difference ($p = 0.042$).

Analysis of psychiatric disorders (Table 3) revealed that depression was present in 72.7% of men and 70.1% of women. Drug abuse (except alcohol) was higher among men (18.2 vs. 7.8%). Generalized anxiety disorder was more frequent in women (31.2 vs. 18.2%). Harmful use of alcohol was observed in 42.4% of males and 22.1% of females, at a statistically significant difference ($p = 0.030$).

Some of the stressors associated with attempted suicide by poisoning are described in Table 4. The reason given by patients to explain their act of self-harm was related to relationship/family problems in 74% of women vs. 66.7% of men. Suicide ideation was confirmed in 80.5% of women and 78.8% of men. Attempted suicide by poisoning was planned by 66.7% of men and 46.8% of women, with a statistically significant difference at 5.5%. Previous suicide attempts were informed by 33.8% of women and 24.2% of men.

Table 1 – Sociodemographic variables according to sex

Variables	Males	Females	p*
Distribution according to sex [†]	33 (30.0)	77 (70.0)	
Age (years), mean \pm standard deviation	28.1 \pm 8.4	28.1 \pm 11.5	
Lives with spouse/partner [†]			
Yes	9 (27.3)	35 (45.5)	0.074
No	24 (72.7)	42 (54.5)	
Financially dependent [†]			
Yes	16 (48.5)	48 (62.3)	0.29
No	17 (51.5)	29 (37.7)	

*Pearson's chi-square test for independence.

[†] Data expressed as n (%).

Table 2 – Presence of disorders and traumatic events according to sex, n (%)

Disorders and traumatic events	Males	Females	p*
Mental disorder in the family			
Yes	28 (84.8)	72 (93.5)	0.079
No	2 (6.1)	0 (0.0)	
Does not know	3 (9.1)	5 (6.5)	
Psychiatric disorder			
Yes	33 (100.0)	75 (97.4)	0.35
No	0 (0.0)	2 (2.6)	
Psychiatric comorbidity			
Yes	24 (72.7)	46 (59.7)	0.194
No	9 (27.3)	31 (40.3)	
Other traumatic events (childhood)			
Yes	19 (57.6)	50 (64.9)	0.464
No	14 (42.4)	27 (35.1)	
Sexual abuse (childhood)			
Yes	2 (6.1)	17 (22.1)	0.042
No	31 (93.9)	60 (77.9)	

*Pearson's chi-square test for independence.

Table 5 shows the agents most frequently used in attempted suicide by poisoning. More men (51.5%) than women (26.0%) were under the influence of alcohol during the attempted suicide, at a statistically significant difference ($p = 0.009$). Psychiatric medications were used

by 41.6 vs. 30.3% of women and men, respectively. The use of other prescription drugs was reported by 14.3% of women and 9.1% of men. The intake of pesticides was confirmed in 57.6% of men and 40.3% of women, with a significant difference at 9.5%.

Table 3 – Psychiatric disorders according to sex, n (%)

Psychiatric disorders	Males	Females	p*
Depressive episode			
Yes	24 (72.7)	54 (70.1)	0.783
No	9 (27.3)	23 (29.9)	
Drug abuse (except alcohol)			
Yes	6 (18.2)	6 (7.8)	0.109
No	27 (81.8)	71 (92.2)	
Generalized anxiety disorder			
Yes	6 (18.2)	24 (31.2)	0.161
No	27 (81.8)	53 (68.8)	
Harmful use of alcohol			
Yes	14 (42.4)	17 (22.1)	0.03
No	19 (53.6)	60 (77.9)	

*Pearson's chi-square test for independence.

Table 4 – Stressors associated with attempted suicide by poisoning according to sex, n (%)

Stressors	Males	Females	p*
Reason for self-harm (conflict/relationship/family)			
Yes	16 (48.5)	36 (46.8)	0.868
No	17 (51.5)	41 (53.2)	
Suicide ideation			
Yes	26 (78.8)	62 (80.5)	0.835
No	7 (21.2)	15 (19.5)	
Has planned attempted suicide by poisoning			
Yes	22 (66.7)	36 (46.8)	0.055
No	11 (33.3)	41 (53.2)	
Previous suicide attempts			
Yes	8 (24.2)	26 (33.8)	0.322
No	25 (75.8)	51 (66.2)	

*Pearson's chi-square test for independence.

Table 5 – Main types of agents used during attempted suicide by poisoning according to sex, n (%)

Types of agents	Males	Females	p*
Alcohol			
Yes	17 (51.5)	20 (26.0)	0.009
No	16 (48.5)	57 (74.0)	
Psychiatric medications			
Yes	10 (30.3)	32 (41.6)	0.266
No	23 (69.7)	45 (58.4)	
Other prescription drugs			
Yes	3 (9.1)	11 (14.3)	0.454
No	29 (90.6)	66 (85.7)	
Pesticides			
Yes	19 (57.6)	31 (40.3)	0.095
No	14 (42.4)	46 (59.7)	

*Pearson's chi-square test for independence.

Discussion

The descriptive, sociodemographic, and other self-poisoning-related data found in the present investigation provide grounds for concern in terms of public health, in accordance with previous studies.⁶ Analysis of some epidemiological characteristics of self-poisoning suicide attempters not only revealed features of the inter-relationship between such characteristics and the occurrence of suicide, but also contributed to identify peculiarities of different self-destructive acts.¹³

Among the data found in our sample, the predominance of attempted suicide among women (70.0%) is in accordance with findings of previous studies, such as those conducted by Regadas et al. (67.0%)¹⁴ and Stefanello (68.1%).¹⁰ In turn, Weissman et al. analyzed data from nine countries and observed higher frequencies of attempted suicide among women in all of them.¹⁵

According to Bastos,¹³ women present behaviors that are more specifically related with uncompleted suicide, e.g. they choose methods that are less lethal than those used by men. This could be one possible explanation behind the higher rates of attempted suicide observed among women.^{10,14-16}

In the present study, the analysis of age vs. sex revealed age ranges from 14 to 78 years among women and from 14 to 50 years among men. Pires et al.,¹⁷ in a literature review on risk factors for attempted suicide among the elderly, identified that survivors of self-harm behaviors are more frequent among women, at the 3:1 ratio at young ages; as age increases (in both sexes), rates approach the 1:1 ratio. We underscore the preponderance of attempted suicide among women. Notwithstanding, when analyzing age, we did not find cases of suicide attempt in men above 50 years of age; only female suicide attempters were observed in this age range.

We found a high frequency of depressive episodes in our sample, affecting 72.7% of men and 70.1% of women. This result differs from depression prevalence rates traditionally reported for males and females, according to which women are more prone to developing depression than men.¹⁸ However, it is important to remember that our patients were interviewed while seeking treatment for self-poisoning, which could explain the high occurrence of depressive complaints. We also speculate that such complaints could be the result of the “day after,” without the influence of psychoactive substances, such as alcohol, which was more widely used among men, in accordance with previous reports.^{3,6,9,10,13}

Having a psychiatric disorder resulting from the harmful use of drugs (except alcohol) was more

frequent among men. Yoshimasu et al.¹⁹ have reported that depressed men are at a higher risk for this type of comorbidity. Generalized anxiety disorder was more frequent in women, which possibly explains the higher anxiety observed in these patients. According to Ohberg et al.,²⁰ anxiety may be underestimated or masked by the presence of affective disorders and/or by the use of alcohol, which supports our results of a higher rate of harmful use of alcohol among men.

Within the patient profile here described, the presence of self-destructive behaviors in both sexes in our sample seems to suggest that attempted suicide by poisoning could have been the result of loss of control, rather than of a true wish to die, in at least 53.2% of women and 33.3% of men, thus revealing a “cry for help.”²¹ In this sense, self-destructive behaviors would be the result of an unplanned but impulsive and irrational act, not having death as a final goal, which is in accordance with previous studies, such as the ones by Lecínio et al.¹⁸ and Botega et al.⁹ (those authors have shown that only a small portion of suicide attempters truly intended to die).

Living with a partner can be interpreted as an ambiguous condition with regard to its influence on the decision to attempt suicide. However, more men reported to be single (no partner) at the time of the suicide attempt. Studies have suggested that suicide rates are lower among married men than among those living without a partner (single, divorced, widowed).^{22,23} In our sample, living without a partner was associated with a high incidence of psychiatric disorders, as already informed in other studies.²⁴ Living with a spouse or partner *per se* cannot be seen as a protective factor against attempted suicide; when associated with specific situations, e.g. young age or financial dependence, having a partner may in fact trigger self-destructive acts.²⁵

Among the agents associated with attempted suicide by poisoning, the use of prescription drugs, especially among women, deserves mention. These data corroborate the findings of Sougey et al., who identified a higher predisposition of women for seeking treatment at healthcare facilities.¹¹ In contrast, more men than women reported the intake of pesticides. This “preference” for pesticides among men can be explained, at least in part, by the more lethal suicide methods usually adopted by men.^{13,18}

In the study conducted by Nordstrom et al., the risk of completing suicide after previous attempts was two to four times higher in men, especially in young age groups.²⁶ Although women tend to have more depression than men, they do not present higher rates of attempted suicide specifically for this reason.¹⁸ Among depressed patients, men, especially younger ones, are at a greater

risk of developing comorbidities with substance and/or alcohol abuse, which further increases the risk of attempted suicide in this subgroup.²⁰

In sum, when studying populations at risk, such as the one here described, some of the stressors that seem to facilitate attempted suicide include previous suicide attempts, continuous or heavy alcohol consumption, recent unemployment, little social support, financial difficulties, having at least one psychiatric disorder, and harmful use of psychoactive substances. Similar data have been reported by Murphy et al.⁸ and Pirkola et al.²⁷

Conclusions

Comparing the rates of attempted suicide by poisoning among women and men, a 3:1 ratio was found. The most frequent stressors among men were the harmful use of alcohol and being under the influence of alcohol during the suicide attempt. Childhood sexual abuse was more frequent among men ($p \leq 0.05$).

Identifying stressors and differences between sexes in a high-risk population provides realistic and useful information for the development of specific strategies aimed at preventing suicide. Further research is warranted to identify similar stressors in the general population.

In spite of the limitations of the present study, namely patient selection at one single clinic, a small sample size, and limited availability of data, we strongly believe that our findings can yield opportunities to improve the mental health of the population.

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Correspondence:

Maria Cláudia da Cruz Pires
Programa de Pós-Graduação em Neuropsiquiatria e Ciências do Comportamento / Universidade Federal de Pernambuco
Rua das Pernambucanas, 282/305, Graças
52011-10 – Recife, PE – Brazil
E-mail: claudiacpires@globo.com