Depressive symptoms and factors associated with depression and suicidal behavior in substances user in treatment: Focus on suicidal behavior and psychological problems

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ABSTRACT

Aim: To investigate the prevalence of depressive symptoms, psychological problems, suicidal behaviour and their associations in substance users in treatment.
Methods: A cross-sectional study, with 307 substance users in an out-patient treatment facility, was undertaken. Socio-demographic data, psychoactive substances used, depressive symptoms, and suicide information were obtained.
Results: 70% of participants were depressed; of those, 8.1% were either under the influence of drugs or in withdrawal. Suicidal ideation was found to be present in those who had anxiety, were nervous, had depressive symptoms, or were under drug influence or in withdrawal.
Conclusion: It is important to identify potential suicidal risk factors and implement the management of these conditions in substance users.

Introduction

Estimates of depression, substance use and suicide

Depression and drug use are considered important public health problems. There is evidence to suggest that youths, adolescents and adults in treatment for substance-related disorders are vulnerable to depressive symptoms and psychological problems (Snyder & Platt, 2013; Zimerman et al., 2018). Additionally, the findings of various studies (Silva, Sousa, Ferreira, & Peixoto, 2012; Brazilian National for Alcohol and Other Drugs Survey, [BNADS], 2012) have shown that depression is a strong risk factor for other health problems, such as alcohol and other substance use.

An important aspect of this problem is that the comorbidity of depression with drug use may increase the risk for suicide (Fontanella et al., 2017); this constitutes a global public health concern. On a global scale, 804,000 suicide deaths per year have recently been recorded (World Health Organization [WHO], 2014). The annual incidence of suicide, based on data from 2012, was 11.4 per 100,000 inhabitants, thus representing the 15th general cause of death worldwide. Among people aged between 15 and 29 years, suicide represents 8.5% of deaths, being the second leading cause of death in this age group (WHO, 2014). A Mexican study, investigating the factors associated with depression and suicide attempts in patients receiving treatment for drug use, identified factors that are associated with suicide attempts and these include the diagnosis of depression and previous suicide attempts in the drug users (Ortíz-Gómez, López-Canul, & Arankowsky-Sandoval, 2014).

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Suicide and alcohol use

In relation to associations between suicide and alcohol and/or drug use, many risk factors have already been identified (Borges et al., 2017; Poorolajal, Haghtalab, Farhadi, & Darvishi, 2016). The phenomenon of drug use in the world is dynamic. With the frequent emergence of new synthetic drugs and patterns of consumption, these can have an impact on suicidal behaviours. Alcohol is the psychoactive substance with the most well-established positive associations with suicidal behaviours (WHO, 2014). This relationship must be understood in terms of two separate constructs: acute alcohol use and more chronic alcohol dependence (Conner, Bagge, Goldston, & Ilgen, 2014). A meta-analysis study (Borges, Bagge, & Orozco, 2016) highlighted that acute alcohol use, in any amount, was associated with increased risk for suicide attempts: relative risk 6.97 (95% CI 4.77–10.17). When considering 'large amounts' of the substance, this risk increased significantly to 37.18 (95% CI 17.38–79.53), highlighting an important dose-related relationship. The estimated risk for acute alcohol use was greater than the effect of chronic use, underscoring that there are specific mechanisms by which alcohol sharply enhances the risk of suicide attempts. Most likely, these findings are related to the effects of alcohol on the central nervous system (CNS), in that it increases potential aggression and impulsivity (Caswell, Morgan, & Duka, 2013; Dougherty, Marsh-Richard, Hatzis, Nouvion, & Mathias, 2008), amplifies feelings of sadness and loss of good humour (Heinz, Mann, Weinberger, & Goldman, 2001) and compromises cognitive functions (Popke, Allen, & Paule, 2000). Park et al. (2017) noted that acute alcohol use was related to a greater use of so-called high-lethality suicide methods, such as the use of firearms or jumping from high places.

In Brazil, studies corroborate the international findings. A study by Diehl and colleagues was conducted with 80 patients admitted for suicide attempts in São Paulo state city, Brazil. Of these patients, 21.2% confirmed having consumed alcoholic beverages 6 h before the suicide attempt, 7.5% reported using illicit drugs and 10% met criteria for substance dependence (Diehl & Laranjeira, 2009). Another study conducted among suicide victims necropsied in the medicolegal service of the city of São Paulo in 2005 showed positive blood alcohol concentration (BAC) in 33.1% of cases (Ponce, Andreuccetti, Jesus, Leyton, & Muñoz, 2008).

Currently, there is strong evidence that alcohol dependence is a potential risk factor for suicidal behaviours. Studies examining alcohol and drug use in suicidal behaviours (e.g. Borges & Loera, 2010) have showed that people with alcohol dependence are between 2.6 and 3.7 times more likely to attempt suicide than non-alcohol users. A study conducted in Israel (Shoval et al., 2014), with 1237 adults with a positive history for the use of least some amount of alcohol in the last 12 months, showed that among those who meet the criteria for dependence, the risk of suicidal ideation and suicide-related behaviours was 2.18 times greater (9.0% versus 4.1%). The mechanisms by which chronic use of alcohol are associated with suicidal behaviours have also been discussed in the literature. Borges and Loera (2010) divided chronic alcohol users into two distinct classes: (1) predisposing factors such as impulsiveness, negativity, and hopelessness and (2) precipitating factors including interpersonal breaks caused by substance use and comorbidities such as major depression.

Other substance use and suicide

There is a relationship between the use of psychoactive substances including marijuana, cocaine, crack, heroin, methamphetamine and the potential risk of suicide and suicidal attempts. Data from the Institute for Health Metrics and Evaluation (IHME), Global Burden of Disease (GBD, 2010), as described by Ferrari et al. (2014),showed that after alcohol (13.25%), amphetamine users presented the highest rates of suicide, with 2.4% of Disability-Adjusted Life Year (DALYS), followed by use of opiates (1.9%) and cocaine (0.9%).

According to the National Institute of Drug Abuse (NIDA), there are three important facts that clarify the high rates of opioid use disorders and suicide in the United States (US): (1) the diagnosis of opioid use disorder leading to an increased risk of suicide for both men and women; (2) researchers have calculated that the suicide rate among opioid users is 86.9/100,000, compared with the alarming rate of 14/100,000 in the general US population; and (3) the risk of death from suicide was twice as high among male opioid users and eight times higher for female opioid users. These numbers are impressive enough and should be a strong stimulus for urgent action (NIDA, 2017).

A meta-analysis (Poorolajal et al., 2016) classified 43 studies as low and high quality, in accordance with The Newcastle-Ottawa Scale (NOS). Considering only the high-quality studies, substance-related disorders showed a relative risk for suicidal ideation, suicidal attempt and death by suicide, respectively 1.37, 1.80 and 1.44. Among drug abusers there was a higher association with opiates, but all illicit drugs had a relatively similar rate. Previous reviews have found that multiple drug users have a negative impact on outcomes of suicide (Wilcox, Conner, & Caine, 2004), and that the greater the number of drugs used, the higher the prediction (Substance Abuse and Mental Health Services Administration [SAMHSA, 2008]). Although cannabis dependence was not included in the list of risk factors related to suicide in the report of the Global Burden of Disease (GBD), in the meta-analysis of Borges et al. (2016), the current evidence tends to support that the chronic consumption of cannabis can predict suicidal behaviour.

In Brazil, studies tend to confirm the important association between drugs and suicidal behaviours (Diehl & Laranjeira, 2009; Werneck, Hasselmann, Phebo, Vieira, & Gomes, 2006). Data from 160 suicide attempts recorded in a general hospital in Rio de Janeiro showed that 15% had a history of alcohol use, illicit drug use (11%), and/or use of psychotropic drugs (27%). The findings of this study showed that the participants who were crack cocaine users also presented a high risk for suicide (odds ratio 4.43 CI 95% 2.20–9.32; $p < 0.001$), remaining with statistically significant values even when controlled by gender, socioeconomic status and cocaine use (Werneck et al., 2006).

Depression, substance use and suicide

The scenario described reveals that comorbidity between depression and substance use is a reality that can contribute to unfavourable outcomes regarding the consumption of substances, suicidal behaviours and psychological problems. It is believed that knowledge of the relationship between such variables can support the planning and monitoring of interventions focused on early recognition and treatment of disorders related to the use of alcohol and other drugs, thereby minimising suicide rates and psychological problems, especially in patients with depressive symptoms (Botega et al., 2009; Botega, Cais, & Rapeli, 2012).

Therefore, this study aims to investigate the prevalence of depressive symptoms and the associations between these symptoms with substance use, psychological problems and suicidal behaviours in a sample of alcohol and drug users in treatment.

Methods

A cross-sectional study was undertaken at an out-patient care centre for substance treatment in southern Brazil, in the period from July 2013 to July 2014. The eligibility criteria were those aged 18 years or older, of both genders, and users of psychoactive substances. Exclusion criteria included those with serious psychiatric symptoms, as determined by the Brief Psychiatric Rating Scale (BPRS). This scale has 18 items that evaluate the intensity of the presence of psychiatric behaviours observed and/or reported during contact with the respondent (Crippa, Sanches, Hallak, Loureiro, & Zuardi, 2002).

The sample consisted of 307 substance users in treatment, identified from 808 individuals admitted to the service. According the eligibility

criteria, 372 persons were evaluated and invited to participate in the study; however, 27 were excluded for presenting severe psychotic symptoms (evaluated by BPRS), and 38 were refused for reasons of lack of time.

Participants were interviewed using prior scheduling, at times that did not interfere with the patient's therapeutic attendance routine. The interview was conducted in a room reserved by the authors, by people who were properly trained for eligibility assessment and who presented the objectives of the study, data collection procedures and the anonymity of the study to the participants. The participants completed the questionnaires with the help of the interviewers.

The instruments used are described below:

1. **Socio-demographic information:** gender, year group, religion, ethnicity, marital status, years of schooling and employment.
2. *Addiction Severity Index* **(ASI-6):** This instrument measures problems related to the use of drugs in seven areas: medical, occupational status, legal aspects, support/problems family, psychiatric and use of alcohol and/or other drugs. In the ASI-6, the information derived refers to use of the substances in the last 30 days, six months and across the life span; establishes the severity level of dependence and assesses the need for treatment in each area (McLellan, Cacciola, Alterman, Rikoon, & Carise, 2006). The transcultural adaptation and psychometric validation of ASI-6 for the Brazilian context was carried out in a study (Kessler et al., 2012) with clinical samples, and presented good values of reliability (Cronbach's alpha for ASI-6 subscales ranged from 0.64 to 0.95) and internal validity. In this study, only subtests from the ASI-6 were used:
   Area 1. Use of Drug: Alcohol, Tobacco, Marijuana, Cocaine and Multiple Drugs. Drug of Choice (DOC). All items contain dichotomous (Yes/No) answers.
   Area 2. Psychiatric problems that reflect aspects of mental health, suicidal ideation, psychological and psychiatric treatments, with or without drug use.

The dependent variable refers to conditions during any of the prior 30 days, in which the participant felt depressed or down most of the day (almost every day for at least two continuing weeks); these were designated as depressive symptoms[‡] in the results section. The participant responds by indicating if he or she is more despondent and depressed – this encompasses the dimension of depressed humour and the perception of discouragement. There are three choices for a response: 'yes', 'no' and 'yes, but only in abstinence or when using the substance'.

Binge drinking and alcohol dependence (Short Alcohol Dependence Data – SADD) were assessed. Binge drinking was defined according to the National Institute on Alcohol Abuse and Alcoholism (NIAAA, 2004) standards – consuming five or more units/drinks for men and four for women in about two hours. NIAAA considers that a pattern of drinking is present when it brings the blood alcohol concentration to 0.08 g/dl or above.

3. *Short Alcohol Dependence Data* **(SADD):** The Short Alcohol Dependence Data (SADD) consists of 15 questions related to severity of alcohol dependence. Severity is classified on a scale from 0 to 20 and is scored as follows: mild (0–9), moderate (10–19), and severe alcohol dependence (≥20). The Brazilian version of the SADD and the original English version are highly correlated, and the coefficient of internal consistency is 0.79 (Rosa-Oliveira et al., 2011).

Ethical considerations

A formal authorisation was requested from the coordinators of the service. This study was approved by the local Ethics Committee (Folio number 412/837), and all the subjects signed an informed consent form prior to participation of the study. The patients did not receive any refunds or compensation for their participations.

Data analysis

Statistical Package Social Science (SPSS) v.19 was used for the data analysis. Categorical variables were described as absolute and relative frequencies. The *chi-squared test* (χ^2) was used to evaluate associations between symptoms of depression, sociodemographic characteristics, alcohol and/or drugs and psychological and psychiatric problems. We calculated a logistic regression model with symptoms of depression[‡] (experienced serious depression, sadness, hopelessness, loss of interest, difficulty with daily functioning, almost every day for two continuing weeks, and past 30 days) as the dependent variable.

The dependent variable refers to the evaluation during any of the last 30 days, in which the person felt depressed or 'feeling down' most of the day (almost every day for at least two continuing weeks). Variables such as alcohol and drug use, age, gender, years of schooling, marital status, employment and psychiatric and psychological status served as explanatory variables. Exponentiated coefficients were interpreted as odds ratios adjusted (ORA). A significance level of 5% was used in all statistical tests. The following statistics were available for testing the global null hypothesis: *likelihood ratio* $\chi^2(8) = 61.102$, $p < 0.001$ and the *Wald* $\chi^2(8) = 46.049$, $p < 0.001$. The association of predicted probabilities and observed responses was calculated by the value of percent concordant (78.9) and percent discordant (16.4), beyond the values of *Somers' D* - 0.624, *Gamma* = 0.655 and *Tau-a* = 0.217, which properly explain the model used in this study.

Results

Socio-demographic data

The sample was composed predominantly of adults who were male, black and single. More than half had a low level of education (< 8 years), were unemployed and of the Catholic religion. Regarding the presence of depressive symptoms (past 30 days), 70.0% responded affirmatively; only 8.1% reported experiencing such symptoms only under the influence of drugs or in withdrawal (Table 1).

Most participants identified cocaine as their drug of choice (DOC), most were using multiple drugs and drinking alcohol in the last month and in the last 6 months, including binge-drinking consumption. In addition, about a third of participants showed high levels of alcohol dependence (SADD). Most of the participants were smokers and used

Table 1
Socio-demographic data and suggestive symptoms of depression.

		Depression symptoms[‡] [n(%)]		
		No (21.9%)	Yes (70%)	Only under influence of drug or withdrawal (8.1%)
Gender	Male	56 (23.5)	162 (68.1)	20 (8.4)
	Female	11 (15.9)	53 (76.8)	5 (7.2)
Age group (years)	18–29	30 (24.8)	80 (66.1)	11 (9.1)
	30–49	32 (19.9)	118 (73.3)	11 (6.8)
	≥50	5 (20.0)	17 (68.0)	3 (12.0)
Religion	Catholic	30 (24.8)	83 (68.6)	8 (6.6)
	No Catholic	31 (21.7)	100 (69.9)	12 (8.4)
Ethnicity	White	35 (18.9)	137 (74.1)	13 (7.0)
	No-White	32 (26.2)	78 (63.9)	12 (9.8)
Stable union	Yes	14 (21.5)	44 (67.7)	7 (10.8)
	No	53 (21.9)	171 (70.7)	18 (7.4)
Years of schooling	< 8	41 (22.5)	128 (70.3)	13 (7.1)
	≥8	26 (20.8)	87 (69.6)	12 (9.6)
Employment	No	35 (19.4)	133 (73.9)	12 (6.7)
	Yes	32 (25.2)	82 (64.6)	13 (10.2)

Note: Descriptive level of the chi-squared test χ^2 (test statistics; degrees of freedom) (p-value ≤ 0.05). N = 307.

Table 2
Substance used and depressive suggestive symptoms.

		Depression symptoms[†] [n(%)]		
		No	Yes	In use of drug or withdrawal
DOC*	Cocaine	47 (25.4)	121 (65.4)	17 (9.2)
	Crack	15 (18.8)	63 (78.8)	2 (2.5)
	Alcohol	5 (11.9)	31 (73.8)	6 (14.3)
Álcool (past 30 days)*	No	36 (29.5)	81 (66.4)	5 (4.1)
	Yes	31 (16.8)	134 (72.4)	20 (10.8)
Álcool (past 6 months)*	No	26 (32.5)	49 (61.2)	5 (6.2)
	Yes	41 (18.1)	166 (73.1)	20 (8.8)
Binge-drinking*	No	37 (28.2)	89 (67.9)	5 (3.8)
	Yes	30 (17.1)	126 (72.0)	19 (10.9)
Severity of alcohol	Mild	36 (30.3)	84 (66.1)	7 (5.5)
dependence	Moderate	17 (21.2)	59 (73.8)	4 (5.0)
(SADD)*	Severe	14 (14.0)	72 (72.0)	14 (14.0)

Note: Descriptive level of the chi-squared test. (N = 307).

  * p-Value ≤ 0.05.

marijuana and cocaine (both across the life span and in the last month). High levels of depressive symptoms were observed among participants. Those participants having crack cocaine or alcohol as their DOC; have consumed alcohol in the last month (72.4%), in the last six months (73.1%) and binge drinking (72%); present moderate levels (73.8%) and severe levels (72%) of alcohol addiction (SADD), with statistically significant values. Multiple drug users, smokers, and users of marijuana and/or cocaine (in the last month and across the life span) and the presence of depressive symptoms (see Table 2).

There were high percentages of participants with symptoms of depression; they reported experiencing anxiety, nervousness or difficulties related to concentration, understanding or memory, suicidal thoughts and/or suicide attempts. Furthermore, more generally, such problems were not restricted to the periods in which the participants were under the influence of drugs or in withdrawal (Table 3).

Among participants with symptoms of depression, they highlighted

the presence of psychological problems, hospitalizations for psychological problems, use of psychotropic drugs and the need for outpatient consultations. These characteristics were not limited to the periods in which the participants were under the influence of drugs or in withdrawal (Table 4).

Multivariate analysis

The conditions of feeling anxious, nervous or worried most of the day, in the last 30 days, were found to increase the chances among those presenting symptoms of depression among those under the influence of drugs or in withdrawal (*Wald* χ^2 = 6.414, p = 0.011, Odds Ratio Adjusted (ORA) = 11.9; CI95% 3.463–40.902).

The chance of having experienced serious suicidal thoughts were increased by four times among of those who displayed symptoms of depression (*Wald* χ^2 = 6.878; p = 0.008, ORA = 4.7; CI 95% 1.726–13.071).

Discussion

Participants with depressive symptoms had potential chance of having symptoms of anxiety, nervousness or concern among those presenting to be under the influence of drugs or in withdrawal, and four times greater chance of having these suicidal thoughts. The association between depressive and anxiety symptoms is well established in the literature (Casey, Perera, & Clarke, 2013). Our findings confirm the relationship between depressive and anxiety symptoms and suicidal risks for those substance abusers who were in abstinence of under the influence of substance(s) use.

In this study, most users of alcohol and drugs in treatment had symptoms of depression, anxiety and suicidal behaviours. The coexistence of substance-related issues and major depressive disorder is common. There is evidence to suggest that the prognosis for both disorders is very poor, with greater vulnerability to psychopathology and higher rates of suicide attempts (Blanco et al., 2013; Vujanovic, Wardle, Smith, & Berenz, 2017).

Table 3
Psychiatric status: depression, thoughts and attempted suicide.

		Depression symptoms[†] [n(%)]		
		No	Yes	In use of drug or withdrawal
Anxiety symptoms (in the life time)*	No	13 (46.4)	13(46.4)	2 (7.1)
	Yes	29 (16.8)	136 (78.6)	8 (4.6)
	In use of drug or withdrawal	25 (23.6)	66 (62.3)	15 (14.2)
Anxiety symptoms (past 30 days)*	No	34 (48.6)	34 (48.6)	2 (2.9)
	Yes	22 (13.2)	139 (83.2)	6 (3.6)
	In use of drug or withdrawal	4 (7.0)	37 (64.9)	16 (28.1)
Difficult of concentrating, or remembering (in the life time)*	No	30 (40.0)	43 (57.3)	2 (2.7)
	Yes	23 (14.0)	131 (79.9)	10 (6.1)
	In use of drug or withdrawal	14 (20.6)	41 (60.3)	13 (19.1)
Difficult of concentrating, or remembering (past 30 days)*	No	27 (40.9)	36 (54.5)	3 (4.5)
	Yes	20 (12.7)	129 (82.2)	8 (5.1)
	In use of drug or withdrawal	5 (11.4)	26 (59.1)	13 (29.5)
Thoughts of suicide (in the life time)*	No	28 (40.0)	39 (55.7)	3 (4.3)
	Yes	25 (14.0)	146 (82.0)	7 (3.9)
	In use of drug or withdrawal	14 (23.7)	30 (50.8)	15 (25.4)
Thoughts of suicide (past 30 days)*	No	56 (30.3)	116 (62.7)	13 (7.0)
	Yes	9 (9.2)	86 (87.8)	3 (3.1)
	In use of drug or withdrawal	2 (8.3)	13 (54.2)	9 (37.5)
Attempted suicide (in the life time)*	No	40 (28.0)	96 (67.1)	7 (4.9)
	Yes	18 (14.3)	100 (79.4)	8 (6.3)
	In use of drug or withdrawal	9 (23.7)	19 (50.0)	10 (26.3)
Attempted suicide (past 30 days)*	No	63 (23.6)	185 (69.3)	19 (7.1)
	Yes	3 (9.4)	27 (84.4)	2 (6.2)
	In use of drug or withdrawal	1 (12.5)	3 (37.5)	4 (50.0)

Note: Descriptive level of the chi-squared test. (N = 307).

  * p-Value ≤ 0.01.

Table 4
Relationship between treatment and suggestive symptoms of depression.

		Depression symptoms[†] [n(%)]		
		No	Yes	In use of drug or withdrawal
Experienced psychological or emotional problems (past 30 days)[*]	No	34 (35.1)	55 (56.7)	8 (8.2)
	Yes	33 (15.7)	160 (76.2)	17 (8.1)
Hospitalized for psychological problem (in your life)[*]	No	62 (24.6)	167 (66.3)	23 (9.1)
	Yes	5 (9.1)	48 (87.3)	2 (3.6)
Been prescribed medication for any psychological or emotional problems (past 6 months)[*]	No	39 (28.1)	95 (68.3)	5 (3.6)
	Yes	7 (10.4)	57 (85.1)	3 (4.5)
Been prescribed medication for any psychological or emotional problems (past 30 days)[*]	No	35 (28.0)	88 (70.4)	2 (1.6)
	Yes	7 (11.5)	51 (83.6)	3 (4.9)
Outpatient consultation[*]	No	55 (25.1)	142 (64.8)	22 (10.0)
	Yes	12 (13.6)	73 (83.0)	3 (3.4)

Note: Descriptive level of the chi-squared test. (N = 307).
  [*] *p*-Value ≤ 0.01.

Evidence from the literature has pointed to the coexistence of psychopathologies of substance use with various disorders. The disorders include depressive disorders related to substance use. Evidence (e.g. Tull, Berghoff, Wheeless, Cohen, & Gratz, 2018; Vujanovic et al., 2017) has showed that integrated treatments that promote emotional adjustment for individuals with comorbidities are promising and deserve to be investigated and applied in clinical practice.

It is worth noting that comorbidity, that is, anxiety with depression, predicts a worse prognosis for these two conditions among drug users. Moreover, the treatment of people who may have characteristic symptoms of these disorders should include a careful diagnostic evaluation and a comprehensive approach that integrates various psychosocial and pharmacological interventions (Casey et al., 2013).

In the present study, associations were not sought between depressive symptoms and cognitive deficit including difficulties in concentration, comprehension or memory. Such data were not incorporated into the multivariate analysis. Alcohol use and depression represent problems often associated with cognitive impairment (Hayes, Demirkol, Ridley, Withall, & Draper, 2016). Such cognitive losses do not always show as significantly more severe among people with this comorbidity (Adan et al., 2017). Therefore, it is important to investigate, among users and former users of alcohol and other substances, the mental state, cognitive skills and interventions that may enable the best cognitive functioning, as well as interpersonal and social interactions, of the individual. In our findings, substance users with depressive symptoms were less likely to have suicide attempts prevalent during periods of either abstinence or drug effects. However, the effects of psychoactive substances effects potentially increase those with depressive symptoms and anxiety.

This finding needs to be further explored in future studies and can contribute to the understanding of suicidal behaviours among substance abusers. There is a possibility that users of substances who exhibit depressive symptoms (have a more diffuse propensity to suicidal behaviours in different circumstances), while users without depressive symptoms may have a risk of suicide more directly linked to periods of withdrawal or while under the influence of substances.

The literature suggests that the relationship between suicidal behaviour and the consumption of substances (especially alcohol) involve two separate constructs: acute use and a more long-term disorder (dependence) (Conner et al., 2014), since there are different ways in which the consumption of substances appears to influence suicidal behaviours (Bagge et al., 2013).

In other studies (Cherpitel, Borges, & Wilcox, 2004; Ponce et al., 2008) acute alcohol use can precede attempts at and deaths by suicide. There is evidence to suggest that chronic use of and dependence on psychoactive substances are important risk factors or precipitates of suicidal behaviour (Borges & Loera, 2010; Caswell et al., 2013; Diehl & Laranjeira, 2009; Dougherty et al., 2008; Heinz et al., 2001; Lima et al.,

2010; Popke et al., 2000; Shoval et al., 2014). Our study confirms the importance of the effects of chronic use of substances in the manifestation of suicidal behaviours among users with depressive symptoms.

Often, people with substance-related disorders can have severe complications in various areas of life, such as changes in the state of physical and mental health, social, emotional, financial, legal and other problems. These issues need to be addressed in psychosocial interventions that may have different characteristics, depending on the preferences and needs of users or the local context (European Monitoring Centre for Drugs and Drug Addiction [EMCDDA], 2015).

It is important to note that the findings of this study may be closely associated with the characteristics of the sample. The sample of the study was comprised predominantly of adult men, blacks, single, with a low level of schooling, unemployed, cocaine and multiple drug users, and who reported consuming alcohol in recent months, including binge drinking consumption. Most participants presented with mild levels of alcohol addiction. Most of the participants were also active tobacco smokers and had used marijuana and cocaine (across the life span and in the last month). Some of these characteristics are associated with the worst mental health condition and increased risk of suicidal behaviour, such as the use of multiple drugs (SAMHSA, 2008; Wilcox et al., 2004), substance-related disorders (Borges & Loera, 2010; Poorolajal et al., 2016) and illicit drugs use (Formiga, Vasconcelos, Galdino, & Lima, 2015).

Limitations

There are some limitations of the present study. In particular, the findings pertain to a sample of participants of only one specialized service and predominantly male. It is important to evaluate patients being served by other providers, such as emergency rooms, to better comprehend the influence of alcohol and suicidal behaviour and their relationship with depressive symptoms.

Implications for clinical practice

It is important to develop training programmes for health professionals and to implement institutional policies to reduce stigma and suicide-related taboos, as well as to develop screenings for different issues and vulnerabilities, potentialities and needs of users. These characteristics are not limited to periods in which the participants are under the influence of drugs or in abstinence. Such characteristics may represent significant vulnerabilities that warrant systematic evaluation in clinical practice and, as well, integrated interventions (Tull et al., 2018; Vujanovic et al., 2017).

When dealing with substances users and suicidal behaviours, multiple prejudices and assumptions need to be challenged. The ways in which health care professionals approach suicide and their clinical

experiences affect their perceived abilities to prevent the problem. Educating health care professionals to go beyond the limitations of risk factor approaches to suicide prevention and to utilise evidence-based strategies for treating substance use disorders and associated problems may be important in increasing their sense of competency in suicide prevention. As well, the empowering of people with substance use disorders may help prevent suicide; this suggests the need for collaboration between mental health care providers and other allied professionals (Goldstone & Bantjes, 2018).

Further, only a strategy that considers both sides of this association can be truly effective in reducing it. If suicide is preventable, this is partly because we can also deter and treat harmful use of and dependence on substances (Afonso-dos Santos & Diehl, 2018).

Even today, in many developing countries, a strong moral and religious judgement prevails about suicidal and depressive tendencies. There is often a sense of contempt and stigma about suicide and attempted suicide (Fontanella et al., 2017; WHO, 2014). Similarly, various ideas, vulnerabilities and prejudices surround the patient suffering substance-related problems and depression. It is not difficult, therefore, to realize that these patients will need extra care in the face of a double stigma (substance use and suicide attempts), in addition to the difficulties inherent in treatments of both. This justifies a thoughtful approach to the complex interactions existing between these two issues (Afonso-dos Santos & Diehl, 2018).

In summary, more intensive management strategies may be needed to directly address persons at risks for suicide when they present with depressive symptoms and/or long-term substance use. These symptoms may also emerge over the course of care among those with no previous history of attempts at self-harm. This has important implications for active service-level strategies that target these symptoms for all of those who present to any kind of services utilization (WHO, 2014).

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Conflict of interest

The authors declared any potential conflict of interest.

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