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Echoes of early-life stress on suicidal behavior in individuals with substance use disorder

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Abstract

Introduction: Psychoactive substances abuse is considered a problematic social factor due its likelihood to cause harmful, self-destructive behaviors to the subjects and the overall society. Stress in an individual's early life may also be a contributing factor to substance abuse as well as suicide attempts. There is a lack of studies examining these factors in people with substance-use disorder.

Aim: to identify the relationship between early-life stress and suicide attempts in drug-dependent adults.

Methods: This is a predictive correlational study with a cross-sectional approach. The convenience sample consisted of 105 individuals treated at an outpatient unit for addiction treatment. The participants were assessed using the Mini-international Neuropsychiatric Interview, a Childhood Trauma Questionnaire to measure the severity of the different types of early life stress; the Beck Scale for Suicide Ideation was also used. The data were analyzed using descriptive and inferential statistics through univariate and multivariate logistic regression.

Results: The analyzed sample included 33 (31.4%) individuals who attempted suicide and were significantly more likely to suffer from emotional, physical, or sexual abuse than those who had never attempted suicide (p <0,05).

Conclusions: Different forms of early-life stress are related to attempted suicide in people with substance-use disorder. Further studies are needed to understand the effects of early-life stress on suicide attempts in drug-dependent people.

Keywords: Adverse-Childhood-Experiences; Child-Abuse; Self-injurious-Behavior; Substance-Related-Disorders; Suicide.

Resumen

Ecos del estrés en la vida temprana en el comportamiento suicida en personas con trastorno por uso de sustancias

Introducción: El abuso de sustancias psicoactivas se considera un factor social problemático cuando se producen conductas autodestructivas perjudiciales para el sujeto y la sociedad. El estrés en la vida temprana de una persona también puede ser un factor que contribuya a las situaciones de abuso de sustancias, así como a los intentos de suicidio. Hay una falta de estudios que examinen estos factores en personas con trastorno por uso de sustancias.

Objetivo: identificar la relación entre estrés en la vida temprana y los intentos de suicidio en personas adultas con trastorno por uso de sustancias.

Métodos: Estudio correlacional, predictivo, transversal. La muestra de conveniencia consistió en 105 personas tratadas en una unidad ambulatoria para el tratamiento de adicciones. Las personas se evaluaron por medio de la Mini-Entrevista Neuropsiquiátrica Internacional, el Cuestionario de Trauma Infantil para medir la gravedad de los diferentes tipos de estrés en la vida temprana y la Escala de Beck para Ideación Suicida. Los datos se analizaron mediante estadística descriptiva e inferencial mediante regresión logística univariante y multivariante.

Resultados: De la muestra analizada, 33 (31,4%) habían intentado suicidarse y tenían una exposición significativamente mayor al abuso emocional, físico y sexual (p<0,05) en comparación con las personas que nunca habían intentado suicidarse.

Conclusiones: Diferentes formas de estrés en la vida temprana están relacionadas con el intento de suicidio en personas con trastorno por consumo de sustancias. Se necesitan más estudios para

comprender los efectos del estrés en la vida temprana sobre los intentos de suicidio en una persona con dependencia.
Palabras clave: Experiencias-Adversas-de-la-Infancia; Conducta-Autodestructiva; Maltrato-a-los-Niños; Suicidio; Trastornos-Relacionados-con-Sustancias.

Resumo

Ecos do estresse precoce no comportamento suicida em indivíduos com transtorno por uso de substâncias

Introdução: O uso abusivo de substâncias psicoativas é considerado um fator social problemático quando ocorrem comportamentos autodestrutivos prejudiciais ao sujeito e à sociedade. O estresse no início da vida de um indivíduo também pode ser um fator que contribui para situações de abuso de substâncias, bem como tentativas de suicídio. Há uma falta de estudos examinando esses fatores em pessoas com transtorno por uso de substâncias.

Objetivo: Identificar a relação entre o estresse no início da vida e as tentativas de suicídio em adultos com transtorno de uso de substâncias.

Métodos: Estudo correlacional preditivo com abordagem transversal. A amostra por conveniência foi composta por 105 indivíduos atendidos em uma unidade ambulatorial para tratamento de dependências e foi avaliada por meio do Mini-International Neuropsychiatric Interview, do Childhood Trauma Questionnaire para medir a gravidade de diferentes tipos de estresse precoce e da Escala de Beck para Ideação Suicida. Os dados foram analisados por meio de estatística descritiva e inferencial por meio de regressão logística univariada e multivariada.

Resultados: Da amostra analisada, 33 (31,4%) já haviam tentado suicídio e tiveram exposição significativamente maior a abusos emocionais, físicos e sexuais (p <0,05) em comparação com os participantes que nunca tentaram suicídio.

Conclusões: Diferentes formas de estresse no início da vida estão relacionadas à tentativa de suicídio em indivíduos com transtorno por uso de substâncias . Mais estudos são necessários para compreender os efeitos do estresse precoce nas tentativas de suicídio de uma pessoa com dependência.
Palavras-chave: Experiências-Adversas-da-Infância; Comportamento-Autodestrutivo; Maus-Tratos-Infantis; Suicídio; Transtornos-Relacionados-ao-Uso-de-Substâncias.

INTRODUCTION

Psychoactive substances abuse is considered a problematic social factor due its likelihood to cause harmful, self-destructive behaviors to the subjects and the overall society. Drug use around the world has been on the rise; around 269 million people worldwide used drugs in 2018, while over 35 million people suffer from drug use disorders.[1] In Brazil, a nationwide survey presented a lifetime prevalence of illicit drug consumption in 1.4 million people. The drugs that are most used were a form of smoked cocaine called crack and alcohol for the high consumption patterns of the substance.[2]

The impacts of drug abuse are associated with maladaptive behavior, physical, social, and psychological consequences (e.g. crime[3]), and suicidal behavior.[4] Suicidal behavior ranges from ideation to the act of suicide, and it is a significant clinical issue for individuals and for the public health to structure preventive

interventions.[5,6] The global burden of drug-related disorders for suicide is clear.[7,8]

Evidence shows that substance use disorders are strongly associated with suicide.[9] Studies have shown that people who abuse alcohol have a threefold increased risk of suicide, with a risk rate ranging from 1.99 to 2.70. Simultaneously, alcohol and illicit drugs were associated with a two to threefold increase in the risk of suicidal behavior.[10]

There are genetic and environmental factors that play an equally significant role in the development of substance use disorders.[11] Stressors such as trauma and environmental stressors can swamp genetic influences among populations subjected to severe current and historical trauma. A direct relationship appears to exist between chronic stress exposure in childhood and alcohol and drug dependence in early adulthood.[11] Additionally, the stress faced in childhood and adolescence due to the exposure to traumatic experiences is related to drug abuse and suicide attempts as it can result in greater vulnerability to mental disorders.[12,13]

Moreover, physical abuse as a source of early-life stress predicts suicide attempts in patients with alcohol use disorder after adjusting for sociodemographic variables.[14] An association between the different types and severities of early-life stress and suicide attempts among illegal drug users showed that severe to extreme levels of sexual, physical, and emotional abuse predicted attempts to commit suicide.[15]

Although the literature highlights the relationship between early exposures to stress as a distal risk factor for suicidal behavior,[16] studies that assess people with a diagnosis of substance use disorder focus on users of a specific drug, mainly alcohol or heroin or cocaine.[17-19] At the moment, not enough studies assess these associations among individuals who use multiple types of drugs.

Given the high risk of suicide attempts among individuals with a substance-use disorder, more exposure factors need to be analyzed to better understand this problem. The concept of early life stress can be subdivided into childhood maltreatment and stressful life events (although there is considerable overlap between these two categories[11]). Early life stress is caused by factors such as physical, emotional, and sexual abuse during childhood, as well as physical and emotional neglect.[11]

This study aims to identify the relationship between early-life stress and suicide attempts in adults with substance use disorder.

METHOD

This is a predictive correlational study with a cross-sectional approach carried out in a mental health clinic that specializes in substance abuse treatment in a Brazilian Midwest city. The convenience sample consisted of 105 participants; the individuals aged 18 or older, and those with evident psychotic symptoms, or intellectual disability were excluded according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) criteria and the Mini-international Neuropsychiatric Interview (MINI)[20]. The participants at elevated risk for suicide according to the Beck Scale for Suicide Ideation results were excluded as well.

The data were collected through face-to-face interviews carried out by trained interviewers between August 2018 and February 2019. The interviewers invited all individuals receiving clinical care at the health care unit to participate. The researcher and the multidisciplinary team communicated the patients' needs and clinical status to help the participants understand the difference between their participation in research project and their parallel clinical care. Throughout the processes of suicide risk assessment, the researcher used additional strategies such as providing opportunities for the participant to talk openly or consultation with a psychiatrist.

All participants provided written and informed consent to participate as per the Declaration of Helsinki after the institutional review board approval protocol, CAAE number 49430015.0.0000.5077, according to protocol number 1.310.170, followed by the Research Ethics Committee.

To collect data, the team used a sociodemographic profile questionnaire to identify sex, skin color, age, marital status, education, and occupational status. The MINI - a standardized diagnostic interview compatible with DSM criteria – was used to confirm the diagnostic criteria for substance addiction; it was also used to verify the existence of the sample exclusion criteria. This instrument is validated for the Brazilian context.[20,21]

The Childhood Trauma Questionnaire (CTQ) was employed to identify the participants' exposure to early-life stress. This consists of 28 questions that assess traumatic experiences in childhood based on five subtypes: emotional abuse (EA), physical abuse (PA), and sexual abuse (SA), as well as emotional neglect (EN) and physical neglect (PN);[22] it has been translated and validated for the Brazilian context[23]. Responses are measured on a 5-point Likert scale (1 = never true to 5 = very often true). The total score of the CTQ ranges from 25 to 125. Each subscale is composed of five questions ranging from 5 to 25 that fall into four categories: none to low trauma exposure, low to moderate trauma exposure, moderate to severe trauma exposure, and severe to extreme trauma exposure. Thus, the cutoff points were EA ≥ 13; PA ≥ 10; SA ≥ 8; EN ≥ 15; PN ≥ 13 to transform the scores of each subscale into dichotomous variables.[22] The CTQ makes it possible to assess the intensity of early stress, and the higher the score, the greater the intensity of early stress. The internal consistencies of the instruments and subscales were evaluated using Cronbach's alpha (α) and McDonald's omega (ω).

The instrument and the subscales of early stress assessment showed the following levels of internal consistency: CTQ (α = 0.824; ω = 0.850); EA (α = 0.750; ω = 0.760); PA (α = 0.884; ω = 0.887); SA (α = 0.903; ω = 0.908); EN (α = 0.659; ω = 0.676); PN (α = 0.349; ω = 0.410).

The Beck Scale for Suicide Ideation (BSI) is a 21-item scale that assesses the severity of suicidal desires, attitudes, and plans; the Brazilian version was used in this case.[24,25] Each group of statements consists of three phrases describing different intensities of suicidal behavior. Each of the first 19 items' scores range from 0 to 2, varying from 0 to 38 points; the higher values indicate a greater risk of suicide. It should be noted that the authors do not distinguish between different levels of suicidal risk, nor do they specify a cutoff point, especially given the fact that very low total scores can be associated with elevated suicide risks. A score above 0 identifies the presence of suicidal ideation in the week preceding the interview. Item 20 determines the history of attempted suicide. The researchers used item 20’s answer to divide patients in groups: group 1 for those who had never attempted suicide and group 2 to those that had attempted suicide at least once.[24] The internal consistency of the BSI instrument was α = 0.867; ω = 0.878 in the present study.

The Statistical Package for the Social Sciences (SPSS, v. 27) was used during the statistical analysis of data collected. The Chi-Square χ^2 test compared the sociodemographic categorical variables: prevalence of early-life stress subtypes between groups with and without attempted suicide. In the cases in which the tables' variables values were fewer than five cases, Fisher's exact test was used. The student's t-test compared the means of continuous variables while following symmetric distribution and Mann-Whitney for skewed distribution.

For the regression analyses, the researchers assessed the multicollinearity between the independent variable using Tolerance and the variance inflation factor (VIF). The lowest Tolerance value was 0.65 for emotional abuse, and the highest VIF was also for emotional abuse with 1.52; these results confirm the non-existence of multicollinearity.

A bivariate logistic regression analysis was also performed; in this case, a previous suicide attempt was defined as a response variable. These were the predictive variables: sociodemographic data, clinical characteristics, total CTQ score, and the dichotomous variables of the subtypes of early-life stress (EA, PA, SA, EN, and PN). Univariate analyses and hierarchical models were used to perform the multiple logistic regression to adjust the confounding factors related to sociodemographic and clinical variables. The researchers considered the CTQ score and each subtype as a predictor and then reported the coefficient B, Odds Ratio (OR) with the confidence interval, and the p-value for the logistic regressions.

RESULTS

The individuals in outpatient treatment during the collection period were 240. From this total, 135 could not be reached in therapy because they did not come to the health unit during the data collection period. Thus, the sample consisted of 105 subjects divided into two groups, group 1 consisting of participants who had never attempted suicide 72 (68.6%) and group 2 with individuals who had attempted suicide at least once 33 (31.4%) (Figure 1).

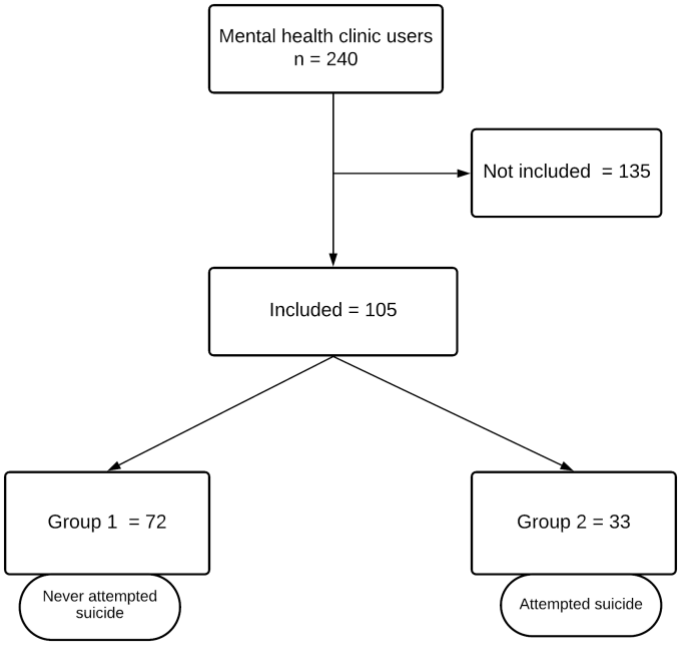

Figure 1

Flowchart of sample selection

Compared with those who had no history of attempted suicide, the participants that had attempted suicide (group 2) included a higher proportion of women ($\chi^2(1) = 10.05$; p=0.002) and were younger ($\chi^2(2) = 2.76$; p=0.25), with an average age of 35.85 (±11.14), significantly different between the two groups (t (103) = 2.14; p=0.03). In both groups, there was a predominance of black people ($\chi^2(2) = 3.26$; p=0.19), singles ($\chi^2(2) = 1.89$; p=0.38), with low levels of education ($\chi^2(3) = 0.19$; p=1.00) and unemployed ($\chi^2(1) = 0.11$; p=0.73). (Table 1).

Regarding the most consumed drug, a similarity was found between the two groups

Table 1

Sociodemographic and clinical characteristics of the groups with and without past suicide attempts (BSI) in drug users.

Variables	N (%) (N = 105)	Without attempt (N = 72)	With attempt (N = 33)	p
		N (%)	N (%)	
Sex				0.002*
Male	73 (69.5)	57 (79.2)	16 (48.5)	
Female	32 (30.5)	15 (20.8)	17 (51.5)	
Age (mean; sd)	39.49 (±11.96)	41.15 (±12.03)	35.85 (±11.14)	0.03*
Age group				0.25
20 – 29	24 (22.9)	15 (20.8)	9 (27.3)	
30 – 49	58 (55.2)	38 (52.8)	20 (60.6)	
50 and over	23 (21.9)	19 (26.4)	4 (12.1)	
Skin color				0.19
White	22 (21)	17 (23.6)	5 (15.2)	
Mixed race	33 (31.4)	25 (34.7)	8 (24.2)	
Black	50 (47.6)	30 (41.7)	20 (60.6)	
Marital status‡				0.38
Married	30 (28.6)	18 (25.0)	12 (36.4)	
Divorced	15 (14.3)	12 (16.7)	3 (9.1)	
Single	60 (57.1)	42 (58.3)	18 (54.5)	
Education‡				1.00
Illiterate	16 (15.2)	11 (15.3)	5 (15.2)	
Elementary education incomplete/complete	60 (57.1)	41 (56.9)	19 (57.6)	
Secondary education incomplete/complete	25 (23.8)	17 (23.6)	8 (24.2)	
Higher education incomplete/complete	4 (3.8)	3 (4.2)	1 (3.0)	
Work status				0.73
Active	31 (29.5)	22 (30.6)	9 (27.3)	
Inactive	74 (70.5)	50 (69.4)	24 (72.7)	
Primary drug consumed				0.48
Alcohol	53 (50.5)	38 (52.8)	15 (45.5)	
Crack	52 (49.5)	34 (47.2)	18 (54.5)	
Current suicide ideation (BSI)				<0.001**
No ideation	83 (79)	65 (90.3)	18 (54.5)	
Ideation	22 (21)	7 (9.7)	15 (45.5)	

BSI: Beck Scale for Suicide Ideation.

*<0.05; **<0.001; § Chi-square †Student t test; ‡ Fisher's exact test.

($\chi^2(1)$ = 0.48; p=0.48), with the highest prevalence of problematic alcohol use in group 1, 38 (52.8%) and consumption of crack in group 2, 18 (54.5%) (Table 1).

In the assessment of current suicidal ideation, the participants in the no attempt group (group 1) and with attempted suicide (group 2) differed significantly ($\chi^2(1)$ = 17.44; p<0.001). For the participants in group 2, 15 (45.5%) had a higher rate of suicidal ideation than those of group 1, 7 (9.7%).

Group 2 also showed significantly greater exposure to all abuse subtypes, such as EA, present in 69.7% of the group ($\chi^2(1)$ = 7.83; p=0.005), PA in 63.6% ($\chi^2(1)$ = 7.68; p=0.006) and SA present in 51.5% of group 2 ($\chi^2(1)$ = 4.25; p=0.03). Regarding the types of neglect, despite the high prevalence found in the sample, there was no significant difference between the two groups evaluated, both for EN ($\chi^2(1)$ = 0.38; p=0.84) and PN ($\chi^2(1)$ = 0.14; p=0.70) (Table 2).

Table 2

Prevalence of trauma dimensions, CTQ total score and trauma subtypes in groups of patients with and without past suicide attempts.

Variables	Total sample N = 105	Without attempt N =72	With attempt N = 33	p
Trauma prevalence	**N (%)**	**N (%)**	**N (%)**	
Emotional abuse	52 (49.5)	29 (40.3)	23 (69.7)	0.005*
Physical abuse	46 (43.8)	25 (34.7)	21 (63.6)	0.006*
Sexual abuse	39 (37.1)	22 (30.6)	17 (51.5)	0.03*
Emotional neglect	88 (83.8)	60 (83.3)	28 (84.8)	0.84
Physical neglect	97 (92.4)	67 (93.1)	30 (90.9)	0.70
Trauma intensity	**M (±DP)**	**M (±DP)**	**M (±DP)**	
CTQ score	62.65 (±16.43)	59.04 (±13.78)	70.52 (±19.06)	0.001*
Emotional abuse	13.04 (±5.49)	11.92 (±5.03)	15.48 (±5.73	0.003*
Physical abuse	10.58 (±5.86)	9.67 (±5.55)	12.58 (±6.10)	0.018*
Sexual abuse	8.58 (±5.62)	7.75 (±4.91)	10.39 (±6.65)	0.014*
Emotional neglect	15.48 (±5.47)	15.03 (±5.31)	16.45 (±5.76	0.21
Physical neglect	14.97 (±3.96)	14.68 (±3.76)	15.61 (±4.35)	0.19

CTQ: Childhood Trauma Questionnaire.

*p<0.05; X^2 Chi Square for categorical variables; Mann-Whitney U for continuous variables

Table 2 showed the total CTQ instrument's intensity and the subtypes of early-life stress when the score was considered a continuous variable. The CTQ score was compared between the two groups and showed a significant difference (U = 709.50, p=0.001), in which group 2 had a score of 70.52 (±19.06) whereas group 1 showed a score of 59.04 (±13.78). Also, the scores for the subtypes of early-life stress were the following: emotional abuse (U = 758.50; p=0.003), physical abuse (U = 849.50; p=0.01), SA (U = 861.00; p=0.001) emotional neglect (U = 1009.50; p = 0.21) and physical neglect (U = 1000.50; p=0.19). Several similarities were found between the types of neglect and significant differences between the types of abuse.

The univariate logistic regression analyses were performed considering the sociodemographic factors and those related to childhood stress subtypes in order to identify the different types of variables that predict previous suicide attempts. According to the regression, female patients are 4.03 times more likely to attempt suicide when compared to male patients (OR = 4.03; CI 95% = 1.66-9.81; p=0.002). The age was a protective factor for suicide attempts (OR = 0.96; CI 95% = 0.92-0.99; p=0.03). Among participants with suicidal ideation, the prevalence of attempted suicide is seven times higher than that of the group that did not have suicidal ideation (OR = 7.73; CI 95% = 2.74-21.84; p< 0.001).

The significant predictors of suicide attempts were the total CTQ score (OR = 1.04; CI 95% = 1.01-1.07; p=0.002) EA (OR = 3.41; CI 95% = 1.41-8.21; p=0.006), PA (OR = 3.29; CI 95% = 1.39-7.77; p=0.007) and SA (OR = 2.41; CI 95% = 1.03-5.63; p=0.04) that increased the risk for suicide attempt (Table 3).

Several hierarchical models of binary logistic regression were constructed using the total score for early-life stress and each of the trauma subtypes as predictors for suicide attempts as an outcome. The multivariate logistic regression analyses were performed with adjustments for possible confounding factors, including gender, age, and suicidal ideation. The total CTQ score (OR_a=1.03; CI 95%=0.99-1.06; p=0.05) and EA (OR_a = 3.28; CI 95%=1.31-9.21; p=0.006) continued to significantly predict attempted suicide with a three times greater chance of attempting suicide in those who had suffered EA (Table 4).

DISCUSSION

Those individuals diagnosed with substance use disorder reported a high prevalence of attempted suicide (31.4%) which is relatively higher than other studies assessing suicidal behavior in the general population.[26,27] The World Health Organization World Mental Health Survey estimated a 0.4% suicide attempt rate in the population of developing countries.[28]

The relationship between substance use disorder and suicide suggests that substance dependence can develop as an alternative to suicide; for instance, people may result to consume harmful substances to avoid suicidal thoughts. Furthermore, another explanatory model showed that suicide occurs due to negative experiences that accompany substance use disorder such as social exclusion, stigma, and discrimination.[29]

Regarding the sociodemographic characteristics of the group that has attempted suicide, they were females, young adults, black, of low education levels, single, and not in the labor market. It is important to note that sex is a determining factor in suicidal behavior, with higher ideation and suicide attempts among women. However, suicide death rates are generally higher in men as the methods chosen in suicide attempts are more lethal.[30] The higher prevalence of women that attempted suicide is probably due to their vulnerability to psychopathologies and psychosocial stressors that are blunt risk factors for suicidal behavior.[31]

Attempting suicide was also associated with age. There is an increase in the prevalence of suicide attempts in middle-aged people. This situation may relate to impulsive attitudes more frequently present in this age group and connected to social disintegration, such as unemployment and income inequality, and other determining factors for suicide attempts in middle-aged adults.[32]

Low social integration factors, such as lack of affective company, divorce (or lack of marriage), low education levels, unemployment, and being of black ethnicity were associated with attempted suicide. Such variables have been considered a distal risk for attempted suicide.[33-35]

Table 3

Univariate logistic regression of sociodemographic, clinical, and early-life stress subtypes related to suicide attempts in drug users.

Variable	B	OR (IC95%)	p
Sex			
Male		Ref.	
Female	1.39	4.03 (1.66 - 9.81)	0.002*
Age	- 0.04	0.96 (0.92 – 0.99)	0.03*
Age group			
20 – 29		Ref.	
30 – 49	- 0.13	0.87 (0.32 – 2.35)	0.79
50≥	- 1.04	0.35 (0.09 – 1.36)	0.35
Skin color			
White		Ref.	
Black	0.08	1.08 (0.30 – 3.89)	0.89
Mixed race	0.81	2.26 (0.72 – 7.13)	0.16
Marital status			
Married		Ref.	
Divorced	- 0.98	0.37 (0.08 – 1.61)	0.18
Single	- 0.44	0.64 (0.25 – 1.60)	0.34
Education			
Illiterate	0.31	1.36 (0.11 – 16.57)	0.80
Elementary incomplete/complete	0.32	1.39 (0.13 – 14.25)	0.78
Secondary incomplete/complete	0.34	1.41 (0.12 – 15.78)	0.78
Higher incomplete/complete		Ref.	
Work status			
Active		Ref.	
Inactive	0.16	1.17 (0.47 – 2.93)	0.73
Principal drug consumed			
Alcohol		Ref.	
Crack	0.29	1.34 (0.58 – 3.06)	0.48
Suicidal ideation (BSI)			
No ideation		Ref.	
Ideation	2.04	7.73 (2.74 – 21.84)	< 0.001**
Childhood traumas (CTQ)			
CTQ score	0.44	1.04 (1.01 – 1.07)	0.002*
Emotional abuse	1.22	3.41 (1.41 – 8.21)	0.006*
Physical abuse	1.91	3.29 (1.39 – 7.77)	0.007*
Sexual abuse	0.88	2.41 (1.03 – 5.63)	0.04*
Emotional neglect	0.11	1.12 (0.36 – 3.48)	0.84
Physical neglect	- 0.29	0.70 (0.16 – 3.32)	0.70

BSI: Beck Scale for Suicide Ideation; CTQ: Childhood Trauma Questionnaire. *p<0.05; **p<0.001; B Regression coefficient; OR Odds ratio; 95% CI 95% confidence interval; Ref. Reference category

Table 4

Hierarchical regression of the total score and subtypes of trauma in attempted suicide, controlling sex, age and suicidal ideation.

Variable	B	ORa (IC95%)	p
CTQ score	0.03	1.03 (0.99 – 1.06)	0.05*
Emotional abuse	1.22	3.12 (1.20 – 8.10)	0.006*
Physical abuse	0.76	2.14 (0.78 – 5.84)	0.13
Sexual abuse	0.53	1.70 (0.68 – 4.24)	0.24
Emotional neglect	0.57	1.78 (0.52 – 6.11)	0.35
Physical neglect	- 0.61	0.17 (0.10 – 2.81)	0.46

BSI: Beck Scale for Suicide Ideation; CTQ: Childhood Trauma Questionnaire.

*p< 0.05; B Regression coefficient; ORa Odds ratio adjusted; 95% CI 95% confidence interval

Most individuals with crack-use disorder (54.5%) had attempted suicide at least once in their lifetime. This result further describes the problem of addiction to this substance: the prevalence of consumption of which is considerable in Brazil due to ease of access.[2] Of the individuals who use alcohol as the primary drug of choice, the attempted suicide was high in 45.5% of users. That is consistent with the literature regarding the prevalence of suicide attempts among individuals with addiction or substance use disorder of various substances.[4]

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A total 21% participants were found to have had had suicidal behavior in the week before the interview, and 45% had a history of attempted suicide. Suicidal behavior beginning with suicidal ideation can continue with planning, attempting, and concluding,[36] making it crucial to assess and study individual profiles at different stages of suicidal behavior to adopt prevention strategies.

The high prevalence of exposure to different types of early-life stress highlights the importance of implementing therapeutic initiatives and practices to reduce the consequences of exposure to these factors. The group made up of participants who had already attempted suicide had a greater exposure to different types of abuse when compared to patients who had never attempted suicide in relation to emotional, physical and sexual abuse.

This result ties with previous studies that showed the relationship between exposure to stress and experiencing trauma early in life and suicidal behavior.[37] Also, individuals diagnosed with substance use disorder who attempted suicide had a prevalence of childhood exposure to EA, 50.5%, PA, 40.1%, and SA, 22.3%[38]. Early-life stress related to SA, PA, and EA was associated with a two to three times higher risk of suicide attempt.[16]

Trauma intensity was evaluated through the CTQ total score and the subtypes of abuse and neglect that support and reflect the severity of the problem in individuals who have attempted suicide according to the significant difference in

the average total score and emotional, physical and sexual abuse.

A biological explanation for the relationship between childhood trauma and suicide referred to epigenetic changes caused by early-life stress due to the hyperactivity of the hypothalamic-pituitary-adrenal axis and increased response to stress patients exposed to childhood trauma.[39] Trauma is also associated with epigenetic modification of the genes involved in neuronal plasticity, neuronal growth, and neuroprotection, which mediate the risk of suicide through long-term epigenetic regulation of genes.[30]

To estimate the contributions of sociodemographic, clinical, and traumatic characteristics, the researchers performed the simple logistic regression before the multiple regression, showing the significance of the variables related to sex, age, suicidal ideation, CTQ, and subtypes scores.

In this study, women were 4.03 times more likely to attempt suicide than men. This result is in line with evidence from other studies that estimate risks of up to twice as much attempting suicide in women.[40] Substance use is an aggravating factor for this behavior.

In a statistical model fully adjusted for sociodemographic and clinical confounding variables, the multiple logistic regression resulted in a trend in the total CTQ score (OR = 1.03; CI(95%) 0.99 - 1.06; p=0.05) and exposure to EA with three times higher chance of attempting suicide in patients who experienced this type of stress in childhood (OR = 3.12; CI(95%) 1.20 - 8.10; p=0.006). The other abuse types and neglect variables were mitigated by the possible confounding variables adjusted to the model.

This study had some limitations. The first concern was the sample size, since it was difficult to recruit participants due to the limited physical structure of the units. This is due to the lack of space to provide routine care while the research was being conducted. The second limitation concerns the cross-sectional design that does not allow for a cause-and-effect relationship between the suicide attempts and early stress in those individuals with substance use disorders over time.

In spite of these limitations, the study made a significant contribution to the scientific study of early stress and suicide attempts among people with substance-abuse disorders in Brazil. The implications of these results suggest the need to create prevention and early detection strategies for stressors experienced in childhood and adolescence among individuals who use drugs. A multidimensional approach is crucial to strengthen the substance abuse recovery interventions by health professionals, especially nurses, in clinical settings.

CONCLUSION

The obtained results showed that - in the sample studied - the exposure to early-life stress and the subtypes of physical, emotional, and sexual abuse were risk factors prevalent in the cases of attempted suicide. Furthermore, the results also showed that the drug-using participants with a history of emotional abuse were three times more likely to attempt suicide after adjusting for sociodemographic and clinical variables.

Thus, the history of physical, emotional, and sexual abuse in childhood has been found to be a risk factor for suicide attempt in this project's sample. Based on these data,it is possible to indicate a path to reduce these factors, strengthen protection in the prevention and treatment of children in vulnerable situations, and draw up prevention plans for young drug users at different healthcare levels.

CONFLICT OF INTEREST

None declared.

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