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Relação entre impulsividade e agressividade com transtornos mentais e risco de suicídio em usuários de cocaína/crack

Relationship between impulsivity and aggressiveness with mental disorders and suicide risk in cocaine/crack users

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A B S T R A C T

The purpose of this study was to determine the correlation between impulsivity/aggressivity traits and mental disorders in cocaine/crack users. A non-probabilistic sample of the 106 subjects from an out-patient center for homeless people and three therapeutics communities in Northeast Brazil was investigated. The version of the Mini International Neuropsychiatric Interview 5.0 was used to assess lifetime psychiatric disorder. Impulsivity and aggressiveness were used in the Barratt Impulsivity Scale (BIS-11) and Buss–Perry Aggression Questionnaire (BPAQ), respectively. Individuals in cocaine/crack use report heightened levels impulsive and aggressive behavior. Linear regression results showed a positive correlation between total impulsivity and abuse of alcohol in our population. Considering impulsivity subscores, low levels of motor impulsivity, suicide risk, generalized anxiety disorder and antisocial personality disorder were negatively correlated. Past hypomanic episode was correlated positively with high non-planning impulsivity scores. These findings highlight the need for a continual investigation of mental disorder and its link with aggressive and impulsive personality traits in the cocaine/crack patients and these data can contribute to stratification for continuity treatment for these patients. Aggressiveness was correlated inversely with suicide risk, psychotic, mood and anxiety disorders. These findings highlight the need for a continual investigation of mental disorder and its link with aggressive and impulsive personality traits in the cocaine/crack patients and these data can contribute to stratification for continuity treatment for these patients.

R E S U M O

O objetivo deste estudo foi verificar a correlação entre traços de impulsividade / agressividade e transtornos mentais em usuários de cocaína / crack. Foi investigada uma amostra não probabilística de 106 sujeitos de um ambulatório para moradores de rua e três comunidades terapêuticas no Nordeste do Brasil. A versão do Mini International Neuropsychiatric Interview 5.0 foi usada para avaliar o transtorno psiquiátrico ao longo da vida. A impulsividade e a agressividade foram utilizadas na Escala de Impulsividade de Barratt (BIS-11) e no Questionário de Agressão de Buss-Perry (BPAQ), respectivamente.

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Indivíduos em uso de cocaína / crack relatam níveis elevados de comportamento impulsivo e agressivo. Os resultados da regressão linear mostraram uma correlação positiva entre impulsividade total e abuso de álcool em nossa população. Considerando subescores de impulsividade, baixos níveis de impulsividade motora, risco de suicídio, transtorno de ansiedade generalizada e transtorno de personalidade anti-social foram negativamente correlacionados. Episódio hipomaníaco passado foi correlacionado positivamente com altos escores de impulsividade não planejada. Esses achados destacam a necessidade de investigação contínua do transtorno mental e sua ligação com traços de personalidade agressivos e impulsivos em pacientes com cocaína / crack e esses dados podem contribuir para a estratificação para a continuidade do tratamento desses pacientes. A agressividade foi correlacionada inversamente com risco de suicídio, transtornos psicóticos, de humor e de ansiedade. Perfil neuropsicológico em usuários de cocaína pode contribuir significativamente para um eficiente enfrentamento ao tratamento de transtornos mentais e risco de suicídio.

Introduction

Records from United Nations Office In Drugs and Crime showed that until 2019 approximately 275 million people consumed any drugs at least once, and 450 000 drug-related deaths. In this scenario, 33 million people who use drugs have some mental health disorders and they need immediate treatment (United Nations Office on Drugs and Crime, 2021). About 20 million people, 15–64, use cocaine around the world, which represents aboutb 0.4% of the world's population (United Nations Office On Drugs and Crime, 2021).

The cocaine/crack use have been linked to several mental disorders such as chronic depressive symptoms (Mukerji et al., 2017), suicide risk (da Silva et al., 2017), post-traumatic stress disorder (Narvaez et al., 2014), antisocial personality disorder (Narvaez et al., 2014) and anxiety disorders (Miguel et al., 2018). Additionally, cocaine/crack use was associated with impulsivity and aggression (Comín et al., 2016; Odell et al., 2017). However, the role of the impulsivity and aggressivity in the modulation to exacerbation mental disorders in drug users have been few investigated (Clingan et al., 2016).

Aggressive behavior and impulsivity are constructs of human nature that have been analysed as relevant variables to investigate phenotypes or traits of personality to the development of the mental disorders in research and in clinical practice (Dumais et al., 2005). From a neurobiological and psychological perspective, impulsivity is characterized by deregulation of the behavior impulsive for the individual or other people (Chamberlain & Sahakian, 2007). Impulsivity can modulate the relationship between intense feelings and act on them, such that more impulsive individuals may be more likely to engage in suicidal or violent behavior (Ammerman et al., 2015), development of depressive symptoms and substance use in adolescence (Felton et al., 2020), impulsivity and suicidality in depressive bipolar II (Palagini et al., 2019) and eating disorder and/or bulimia nervosa (Khairallah et al., 2019). Aggressiveness is a major health concern, that can be defined as the intent to injure another individual using either physical or psychological shapes with the potential to lead to violent actions. Subjects with bipolar disorder display more aggression than healthy people (Látalová, 2009), individuals with unipolar depression (Dervic et al., 2015), schizophrenia (Volavka, 2014) and violence during a manic phase (Ballester et al., 2014). In this study, we

investigated the influence of impulsive/aggressive behavior in the modulation of mental disorder in a sample of cocaine/crack users.

Methodology Procedure

Subjects

This is a cross-sectional study with a quantitative approach and non-probabilistic sampling for convenience. The sample consisted of 106 cocaine/crack users from a street dwellers' care center (n = 52) and three therapeutic communities (n = 54) in the city of Arapiraca, Alagoas, in northeastern of Brazil. Researchers recruited users aging ≥18 ages who met the criteria for dependence according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), which reported crack/cocaine use and cognitive ability to answer the questions. Exclusion criteria were a diagnosis of psychosis with the previous history of cocaine/crack use, mental retardation, neurological or any cognitive disorder recorded in medical records that could compromise the ability to participate in the study.

Instruments

MINI International Neuropsychiatric Interview (MINI version 5.0)

Data was collected through individual interviews, with a mean of sixty minutes, conducted for nursing and psychology post-graduate students and nurses trained for this propose. MINI International Neuropsychiatric Interview (MINI version 5.0) was used to investigate the main psychiatric disorders. MINI is consisted of a structured interview based on the Diagnostic and Statistical Manual 4º edition (DSM-IV-TR) and has a congruent diagnostic concordance with the Structured Clinical Interview for DSM-IV (SCID-IV) (Amorim, 2000).

MINI has demonstrated high specificity for each disorder evaluated and excellent inter-rater reliability (Sheehan et al., 1998). The MINI suicidality total score has been previously used to measure suicide risk in clinical populations (Hearon et al., 2015). Using MINI, it is possible to verify the presence of the following psychiatric disorders: major and recurrent depressive episode, dysthymic disorder, suicide risk, hypo/manic episode, panic disorder, agoraphobia, social phobia, obsessive-compulsive disorder, posttraumatic stress disorder, alcohol and substance dependence/abuse, psychotic syndrome, anorexia nervosa, bulimia nervosa, generalized anxiety disorder, and antisocial personality disorder. Suicide risk responds to 11 questions measuring suicidal ideation, strategies, preparation and attempt history. The risk of suicide is defined according to the final score and classified as: "low" (scores 1-5), "moderate" (scores 6-9) and "high" (scores > 10).

Barratt Impulsivity Scale (BIS-11)

Impulsivity symptoms were evaluated using the Brazilian version of Barratt Impulsivity Scale (BIS-11) (Malloy-Diniz et al., 2010), which is composed by subscales categorized as motor (quick reactions, restlessness), attentional (lack of focus on a task) and non-planning (proclivity for the present rather than the future). The BIS-11 items rank from 1 (rarely) up to 4 (almost always/always). The sum of responses provides total impulsivity scores ranging from 30 to 120 (Reise et al., 2013), with three sub-scores: motor (10 to 40), attentional (8 to 32) and non-planning (12 to 48).

Buss–Perry Aggression Questionnaire (BPAQ)

The Buss–Perry Aggression Questionnaire (BPAQ) (Buss & Perry, 1992) was applied to measure aggressiveness. This instrument consists of four subscales that included physical aggressiveness (AQP), verbal aggressiveness (AQV), anger (AQA), and hostility (AQH). BPAQ is a 5-point scale and the scores range from 29 to 145, with higher scores suggesting great symptoms of the aggression.

Ethics approval and consent to participate

The study was approved by the Ethics Committee from the Federal University of Alagoas and all participants provided a free and informed consent term (protocol nº 2.408.885 and CAAE 67643417.3.0000.5013).

Statistical analyses

Statistical analyses were executed using SPSS version 22.0 (Statistical Package for the Social Sciences, IBM, Armonk, New York, USA). The variables' normal distribution was tested using the Kolmogorov–Smirnov test and Shapiro–Wilk test. A descriptive statistic was carried out in the form of simple frequency, percentage, mean and standard deviation. Linear regression was conducted to investigate the correlations between each mental disorder and impulsivity and aggressivity scores. All statistical assessments were two-tailed and the level of significance was set at $p < 0.05$.

Results

Descriptive statistics

Participant's sociodemographic characteristics are described in Table 1. From the 106 patients, the majority were males (86.9%), mean of age 31.4 (SD±8.59) years, with a predominant range between 26 – 35 years (38.3%). Most parts of users (77.4%) reported living in the urban area, and 54.1% were mixed race. From total, 63.2% (n=67) did not completed

secondary school education, 41.1% (n= 44), with a mean of income between US$ 300.00 to 900.00 and 52.3% (n=56) reported having the evangelical religion. Most were single (75.7%), and 6.5% were divorced. The initial age drug use mean was 14.36±4.32 years, while for crack use was 20.37±7.28 years.

Table 1.

Sociodemographic characteristics.

Variable	Frequency	Percent (%)
Sex		
Male		86.9
Female		13.1
Age Mean (SD)	31.4 (SD±8.59)	
Race		
White	20.6	22
Black	21.5	23
Mixed race	46.7	50
Marital status		
Single	75.7	81
Married	9.3	10
Divorced	6.5	7
With partner (a)	7.5	8
Residence zone		
Urban	76.6	82
Rural	23.4	25
Scholarity		
Illiterate	4.7	5
High school complete	10.3	11
Incomplete high school	9.3	10
Secondary education	9.3	10
Incomplete secondary education	62.6	67
Graduate	1.9	2
Incomplete Graduated	1.9	2
Religion		
Candomblé	1.9	2
Espirita	1.9	2
Catholic	35.4	38
Evangelical Protestant	63.2	67
No religion	2.7	3

SD = standard deviation

Means and standard deviations of the BIS-11 and BPAQ items are provided in Table 2.

Table 2.

Means and standard deviations of the BIS-11 and BPAQ items.

	Mean (±SD)	Minimum	Maxime
Barratt Impulsivity Scale (BIS-11)			
Overall score	73.12 (10.5)	49	100
Attentional Impulsiveness	19.6 (5.35)	9	30
Motor Impulsiveness	25.6 (5.35)	16	37
Non-planning Impulsiveness	27.9 (5.23)	16	41
Buss–Perry Aggression Questionnaire (BPAQ)			
Overall score	89.2 (18.3)	26	127
Physical aggressiveness	20.1 (6.82)	7	35
Verbal aggressiveness	13.4 (4.03)	4	20
Hostility	36.5 (7.15)	10	50
Anger	21.6 (5.71)	6	30

SD = standard deviation

Correlation among impulsivity, mental disorders and suicide risk

Linear regression results showed a positive correlation between total impulsivity and abuse of alcohol in our population (B= 4.57; SE = 2.03; t= 2.25; β= 4.57; p=0.027), demonstrating that high impulsive traits are associated with more alcohol abuse. Considering impulsivity subscores, low levels of motor impulsivity, suicide risk (B = -2.28; SE = 1,02; t = -2,23; β= -2.280; p= 0.028), generalized anxiety disorder (B = -3.13; SE = 1.00; t = -3.13; β= -3.135, p= 0.002) and antisocial personality disorder (B= -3.21; SE = 0.99; t= -3.21; β= -3.211, p= 0.002) was negatively correlated. This indicated that the motor impulsivity modulates mood disorders and suicide risk in our sample. Past hypomanic episode was correlated positively with high non-planning impulsivity scores (B= 5,73; SE= 2,13; t= 2,68; β= 5.73; p= 0.009), indicating that subjects' users to cocaine crack with hypomaniac episode have high non-planning impulsivity levels (Table 3).

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Table 3.

Correlation among impulsivity, mental disorders and suicide risk.

	Impulsiveness											
		Overall			Motor			Attentional			Non-planning	
	r	B[SE]	p	r	B[SE]	p	r	B[SE]	p	r	B[SE]	p
Suicide risk	0.025	-3.90[2.02]	0.05	**0.037**	**-2.28[1.02]**	**0.02[b]**	0.019	-1.31[0.75]	0.08	-0.009	-0.30[1.02]	0.76
Addiction disorder												
Dependence of alcohol	-0.009	0.62[2.42]	0.79	-0.002	-1.10[1.22]	0.37	0.002	0.97[0.89]	0.27	-0.006	0.75[1.20]	0.53
Abuse of alchool	**0.037**	**4.57[2.03]**	**0.02[a]**	0.018	1.77[1.04]	0.09	0.004	0.90[0.77]	0.24	0.023	1.90[1.01]	0.06
Mood disorder												
Current major depressive episode	0.002	-2.40[2.17]	0.27	0.002	-1.20[1.10]	0.28	0.004	-0.95[0.80]	0.23	-0.009	-0.24[1.08]	0.82
Recurrent major depressive episode	0.001	-2.24[2.17]	0.30	-0.008	-0.42[1.11]	0.70	-0.007	-0.44[0.81]	0.58	0.006	-1.37[1.078]	0.20
Dysthymic disorder	0.007	-4.27[3.22]	0.18	-0.003	-1.38[1.64]	0.40	0.003	-1.37[1.20]	0.25	-0.001	-1.51[1.60]	0.34
Hypomanic episode actual	-0.010	0.05[3.13]	0.98	-0.007	-0.80[1.59]	0.61	-0.002	1.05[1.16]	0.36	-0.009	-0.19[1.55]	0.90
Past Hypomanic episode	-0.004	3.48[4.44]	0.43	0.003	-2.54[2.24]	0.26	-0.009	0.29[1.65]	0.85	**0.056**	**5.73[2.13]**	**0.009[e]**
Manic episode actual	0.002	-2.77[2.52]	0.27	0.001	-1.36[1.28]	0.29	0.016	-1.52[0.93]	0.10	-0.010	0.11[1.26]	0.93
Past Manic episode	-0.010	-0.24[2.95]	0.93	0.001	-1.54[1.49]	0.30	-0.007	0.55[1.09]	0.61	-0.007	0.74[1.46]	0.61
Anxiety disorder												
Lifetime panic disorder	0.021	-4.27[2.35]	0.07	0.021	-2.15[1.19]	0.07	0.010	-1.27[0.88]	0.15	-0.005	-0.83[1.18]	0.48
Panic attack symptoms	0.017	-4.78[2.83]	0.09	0.027	-2.82[1.43]	0.05	0.015	-1.707[1.05]	0.10	-0.009	-0.25[1.42]	0.85
Current panic disorder	0.000	-2.66[2.72]	0.33	0.011	-2.01[1.37]	0.14	0.021	-1.80[1.00]	0.07	-0.003	1.15[1.35]	0.39
Panic disorder without current agoraphobia	-0.010	0.14[2.95]	0.96	0.012	-2.24[1.48]	0.13	-0.008	0.40[1.09]	0.71	0.008	1.98[1.45]	0.17

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Panic disorder with current agoraphobia	0.017	-4.90[2.91]	0.09	0.020	-2.63[1.47]	0.07	0.018	-1.84[1.08]	0.09	-0.009	-0.42[1.46]	0.77
Agoraphobia	-0.006	-1.50[2.49]	0.54	0.005	-1.56[1.25]	0.21	-0.002	0.83[0.92]	0.36	-0.006	-0.78[1.23]	0.52
Social phobia	0.006	-3.07[2.44]	0.21	0.021	-2.23[1.22]	0.07	-0.005	-0.60[0.91]	0.50	-0.009	-0.23[1.22]	0.85
Obsessive compulsive disorder	0.006	-3.61[2.85]	0.20	-0.002	-1.27[1.45]	0.38	-0.004	-0.82[1.06]	0.44	0.001	-1.51[1.41]	0.29
Generalized anxiety disorder	-0.004	-1.54[2.05]	0.45	**0.077**	**-3.13[1.00]**	**<0.001**	-0.009	-0.24[0.76]	0.75	0.021	1.82[1.00]	0.07
Post traumatic stress disorder	0.002	-2.87[2.56]	0.26	0.023	-2.39[1.29]	0.06	-0.007	-0.82[1.06]	0.44	-0.010	0.001[1.28]	0.99
Psychotic disorder												
Psychotic syndrome actual	-0.010	-0.13[2.13]	0.95	-0.004	-0.83[1.08]	0.44	-0.008	0.28[0.79]	0.72	-0.008	0.41[1.05]	0.69
Lifetime Psychotic syndrome	-0.005	1.52[2.32]	0.51	-0.008	0.43[1.18]	0.71	-0.004	0.68[0.86]	0.42	-0.008	0.40[1.15]	0.72
Mood disorder with psychotic features actual	-0.004	2.67[3.51]	0.44	-0.009	0.55[1.78]	0.75	-0.008	0.56[1.30]	0.66	-0.002	1.55[1.74]	0.37
Lifetime Mood disorder with psychotic features	-0.009	0.71[3.03]	0.81	-0.009	-0.45[1.54]	0.76	-0.009	0.13[1.13]	0.90	-0.005	1.04[1.50]	0.49
Axis II disorders												
Antisocial personality disorder	0.022	-3.74[2.02]	0.06	**0.082**	**-3.21[0.99]**	**0.002[d]**	0.006	-0.95[0.76]	0.21	-0.008	0.42[1.02]	0.67

Values in bold presented significance in statistical analysis. r=Pearson's correlation; B = unstandardized coefficients; SE=standard error; β=standardized coefficients.

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Correlation among aggressiveness, mental disorders and suicide risk

Total aggressiveness was negatively linked with suicide risk (6.04%; B= -8.58; SE = 3.49; t= -2.41; β=-8.587, p= 0.016), lifetime panic disorder (4.85%; B = -8.96; SE = 4.06; t = -2.20; β= -8.962, p=0.030), social phobia (4.07%; B = -8.46; SE = 4.19; β= -8.466, p=0.046), lifetime mood disorder with psychotic features (4.84%; B= -11.3; SE = 5.16; t = -2.20; β= -11.368, p=0.030), generalized anxiety disorder (10.4%; B = -11.07; SE= 3.42; t=-3.23; β= -11.075, p=0.002) and antisocial personality disorder (4.56%; B = -7.52; SE = 3.52; t = -2.13; β= -7.524, p=0.035), indicating that lower total aggressiveness score are correlated with lower likelihood of mental disorders and suicide risk (Table 4).

Suicide risk also shows a negative correlation with physical aggressiveness (B=-4.11; SE=1.27; t = -3.22; β= -4.112, p= 0.002). Hostility was negatively linked with lifetime panic disorder (B=-4.18; SE=1.57; t = -2.66; β= -4.186, p=0.009), social phobia (B = -4.37; SE = 1.61; t = -2.71; β= -4.378, p= 0.008), post-traumatic stress disorder (B=-5.16; SE= 1.68; t = -3.07; β= -5.167, p= 0.003), lifetime mood disorder with psychotic features (B = -4.85; SE = 2.00; t = -2.41; β= -4.852, p= 0.017), generalized anxiety disorder (B = -3.51; SE = 1.36; t = -2.57; β= -3.511, p = 0.011) and antisocial personality disorder (B = -3.32; SE = 1.36; t = -2.42; β= -3.320, p= 0.017), indicating that the lower the likelihood of mental disorders and suicide risk higher the levels of hostility (Table 4).

Current major depressive episode (B = -2.62; SE = 1.16; t = -2.24; β= -2.625, p=0.027), lifetime mood disorder with psychotic features (B = -3.28; SE = 1.61; t = -2.03; β= -3.280, p=0.045) and generalized anxiety disorder (11.14%; B = -3.55; SE = 1.06; t = -3.33; β=-3.556, p=0.001) were negatively correlated with anger (Table 3), highlighted that lower scores of anger is found in these disorders. No correlations were found between attentional impulsivity or verbal aggression and mental disorders considered in this study (Table 3 and 4).

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Table 4.

Correlation among aggressiveness, mental disorders and suicide risk.

	Aggressiveness														
	R	Overall B[SE]	p	r	physical B[SE]	p	r	verbal B[SE]	p	r	hostility B[SE]	p	r	Anger B[SE]	p
Suicide risk	**0.046**	**-8.58[3.49]**	**0.01**	**0.083**	**-4.11[1.27]**	**0.002**	0.006	-1.07[0.84]	0.20	0.020	-2.44[1.38]	0.08	0.007	-1.45[1.11]	0.19
Addiction disorder															
Dependence of alchool	-0.009	-1.23[4.21]	0.77	0.000	-1.56[1.56]	0.31	-0.009	0.27[1.00]	0.78	-0.010	-0.08[1.64]	0.96	-0.010	-0.18[1.31]	0.89
Abuse of alchool	-0.007	1.91[3.62]	0.59	-0.006	0.78[1.35]	0.56	-0.005	0.58[0.86]	0.49	-0.009	0.26[1.41]	0.85	-0.004	0.83[1.12]	0.46
Mood disorder															
Current major depressive episode	0.014	-5.935[3.795]	0.12	0.002	-1.53[1.42]	0.28	0.004	-1.06[0.89]	0.23	0.000	-1.51[1.49]	0.31	**0.037**	**-2.62[1.16]**	**0.02**
Recurrent major depressive episode	0.004	-4.55[3.78]	0.23	0.003	-1.61[1.41]	0.25	-0.002	-0.79[0.90]	0.38	0.021	-2.64[1.46]	0.07	-0.009	-0.30[1.18]	0.80
Dysthymic disorder	0.009	-7.75[5.59]	0.16	0.020	-3.68[2.07]	0.07	-0.007	-0.67[1.35]	0.61	-0.002	-1.97[2.19]	0.37	-0.002	-1.61[1.75]	0.36
Current hypomanic episode	-0.007	-2.91[5.44]	0.59	0.005	-2.46[2.01]	0.22	-0.007	-0.61[1.30]	0.63	-0.009	-0.56[2.13]	0.79	-0.009	-0.39[1.70]	0.81
Past Hypomanic episode	-0.003	-6.30[7.71]	0.41	-0.008	1.04[2.88]	0.71	0.002	-2.31[1.84]	0.21	-0.002	-2.74[3.01]	0.36	-0.001	-2.30[2.40]	0.33
Current manic episode	-0.002	-3.80[4.39]	0.38	-0.009	-0.26[1.64]	0.87	-0.007	-0.49[1.05]	0.63	-0.005	-1.22[1.72]	0.48	0.007	-1.81[1.36]	0.18

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Past Manic episode	-0.008	-1.84[5.13]	0.72	-0.010	0.17[1.91]	0.92	-0.007	-0.67[1.22]	0.58	-0.004	-1.57[2.00]	0.43	-0.010	0.06[1.60]	0.96
Anxiety disorder															
Lifetime panic disorder	**0.036**	**-8.96[4.06]**	**0.03**	0.006	-1.94[1.53]	0.20	0.020	-1.73[0.98]	0.08	**-0.009**	**-4.18[1.57]**	**0.009**	0.010	-1.83[1.28]	0.15
Panic attack symptoms	0.004	-6.00[4.96]	0.22	-0.008	-0.70[1.86]	0.70	-0.005	-0.85[1.19]	0.47	-0.001	-1.82[1.94]	0.35	0.012	-2.32[1.54]	0.13
Current panic disorder	0.007	-6.17[4.72]	0.19	0.005	-2.16[1.76]	0.22	0.002	-1.22[1.13]	0.28	0.007	-2.45[1.84]	0.18	-0.008	-0.68[1.48]	0.64
Panic disorder without current agoraphobia	0.003	-5.88[5.10]	0.25	-0.006	-1.22[1.90]	0.52	-0.005	-0.83[1.22]	0.49	0.007	-2.58[1.99]	0.19	0.003	-1.80[1.59]	0.26
Panic disorder with current agoraphobia	-0.005	-3.63[5.12]	0.48	-0.003	-1.61[1.90]	0.40	-0.004	-0.91[1.22]	0.45	0.003	-2.27[1.99]	0.25	-0.008	0.61[1.60]	0.70
Agoraphobia	-0.006	-2.67[4.33]	0.53	-0.003	-1.36[1.61]	0.40	-0.008	0.41[1.03]	0.69	-0.009	-0.48[1.69]	0.77	-0.003	-1.10[1.35]	0.41
Social phobia	**0.026**	**-8.46[4.19]**	**0.04**	0.006	-2.01[1.58]	0.20	0.009	-1.41[1.01]	0.16	**0.058**	**-4.37[1.61]**	**0.008**	0.007	-1.74[1.32]	0.19
Obsessive compulsive disorder	0.008	-6.67[4.95]	0.18	0.010	-2.62[1.84]	0.15	-0.008	-0.48[1.19]	0.68	-0.004	-1.52[1.94]	0.43	0.007	-2.02[1.54]	0.19
Generalized anxiety disorder	**0.083**	**-11.0[3.42]**	**0.002**	**0.058**	**-3.52[1.29]**	**0.008**	0.004	-1.03[0.85]	0.22	**0.051**	**-3.51[1.36]**	**0.01**	**0.089**	**-3.55[1.06]**	**<0.001**
Post traumatic stress disorder	0.026	-8.53[4.41]	0.05	-0.009	-0.58[1.67]	0.72	0.006	-1.35[1.06]	0.20	**0.075**	**-5.16[1.68]**	**0.003**	0.020	-2.45[1.37]	0.07
Psychotic disorder															
Current psychotic syndrome	-0.006	-2.30[3.71]	0.53	-0.008	-0.49[1.38]	0.72	-0.010	-0.001[0.88]	0.99	0.006	-1.85[1.44]	0.20	-0.010	-0.01[1.15]	0.99
Lifetime Psychotic syndrome	-0.008	1.71[4.05]	0.67	-0.004	1.18[1.50]	0.43	0.001	1.00[0.95]	0.29	-0.009	-0.42[1.58]	0.78	-0.009	0.40[1.26]	0.74
Mood disorder with psychotic features	0.000	-6.05[6.09]	0.32	-0.009	-0.71[2.27]	0.75	-0.009	0.16[1.40]	0.90	0.019	-4.11[2.35]	0.08	-0.008	-0.71[1.90]	0.71

Lifetime Mood disorder with psychotic features	**0.036**	**-11.3[5.16]**	**0.03**	0.009	-2.70[1.95]	0.16	-0.009	0.09[1.23]	0.93	**0.044**	**-4.85[2.00]**	**0.01**	**0.029**	**-3.28[1.61]**	**0.04**
Axis II disorders															
Antisocial personality disorder	**0.033**	**-7.52[3.52]**	**0.03**	0.022	-2.42[1.31]	0.06	0.016	-1.40[0.84]	0.10	**0.045**	**-3.32[1.36]**	**0.01**	-0.003	-0.92[1.11]	0.41

Values in bold presented significance in statistical analysis. r=Pearson's correlation; B = unstandardized coefficients; SE=standard error; β=standardized coefficients.

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Discussion

The present study demonstrated a connection among impulsivity/aggressiveness, cocaine/crack addicts and mental disorders and identified higher impulsivity and aggression scores in the cocaine/crack user population, as previously described (Miguel et al., 2018; Nuijten et al., 2016). Several evidences have shown that impulsivity and aggressiveness are important predictors in the evaluation of the neuropsychological impact and substance use disorders (Alcorn et al., 2013; Chamorro et al., 2012; Tomás et al., 2016) and mental disorders (Carli et al., 2014; Pikó & Pinczés, 2014).

The data obtained in this study found that total impulsivity correlated with alcohol abuse and nonplanned impulsivity with past symptoms of hypomania. Motor impulsivity was inversely correlated with suicide risk, generalized anxiety disorder and antisocial personality disorder. In our study we observed that total impulsivity regulates the profile of the alcohol abuse, indicating that higher scores of impulsivities are related to the increase in the vulnerability to alcohol misuse in cocaine/crack users. Similar results were found in Canadian Adolescents with Bipolar Disorder in excessive alcohol use (Scavone et al., 2018), current heavy episodic drinking (Berey et al., 2017) and in a review about risk factors of the alcohol use (Yang et al., 2018). These results are in accordance to the link between cocaine use and increased impulsive pattern observed in vivo (Simon et al., 2007) (and impulsivity relationship with alcohol abuse (Winstanley et al., 2010). Indeed, impulsivity, may play a key role in the linkage between stress and alcohol dependence, since impulsivity is a major risk factor for addiction and its development is influenced by environmental reasons (Elam et al., 2016; Lovic et al., 2011).

The past hypomanic episode was correlated positively with non-planning impulsivity. The role of impulsivity to past hypomanic symptoms was previously described in the literature (Benazzi, 2007) where it identified that number of past hypomania symptoms included irritable mood, talkativeness, increased goal-directed activity was correlated with presence trait elevated impulsivity in Americans. Explore non-planning impulsivity is relevant to has investigated as risk assessment for morbidity and as a therapeutic target in addicts.

Interestingly, among the BIS-11 factors, subjects categorized as suicide risk, generalized anxiety disorder, and antisocial personality disorder has inversely proportional mediation to motor impulsivity. These results are different from a case-control conducted in a population of adolescents in Tunisian with major depressive disorder (Khemakhem et al., 2017), in psychiatric inpatients with multiple versus single lifetime suicide attempts (Colborn et al.,

2017), in a sample of the generalized anxiety disorder patients (Pierò, 2010) and short-term prisoners with antisocial personality disorder (Lang et al., 2014) where the motor impulsivity correlated positively with these mental changes.

Aggressive symptoms were linked inversely with suicide risk, lifetime panic disorder, social phobia, lifetime mood disorder with psychotic features, generalized anxiety disorder, and antisocial personality disorder. Considering aggressive factors, physical aggressiveness was correlated with suicide risk whereas that hostility was linked with lifetime panic disorder, social phobia, post-traumatic stress disorder, lifetime mood disorder with psychotic features, generalized anxiety disorder, and antisocial personality disorder. Current major depressive episode, lifetime mood disorder with psychotic features and generalized anxiety disorder were negatively correlated with anger.

Aggressiveness total scores and factors were linked negatively with mental disorders investigated by MINI, suggesting that these findings are independent of aggression associated with development to mental disorders in our population of cocaine/crack dependents. Differently, in Chinese college students was found that aggressive traits correlated with a higher risk of suicidal ideation (Huang et al., 2019), general inpatients with serious mental illnesses (Li et al., 2019). Another research compares adults with and without attention deficit hyperactivity disorder and aggression behavior and illicit drug use and was found interaction between attention deficit hyperactivity disorder and verbal medium and high levels aggression with prediction to crack abuse (Odell et al., 2017).

Another study showed that aggression and impulsivity were linked with sex exchange for drug use (Clingan et al., 2016). While in Brazilian sample, after analysis multivariate was possible found the relation between lifetime use of crack cocaine with traits of aggression and firearm custody as well more likely to perform unprotected sex the first sex (Narvaez et al., 2014). Disparities between the results identified here with those of previously published literature may be due to regional disparities, including environmental exposures, which need to be investigated in new studies to improve understanding of this negative interaction.

The knowledge about the dimensions of the relationship between and impulsivity and aggression in cocaine and crack users becomes relevant to the extent that it has direct implications in conducting the treatment of the addict. Such scores are really predictive for prior identification of harmful thoughts and behaviors, which when added to clinical practice becomes an important and effective risk marker for the patient and thus proposes interventionist strategies for cocaine and crack users, as health education of professionals to better deal with situations or education and coping strategies for treatment for addiction.

Our findings suggest that the BIS-11, Buss–Perry Aggression Questionnaire and subscales, may be a potentially valuable candidate endophenotype for mental disorders in cocaine/crack users. Cocaine/crack individuals report elevated scores in relation to impulsivity

and aggressivity measures and they can modulate to psychiatry disorders. Further longitudinal studies with childhood trauma exposures and including larger sample size, possible implications polymorphisms on the profile neuroinflammation and genic expression are needed to enhance the prediction of these results and better understand the interaction between impulsivity, aggressivity and outcomes of psychiatry disorders in the population cocaine/crack users.

Conclusion

Knowledge about the profile of impulsiveness and aggressiveness and its relationship with the modulation of mental disorders and the risk of suicide can provide professionals who provide assistance to cocaine and crack users can indicate paths to therapeutic success. In this way, the investigation of such a profile in crack cocaine users is fundamental for the understanding of the individual, their difficulties and characteristics, which are part of the process of coping with detoxification and rehabilitation, as well as being vital for the health-disease process. mental. It is interesting that health professionals are able to identify such associations to effectively direct the user's treatment.

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