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Association between drug use and urban violence: Data from the II Brazilian National Alcohol and Drugs Survey (BNADS)

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ABSTRACT

Objective: To investigate the association of alcohol and cocaine use with urban violence (both as victim and as perpetrator) in a representative sample of the Brazilian population.
Method: The Second Brazilian Alcohol and Drugs Survey (II BNADS) interviewed 4607 individuals aged 14 years and older from the Brazilian household population including an oversample of 1157 adolescents (14 to 18 years old). The survey gathered information on alcohol, tobacco and illegal substances use as well as on risk factors for abuse and dependence, behaviors associated with the use of substances and the possible consequences, as urban violence indicators.
Results: Approximately 9.3% of the Brazilian population has been victim of at least one form of urban violence. This proportion increases to 19.7% among cocaine users and to 18.1% among individuals with alcohol use disorders (AUD). Perpetration of violence was reported by 6.2% of the sample. Cocaine use and AUD increased in almost four times the chances of being an aggressor. Being religious and married decreased the chances of being a victim and/or perpetrador of urban violence. Higher education also decreased the chances of involvement in both victimization or perpetration of violence. Both Parallel Mediation Models considering cocaine use as a predictor of urban violence (victimization or perpetration) were valid and alcohol consumption and depressive symptoms were mediators of this relationship.
Conclusions: This study presents relevant data of interest to Brazil as this country is one of the major consumer market of cocaine and also is among the most violent countries worldwide.

1. Introduction

The association between violence and the consumption of psychoactive substances has been extensively studied worldwide (WHO, 2005, 2009). The World Health Organization defines violence as “the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, mal-development or deprivation” (WHO, 2002). Degenhardt and colleagues suggested that the burden of disease attributable to illicit drugs consumption should take into account the consequences of violence associated with drug use (Degenhardt et al., 2013; Degenhardt, Whiteford, & Hall, 2014).

Alcohol and stimulants are known to be important contributors to many risk behaviors and a myriad of undesirable outcomes, such as mental and physical health complications, suicide, traffic accidents, injuries and violence (Gomez & Barrera, 2008; Proescholdt, Walter, & Wiesbeck, 2012; Sousa, Correia, Ramos, Fraga, & Barros, 2009). Some acute effects of alcohol and stimulants may act to increase the probability of certain injuries (Gillet, Polard, Mauduit, & Allain, 2001). Evidence shows that alcohol consumption reduces inhibitions and increases aggressive behaviors in men (Hoaken & Stewart, 2003). Cocaine and other stimulants also trigger impulsive behaviors and aggression (Anderson & Bokor, 2012), and these effects are magnified by the combination of these two substances, which commonly occurs among users (Macdonald, Erickson, Wells, Hathaway, & Pakula, 2008; Vitale & van de Mheen, 2006).

Urban violence has grown into a major public concern in Brazil, but studies measuring its social and economic burden are scarce. According to “Global Study on Homicide, 2013” Brazil had 50,108 homicides in

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2012, which represents just over 11% of all the 437,000 murders committed globally, harboring one in ten of all homicides committed in the world and placing the country as the 16th most violent (UNODC, 2013). It is estimated that murder rates reach 25.2 per 100 thousand inhabitants in the country, which is four times higher than the world average of 6.2 per 100,000 people (UNODC, 2013). Not surprisingly, a 2009 national survey estimated that 47.2% of Brazilians did not feel safe in the city where they lived (IBGE, 2009). In addition, deaths caused by firearms among people aged 15 to 29 years increased 414% in ten years (Waiselfisz, 2013) in Brazil, where close to 1 million people have died as a consequence of gunshot wounds between 1980 and 2014 (Waiselfisz, 2016).

The identification of violence predictors and correlates are essential to elaborate preventive initiatives (WHO, 2002). Combining the country's worrying rates of violence (J. Murray, Cerqueira, & Kahn, 2013), with the elevated alcohol and crack/cocaine use rates (Abdalla et al., 2014), it becomes indispensable to establish and understand the association between the use of these two drugs and urban violence. This study aims to estimate the rates of different indicators of urban violence in a nationally representative sample of Brazil. Further, it also aims to assess the association between violent behavior with the most consumed illicit substances in the country and alcohol use. We propose possible pathways linking cocaine and alcohol consumption to urban violence as well as depressive symptoms, since this comorbidity is frequent and may have common brain mechanisms (Arango-Lievano & Kaplitt, 2015) and for the fact that depression may be associated with physical and psychological aggression by substance misusers (R. L. Murray et al., 2008).

The hypothesis underlying our investigation are: 1) there is an association between alcohol and cocaine use and urban violence (victimization and perpetration); 2) these associations remain significant even when adjusting for all sociodemographic variables; 3) alcohol misuse and depressive symptoms will have a mediator effect in the path between cocaine use and urban violence.

2. Material and methods

2.1. Sampling and procedures

The Second Brazilian National Alcohol Survey (BNADS) was conducted in 2012. A multistage cluster sampling procedure was used to select 4607 individuals aged 14 years and older from the Brazilian household population including an oversample of 1157 adolescents (14 to 18 years old). The overall response rate was 77% and the adolescents oversample response rate was 79%. A complete description of the BNADS method was previously published by Abdalla et al. (2014).

2.1.1. Ethics

All respondents granted their informed consent and the interviews complied with all statements required by the Brazilian Ministry of Health Ethical Comitee Office (CAAE: 61909615.0.0000.5505) and the Ethics Committee of the Federal University of Sao Paulo.

2.2. Measurements

2.2.1. Sociodemographic variables

In this analysis, all the main sociodemographic variables were assessed - sex, age (used as continuous variable and as categoric: 0 = 15 to 24 years old (YO), 1 = 24 to 34 YO, 2 = 35 to 44 YO and 4 = 45 to 64 YO), education (schooling years, used as continuous variable and as categoric: 0 = up to 8 years 1 = 9 to 12 and 2 = 13 or more); personal income (used both as a continuous variable and categoric: 0 = up to three minimum salaries 1 = 3 to 4 MS and 2 = 5 or more MS); religion (yes/no binary variable) and marital status (binary variable: 0 = living alone (single or widowed or separated) and 1 = cohabiting (married or living with someone).

2.2.2. Substance use

In order to guarantee confidentiality, questions related to illicit drug use were not asked face-to-face, but self-reported separately by the participant alone, using a standard form, which was collected at the end of the interview and placed in sealed envelopes, which were then placed in sealed bags in front of the respondent. The questions used for this paper were:

Cocaine use – Previous year cocaine use (binary yes/no variable) was assessed using the sealed envelope method. All cocaine users were polydrug users.

Alcohol use – A continuous variable of number of drinks consumed in a typical day (in alcohol) units was measured with the assistance of a unit/drinks demonstration chart. This index was tested in the conditional model.

DSM-5 alcohol use disorder (AUD) - This was assessed with the Brazilian version of the Composite International Diagnostic Interview (CIDI 2.1) (Quintana, Jorge, Gasta, & Miranda, 2004). Although this survey pre-dates DSM-5, the questionnaire included a question about craving, which allowed for the creation of a diagnosis based on DSM-5 criteria, covering the eleven criteria included in the DSM-5. According to DSM-5 criteria, in the analysis herein, the presence of 2 or more criteria in the past 12 months was considered a positive diagnosis of AUD.

2.2.3. Urban violence (UV)

The assessment of urban violence was divided into two categories: victimization and perpetration. Each of these was composed by combining three indicators generating two dichotomic variables: UVV and UVP. A code of 1 was given when participants answered positively to at least one of the following violence related events.

Victimization (UVV): 1) being threatened by a weapon: "*In the last 12 months, did someone threatened or hurt you with a weapon as a gun or a knife*?; 2) Being the victim of assault: "*In the last 12 months, have you been victim of an assault*?" and 3) Being victim of rape: "*Have you ever been forced (a) to have sex with someone*?"

Perpetration (UVP): 1) being involved in fights with physical aggression: "*In the last 12 months, did you get into a fight with physical aggression in which you got hurt and had to be treated by a doctor or nurse*?" 2) Going out armed: "*Over the past 30 days, did you go out armed with a gun or a knife*?" and 3) being charged by police: "*In The last 12 months have you been detained by the police or have a police report*?"

2.2.4. Depressive symptoms

Assessed using the Brazilian validated version of the 20-item Center for Epidemiological Studies Depression Scale (CES-D) (Batistoni, Neri, & Cupertino, 2007). The CES-D Scale measures the experience of depressive symptomatology during the past week. The items assess cognitive, affective, behavioral, and somatic symptoms of depression, and positive affect. Each item is rated on a 4-point scale ranging from 0 = rarely or none of the time (less than 1 day) to 3 = most or all of the time (5–7 days). A total score is calculated by summing the responses after reversing the positive affect items. Higher scores reflect greater