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Impulsivity is relevant for trauma exposure and PTSD symptoms in a non-clinical population

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ABSTRACT

Impulsivity is a relevant construct for explaining both normal individual differences in personality and more extreme personality disorder, and is often investigated within clinical populations. This study aims to explore the college students' impulsivity patterns and to investigate the association across levels of impulsivity with trauma exposure and PTSD development in a non-clinical population. A one-phase census survey of seven college institutions assessed 2213 students in three metropolitan regions of Northeastern Brazil. All subjects anonymously completed a self-applied protocol consisting of: a socio-demographic questionnaire, *Trauma History Questionnaire* (THQ), *PTSD Checklist* (PCL-C), and *Barratt Impulsiveness Scale* (BIS-11). The median for frequency of trauma exposure was 4 events for people with low and normal impulsivity, and 6 for highly impulsive ones. Individuals with higher impulsivity presented earlier exposition than non-impulsive ones, and worst outcome: 12.4% with PTSD, against 8.4% and 2.3% (normal and low impulsivity). Of the three factors of impulsivity, the Attentional factor conferred the strongest association with PTSD development. Results suggest that impulsivity is also a relevant trait in a non-clinical population and is associated with trauma exposure and PTSD. Strategies to promote mental health in adolescents may be pertinent, especially with the aim of managing impulsivity.

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1. Introduction

Since the inception of PTSD as a concept, impulsive behavior has been recognized as an associated feature (American Psychiatric Association, 1980). Some researchers have even asserted that PTSD could be characterized in terms of generalized impulsivity (Goodwin and Guze, 1984; Helzer et al., 1987). Nevertheless, the association between impulsivity and PTSD is still underexplored; when present, it has usually been in a clinical sample, and mostly comorbid with other psychiatric disorders (Stanford et al., 2009).

Impulsivity is an essential trait of personality, relevant to explaining normal individual differences—not always with negative consequences (Cloninger, 1987; Costa and McCrae, 1985; Eysenck and Eysenck, 1977; Zuckerman, 1979)—as well as a wide range of

psychiatric disorders such as substance abuse, suicide, personality disorders, bipolar disorder, antisocial behavior, attention-deficit/hyperactivity disorder (American Psychiatric Association, 1994; Barratt et al., 1997; de Wit, 2009; Links et al., 1999; Nigg, 2003; Swann et al., 2008).

Difficulty restraining impulses also increases potentially risky behavior, such as overspending, getting into fights, self-harming behavior, breaking the law, engaging in risky sexual behavior (Jenkins et al., 2015; Krueger et al., 2007). It means that impulsivity increases the risk of exposure to potentially traumatic stimuli, as well as for PTSD development, creating a complex contribution among neurobiological factors, as well as personality traits, and social environment (Braquehais et al., 2010).

In relation to specific psychological traits and neurobiological functions, impulsivity is associated with a tendency to respond to internal or external stimuli without forethought and without regard to the negative consequences (Caci et al., 2003; Moeller et al., 2001); difficulty persisting in tasks or a diminished ability to focus

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(Lejuez et al., 2010); increased sensitivity to reward and punishment and a diminished ability to delay gratification (Ainslie, 1975; Gray, 1987); a tendency to act on the spur of the moment, with poor future planning (Patton et al., 1995; Whiteside and Lynam, 2001); and a diminished ability to regulate emotion (Whiteside and Lynam, 2001).

One of the most influential models in the explanation of impulsive behavior was proposed by Barratt and Stanford (1995), involving biological, psychological and behavioral aspects. Barratt also created the first self-report measure of impulsiveness, which became the gold-standard measure, and the most widely used self-report impulsiveness scale on psychiatric in both research and clinical settings (Barratt, 1959; Reise et al., 2013; Vasconcelos et al., 2012).

The Barratt Impulsiveness Scale (BIS-11) is a 30 item self-report instrument, designed to measure 3 theoretical subtraits of impulsivity: Attentional (lack of focus on the ongoing task), Motor (acting without thinking), and Non-Planning (lack of “futuring” or forethought) (Patton et al., 1995). According to Stanford et al. (2009) in their review of the BIS usage, although many researchers agree with Barratt’s conclusion that impulsivity is a multi-faceted construct, the majority of studies using the BIS-11 have reported only the total score, ignoring the second-order subscale. This leads to a less accurate perspective in the characterization of an individual’s impulsiveness, and its relationship with different clinical syndromes. Stanford et al. (2009) also suggests that a BIS-11 total score has as normal limit for impulsiveness, with a good concurrent validity.

In spite of Post-traumatic Stress Disorder (PTSD) being a particularly interesting disorder for increasing the understanding of impulsivity, PTSD studies using BIS-11 are rare. Also, the scale has been used mostly within clinical populations, rarely reporting the second-order subscale scores (Malloy-Diniz et al., 2010).

We are unaware of any existing research that studies impulsivity among college students in a population-based design, although these young, and naturally more impulsive group, were shown to be at-risk for exposure to violence and other traumatic situations (Netto et al., 2010; Rigotti et al., 2004; Wechsler and Nelson, 2008), as well as for developing PTSD (Netto et al., 2013). The aim of this study was to explore the impulsivity pattern of Brazilian college students and to investigate the association across levels of impulsivity with trauma exposure and PTSD development in this non-clinical population.

2. Methods/Design

2.1. Study design

A one-phase census survey of seven college institutions in three metropolitan regions in Northeastern Brazil.

2.2. Setting

Brazil has 27 states, of which 9 belong to the Northeastern region and represent 6 of the 10 most violent states in the country (Waiselfisz, 2012). Also, among the 50 cities ranked most violent in the world, 19 are in Brazil; among the 20 most violent cities in the world, 6 are in Northeastern Brazil (Sanchez, 2015). According to census data on college education, the Northeastern region of the country has become the region with the second-highest concentration of undergraduate students (INEP, 2011). This represents a significant segment of Brazilian society that has been poorly investigated.

2.3. Sampling procedure

Seven college institutions were selected for reasons of convenience in three urban areas of Bahia and Paraiba states. In order to select representative college institutions, we sought to include three public (2 federal and 1 state) and four private colleges in Northeastern Brazil. Since students very often attend university outside their native city, efforts were made to capture a broad profile of Northeastern college students by selecting colleges with student high migration rates (Fonaprace, 2011). Due to budget limitations, we also selected universities according to their accessibility in terms of distance from our work location.

The preparatory procedures for the collection began in October 2010, with a pilot application in 30 undergraduate students. From February to April 2011, 18 college students were trained to work as investigators together with the three main researchers (LRN, JLP, JRFN). The training course comprised a 10-h theoretical module, followed by a field application conducted by the authors and regular subsequent supervision meetings.

On March 2011, classes from all academic departments of the 7 institutions were chosen for each program. From April to July 2011 the data were collected. The inclusion criteria were: all students from their first and final semester in all academic areas, matriculated at the university and attending classes, aged 18 years or older.

From the 2589 eligible students, 2213 were included (85.5%); 307 declined to participate (11.8%), and 69 (2.7%) did not conclude the questionnaires.

2.4. Measurements

The self-applied protocol included a fully structured socio-demographic questionnaire along with three scales, which had been previously translated and adapted to Brazilian Portuguese. All participants answered the full assessment anonymously, which lasted approximately 20–30 min.

2.4.1. Socio-demographics

Included gender, age, marital status, employment status, parents’ educational level, annual family income, migration history, and parents’ marital status.

2.4.2. Exposure to traumatic events

Assessed through the Trauma History Questionnaire (THQ) (Fiszman et al., 2005), which is a list of 23-items that examines experiences with potentially traumatic events using a yes/no format, and includes 1 item that allows subjects to report on any personal experiences that were not captured in the other items. Information on the frequency and age(s) at the time(s) of exposure was also obtained. At the end, participants are asked to select, from the items identified on the THQ, the event they found the most distressing. The Brazilian version of THQ has received a transcultural adaptation (Fiszman et al., 2005) which is widely accepted.

2.4.3. Mental health

- a) PTSD (assessed through the PTSD Checklist-PCL-Civilian): the instrument is comprised of 17 items based on the diagnostic criteria of the DSM-IV for PTSD. The Brazilian version of PCL-C received a transcultural adaptation (Berger et al., 2004; Bringhenti et al., 2010; Wilkins et al., 2011), considered satisfactory. In this study the diagnosis was made combining two methods to improve accuracy, ensuring that an individual has sufficient severity as well as the necessary pattern of symptoms required by the DSM-IV. The first method requires

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