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Research article

Adverse childhood experiences: Prevalence and related factors in adolescents of a Brazilian birth cohort☆

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A B S T R A C T

Adverse childhood experiences (ACEs) can affect people's health and wellbeing not only at the time the ACE is experienced, but also later in life. The majority of studies on ACEs are carried out in high-income countries and little is known about its prevalence in low and middle-income countries. Thus, the aim of this study was to assess the prevalence of ACEs, associations between ACEs and sociodemographic factors, and the interrelationship between types of ACEs in adolescents of a Brazilian birth cohort. Data from 3,951 adolescents (78.4% of the original cohort) from the 1993 Pelotas Cohort were analyzed. Seven types of ACEs were assessed in those up to 18 years old: physical abuse, sexual abuse, physical neglect, emotional neglect, domestic violence, parental separation and parental death. The most common ACE was parental separation (42%), followed by emotional neglect (19.7%) and domestic violence (10.3%). Approximately 85% of the adolescents experienced at least one ACE, and females reported a higher number of adversities. Several socioeconomic, demographic and family-related characteristics were associated with the occurrence of ACEs, e.g. non-white skin color, low family income, low maternal schooling, absence of mother's partner, maternal smoking, and poor maternal mental health. A strong interrelationship was observed among the ACEs, indicating clustering of risk. These aspects should be considered by health and social care professionals in the prevention and identification of childhood adversities.

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Introduction

Adverse childhood experiences (ACEs) correspond to sources of stress that people may suffer early in life, usually before the age of 18. They are recognized as a public health problem, which can affect children's health and wellbeing not only at

the time the ACE is experienced, but also later in life (Felitti et al., 1998; World Health Organization, 2015). Such experiences include multiple types of abuse (physical, sexual, and psychological), neglect, and several sorts of family dysfunction (Centers for Disease Control & Prevention, 2014; World Health Organization, 2015). In addition to having psychological consequences, various studies have shown that ACEs are associated with health-related risk factors, e.g. substance abuse and risky sexual behaviors, as well as many health outcomes such as obesity, cardiovascular diseases, cancer, and diabetes (Carr, Martins, Stingel, Lemgruber, & Juruena, 2013; Danese & Tan, 2014; Dube et al., 2003; Exley, Norman, & Hyland, 2015; Felitti et al., 1998). Furthermore, ACEs can have economic repercussions and affect social outcomes such as educational achievement and employment (Bethell, Newacheck, Hawes, & Halfon, 2014; Liu et al., 2013).

The prevalence of ACEs varies considerably depending on the definition, the measurements, the sample characteristics, and the methodology adopted. In a meta-analysis with 217 publications that assessed the world-wide prevalence of child sexual abuse, for example, the combined prevalence was 17.7%, but it varied from 0.1% to 71%, and a significant difference was found according to the definition of sexual abuse, the source of the data (informant studies or self-report), number of questions, and geographic region, among other factors (Stoltenborgh, van Ijzendoorn, Euser, & Bakermans-Kranenburg, 2011). The occurrence of some ACEs also differs substantially according to gender, and usually females are more likely to have a higher number of childhood adversities than males (Bellis, Hughes, Leckenby, Perkins, & Lowey, 2014; Centers for Disease Control & Prevention, 2010; Cunningham et al., 2014; Dube et al., 2003; Liu et al., 2013; Stoltenborgh et al., 2011). In a study conducted by Felitti et al. (1998), whilst 8.5% of the women had 4 or more ACEs, only 3.9% of the men reported the same number of adversities before 18 years old.

Different types and combinations of risk factors have been shown to be associated with one or more ACEs (Brown, Cohen, Johnson, & Salzinger, 1998; Thornberry et al., 2014). These determinants are present across different domains: individual, parental background, family environment, and socioeconomic context (Brown et al., 1998; Sidebotham, Heron, & Team, 2006; Thornberry et al., 2014). The presence of a higher number of risk factors increases the likelihood of experiencing ACEs (Brown et al., 1998; Thornberry et al., 2014). Moreover, the occurrence of multiple types of ACEs is not independent; there is clustering of events (Dong et al., 2004).

To date, the majority of studies about ACEs have been carried out in high-income countries, and more information about the prevalence of ACEs and the associated risk factors is required in low and middle-income countries, as different patterns may be found in distinct socioeconomic contexts. Thus, the aim of this study was to assess the prevalence of ACEs, the interrelationship between multiple types of ACEs, and sociodemographic correlates of ACEs in adolescents participants of a Brazilian birth cohort.

Methods

Socio-geographical context

When the cohort study began in 1993, Brazil was a lower-middle income country with a population of about 150 million and a gross domestic product per capita of US$ 2,710. Currently, Brazil is an upper-middle-income country with a population of 206 million, 84% of them living in the urban areas. It has a gross domestic product per capita of US$ 11,530, and the richest states are found in the Southern and South-eastern regions of the country (Instituto Brasileiro de Geografia e Estatística, 2001; The World Bank, 2015). Pelotas is a city of 342 thousands inhabitants (93% living in the urban area), located in the far south of Brazil in Rio Grande do Sul State, and with a gross domestic product per capita of US$ 8,368 (Instituto Brasileiro de Geografia e Estatística, 2012).

Brazil has a highly diverse population as a result of various processes, such as immigration (mainly Portuguese, Italian, Spanish and German), slavery (chiefly African) and considerable inter-mixing of ethnic groups. Skin color is commonly used in Brazilian surveys to categorize different ethnic groups (Instituto Brasileiro de Geografia e Estatística, 2001). According to the last census, 50.7% of the population reported black or brown skin color, and 47.7% reported themselves as having white skin color. Despite having the highest concentration of black people outside of Africa, the black population of Brazil generally occupies less qualified, poorly paid positions in the labor market, lives in areas with no or low availability of basic infrastructure services, and has more restricted access to health services (Araújo et al., 2009). Thus, skin color is usually seen as a marker of social inequality. Race and skin color distribution varies considerably across the macro-regions of the country, and in Rio Grande do Sul State, where this study was carried out, 83.2% of the population reported white skin color (Instituto Brasileiro de Geografia e Estatística, 2001).

The sample

All mothers living in the urban area of the city of Pelotas, Southern Brazil and whose children were born alive in hospitals in 1993 ($N = 5,249$) were interviewed, and the children were followed until adolescence. More details on the methodology can be found in other publications (Araújo et al., 2010; Gonçalves et al., 2014). At the 11-year follow-up 4,452 adolescents took part in the study (87.5% follow-up rate), in the 15-year follow-up 4,325 were interviewed (85.7% follow-up rate), and in the 18-year follow-up 4,106 participated (81.3% follow-up rate) (Gonçalves et al., 2014). For this study, only people with complete data for all the adverse childhood experiences were used ($N = 3,951$; 78.4% of the original cohort).