



Personality traits as possible mediators in the relationship between childhood trauma and depressive symptoms in Chinese adolescents

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ABSTRACT

Childhood trauma has been found to be a critical risk factor for depression in adolescents. Personality traits have been linked with mental health. However, the relationship between childhood trauma, personality traits, and depressive symptoms in adolescents is largely unclear. This study tried to examine the mediating effect of personality traits between childhood trauma and depressive symptoms among adolescents. Meanwhile, the possible bidirectional association between personality traits and depression was considered in the study. A group of community-based adolescents aged 10–17 years (N = 5793) were recruited from nine schools in Wuhan city, China. The participants completed self-report questionnaires, including the Center for Epidemiologic Studies Depression Scale (CES-D), the Childhood Trauma Questionnaire (CTQ) and the NEO-Five Factor Inventory (NEO-FFI). Results showed that childhood trauma experiences were positively related with depressive symptoms and neuroticism, and negatively related with extraversion and conscientiousness; depressive symptoms were related with high neuroticism, low extraversion, and conscientiousness. Neuroticism and extraversion partially mediated the relationship between childhood trauma and depressive symptoms. And ‘childhood trauma-personality traits-depression’ models showed better property than the alternative models of ‘childhood trauma-depression-personality traits’. The current study provides preliminary evidence for mediation roles of neuroticism and extraversion in the effect of childhood trauma to depressive symptoms in adolescents. These findings may contribute to better prevention and interventions for depressive symptoms among adolescents with childhood trauma via personality traits improvement.

1. Introduction

Depression is a major public health problem in childhood and adolescence (Forman-Hoffman et al., 2016; McLeod et al., 2016; Merikangas et al., 2011). About 2.8% of children under 13 years of age, and 5.6% of adolescents aged 13–18 years suffer from depression (Costello et al., 2006). However, the prevalence of subclinical depressive symptoms is higher in children and adolescents. Recently, a survey from multiple areas in China showed that 20.3% of adolescents were affected by depressive symptoms, around 5.1% of the participants suffered from moderate to severe depressive symptoms (Zhou et al., 2018). Symptoms of depression in adolescents can be associated with a poorer quality of life, and with an increased risk of mental and behavior problems in later life, such as major depression and anxiety disorders, substance abuse and intimate partner violence victimization (Bertha and Balazs, 2013; McLeod et al., 2016). Thus it is imperative to illuminate underlying mechanisms related with depressive symptoms.

Although the etiology and pathogenesis of depression is still unclear, childhood trauma is regarded as a key risk factor for depression. A number of studies have shown that childhood trauma is closely related to later life depression (Kessler et al., 2010; Korkeila et al., 2010; Kounou et al., 2013), there are dose-response effects on childhood traumas to adult depression (van Dam et al., 2015). However, not all childhood traumas lead to depression. In addition to the indirect effects of gene, epigenetics and resilience (Ding et al., 2017; Hornung and Heim, 2014), individual's personality traits may also have a critical influence on the association between childhood traumas and later life depression.

Several studies showed that childhood trauma and personality traits were the predictors of depression (Clark et al., 2010; Huang et al., 2016; Rosellini and Brown, 2011). According to the five-factors model of personality, a great number of studies revealed that individuals with childhood maltreatment had higher neuroticism and were more prone to developing depressive symptom in adulthood (Rogosch and

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Cicchetti, 2004; Yoon et al., 2013). Some research also showed that extraversion and conscientiousness were protective factors involved in the severity of major depressive disorder (Rosellini and Brown, 2011). Lee's study from a national adult data of Korea revealed that extraversion and emotional stability (also referred to neuroticism) were inversely related with depressive symptoms whereas agreeableness was positively related with depressive symptoms in people with childhood abuse (Lee and Song, 2017). Yet Rogosch and Cicchetti (2004) found that maltreated children at ages 6 exhibited lower agreeableness, conscientiousness, openness, and higher neuroticism than peers who were not maltreated, moreover, the alteration of personality traits maintained for over three years. However, the current results of the specific personality traits linking with childhood abuse and depression seem to be inconsistent.

Meanwhile, some studies focus on the role of personality traits in the mechanism linking childhood traumas to depression. A few studies have reported the indirect mediating role of personality traits between childhood trauma and depression in adults or clinical patients (Hayashi et al., 2015; Hovens et al., 2016; Lee and Song, 2017). A recent cross-sectional study (Lee and Song, 2017) revealed that emotional stability in the five-factors model of personality has a mediating effect on the relationship between childhood abuse and depressive symptoms in non-clinical adults (mean age = 50.6 years). Hayashi et al. (2015) study from 113 patients (aged 25–75 years) with major depressive disorder found that childhood trauma indirectly predicted depressive symptoms via the mediation of personality traits referring to neuroticism, extraversion, and conscientiousness. The Netherlands Study of Depression and Anxiety (NESDA) (Hovens et al., 2016) followed depressed patients (aged 18–65 years) for 4 years, found that higher neuroticism and lower extraversion mediated the relationship between childhood maltreatment and the remission of depressive disorder. However, few studies have paid attention to non-clinical adolescents.

In addition, prior studies mainly highlighted the pathway of 'childhood trauma-personality traits-depression', based on the hypothesis which childhood trauma could lead to more unfavorable personality characteristics and cognitive styles, such the maladaptive personality characteristics were likely to develop depression. While some studies found that individuals with major depressive disorder were reported with higher levels of neuroticism in depressive state than those in no depressive state (Hirschfeld et al., 1983; Kendler et al., 1993). It appeared to show that different emotion state might influence the assessment of personality traits. Another study showed that higher depressive symptoms among early adolescents predicted an increase in depressive personality traits a year later (Rudolph and Klein, 2009). These studies appeared to indicate that depression could impact levels of personality traits, however, inconsistent result from Ormelet et al. (2004) indicated that depression had no effect on personality traits. Moreover, few studies consider simultaneously the effects of personality traits to depression and depression to personality traits under childhood trauma condition.

Above all, this study aimed to examine the relationship between childhood trauma, personality traits, and depressive symptoms in Chinese adolescents. We tend to support that personality traits may mediate the association between childhood trauma and depression in adolescents. Meanwhile, we also tested the model of 'childhood trauma-depression-personality traits', in order to explore the mechanism of childhood trauma to depression.

2. Methods

2.1. Participants and procedure

Participants were recruited from nine schools, including five primary schools (grades 5–6) and four secondary schools (grades 7–10) in Wuhan city, Hubei, China. A total of 6430 self-reported questionnaires were distributed and 5793 were returned as effective questionnaires.

Informed consents were obtained from all participants and their schools. To reduce survey error, all investigators received uniform training before the survey; and all participants were required to complete the questionnaire within 20 min; data were double entered after the questionnaires were collected. 637 participants were excluded because of (1) unwilling or unable to complete the questionnaire by the deadline, and (2) high level of missing values (above 30%) or obviously fictitious (logical contradiction), representing an 90.09% effective response rate. This study was approved by the Human Research Ethics Committee, Huazhong University of Science and Technology.

2.2. Measures

2.2.1. Depressive symptoms

The Center for Epidemiologic Studies Depression Scale (CES-D) is a 20-item self-report scale that evaluates depressive symptoms in the past week. Each item is rated on a 4-point Likert scale ranging from 0 (rarely or none of the time) to 3 (most or all of the time). Higher scores indicate more severe depressive symptoms. A total score of 16 or higher was assessed as depressive symptoms in this study (Kerr et al., 2015). The CES-D is widely used to measure depressive symptoms in population-based samples, and as a screening tool for clinical depression (Cheng and Chan, 2005; Yao et al., 2009). The Chinese version of CES-D has been validated (Cheng et al., 2012; Lee et al., 2008) and extensively used in Chinese adolescents (Yang et al., 2008; Zhou et al., 2018). The Cronbach's α coefficient for CES-D was 0.91 in this study.

2.2.2. Childhood trauma

The short form of the Childhood Trauma Questionnaire (CTQ-SF) is a 28-item retrospective self-report scale that assesses childhood trauma in five subscales: emotional abuse, physical abuse, sexual abuse, emotional neglect and physical neglect. Items are rated on a five-point Likert scale with scores from 1 (never) to 5 (very often). Higher scores represent a higher level of exposure to traumatic experiences. The CTQ-SF has demonstrated good reliability and validity among adolescents (Bernstein et al., 2003; Chung and Chen, 2017). The Cronbach's α coefficient for CTQ in this study was 0.79.

2.2.3. Big five personality traits

The NEO-Five Factor Inventory (NEO-FFI) is a 60-items short version measure of big five personality traits which includes five dimensions, neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Each dimension is measured in 12 items. Each item is graded from 1 (strongly disagree) to 5 (strongly agree). Higher scores on each dimension indicate greater propensity to specific trait. The NEO-FFI is applicable to adolescent groups (Parker and Stumpf, 1998). Most previous studies and meta-analysis suggested that high neuroticism, low extraversion, and conscientiousness were associated with depression (Kotov et al., 2010; Rosellini and Brown, 2011). Thus, this study employed neuroticism, extraversion, and conscientiousness as the study variables. In the current study, the Cronbach's α coefficients were 0.77 for neuroticism, 0.73 for extraversion, and 0.82 for conscientiousness.

2.3. Statistical analyses

In this study, analyses were conducted using SPSS 21.0 and AMOS 17.0 program. Independent t-tests or ANOVA analysis were performed to examine the differences of the CES-D score in demographic characteristics. The demographic variables with statistical significance were included as covariates in the mediation models. The correlations between demographic variables, depressive symptoms, childhood trauma, and personality traits were preliminarily examined using Spearman correlation analyses. We also performed a structural equation modeling (SEM) approach using AMOS 17.0 to examine mediation model of 'childhood trauma-personality traits-depression'. Finally, each

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