



Self-control mediates the relationship between personality trait and impulsivity



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ABSTRACT

The aim of the current study was to explore the mediation effect of self-control on the relationship between personality traits and impulsivity in Chinese cultural context. A total of 804 participants completed a packet of questionnaires that assessed personality traits, impulsivity, and self-control, of which personality traits were measured by the Chinese Big Five Personality Inventory brief version (CBF-PI-B), impulsivity was measured by the Barratt Impulsiveness Scale-11 (BIS-11), and self-control was measured by the Self-Control Scale (SCS). Correlation results demonstrated that openness, conscientiousness, extraversion, and agreeableness were all negatively correlated with impulsivity, and positively correlated with self-control; neuroticism was positively correlated with impulsivity, and negatively correlated with self-control. Furthermore, mediational analyses showed that three factors of the Big Five Personality (openness, conscientiousness, and neuroticism) exerted their indirect effects on impulsivity through self-control, and the mediating effect accounted for 29.54%, 40.00%, 55.77% of the total effect respectively. These findings suggest that self-control might be one mechanism explaining how individuals' personality traits (openness, conscientiousness, and neuroticism) influence their impulsivity.

1. Introduction

Over the past few decades, researchers have conducted extensive studies on the relationship between personality traits and impulsivity. As a classical model of personality traits, the Big Five Personality model (conscientiousness, neuroticism, agreeableness, openness, and extraversion) has been widely used. Although many studies had investigated the relationship between impulsivity and the Big Five Personality traits, the results observed were still inconsistent. For example, some studies found that there was no significant correlation between conscientiousness and impulsivity (Luo, Cai, & Chen, 2014), while some other studies found a significant negative correlation between the two variables (Hair & Hampson, 2006; Lange, Wagner, Muller, & Eggert, 2017; Russo, Leone, Penolazzi, & Natale, 2012). Some studies found that there was no significant correlation between agreeableness and impulsivity (Lange et al., 2017; Russo et al., 2012), while some other studies found a significant negative correlation between the two variables (Hair & Hampson, 2006; Luo et al., 2014). Some studies found

that there was no significant correlation between extraversion and impulsivity (Hair & Hampson, 2006; Luo et al., 2014; Russo et al., 2012), while some other studies found a significant negative correlation between the two variables (Lange et al., 2017). Most studies found that there was a significant positive correlation between neuroticism and impulsivity (Hair & Hampson, 2006; Luo et al., 2014; Russo et al., 2012), while some other studies found no significant correlation between the two variables (Lange et al., 2017). In addition, there was no significant correlation between openness and impulsivity, which is relatively consistent with previous studies (Hair & Hampson, 2006; Lange et al., 2017; Luo et al., 2014; Russo et al., 2012). The inconsistent results of the relationship between the Big Five Personality and impulsivity were generally assessed by bivariate correlational, which may yield spurious associations, thus providing misleading information on the unique impact of each personality trait on impulsivity. Therefore, there are perhaps some mediator variables between the variables (Russo et al., 2012). Based on previous studies, we inferred that self-control may be a potentially important mediator variable.

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Self-control is a central function of the self, which refers to the ability to override one's thoughts and emotions, as well as to interrupt undesired behavioral tendencies to keep them in line with overarching goals (Baumeister, Vohs, & Tice, 2010; Inzlicht, Schmeichel, & Macrae, 2014; Tangney, Baumeister, & Boone, 2004). Sometimes, self-control is regarded as the opposite of impulsivity (Duckworth & Kern, 2011), but many studies found that there was a significant negative correlation between self-control and impulsivity and that the correlation coefficients were all lower than 0.8 (Friese & Hofmann, 2009; Nebioglou, Konuk, Akbaba, & Eroglu, 2012; Wolff, Kronke, & Goschke, 2016). Besides, Ludwig et al. summarized that although high impulsivity and low self-control overlap in large parts, these two concepts are not redundant (Ludwig et al., 2013). Therefore, the first hypothesis of the current study was that there is a significant negative correlation between self-control and impulsivity.

Besides, it had been found that there were close links between the Big Five Personality traits and self-control in many studies. Such as, a significant negative correlation was observed between neuroticism and self-control, and both agreeableness and conscientiousness were found significantly positively associated with self-control (Andrei, Mancini, Trombini, Baldaro, & Russo, 2014; Bazy, Woehr, & Borns, 2017; Green, O'Connor, Gartland, & Roberts, 2016; Schlegel, Grandjean, & Scherer, 2013; Vries & Gelder, 2013). Meanwhile, the relationships between both extraversion and openness and self-control was inconsistent, some studies have found that extraversion and self-control had significant negative correlation (Green et al., 2016; Schlegel et al., 2013), while some other studies found no significant correlation between them (Andrei et al., 2014; Bazy et al., 2017; Vries & Gelder, 2013). As to the relationship between openness and self-control, some studies found that there was a significant positive correlation (Andrei et al., 2014), while some studies found no significant correlation (Bazy et al., 2017; Schlegel et al., 2013; Vries & Gelder, 2013). From previous studies mentioned above, it can be seen that neuroticism, conscientiousness, and agreeableness all had a robust relationship with self-control. While the relationship between openness and extraversion and self-control was relatively weak. Therefore, our second hypothesis is that the Big Five Personality traits would be related to self-control, of which the three factors (conscientiousness, neuroticism, and agreeableness) would have a strong correlation with self-control, while the other two factors (openness and extraversion) would have a weak correlation with self-control.

Based on the preceding rationale and available literature showing that personality traits contribute to self-control, and that self-control correlates to impulsivity, the third hypothesis of this study is that self-control would have a certain mediating effect on the impact of the personality traits (especially the conscientiousness, neuroticism, and agreeableness) on impulsivity. Thus personality traits will indirectly predict impulsivity through self-control. The aim of this study was to examine such questions by exploring how self-control mediates the relationship between personality traits on impulsivity.

Individuals' personality traits may affect their impulsivity to some extent. There is no doubt that the ability to make decisions and act quickly without hesitation can be advantageous in many settings. However, when persistently expressed, impulsive decisions and actions are considered risky, maladaptive and symptomatic (Dalley & Robbins, 2017). Thus, the present study might throw some light on the potential psychological mechanism in helping people in decreasing impulsivity.

2. Methods

2.1. Participants

The participants in this research were recruited via websites. A total of 804 adults from China volunteered to take part in the study, of which 32.1% were males and 67.9% were females. The mean age of the overall sample was 24.51 years (standard deviation = 6.45 years). The

participants were all over the country and mainly were college students.

2.2. Measures

Barratt Impulsiveness Scale-11 (BIS-11; Patton, Stanford, & Barratt, 1995). It was adapted to Chinese by Xian-Yun et al. (Xian-Yun et al., 2011). The Chinese version Bis-11 is a 30-item self-report measurement of impulsivity, which consists of three factors: attention impulsivity (e.g., I don't pay attention), motor impulsivity (e.g., I act on the spur of the moment), and non-planning impulsivity (e.g., I plan for job security). Participants rated the items from 1 (never) to 5 (always). The internal consistency of the scale and the three subscales were ranged from 0.77 to 0.89, and the test-retest reliability was varied from 0.68 to 0.89. In the current study, the Cronbach's alpha for the scale and subscales ranged from 0.82 to 0.90.

Chinese Big Five Personality Inventory brief version (CBF-PI-B; Wang, Dai, & Yao, 2011). The scale was developed to assess Chinese personality, which has 40 items and 5 subscales: openness (e.g., I am curious about many different things), conscientiousness (e.g., I am a reliable worker), extraversion (e.g., I am outgoing, sociable), agreeableness (e.g., I am considerate and kind to almost everyone), neuroticism (e.g., I get nervous easily). The response items varied from 1 (not at all applicable to me) to 5 (very much applicable to me) and high scores indicated higher levels of the subscale personality trait. The Cronbach's alpha for internal consistency was reported ranging from 0.76 to 0.81, and the retest reliabilities were reported ranging from 0.67 to 0.81. The internal consistency coefficient for the scale and subscales for the present data were varied from 0.74 to 0.84.

Self-Control Scale (SCS; Tangney et al., 2004). In the current study, we use the Chinese version Self-Control Scale, which was revised by Tan and Guo (2008). The Chinese version SCS consists of 19 items and five subscales. It was rated on a 5-point response scale ranging from 1 (not at all applicable to me) to 5 (very much applicable to me), and the total scores can range from 19 to 95. A higher score indicates greater self-control. An example item is "I am lazy." Besides, the scale showed good internal consistency (0.86) and retest reliability (0.85). The internal consistency coefficient for the present data was 0.87.

2.3. Procedure

Participants completed surveys consisting of the CBF-PI-B, BIS-11, and SCS through online. The researcher assured the participants of the confidentiality of their responses. It took approximately 20 min for the participants to complete the surveys.

2.4. Data analysis

Descriptive statistics of personality traits scores were computed firstly. Then, the bivariate relationship was assessed by computing the Pearson r coefficients using SPSS 19.0. Furthermore, SEM procedure was used to investigate the impact of self-control on the relationship between personality traits and impulsivity using AMOS 22.0.

3. Results

3.1. Correlational analysis

The means, standard deviations and correlation coefficients for all study variables are displayed in Table 1. It can be seen from the Table 1 that impulsivity had a significant correlation with the Big Five Personality. Specifically, impulsivity was significantly positively related with neuroticism, while negatively associated with the other four dimensions. Besides, a significant negative relationship between impulsivity and self-control was observed. Furthermore, it had been demonstrated that self-control was significantly negatively correlated

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