Neuroticism Associated with Need Satisfaction: Big Five Personality Traits and Self-determination Theory

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Abstract: Self-determination theory (SDT; Deci & Ryan, 2000) identified three basic psychological needs (i.e., autonomy, competence, and relatedness) that are essential for optimal functioning. However, people experienced different levels of needs satisfaction, which could be partially accounted for by the Big Five traits (McCrae & Costa, 2008; Olesen, 2011). The Big Five personality traits (BFPT; Costa & McCrae, 1992) consist of five dimensions: openness, conscientiousness, extraversion, agreeableness, and neuroticism. Neuroticism is a major field of personality and has been found to be a significant predictor of SDT needs satisfaction. Whereas, little research has probed deeper into the association between neuroticism and each SDT need. This study investigated the association between neuroticism and autonomy, competence, and relatedness. A total of 923 undergraduate psychology students completed two computer-based questionnaires measuring neuroticism and SDT needs. Pearson’s correlation analysis showed a significant negative correlation between (i) neuroticism and autonomy, and (ii) neuroticism and competence, and (iii) neuroticism and relatedness. In concert with previous findings, and in light of the limitations addressed, the results suggest that individuals with high neuroticism tend to experience less autonomy, competence, and relatedness.

Keywords: SDT needs, Big five personalities, Neuroticism.

1. Introduction

The impacts of social environments and group interactions on individuals’ attitudes, motivations, and behaviours have long been one of intense interests in social psychology (Baron & Byrne, 1987). Prominent social-psychological theories that tended to explain situationally influenced learning and growth found that the acquisitions of attitudes, motivations, or behaviours are molded by social contexts (Terry & Hogg, 2000). However, studies on the effects of extrinsic reinforcements on motivations led to controversial ideas that extrinsic rewards do not always motivate subsequent persistence (Deci, Koestner, & Ryan, 1999). Instead, human seemed inherently active and intrinsically motivated to develop naturally through integrative processes (Van Lange, Kruglanski, & Higgins, 2011).

Self-determination theory (SDT; Deci & Ryan, 2000) is an empirically based theory of human motivation, emotion, personality and development that focuses on social-contextual conditions that facilitate or forestall the natural processes of self-motivation. It assumes that intrinsic motivation is an inherent characterictic and social conditions could affect the self- motivation (Deci & Ryan, 2008). Studies examining these social conditions discovered three universal psychological needs essential for the natural processes of intrinsic motivation to operate effectively (Ryan & Deci, 2000; Ryan & Deci, 2017). They are needs for autonomy (Deci, 1975), competence (Harter, 1978; White, 1963), and relatedness (Baumeister & Leary 1995; Reis, 1994).

The need for autonomy refers to the experience of independence, self-direction and psychological freedom (Harrell & Alpert, 1979). With autonomy, for example, students experienced choice in and ownership of their behaviours (Reeve et al., 2008). The need for competence involves an individual experiencing effectance in the ongoing interactions with the outside world (Chang, Huang, & Lin, 2015). The need for relatedness refers to a sense of reciprocal care and connection with the social environment (Lin, 2016). These three needs are intertwined and together construct the SDT needs critical for human thriving (Ryan & Deci, 2017).

One important characterization of the SDT needs is that they are fundamental and universal such that their satisfaction or diminishment affects development and functioning of all people (Sheldon & Gunz, 2009; Van Lange & Kruglanski, 2011; Vansteenkiste, Niemiec, & Soensens, 2010). Needs satisfaction at both the within-person level and the between personal level predicted better performance and greater psychological health (Baard et al., 2004; Reis et al., 2000). Additionally, needs satisfaction mediated the relationship between a need-supporting environment and better school performance (Sheldon & Krieger, 2007; Zhang et al., 2011). On the other hand, needs thwarting consistently predicted negative outcomes such as depression and physical symptoms (Bartholomew et al., 2011). Furthermore, education research indicated the beneficial effect of needs satisfaction could be generalizable across Western and Eastern cultures such as Germany (Levesque et al., 2004), China (Bao & Lam, 2008), and South Korea (Jang et al., 2009).

Despite these SDT needs being termed “fundamental” and “universal”, not all people experience needs satisfaction of autonomy, competence and relatedness to the same extent (Church et al., 2013). Cross-cultural studies implied that cultural environment/differences intervened in the satisfaction of SDT needs (Chettiar, 2015; Deci et al., 2001; Hofstede, 2001; Levesque et al., 2004). In addition to environmental factors (e.g., culture), individuals’ experienced needs satisfaction could be influenced by basic
tendencies including the Big Five traits (Deci & Ryanb, 1985b; Deci & Ryan, 1991; McCrae & Costa, 2008; Olesen, 2011).

The Big Five personality traits (BFPT; Costa & McCrae, 1992) illustrates that personality consists of five relatively independent dimensions that provide a meaningful taxonomy for investigating individual differences (Barrick & Mount, 1991). The five dimensions of BFPT are openness, conscientiousness, extraversion, agreeableness, and neuroticism (Costa & McCrae, 1992). Openness incorporates traits such as being imaginative, curious, intelligent, creative, independent, original, brave, and open minded (Johnson & Ostendorf, 1993). Conscientiousness reflects dependability and volition; that is, being responsible, organized, persevering, decisive, disciplined, cautious, and diligent (Costa & McCrae, 1992). Extraversion is defined as individuals’ amount and intensity of social interaction and means being sociable, assertive, talkative and active (McCrae & Costa, 1987). Common traits associated with agreeableness include being courteous, flexible, cooperative, trusting, forgiving, and tolerant (McCrae & Costa, 1987). Neurotic individuals tend to experience negative emotional states such as anxiety, guilt and insecurity (McCrae & Costa, 1997), and are more susceptible to psychological stress (Giluk & Postlethwaite, 2015).

Neuroticism is a major field of personality in BFPT that is usually characterized by tendencies to experience aversive emotional states, to evaluate events as being stressful, and to experience less contact with others (Wasylikw et al., 2010). In a broad sense, people who score high on neuroticism in BFPT are more vulnerable to psychopathology and are more likely to present dysfunctional negative cognitions and use maladaptive coping strategies (Ormel, Rosmalen, & Farmer, 2004). Neuroticism is also a significant predictor of avoidance goals (Elliot & Sheldon, 1998). These tendencies and results pinpoint to the negative impact of neuroticism on many life domains (Ionescu & Iacob, 2019). Regarding SDT, neuroticism has been found negatively correlated with perceived autonomy (Elliot & Sheldon, 1998). Elliot et al. (2005) claimed that neurotic individuals tended to experience less SDT needs satisfaction, as avoidance goals produced aversive psychological processes that led to the lack of satisfaction of three basic needs.

Studies that employed SDT framework supported this idea and further identified neuroticism as a significant factor in the satisfaction of SDT needs (Desrumaux et al., 2015; Ionescu, 2017; Judge et al., 2005). Judge et al. (2005) revealed that neuroticism was associated with a low perception of SDT needs, and Ionescu (2017) suggested that neuroticism was one of the significant predictors in the satisfaction of SDT needs. Notably, it was highlighted that the absence of neuroticism facilitated the manifestation of feelings of autonomy, competence, and interaction with others, and the presence of neuroticism engendered the experiencing of negative affects which then sabotage the needs satisfaction (Ionescu, 2017). A more recent study by Ionescu and Iacob (2019) demonstrated that people with low level of neuroticism tend to feel more autonomous, competent in their work, and connected with others. Furthermore, people who are less neurotic can identify opportunities related to needs satisfaction and have a greater chance of satisfying SDT needs (Ionescu & Iacob, 2019). In contrast, it is unlikely for people with high neuroticism to satisfy needs for autonomy, competence, and relatedness (Ionescu & Iacob, 2019).

The combined conceptual and empirical evidence has shown the role of neuroticism in the satisfaction of SDT needs. However, little research has probed deeper into the association between neuroticism and each of the SDT needs or directly examined the correlations of neuroticism, autonomy, competence, and relatedness. Hence, the aim of the present study is to investigate the association between neuroticism in BFPT and each basic need in SDT. It is hypothesized that there will be a negative correlation between (i) neuroticism and autonomy, (ii) neuroticism and competence, and (iii) neuroticism and relatedness.

2. Methods

2.1 Participants

There were 923 (670 males, 237 females, 15 non-binary gender, 1 did not report gender) undergraduate psychology students aged 18 to 58 (M=21.31, SD=4.61) participated in the experiment. No participants were excluded for any reason. All participants were voluntary and received informed consent.

2.2 Materials

SDT needs were measured using an 18-item scale of the Balanced Measure of Psychological Needs (BMPN; Sheldon & Hilpert, 2012). The measure contains 3 subscales (i.e., autonomy, competence, and relatedness) and each subscale contains 6 items. Responses to positively-worded (e.g., “I took on and mastered hard challenges”) and negatively-worded (e.g., “I struggled doing something I should be good at”) items were rated on a 5-point Likert scale (1 = no agreement; 5 = much agreement). Negatively worded items were reverse coded. Scores were averaged across all items within each subscale to produce a composite score for each need. In this sample, reliability analyses of the three 6-item BMPN subscales found Cronbach’s coefficients of .67, .73 and .64 for autonomy, competence, and relatedness, respectively.

Neuroticism was assessed using a 12-item subscale of the Big Five Inventory-2 (BFI 2; Soto & John, 1999). Participants responded to both positively-worded (e.g., “Worries a lot”) and negatively-worded (e.g., “Rarely feels anxious or afraid”) items on a 5-point Likert scale (1 = disagree strongly; 5 = agree strongly). Scores were averaged across all items within the subscale to produce a composite score for neuroticism after reverse-coding negatively worded items. In the present sample, Cronbach’s coefficient for the neuroticism subscale was .89.

2.3 Procedures

The experiment was undertaken during the participants’ laboratory class and supervised by a tutor. Two
questionnaires were completed individually using computers in the order presented above.

2.4 Results

Descriptive statistics were conducted. Mean and standard deviation for each variable were presented in Table 1.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Standard Deviation</th>
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<tbody>
<tr>
<td>Neuroticism</td>
<td>3.15</td>
<td>.80</td>
</tr>
<tr>
<td>Autonomy</td>
<td>3.35</td>
<td>.65</td>
</tr>
<tr>
<td>Competence</td>
<td>3.15</td>
<td>.70</td>
</tr>
<tr>
<td>Relatedness</td>
<td>3.67</td>
<td>.62</td>
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Two-tailed Pearson’s correlation analyses were performed to examine the associations between neuroticism and SDT needs. There was a significant negative correlation between neuroticism and autonomy, $r(921)=-.44, p<.01$. There was a significant negative correlation between neuroticism and competence, $r(921)=-.39, p<.01$. And there was a significant negative correlation between neuroticism and relatedness, $r(921)=-.46, p<.01$. These correlations were all moderate (Davis, 1971).

3. Discussion

In this research we investigated associations between neuroticism in BFPT and three SDT needs. As noted previously, we hypothesized that there is a negative correlation between (i) neuroticism and autonomy, (ii) neuroticism and competence, and (iii) neuroticism and relatedness. These hypotheses are generally based on the idea that experienced needs satisfaction could be influenced by the Big Five traits (Deci & Ryan, 1985b, Deci & Ryan, 1991). More specifically, existing studies reported that people who score low on neuroticism tend to experience more SDT needs and have a greater opportunity to satisfy these needs (Ionescu & Iacob, 2019). We believed that a correlational study that focused explicitly on the associations between neuroticism and each SDT need might be more informative.

The study results strongly support our hypotheses. Congruent with previous findings, neuroticism in BFPT is negatively associated with autonomy, competence, and relatedness in SDT. This is to say, individuals with high neuroticism reported experiencing less autonomy, competence, and relatedness. Neuroticism represents the tendency towards negative emotional states and incapacity to control negative events (Ionescu, 2017), and thus neurotic individuals tend to perceive outcomes as being independent of their behaviours (Deci & Ryan, 1985b; Giluk & Postlethwaite, 2015) and experience less autonomy (Elliot & Sheldon, 1998). People who experience high level of neuroticism are also likely to perform poorly in situations where they take multiple responsibilities, in that they tend to evaluate these situations as being stressful (Tett and Burnett, 2003; Ionescu, 2017). As a result, they are unable to handle uncertainty well and thereby experience less competence (Deci & Ryan, 1985b). Moreover, neuroticism is associated with feelings of being isolated, less contact with others and less support from the outside world (Shepherd & Haynie, 2009). Neurotic people often lack social skills and experience a “deficit of belonging” as well as less relatedness (Deci & Ryan, 1985b; Smółka & Szulawski, 2011). Taken together, the current study results have implications for an enduring issue regarding personality aspects in SDT, namely the explanatory role of the Big Five traits in the progress towards SDT needs satisfaction.

Although our interpretations above imply a causal relationship between neuroticism and experienced SDT needs, we are well aware that these correlational data are not sufficient to demonstrate causality. Considering the conceptual overlap of personality aspects in BFPT and SDT (Olesen, 2011), it is possible that failure to fulfill SDT needs in turn could lead to certain traits/symptoms that also load on neuroticism items. However, the cross-sectional nature of the study means that we cannot make causal inferences, which decreases the explicative power of the findings. Another study limitation concerns the use of a convenience sample of undergraduate students from one university. Future research should study neuroticism and SDT needs satisfaction in other samples and group contexts, such as athletes groups or work contexts. Future research should also examine the generalizability of results of other cultures, especially Eastern cultures where needs preference and resources for needs satisfaction are both different (Chen et al., 2015).

Moreover, all measures were self-reported in our study. Self-report measures do not solely assess the extent to which SDT needs are actually satisfied, but rather how much needs satisfaction these university undergraduates perceive (Janke, Nitsche, & Dickhäuser, 2015). Whereas, research has shown that the perception of needs satisfaction depends on both environmental influences (Levesque et al., 2004) and personality (Deci & Ryan, 1991). Therefore, it is unlikely that the results only reflect aspects of the personality traits. In other words, the relationships investigated in this study could be influenced by the contribution of some covariates (e.g., social support). As a result, it is possible that the estimated effect sizes might not be entirely accurate for the relationship between neuroticism and SDT needs.

Despite these limitations, the current study makes a novel contribution to the small body of work investigating the relationship between personality traits and SDT needs satisfaction, which provides implications for both research and practice. Future studies could further investigate the explanatory roles of other personality traits in the progress of SDT needs satisfaction (Ionescu, 2017). Also, special clinical populations (e.g., depressed people) could be involved in future studies to guide the use of SDT framework in the clinical field (Ionescu & Iacob, 2019).

References


