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Neuroticism and extraversion as mediators between positive/negative life events and resilience

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ABSTRACT

Positive and negative life events have been demonstrated to play an important role regarding the development of resilience. However, it is less clear how life events interact with personality factors in forming individual resilience. Thus, the present study investigates the mediating effects of the two main complementary personality dimensions extraversion and neuroticism on the relationship between life events and resilience in adulthood. Traumatic Antecedent Questionnaire (TAQ), NEO-Five-Factor Inventory (NEO-FFI) and Connor–Davidson Resilience Scale (CD-RISC) were administered to 201 healthy subjects. Results from path analyses (AMOS) revealed that the personality factors neuroticism and extraversion (measured by NEO-FFI) fully mediated the association between positive life events and resilience. This is the first study to date using psychometric assessment to explore the possible pathways from positive/negative life experiences to resilience.

1. Introduction

1.1. Defining resilience

Resilience is usually defined as the ability to cope with internal and external stressors (Connor & Davidson, 2003). It has been shown to substantially reduce the risk of developing mental disorders, including depression, anxiety disorders, and posttraumatic stress disorders (Davydov, Stewart, Ritchie, & Chaudieu, 2010). With resilience being an important protective factor, there has been considerable research into its etiology.

1.2. Developing resilience

Numerous studies have identified risk and protective factors in the development of resilience. Among several biological (Feder, Nestler, & Charney, 2009), psychological (Tugade & Fredrickson, 2004), demographic (Bonanno, Galea, Bucciarelli, & Vlahov, 2007), and environmental factors (Haskett, Nears, Ward, & McPherson, 2006), past life stressors have emerged as a consistent negative predictor of adult resilience (Bonanno et al., 2007). Negative life events can also be linked to psychiatric diagnoses in adult life, with the altogether risk accumulating with the amount of trauma (Brewin, Andrews, & Valentine, 2000; Saleptsi et al., 2004). However, studies investigating the negative effect of adversity on developing resilience have merely established negative experiences as a risk factor and were cross-sectional by design.

As for protective factors, research – mainly focusing on children and adolescents – has shown that there are important positive factors to predict resilience during later development. In a longitudinal study with high-risk children on Kauai, a strong connection to a non-parent caretaker and the involvement in a community group were identified as important protective factors (Werner, 1993).

However, it is not yet clear exactly how life events influence resilience. There is some evidence for a direct biological effect: Gillespie, Phifer, Bradley, and Ressler (2009) suggested that maltreatment in childhood may influence the stress response by promoting long-lasting increases in hypothalamic-pituitary-adrenal axis activation and changes in amygdala activity. Hellstrom, Dhir, Diorio, and Meaney (2012) were able to demonstrate that maternal pup licking/grooming in rats (basic positive experiences if done sufficiently) modulates hippocampal glucocorticoid receptor expression and therefore stress sensitivity. In their study, more frequent maternal licking results in more modest pituitary adrenal

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responses to stress, which can be seen as a biological compound of resilience.

1.3. Resilience, personality and life events

Taking a closer look at constructs which are strongly associated with resilience, studies exploring personality traits seem to offer promising results: in the field of personality research, recent longitudinal studies have shown that neuroticism and extraversion can be shaped by important life events (Jeronimus, Ormel, Aleman, Penninx, & Riese, 2013; Ogle, Rubin, & Siegler, 2014): Positive life events go hand in hand with higher scores in extraversion and lower scores in neuroticism, whereas negative life events are associated with lower scores in extraversion and higher scores in neuroticism.

The last finding is of particular importance, because a marked overlap of resilience with personality dimensions has been documented in several studies (Campbell-Sills, Cohan, & Stein, 2006; Friborg, Barlaug, Martinussen, Rosenvinge, & Hjemdal, 2005). Although these results are not entirely consistent, all of the aforementioned studies suggest that neuroticism and extraversion are reliable predictors of resilience. From a theoretical point of view this finding is not surprising: a high level of extraversion allows individuals to cope with stress and adverse events by means of a positive affective style (Campbell-Sills et al., 2006). Moreover, the capacity for interpersonal closeness and high levels of social interaction allow extraverted subjects to build reliable networks of social support. On the other hand high levels of neuroticism are associated with a negative or overcontrolled emotional style, poor coping, and difficulties with impulses and should therefore have a negative effect on resilience (Campbell-Sills et al., 2006).

Taking these two findings together, it seems likely that the link between past life events and resilience is at least partially mediated by extraversion and neuroticism.

Thus, the primary purposes of the current study are to re-investigate the previous hints regarding a possible moderation between positive/negative life events, extraversion, neuroticism and resilience and to extend prior studies by investigating the potential mediating mechanism of these constructs in adults.

1.3.1. Hypothesis 1

First, the effect of negative life experiences on resilience is mediated by neuroticism and extraversion. In particular, negative experiences should lead to higher neuroticism and lower extraversion, which should in turn lead to lower resilience (many negative experiences → low extraversion + high neuroticism → low resilience).

1.3.2. Hypothesis 2

Second, the effect of positive experiences on resilience is mediated by neuroticism and extraversion (many positive experiences → high extraversion + low neuroticism → higher resilience). Positive experiences lead to reduced neuroticism and increased extraversion, which, in turn, both promote the development of a high level of resilience.

In both cases we tested possible direct effects of positive/negative life experiences on resilience after accounting for the mediating effect of personality (i.e., partial mediation). From a theoretical point of view, the study aims to clarify the way positive and negative life events influence resilience by investigating possible mediating effects of neuroticism and extraversion to close the gap between findings concerning those factors in present literature. Moreover, knowledge about these associations would have substantial practical impact concerning resilience interventions. Regarding personality, research has shown that extraversion and neuroticism are the major predictors of happiness and mental health (Furnham & Cheng, 1999). Based on the available literature reviewed above, one could assume that extraversion and neuroticism exert their effects on happiness through resilience. According to this, the current study might shed light on how individuals could improve their resilience level and therefore raise their well-being. Past positive and negative life events cannot be changed, but being able to cope with future life events could help individuals to become more satisfied and resilient. For example, resilience trainings could boost resilience via reducing neuroticism and raising extraversion by training interpersonal competences as it is known that these competences should have a positive effect on the quality of social interactions and on the well-being (Salovey & Mayer, 1989).

2. Materials and methods

2.1. Participants

$N = 201$ healthy subjects [107 females (53.23%), mean age 63.87 years, ranging from 47 to 75 years with standard deviation = 6.39] were randomly selected via registration office and further selected to constitute a specifically non-clinical population without serious psychiatric illnesses: Symptom Checklist-90-Revised (SCL-90-R; Franke, 2002), SKID II (Structured Clinical Interview for DSM-IV Axis II; Fydrich, Renneberg, Smitz, & Wittchen, 1997), and SKID I (Structured Clinical Interview for DSM-IV Axis I; Wittchen, Wunderlich, Zaudig, & Fydrich, 1997) were applied to exclude subjects with psychiatric diagnoses from participation. The survey took place in a designated room in the university hospital. No personal identifying information was collected, and participants were assured of the anonymity of their responses. The association between neuroticism/resilience as well as extraversion/resilience did not differ between men and women. To investigate possible differences, we conducted correlations between neuroticism/resilience and extraversion/resilience for the two genders separately. Significant correlations between both personality traits and resilience were observed for both, female and male (female NEO-FFI: N & CD-RISC: $r = -.50$; $p < .00$, male NEO-FFI: N & CD-RISC: $r = -.48$: $p < .00$; female NEO-FFI: E & CD-RISC: $r = .46$; $p < .00$; male NEO-FFI: E & CD-RISC: $r = .64$; $p < .00$). In a second step, we used Fisher transformations to obtain standard z-scores and computed the 95% confidence interval (CI) with lower and upper endpoint for each correlation (female: NEO-FFI: N & CD-RISC CI: −0.82 to −0.29; male: NEO-FFI: N & CD-RISC CI: −0.82 to −0.23; female: NEO-FFI: E & CD-RISC CI: 0.24–0.77; male: NEO-FFI: E & CD-RISC CI: 0.46–1.04). The strongly overlapping CIs show that the associations between resilience/neuroticism as well as resilience/extraversion do not differ significantly between men and women.

Formal approval to conduct the investigation has been obtained by the local ethics committee. The study was conducted in accordance with the Declaration of Helsinki and all procedures were carried out with the adequate understanding and written consent of the participants.

2.2. Measures

2.2.1. Traumatic Antecedent Questionnaire

The extent of positive and negative life experiences was assessed by the German version of the Traumatic Antecedent Questionnaire (TAQ; Herman, Perry, & van der Kolk, 1989). The TAQ is a 43-item self-report measure and contains 11 subscales (competence, safety, neglect, separation, secrets, emotional abuse, physical abuse, sexual abuse, witnessing, other trauma, alcohol, and drugs) with two to five three-point-scale items each. The