PERGAMON

Personality and Individual Differences 35 (2003) 381–388

PERSONALITY AND INDIVIDUAL DIFFERENCES

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The relationship between neuroticism, pre-traumatic stress, and post-traumatic stress: a prospective study

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Received 19 November 2001; received in revised form 21 May 2002; accepted 23 June 2002

Abstract

The personality trait of Neuroticism has been repeatedly associated with symptoms of post-traumatic stress disorder (PTSD). However, the nature of this relationship is unclear. There are at least two possible interpretations: neuroticism might be a risk factor for PTSD symptoms, or, alternatively, the relationship might be based on content overlap in arousal symptoms. With a prospective design, this study tested both possibilities. About 1370 women volunteers completed questionnaires early in pregnancy, measuring neuroticism and 'baseline' arousal symptoms, and for every 2 months thereafter until 1 month after the due date of birth. Of these, 126 had a pregnancy loss, and most of them were assessed for PTSD symptoms 1 month later. The results showed that pre-trauma neuroticism strongly predicted PTSD symptoms, and particularly PTSD arousal symptoms, after pregnancy loss. However, neuroticism was also strongly related to pre-trauma arousal. After statistically controlling for pre-trauma arousal symptoms, the relationship between neuroticism and PTSD symptoms after pregnancy loss was no longer significant. In other words, neuroticism did not predict rises in these symptoms from pre to post-trauma. This suggests that PTSD arousal symptoms tap a specific aspect of neuroticism, and that content-overlap largely accounts for the relationship between neuroticism and PTSD symptoms.

Keywords: Neuroticism; Posttraumatic stress disorder; Predictors; Trauma

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PII: S0191-8869(02)00200-3

1. Introduction

Post-traumatic stress disorder (PTSD) may result from exposure to a traumatic event. It comprises three symptom-clusters: 'reexperiencing', 'avoidance and numbing', and 'arousal' (APA, 1994). 'Reexperiencing' and 'avoidance and numbing' symptoms explicitly refer to this event. That is, reexperiencing necessarily involves reliving a specific event (e.g. intrusive recollections, flashbacks, and nightmares), and avoidance and numbing reflect avoidance of reminders of a specific event (e.g. thoughts, activities, places, and memory). However, the arousal-cluster includes symptoms that not necessarily reflect an external cause (e.g. sleeping problems, irritability, difficulty concentrating).

Not everyone exposed to a traumatic event develops PTSD. Therefore, other risk factors must play a role in the development of the disorder. In recent years, numerous studies examined such factors. One factor that has repeatedly been associated with PTSD symptoms is the personality trait of neuroticism. This was found in two ways. First, studies comparing PTSD patients to non-PTSD traumatized controls found significantly higher neuroticism scores for the former group. This holds for exposure to combat (Casella & Motta, 1990), bushfire (McFarlane, 1992), receiving HIV-diagnosis (Kelly et al., 1998), and other traumatic events in a community sample (Breslau, Davis, Andreski, & Peterson, 1991). Second, studies examining the degree of PTSD symptoms found higher neuroticism for individuals with more symptoms. This holds for exposure to combat (Hyer et al. 1994), earthquake (Lewin, Carr, & Webster, 1998), plane crash (Chung, Easthope, Chung, & Clark-Carter, 1999), bushfire (McFarlane, 1989), burn injury (Roca, Spence, & Munster, 1992), and traumatic war events experienced by parents (Mook et al., 1997). More specifically, neuroticism has been related to arousal symptoms (Charlton & Thompson, 1996; Ormel & Wohlfarth, 1991), and less to reexperiencing (McFarlane, 1992), or avoidance (Roca et al., 1992) symptoms.

However, the interpretation of this association is unclear. Previous research was restricted by chronic patient populations, retrospective data, and long time intervals between the traumatic event and the study. There are at least two possible interpretations of this relation. First, neuroticism might be a risk factor in the development of PTSD symptoms (Breslau et al., 1991; Kelly et al., 1998; McFarlane, 1989). In other words, individuals higher in neuroticism might be more reactive to a traumatic event (Bowman, 1999; Janssen, Cuisinier, de Graauw, & Hoogduin, 1997). Clearly, in order to determine causality, neuroticism ought to be measured prior to trauma, and PTSD symptoms should be assessed within months after the event. Although prospective trauma studies are difficult to do because of the randomness with which traumatic events occur, recently, Janssen et al. (1997) used such a design, though not predicting PTSD, but grief intensity. In a large sample of pregnant women, they assessed several potential risk factors early in pregnancy to predict grief intensity in women who later experienced pregnancy loss. Grief intensity correlated 0.50 with PTSD symptoms (Janssen, 1995), and its strongest predictor was, indeed, premorbid neuroticism.

Nevertheless, in studying risk factors, researchers need to ensure that putative vulnerability factors do not have content overlap with the related outcome measure. This might be a problem for neuroticism and PTSD, and especially PTSD arousal symptoms (see also Costa & McCrae, 1987; Watson & Pennebaker, 1989). Symptoms of general distress are not unique to PTSD, but occur in other anxiety (Jones & Barlow, 1990) and affective disorders (McNally, 1992), and are