



Post-traumatic cognitions as a mediator of the relationship between sense of coherence and post-traumatic stress disorder after motor vehicle accidents

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ABSTRACT

Objective: Individuals who experience a motor vehicle accident (MVA) are at increased risk for psychological problems, particularly post-traumatic stress disorder (PTSD). Among a wide range of pre-trauma cognitions, the sense of coherence (SOC) is considered as a good predictor of effective post-traumatic adaptation. However, the mechanism underlying the relationship between this resilience factor and the intensity of PTSD so far has not been fully explored. There arises the question of whether SOC protects only from the development of PTSD symptoms in the early post-traumatic period, or also from further development of the symptoms over time. Furthermore, has SOC an impact on PTSD directly, or through a third explanatory variable? This longitudinal study offers a contribution to the discussion. In searching for a potential mediator, the model of trauma-related beliefs was taken into consideration.

Method: Data were drawn from 289 MVA survivors. The first measurement took place one to six months after the injury; the second was taken a year later. The mediation hypotheses were tested using structural equation modelling. The path analysis method was carried out using LISREL 8.72.

Results: A path analytic modelling approach showed that SOC predicted the subsequent intensity of PTSD over and above what could be predicted from the initial symptom levels; however, the relationship was mediated by negative post-traumatic cognitions. Among them, only negative cognitions about self played a statistically significant mediating role.

Conclusions: Our findings highlight the inverse relationship between SOC and later PTSD symptoms, mediated by post-traumatic cognitions. The set of negative cognitions about self, strongly related to other post-traumatic appraisals, plays the most influential mediating role. This confirms the suggestion, found in the current literature, that negative cognitions about self may have some hierarchical preference that drives other belief systems. Moreover, our findings present SOC as a resilience factor that provides added value in predicting the long-term psychological outcomes of trauma. It protects against PTSD symptoms development and escalation over time through a specific cognitive mechanism. In consequence, changes in cognitions seem to constitute one of the basic mechanisms of the development and maintenance of PTSD symptoms. This fully supports the decision to include post-traumatic negative cognitions and alteration in mood in the diagnosis of PTSD in DSM-5.

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1. Introduction

Motor vehicle accidents (MVAs) often meet criteria for a traumatic event and frequently result in some psychological problems, including post-traumatic stress disorder (PTSD). However, the process of developing PTSD symptoms is complex and depends on many variables. Recent trauma theories hypothesise that traumatic experiences cause many changes in the victim's cognitions (Dagleish, 2004). These changes play an important role in the emotional response to trauma and post-traumatic consequences (Foa & Rothbaum, 1998). Consequently, many researchers focus on cognitive differences between non-traumatised individuals and those who have experienced some kind of trauma (Ehlers & Clark, 2000; Ehling, Ehlers, & Glucksman, 2008; Epstein, 1991).

However, not all trauma victims develop PTSD, and many who initially develop it recover over time (McFarlane & Yehuda, 1996). Moreover, some people are able to find elements of personal growth after trauma (Linley, Joseph, & Goodfellow, 2009; Tedeschi & Calhoun, 2004; Woodward & Joseph, 2003).

We conceptualise PTSD as a normal response to abnormal circumstances (Horowitz, 1986), and assume that there are some resilience factors that protect the individual from trauma, or favour a recovery (McFarlane & Yehuda, 1996). Critical to this issue is the question of how individuals who have been exposed to a traumatic event but do not develop PTSD differ from those in whom PTSD is present?

Some light is thrown on this salutogenic question by the Antonovsky's Sense of Coherence (SOC) concept (1979, 1987). It is understood as a set of personal beliefs, as follows: (1) stimuli deriving from one's internal and external environments are structured, predictable and explicable (*comprehensibility*), (2) demands posed by these stimuli are challenges, worthy of investment and engagement (*meaningfulness*) and (3) resources are available to meet these demands (*manageability*).

According to the cognitive schema theories of PTSD (Dagleish, 2004), people who report high SOC – in contradiction to those who report low levels – should possess cognitive schemas that enable them to perceive stimuli as predictable, well organised and under control, and in consequence they should cope with stress more effectively. Indeed, existing empirical data confirm that the higher the SOC, (1) the lower the distress (Hesse, 2008; Norris et al., 2002); (2) the higher the self-reported health status (Richardson & Ratner, 2005); (3) the faster the adaptation to highly demanding situations (Surtees, Wainwright, & Khaw, 2006); (4) the more the adaptive and the fewer the maladaptive coping strategies (Grota, 2006); and (5) the lower the intensity of PTSD (Dudek, 2003; Engelhard, van den Hout, & Vlaeyen, 2003; Kazmierczak, Strelau, & Zawadzki, 2011; Scheffer-Lindgren & Renck, 2008; Sommer & Ehlert, 2004).

Nonetheless, we ask the question regarding whether SOC protects only from the development of PTSD symptoms in the early post-traumatic period, or also from the further development of the symptoms over time? Has it a direct impact on PTSD? If not, what explains the relationship?

In searching for a mediator of the relationship between SOC and PTSD, the model of trauma-related beliefs proposed by Foa and Rothbaum (1998) was taken as the starting point of our study. Based on the emotional processing theory (Foa & Kozak, 1986), they defined PTSD as a consequence of some specific cognitive distortions appearing in the process of recovery. They also found that subjects with PTSD symptoms perceived themselves and the world as more negative, and reported more trauma-related self-blame, compared to non-traumatised and traumatised individuals without PTSD. As presented in Fig. 1, these cognitions might constitute the mediators of pre-trauma schemas and the development of PTSD after MVAs.

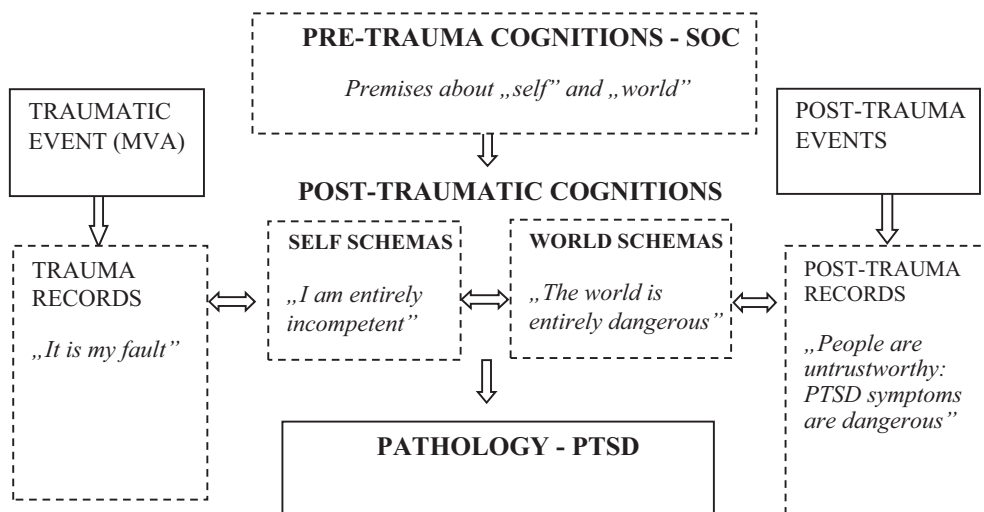


Fig. 1. A model of the path analytic approach to examine the relationships among pre-trauma and post-traumatic cognitions based on the schematic model underlying PTSD by Foa and Rothbaum (1998). Note: The elements of the model included in the study are bold.

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