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The effects of rumination on mood and intrusive memories after exposure to traumatic material: An experimental study

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ABSTRACT

Correlational studies have shown that trauma-related rumination predicts chronic post-traumatic stress disorder (PTSD). This study aimed to experimentally test the hypothesis that rumination is causally involved in the development and maintenance of PTSD symptoms. A video depicting the aftermath of serious road traffic accidents was used as an analogue stressor. After having watched the video, $N = 101$ healthy participants were randomly assigned to a guided thinking task designed to induce (a) rumination, (b) memory integration and (c) distraction. In line with the hypotheses, rumination led to less recovery from sad mood triggered by the video than the other two conditions. In addition, self-reported state levels of rumination during the guided thinking task predicted subsequent intrusive memories in the session. However, no significant main effect of the experimental manipulation on intrusive memories of the video was found. Results of exploratory analyses suggested possible sex differences in the way the processing manipulations were effective. Taken together, the results partially support the hypothesis that rumination is involved in the maintenance of negative mood and post-traumatic stress symptoms.

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1. Introduction

The majority of individuals who experience traumatic events such as a violent assault or severe road traffic accidents report symptoms of distress in the immediate aftermath (e.g. Kleim, Ehlers, & Glucksman, 2007; Murray, Ehlers, & Mayou, 2002). While some trauma survivors then go on to experience persistent symptoms of sufficient severity to warrant a diagnosis of post-traumatic stress disorder (PTSD), a significant proportion recover after a few weeks or months. For example, in the Detroit Area Survey of Trauma 25% of individuals meeting PTSD criteria (except duration criterion) in the weeks after the trauma had recovered at 6 months follow-up whereas 70% still met criteria after a year (Breslau et al., 1998). This raises the question of what factors contribute to the maintenance of the disorder.

A number of theorists have suggested that rumination about the trauma and/or its consequences is an important factor involved in the development and maintenance of post-traumatic stress symptoms (Ehlers & Clark, 2000; Ehlers & Steil, 1995; Joseph, Williams, & Yule, 1995; Wells, 2000). In line with this view, a cross-sectional study of ambulance service workers found rumination to be significantly related to PTSD symptom severity as well as a measure of general mental health (Clohessy & Ehlers, 1999; for similar results see Ehling, Frank, & Ehlers, 2008; Michael, Halligan, Clark, & Ehlers, 2007; Steil & Ehlers, 2000). In addition, a series of prospective longitudinal studies with survivors of road traffic accidents or assaults identified rumination in the immediate aftermath of the trauma as one of the strongest predictors of PTSD symptom severity at 6 months and 1 year, even when initial symptom levels were controlled (Ehlers, Mayou, & Bryant, 1998; Ehling, Ehlers, & Glucksman, 2008; Kleim et al., 2007; Michael et al., 2007; Murray et al., 2002). Interestingly, Michael et al. (2007) found that rumination was not unique to assault survivors with PTSD but was also reported by individuals without the disorder. However, the authors were able to identify specific characteristics of rumination that were closely linked to PTSD severity, namely engagement in “why” and “what if” type questions as well as unproductive circular thinking. In summary, there is evidence suggesting that rumination exacerbates post-traumatic stress symptoms. However, all of the above results are based on correlational data. Therefore, experimental studies are needed to test the hypothesized causal relationship.

Two earlier experimental studies investigated the effect of worry on intrusive images in the context of general anxiety disorder (Butler, Wells, & Dewick, 1995; Wells & Papageorgiou, 1995). In both studies, student participants were presented a distressing film and then asked to either worry about the film and its implications in a verbal form, engage in imagery about the film and its implications, or merely settle down. In both studies, worrying led to significantly more intrusive images about the film than the control conditions. As worry and rumination have been found to share a number of important process characteristics (Ehling & Watkins, 2008), results from these studies can be seen as indirect evidence for a causal effect of rumination on intrusive memories. However, additional analyses in the Butler et al. (1995) study revealed that there were no significant group differences in the time spent worrying during the induction period and that participants in the worry group actually reported more time imaging the content of the film than participants in the imagery or control group. It is thus not clear whether the induction of worry was successful and which processes were responsible for the differences in intrusive memories. In order to clarify the relationship between rumination and PTSD symptoms, studies are needed that induce trauma-related rumination with similar phenomenological properties as those described in PTSD (e.g., Michael et al., 2007).

Little is known about the mechanisms by which rumination exacerbates post-traumatic stress symptoms. It has been suggested that, like worry in generalized anxiety disorder (Borkovec, Shadick, & Hopkins, 1990), rumination might be a form of cognitive avoidance, serving to distract from more distressing cognitions, such as visual memories of the worst moments of the traumatic event (Ehlers & Steil, 1995). This is in line with clinical observations showing that ruminative thoughts often take the form of ‘why’ and ‘what if’ questions rather than focusing on the actual traumatic situation itself. In their cognitive model of PTSD, Ehlers and Clark (2000) suggest three different pathways by which rumination may contribute to PTSD symptoms. First, rumination is thought to prevent an elaboration of the trauma memory and to hinder its integration into preceding and subsequent experiences and other autobiographical memories, which has the consequence that cue-driven retrieval of intrusive trauma memories is not sufficiently inhibited. Secondly, rumination is assumed to strengthen negative

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