

Thought suppression enhances memory bias for threat material

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Abstract

The current study examined the impact of thought suppression on indices of anxiety, including memory indices (implicit and explicit memory biases) and physiological indices (heart rate). The participants, 81 undergraduates scoring in the top quartile of a self-report measure of trait anxiety, were randomly assigned to one of three experimental groups: thought suppression (TS), thought concentration (TC), and thought wandering (TW). The TC and TW groups were included to control for the effects of effortful processing and exposure to stimuli, respectively. One block of threat words and one block of neutral words were presented under conditions of cognitive load, and participants' physiological responses and memory biases were measured. The thought suppression group exhibited an enhanced overall memory bias for threat words, driven by an elevated explicit memory bias, relative to the other two groups, a result that has implications for ironic processes theory and may inform information-processing models of anxiety.

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Introduction

In daily life, virtually all people experience unwanted thoughts (Wegner, 1994). For example, in unselected samples, cognitive intrusions are generally reported by 99% of respondents (Freeston, Ladouceur, Thibodeau, & Gagnon, 1991; Purdon & Clark, 1993). Although the occurrence of such thoughts is commonplace, the various anxiety disorders are characterized by recurrent and persistent intrusive thoughts related to worry, anxiety, and fear (American Psychiatric Association, 2000), and thereby referred to as “threat-related”.

Individuals often try to suppress unwanted, aversive, and distressing thoughts (e.g., threat-related thoughts; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996; Wegner & Zanakos, 1994). Thought suppression entails effortful cognitive attempts to not think about or avoid a given thought (Wegner, 1994). However, attempts to use effortful cognitive strategies, such as thought suppression, to manage intrusive thoughts are associated with increased difficulty in eliminating the thoughts as compared with non-effortful responses (Freeston et al., 1991).

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Ironic processes theory (Wegner, 1994)

These observations are consistent with an extensive body of research relating to Wegner's ironic processes theory (Wegner, 1994). The theory postulates that thought suppression can generate hyperaccessibility, or enhanced cognitive accessibility of to-be-suppressed thoughts. After a period of attempted suppression, a rebound effect has been observed that takes the form of the suppressed thought being more accessible than it would have been without such suppression (Wenzlaff & Wegner, 2000). The theory was first supported by investigations conducted with unselected college samples, demonstrating that suppression of neutral thoughts leads to elevated subsequent thought rebound using think-aloud paradigms (e.g., Wegner, Schneider, Carter, & White, 1987). Findings also showed that hyperaccessibility is pronounced under conditions of cognitive load, in which participants suppress while performing an additional cognitive task (e.g., rehearsal of a nine-digit number; Wegner & Erber, 1992).

Thought suppression is hypothesized by Wegner to involve dual processes: an effortful operating process that searches for distracter thoughts to promote a desired state, and a non-effortful monitoring process that remains vigilant for unwanted thoughts in order to signal success or failure in suppression and to sustain a preferred state. Cognitive load is believed to enhance ironic effects by creating competing cognitive demands that impair effortful attempts at suppression, while leaving the monitoring process free to search for unwanted thoughts that may then intrude upon conscious awareness (reviewed in Wenzlaff & Wegner, 2000).

Ironic processes theory and anxiety disorders

Several investigations have evaluated ironic processes theory within the context of anxiety disorders. A correlational study by Wegner and colleagues showed an association between the tendency to suppress obsessional thoughts and self-reported occurrence of such thoughts in a sub-clinical college sample (Wegner & Zanakos, 1994). Other studies have examined suppression of threat-related thoughts characteristic of anxiety disorders, generally using self-reported thought occurrence paradigms. For example, Fehm and Margraf (2002) compared groups of participants with agoraphobia, social phobia, or no anxiety disorder, with instructions to suppress three statements: one relevant to fears in agoraphobia, one to fears in social phobia, and one to financial problems. Participants attempted to suppress each topic for 5 min while pressing a button each time the topic came to mind. The agoraphobic group showed a heightened frequency of thoughts related to the agoraphobia topic during attempted suppression, whereas participants with social phobia showed elevated frequency of thoughts across all topics.

Additional studies have employed instructed suppression and thought-monitoring methodology using target thoughts and samples representative of anxiety disorders, such as topics of worry in generalized anxiety disorder (e.g., Becker, Rinck, Roth, & Margraf, 1998; Mathews & Milroy, 1994), traumatic intrusions in posttraumatic stress disorder (e.g., Ehlers & Steil, 1995), feared stimuli in phobias (e.g., Wenzel, Barth, & Holt, 2003; Zeitlin, Netten, & Hodder, 1995), and obsessions in obsessive-compulsive disorder (e.g., Salkovskis & Campbell, 1994; reviewed in Purdon & Clark, 2000). Overall, the findings have been relatively inconsistent across the anxiety disorders, with more support for elevated thought frequency under conditions of suppression in posttraumatic stress disorder and obsessive-compulsive disorder than in specific phobias and generalized anxiety disorder (reviewed in Purdon, 1999).

Differing methodologies may also contribute to the discrepant findings. Certain measures of thought frequency, for example, may be subject to self-reporting biases. More specifically, participants with anxiety disorders or high in trait anxiety may avoid reporting intrusive thoughts on think-aloud or thought recall tasks as such tasks require reproduction of potentially anxiety-provoking stimuli (Gosselin et al., 2007; Hayes et al., 1996). Trait anxiety, as indicated by self-report in the present study, refers to a general propensity to respond fearfully to aversive or threat stimuli (Spielberger, 1985). In the present study, both an implicit memory measure and a recognition memory measure were used, such that participants were never required to reproduce the words presented during the experiment.

As previously stated, thought suppression is posited to enhance subsequent cognitive accessibility of to-be-suppressed thoughts. After a period of attempted suppression, a rebound effect has been observed whereby the suppressed thought appears more accessible than it would have been without such suppression (Wenzlaff

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