



## Trait-anxiety and repressors: Suppression of recall for aversive images

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### Abstract

Two studies tested the hypothesis that thought suppression could be a trait-based cognitive bias, resulting in paradoxical memory advantage. High-anxious (high trait-anxiety, low defensiveness), low-anxious (low trait-anxiety, low defensiveness), and repressors (low trait-anxiety, high defensiveness) observed emotionally evocative slides. Study 1 ( $N = 60$ ) participants observed slides for (4 s) to facilitate elaboration or avoidance thereof. Study 2 participants ( $N = 62$ ) viewed slides for 52-ms with pre- and post-mask (i.e., implicit encoding). Explicit encoding resulted in a significant *group*  $\times$  *slide valence* interaction for free recall, with repressors showing an advantage for negative slides, whereas high and low trait-anxious groups demonstrated no such difference. Because retrieval advantage was evidenced only for negative slides, and only in repressors, results suggest paradoxical memory rebound rather than mood-congruent memory. Moreover, similar results were not demonstrated following the implicit encoding condition, supporting the notion that avoidance occurs at the elaborative, rather than, encoding stage.

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## 1. Introduction

The phenomenon of mood-congruent memory has been difficult to demonstrate in anxious individuals. That is, in contrast to depression, where there is good evidence for explicit, elaborative memory biases for unpleasant events, evidence of memory biases in anxiety is mixed, and in general is observed on implicit rather than explicit tasks (Cloitre, Shera, Cancienne, & Zeitlin, 1994; Eysenck & Byrne, 1994; Lang, Craske, Brown, & Ghaneian, 2001; Levy & Mineka, 1998; MacLeod & McLaughlin, 1995; Nugent & Mineka, 1994; Parrott & Sabini, 1990; Reidy & Richards, 1997). To account for inconsistent findings, it has been hypothesized that anxious individuals may be avoiding initial processing or encoding of aversive stimuli in a way that later affects memory retrieval – thus the general term ‘cognitive avoidance’ (Mogg, Mathews, & Weinman, 1987; see also, Eysenck, 1997).

However, rather than representing an encoding bias, it is conceivable that cognitive avoidance occurs further along the information processing continuum, and is representative of a trait-based cognitive bias. In fact, a sub-type of trait-anxiety that has received growing attention is “anxious-repressors”. Compared to high and low trait-anxious individuals, repressors demonstrate an explicit, rather than implicit, memory bias (Oldenburg, Lundh, & Kivisto, 2002). Repressors are also characterized by heightened autonomic arousal despite self-report of low anxiety (i.e., repressors; Weinberger, Schwartz, & Davidson, 1979, 1990). Whereas high trait-anxious individuals over-report physiological arousal, repressors report low arousal despite physiological activity that is greater than both low and high trait-anxious (Derakshan & Eysenck, 1997; Gudjonsson, 1981; Newton & Contrada, 1992). Most relevant to the current study is that, in some cases, repressor personality types demonstrate a cognitive bias for positive stimuli, in terms of both speed of recall and content of memories, following exposure to aversive material (Boden & Baumeister, 1997; Cutler, Larsen, & Bunce, 1996; Myers & Brewin, 1995; Newman & Hedberg, 1999).

Repressors have also been found to utilize more distraction strategies when presented with negative stimuli than high or low trait-anxious groups (Myers, 1998). Such a cognitive search for a distracter is consonant with an ‘ironic processing’ explanation of thought suppression (Wegner, Erber, & Zanakos, 1993; Wegner, 1994). According to ironic processing theory, an *operant* process attempts to find a distraction from an unwanted thought, while an *ironic* process monitors for failures in suppression; the ironic aspect being that the process aimed at monitoring the success of thought suppression ensures its failure. As a result, thought suppression facilitates a paradoxical memory advantage for suppressed information (see Wenzlaff & Wegner, 2000 for review).

There is also growing support for the notion that memory rebound following suppression may be moderated by trait, and that certain traits such as repressors may be characterized by maladaptive cognitive styles. For example, Geraerts, Merckelbach, Jelicic, and Smeets (2006) found that in contrast to high and low trait-anxious individuals, repressors show increased thought intrusions and enhanced recall (i.e., rebound) for previously suppressed personal narratives. Moreover, results from Barnier, Levin, and Maher (2004) suggest that repressors may suppress thoughts even when not instructed to do so, suggesting a processing bias that repressors are already engaged in by default. Thus, it is plausible that repressors represent a personality type characterized by thought suppression, not just for negative self-referential information, but as a pervasive bias, constituting a cognitive vulnerability for anxiety spectrum disorders (Mathews & MacLeod, 2002, 2005).

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