



Cognitive avoidance, positive affect, and gender as predictors of the processing of aversive information

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ARTICLE INFO

Article history:

Available online 3 August 2008

Keywords:

Threat
Cognitive avoidance
Repressive discontinuity
Affective pictures
Gender differences

ABSTRACT

The study investigated the influence of cognitive avoidance, positive affect, and gender on the evaluation of and memory for threat-related information varying in degrees of aversiveness and ambiguity. Stimulus material consisted of threatening, nonthreatening, and ambiguous pictures. First, valence ratings of the stimuli were collected. This phase was followed by a first memory test. A second memory test was administered three days later. Memory for aversive information was influenced by cognitive avoidance, positive affect, and gender. Avoiders exhibited a comparatively good memory for aversive information in the first (immediate) test and a very poor memory in the delayed testing. A similar pattern was obtained for individuals high in positive affect. Compared to men, women gave more negative ratings to aversive and ambiguous pictures and had a better memory for ambiguous information in the immediate test. Results are discussed within the framework of the repressive discontinuity hypothesis proposed by Hock and Krohne [Hock, M., Krohne, H. W. (2004). Coping with threat and memory for ambiguous information: Testing the repressive discontinuity hypothesis. *Emotion*, 4, 65–86].

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1. Introduction

Studies of cognitive mechanisms that mediate and control reactions to threat and anxiety have established two broad personality constructs: *vigilance*, or the orientation toward threatening aspects of a situation, and cognitive avoidance, or averting attention away from this situation (Krohne, 2003; Roth & Cohen, 1986).

Vigilance and cognitive avoidance are central personality constructs in the model of coping modes (MCM; Krohne, 2003; Krohne, Hock, & Kohlmann, 1992). The MCM postulates that individuals who are dispositionally high in cognitive avoidance are especially affected by states of threat-induced emotional arousal. In order to reduce this aversive state, avoiders curtail the processing of threat-related cues. In contrast, individuals who are high in vigilance are especially susceptible to states of uncertainty experienced in threatening situations. Vigilant persons try to reduce this state by intensifying the intake and processing of threat-related information. The MCM conceives vigilant and avoidant coping tendencies as independent personality dispositions. This means that weak preferences for avoidance do not necessarily imply strong preferences for vigilance or vice versa. Instead, individuals may score low as well as high on both dimensions. Individuals who score high on both dimensions, for example, feel threatened by the states of uncertainty and emotional arousal. Because they cannot defend themselves against both types of aversive states at the same time, they experience an approach-avoidance conflict: To reduce the uncertainty that they experience as stressful, they must concentrate on the stressor. To alleviate emotional arousal, however, they should turn away from the stressor.

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The present study was designed to examine how individuals with distinct preferences for avoidant or vigilant coping encode, store, and retrieve threat-related events. The study of individual differences in the processing of aversive information has a long-standing tradition in personality and emotion research, especially with regard to the interpretation of ambiguous (potentially threatening) stimuli (for overviews, see Byrne, 1964; Krohne, 1996). Recent studies were mainly concerned with the hypothesis of an interpretative bias in anxiety, whereby anxious people preferably encode the threatening rather than the nonthreatening meaning of ambiguous stimuli (Mogg & Bradley, 1998; Mogg et al., 2000; Williams, Watts, MacLeod, & Mathews, 1997). This bias is assumed to be based on cognitive processes which prioritize the detection of threatening stimuli in the environment (Fox, Mathews, Colder, & Yiend, 2007; Williams, Mathews, & MacLeod, 1996).

In previous studies, we investigated anxiety- and coping-related interpretative biases with an experimental design that combined a rating task with a recognition memory test (Hock & Krohne, 2004; Hock, Krohne, & Kaiser, 1996). In a first experiment (Hock et al., 1996), we administered a rating task, which should provide indicators of the initial processing of ambiguous items. During this task a series of threat-related ambiguous sentences (combined with unambiguously nonthreatening sentences) was presented (e.g., “At the meeting your contribution elicits reactions”). The participants were asked to rate on a scale ranging from 1 (*pleasant*) to 9 (*unpleasant*) each sentence in terms of its affective valence while their response times were measured. Following this task, a previously unannounced recognition memory test was carried out, in which the participants had to judge disambiguated (threatening and nonthreatening) variants of the original sentences according to their similarity to one of the sentences presented during the rating task (e.g., “...your contribution is fiercely contested”, “...your contribution meets with approval”). This test yielded measures of individuals’ memory for threatening and nonthreatening meanings of the ambiguous sentences.

Based on the general assumptions concerning the constructs of vigilance and cognitive avoidance and following findings in earlier studies (Eysenck, Mogg, May, Richards, & Mathews, 1991; Haney, 1973), we expected that vigilant persons would interpret ambiguous scenarios in a threatening fashion and, therefore, would be more likely to remember their threat-related as opposed to their nonthreatening implications. In contrast, avoiders should preferably encode, store, and retrieve possible nonthreatening implications of these scenarios.

Results, however, did only partially confirm these hypotheses. Based on a joined classification of the valence ratings and response times observed in the rating task, we found that vigilant individuals indeed exhibited shorter response times and produced more negative ratings than nonvigilant persons. In contrast, high avoiders frequently produced midpoint ratings (M about 5) combined with comparatively long response times. This pattern indicates mixed reactions to ambiguous, potentially threatening, stimuli and points to the possibility that at an early stage of processing cognitive avoiders recognize the simultaneous presence of threatening and nonthreatening implications of ambiguous scenarios. At variance with expectations, avoiders did not curtail the processing of emotionally valenced information at encoding. In the subsequent memory test, however, avoiders manifested a retrieval bias that favored the potential nonthreatening implications of those events. This pattern indicates a *discontinuity* between encoding and retrieval of threat-related information.

A second experiment (Hock & Krohne, 2004; Study 1) replicated these findings. Again, avoiders manifested low scores for threatening variants, indicating a weak memory representation of threatening implications of ambiguous stimuli. The opposite was true for vigilant individuals. These coping-specific memory profiles supported the assumption of a specific memory deficit for threatening aspects of ambiguous stimuli in avoiders and a specific memory advantage for these aspects in vigilant individuals.

The described findings led to the elaboration of the “repressive discontinuity hypothesis” (Hock & Krohne, 2004). This hypothesis states that individuals with a repressive or cognitively avoidant disposition are sensitive to threat in early, perceptually driven phases of information processing. This early sensitivity, however, is counteracted by conceptually driven inhibitory processes that eventually lead to an impoverished memory for threat. Results supporting this conclusion were also obtained by Calvo and Eysenck (2000; for a review of related findings, see Derakshan, Eysenck, & Myers, 2007).

A common feature of both previous experiments is the short time span between encoding and memory test. It is unclear, however, whether the processes of interest actually reach their maximum impact within this period. Considering the entire information processing continuum (encoding, storage, and recall), discontinuity may exist between encoding and recall as well as between recall assessed shortly after stimulus presentation and delayed recall. The first type of discontinuity implies that avoiders display a “normal” or even better than average registration of threatening information, but show deficits in the recall of these items. The second type differentiates again within the memory process and postulates that avoiders, compared to nonavoiders, perform comparatively well in immediate memory tasks but fall behind in delayed testings. Distinguishing different types of discontinuity is necessary in order to precisely locate the effects of avoidant (as well as vigilant) mechanisms on information processing and, consequently, to predict where to expect respective personality differences. The third experiment (Hock & Krohne, 2004; Study 2) therefore addressed the differentiation within the memory process.

In this experiment, data were collected in two sessions scheduled three days apart. Session 1 was designed in the same way as in the two previous experiments, whereas Session 2 contained a second memory test. Concerning encoding of ambiguous stimuli, results confirmed previous findings: avoiders produced a large number of delayed midpoint ratings indicating mixed reactions, whereas vigilant individuals showed comparatively many threat interpretations. Results for the memory tests indicated that avoiders manifested a memory decrement from Session 1 to Session 2 for threatening variants of ambiguous stimuli. In contrast, vigilant persons showed a memory increment for these stimuli, leading to highly significant differences in memory performance between both groups in Session 2.

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