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## Selective attention to stressful distracters: effects of neuroticism and gender<sup>☆</sup>

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### Abstract

This study examined the influence of trait neuroticism and gender on selective attention, under the hypothesis that neurotic individuals would be more likely to direct attention towards stress-related distracters. Eighty-seven undergraduates completed a dichotic listening task paired with visual probes in a dual-task paradigm. The task was to shadow neutral passages in the attended ear and respond to visual probes, while ignoring distracters (neutral, academic stress, or social stress words) in the unattended ear. Analysis of reaction times to the visual probes indicated that, consistent with predictions, neurotic individuals were slower to respond to probes in the presence of stressful distracters, but, counter to predictions, this pattern was only evident in males. High neurotic females exhibited the reverse pattern, responding more quickly to probes in the presence of stressful distracters. Thus, results reveal that the relationship between neuroticism and selective attention bias is moderated by gender, indicating possible gender differences in strategies applied to the task. © 2002 Elsevier Science Ltd. All rights reserved.

*Keywords:* Neuroticism; Attention; Stress; Dichotic listening; Gender differences

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In recent years, research has focused on how individual differences in personality influence cognitive processing, with a particular emphasis on stable characteristics of personality such as those outlined by the five-factor model and similar trait theories (e.g. Costa & McCrae, 1992a). One of the personality factors under study is neuroticism, a stable personality trait indexing predisposition to negative affect (Watson & Clark, 1984). Neuroticism is of particular theoretical and clinical interest given that individuals scoring high on this trait appear at greater risk for developing affective disorders (e.g. Clark, Salazar-Grueso, Grabler, & Fawcett, 1984; Clark, Watson,

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<sup>☆</sup> This research was conducted as a BA thesis at Haverford College by the first four authors.

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& Mineka, 1994; Trull & Sher, 1994; Waring, Patton, & Wister, 1990). Neurotic individuals have greater emotional reactivity to stressful life events (Bolger & Zuckerman, 1995; Suls, Green, & Hillis, 1998), as well as experiencing more frequent negative life events (Bolger & Zuckerman, 1995; Magnus, Diener, Fujita, & Pavot, 1993). Though the relationship between neuroticism and stress is complex, one aspect of this relationship that merits further research is the role of cognitive processing. In particular, neurotic individuals may be more likely to focus cognitive processing on negative or stressful information.

The notion of attentive biases associated with personality was first suggested by Gray (e.g. 1976, 1991), who proposed that a behavioral inhibition system, closely associated with neuroticism, involves heightened attention and sensitivity to threat and punishment. More recent studies provide support for memory biases towards negative emotional information in neurotic individuals. For example, when asked to report thoughts that come to mind while reflecting on the past week, neurotic individuals were more likely to report negative thoughts (Ruiz-Caballero & Bermudez, 1995). Likewise, neurotic participants retrieved autobiographical memories more quickly following negative than positive prompts (Mayo, 1983; see also Mayo, 1989; Okun, Stock, Snead, & Wierimaa, 1987). However, apparent bias in autobiographical recall may be an artifact of the actual occurrence of more negative life experiences in neurotic individuals (Magnus et al., 1993). Thus, other studies have examined recall differences between low and high neurotics who are presented with the same stimulus information. For example, Young and Martin (1981) presented participants with a list of potentially self-relevant personality items and found that high neurotics tended to better remember the negative items on a subsequent test of free recall, a finding conceptually replicated by further studies (e.g. Martin, Ward, & Clark, 1983; Rusting, 1999).

The cognitive mechanism underlying recall biases in neuroticism remains to be elucidated. One possibility is a bias in selective attention, such that neurotic individuals pay more attention to negative information upon initial encoding. Another possibility is a bias at the time of memory retrieval, such that negative memories are more elaborated, accessible, and easily generated at retrieval. Indirect support for a selective attention mechanism is provided in a study of recall bias in neurotics by Martin et al. (1983). The authors argued that attention versus retrieval explanations for recall bias could be distinguished by examining intrusions of new negative items during recall. According to this logic, a retrieval bias but not a selective attention bias would predict more intrusions of new negative items in high neurotics. Since such increased intrusions were not observed, the authors argued that cognitive biases are likely occurring at the stage of selective attention rather than retrieval (Martin et al., 1983). However, biases in attention were not directly examined.

The notion of biased selective attention in neuroticism is also indirectly supported by research examining the influence of anxiety on selective attention. Several studies have found that clinically anxious individuals devote greater attention to emotionally threatening information, as demonstrated through emotional Stroop, dichotic listening, and visual dot probe selective attention paradigms (e.g. MacLeod, Mathews, & Tata, 1986; Mathews & MacLeod, 1985, 1986; Mogg, Mathews, & Weinman, 1989). For example, clinically anxious individuals are slower to name the ink color of threatening words, presumably because the threat-related content attracts attention away from the primary color-naming task (see Williams, Mathews, & MacLeod, 1996, for a review). Though some subsequent studies have demonstrated similar attentional biases in

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