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Shorter communication

## Selective attention for cardiac information in panic patients

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### Abstract

With various reaction time paradigms, panic patients have been shown to have selective attention for threatening sensations. However, almost all of these paradigms use words describing sensations and not the threatening sensations themselves. To increase the ecological validity, in the current study selective attention for heartbeat information was measured with a paradigm derived from the dot probe detection task but using ‘real’ heartbeat information instead of words. The results indeed showed selective attention for ECG information in panic patients. However, an accelerated ECG did not attract the attention of panic patients more than a slower ECG. Against expectation, both panic patients and normal controls shifted their attention away from an accelerated ECG. Possible explanations are explored. © 1999 Elsevier Science Ltd. All rights reserved.

*Keywords:* Panic disorder; Selective attention; Cardiac perception; Physical symptoms

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### 1. Introduction

Several studies have investigated whether panic patients have selective attention for feared bodily sensations. The phenomenon might be important because selective attention might cause greater interoceptive input, increasing the probability that feared somatic sensations are experienced (Ehlers & Breuer, 1996). Preliminary support for the hypothesis that panic patients are more interoceptively aware comes from studies using questionnaires, asking subjects how they think about their being bodily aware. For instance, in a study by Belfer and Glass (1992), subjects with panic disorder were found to score higher than controls and simple phobics on a

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questionnaire measuring body consciousness. Schmidt, Lerew and Trakowski (1997) found that panic patients scored higher on a scale developed to measure hypervigilance for bodily sensations. However, there might be discrepancies in what subjects report and what they really do. Panic patients may, for example, be aware of current psychological models of the disorder and reporting much bodily awareness may reflect a demand characteristic. It seems therefore important to measure attention in a way that circumvents subjects' beliefs or objectives.

Studies on selective attention less subject to these problems are for instance reaction time tasks like the Stroop task (MacLeod, 1991), or the dot probe detection task (MacLeod, Mathews & Tata, 1986). The Stroop task uses the rationale that it takes more time to name the color of a word when its meaning attracts attention. In several studies with this task, panic patients has been shown to slow down at words that are related to their disorder, like catastrophe words (e.g. death, collapse), bodily sensation words (e.g. dizzy, heartbeat: McNally, Riemann & Kim, 1990) or physical threat words (e.g. disease, mutilated: Mogg, Mathews & Weinman, 1989; fatal, illness: Hope, Rapee, Heimberg & Dombeck, 1990) or panic threat words (e.g. dizzy, fear: McNally et al., 1994). In the dot probe detection task subjects have to react to a dot that replaces one of two words that are simultaneously presented. If subjects are quicker to detect dots replacing threat words than dots replacing neutral words, this is interpreted as selective attention to threat-related information. In a study with this task, panic patients were shown to be quicker to detect dots that replaced physical threat words than dots that replaced neutral words (Asmundson, Sandler, Wilson & Walker, 1992).

However, the question is what selective attention for words tells us about selective attention for bodily sensations. A word in itself is no sign of threat. And even if its content represents a feared bodily sensation or a feared event, this might only indicate that panic patients are concerned about these matters, making the cognitive representations more readily accessible (Klinger, 1975; Riemann & McNally, 1995). Of course, concerns about bodily sensations, for instance, may be related to selective attention for the sensations. However, before it can be concluded that panic patients indeed scan their environment for signs of danger (Beck, Emery & Greenberg, 1985), selective attention for the signs of danger themselves, rather than for their representations, should be demonstrated.

The present study aimed to investigate whether panic patients show selective attention for cardiac events, using a paradigm that appears to be more ecologically valid than existing paradigms. The set-up is comparable to the dot probe detection task (MacLeod et al., 1986), but used more direct information of heartrate instead of words. Moreover, since it seems plausible that heartrate information is especially attention-attracting for panic patients when an acceleration can be perceived (a probable sign of danger), the second issue to be examined was whether a quicker pattern of heartrate attracts the attention of panickers more than of normals.

## **2. Method**

### *2.1. Subjects*

Subjects were recruited via an advertisement in a local newspaper asking for persons having

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