Reactivity to interoceptive cues in nocturnal panic

Michelle G. Craske*, Ariel J. Lang, Jennie C.I. Tsao, Jayson L. Mystkowski, Melissa K. Rowe

Department of Psychology, University of California Los Angeles, Franz Hall, 405 Hilgard Avenue, Los Angeles, CA 90095 USA

Department of Psychiatry, San Diego VA Healthcare System and University of California San Diego, USA

University of California Los Angeles Center for Health Sciences, USA

RAND Corporation, Santa Monica California, USA

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Abstract

In this study, patients with panic disorder (PD) who suffered nocturnal panic (NP) attacks were compared with PD patients who never experienced NP attacks and healthy controls. Three tasks were chosen to evaluate attention to cardiac cues, reactivity to induction of respiratory cues, and reactivity to relaxation cues. Relative to healthy controls, PD groups reported more fear of all three tasks and showed more physiological arousal in response to the hyperventilation task. The only task on which the two PD groups differed was the relaxation task, where nocturnal panickers were significantly more distressed. These findings are consistent with the notion that nocturnal panickers are fearful of states involving a diminution of conscious awareness or vigilance.

1. Reactivity to interoceptive cues in nocturnal panic

Cognitive-behavioral models implicate threatening misappraisals of and hypervigilance towards bodily sensations as important factors in the development and maintenance of panic disorder (PD) (Barlow, 1988; Clark, 1986; Ehlers & Margraf, 1989). These factors have been measured using various survey and experimental

*Corresponding author. Tel.: +1-310–825-8403.
E-mail address: craske@psych.ucla.edu (M.G. Craske).
methodologies. Patients with PD endorse strong fear of physical or mental harm arising from panic-related bodily sensations (e.g., Chambless, Caputo, Bright, & Gallagher, 1984; Clark et al., 1988; van den Hout et al., 1987). Also, they fear procedures that elicit such sensations, including benign cardiovascular, respiratory or audiovestibular exercises (e.g., Jacob, Furman, Clark, & Durrant, 1992) and more invasive challenge procedures such as carbon dioxide inhalations (e.g., Gorman et al., 1994; Perna, Bertani, Arancio, Ronchi, & Bellodi, 1995). False physiological feedback paradigms show that this fear extends to cues that PD patients believe signal heightened arousal in the absence of actual physiological change (Ehlers, Margraf, Roth, Taylor, & Birbaumer, 1988). Also, there is evidence for heightened awareness of, or ability to detect, bodily sensations (Ehlers & Breuer, 1992, 1996; Ehlers, Breuer, Dohn, & Fiegenbaum, 1995; Zoellner & Craske, 2000), presumably due to an attentional vigilance for panic-relevant interoceptive cues. The goal of the current study was to evaluate reactivity to interoceptive cues in PD patients who suffer nocturnal panic (NP) attacks with some regularity.

NP refers to waking from sleep in a state of panic. NP is distinct from dream-induced arousals. Rather, NP occurs without an obvious trigger, as do “spontaneous” or “unexpected” panic attacks during the day (see Craske & Rowe, 1997 for a review). We have speculated that NP reflects processes very similar to those that occur during day-time panic attacks, namely elevated reactivity to certain physiological events; but in this case, the physiological events occur during sleep (Craske & Barlow, 1989, 1990; Craske & Rowe, 1997).

Approximately 18–45% of PD patients experience NP regularly (Craske & Barlow, 1989; Mellman & Uhde, 1989b; Stein, Chartier, & Walker, 1993; Uhde, 1994) whereas others never experience NP. It is unclear why only a subset experiences NP with any regularity. One possibility is that patients with NP simply are more reactive or attentive to all panic-related interoceptive cues, so much so that their reactivity pervades sleep. Indirect support for this hypothesis comes from evidence for overall heightened distress in the group with NP. For example, NP patients report more frequent day-time panic attacks (Craske & Barlow, 1989; Uhde, 1994), are more likely to report a history of depression, have higher comorbidity with other anxiety disorders (Labbate, Pollack, Otto, Langenauer, & Rosenbaum, 1994; Uhde, 1994), and are more likely to report anxiety disorders throughout childhood (Labbate et al., 1994). However, there has been no direct evaluation of heightened reactivity to panic-relevant interoceptive cues. Another possibility is that patients with NP are reactive and attentive to an additional set of internal cues, namely those that occur during sleep or deep relaxation (Mellman & Uhde, 1989).

To test these two hypotheses, we compared groups of PD patients who regularly panicked out of sleep with those who never panicked out of sleep on tasks designed to measure reactivity to interoceptive cues. To evaluate whether those with NP are more reactive overall, we selected two tasks to which PD patients in general have been shown to be more reactive than healthy controls. A cardiac tracking task was used to measure anxiety in response to increased vigilance for cardiac cues. In addition, we were able to use this task to look at accuracy of interoception for heart rate (HR). As noted above, evidence consistently shows that, relative to controls, PD
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