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Classification of panic attack subtypes in patients and normal controls in response to biological challenge: implications for assessment and treatment

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Abstract

Panic attacks are symptomatically heterogeneous but efforts to describe such heterogeneity are relatively new. With regard to symptom presentation, at least three types of panic attack have been proposed based on the coupling or decoupling of verbal-cognitive and physiological symptoms: prototypic, cognitive, and nonfearful panic. The central aim of the present study was to address whether patients with panic disorder (PD) and nonclinical controls (NC) could be classified and discriminated (within and between groups) in terms of subtypes of panic attacks based on convergence and divergence of physiological and subjective arousal. Two samples of patients with PD ($n = 94$) and NC ($n = 70$) were exposed to single-breath vital capacity (VC) inhalations of 35% CO_2/65% O_2. Subjective anxiety and cardiovascular (heart rate (HR), systolic blood pressure (SBP), diastolic blood pressure (DSP)) reactivity to the challenge were measured. For reactive participants, response patterns suggested the production of differentiated and stable panic attack subtypes described as: (1) prototypical (high subjective, high physiological), (2) cognitive (high subjective, low physiological), and (3) nonfearful (low subjective, high physiological). Subtype frequency differed between groups (prototypical: 33% PD, 8% NC;

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cognitive: 37% PD, 4% NC; nonfearful: 11% PD, 42% NC). A panic attack typology based on convergence and divergence of different response systems appears to reliably discriminate patients with panic disorder and may have relevance for predicting clinical characteristics, treatment modality, and prognosis.

Keywords: Panic attacks; Biological challenge; Carbon dioxide; Assessment

1. Introduction

In recent years, considerable attention has been devoted to elucidating the nature and phenomenology of panic attacks (Barlow, Brown, & Craske, 1994). Such research, in turn, has not only confirmed speculation that panic attacks are ubiquitous in clinical and nonclinical populations, but has also resulted in increased recognition that panic attacks are not a unidimensional phenomenon with respect to clinical presentation. Rather, panic attacks are now viewed as heterogeneous in terms of their phenomenology, and interindividual heterogeneity as to the experience of panic itself (i.e., across subjective, physiological, and behavioral domains) appears to be the rule clinically, not the exception.

During the past decade, several dimensional typologies have been developed to more fully account for the apparent heterogeneity evidenced with regard to the phenomenon of panic (Klein & Klein, 1989; Ley, 1992; Whittal, Goetsch, & Eifert, 1996). Such efforts have attempted to elucidate factors that, either in whole or in part, contribute to the etiology and maintenance of panic attacks, including specification of variables and processes that contribute to a more unambiguous and precise definition of panic itself. Though Klein (1981) was the first to propose three unique subtypes of panic attack that minimize the role of psychological factors (i.e., spontaneous, situationally predisposed, and situationally bound), others have since proposed dimensional schemes that recognize the complex interplay between experiential (e.g., conditioning), biological (e.g., dyspnea, false alarms), and psychological (e.g., expectancies, anxious apprehension, catastrophic misinterpretation of benign physical symptoms) factors in producing the phenomenon of panic (e.g., Barlow, 1988; Craske, 1991; Ley, 1992; Whittal et al., 1996). The *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; APA, 1994) also underscores this point. For example, in the DSM-IV, heterogeneity is manifest in regard to the specific panic symptoms that are organized in a polythetic fashion such that a panic attack may be comprised of physical (e.g., numbness, palpitations) and/or cognitive (e.g., fear of dying) symptom domains.

Recent research designed to elucidate the nature and phenomenology of panic, and individual differences in the experience of panic, has taken the polythetic symptom presentation as a starting point for classification purposes. Consistent with this view, three conceptually and topographically distinct subtypes of panic that have been proposed based on the concordance or discordance between