



Implicit and explicit memory processes in panic patients as reflected in behavioral and electrophysiological measures

Paul Pauli^{a,*}, Wilhelm Dengler^b, Georg Wiedemann^b

^a*Institute of Psychology, Biological Psychology, Clinical Psychology, and Psychotherapy, University of Würzburg, Marcusstr. 9–11, D-97070 Würzburg, Germany*

^b*University Hospital of Psychiatry and Psychotherapy, University of Tübingen*

Received 17 March 2003; received in revised form 21 June 2004; accepted 5 August 2004

Abstract

Implicit and explicit memory processes for panic-relevant and neutral word stimuli were examined in 16 panic patients and 16 healthy participants matched for sex, age, and education, using behavioral and electrophysiological measures. In the study phase, panic-relevant and neutral words were presented and the level of processing was varied by requiring either shallow (orthographic) or deeper (syntactic) processing. Implicit memory was tested with a lexical decision task, explicit memory with a recognition task. Panic patients and healthy participants did not differ in behavioral (response time) or event-related brain potential (ERP) measures of implicit memory. However, panic patients deviated from healthy participants in the recognition test, an explicit memory test. Although recognition of panic words was overall worse compared to neutral words, panic patients compared to healthy participants exhibited enhanced discrimination scores and faster reaction times for panic words. The level of processing manipulation had comparable effects on patients and healthy participants. While neither behavioral nor electrophysiological measures provided evidence for an implicit

*Corresponding author. Tel.: +49 931 312843; fax: +49 931 312733.
E-mail address: pauli@psychologie.uni-wuerzburg.de (P. Pauli).

memory bias in panic patients, behavioral measures confirmed an explicit memory bias in panic patients for panic-relevant stimuli.

© 2004 Elsevier Ltd. All rights reserved.

Keywords: Panic disorder; Memory bias; Lexical decision task; Recognition task; Event-related brain potentials (ERPs)

1. Introduction

Vicious circle (Clark, 1986, 1988) and cognitive network (Foa & Kozak, 1993) models of panic disorder (PD) suggest that an abnormal processing of certain bodily symptoms is crucial for the development or maintenance of the disorder (Pauli et al., 1997). In PD, studies using information-processing paradigms revealed attentional, memory, interpretive, and interoceptive biases mainly for the processing of threatening, body-related stimuli (see the review by McNally, 1994).

In PD, memory biases were not found consistently, although the support for an explicit memory bias is stronger than for an implicit memory bias. Coles and Heimberg (2002) summarized that nine out of 15 studies (60%) found an explicit bias, while only two out of five studies (40%) revealed an implicit memory bias. Implicit memory measures were word stem completion tasks (Cloitre, Shear, Cancienne, & Zeitlin, 1994; Lundh, Czyzykow, & Öst, 1997; Rapee, 1994) or the white noise judgment paradigm (Amir, McNally, Riemann, & Clements, 1996). Coles and Heimberg (2002) concluded that further research specifically on implicit memory bias in PD is needed. Because discrepancies in findings may be related to the nature of the encoding task, they also suggested that it would be worthwhile to examine the effects of variations in encoding activities.

Variations in encoding may be accomplished by the level of processing manipulations, which have a clear effect on explicit memory as assessed with a recognition task (e.g., Paller, Kutas, & McIsaac, 1995). Although never examined directly, Coles and Heimberg (2002) speculated that in anxiety patients shallow processing during the study phase is unlikely to produce an explicit memory bias, while conceptual or deep processing presumably facilitates explicit memory biases. The present study systematically varied depth of processing during the study phase in order to examine this prediction in PD.

Word stem completion is the most frequently used measure of implicit memory biases in anxiety disorders. However, this measure has the disadvantage that participants have to produce the stimulus they fear (Coles & Heimberg, 2002). Anxiety patients normally avoid feared stimuli, and failures to obtain an implicit memory bias may be due to the patients' hesitation to produce the stimulus. The white noise paradigm and lexical decision tasks circumvent this disadvantage because participants do not have to produce stimuli. While the former was successfully used in PD patients (Amir et al., 1996), the latter has not been studied in PD patients. In the present study, a lexical decision test was realized to examine an

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات