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Memory performance related to organic and psychosocial illness attributions in somatoform pain disorder patients

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Abstract

Objective: Somatoform disorders are characterized by patterns of persistent bodily complaints. Organic illness attributions are assumed to represent a central supporting factor in the development and maintenance of somatoform disorders. Using group control design, we aimed to investigate the processing of illness-belief-related word stimuli in somatoform pain disorder patients. **Methods:** Organic-related, psychosocial-related, and neutral word stimuli were presented to 14 somatoform pain patients with a predominantly organic illness attribution, 14 somatoform pain patients with a predominantly psychosocial illness attribution, and 14 control participants. Behavioral measures were taken during free recall and recognition tasks. **Results:** Our study revealed cognitive impairment in somatoform pain patients with an organic attribution of pain symptoms as compared to somatoform pain patients with a psychosocial attribution and healthy controls in both free recall test and recognition test. However, selective processing of word stimuli was not observed for patient groups. **Conclusion:** We conclude that the observed impairment of memory performance in somatoform pain patients with an organic illness attribution may play an important role in the illness behavior of this patient group and ultimately result in the maintenance of symptoms and a more critical clinical outcome.

Keywords: Free recall; Illness attribution; Memory; Recognition; Selective processing; Somatoform pain disorder

Introduction

Somatoform disorders are characterized by patterns of persistent bodily complaints for which no sufficient explanatory structural or other specified pathology can be identified [1]. Patients' beliefs concerning their illness, as well as the way in which they interpret their symptoms, appear to be highly significant in both the onset and the persistence of their somatic experiences [2–11]. Experimental investigations of maladaptive cognitions in somatoform disorders have revealed general memory impairment [12,13], as well as attentional [13–17], interpretational [9], and selective memory biases [17–20].

There is ample evidence for the negative impacts of pain experience on general memory performance in clinical samples of pain patients, as well as in experimentally induced pain [21–25]. The selective processing of pain-related word stimuli in chronic pain patients observed in explicit [25–27] and implicit [28] memory tasks has been interpreted as a mood congruity effect. Theories of semantic networks and the Schema Theory [29–31] predict that individuals will selectively attend to, encode, and retrieve stimuli that are congruent to their current emotional state and long-term emotional tendencies.

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Other studies have focused on general memory performance and selective memory bias in somatoform disorders. Niemi et al. [13] interpreted impaired verbal memory performance in 10 somatoform disorder patients in terms of cerebral hypometabolism [12]. Pauli and Alpers [20] assessed memory biases in 28 patients with somatoform disorder and 14 patients without somatoform disorder using a free recall task with positive, negative, pain-related, and neutral word stimuli. Cognitive–behavioral theories of hypochondriasis [15] were supported by the finding of a memory bias against positive words. Two further studies focused on perception and memory biases for health-related words in the case of hypochondriasis. While both studies failed to find strong evidence of a perception and/or memory bias [18,32], Martin et al. [33] found an implicit memory bias for illness-related stimuli in a word–stem completion task in a somatization syndrome sample.

Barsky [34] introduced a widely accepted hypothesis that somatization involves "misinterpretation" and "somatosensory amplification" of bodily symptoms. According to this model, somatizing patients selectively seek information that reinforces their illness beliefs and intensifies their symptoms. In a prospective study assessing medically unexplained somatic symptoms, Henningsen et al. [6] used the Explanatory Model Interview to elicit patients' perceived causes of illness. In patients with similar levels of symptom severity, organic perceived causes were associated with a lower physical health score, and psychosocial perceived causes were associated with less severe depressive symptoms at 6-month follow-up.

The present study aimed to investigate general memory performance and selective memory processes for illness-belief-related word stimuli in somatoform pain patients with organic causal attributions (SPP-O) and somatoform pain patients with psychosocial causal attributions (SPP-P) as compared to a control group. Given the more critical clinical outcome in SPP-O [6] and the observed association between reduced clinical outcome and impaired general memory performance in chronic pain patients [24], we expected that (a) SPP-O and SPP-P would show impaired general memory performance as compared to the control group, and that this impairment would be more pronounced in SPP-O. Under the assumption that patient groups differ in their processing of illness-belief-related stimuli, we further assumed that, (b) in both free recall and recognition task, SPP-O would retrieve more organic-related words than the SPP-P group, and SPP-P would retrieve more psychosocial-related words than the SPP-O group.

Methods

Participants

Fourteen somatoform pain patients with low-back pain (11 women; mean age, 47.8 years; all right-handed) and a predominantly organic illness attribution (SPP-O) according to the German version of the Explanatory Model Interview Catalogue (EMIC [6,35,36]) were compared with 14 sex-matched, age-matched, and handedness-matched somatoform pain patients with low-back pain (11 women; mean age, 46.4 years; all right-handed) and a predominantly psychosocial illness attribution (SPP-P), as well as with 14 sex-matched, age-matched, and handedness-matched pain-free controls (CONTROL). Somatoform pain patients were consecutively recruited from the pain unit at the Orthopedic Clinic of the University of Heidelberg within their first week of admission to multiprofessional pain therapy. Inclusion criteria for patients were as follows: back pain including a diagnosis of somatoform pain disorder according to *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (*DSM-IV*) [37], clear organic or psychosocial illness attribution according to EMIC [6,35,36], normal or corrected-to-normal vision, and native German language. Exclusion criteria were lack of a somatoform pain diagnosis and balanced illness attribution.

Pain-free controls were recruited through advertisements. Control participants also had normal or corrected-to-normal vision and were native German speakers. They received €30 for participation. The study was approved by the Ethics Committee of the University of Heidelberg (no. 196/2002).

Procedure and design

Upon arrival in the clinic, the physician rated each back-pain patient with respect to relevant psychosocial illness-causing factors. Potential participants were informed about the course and duration of the study, and were asked to sign an informed consent form. The *Structured Clinical Interview for DSM-IV Axis I Disorders* (*SCID-I* [38]; German version [39]) and the German version of the EMIC [6,35,36] were used to assess mental diagnosis and illness attribution. Interviews were conducted by trained psychologists or research assistants. *SCID-I* is a structured interview designed to assess mental diagnosis according to *DSM-IV* criteria. The EMIC is a semistructured research instrument that measures illness explanatory models by delineating categories and narratives of illness-related experience, perceived causes, and behavior. Concerning perceived causes, an open question is followed by the interviewer asking about specific somatic, environment-related, social, mental, supernatural, or other causes of the illness. The patient also defines the most important perceived cause. After categorization and evaluation, the illness model is indexed as "clear somatic attribution," "predominant somatic attribution," "balanced," "predominant psychosocial attribution," or "clear psychosocial attribution." Studies have shown that the EMIC has good reliability measures (e.g., Cohen's κ for interrater reliability on perceived causes, κ=0.74 [36,40,41]). In the present study, patients given a diagnosis of a somatoform pain disorder according to *SCID-I* and a "clear" or "predominant"