Exposure therapy changes dysfunctional evaluations of somatic symptoms in patients with hypochondriasis (health anxiety). A randomized controlled trial

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\textbf{A B S T R A C T}

Dysfunctional evaluations of somatic symptoms are considered a central factor in maintaining hypochondriasis. The aim of the current study was to investigate whether exposure therapy (ET) without cognitive restructuring is sufficient to change dysfunctional evaluations of somatic symptoms. The study was based on a randomized controlled trial and compared patients with hypochondriasis (\textit{N} = 73) receiving ET or cognitive therapy (CT) to a wait list (WL) control group. In both the ET and CT groups, dysfunctional symptom evaluations changed significantly compared with the WL group. No differences between the ET and CT groups emerged. The relationship between the treatment condition (active treatment vs. WL) and reductions in health anxiety was mediated by changes in somatic symptom evaluations only in a specific card sorting procedure. We conclude that addressing dysfunctional symptom evaluations is a necessary precondition for the effective treatment of hypochondriasis. However, the results indicate that ET and CT appear to change those processes to a similar degree.

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1. Introduction

In the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), hypochondriasis is defined as the preoccupation with fears of having, or the idea that one has, a serious disease based on the person’s misinterpretation of bodily symptoms (\textit{American Psychiatric Association}, 2000). In the DSM-5, the original hypochondriasis diagnosis was divided into the diagnoses \textit{somatic symptom disorder} and \textit{illness anxiety disorder} (\textit{American Psychiatric Association}, 2013). Somatic symptom disorder should be used when diagnosing distressing somatic symptoms, and illness anxiety disorders should be diagnosed when somatic symptoms are not present or are present only at a mild intensity level. Moreover, in the DSM-5, medical illnesses are no longer an exclusion criterion for diagnoses. In contrast to the DSM diagnoses, the term \textit{health anxiety} refers to the full range of health concerns (see Marcus, Gurley, Marchi, & Bauer, 2007). Established cognitive-behavioral models emphasize that the interpretation of somatic symptoms as an indicator of a severe illness is a central maintaining factor for hypochondriasis and health anxiety (\textit{e.g.}, Warwick & Salkovskis, 1990).

The relevance of dysfunctional cognitions regarding bodily symptoms to hypochondriasis and health anxiety has also been strongly supported by empirical research (Bailer et al., 2013; Barsky, Coeytaux, Sarnie, & Cleary, 1993; Barsky et al., 2001; Fergus, 2014; Hadjistavropoulos, Craig, & Hadjistavropoulos, 1998; Haenen, Schmidt, Schoenmakers, & Van den Hout, 1998; Haenen, de Jong, Schmidt, Stevens, & Visser, 2000; Hitchcock & Mathews, 1992; MacLeod, Haynes, & Sensky, 1998; Marcus & Church, 2003; Marcus, 1999; Neng & Weck, 2015; Rief, Hiller, & Margraf, 1998; Schmidt, Witthöft, Kornadt, Rist, & Bailer, 2013; Weck & Höfling, 2015; Weck, Neng, Richtberg, & Stangier, 2012a, 2012b), and such beliefs can therefore be considered important risk factors for hypochondriasis and health anxiety. For example, in two studies (Marcus, 1999; Marcus & Church, 2003), the Symptoms and Outcome Scale (SOS) was used to evaluate a person’s estimation of the likelihood of various symptoms (\textit{e.g.}, painful headache) indicating catastrophic illnesses (\textit{e.g.}, brain tumor) and minor illnesses (\textit{e.g.}, migraine). In both studies, college students with higher levels of health anxiety estimated a greater likelihood of catastrophic illnesses than did the participants with lower levels of health anxiety. By contrast, the estimated likelihood of a minor illness was not found to be related...
to the level of health anxiety. Those findings were confirmed by a subsequent study that considered a clinical sample of patients with hypochondriasis and patients with an anxiety disorder as well as healthy participants (Weck et al., 2012b). Compared with control group participants, patients with hypochondriasis were more likely to perceive bodily symptoms as indicators of catastrophic illness (but not minor illness).

Another methodological approach to the evaluation of dysfunctional assumptions regarding bodily symptoms involves an adaptation of a card-sorting task, namely, the Health Norms Sorting Task (HNST; Barsky et al., 1993). The HNST consists of 24 cards with common and ambiguous somatic complaints (e.g., headache), and participants must consider whether a “completely healthy person” can be considered “still healthy” or “no longer healthy” if he or she develops one of the 24 symptoms. In the study of Barsky et al. (1993), patients with hypochondriasis categorized significantly more symptoms as “no longer healthy” than non-hypochondriacal controls did. The study was replicated and expanded by Weck et al. (2012a), who used the original version of the HNST and one version with more concrete instructions (i.e., “imagine yourself developing each of the following symptoms lasting for one week”). In this study, differences among patients with hypochondriasis, patients with anxiety disorders, and healthy controls emerged only when more concrete instructions were used, but differences were not observed with the original instructions for the HNST.

Based on the current knowledge in the field, it is not surprising that the modification of dysfunctional cognitions about bodily symptoms is a central aim in cognitive-behavioral therapy (CBT) for patients with hypochondriasis and health anxiety (e.g., Abramowitz & Bradock, 2008; Bleichhardt & Weck, 2015; Taylor & Asmundson, 2004; Warwick & Salkovskis, 2001). Therefore, the development and evaluation of alternative, non-threatening explanations for bodily symptoms represent an important intervention in CBT. In general, CBT has been demonstrated to be highly effective for the treatment of hypochondriasis (Olatunji et al., 2014). Moreover, research has demonstrated that CBT reduces cognitive issues (e.g., perceived risk of disease, attention to bodily symptoms) that have also been found to mediate reductions in health anxiety (Hedman et al., 2013).

In summary, dysfunctional evaluations of somatic symptoms are a specific characteristic of hypochondriasis; consequently, reducing that evaluation bias can be considered essential for treatment. However, it is questionable whether cognitive interventions are the only treatment capable of changing dysfunctional cognitions. Regarding the treatment of obsessive-compulsive disorder, for example, one study found that exposure therapy (ET) that included no cognitive restructuring also led to significant reductions in dysfunctional cognitions (Solem, Håland, Vogel, Hansen, & Wells, 2009). Moreover, for the treatment of posttraumatic stress disorder, a study showed that cognitive-processing therapy was superior to prolonged exposure in terms of the reduction of certain dysfunctional cognitions (i.e., “hindsight bias” and “lack of justification”) but not in the reduction of other cognitions (i.e., “global guilt” and “wrongdoing”; Resick, Nishith, Weaver, Astin, & Feuer, 2002). Therefore, it is important to consider whether ET without cognitive restructuring is sufficient to change dysfunctional evaluations of somatic symptoms in patients with hypochondriasis.

A recent randomized controlled trial (RCT; Weck, Neng, Richtberg, Jakob, & Stangier, 2014) provided evidence that ET changes health-related dysfunctional cognitions. Dysfunctional cognitions were assessed through clinical interviews using a subscale of the Yale-Brown Obsessive Compulsive Scale for Hypochondriasis (H-YBOCS; Weck, Gropalis, Neng, & Witthöft, 2013) and the Cognitions about Body and Health Questionnaire (CABAH; Rief et al., 1998). In the ET and cognitive therapy (CT) groups, the scores for the cognitive subscale of the H-YBOCS and the CABAH changed significantly relative to a wait list (WL) control group. No differences between the ET and CT groups were found. However, neither measure assesses the evaluation of somatic symptoms; rather, they assess the consequences of health-related beliefs (e.g., the H-YBOCS: “Time occupied by thoughts about illness”) or more general assumptions about self’s health (e.g., the CABAH: “I am physically rather weak and sensitive”). Those more general dysfunctional assumptions were considered relevant to the development of hypochondriasis, but more specific symptom evaluations of somatic symptoms were considered relevant to the maintenance of hypochondriasis (Warwick & Salkovskis, 1990). It is unclear whether specific evaluations of somatic symptoms, as in the cases of the SOS or the HNST, can be changed via ET without formal cognitive restructuring.

The aim of the present study was to investigate whether the use of ET without cognitive restructuring is sufficient to reduce dysfunctional evaluations of somatic symptoms in patients with hypochondriasis. Therefore, the study by Weck et al. (2014) was reexamined using two specific measures (i.e., the SOS and HNST) to assess participants’ evaluations of their somatic symptoms. We hypothesized that both ET and CT would lead to significant reductions in SOS (for catastrophic illnesses but not for minor illnesses) and HNST scores (Hypothesis 1). Moreover, we hypothesized that CT and ET do not significantly differ in their ability to reduce SOS and HNST scores (Hypothesis 2). Furthermore, we expected that reductions in the dysfunctional evaluations of somatic symptoms (i.e., the SOS and HNST) would mediate the relationship between treatment conditions (active treatment vs. WL) and reductions in health anxiety (Hypothesis 3).

2. Method

A detailed description of the RCT was presented by Weck et al. (2014). In this study, both ET and CT demonstrated their efficacy relative to the WL for the primary and secondary outcome measures, and no differences between ET and CT were observed for the primary and secondary outcome measures. With regard to the completer analyses, a larger improvement in the reduction of safety behaviors was found for the ET group relative to the CT group. The current study included 73 patients who completed pre- and post-evaluations using the SOS and HNST (see Fig. 1).

2.1. Participants

All 73 participants met the DSM-IV criteria for hypochondriasis according to the Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 1997). The study excluded patients with a major medical illness (e.g., all types of cancer, multiple sclerosis, Parkinson’s disease, AIDS, hepatitis); acute suicidality; and clinical diagnoses of substance addiction, schizophrenia, Schizoaffective disorders, and bipolar disorders. No significant differences in the participants’ characteristics were found among the three groups (ET, CT, and WL; see Table 1).

2.2. Measures

2.2.1. Symptoms and Outcome Scale (SOS)

The likelihood of various symptoms being indicative of particular illnesses can be estimated using the SOS (Marcus, 1999). This scale consists of 20 different descriptions of individuals with physical symptoms (e.g., “Betty has noticed a tingling in her fingers that has not gone away for the past two weeks”) that must be considered when evaluating the individuals’ probability of having a particular disease (e.g., “What is the probability that Betty is developing multiple sclerosis?”) on a five-point scale ranging from 1 (0%–20%) to 5 (81%–100%). Each symptom appears twice: once paired with a
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