Changes in negative implicit evaluations in patients of hypochondriasis after treatment with cognitive therapy or exposure therapy

Franziska Schreiber [a, *], Michael Witthöft [b], Julia M.B. Neng [a], Florian Weck [b]

[a] Department of Clinical Psychology and Psychotherapy, Goethe-University, Frankfurt am Main, Germany
[b] Clinical Psychology, Psychotherapy and Experimental Psychopathology, Johannes Gutenberg University, Mainz, Germany

ARTICLE INFO

ABSTRACT

Background and Objectives: Previous studies using modified versions of the Affect Misattribution Procedure (AMP; Payne, Cheng, Govorun, & Stewart, 2005) have revealed that there is an implicit negative evaluation bias of illness-related information in patients with hypochondriasis (HYP), which might be a maintaining feature of HYP. However, there is no evidence on whether this bias might be targeted successfully by effective treatments, such as exposure therapy (ET) or cognitive therapy (CT). This is the first study to examine the change in negative implicit evaluations in a randomized controlled trial, including individual CT and ET, compared to a wait-list control group for HYP.
Methods: An AMP with illness, symptom and neutral primes was used in 70 patients with HYP before and after treatment (wait-list respectively).
Results: There was no significant change in negative implicit affective evaluations in both CT and ET, compared to wait-list. However, comparisons between the two active treatments revealed an interaction effect, that only for CT were the affective reactions on illness-as well as symptom-related prime trials (but not neutral primes) significantly more positive at post-compared to pre-treatment. In CT but not in ET, the reduction of implicit negative evaluation bias regarding symptom-related primes was significantly related to the reduction of self-reported health anxiety.
Limitations: The small subsample sizes for CT and ET, in comparison to wait-list, prohibit the detection of smaller effects.
Conclusions: Formal cognitive restructuring is necessary for reducing implicit negative evaluation bias in HYP, but the latter is not a prerequisite for reducing health anxiety. Thus, the importance of the negative implicit evaluation bias for the maintenance of HYP remains questionable.

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1. Introduction

Cognitive models of hypochondriasis (HYP) and health anxiety (e.g., Rachman, 2012; Warwick & Salkovskis, 1990) emphasize the importance of cognitive and affective misinterpretations of essentially harmless body sensations as severe signs of a physical illness and highlight the dysfunctional processing of illness- and symptom-related information in the maintenance of HYP.

Accordingly, there is increasing evidence of cognitive and affective biases regarding illnesses and bodily symptoms, in analogue as well as clinical samples of HYP and health anxiety including appropriate control groups (e.g., anxiety disorders) using explicit measures (e.g., Barsky et al., 2001; Fergus, 2014; Marcus & Church, 2003; Marcus, Gurley, Marchi, & Bauer, 2007; Neng & Weck, 2015; Rief, Hiller, & Margraf, 1998; Schmidt, Witthöft, Kornadt, Rist, & Bailer, 2013; Weck, Neng, Richtberg, & Stangier, 2012a; Weck, Neng, Richtberg, & Stangier, 2012b; Witthöft & Hiller, 2010).[1]

* Corresponding author. Clinical Psychology and Psychotherapy, Goethe-University, Varrentrappstr. 40-42, 60486 Frankfurt am Main, Germany.
E-mail addresses: schreiber@psych.uni-frankfurt.de (F. Schreiber), witthoef@uni-mainz.de (M. Witthöft), neng@psych.uni-frankfurt.de (J.M.B. Neng), flweck@uni-mainz.de (F. Weck).

[1] We refer to HYP in case that empirical evidence was drawn on the basis of clinical samples of diagnosed HYP, whereas health anxiety is used if studies used analogue samples of participants with higher levels of health anxiety but without fulfilling the diagnostic criteria for full-blown HYP.

Despite the large body of evidence using explicit assessments, empirical evidence on dysfunctional information processing at an implicit level with clinical samples of HYP remains sparse (Schmidt et al., 2013). However, adding implicit assessments is crucial, since they enable the measurements of automatic uncontrollable information processing (e.g., Greenwald & Farnham, 2000). Until now, most studies using implicit paradigms such as the emotional Stroop or the dot-probe task in clinically relevant HYP, have revealed a preferred attention allocation effect toward health-threatening information or memory biases (e.g., Brown, Kosslyn, Delamater, Fama, & Barsky, 1999; van den Heuvel et al., 2005). Furthermore, Weck and Höfling (2015) showed, using an adapted Implicit Association Test (Greenwald, McGhee, & Schwartz, 1998), that patients suffering from HYP had significantly more dysfunctional implicit health attitudes than patients with an anxiety disorder.

Recently, two studies showed that an implicit negative evaluation bias of illness-related information seems to be related to HYP and health anxiety (Jasper & Witthöft, 2013; Schreiber, Neng, Heimlich, Witthöft, & Weck, 2014). In both studies, adapted versions of the Affect Misattribution Procedure (AMP; Payne, Cheng, Govorun, & Stewart, 2005) were used to measure automatically elicited negative implicit affective evaluations of illness signs. In the original AMP, positive or negative pictures are presented supraliminally, followed by a Chinese pictograph that represents the ambiguous target. The instruction is to avoid letting oneself be influenced by the prior prime, but instead to rate the pleasantness of the Chinese character. Despite the warning on the influence of the prime, participants tend to missattribute their affective response from the prime to the Chinese pictograph (De Houwer & Tucker Smith, 2013; Gawronski & Ye, 2013; Oikawa, Aarts, & Oikawa, 2011; Payne et al., 2013). Accordingly, the implicit affective attitude is reflected by the mean pleasantness rating for the Chinese pictograph of a specific prime category. Thus, the AMP does not rely on reaction times, in contrast to other widely-used implicit measures such as the Implicit Association Test. Rather, it is based on implicit affective ratings that are similar to everyday decision-making, without requiring much work-load (Witthöft, Basfeld, Steinhoff, & Gerlach, 2012), thus yielding good feasability for the assessment of affect-driven implicit evaluations in HYP.

Jasper and Witthöft (2013) showed that negative implicit evaluations of health threatening pictorial stimuli in the AMP were positively associated with cognitive and behavioral facets of self-reported health anxiety. These findings were replicated and extended by Schreiber et al. (2014), who were the first to show that patients with HYP also display significantly more negative implicit evaluations regarding illness-related primes, in comparison to a group of patients with anxiety disorder, as well as to healthy controls. Furthermore, the negative implicit evaluations regarding illness words were significantly associated with explicit measures of self-reported health anxiety, indicating negative implicit evaluations of illness-related information being a specific feature of HYP. Moreover, the automatic affective evaluations on the AMP with symptom words were also significantly more negative in the HYP group than in the healthy control group. However, no association was found for the AMP with symptom words and explicit measures of health anxiety. Accordingly, Schmidt et al. (2013) did not find stronger implicit negative associations regarding bodily symptom words in a sample with elevated health anxiety, compared to non-health-anxious controls on the Implicit Association Test D-measure. Thus, the role of implicit negative affective evaluations regarding symptom words remains ambiguous.

Cognitive-behavioral therapy is a common and very effective treatment for HYP and health anxiety (Olatunji et al., 2014), which includes interventions that aim to change and reduce dysfunctional cognitions, and cognitive as well as affective bias, regarding illnesses and bodily symptoms (e.g., Abramowitz & Bradock, 2008; Warwick & Salkovskis, 2001). Using an experimental measure of preferred attention allocation to illness-related stimuli (the emotional Stroop-task), Gropalis, Bleichhardt, Hiller, and Witthöft (2013) demonstrated that attentional bias concerning illness-related information decreased in patients with HYP after four months of treatment with cognitive-behavioral therapy. However, the lack of a control condition prohibits causal conclusions from being drawn. To the best of our knowledge, there is no study assessing implicit affect-driven evaluations over the course of treatment in HYP.

In contrast to HYP, studies on anxiety disorders (e.g., panic disorder, specific phobia, social anxiety disorder, general anxiety disorder) have shown more clearly that dysfunctional implicit biases can be changed by treatments with ET (e.g., Clerkin, Fisher, Sherman, & Teachman, 2014; Teachman & Woody, 2003), CT (e.g., Ritter, Leichsenring, Strauss, & Stangier, 2013) or cognitive-behavioral therapy (e.g., Reinecke, Rinck, Becker, & Hoyer, 2013; review by Teachman, Joormann, Steinman, & Gotlib, 2012).

Considering that a negative implicit evaluation bias represents a specific feature of HYP, it is unknown whether this bias might be targeted by common treatments for HYP, such as ET or CT. Moreover, it is unknown whether a change in implicit negative evaluations is necessary for recovery from HYP. In a recent randomized control trial by Weck, Neng, Richtberg, Jakob, and Stangier (2014) and subsequent analyses (Weck, Neng, Schwind, & Höfling, 2015), there was no evidence that CT in particular is essential for changing explicit dysfunctional cognitions, compared to treatment with ET. In both treatments, changes regarding specific cognitions about health were significantly reduced in comparison to the wait-list group. However, effect sizes for ET were larger than for CT. Furthermore, ET was superior to CT regarding the reduction of safety behaviors (at least in the completer analyses).

To the best of our knowledge, this is the first study using the AMP to assess treatment effects in the realm of psychopathology, as well as the first study assessing implicit treatment outcomes including adequate control conditions in HYP. We sought to investigate and compare changes in implicit affective responses to mild symptom words (e.g., nausea), as well as illness words (e.g., tumor) from pre-to post-treatment in patients with HYP, prior to and after CT, ET or wait-list from the randomized controlled trial by Weck et al. (2014). In line with cognitive models of HYP and previous studies (e.g., Lefaivre, Watt, Stewart, & Wright, 2006; Witthöft et al., 2013, 2008), one might assume that the two prime categories correspond to different aspects of cognitive processing. For instance body symptoms operate as triggers of early selective attention allocation processes of health anxiety. Consequently, patients with HYP start to ruminate about severe illnesses leading in turn to strong affective reactions. In contrast, illness words correspond more directly to elaborative catastrophic thoughts and are salient triggers of elevated negative automatic reactions (Schreiber et al., 2014; Witthöft et al., 2008). Therefore, potential differences between the changes in both prime categories of the AMP over the course of treatment could indicate change of different underlying maintaining processes according to cognitive models of HYP.

We hypothesized that patients with HYP, receiving either CT or ET, would yield less negative implicit evaluations of illness, as well as of symptom words after, compared to prior treatment, in comparison to patients who were randomized to wait-list, whereas no change was expected regarding the neutral primes. Because the evidence regarding change is ambiguous so far, we wanted to examine whether ET and CT differ regarding pre-to post-treatment reductions in negative implicit evaluation effects with regard to illness, as well as symptom words. Furthermore, we aimed to