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Predictors in Internet-delivered cognitive behavior therapy and behavioral stress management for severe health anxiety

Erik Hedman [a, b, *], Erik Andersson [b, c], Mats Lekander [a, d], Brjánn Ljótsson [b]

[a] Department of Clinical Neuroscience, Osher Center for Integrative Medicine, Karolinska Institutet, Stockholm, Sweden
[b] Department of Clinical Neuroscience, Division of Psychology, Karolinska Institutet, Stockholm, Sweden
[c] Department of Clinical Neuroscience, Division of Psychiatry, Karolinska Institutet, Stockholm, Sweden
[d] Stress Research Institute, Stockholm University, Stockholm, Sweden

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ABSTRACT

Severe health anxiety can be effectively treated with exposure-based Internet-delivered cognitive behavior therapy (ICBT), but information about which factors that predict outcome is scarce. Using data from a recently conducted RCT comparing ICBT ($n = 79$) with Internet-delivered behavioral stress management (IBSM) ($n = 79$) the presented study investigated predictors of treatment outcome. Analyses were conducted using a two-step linear regression approach and the dependent variable was operationalized both as end state health anxiety at post-treatment and as baseline-to post-treatment improvement. A hypothesis driven approach was used where predictors expected to influence outcome were based on a previous predictor study by our research group. As hypothesized, the results showed that baseline health anxiety and treatment adherence predicted both end state health anxiety and improvement. In addition, anxiety sensitivity, treatment credibility, and working alliance were significant predictors of health anxiety improvement. Demographic variables, i.e. age, gender, marital status, computer skills, educational level, and having children, had no significant predictive value. We conclude that it is possible to predict a substantial proportion of the outcome variance in ICBT and IBSM for severe health anxiety. The findings of the present study can be of high clinical value as they provide information about factors of importance for outcome in the treatment of severe health anxiety.

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Introduction

Severe health anxiety is common in medical settings, chronic for the majority of affected individuals if untreated, and associated with functional impairment and substantial suffering (Abramowitz, Olatunji, & Deacon, 2007; Barsky, Fama, Bailey, & Ahern, 1998; Tyrer et al., 2011). In the present paper the term severe health anxiety is used synonymously with DSM-IV hypochondriasis (American Psychiatric Association, 2000). In two recently conducted randomized controlled trials (RCTs) our research group has shown that Internet-delivered exposure-based cognitive behavior therapy (ICBT) is effective in the treatment of severe health anxiety (Hedman et al., 2011, 2014). ICBT can be described as therapist-guided online bibliotherapy and requires less therapist time than face-to-face CBT and has the important advantage that each therapist can treat as many as 80 patients simultaneously (Andersson, 2009; Andrews, Cuijpers, Craske, McEvoy, & Titov, 2010). For anxiety disorders and depression this type of treatment can yield large effect sizes and seems to be similarly effective as the most well-established psychological treatments delivered in a face-to-face format (Hedman, Ljótsson, & Lindefors, 2012). Although ICBT for severe health anxiety is generally effective about a third of patients are insufficiently improved. For the clinician it is therefore important to know how likely it is that a given patient will respond to treatment. Gaining more knowledge about these likelihoods can be achieved by investigating prognostic factors, i.e. predictors of treatment response. Using this knowledge in clinical contexts can lead to a larger proportion of successfully treated patients (Kraemer, Wilson, Fairburn, & Agras, 2002). This can be achieved by using empirical data regarding predictors when making treatment recommendations, i.e. to offer ICBT only to those who are likely to respond it. It can also be used to generate hypotheses about how

* Corresponding author. Department of Clinical Neuroscience, Karolinska Institutet, Retzius väg 8, SE-171 77 Stockholm, Sweden. Tel.: +46 484 26 29; fax: +46 8 779 54 16.

E-mail address: kire.hedman@ki.se (E. Hedman).

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the treatment might be improved or how it could be individually tailored. For example, if it would be found that persons with reading difficulties do not respond to treatment it may be of interest to develop a treatment relying more on video clips and audio files than large amounts of text.

Based on the first published RCT of ICBT for severe health anxiety (Hedman et al., 2011), we analyzed clinical, demographic and therapy process-related predictors and found that more health anxiety at baseline predicted more improvement whereas more depressive symptoms were related to less improvement (Hedman et al., 2013). In that study, treatment adherence in terms of number of completed treatment modules was also positively associated with improvement, while demographic factors were largely unrelated to outcome (Hedman et al., 2013). However, a limitation of much predictor research is that findings tend to be fairly inconsistent across studies and it has been suggested that predictors found in one sample should be validated in a second sample to avoid type I errors (e.g. Hellstrom & Ost, 1996). We have found no replication studies on predictors of psychological treatment of severe health anxiety, i.e. where the same treatment is tested and the same methods for investigating predictors are used. The firm structure of ICBT and the limited between-therapist effects makes it highly suitable for predictor replication research. This means that if a predictor is identified in one study it should also be present in another, given adequate power and that participants are recruited from the same population. In a recently conducted RCT we compared ICBT with Internet-delivered behavioral stress management (IBSM) for severe health anxiety (Hedman et al., 2014). The results showed that both treatments yielded large reductions of health anxiety but that exposure-based ICBT was more effective (Hedman et al., 2014). This second trial provides a very good framework for hypothesis-driven testing of predictors. That is, the predictors found in the first trial of ICBT for severe health anxiety should be associated with outcome also in the second trial if they are of true predictive value. The design of this RCT also allows for testing of moderators, i.e. treatment specific predictors. As ICBT is based on exposure to health anxiety-provoking stimuli and IBSM is based on symptom control through applied relaxation and stress management it could be that predictors differ between treatments. In other words, it could be that one treatment is more suitable than the other depending on patient characteristics.

Although not previously investigated in ICBT for severe health anxiety, five additional potential predictors were considered of interest in the present study due to previous research. These were somatosensory amplification, perceived competence, mindfulness, working alliance and reading skills. Somatosensory amplification can be described as “the tendency to experience somatic and visceral sensation as unusually intensive, obnoxious or disturbing” and has been suggested to be involved in the pathogenesis of health anxiety and found to be elevated in persons with severe health anxiety (Barsky, Wyshak, & Klerman, 1990). Perceived competence, according to self-determination theory, is related to anxiety and some evidence suggests that perceived competence can predict symptoms of anxiety and depression (Uhrlass, Schofield, Coles, & Gibb, 2009). Mindfulness, which has been defined as bringing awareness to the present moment in an accepting way (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006), was regarded potentially relevant in the present study as mindfulness training is part of ICBT for severe health anxiety throughout the treatment. We viewed the mindfulness facet non-reactivity to internal events to be of specific interest as that is something that could facilitate successful exposure and response prevention. Working alliance can be described as the degree to which the patient and the therapist agree on goals and tasks and how strong their relational bond is (Horvath & Greenberg, 1989). A previous study has shown that working alliance can predict improvement in ICBT for post-traumatic stress disorder (Knaevelsrud & Maercker, 2007). Finally, as ICBT could be viewed as a form of bibliotherapy and patients read about 100 pages of text during the treatment it could be that reading ability is a factor that is related to outcome. To our knowledge, no prior study has investigated whether these five factors predict outcome in ICBT for severe health anxiety.

The aim of this study was to investigate clinical (e.g. symptom levels), demographic (e.g. age) and therapy process-related (e.g. adherence) predictors in ICBT and IBSM for severe health anxiety using data from an RCT. Employing a replication design, we hypothesized that higher baseline health anxiety would predict larger improvements but higher end state health anxiety. Depressive symptoms were expected to be associated with less improvement as well as with higher end state health anxiety. We also hypothesized that more completed modules would predict larger improvements and less end state health anxiety. Based on the results from the previous predictor study of ICBT (Hedman et al., 2013), the remainder of tested factors was hypothesized to have little predictive value. Somatosensory amplification, self-efficacy, mindfulness, working alliance and reading skills, were analyzed within an exploratory framework.

Methods

Design

This study was based on data from an RCT in which adult participants with severe health anxiety were randomized to 12 weeks of ICBT ($n = 79$) or IBSM ($n = 79$). The study was considered a replication of a previously published study investigating predictors in ICBT for severe health anxiety (Hedman et al., 2013). Dependent variables were assessed at post-treatment, i.e. directly after treatment, and predictor variables at baseline or within two weeks of treatment start. If not otherwise specified, predictor variables were assessed before treatment start. A detailed description of the RCT on which this study was based can be found elsewhere (Hedman et al., 2014).

Inclusion criteria and sample

The main inclusion criteria were that participants had to: (a) have a principal diagnosis of severe health anxiety (hypochondriasis) according to DSM-IV (American Psychiatric Association, 2000), (b) be at least 18 years old, (c) have no on-going or prior episode of bipolar disorder or psychosis, (d) have no on-going substance abuse or addiction, (e) have stable dosage since at least two months if on antidepressant or anxiolytic medication and agree to keep the dosage constant throughout the study, (f) not have severe depressive symptoms or serious suicide ideation as indicated by a total score of ≥ 31 or ≥ 4 on item 9 of the Montgomery Åsberg Depression Rating Scale-Self-rated (MADRS-S; Svanborg & Åsberg, 1994). Diagnostic assessments were conducted using the Anxiety Disorders Interview Schedule (Di Nardo, O'Brien, Barlow, Waddell, & Blanchard, 1983) and the MINI (Sheehan et al., 1998). A description of the participants is presented in Table 1.

Treatments

Shared features of the two treatments were that they comprised extensive self-help texts divided into 12 modules and that participants were expected to complete at least one module per week during the 12-week treatment. The participants accessed the modules, which entailed comprehensive treatment materials including homework exercises, through a secure Internet-based

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