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The association between metacognitions and the impact of Fibromyalgia in a German sample

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ABSTRACT

Objectives: Fibromyalgia is a chronic condition of unknown aetiology, characterised by widespread pain, sleep disturbances, and fatigue. In this paper we examined the relationship metacognitions and the impact of Fibromyalgia in a German sample, detailing the translation and validation of a self-report metacognitive instrument.
Methods: The Metacognitions about Symptoms Control Scale (MaSCS) was translated into German using the back-forward translation process. A total of 348 patients (316 female and 26 male) with Fibromyalgia contributed data to the study to test the structure and psychometric properties of the MaSCS.
Results: Confirmatory factor analyses, informed by modification indices, resulted in a 16-item scale consisting of two factors pertaining to positive and negative metacognitions about symptoms control. Further analyses revealed that both factors had good internal consistency. Correlation analyses established convergent validity, indicating that both factors were significantly associated with: (1) established positive and negative metacognitions scales; and (2) with symptoms severity in Fibromyalgia. Regression analyses revealed that positive metacognitions about symptoms control significantly predicted impairment in physical functioning while negative metacognitions about symptoms control significantly predicted the overall Fibromyalgia impact value, when controlling for stress, anxiety, and depression and a general metacognitions.
Conclusion: The findings support the potential relevance of metacognitions, and utility of the German version of MaSCS, in examining the role of metacognitions in Fibromyalgia and other chronic health conditions.

Introduction

Fibromyalgia

Fibromyalgia (FM) is chronic non-inflammable soft-tissue rheumatism of unknown aetiology, characterised by chronic widespread pain, sleep disturbances, and fatigue. People with FM also report poor concentration, lack of drive, and forgetfulness [1,2]. With a prevalence of 2.1% to 2.9% in European countries [3,4], FM is a common condition. In terms of gender, Lawrence, Helmick [5] found a seven-fold higher prevalence of FM in females (3.4%) than in males (0.5%) in the adult U.S. population. Currently FM is a medically unexplained condition and there are no biological tests for establishing diagnosis.

The prevalence of emotional distress is high in FM. For example, Thieme, Turk [6] found that one-third of their FM sample reported anxiety and depressive symptoms, although 22.7% of this sample did not reach the diagnostic threshold for a Diagnostic and Statistical Manual Axis I depression or anxiety disorder (DSM: [7]), whilst for 11% met diagnostic criteria for two or more Axis I disorders. This contrasts with an estimated 12-month prevalence of 7.6% for affective disorders and 16.6% for anxiety disorders in the general population [8]. Perhaps, in part, due to the high prevalence of anxiety and depression symptoms in FM, higher health care utilisation compared to other rheumatic conditions has been reported [9].

Psychological factors in Fibromyalgia

FM has been associated with several psychological factors. These include perfectionism [10], neuroticism [11], catastrophic thinking, and vigilance to pain [12]. Miró, Lupiáñez [13] found that vigilance (i.e., the readiness of the attentional system to switch focus in response to changes in internal states) and executive control were impaired in FM patients as compared to a healthy control group, and that vigilance was significantly related to depression and anxiety.

Turk, Robinson [14] reported that high levels of fear of pain and activity in FM patients were associated with greater disability and pain severity. It is possible that a reciprocal relationship exists between FM

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symptoms and psychological factors. For example, Thieme, Turk [6] suggested that this relationship could be mediated by non-adherence to treatment, whilst later Gota, Kaouk [15] found that increasing levels of depression symptoms were significantly associated with the severity of FM symptoms and overall increased disability.

Psychological perspectives on distress in long-term health conditions

Earlier research examined the role of emotional approach coping in chronic health conditions. Stanton, Danoff-Burg [16] distinguished between emotion-focused coping, where an individual attempts to regulate their emotional response to stressors, and problem-focused coping, which refers to attempt to directly address the stressor itself, within emotional approach coping. Emotional approach coping is contrasted with emotional avoidance coping; in the latter case intensely experienced emotions are avoided. In FM, emotional avoidance coping has been found to be associated with high levels of distress, whereas emotional approach coping was minimally associated with better functioning [17].

According to the Self-Regulatory Executive Function (S-REF) model, metacognitions play an important role in psychological distress [18,19]. Metacognitions can be defined as thoughts and beliefs that concern the appraisal and control of cognitions and cognitive processes, attentional strategies, emotions, behaviours, and physical sensations [18]. Metacognitions include, but are not exclusive to, the construct of 'illness perceptions' that earlier research has implicated in FM [20]. Illness perceptions concern beliefs about the cause of symptoms and the degree to which individuals identify bodily sensations as symptoms, as well as beliefs about the consequences of the symptoms, their predicted duration, and the perceived ability to control the outcome of the symptoms or the illness from which they emerge. The construct of metacognitions differs from that of illness perceptions because it also embodies beliefs about cognitive, attentional, and behavioural responses (such as ruminating and worry about symptoms, self-focussed attention, and avoidance) to symptoms.

Metacognitions and metacognitive therapy

Metacognitions themselves can be divided into two broad domains: i.e., positive and negative metacognitions. Positive metacognitions are beliefs about the benefits of cognitive, attentional, and behavioural strategies (e.g. ruminating and symptom focus), such as 'If I ruminate, I will be better able to solve my problems' and 'Worry keeps me safe'. Negative metacognitions concern disadvantages or negative appraisals of such strategies, such as 'Rumination makes me feel worse' or 'I am not able to stop worrying, even if I want to' [21].

Metacognitions have been found to be associated with a range of psychological problems, such as Generalised Anxiety Disorder [22], Obsessive Compulsive Disorder [23], Post-Traumatic Stress Disorder [24], problem drinking [25], gambling [26], and procrastination [27]. More recently, metacognitions have also been found to be associated with the severity of symptoms in, and psychological distress comorbid to, physical health conditions such as Chronic Fatigue Syndrome (CFS: [28]) and Parkinson's disease (PD: [29]). Both CFS and PD share characteristics with FM. All of these conditions present with an amalgam of physical, psychological, and emotional symptoms. However, to date, it appears that no study has investigated the role of metacognitions in FM.

The S-REF integrates information-processing research and emphasises the role of stimulus-driven, voluntary control of cognition and procedural knowledge in the self-regulation of emotion and play a pivotal role in psychological distress. The S-REF model not only offers a theoretical model as an explanation for psychological distress, but is also the foundation for Metacognitive Therapy (MCT). The central aim of MCT is not to change the content of a person's thoughts but rather to modify their response to them and other 'activating inner events' (e.g., emotions and physical symptoms). While traditional CBT focuses on the content of thoughts and beliefs, MCT concentrates on cognitive processes and attentional strategies and the metacognitions about them. According to the S-REF model, psychological disorders are linked to the activation of problematic configurations of maladaptive cognitive processing and attentional strategies, known as the Cognitive Attentional Syndrome (CAS). Maladaptive CAS configurations are characterised by perseverative thinking and attentional processes such as worry, rumination, and self-focused attention, as well as avoidance behaviour, thought suppression, and dysfunctional coping strategies. The model implicates metacognitions in the activation of problematic CAS configurations that lead to the perseveration of maladaptive cognitive processes, behaviours, and attentional strategies associated with distress [19]. MCT has been evaluated across different disorders, with a recent meta-analysis indicating that it may have superior outcomes to CBT in treating depression and anxiety disorders [30].

Measuring metacognitions

Several questionnaires have been developed to measure metacognitions, including the Metacognitions Questionnaire 30 (MCQ-30: [31,32]), which was originally developed for Generalised Anxiety Disorder but has since been used in research for a wide range of psychological and physical conditions (e.g., [29,33–35]).

More recently, another questionnaire has been developed to assess metacognitions related to physical health conditions: i.e., the Metacognitions about Symptoms Control Scale (MaSCS: [36]). The MaSCS is a self-report instrument that was developed as a research tool to assess metacognitions about symptoms control (e.g. beliefs about ruminating and worrying about symptoms, as well as symptom focussed attention) in Chronic Fatigue Syndrome [36], though the authors suggested that the scale might be relevant to other chronic health conditions. Indeed, a recent study found, albeit in a sample too small for formal statistical analysis, moderate-to-strong correlations between MaSCS subscales and distress in Parkinson's disease [37].

Study aims and hypotheses

FM is a poorly understood chronic illness and patients often suffer from comorbid anxiety and depression [6,38]. Whilst there is some evidence that has suggested that CBT is a beneficial treatment in FM, a meta-analysis found small effect sizes [39]. Examining the role of metacognitions in FM may help to identify potential targets for intervention, with the long-term goal of enhancing current treatment protocols.

For this study, the MaSCS was translated into German and validated against pre-existing metacognitive, emotional, and FM-specific measures. We tested the following hypotheses: [1] the German version of the MaSCS would generate data that was a good fit of the two-factors structure used by the original measure; [2] the German version of the MaSCS would be significantly correlated with pre-existing German-language measures of metacognitions; and [3] the subscales of the German version of the MaSCS would be significantly associated with measures of the impact of FM symptoms.

Methods

Participants

The study was conducted online. The link to the online questionnaire batch registered 924 'clicks' (i.e., the number of individuals who 'clicked' on a link that took them to the first page of the survey) and 479 people began the survey. Eligibility criteria were: [1] individuals who reported receiving their FM diagnosis by a physician; [2] individuals who gave consent to participate; [3] individuals aged 18 and over; and [4] adequate comprehension of the German language. Four hundred and