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Anxiety and depression in people with epilepsy: The contribution of metacognitive beliefs



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ABSTRACT

Purpose: Anxiety and depressive disorders frequently occur in people with epilepsy (PWE). An information processing model of psychopathology, the Self-Regulatory Executive Function (S-REF) model specifies that maladaptive metacognitive beliefs and processes play a fundamental role in the development and maintenance of anxiety and depression. This study explored whether metacognitive beliefs would explain additional variance in anxiety and depression after accounting for demographics, physical and/or psychiatric illnesses, epilepsy characteristics and medication issues. The mediational relationships between metacognitive beliefs, worry and anxiety and depression, predicted by the metacognitive model were also explored,

Methods: Three hundred and forty-nine PWE participated in an online survey and completed self-report questionnaires measuring anxiety, depression, metacognitive beliefs and worry. Participants also provided information on epilepsy characteristics, demographics, comorbid physical and/or psychiatric illnesses, number of, and perceived side effects of, anti-epileptic medication.

Results: Regression analysis showed that metacognitive beliefs were associated with symptoms of anxiety, depression, and explained additional variance in these outcomes after accounting for the control variables. Furthermore, the fundamental tenet of the metacognitive model was supported; the relationship between negative metacognitive beliefs about uncontrollability and danger of worry and anxious and depressive symptoms was partially mediated by worry.

Conclusion: This is the first study to demonstrate that metacognitive beliefs and processes contribute to anxiety and depression beyond variables often associated with emotional distress in PWE. Further research is required to test if modification of metacognitive beliefs and processes using metacognitive therapy would effectively alleviate anxiety and depression in PWE.

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1. Introduction

Anxiety and depression are highly prevalent in people with epilepsy (PWE); approximately one third of PWE meet diagnostic criteria for an anxiety and/or a depressive disorder during their lifetime [1]. Anxiety disorders are at least as prevalent as depressive disorders, and frequently co-occur with substantial adverse economic, societal and personal consequences [2–4]. Clinical management of PWE should therefore include screening for the presence of clinically significant levels of anxiety and depression, and once identified, effective interventions should be implemented [5]. Psychological approaches, rather than

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pharmacological treatments appear to be most acceptable to patients [6] and cognitive-behavioural therapy (CBT) is recommended for PWE [7]. However, it is becoming increasingly apparent that CBT is of limited benefit. Not only have randomized controlled trials (RCTs) in PWE failed to consistently demonstrate its efficacy relative to usual care, [8,9] but the magnitude of improvement in distress symptoms in PWE following CBT appears negligible and temporary [10]. Improving psychological treatments for anxiety and depressive disorders in PWE is therefore a research priority [11].

More effective psychological interventions could be realised through a better conceptualisation of the psychological mechanisms that contribute to anxiety and depression in PWE. Exploration of risk factors associated with anxiety and depression in PWE have focused on four main areas; demographics, antiepileptic medication, epilepsy characteristics (e.g. seizure type and frequency), and psychological variables [12]. Unfortunately, these

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four factors have so far generated few robust predictors of anxiety and depression in PWE [13,14]. However, alternative psychological models to those thus far examined in PWE may identify modifiable psychological mechanisms involved in the development and maintenance of anxiety and depression, which in turn could result in more effective psychological interventions [13,15].

This study therefore set out to test the potential of a psychological theory which has been extensively evaluated in the mental health population and may be applicable to PWE experiencing clinically significant distress - namely, the Self-Regulatory Executive Function (S-REF) model [16,17]. It is a transdiagnostic model of emotional disorder, which specifies that a problematic style of thinking and responding to negative thoughts and feelings called the cognitive attentional syndrome (CAS) results in more severe and prolonged emotional distress. The CAS consists of perseverative thinking (e.g. rumination, worrying, overanalysing); attentional strategies (e.g. monitoring for negative thoughts and feelings); and unhelpful coping strategies (e.g. resting too much, avoidance of activities). In PWE, a wide variety of negative thoughts, concerns or doubts can occur, including fears about future seizures, thoughts about the impact that having epilepsy may have on family, social or work roles. In many PWE, extended worry and rumination does not occur, but, in those who become depressed or anxious, sustained rumination (e.g. about the impact on family) or worry (e.g. about what will happen in future) occurs. The S-REF model specifies that such perseverative thinking (worry/rumination) is activated and guided by metacognitive beliefs, and prolongs low mood and anxiety. The model proposes that the occurrence of negative thoughts activates positive metacognitive beliefs about the usefulness of worry, rumination. threat monitoring, and other coping strategies (e.g., "Worrying helps me cope"; "ruminating helps me solve problems"). Continued activation of the CAS is the result of negative metacognitive beliefs concerning the uncontrollability of thoughts and their dangerousness (e.g., "I have no control over my rumination/ worry"; "Worry can damage my mind and/or body"). Negative metacognitive beliefs about the uncontrollability of worry are considered centrally important in the S-REF model [16–18] because, if patients believe that worry is uncontrollable, they will not attempt to control it. It should be noted that positive metacognitive beliefs alone are not pathognomonic as many people hold positive metacognitive beliefs about the usefulness of worry. However, the S-REF model specifies that 'positive' metacognitive beliefs about the benefits of engaging with, or acting on, negative thoughts and feelings will increase the likelihood that an individual will use the CAS' counterproductive coping strategies such as worry.

In summary, the S-REF model predicts that the relationship between positive metacognitive beliefs and emotional distress (anxiety and depression) will be fully mediated by worry. Negative metacognitive beliefs about the uncontrollability and danger of perseverative thinking are distressing themselves, but also serve to further maintain distress by driving continued use of the worry; that is the relationship between negative metacognitive beliefs and distress is partially mediated by worry. There is extensive evidence supporting the role of metacognitive beliefs in anxiety and depression in mental health [19–22] and physical health populations [23–25].

The overarching objective of this study was to evaluate, for the first time, the potential of the S-REF model to explain anxiety and depression in PWE. To do this, we first tested if metacognitive beliefs explained additional variance in anxiety and depression after accounting for demographic variables, comorbid physical/psychiatric illnesses, epilepsy characteristics and the number and perceived side effects of anti-epileptic medication. We then tested whether the aforementioned predictions made by the S-REF model

about the nature of the mediational relationships between metacognitive beliefs, worry and emotional distress (anxiety and depression) were supported by data from PWE on these measures.

2. Methods

2.1. Study design and participants

Participants were PWE affiliated with the British Epilepsy Association (Epilepsy Action) and had been recruited as part of a larger cohort study. To be eligible to participate the person returning the questionnaire needed to confirm that they were >16 years old, that they had been diagnosed with epilepsy (of any type) for at least one year, and that they were able to provide informed consent and independently complete questionnaires in English. The purpose of the larger study was to examine how similar ratings of patient outcomes made by patients themselves were to those made by their informal carers. Full recruitment details have previously been described [10]. In brief, a total of 3866 people were randomly selected by the British Epilepsy Association by computer from their database and sent a postal invite. Those agreeable to participation were asked to return a completed questionnaire using a prepaid envelope. The University of Liverpool's Institute of Psychology Health and Society Research Ethics committee approved the study (1213-LB-093). Informed consent was obtained from all participants.

2.2. Dependent measures

Severity of anxiety and depressive symptoms were the two dependent variables.

2.2.1. Beck anxiety inventory (BAI)

The BAI [26] is a 21-item self-report questionnaire, which measures the severity of somatic and cognitive symptoms of anxiety over the previous week. Items are scored on a 4-point scale (0–3) with a total score derived by summating the endorsed rating of each item, giving a range of 0–63. The BAI has excellent psychometric properties in both clinical and community samples and can be used in PWE [27].

2.2.2. Beck depression inventory (BDI-II)

The BDI-II [28] is a well-established 21-item self-report questionnaire designed to assess the severity of depressive symptoms. Each of the 21-items are scored on a 4-point scale (0–3) with a maximum possible score of 63. The BDI-II is a reliable and well validated measure of depressive symptoms and has been recommended for use in PWE [29–31].

2.3. Independent and mediating variables

Metacognitive beliefs were the independent variable and were assessed with the Metacognitions Questionnaire-30 [32] and the mediating variable was level of worry assessed by the worry subscale from the Thought Control Questionnaire (TCQ) [33].

2.3.1. Metacognitions questionnaire-30 (MCQ-30)

The MCQ-30 [32] is a 30-item questionnaire that measures 5 domains of metacognition (i) 'Positive beliefs about worry'(e.g. "Worrying helps me cope"), (ii) 'Negative beliefs about uncontrollability and danger of worry'(e.g. "My worrying is dangerous for me"), (iii) 'Cognitive confidence'(e.g., "My memory can mislead me at times"), (iv) 'Need to control thoughts' (e.g. "It is bad to think certain thoughts"), and (v) 'Cognitive self-consciousness' (e.g., "I monitor my thoughts"). Respondents rate how much they

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