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Cognitive Factors in the Maintenance of Chronic Fatigue Syndrome

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A thesis submitted in partial fulfilment of the requirements for
the degree of Doctor in Philosophy
in the Department of Psychiatry and Behavioural Science
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Abstract

Chronic Fatigue Syndrome (CFS) is an illness characterized by persistent debilitating fatigue of uncertain origin. Precipitating and perpetuating factors of this illness are thought to be distinct and the aim of this thesis was to gain greater insight into the role of cognitive factors which may maintain the condition. This work was guided by two central frameworks, the self-regulatory model of illness representations and the cognitive taxonomy of psychopathology. These were used to define the different cognitive constructs and to investigate the way they function as a system to maintain pathological schema and disability in CFS.

Three studies using different methodologies were conducted to test the hypotheses. The first employed a descriptive comparative design to ascertain whether CFS patients have unique cognitions which contribute to their disability over time. The sample was comprised of CFS patients without depression (n=39), CFS patients with a concurrent diagnosis of depression (n=14), patients with a primary diagnosis of depression (n=20); and healthy controls (n=38). The groups were matched in aggregate for age, gender, race, and education. Subjects completed the Cognitive Errors Questionnaire-Revised, which measures cognitive distortions relevant to both general and somatic events, and the Illness Perception Questionnaire, which measures the five dimensions of the illness representation in conjunction with other standard measures. Between-group analyses confirmed that the depressed group was distinguished by a low self-esteem, feelings of guilt and self-recriminations, the propensity to make cognitive distortions across all situations, and to attribute their illness to internal, stable and global factors. In contrast, the CFS patients were characterized by low ratings of their current health status, a strong illness identity, external attributions for their illness, and distortion in thinking that were specific to somatic experiences. CFS depressed patients had lower self-esteem than non-depressed patients and had the most pessimistic illness beliefs. A six month follow-up showed that CFS patients’ cognitive structures and level of disability remained remarkably stable. Illness identity, serious consequences, somatic errors, and limiting coping accounted for a substantial proportion of the variance in CFS patients’ disability scores over time. These results are discussed in terms of their support for both of the cognitive models. CFS patients appeared to have distinct cognitions which were associated with ongoing disability.

The subsequent two quasi-experimental studies were conducted in a single laboratory session. The first of these used standardized neuropsychological tests to determine whether psychological variables, particularly somatic focus, interfere with CFS patients’ performance on high load attention tasks. The discrepancy between CFS patients’ subjective reports of concentration and memory difficulties and objective evidence of these deficits was also investigated. The subjects included 25 CFS patients matched
for age, gender, and intelligence with two groups of healthy controls. One of these groups underwent a somatic induction procedure as part of the investigation of the effects of somatic preoccupation on attention tasks. The tests included the verbal memory subscales from the Wechsler Memory Scale-Revised and the Paced Auditory Serial Addition Task (PASAT), a measure of divided attention and speed of information processing. The analyses of the induction data failed to support the validity of this procedure resulting in the somatic control group being dropped from the analysis. Consistent with previous studies the principal deficit in the CFS group appeared to be on the PASAT. The CFS group appeared to be less accurate than healthy controls in their appraisal of their performance, which were related to negative mood rather than objective performance. Depression was also related to high performance expectations in the CFS group, but not the controls. The results did not support the original assumption that somatic preoccupation contributes to neuropsychological difficulties in CFS. However, mood factors were clearly shown to impact on both the objective and subjective experience of symptoms.

The aim of the final study was to investigate the concordance between the self-report data collected in study one and information processing biases in CFS. Comparisons of the CFS patients and healthy controls on a modified Stroop attention task and a self-schema memory task, found no evidence of an illness-related bias in CFS patients' processing of information. Rather, they demonstrated a significant tendency to be distracted by and remember depressed-relevant stimuli. The exception was their propensity to make somatic interpretations. These results are discussed in terms of the defensiveness hypothesis, which proposes that CFS patients' negative, external illness perceptions and somatic distortions may act as a defence against underlying feelings of low self-esteem. The complex nature of CFS patients' cognitive structures was revealed and the need to use measures which do not rely on self-reports was clearly demonstrated. These studies provided further support for the central role of cognitive factors and mood in perpetuating CFS.
Acknowledgements

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List of Abbreviations

ACTH  adrenocorticotropin hormone
AVP  arginine vasopressin
ANOVA  analysis of variance
ANCOVA  analysis of covariance
BDI  Beck Depression Inventory
BDV  Borna disease virus
BP  blood pressure
CANTAB  Cambridge Automated Neuropsychological Test Battery
CATEGO  Computerized Diagnostic System for ICD-9 Diagnoses
CBT  cognitive behavioural therapy
CDC  Centers for Disease Control and Prevention
CEQ-R  Cognitive Error Questionnaire Revised
CF  chronic fatigue
CFIDS  chronic fatigue immune dysfunction syndrome
CFS  chronic fatigue syndrome
CIDI  Composite International Diagnostic Interview
CMV  cytomegalovirus
CNS  central nervous system
CRH  corticotrophin-releasing hormone
CVLT  California Verbal Learning Test
DBP  diastolic blood pressure
DTH  delayed-type hypersensitivity
DIS  Diagnostic Interview Schedule
DSM  Diagnostic and Statistical Manual of Mental Disorders
DTH  delayed-type hypersensitivity
DV  dependent variable
EBV  Epstein-Barr virus
ERPs  event-related potentials
GAD  generalized anxiety disorder
GP  general practitioner
HAD  The Hospital Anxiety and Depression Inventory
HHV6  human herpesvirus 6
HPA  hypothalamic-pituitary-adrenal
HR   Heart rate
IBQ  Illness Behaviour Questionnaire
ICD  International Classification of Diseases
IPQ  Illness Perception Questionnaire
IV   independent variable
MANOVA  multiple analysis of variance
MANCOVA  multiple analysis of covariance
MCS  multiple chemical sensitivities
ME   myalgic encephalomyelitis
MHI-5  Five Item Mental Health Scale
MI   myocardial infarction
MMPI  Minnesota Multiphasic Personality Inventory
MRI  nuclear magnetic resonance imaging
MS   multiple sclerosis
NA   negative affect
NART  National Adult Reading Test
NK   natural killer
PA   positive affect
PANAS  Positive and Negative Affect Schedule
PASAT  Paced Auditory Serial Addition Test
PSE  Present State Examination
PIFS  post-infectious fatigue syndrome
RA   rheumatoid arthritis
RCIS  Revised Clinical Interview Schedule
RDC  Research Diagnostic Criteria
SAD  seasonal affective disorder
SADS  Schedule for Affective Disorders and Schizophrenia
SAT  Verbal Scholastic Aptitude Test
SBP  systolic blood pressure
SCID-P  Structured Clinical Interview (psychiatric patient version)
SCAN  Schedules for Clinical Assessment of Neuropsychiatry
SIP  Sickness Impact Profile
SPECT  single-photon-emission-computed tomographic scanning
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