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A prospective investigation of cognitive-behavioural
models of irritable bowel and chronic fatigue
syndromes: Implications for theory,
classification and treatment.

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for the degree of Doctor of Philosophy in Health Psychology
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Abstract.

The purpose of this study was to prospectively evaluate the application of the cognitive-behavioural model to two common functional somatic syndromes: irritable bowel syndrome (IBS) and chronic fatigue syndrome (CFS). A range of predisposing, precipitating and perpetuating variables operationalised from this model were assessed in two acutely ill samples. The significance and relative importance of these variables with regard to the development of post-infectious IBS and CFS were then examined. At the same time, information was gathered to assess the appropriateness of an overall conceptualisation for the functional somatic syndromes. Similarities and differences between the two syndromes were investigated, and the impact of differing thresholds and disability criteria were compared to determine the utility of current diagnostic criteria.

Patients with a positive laboratory test result for *Campylobacter* gastroenteritis or glandular fever were recruited through general practitioners. A total of 1018 participants completed a baseline questionnaire at the time of infection which included measures of anxiety, depression, perfectionism, somatisation, perceived stress, acute illness perceptions and illness related behaviours. Those previously diagnosed with CFS or IBS were excluded, along with participants experiencing any medical condition known to impact on fatigue levels or bowel function ($n=183$). Participants completed follow-up questionnaires at three (93% response rate) and six months (90% response rate) post-infection. At each point, cases of IBS and CFS were identified using published diagnostic criteria.

Results indicated that a range of cognitive, behavioural, physiological and emotional variables were significantly related to the development of both IBS and CFS. Whilst there were some similarities between the two conditions, there were also some key differences. Depression and somatisation were significant predisposing variables in the development of CFS, but not IBS, for which anxiety was a key predictor. Perceived stress and the type of acute infection were more important as precipitants of IBS than CFS. *Campylobacter* was a significant predictor of IBS at both timepoints, whilst the presence of this illness type also strengthened the association between IBS and the psychological variables. In contrast, glandular fever was a significant predictor of CFS at three months only, and this

association was outweighed by the inclusion of the psychological variables. With regard to perpetuating factors, negative illness perceptions at the time of acute infection were significantly related to both conditions, and all-or-nothing behaviour was also associated with IBS. When CFS and IBS cases at six month follow-up were compared, CFS cases had higher levels of disability, but not health care utilisation. Finally, when subthreshold cases of IBS and CFS were compared to their diagnosed counterparts, on the whole they did not differ with regard to the psychological risk factors, disability or health care utilisation.

These results support the application of the cognitive-behavioural model to IBS and CFS as a useful explanatory tool and guide for treatment. The results provide a degree of empirical detail that has previously been lacking with regard to these models. Comparing the application of the model to two separate conditions has demonstrated subtle but important differences between the development of post-infectious IBS and CFS. These findings suggest that an overall conceptualisation for the functional somatic syndromes may not be capable of determining and addressing such differences for individual conditions. With regard to the diagnostic criteria for IBS and CFS, results suggest that the current criteria may be unnecessarily restrictive and complex. Simplification or the formalised addition of subthreshold conditions may result in more widespread usage and clinical applicability of these criteria.

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List of abbreviations.

AGA	American Gastroenterological Association
ANCOVA	analysis of covariance
BRIQ	Behavioural Responses to Illness Questionnaire
CBT	cognitive-behavioural therapy
CDC	Centers for Disease Control and Prevention
CF	chronic fatigue
CF/CFS	chronic fatigue/ chronic fatigue syndrome
CFS	chronic fatigue syndrome
CG	<i>Campylobacter</i> gastroenteritis
CI	confidence interval
DBF	disturbed bowel function
DSM-III	Diagnostic and Statistical Manual of Mental Disorders – 3rd Edition
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders – 4th Edition
EBV	Epstein-Barr virus
FGID	functional gastrointestinal disorders
GF	glandular fever
GP	general practitioner
HADS	Hospital Anxiety and Depression Scale
IBS	irritable bowel syndrome
IBQ	Illness Behaviour Questionnaire
IPA	Independent Practitioners Association
IPQ	Illness Perceptions Questionnaire
IPQ-R	Illness Perceptions Questionnaire - Revised
ME	myalgic encephalomyelitis
MHI-5	Five Item Mental Health Inventory
PANPS	Positive and Negative Perfectionism Questionnaire
PSS	Perceived Stress Scale
RET	rational emotive therapy
SAIB	Scale for the Assessment of Illness Behaviour
SS	Support Seeking
UK	United Kingdom
USA	United States of America
VCA	Viral Capsid Antigen
WSAS	Work and Social Adjustment Scale