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Causal attributions for somatic sensations in patients with chronic fatigue syndrome and their partners

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ABSTRACT

Background. Patients with chronic fatigue syndrome (CFS) often make somatic attributions for their illness which has been associated with poor outcome. A tendency to make somatic attributions in general may be a vulnerability factor for the development of CFS.

Methods. This cross-sectional study based on self-report questionnaire data aimed to investigate the type of attributions for symptoms made by patients with CFS and to compare this to attributions made by their partners. It was hypothesized that patients with CFS would make more somatic attributions for their own symptoms than control subjects and that partners of patients with CFS would make more somatic attributions for their ill relative's symptoms but would be similar to controls regarding their own symptoms. Fifty patients with CFS were compared to 50 controls from a fracture clinic in the same hospital and 46 relatives living with the patients with CFS. A modified Symptom Interpretation Questionnaire was used to assess causal attributions.

Results. CFS patients were more likely to make somatic attributions for their symptoms. The relatives of patients with CFS made significantly more somatic attributions for symptoms in their ill relative. However, they were like the fracture clinic controls in terms of making predominantly normalizing attributions for their own symptoms.

Conclusions. The data support modification of existing cognitive behavioural treatments for CFS to investigate whether addressing partners' attributions for patients' symptoms improves recovery in the patient. Furthermore, a tendency to make somatic attributions for symptoms may be a vulnerability factor for the development of CFS.

INTRODUCTION

What is chronic fatigue syndrome?

Chronic fatigue syndrome (CFS) is a disorder of uncertain aetiology that is defined by a primary symptom of fatigue causing functional impairment (Sharpe *et al*. 1991; Fukuda *et al*. 1994). Other physical and psychiatric conditions must be excluded. Fatigue is commonly experienced according to community health surveys (Meltzer *et al*. 1995) although relatively few people will fulfil criteria for CFS. Recent studies suggest a prevalence of around 0·5% (Wessely *et al*. 1997).

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Illness attributions

Individuals engage in spontaneous searches for reasons to explain events (Wong & Weiner, 1981). Illness attributions are a type of causal attribution that an individual makes to explain the cause of an illness. They vary in different illnesses (Kroode *et al*. 1989). Patients with CFS in specialist clinics have frequently been shown to assume their illness is due to physical process, that is, they tend to make somatic illness attributions (Wessely & Powell, 1989).

Causal attributions are important to understand since they have been related to negative outcomes. Somatic illness attributions made by patients with CFS have been shown to be associated with increased symptoms (Cathebras

et al. 1995), increased functional impairment (Sharpe *et al*. 1992; Chalder *et al*. 1996) and worse subjective and objective outcomes over a 2-year period (Wilson *et al*. 1994).

Causal attributions for isolated symptoms

Before a patient attends a doctor to receive a diagnosis of an illness such as CFS, the patient has to decide to take action regarding their symptoms. What a person does largely depends on what they believe the cause of the symptoms to be. Three types of explanations for symptoms have been shown to be made by people: explanations relating to physical abnormality (somatic attributions), psychological abnormality (psychological attributions) or external events (normalizing attributions). In healthy subjects physical sensations will be normalized whenever possible (Robbins & Kirmayer, 1991).

Research suggests that the type of causal attribution for symptoms relates to illness behaviour (Sensky *et al*. 1996). The relationship between certain illness beliefs, or attributions and behaviour has already been demonstrated in CFS. Deale *et al*. (1998) showed that a patient's beliefs about exercise predicted behavioural coping strategies in terms of resting behaviour. However, previous studies in patients with CFS have not looked at attributions for individual symptoms that are not necessarily part of their CFS.

Family influences

Social relationships are known to influence the course of psychiatric and physical illness. Recent work in schizophrenia has shown relatives' causal attributions regarding the patient's symptoms are predictors of relapse (Barrowclough *et al*. 1994). This may occur because the attributions mediate different behaviour in the relative. Operant models of chronic pain suggest that behaviours of carers may be important in modulating symptoms. Positive attention to the expression of pain may serve to reinforce the expression of pain and disability. Such a process can occur without conscious recognition by either the patient or the carer. Turk *et al*. (1992) found that in patients reporting high marital satisfaction, positive attention to their pain by the spouse increased the patient's self-reported pain and disability. In patients with somatization disorder, the presence of a partner has been shown to make somatic illness attributions in the patient more resistant to change (Garcia-Camayo *et al*. 1997).

Studies have not previously been conducted regarding attributions in relatives of patients with CFS although in a primary care study, both high and low social support were associated with the presence of chronic fatigue (Chalder, 1999). According to operant models carers may inadvertently reinforce unhelpful behaviour (e.g. excessive rest) by focusing on expressions of fatigue. Such behaviour may be related to carers' own attributions regarding CFS (Chalder & Williams, 1998) or a tendency to attribute somatically.

Aims and hypotheses

The primary aim of this study was to examine types of attributions made for symptoms by patients with CFS and to investigate whether they had a general style of explaining their own symptoms. A secondary aim was to investigate attributions made by the patient's significant other. The specific hypotheses to be tested were as follows.

(*a*) Patients with CFS will make more somatic than normalizing or psychological causal attributions for common physical symptoms than controls taken from a fracture clinic.

(*b*) People living with patients with CFS will also make a greater number of somatic attributions for the patient's symptoms. However, they will be normalizing in their own symptom attribution, which will be similar to the controls.

METHOD

Design

The study was cross-sectional and based on self-report questionnaires. Ethical approval was obtained from the local research ethics committee. Hypothetical rather than current symptoms were examined to test the patient's attributions for specific symptoms rather than the cause of CFS as a whole and to try to replicate the situation where symptoms are experienced before they have already been attributed to an illness.

Sample

CFS patients

CFS patients were consecutive patients assessed in a multidisciplinary specialist CFS clinic that takes referrals from all areas of Britain as well as from the local inner city catchment area. Patients were included if they fulfilled criteria for CFS (Sharpe *et al*. 1991) were aged 18–65 years and were living with someone. They were excluded if pregnant.

Partners

The person living with the patient with CFS was included as a second study group. For ease of reference this person was referred to as 'partner' in the questionnaires and in this paper.

Fracture clinic controls

Controls were 18–65 year-old, non-pregnant consecutive attenders in a fracture clinic held in the same hospital. They were new and follow-up patients from the local catchment area. They were only included if they were living with someone. The majority had sustained a fracture, three subjects were attending for ligamentous injuries.

Procedure

CFS patients

Patients were given the questionnaires at initial assessment and were asked to return them using a pre-paid envelope. Subjects were telephoned twice to remind them to return the questionnaire.

Partners

The doctor performing the initial assessment of the patient with CFS asked the patient if the person living with them could be included in the study. Partners were not contacted if their questionnaires were not returned.

Fracture clinic controls

The control subjects were approached by a researcher (J. A. B.) in the fracture clinic and requested to complete the questionnaires before they left the clinic.

Questionnaires

All subjects received self-report questionnaires relating to demographic details and their past medical history. They also completed the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983), the Medical Outcome Study Questionnaire physical functioning subscale (Stewart *et al*. 1988), the Social Support Questionnaire (Ray, 1992) and an abridged, modified version of the Symptom Interpretation Questionnaire (SIQ) (Sensky *et al*. 1996).

Hospital Anxiety and Depression Scale (HADS)

The HADS (Zigmond & Snaith, 1983) is a self-assessment screening test to detect anxiety and depression in those with physical illness. In this study a case was defined as having a subscale score of $\geqslant 11$.

Social Support Questionnaire

The social support questionnaire (Ray, 1992) is a self-report measure designed to measure both positive and negative aspects of perceived social and emotional support in patients with CFS. In this study the score on each subscale was transformed linearly to a percentage score to enable a composite measure of total social support to be made by subtracting the percentage negative social support from the percentage positive social support.

Medical Outcome Study Questionnaire physical functioning subscale

The short form of the medical outcome survey (Stewart *et al*. 1988) is a well known, widely used self-report measure of seven health dimensions.

Symptom Interpretation Questionnaire (SIQ)

The Symptom Interpretation Questionnaire (Robbins & Kirmayer, 1991) is a self-report measure examining causal attributions for 13 common somatic symptoms that are likely to be attributed to a wide variety of causes. For each symptom there is a somatic, emotional and normalizing cause. Each cause is rated as a likely cause for the stem symptom on a Likert scale. All scales have good inter-item reliability.

Modifications to the SIQ

In a study of frequent attenders in general practice, Sensky *et al*. (1996) asked subjects to generate explanations for a random selection of six symptoms from the 13 stems in the SIQ. They were also asked to code the frequency of their past and predicted experience of the

symptoms. Answers were coded by researchers as normalizing, psychological or somatic according to whether they related to external, psychological or physical causes respectively.

The current study utilized a similar format to Sensky *et al*. (1996) although in this study subjects did not have a time limit in which to respond and CFS patients and their relatives completed the questionnaires at home. Subjects were asked to list up to six possible causal explanations for a random sample of six of 12 possible somatic symptom stems (prolonged headache, sweating, sudden dizziness, dry mouth, heart pounding, hand trembling, trouble sleeping, upset stomach, lost appetite, difficulty catching breath, constipation and numbness in hands or feet). The item asking about causes for fatigue was excluded because it may test their causal explanation for their disease as a whole. The total number of normalizing, somatic and psychological explanations was recorded. To compare the predominant type of response on the SIQ with other measured variables each questionnaire was also coded according to the modal type of response. If two or three categories were equal in number then the questionnaire was coded as a pair or triplicate coding.

Each subject received two modified, abridged SIQs containing six symptom stems. One (SIQ self-questionnaire) asked subjects to generate causal explanations for each symptom, imagining that the symptom was occurring in themselves. The other (SIQ partner questionnaire) asked the subject to generate causal explanations for six different symptoms, imagining that the symptoms were occurring in their partner. The order in which the SIQ self-questionnaire and SIQ partner questionnaire were presented to each subject alternated.

Example of self and partner stems

Self SIQ: If I had a prolonged headache, I would think it was due to …

Partner SIQ: If my partner had a prolonged headache, I would think it was due to …

A pilot study of 10 patients with CFS was used to obtain a representative selection of answers given to each stem. These answers from the pilot study were then coded by one of the researchers (J. A. B.), a research fellow from the same department, a consultant general adult psychiatrist unconnected with the study, his senior registrar and his secretary. The causes given were categorized into psychological, somatic or normalizing. The mean coding of each response given in the pilot study was recorded and the statistical correlation of the author's codes to the mean coding was recorded. In the main study each answer given to the modified, abridged SIQ was then scored according to the codes from the pilot study. Answers that had not occurred in the pilot study were coded solely by J. A. B. A record of codings for answers not given in the pilot study was kept to ensure consistent coding across subject groups.

Statistical analysis

Data was analysed using χ^2 and Fisher's exact tests for categorical variables and t tests or analysis of variants (ANOVA) for continuous variables. The Statistical Package for the Social Sciences (SPSS, 1998) was used for all analyses except where a Fisher's exact test was calculated for more than two variables, in which case STATA 5.1 (StataCorp, 1997) was used.

RESULTS

Response rate

There was no difference in the proportion of responders from fracture clinic control (80·6%) or CFS patient (75·8%) groups (Fisher's exact test $P = 0{\cdot}53$). The responders did not differ significantly from the non-responders in terms of age or sex for the fracture clinic controls (age; $t = 0{\cdot}275$, df = 60, $P = 0{\cdot}784$: sex; Fisher's exact test $P = 1{\cdot}000$) or for the CFS patients (age; $t = 1{\cdot}339$, df = 59, $P = 0{\cdot}186$; sex; Fisher's exact

Table 1. *Demographic details of responders and non-responders*

Eligible population	Subjects *N*	Males *N* (%)	Females *N* (%)	Mean age (years)
Fracture controls	62	35 (57)	27 (44)	34·5
CFS patients	66	27 (40)	40 (60)	37·9
Non-responders				
Fracture controls	12	7 (58)	5 (48)	35·3
CFS patients	16	4 (25)	12 (75)	34·7
Responders				
Fracture controls	50	28 (56)	22 (44)	34·3
CFS patients	50	22 (44)	28 (56)	39·0
Partners	44	22 (50)	22 (50)	39·6

Table 2. *Mean number of attributions made for symptoms in oneself*

Type of attribution	Group		
	Fracture control Mean (95% CI)	CFS patient Mean (95% CI)	Partner Mean (95% CI)
Normalizing	5·5 (4·5–6·4)	4·9 (4·1–5·8)	5·2 (4·1–6·2)
Somatic	4·8 (3·7–5·8)	6·5 (5·3–7·7)	3·4 (2·6–4·2)
Psychological	3·4 (2·6–3·9)	3·5 (2·7–4·3)	3·3 (2·5–4·2)
Total	13·4 (11·5–15·2)	14·9 (13·1–16·7)	11·9 (10·2–13·6)

test $P = 0{\cdot}243$) (see Table 1). No partners suffered from CFS themselves. Of the 50 CFS patients who responded, 88% had partners who returned their questionnaire.

Age and sex

The fracture clinic control, CFS patient and partner groups did not differ significantly in terms of age (see Table 1; $F = 2{\cdot}930$, df = 2, $P = 0{\cdot}06$) or sex distribution (see Table 1; $\chi^2 = 1{\cdot}440$, df = 2, $P = 0{\cdot}49$).

Time ill

CFS patients had been ill for significantly longer than fracture clinic controls ($t = -5{\cdot}8$, df = 87, $P < 0{\cdot}01$) with a mean of 4·3 months (range 0·25–72 months) for the fracture controls and 73·4 months (range 4–480 months) for the CFS patients.

Past medical history

The number of items (excluding psychiatric problems) was totalled separately for males and females due to an item relating to menstrual disorder. The groups did not differ significantly in the mean number of items endorsed by females (1·19, 2·81, 2·24 items in fracture clinic controls, CFS patients and partners respectively; $F = 0{\cdot}372$, df = 2, $P = 0{\cdot}69$). The difference between groups for males only just reached significance (mean of 3·27, 3·89, 3·00 items in fracture clinic controls, CFS patients and partners respectively; $F = 3{\cdot}238$, df = 2, $P = 0{\cdot}05$).

Past and current psychological distress

The three groups differed significantly in the number of subjects reporting a history of depression or anxiety with CFS patients scoring most highly ($\chi^2 = 7{\cdot}975$, df = 2, $P = 0{\cdot}02$). The three groups differed significantly in the HADS subscale scores for current anxiety ($F = 4{\cdot}590$, df = 2, $P = 0{\cdot}01$) and depression ($F = 20{\cdot}481$, df = 2, $P < 0{\cdot}01$) with more cases of anxiety and depression in the CFS patient group (18%, 38·8%, 14% controls, CFS patients and partners were cases of anxiety respectively and 6%, 36·1%, 9·3% controls, CFS patients and partners were cases of depression respectively).

Disability

As expected the three groups differed significantly on all subscales of the MOS physical functioning subscale. The CFS patients' scores indicated significantly more disability than other subject groups on all subscales except pain where CFS patients and fracture clinic controls did not differ.

Social support

The groups did not differ significantly on the measure of overall social support.

Relationship between raters for coding of responses from the pilot study

The researcher's (J. A. B.) coding of responses in the pilot study correlated with the modal coding using all the raters for all stems on the SIQ (range of kappa values 0·516–0·909). Statistical significance was not reached due to the small size of the pilot study.

Attribution of symptoms in oneself

The groups differed significantly in the number of somatic attributions they made for symptoms in themselves ($F = 8{\cdot}538$, df = 2, $P < 0{\cdot}01$) with CFS patients making more somatic attributions than either the fracture clinic controls ($P = 0{\cdot}02$) or partners ($P < 0{\cdot}01$). There was no significant difference between the groups in the number of normalizing or psychological attributions or in the total number of attributions made (see Table 2).

Table 3. *Type of modal attribution for symptoms in oneself and for symptoms in a partner*

	Symptoms in oneself				Symptoms in a Partner			
Group	*N*	S	P	Other	*N*	S	P	Other
Fracture control	22	16	4	7	17	22	6	3
CFS	12	26	5	7	13	19	8	6
Partner	22	9	9	3	3	20	9	10
Total	56	51	18	17	33	61	8	19

N, Number of subjects responding with mainly normalizing reasons for symptoms.

S, Number of subjects responding with mainly somatic reasons for symptoms.

P, Number of subjects responding with mainly psychological reasons for symptoms.

Other, Number of subjects giving equal numbers of normalizing and somatic reasons, or equal numbers of normalizing and psychological reasons, or equal numbers of somatic and psychological reasons or equal numbers all types of reasons.

Modal type of attribution for symptoms

To enable comparison of style of attribution between that for symptoms occurring in oneself and that for symptoms occurring in ones partner, results from the modified symptom interpretation questionnaires were reanalysed so that only subjects scoring a clear preference for one type of response (normalizing, somatic or psychological) were included. The other subjects were excluded from these analyses to increase the power of statistical analysis since the number of subjects scoring equally for two or more types of response on the questionnaire was small (see Table 3). This analysis also made it possible to make comparisons of style of attribution and other measured variables.

Modal type of attribution for symptoms in oneself

The commonest pattern of attributions for symptoms in oneself was normalizing in the fracture clinic controls and partners but somatic in CFS patients (see Table 3). CFS patients were more likely to have rarely, or never, experienced symptoms on the self SIQ (total symptoms at this frequency 199, mean number of symptoms per patient = 4, mode = 5, median = 4) than often or constantly (total symptoms at this frequency 102, mean number of symptoms per patient = 2, mode = 1, median = 2). Their modal type of attribution was somatic whether they experienced the symptoms constantly/often or rarely/never. However, a greater percentage of subjects made predominantly somatic attributions for symptoms they had rarely or never experienced (44%) than for symptoms they experienced constantly or often (32%).

Relationship of modal type of attribution for symptoms in oneself to illness duration and disability

Those subjects who made predominantly somatic attributions for symptoms in themselves did not differ in duration of illness ($t = 0{\cdot}165$, df $= 37$, $P = 0{\cdot}87$). Subjects making predominantly somatic attributions were more disabled as measured by subscales relating to their physical functioning, social and role functioning than those making predominantly normalizing attributions (physical functioning $P = 0{\cdot}01$; social functioning $P = 0{\cdot}03$; role functioning $P = 0{\cdot}01$) or psychological attributions (physical functioning $P < 0{\cdot}01$; social functioning $P = 0{\cdot}04$; role functioning $P < 0{\cdot}01$). (see Table 4). However, these differences diminished on analysis by group (CFS patient, fracture clinic control, partner). There were no significant differences on the subscales according to the type of attribution for CFS patients. Somatic responses only correlated with increased disability on the overall functioning subscale ($F = 3{\cdot}50$, df $= 2$, $P = 0{\cdot}04$) for fracture clinic controls.

Comparison of modal type of attribution in for symptoms in oneself compared with those occurring in a partner

Within the partner group there was a significant difference between the modal type of attributions relating to symptoms in the subject compared to those made by the subject for their partner (Table 5). Most partners made normalizing attributions for their own symptoms (55%) with few somatic attributions (22·5%). However, they made many somatic attributions (62·5%) and few normalizing (9·4%) attributions for symptoms in the patient with CFS (62·5%).

The difference was not so marked in the fracture clinic control group where subjects tended to make normalizing attributions (52·4%) for their own symptoms and either somatic (48·9%) or normalizing (37·8%) attributions for symptoms in their partner. The CFS

Table 4. *Relationship of disability to attributions for symptoms in oneself*

MOS disability subscale	Modal attributions for symptoms in oneself: Normalizing Mean (95% CI)	Somatic (Mean 95% CI)	Psychological Mean (95% CI)
Physical functioning	55·6 (45·9–65·3)	35·6 (25·2–46·0)	64·8 (45·9–83·6)
Role functioning	52·8 (40·6–65·0)	29·4 (18·1–40·7)	64·4 (48·3–90·6)
Social functioning	66·7 (57·0–76·3)	51·4 (41·7–61·0)	62·8 (43·7–81·9)

Table 5. *Type of modal attribution for symptoms in oneself or a partner*

Group	Modal attribution	Symptoms in oneself *N* (%)	Symptoms in a partner *N* (%)	Fisher's exact test *P*
Fracture controls	Normalizing	22 (52·4)	17 (37·8)	
	Somatic	16 (38·1)	22 (48·9)	0·405
	Psychological	4 (9·5)	6 (13·3)	
CFS patient	Normalizing	12 (27·9)	13 (32·5)	
	Somatic	26 (60·5)	19 (47·5)	0·449
	Psychological	5 (11·6)	8 (20·0)	
Partners	Normalizing	22 (55·0)	3 (9·4)	
	Somatic	9 (22·5)	20 (62·5)	0·000
	Psychological	9 (22·5)	9 (28·1)	

patient group did not differ significantly in their modal type of attribution for their own or their partner's symptoms both of which tended to be somatic (60·5% and 47·5% respectively).

Cause of illness

CFS patients and partners most commonly ascribed the patient's illness to a somatic cause (61%) whereas fracture clinic controls almost exclusively attributed their illness to an accident or fight (93%).

DISCUSSION

As hypothesized, the study confirmed that patients with CFS made more somatic attributions for symptoms than fracture clinic controls. Furthermore, and also as hypothesized, people living with a patient with CFS made more somatic attributions for their partners' symptoms than normalizing or psychological attributions. They tended to make normalizing attributions for their own symptoms as did the fracture clinic control group. This difference between the modal type of attribution for their partner's symptoms and the modal type of attribution for their own symptoms was highly significant.

The study supports earlier work indicating that attributions about specific symptoms are not the same as attributions about an illness as a whole. This is most clearly seen in the fracture clinic control group where almost all subjects attributed their current illness to an accident or fight (normalizing) but made all three type of attributions for symptoms. Patients with CFS however tended to make somatic attributions for both their illness and for individual symptoms.

A history of medical illness predicts somatic causal attributions for symptoms and a psychiatric history predicts psychological attributions (Robbins & Kirmayer, 1991). However, the results of this study cannot be explained by history since the CFS patients did not differ from controls in reported past medical symptoms and they made more somatic attributions despite reporting more past and current psychological problems.

CFS patients reported more disability. It is possible that a tendency to make somatic attributions may relate to increased disability since when all subjects were studied together those making predominantly somatic attributions were more disabled on ratings of physical, role and social functioning. However,

such a conclusion is not supported by the finding that within the CFS patient group, attributional style was not related to disability. Somatic attributions may relate to increased disability at lower levels of disability (as occurred in the fracture clinic control and partner groups) thus contributing to the development of CFS, but the effect may not be seen once disability reaches a certain threshold. Although this hypothesis could explain the current results, it requires a future study to explore attributions and disability in a prospective manner or in patients with different levels of disability.

Methodological weaknesses

Patients only came from one tertiary clinic so may not be fully representative of CFS patients seen in primary care or other centres. The study was cross-sectional so the direction of causality cannot be determined. Forcing attributions for a symptom in a research study may not reflect the usual process of ascribing cause to symptoms in real life. Many attributions had not been given in the pilot study and the coding of the type of attribution for these items relied on one researcher. The effect of bias was minimized by keeping a list of new responses so that the same type of attribution was recorded for the same response.

Fracture clinic controls were used to control for age and gender and to use a condition with adult onset. Past medical history was similar for controls and CFS patients. Fracture clinic controls were not well matched in terms of duration of illness and were also likely to have experienced less of a range of symptoms due to their primary illness so this study cannot exclude the possibility that as illness duration or number of symptoms increases so does a tendency to make somatic attributions. However, against this possibility, is the finding that within the CFS patient group there was no difference in the duration of illness between those making predominantly somatic attributions for symptoms and those making either psychological or normalizing attributions. Furthermore, CFS patients had rarely or never experienced most of the symptoms presented on the self SIQ (confirming the hypothetical nature of symptom attributions) and they were less likely to make somatic attributions for symptoms they frequently experienced. Other chronic conditions with multiple symptoms such as rheumatoid arthritis or multiple sclerosis are unsatisfactory to use as a control group for this study since these patients have suffered symptoms for years which doctors have told them are due to their illness, unlike the case with patients with CFS who have usually not been given a medical explanation for their symptoms and who, prior to coming to a specialist service, have often not received a diagnosis (other than what they have assumed on their own).

The study used people living with the patient with CFS as 'partners' since these people would be expected to be near the patient for considerable periods of time and therefore to be able to influence behaviour of the patient by their own attributions. However, although many 'partners' were spouses, others had a different relationship to the patient. Therefore, attributions made by partners within a marital relationship may differ from the findings in this study. Furthermore, both CFS patients and partners completed the questionnaires at home so, although subjects were asked to avoid conferring, there may have been some contamination of results including those relating to the partners attributions for the patients symptoms.

Theoretical and clinical implications of the study

Patients are likely to evaluate symptoms before they believe they have an illness. As in this study, previous work has shown that people attribute different symptoms to different causes (Robbins & Kirmayer, 1991) and that somatic attributions can influence behaviour (Sensky *et al*. 1996). This study showed that patients with CFS had a tendency to view all symptoms as somatic in origin. Although this study cannot determine direction of effect, such a tendency may reflect a vulnerability to the development of CFS itself. This requires prospective evaluation. Cognitive-behavioural therapy (CBT), which evaluates and challenges beliefs, has been shown to be effective in the treatment of CFS (Sharpe *et al*. 1996; Deale *et al*. 1998). However, challenging attributions about the cause of CFS can cause conflict between the patient and therapist. Furthermore, clinical improvement does not require that the patient give up their view of a somatic aetiology to their condition

(Deale *et al*. 1998). The current study showed that patients with CFS have a style of making somatic attributions for symptoms in general. The long-term benefits of CBT may be enhanced if this general tendency could be modified, as it may reduce the vulnerability of the patient to relapse and the potential for developing another somatoform disorder.

The current study showed how those who are in close contact with patients with CFS have similar attributions for the patient's symptoms. This may result in the patient having less opportunity to consider alternative explanations for their illness. It is therefore important to include those in close contact with the patient.

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