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'Physical or psychological?' – a comparative study of causal attribution for chronic fatigue in Brazilian and British primary care patients

Cho HJ, Bhugra D, Wessely S. 'Physical or psychological?' – a comparative study of causal attribution for chronic fatigue in Brazilian and British primary care patients.

Objective: Causal attribution influences symptom experience, help-seeking behaviour and prognosis in chronic fatigue syndrome. We compared causal attribution of patients with unexplained chronic fatigue (UCF) in Brazil and Britain.
Method: Primary care attenders in São Paulo ($n = 3914$) and London ($n = 2459$) were screened for the presence of UCF. Those with UCF (São Paulo $n = 452$; London $n = 178$) were assessed for causal attribution (physical vs. psychosocial), perceived chronicity (i.e. reported duration of fatigue) and disability.
Results: British UCF patients were more likely to attribute their fatigue to physical causes (adjusted odds ratio 1.70, $P = 0.037$) and perceived their fatigue to be more chronic (adjusted beta 0.15, $P = 0.002$). There was no significant difference in current disability (adjusted beta −0.01, $P = 0.81$).
Conclusion: Despite similar disability levels, UCF patients in different cultural settings presented different attributions and perceptions about their illness. Sociocultural factors may have an important role in shaping illness attribution and perception around chronic fatigue.

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Key words: chronic fatigue syndrome; culture; mind-body relations

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Significant Outcomes

- British primary care patients with unexplained chronic fatigue, despite similar disability levels, were more likely to attribute their fatigue to physical causes and perceived their fatigue to be more chronic than their Brazilian counterparts.

Limitations

- The study participants were not randomly selected representative samples from the healthcare seeking population.
- There was a higher non-response rate in phase 2 of this study among British patients with unexplained chronic fatigue than among their Brazilian counterparts.

Introduction

When people have an illness, they ask 'why' and their answers to that question, whether correct or not, influence their cognitions and behaviour related to the illness – causal attribution is therefore a determining factor of their response to the illness (1). Chronic fatigue syndrome (CFS), sometimes also known as myalgic encephalomyelitis (ME), is characterised by severe physical and mental fatigue, physical and mental fatigability occurring after minimal activity, and accompanying symptoms that cannot be explained by any other medical condition and that have persisted for at least 6 months (2). As in any other illness, causal attribution among patients with chronic fatigue or CFS influences their symptom experience (3), help-seeking behaviour (4) and outcome (5–7). Less explored is a possible variation in causal attribution between sociocultural settings (8), and in particular, to what extent physical attribution – consistently associated with a poor prognosis of CFS (9) – is enhanced by several sociocultural variables more frequently observed in Western affluent countries such as the UK (10). These include a biomedical world view incorporating mind-body dualism, awareness of CFS and the sociopolitical debate about the nosological status of CFS in general and for disability benefits in particular.

Given this putative link between causal attribution and sociocultural context, there is a compelling case to study CFS in Brazil, where the sociocultural characteristics substantially differ from the Euro-American nations. Although fatigue is certainly a universal phenomenon, CFS is rarely commented on or diagnosed in Brazil. The public is largely unaware of CFS and the medical profession not much better informed (11, 12). The media rarely refers to this syndrome. Lack of recognition of CFS may also mean lack of recognition in terms of welfare services, disability benefits and sickness absence. Overall, while CFS is officially endorsed as a medical condition in the UK (13), it is not currently diagnosed in medical practice in Brazil. Moreover, the existing cross-cultural research has suggested that patients in East Asian and Latin American societies have a less medicalised perspective for common symptoms such as fatigue and pain (14–16). All these differences may influence the causal attribution of patients with chronic fatigue in Brazil. Our preliminary study indeed showed that fatigued patients in Brazilian primary care were less likely to attribute their fatigue to physical causes compared with those in previous primary care studies conducted in Euro-American countries (17).

Aims of the study

This large scale study compared causal attribution (physical vs. psychosocial), perceived chronicity (i.e. reported duration of fatigue) and disability of patients with chronic fatigue in Brazilian and British primary care. More physical attributions, higher perceived chronicity and higher disability were predicted among British patients.

Material and methods

Subjects and study setting

The study population consisted of consecutive primary care attenders, aged 18–45 years, at 11 general practices in São Paulo and five in London. The age range for recruiting subjects was restricted because of the increasing prevalence of medically explained fatigue in older age groups. More specifically, we aimed to compare those primary care patients who had unexplained chronic fatigue (UCF) in the two settings. UCF refers to medically unexplained substantial fatigue lasting 6 months or more and, in the current study, was identified using the Chalder Fatigue Questionnaire (CFQ) (18). Whereas primary care is generally the first port of call for the population in the UK when they have a health problem, the Brazilian primary care is more complex. According to the 2000 national census (19), 24.5% of the Brazilian population is covered by at least one type of health insurance while the rest depends on public health care. Health insurance coverage is much broader in urban areas (29.2%) than in rural areas (5.8%). Hence, to obtain a study population constituted by different socioeconomic sectors, reasonably representative of the healthcare seeking population, 10 public clinics and one private clinic were selected across São Paulo. We initially aimed to recruit 30% of the Brazilian sample from the private clinic but ended up with 25.4%. In London, 36.6% of the sample was recruited from a suburban area practice and the rest from four inner city practices. Additionally, to maximise the comparability between the two countries, only the public clinics with the Family Health Program, an official program which resembles the UK system, were recruited in Brazil. The main differences between developing and developed countries observed in the WHO Collaborative Study of Psychological Problems in General Health Care were with regard to doctor–patient relationships and organisational mode of the health care system (20). Therefore, we sought to recruit Brazilian primary care clinics resembling those in the UK with regard to doctor–patient relationships. One of the improvements brought by the Family Health Programme in Brazil was a more ongoing doctor–patient relationship (21).

Ethical approval was obtained from the research ethics committees of King's College Hospital, Institute of Psychiatry, Municipal Department of Health of São Paulo and University of São Paulo Medical School. Data collection was conducted in São Paulo between September 2004 and May 2005 and in London between December 2003 and September 2005.

Sample size calculation

There are already several studies on UCF/CFS in British primary care (22–24) but none in Brazil. Therefore, a reasonably large sample size was required in Brazil to provide more accurate data on UCF/CFS. Hence, we decided to oversample Brazilian patients in a ratio of 2 : 1 compared with British patients. We based our power calculation on an estimated prevalence of physical attribution of 30% in British primary care patients with UCF (23). With a significance of 5% and a power of 80%, 460 Brazilian and 230 British UCF patients would be required to detect a prevalence of 20% in Brazil. Assuming the prevalence of UCF in primary care to be 12% on the basis of previous studies (22, 24), 3834 patients would have to be screened in Brazil and 1917 in the UK. Taking into account likely non-response, the final proposed sample size was 4000 consecutive attenders in Brazil and 2500 in the UK.

Procedure

Fatigue status including severity and duration was assessed with the CFQ, an 11-item questionnaire consisting of two domains, physical fatigue and mental fatigue (18). Likert or bimodal scoring system can be used. Using the latter, the total score ranges from 0 to 11 and a cut-off of 3/4 defines a case of substantial fatigue. Prior to this study, we had conducted a rigorous process of translation, back-translation, cross-cultural adaptation and validation of the CFQ in Brazil, the details of which are provided elsewhere (25). Chronic fatigue (CF) was defined as being a score of 4 or more on the CFQ with a reported duration of 6 months or greater. The 12-item General Health Questionnaire (GHQ-12) (26), previously validated in Brazilian primary care (27), was used to assess psychological distress over the past few weeks. One of the authors (HJC), a psychiatrist, and research workers, mostly psychologists or psychology students, conducted the following procedures.

Phase 1 (screening). Consecutive attenders at the general practices were invited to participate in the study whilst they were waiting for their appointment. After reading an information leaflet and signing a consent form, patients completed the CFQ and the GHQ-12. The questionnaires were read out to illiterate or functionally illiterate participants.

Phase 2. Those who fulfilled criteria for CF were then asked to answer questions on causal attribution, duration of fatigue, disability and the Center for Disease Control and Prevention (CDC) 1994 case definition of CFS (28). Their medical records were reviewed to identify both medical and psychiatric exclusionary diagnoses for CFS. The medical records review took place approximately 4 months after the date of phase 2 to enable the necessary investigations to be completed. In addition to those investigations requested by the treating doctor, we performed additional routine laboratory investigations (liver and thyroid function, full blood count, creatinine and glycosilated haemoglobin) in all Brazilian CF patients as, in Brazil, we expected medical exclusion diagnoses to be more frequent and these investigations were less likely to be requested by the examining doctor. Those CF cases with neither medical nor psychiatric exclusionary diagnoses for CFS were classified as UCF, which therefore corresponds closely to the general concept of medically unexplained symptoms.

In both settings, membership of a self-help group and receipt of sickness benefit and/or sick leave attributed to CFS responded to yes/no questions. These variables have been associated with a poor outcome in CFS (6, 29). Causal attribution was assessed as an open-ended question to avoid any imposition of predetermined rules, a more culturally sensitive approach (*What do you think has caused your fatigue? Please tell us in as much detail as you can.*). The data obtained by the open-ended question on causal attribution were analysed following the framework developed for qualitative data analysis by the Social and Community Planning Research, an independent social research institute in the UK (30). As the objective was categorisation of the data and not a qualitative interpretation, only the initial steps of the framework were followed with some adaptation: i) familiarisation: the answers were read; ii) identification of a thematic framework: a coding scheme (15 categories according to the common themes) was developed; iii) indexing: codes (categories) were systematically applied to the data by two independent researchers (HJC and a bilingual Brazilian psychiatrist), with differences resolved by discussion; iv) data reduction: 15 categories were further reduced to just two categories (psychosocial and physical causes; see Table 1) through discussions with the senior authors (SW and DB). Five alternatives were given to assess perceived chronicity, i.e. reported duration of fatigue: < 6 months, 6–12 months, 1–3 years, 3–5 years and ≥5 years. Same classification has been used previously (31). Afterwards, the median value of each category was allocated to each patient as a

Table 1. Data reduction process of the open-ended question on causal attribution of fatigue and percentage frequency of each attribution category

1st step	Brazil % (*n* = 452)	UK % (*n* = 178)	2nd step	3rd step
Don't know	2.4	5.1	Don't know	Psychosocial
Problems (personal, family, financial, etc), life events	17.3	7.3	Psychological	
Psychological (anxiety, worry, depression, etc)	11.8	12.9		
Excessive work (or study for students), stress	42.0	33.7	Social	
Children (to take care of)	2.0	8.9		
Environmental (pollution, dry weather, dust, etc)	1.1	1.7	Environmental	Physical
Food	0.9	2.2		
Sleep problem	1.3	5.1	Physical	
Overweight	2.2	1.1		
Lack of exercise, being sedentary	1.6	1.1		
Pregnancy	3.5	1.7		
Medical	10.6	16.9		
Smoking	1.8	0.6		
Age	1.3	0.6		
Accident	0.2	1.1		

continuous variable of perceived chronicity (3 months, 9 months, 2 years, 4 years and 6 years). Disability was measured by the Brief Disability Questionnaire (BDQ) (32), which had been validated and used in the Brazilian part of the WHO Collaborative Study on Psychological Problems in General Health Care (20).

Analysis

STATA Version 9 (33) was employed for all the statistical analyses and the significance level was set at $P \leq 0.05$. Only the subjects who fulfilled the criteria for UCF and completed phase 2 were included in data analysis. The exposure variable was 'country of residence' (Brazil/UK). The primary outcome was 'causal attribution' (psychosocial/physical). The secondary outcomes were 'perceived chronicity' (months) and 'disability' (score range 0–22). First, the three outcome variables, sociodemographic characteristics, fatigue score (CFQ total) and psychological distress score (GHQ-12 total) were compared between the two countries using two-tailed chi-squared or *t*-tests. Second, logistic regression and linear regression were conducted to quantify the effect of country membership on the distribution of the outcome variables. Standardised regression coefficients, also called beta (β), were used as the measure of effect for linear regression. As the two groups significantly differed regarding gender, education, marital status, employment status, occupation and fatigue score, crude odds ratios (ORs) and betas were adjusted for these variables. Finally, in addition, membership of a self-help group and receipt of sickness benefit and/or sick leave attributed to CFS were compared between the two countries using the chi-squared test.

Results

Sociodemographic characteristics, fatigue and psychological distress

Complete screening data were obtained from 3914 subjects in São Paulo and 2459 in London (Fig. 1).

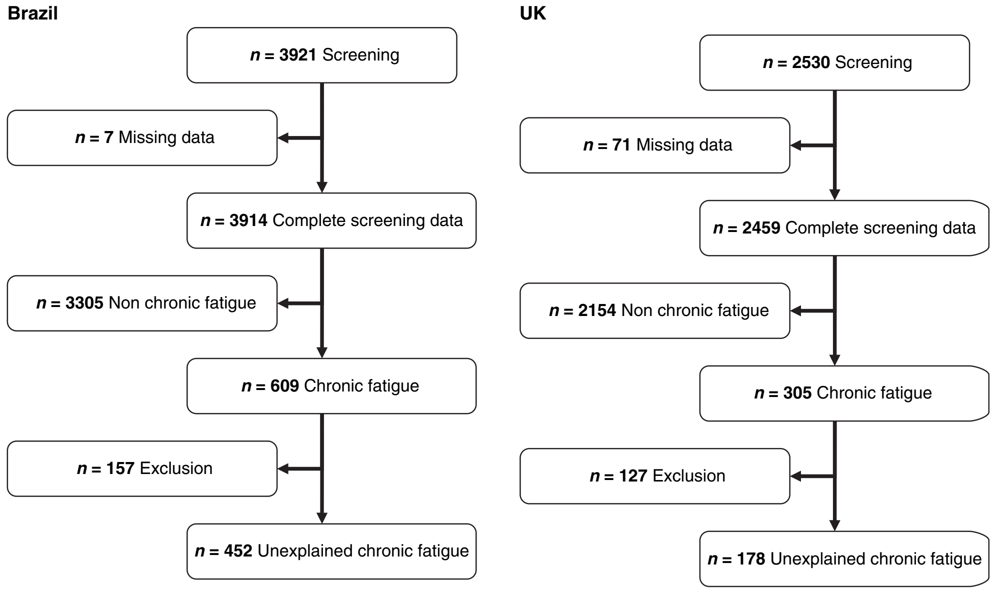

Fig. 1. Flow chart of the study.

In Brazil, 1542 (39.4%) had a score above the cut-off of the CFQ and 609 (15.6%) were CF patients. In the UK, 1046 (42.5%) scored above the cut-off and 305 (12.4%) were CF patients. Of 609 eligible patients for phase 2 in Brazil, 36 (5.9%) did not complete phase 2, compared with 99 (32.5%) of 305 eligible patients in the UK. Phase 2 responders and non-responders were comparable regarding most characteristics, but responders scored slightly higher on the CFQ in both countries (7.2 vs. 6.5 in Brazil, $P = 0.06$; and 7.8 vs. 7.2 in the UK, $P = 0.05$). Furthermore, as some of the phase 2 responders had medical causes for fatigue or psychiatric exclusion criteria according to the CDC-1994 case definition of CFS, they were excluded, leaving 452 UCF patients in Brazil and 178 in the UK to be included in data analysis. All the sociodemographic variables except age were significantly different between the two countries (Table 2). Brazilian patients had a lower education level and were more likely to be female, to have a stable partner (i.e. married or cohabiting) and to have a manual occupation. A significantly higher proportion of British patients were on sick leave. British patients reported higher levels of fatigue, but there was no difference regarding psychological distress. The questionnaires were read out to 24.3% of the Brazilian patients and none of the British patients.

Table 2. Sociodemographic characteristics, fatigue and psychological distress of patients with unexplained chronic fatigue compared between Brazil and the UK by chi-squared or *t*-tests

Variable	Brazil (*n* = 452)	UK (*n* = 178)	*P*-value
Age in years, mean (SD)	34.0 (7.3)	32.9 (7.7)	0.10
Female gender, no. (%)	398 (88.0)	127 (71.3)	<0.001
Education in years, mean (SD)	8.9 (4.3)	14.7 (4.7)	<0.001
Marital status, no. (%)			
Married or cohabiting	274 (60.6)	82 (46.1)	0.002
Single	128 (28.3)	75 (42.1)	
Separated, divorced or widowed	50 (11.1)	21 (11.8)	
Employment status, no. (%)			
Employed	310 (68.6)	101 (56.7)	<0.001
Student	19 (4.2)	8 (4.5)	
Homemaker	52 (11.5)	26 (14.6)	
Unemployed	54 (11.9)	16 (9.0)	
On sick leave	17 (3.8)	27 (15.2)	
Occupation, no. (%)			
Non-manual	187 (41.4)	104 (58.4)	<0.001
Manual	244 (54.0)	48 (27.0)	
Student or never worked	6 (1.3)	8 (4.5)	
Homemaker	15 (3.3)	12 (6.7)	
Missing information	0	6 (3.4)	
Fatigue*, mean (SD)	7.2 (2.3)	7.8 (2.4)	0.002
Psychological distress†, mean (SD)	6.8 (3.5)	6.6 (4.0)	0.63

*Total score of the Chalder fatigue questionnaire.
†Total score of the 12-item general health questionnaire.

Table 3. Membership of a self-help group and receipt of sickness benefit and/or sick leave attributed to CFS compared between Brazil and the UK by chi-squared test

Variable	Brazil (*n* = 452)	UK (*n* = 178)	*P*-value
Source of information about cause, number (%)			
Media (magazines, newspaper, radio, TV, etc)	23 (5.1)	22 (12.4)	<0.001
Doctors	50 (11.1)	44 (24.7)	
Next of kin	49 (10.8)	23 (12.9)	
No one (own idea)	311 (68.8)	77 (43.3)	
Other	19 (4.2)	12 (6.7)	
Membership of self-help group, no. (%)	0	2 (1.1)	0.02
Sick leave because of CFS, no. (%)	6 (1.3)	17 (9.6)	<0.001
Sickness benefit because of CFS, no. (%)	3 (0.7)	7 (3.9)	0.003

CFS, chronic fatigue syndrome.

Membership of a self-help group and receipt of sickness benefit/sick leave

Membership of a self-help group, receipt of sickness benefit and/or sick leave attributed to CFS, and source of information are described in Table 3. British patients were more likely to have obtained information on the possible cause of their fatigue from the media or doctors. The main interest concerning this variable was in assessing the role of the media in the dissemination of ideas about the possible causes of fatigue. The media were the main source of information for more than 12% of the British patients compared with only 5% of the Brazilian patients. As expected, British patients were more likely to be a member of a self-help group and to have had sick leave or received sickness benefit because of CFS.

Causal attribution, perceived chronicity and disability

Table 4 describes causal attribution, perceived chronicity and disability compared between the two countries. According to the univariate analysis, British patients were more likely to attribute their fatigue to physical causes: 32.0% of British patients compared with 24.6% of Brazilian patients presented physical attributions. British patients perceived their fatigue to be more chronic (mean self-reported duration of fatigue: 35.2 vs. 27.3 months) and were more disabled (mean score of the BDQ: 8.3 vs. 7.4). Once adjusted for gender, education, marital status, employment status, occupation and fatigue score, only causal attribution (OR = 1.70, $P = 0.037$) and perceived chronicity ($\beta = 0.15$, $P = 0.002$) remained significantly associated with country of residence.

Table 4. Causal attribution, perceived chronicity and disability compared between Brazil and the UK*

Outcome variable	Brazil (n = 452)	UK (n = 178)	Crude OR/β	P-value	Adjusted OR/β†	P-value
Physical attribution, no. (%)	111 (24.6)	57 (32.0)	1.45	0.056	1.70	0.037
Perceived chronicity in months, mean (SD)	27.3 (21.8)	35.2 (25.2)	0.15	<0.001	0.15	0.002
Disability‡, mean (SD)	7.4 (5.0)	8.3 (5.6)	0.08	0.06	−0.01	0.81

*Causal attribution was compared by logistic regression [hence odds ratio (OR)] while the other outcome variables were compared by linear regression [standardised regression coefficient (β)].

†Adjusted for gender, education, marital status, employment status, occupation and fatigue score.

‡Total score of the brief disability questionnaire.

Discussion

British patients with UCF were more likely to attribute their fatigue to a physical cause and perceived their fatigue to be more chronic (i.e. reported that they had fatigue for longer). However, there was no significant difference regarding current disability between the two groups. Secondary findings were in keeping with the hypotheses: membership of a self-help group and sick leave/sickness benefit because of CFS, variables claimed to predict poor outcome in CFS, were more frequent among British patients. Despite similar levels of current disability, UCF patients from two different cultural settings significantly differed in their causal attribution and illness perception.

There are several possible explanations as to why British patients with chronic fatigue tend to hold physical attributions and also perceptions of longer illness duration. The prevailing dualistic medical view of CFS in Britain may itself be associated with a greater likelihood of physical illness attributions, which in turn are associated with a heightened perception of chronicity. Cartesian mind–body dualism permeates the Western biomedical tradition (34); and more specifically as regards chronic fatigue and chronic pain, both doctors and patients in Western affluent societies tend to think of them more in dualistic terms than, for example, in East Asian and Latin American societies (5, 16, 35–37). Fatigue viewed as a medical condition rather than as part of the general adversities of daily life may be associated with a more gloomy view of illness. Second, more widespread awareness of CFS/ME in the UK, which we have described elsewhere (12), may lead to a greater likelihood of British patients viewing their fatigue via a biomedical perspective than their counterparts in Brazil. In the UK, most media and self-help material provided by patient organisations are more likely to promote physical rather than psychological explanations (38). Although there is no formal study comparing the media coverage of CFS or the patient organisations between the two countries, we have a clear impression that media coverage in Brazil is minimal and have been unable to find any evidence of the existence of a CFS patient organisation. Moreover, in this study, more British patients were members of a self-help group and stated the media to be their main source of information on the possible cause of their fatigue. Third, the health care system, which recognises and labels fatigue as a medical condition, may further reinforce this tendency. We have also described a higher rate of recognition and labelling of chronic fatigue in British than Brazilian primary care (39). Fourth, the greater public and medical sanctioning of CFS/ME and the more favourable economic climate in the UK may lead to greater access to sick leave/benefits for patients with chronic fatigue. Not surprisingly, sick leave in general and sick leave/sickness benefit specifically because of CFS were more common among British patients with UCF. Previous studies in primary care and specialist settings have reported that social support provided in a way which fosters dependency can help maintain chronic fatigue, as it does chronic pain (40, 41). There is also evidence of an association between the so-called ‘secondary gain’ and health outcomes across various disorders – post-traumatic stress disorder (42), functional somatic syndromes such as chronic pain and fibromyalgia (43, 44), whiplash syndrome (45) and aftermath of surgery (46). Therefore, the higher availability of sick leave/sickness benefit because of CFS in the UK may both contribute to and reflect the greater ‘legitimisation’ of chronic fatigue as a medical disorder.

Limitations

There are several limitations of the study which must be taken into account. This study is a cross-sectional survey in which it is generally difficult to determine the direction of causality. However, the study variables were chosen with this limitation in mind. The exposure variable was country of residence, for which reverse causality is not an issue. In other words, country of residence could determine the outcomes such as illness attribution and disability but not vice versa. The study was not a randomly sampled community study, and consequently selection bias is possible. Therefore, the main comparison made was between patients fulfilling the criteria for UCF rather than all the study participants, hence making the samples from the two countries more comparable. In addition, the sampling strategy attempted to include different social classes in proportion to the national data and select general practices with similar characteristics between the two countries. Attrition bias was possible because of the high non-response rate in the UK. Approximately 30% of the eligible patients in the UK did not complete phase 2 in comparison with only 6% in Brazil. Finally, there may be possible recall bias regarding self-reported fatigue duration, which may be exaggerated or minimised. However, this variable was named 'perceived chronicity' and used to reflect the subjective illness perception rather than the factual duration of fatigue. Hence, recall bias does not apply to this particular variable.

In conclusion, increased physical illness attributions and perceived chronicity were observed among British patients with chronic fatigue compared with their Brazilian counterparts. These differences may possibly contribute to a poor prognosis for chronic fatigue and CFS in the UK compared with Brazil. Further prospective studies are required to test this proposition. The findings of this study lend some support to the evidence on the important role of sociocultural factors in shaping illness attribution and perception around chronic fatigue and CFS.

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