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**Article:**

Hatcher, S. and House, A. (2003) Life events, difficulties and dilemmas in the onset of chronic fatigue syndrome: a case-control study. *Psychological Medicine*, 33 (7). pp. 1185-1192. ISSN 0033-2917

<https://doi.org/10.1017/S0033291703008274>

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# Life events, difficulties and dilemmas in the onset of chronic fatigue syndrome: a case–control study

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## ABSTRACT

**Background.** The role of stress in the onset of chronic fatigue syndrome is unclear. Our objectives in this study were first, to determine the relation between the onset of chronic fatigue syndrome and stressful life events and difficulties. Secondly, we examined the role of a particular type of problem, dilemmas, in the onset of chronic fatigue syndrome.

**Method.** We used a case–control design with 64 consecutive referrals from an Infectious Diseases/Liaison Psychiatry Fatigue clinic and 64 age- and sex-matched controls from a general practice population control group in Leeds. We had two main outcome measures; the odds ratios of the risk of developing chronic fatigue syndrome after experiencing a severe life event, severe difficulties or both in the year and 3 months preceding onset; and the proportion of subjects in each group who experienced a dilemma prior to onset.

**Results.** Patients with chronic fatigue syndrome were more likely to experience severe events and difficulties in the 3 months (OR = 9, 95% CI 3.2 to 25.1) and year (OR = 4.3, 95% CI 1.8 to 10.2) prior to onset of their illness than population controls. In the 3 months prior to onset 19 of the 64 patients (30%) experienced a dilemma compared to none of the controls.

**Conclusions.** Chronic fatigue syndrome is associated with stressful events and difficulties prior to onset. Those events and difficulties characterized as being dilemmas seem to be particularly important.

## INTRODUCTION

Chronic fatigue syndrome is a disorder characterized by disabling fatigue that is of at least 6 months duration and that remains unexplained by conventional investigations. Despite the debate about whether chronic fatigue syndrome has primarily physical or psychosocial causes, there is no clear evidence about the role of stress in its onset.

Published studies that have examined the link between stress and chronic fatigue syndrome have investigated life events but rarely chronic difficulties (Stricklin *et al.* 1990; Ware, 1993; Bruce-Jones *et al.* 1994; Lewis *et al.* 1994; Masuda *et al.* 1994; Ray *et al.* 1995; Salit, 1997; Kroenke *et al.* 1998; Theorell *et al.* 1999). Early

studies used open-ended interview assessments of life events in chronic fatigue. Ware (1993) interviewed 50 patients, 80% of whom met either the Centres for Disease Control or Oxford criteria for chronic fatigue syndrome. The average length of illness was 5.7 years. The first theme to emerge from the study was the subjects emphasis on how busy and active they were. The second was the number of life events that were reported to have occurred prior to onset – 42% reported serious injury, divorce, job loss, death of a family member or close friend prior to onset. Similarly, 40% reported chronic life difficulties such as serious illness in the immediate family, troubled or failing marriage or persistent work problems. About half the patients thought that stress was the single most likely cause or a contributing factor to their illness. Salit (1997) a Canadian physician interviewed 134 consecutive CFS patients referred by family physicians

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to hospital. Using a non-standardized questionnaire and a clinical interview he found that 85% of his patients had a stressful event in the year preceding onset. These most commonly involved depression, starting a new job, a recent marriage and problems with relationships. He also interviewed 35 healthy controls, 20 of whom were friends of the patients and 15 of whom were hospital employees. In this group only two had experienced a stressful event in the year before interview.

In a similar open ended interview Ray *et al.* (1992) asked 288 CFS patients attending a hospital out-patient clinic who had been ill for a mean of 63 months what they thought had caused their illness. Fifty-four per cent replied yes to a question about stress and 30% thought that stress had 'possibly' caused their illness. MacDonald *et al.* (1996) during a 30 min telephone interview of 47 CFS patients and 47 controls asked about life stresses prior to onset. They found that about half of both groups had experienced 'life stress' in the year before onset or interview.

More sophisticated studies have used checklist assessments of life events in chronic fatigue syndrome. Stricklin *et al.* (1990) interviewed 25 patients diagnosed as having 'epidemic neuro-myalgia' by public health physicians and 25 controls. The patients were all white Texan women who volunteered to take part in the study. The subjects completed the Social Readjustment Rating Scale as well as a variety of other self-report questionnaires. The authors found that patients reported significantly more life events in the 12 months prior to onset than the comparison group. The types of events they reported involved death of a spouse, close family member or close friend much more frequently than the non-patient group. Masuda *et al.* (1994) from Japan interviewed 21 healthy control people, 24 with chronic fatigue that did not meet the criteria for CFS (fatigue non-CFS group) and 10 patients with CFS who met the CDC definition of the disorder. All subjects were again asked to complete the Social Readjustment Rating Scale for the previous year, a variety of other questionnaires and to consent to a blood test to measure cellular immune function. The CFS group had significantly higher life event scores than the fatigue-non-CFS and healthy comparison groups. However, the patients had

been unwell for between 6 and 84 months so presumably for some patients the measure of life events in the previous year covered the onset of the disorder and for others it covered time when they were persistently unwell.

Ray *et al.* (1995) interviewed 130 patients with CFS diagnosed using the Oxford Criteria to ascertain how life events affected established illness. They used the Psychiatric Epidemiology Research Interview (PERI) (Dohrenwend *et al.* 1978), which is essentially a checklist of 102 broadly defined events where the central figure involved in the event is not specified (sic). The PERI has few, if any, advantages over the Social Readjustment Rating Scale and shares with it problems of poor reliability and validity. Like most checklists it also misses out certain classes of events. The authors tried to overcome some of the problems of the PERI by analysing only events which were focused on the patient or close family; those which were independent of the CFS; those which were clearly positive or negative; and those which were rated as major or moderate defined in terms of meaning for the patient and impact on usual activities. The patients were asked about events in the previous year which, as the mean duration of illness was 41 months, presumably did not cover onset. Patients reported a mean of 2.5 negative and 2.5 positive events in the previous year.

Lewis *et al.* (1994) investigated the number and severity of life events prior to onset in CFS and irritable bowel syndrome patients. They interviewed 47 patients with CFS diagnosed according to the Oxford criteria, 47 irritable bowel syndrome patients and 30 'healthy' controls. The patients were consecutive attenders at out-patient clinics in a British general hospital. The 'healthy' control group were recruited from general practice surgeries where they had attended with non-serious non-chronic complaints. The authors used a checklist of 42 events to cover the 2 years prior to onset of their illness (or interview for controls). The subjects were also asked to rate how upsetting they had found the event. In this study there was no significant difference in the number of events reported between any of the groups.

Kroenke *et al.* (1988) identified 102 patients who attended a US army medical centre who answered positively to a questionnaire about fatigue being a major problem. These patients

did not meet standard criteria for CFS, although the mean length of the complaint was for 3.3 years. The mean age of the patients was 57, which is old for a CFS population. The authors matched 26 patients with 26 controls attending the same clinic and administered the Social Readjustment Rating Scale and found no difference between the two groups. The time period for the life event checklist is not specified but probably covers the previous year which means it is detecting events after onset in the majority of subjects. Theorell *et al.* (1999) used a 14-item abbreviated version of the Holmes and Rahe Scale in a case control study of 46 Swedish CFS patients and 46 controls from a public insurance office and a geriatric clinic. They found that nearly twice as many patients who developed CFS described a life event in the 3 months before onset compared to the control group.

A novel method of examining the connection between chronic fatigue states has been to study patients prospectively who present in primary care with infectious mononucleosis. Several studies have reported on the influence of life events in causing subsequent fatigue syndromes. A controversial issue arising from these studies has been whether any influence of life events is mediated through their effects on psychiatric disorder or whether they have an independent effect on the onset of chronic fatigue. Bruce-Jones *et al.* (1994) in an extension of their follow-up study on primary-care patients with glandular fever and upper respiratory tract infections used the Life Events and Difficulty Schedule to describe the effect of social adversity. They identified 155 patients attending a general practitioner with glandular fever and 52 with an upper respiratory tract infection not caused by glandular fever. These patients were interviewed with the LEDS at presentation to their general practitioner and 2 and 6 months after. Most of them (151) were well at 6 months. However 14 of them still had chronic fatigue six months after the initial infection (all originally had glandular fever). Of these 3 (21%) had a provoking agent (severe event or major difficulty) in the 6 months prior to the interview. This was no different to the proportion in the patients who had remained well. There was a clear connection between those who developed depression following an infection and provoking agents. This study therefore suggests a

differential effect for life events and difficulties in fatigue states and depression.

White *et al.* (2001) found that social adversity, (defined as severe life events and major social difficulties assessed by the Life Events and Difficulty Schedule in the previous year), predicted mood disorder in patients 6 months after presenting to their general practitioners with infectious mononucleosis or ordinary upper respiratory tract infection. However, social adversity did not predict the development of chronic fatigue. Buchwald *et al.* (2000) using a similar model and a checklist of 12 life events found that failure to recover from acute infectious mononucleosis at 6 months was associated with a greater number of life events more than 6 months before the disease began. The main problem with using infectious mononucleosis as a model to address the aetiology of chronic fatigue syndrome is that the patients are not representative of the majority of people with chronic fatigue syndrome. In Whites' study the median age of participants is 22 compared to a mean age in the mid-30s in community and clinic samples (Euba *et al.* 1996). The sex ratio and length of history are also not typical of CFS patients. Finally, studies using this prospective method usually have only small numbers of people developing CFS and so have limited power. Thus, research into stress and onset of chronic fatigue syndrome has either used unstandardized interviews or checklist assessments to elicit data on life history and illness experience, or the patients included have been poorly or narrowly defined or sample sizes have been small.

We have attempted to address the deficiencies of previous studies by using a case-control design with clearly defined patients and controls; we had adequate power to test our hypothesis, and used an interview-based measure of life stress – the Life Events and Difficulties Schedule (Brown & Harris, 1978) – that is of proved reliability and validity and that has been used successfully in a number of studies of physical illness (Brown & Harris, 1989).

As well as a conventional analysis of life events and difficulties prior to the onset of chronic fatigue syndrome, we were also interested in whether a particular type of problem – the dilemma – was common prior to onset. We define a dilemma as a situation in which a person is challenged to choose between equally

undesirable responses to circumstances, any choice resulting in negative consequences. Our hypothesis was that life stress, and in particular the experience of struggling with dilemmas, is a common precursor of chronic fatigue syndrome.

## METHOD

### Cases

Cases were consecutive referrals recruited from a joint Infectious Diseases/Liaison Psychiatry Fatigue Clinic in Leeds (Hatcher, 1994). Patients were recruited if they met the Oxford Criteria for chronic fatigue syndrome (Sharpe *et al.* 1991). The minimum investigations undertaken in the clinic were a physical examination, full blood count, urea and electrolytes, plasma viscosity, thyroid function tests, liver enzymes, calcium, glucose, electrocardiograph, chest X-ray, Vitamin B12 and folate.

Patients were excluded if there was evidence that another disorder was causing their symptoms, or if they were under 17-years-old or if they had a current diagnosis of schizophrenia, manic depressive illness, substance abuse, eating disorder or proven organic brain disease.

### Controls

Controls were selected from an age–sex register of a local general practice by stratified random sampling. We selected an age (plus or minus 1 year) and sexed matched control group because both these variables are associated with exposure to life events and difficulties. Cases and controls were paired to ensure similar periods of time were used when assessing the frequency of life events and difficulties.

Both Local Research Ethics Committees approved the study.

### Study protocol

We asked consecutive clinic attenders to take part in the study. The controls were approached first by letter and then telephoned to explain the study before being interviewed in their homes. For the cases SH administered the life events and difficulties schedule to cover a period from 2 years before the onset of chronic fatigue syndrome to the present. The patients defined the onset of their disorder. The controls were asked about events and difficulties over a time period matched to that of their paired case. That is, if

a person with CFS dated their onset as 2 years prior to the interview they would be asked about events and difficulties over the previous 4 years; their matched control would also be asked about events and difficulties over the last 4 years. All interviews were tape-recorded in the participants' homes. Patients histories were confirmed by examination of GP and hospital records although not all sets of notes contained information about onset dates.

Severity of fatigue symptoms was assessed by the Health and Fatigue Rating Scale 14-item version (Chalder *et al.* 1993). Psychiatric symptoms were assessed by the present state examination, PSE9 (Wing *et al.* 1974) for 1 month before the interview.

Written consent was obtained from all participants.

### *Assessment of life events and difficulties*

The Life Events and Difficulties Schedule describes two types of stress. The first is life events – discrete events, such as a death, whose severity is rated on a four-point scale where 1 and 2 are conventionally recorded as severe. The second is difficulties – problems that last longer than a month and are rated on a six-point scale. Where the difficulty lasts at least 2 years and is rated as 1 to 3 these are conventionally called severe difficulties. Marked difficulties are those difficulties that are rated as 1 to 3 on severity but have lasted <2 years. Events and difficulties that could possibly be related to participants' health problems, including psychiatric disorder, (so called dependent events and difficulties) were excluded.

### *The development of a new dimension of life stress: dilemmas*

In conjunction with the Bedford College team, we produced a definition of dilemmas accompanied by a glossary containing examples. A dilemma is a situation where a person is challenged to choose between two equally undesirable alternatives. We were particularly interested in dilemmas where a person must choose between action and inaction; either choice resulting in negative consequences. A key part of the definition of a dilemma is that a person must respond. To reflect this in LEDS ratings only events rated 1 or 2 on long-term threat or difficulties rated 1, 2 or 3 were considered

eligible to be dilemmas. Obviously, there are many ways in which people can respond to problems. Some situations do not challenge the individual to find a solution – they just have to be endured or abandoned. However, what we were interested in were those situations which challenge the individual to seek a solution. We considered that there were three types of situation. First, those situations where early action may improve or neutralize the problem without further negative consequences. Secondly, an early response to the problem may be ineffective but it does not make the situation any worse. Often this type of response acts to stop the event or difficulty getting worse because ‘something is being done’ even if the ‘something’ is ineffective. The situation has not reached the stage where nothing further can be done without making the situation worse. Finally, are those situations that we considered dilemmas where the only conceivable responses result in negative consequences. (Ineffective solutions may have been tried and found to be wanting.) Therefore a logical response would be to do nothing. If doing nothing is chosen then there are two possible outcomes, spontaneous amelioration or further negative consequences of not solving the original threatening event or difficulty. Only the last is a dilemma – the person is damned if they do and damned if they do not. For example:

S. is a 48-year-old married woman who has two children aged 16 and 20. The eldest, S’s daughter, married 2 years ago. It rapidly became clear that the marriage was not going to work. Her daughter left her husband a year ago and is now living with S. The difficulty for S. is that her daughter’s ex-husband lives nearby and is constantly pestering S. and her daughter with the aim of persuading her to return or to find out if she is seeing anyone else. He rings up in the early hours of the morning, rings the police to say that S.’s car has been stolen when it has not and follows her daughter. S. has contacted the police but they have told her there is nothing they can do and she should move. (This is an event linked to the difficulty and it converts the difficulty into a dilemma.) S. bought her house (an ex-council house) 5 years ago and has invested a lot of money in redecorating it and improving its standard e.g. new kitchen and new bathroom. If she sold it she would probably lose money as she bought it when house prices were higher than now. The situation demands that S. move house. The negative consequences resulting from a move

(action) would be that S. loses financially as well as the emotional investment she has put into the house. The negative consequences resulting from inaction are that S. and her daughter continue to be pestered by the ex-husband/neighbour.

Note that the emphasis is on conceivable solutions. This is important because solutions chosen by participants and solutions seen by observers can often be very different. Because of this difference we felt it was important to rate dilemmas using both reported and contextual ratings.

For the reliability study, we developed a bank of 40 events and difficulties all of which were written as though they were dilemmas. The examples were taken from interviews that were not conducted as part of the case-control study, but did include subjects with and without chronic fatigue syndrome. Two interviewers (S.H., A.H.) then rated independently each event and difficulty as a dilemma.

In the case-control study, all interviews were recorded and independently rated (by S.H. and A.H.). Dilemmas were only confirmed if both raters agreed. Borderline cases – even when there was agreement – were discussed with the Bedford College team.

### Sample size

We assumed a general population rate of severe life events and difficulties of 25% with a relevant experience in the preceding year. Therefore, with a power of 80% and a significance level of 5%, 64 matched case-control pairs were required to detect a threefold increase in odds of experience of life events or difficulties among chronic fatigue syndrome patients. There are no published data for the experience of dilemmas upon which to base a sample size calculation.

## RESULTS

During the time of recruitment for this study 95 people were referred to the clinic. Eight did not attend, 15 did not have CFS, three were unavailable for interview as they were leaving Yorkshire, one was aged 12 and two had completely recovered from their symptoms. In two cases a subject was unable to date the onset of their CFS and were excluded from the study. This left 64 patients who took part in the study. No one refused to be interviewed.

Table 1. *Characteristics of the cases and controls*

Characteristic	Cases (N=64) N (%)	Controls (N=64) N (%)
Living arrangements		
Alone	13 (20)	4 (6)*
With spouse	35 (55)	44 (69)
With parent	9 (14)	8 (12.5)
Shared	1 (1.5)	1 (1.5)
With children	6 (9.5)	7 (11)
Marital status		
Single	18 (28)	13 (20)
Married	35 (55)	44 (69)
Separated/divorced	10 (16)	6 (9)
Widowed	1 (1.5)	1 (1.5)
Children at home		
0	38 (59)	25 (39)*
1	16 (25)	15 (23.5)
2	7 (11)	15 (23.5)
≥3	3 (4.5)	9 (14)
Social class		
I	6 (9)	5 (8)
II	31 (48.5)	22 (34.5)*
III Non-manual	11 (17)	11 (17)
III Manual	6 (9)	14 (22)
IV	4 (6)	8 (12.5)
V	2 (3)	3 (4.5)
Not classifiable	4 (6)	1 (1.5)
ICD-9 disorder		
None	43 (67)	56 (87.5)
Depression (300.4)	13 (20)	5 (8)
Anxiety (300.0)	7 (11)	3 (4.5)
Phobic state (300.2)	1 (1.5)	0

\* Statistically significant difference where  $P < 0.05$  using McNemar's  $\chi^2$  test.

For the controls 89 people were asked to take part in the study. Of these 12 refused to take part and 13 were not contactable at the addresses given in the register – usually because they had moved house. The 12 people who refused to take part were four men, mean age 45, and eight women, mean age 35.

The mean age of the cases and controls was 38 years. Forty-five out of the 64 aged-matched pairs were female (70%). Table 1 shows the characteristics of the cases and controls.

### The nature of the chronic fatigue syndrome

Patients with chronic fatigue had had the illness for a mean of 3.5 years (standard deviation 3 years) with a range from 6 months to 19 years. The median length of illness was 2.6 years. Forty-six people (72%) gave a history of an infection at the start of their illness and 25 (39%) were currently members of a support group.

Eleven (17%) had a psychiatric history defined by contact with mental health services and 11 (17%) had a family history of psychiatric disorder in first degree relatives. Two people had harmed themselves during the current episode of chronic fatigue syndrome. The mean score on the Health and Fatigue Questionnaire was 12 (standard deviation 3).

### Conventional analysis of life events (see Table 2)

For the 12 months prior to onset of the chronic fatigue syndrome, patients reported a total of 168 events of which 38 (23%) were severe. For the 12 months before hypothetical onset, controls reported 141 events of which 32 (23%) were severe. For the 3 months prior to onset patients reported 17 severe events compared to five reported by controls. Considering all events in the 3 months before onset, cases reported a total of 66 events while controls reported 37 events. Difficulties of all sorts were more common among the patients than the controls both in the year and 3 months before onset.

All the CFS patients were clear that their fatigue symptoms had started before any psychiatric symptoms. There was no connection between current psychiatric state and provoking agents prior to onset in the CFS patients. Of the 21 patients with a current psychiatric disorder eight (32%) reported no provoking factors 3 months prior to onset of the chronic fatigue, compared with 25 out of 43 patients (58%) without current psychiatric disorder ( $\chi^2 = 2.03$ ,  $df = 1$ ,  $P < 0.25$ ).

### Dilemmas

The inter-rater reliability study for the measure of dilemmas yielded a kappa of 0.6 (moderate to good).

In the 3 months prior to onset 19 of the 64 patients (30%) experienced a dilemma while none of the controls experienced a dilemma prior to the hypothetical onset (McNemar's  $\chi^2 = 43$ ,  $df = 1$ ,  $P < 0.001$ ). In the patients 12 of the dilemmas were major difficulties, five marked difficulties, one a severe event and one was rated contextually as a non-major difficulty but the subject rated it as a major difficulty. The dilemmas involved partners or immediate family members in 14 instances and work in the remaining five.

Table 2. *The experience of patients and controls of life events and difficulties prior to onset of chronic fatigue syndrome or hypothetical onset*

Period prior to onset	Cases (N=64) N (%)	Controls (N=64) N (%)	McNemar's $\chi^2$	OR (95% CI)
1 year				
Severe event alone	8 (12.5)	11 (17)		
Severe event and major difficulty	7 (11)	4 (6)		
Major difficulty alone	11 (17)	0		
Marked difficulty alone	2 (3)	1 (1.5)		
Severe event and marked difficulty	8 (12.5)	0		
No severe event, major difficulty or marked difficulty	28 (44)	48 (75)	11.3***	4.3 (1.8–10.2)
3 months				
Severe event alone	4 (6)	3 (6)		
Severe event and major difficulty	5 (8)	1 (1.5)		
Major difficulty alone	12 (19)	3 (5)		
Marked difficulty alone	7 (9)	0		
Severe event and marked difficulty	3 (6)	0		
No severe event, major difficulty or marked difficulty	33 (51.5)	57 (87.5)	17.6***	9 (3.2–25.1)

*P* values calculated using McNemars'  $\chi^2$  with one degree of freedom for no provoking agent *versus* any provoking agent in cases and controls: \*\*\* *P* < 0.001.

## DISCUSSION

We have found that patients with chronic fatigue syndrome have a high rate of stressful life events and difficulties before onset, compared to a community control group.

The second part of our study was an attempt to describe these difficulties in a novel way by developing a new dimension of the life-stress based on the notion of dilemmas. In doing so we have drawn on our previous studies in functional dysphonia (House & Andrews, 1988; Andrews & House, 1989) – a condition in which we see parallels with chronic fatigue. Each is a disorder of muscular function; indeed their old names – phonasthenia and neurasthenia – are similar. Our clinical experience is that many patients with chronic fatigue syndrome describe difficulties with voice production. Each condition has been described in wartime, when the provocation has been psychological conflict between duty to fight and self-preservation.

We extended the idea of conflict over speaking out that we developed in functional dysphonia, to the more general one of the unresolvable dilemma. Using this new dimension most of the difficulties experienced by patients were rated as dilemmas. In total nearly a third of people with chronic fatigue syndrome described a dilemma before the start of their illness, compared with no controls. The experience appears

to be a specific provocation, if not sufficient to explain all cases.

If the effect of life-stress had been mediated by depression, then we would have expected a pattern of life events and difficulties prior to onset much more typical of depression and anxiety, that is with a clear excess of life events with the characteristics of loss. This was not the case. Could our results be due to bias?

We could have chosen a control group with a physical disorder, for example multiple sclerosis, to account for the experience of becoming ill: there is evidence that life events and difficulties do increase before onset of a number of physical illnesses. This would also have gone some way to addressing the problem of selection bias in the cases, since the controls would also have been subject to the biases resulting from referral to secondary care. However, since ours is the first case-control study using the Life Events and Difficulties Schedule in a typical group of patients with CFS we wanted to know if there was any evidence of an increase in stressful experiences prior to onset. We were also concerned about new bias arising from failure to match patients for age and sex – which would have been much harder to do using other ill patients as controls.

Our finding that loss events alone were not more common in cases also argues against

referral bias arising from recruitment in a joint medical/psychiatric clinic.

A problem with the controls is that 12 people refused to take part when first approached. Although 84% (64/76) of those approached and who were eligible did agree to take part in the study, bias from this source is possible but hard to assess.

One person who was aware of case/control status undertook all the interviews. This could have led to higher rates of eliciting events and difficulties in the patients. Lack of blinding is an inevitable defect of interview methods that yield detailed and qualitatively rich data. However, the rating procedure is robust against bias, especially for the more severe events and difficulties. The early interviews were discussed and rated in front of a consensus panel at Bedford College who were blind to patient status; all interviews were taped and double-rated, and later problematical ratings were discussed by a consensus panel.

Recall bias does not seem to be a problem as both patients and controls remembered roughly the same number of life events and minor difficulties. The differences were in the recall of severe events and more impressively in difficulties (which do not rely so much on precise dating) and dilemmas.

Our results suggest that a specific psychosocial stressor precedes the onset of chronic fatigue syndrome, at least in some cases. The finding needs to be replicated. If robust, we should try to identify appraisal and coping strategies that determine who is affected by dilemmas and who is not. It is also possible that the notion of the dilemma as life-stress explains the onset of other medically unexplained disorders and possibility this too merits further investigation.

We thank Tirril Harris and George Brown for invaluable help and advice on consensus ratings and developing the dilemma dimension of the LEDS. We thank the patients, general practice subjects and Meanwood General Practice for their help and time.

S. H. and A. H. conceived the idea designed the study and wrote the paper. S. H. conducted all the interviews.

## REFERENCES

Andrews, H. & House, A. (1989). Functional dysphonia: establishing a new dimension of life events and difficulties. In *Life Events and Illness* (ed. G. Brown and T. O. Harris), pp. 343–353. Guilford Press: London.

- Brown, G. W. & Harris, T. O. (1978). *The Social Origins of Depression: A Study of Psychiatric Disorder in Women*. Tavistock: London.
- Brown, G. W. & Harris, T. O. (1989). *Life Events and Illness*. Guilford Press: London.
- Bruce-Jones, W. D., White, P. D., Thomas, J. M. & Clare, A. W. (1994). The effect of social adversity on the fatigue syndromes, psychiatric disorders and physical recovery, following glandular fever. *Psychological Medicine* **24**, 651–659.
- Buchwald, D. S., Rea, T. D., Katon, W. J., Russo, J. E. & Ashley, R. L. (2000). Acute infectious mononucleosis: characteristics of patients who report failure to recover. *American Journal of Medicine* **109**, 531–537.
- Chalder, T., Berelowitz, G., Pawlikowska, T., Watts, L., Wessely, S., Wright, D. & Wallace, E. P. (1993). Development of a fatigue scale. *Journal of Psychosomatic Research* **37**, 147–153.
- Dohrenwend, B. S., Krasnoff, L., Askenasy, A. R. & Dohrenwend, B. P. (1978). Exemplification of a method for scaling life events: the Peri Life Events Scale. *Journal of Health and Social Behavior* **19**, 205–229.
- Euba, R., Chalder, T., Deale, A. & Wessely, S. (1996). A comparison of the characteristics of chronic fatigue syndrome in primary and tertiary care. *British Journal of Psychiatry* **168**, 121–126.
- Hatcher, S. (1994). "One Stop Treatment" – A British Fatigue Clinic (1994). *Clinical Infectious Diseases* **18** (S1), 112.
- House, A. & Andrews, H. (1988). Life events and difficulties preceding the onset of functional dysphonia. *Journal of Psychosomatic Research* **32**, 311–319.
- Kroenke, K., Wood, D. R., Mangelsdorff, D., Meier, N. J. & Powell, J. B. (1998). Chronic fatigue in primary care. Prevalence, patient characteristics and outcome. *JAMA* **260**, 929–934.
- Lewis, S., Cooper, C. L. & Bennett, D. (1994). Psychosocial factors and chronic fatigue syndrome. *Psychological Medicine* **24**, 661–671.
- MacDonald, K. L., Osterholm, M. T., LeDell, K. H., White, K. E., Schenck, C. H., Chao, C. C., Persing, D. H., Johnson, R. C., Barker, J. M. & Peterson, P. K. (1996). A case-control study to assess possible triggers and cofactors in chronic fatigue syndrome. *American Journal of Medicine* **100**, 548–554.
- Masuda, A., Nozoe, S. I., Matsuyama, T. & Tanaka, H. (1994). Psychobehavioural and immunological characteristics of adult people with chronic fatigue and chronic fatigue syndrome. *Psychosomatic Medicine* **56**, 512–518.
- Ray, C., Jefferies, S. & Weir, W. R. (1995). Life-events and the course of chronic fatigue syndrome. *British Journal of Medical Psychology* **68**, 323–331.
- Salit, I. E. (1997). Precipitating factors for the chronic fatigue syndrome. *Journal of Clinical Research* **31**, 59–65.
- Sharpe, M., Archard, L. & Banatvala, J. (1991). Chronic fatigue syndrome: guidelines for research. *Journal of the Royal Society of Medicine* **84**, 118–121.
- Stricklin, A., Sewell, M. & Austad, C. (1990). Objective measurement of personality variables in epidemic neuromyasthenia patients. *South Africa Medical Journal* **77**, 31–34.
- Theorell, T., Blomkvist, V., Lindh, G. & Evengard, B. (1999). Critical life events, infections, and symptoms during the year preceding chronic fatigue syndrome (chronic fatigue syndrome): an examination of chronic fatigue syndrome patients and subjects with a nonspecific life crisis. *Psychosomatic Medicine* **61**, 304–310.
- Ware, N. (1993). Society, mind and body in chronic fatigue syndrome: an anthropological view. In *Chronic Fatigue Syndrome (Ciba Foundation Symposium 173)*. Wiley: Chichester.
- White, P. D., Thomas, J. M., Kangro, H. O., Bruce-Jones, W. D., Amess, J., Crawford, D. H., Grover, S. A. & Clare, A. W. (2001). Predictions and associations of fatigue syndromes and mood disorders that occur after infectious mononucleosis. *Lancet* **358**, 1946–1954.
- Wing, J., Cooper, J. & Sartorius, N. (1974). *The Measurement and Classification of Psychiatric Symptoms*. Cambridge University Press: Cambridge.