PERSONALITY AND SOCIAL ATTITUDES IN CHRONIC FATIGUE SYNDROME

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Abstract—One hundred one chronic fatigue syndrome (CFS) patients attending a specialist CFS clinic were compared with 45 rheumatoid arthritis (RA) patients on a range of standardized questionnaire measures, to investigate whether CFS patients are characterized by particular personality traits or social attitudes. No differences were found between CFS and RA patients in measures of perfectionism, attitudes toward mental illness, defensiveness, social desirability, or sensitivity to punishment (a concept related to neuroticism), on either crude or adjusted analyses. Alexithymia scores were greater in the RA patient group ($p<0.05$). Social adjustment, based on subjective assessment of overall restriction in activities and relationship difficulties, was substantially poorer in the CFS group ($p<0.001$). This was highly associated with depressive symptoms, but remained significant even after adjusting for depressive symptomatology. There was no evidence from this study of major differences between the personalities of CFS patients and RA patients. The stereotype of CFS sufferers as perfectionists with negative attitudes toward psychiatry was not supported. © 1999 Elsevier Science Inc.

INTRODUCTION

Chronic fatigue syndrome (CFS) describes a complex of symptoms characterized by serious and debilitating medically unexplained mental and physical fatigue of at least 6 months duration, accompanied by a number of additional nonspecific symptoms, including muscle pain, sleep disturbance, depression and poor concentration [1, 2].

Considerable attention has been paid to the role of psychiatric illness in CFS. Although psychiatric disorders are clearly important, their precise contribution remains unclear. However, depressive and anxiety states, both current and in the past histories of CFS sufferers, seem to be particularly relevant [3–8].

Less professional attention has been given to the role of personality. Despite this, personality issues play a considerable role in the popular and media conception of CFS. This takes two forms [9]. First, CFS sufferers are often portrayed as hardworking, hard-driving, and energetic people before the onset of CFS [10]. Such characteristics are often said to either predispose individuals to developing the illness or, alternatively, to prevent them from making normal recoveries. Second, CFS sufferers are also usually portrayed as hostile to psychological explanations, mental

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illness, and psychiatry in general [9]. However, both conceptualizations of CFS sufferers may reflect a variety of biases and be associated with personality factors such as social desirability, defensiveness, and sensitivity to criticism.

There is a paucity of systematic evidence on the role of personality factors in CFS. Several studies have assessed personality from a dimensional perspective. Millon et al. studied 24 CFS patients using the Millon Clinical Multiaxial Inventory (MCMI), finding pathological elevations on histrionic (33%), schizoid (29%), and avoidant, narcissistic and aggressive/sadistic (25% each) personality patterns compared with normative data [11]. Blakeley et al. used the Minnesota Multiphasic Personality Inventory (MMPI) to compare 58 CFS, 81 chronic pain, and 104 healthy controls. They found progressively more elevated scores on most scales from controls through chronic pain to CFS patients [12]. The CFS patients showed more deviant personality traits reflecting emotionality or neuroticism, although personality profiles fell into several different groups. Two other studies using the MMPI, one comparing 25 women with epidemic neuromyasthenia to 25 healthy women [13] and another comparing 53 CFS patients to 43 healthy controls [14], reported similar findings. Riccio et al. used the Eysenck Personality Questionnaire to compare nine myalgic encephalomyelitis (ME) sufferers with matched healthy controls and found significantly lower scores on the Extraversion and Psychoticism scales for the ME patients, but no differences on the Neuroticism or Lie scales [15].

Two other studies have used a categorical approach to personality assessment with CFS patients, employing measures to diagnose personality disorder (PD) according to DSM-III-R criteria. Pepper et al. compared patients with CFS, multiple sclerosis (MS) and major depression [16]. The depressed group had more PDs than the CFS and MS groups who did not differ in rates of PD. A variety of PDs were found among CFS patients, the commonest being obsessive–compulsive (16%), histrionic (13%), and dependent (11%). Johnson et al. assessed 35 CFS, 20 MS, and 24 depressed patients and 35 healthy controls and found progressively higher rates of PD and neuroticism scores from healthy controls through CFS and MS (who did not differ) to the depressed group [17]. The most common PDs among the CFS patients were histrionic (23%) and borderline (17%).

Special attention has also been focused on perfectionism and a related highly action- and achievement-oriented lifestyle as premorbid risk factors, but the differing measures employed and conflicting results do not allow any firm conclusions to be drawn [18–21].

One of the main limitations of these studies is that the question of affective comorbidity was not generally accounted for in the assessment of personality. It is likely that current affective state significantly influences the outcome of personality assessments and there is evidence that "personality disorder" may resolve or be reduced following resolution of a depressive disorder [22, 23]. This is of particular importance as depression is common in CFS.

This study aims to investigate attitudes of CFS patients to psychiatric illness and the role of personality factors that may be associated with or underlie such attitudes. A comparison group of patients with rheumatoid arthritis (RA) was chosen to control for effects of chronic illness on cognitive styles or other personality traits. It seems likely that the normal range of personality is represented among patients with early arthritis and that changes reflect years of disabling disease [24], support-

ing the use of these patients to control for the effects of chronic, painful disability on personality.

We began with the following hypotheses:

1. CFS patients rate their personalities higher on perfectionism dimensions prior to onset of illness.
2. CFS patients have more negative attitudes to mental illness, which may be related to underlying traits of defensiveness, desire for social approval, and sensitivity to punishment (represented by the perceived stigma of psychiatric illness).
3. Failure to identify emotional states (alexithymia) contributes to denial of the role of psychiatric disorders in the etiology of CFS.

METHOD

Setting

CFS patients were those attending a CFS clinic situated in a large teaching hospital in South London. The sample is characteristic of CFS patients seen in other specialist clinics [25], showing the typical characteristics of high morbidity and an overrepresentation of higher social class. It is not typical of CFS patients in primary care [26].

Subjects

The subject group comprised 120 patients recruited from consecutive referrals by primary care physicians and consultants to a hospital clinic specializing in CFS. Each patient had a standardized assessment interview with an accredited psychiatrist experienced in CFS (B.W. and S.W.). All subjects fulfilled the UK operational criteria [27] and the 1994 CDC criteria [28] for the diagnosis of CFS. The control group consisted of 60 patients, aged 18 to 65 years, with formal diagnoses of rheumatoid arthritis, under ongoing treatment at the Rheumatology Department in the same hospital and identified from the case register maintained in the department.

All patients were given a package of questionnaires with an explanatory letter and asked to complete and return them. Patients were offered anonymity to increase response rates and reduce bias. The sociodemographic variables rated were defined as shown in Table I. Social class was based on the HMSO Occupational Classification [29]. Patients who were unemployed were classified according to their last employment.

Instruments

The package of questionnaires included the following instruments:

1. *Maclean's questionnaire on attitudes towards mental illness* [30]. Two subscales of this questionnaire were used, one measuring sympathy toward the mentally ill (Sympathy subscale), and the other the readiness to tolerate social intimacy with them (Social Distance subscale). Each scale consisted of a number of statements allowing for responses on a five-point scale from 1 (strongly agree) to 5 (strongly disagree) with higher scores indicating greater tolerance of social intimacy.
2. *Social Desirability Questionnaire* [31]. This questionnaire consists of 32 true/false statements with responses scored as 0 or 1 for concordance with the most socially acceptable attitude.
3. *Defensiveness Scale of Adjective Check List* [32]. The Adjective Check List consists of a large number of adjectives, with respondents being asked to mark those words they believe to truly describe them. For this study, the list was reduced to those relevant to a defensive attitude, with a further set added for camouflage. Higher scores indicate a more defensive attitude.
4. *Twenty-Item Toronto Alexithymia Scale* (TAS-20) [33, 34]. The TAS-20 uses 20 items to assess three dimensions of alexithymia: difficulty identifying and distinguishing between feelings and bodily sensations; difficulty in identifying and describing feelings; and externally orientated thinking (a cognitive style that is concrete and reality-based). The items consist of statements presented in a five-point Likert rating format graded from 1 to 5 along a "strongly disagree" to "strongly agree" continuum, with higher scores indicating greater degrees of alexithymia.
5. *Tridimensional Personality Questionnaire* (TPQ) [35]. The TPQ is a personality assessment questionnaire, comprising 100 true/false items along three dimensions: harm avoidance; reward dependence; and novelty seeking. Harm avoidance, a trait of punishment sensitivity, is conceptualized

Table I.—Sociodemographic and clinical characteristics

Patient groups	Subjects, CFS patients (n = 101)	Controls, RA patients (n = 45)	Statistical test
Male	40 (39.6%)	9 (20%)	Chi-square: χ^2 = 5.37,
Female	61 (60.4%)	36 (80%)	p = 0.02
Mean age (SD)	36.6 (SD = 10.5)	42.2 (SD = 9.6)	t-test: t = 3.05, p = 0.003
Social class[a]			
1	10	3	
2	44	15	
3 (N)	18	16	
3 (M)	6	0	
4	3	2	
5	0	2	
Student	10	2	
Unknown	10	5	
Marital status[b]			
Single	42	17	
Married/cohabiting	47	23	
Divorced/separated	11	5	
Widowed	1	0	
Ethnicity[c]			
White	98	41	
Afro-Caribbean	1	1	
Asian	2	0	
Unknown	0	3	
Education[d]			
Secondary (no exams)	12	11	
Secondary (CSE/O level)	21	13	
Secondary (A level)	9	4	
Diploma	29	9	
Degree	29	8	
Unknown	1	0	
Duration of illness (months)[e]			
Median	36	64	
Interquartile range	21–58	32–143	

[a] For all subjects and controls in this patient group, the statistical test is Chi-square: χ^2 = 17.46, p = 0.03.

[b] For all subjects and controls in this patient group, the statistical test is Chi-square: χ^2 = 4.45, p = 0.73.

[c] For all subjects and controls in this patient group, the statistical test is Chi-square: χ^2 = 0.38, p = 0.54.

[d] For all subjects and controls in this patient group, the statistical test is z-test (trend): z = 2.55, p = 0.01.

[e] For all subjects and controls in this patient group, the statistical test is Mann-Whitney: U = 1295, $p < 0.001$.

as an individual's "tendency to respond intensely to aversive stimuli and to avoid punishment, novelty, and nonreward passively" [36]. It is thought to reflect personality traits similar to Eysenck's concept of neuroticism [37, 38]. Reward dependence, similar to Eysenck's concept of extroversion, is thought to involve a particular sensitivity to signals of reward and thus susceptibility to positive affect. Novelty seeking is an individual's tendency toward excitement in response to novel stimuli.

6. *Multidimensional Perfectionism Scale* (MPS) [39]. The MPS uses 35 items to assess six dimensions of perfectionism: excessive concern over making mistakes; high personal standards; the perception of high parental expectations; the perception of high parental criticism; the doubting of the quality of one's actions; and a preference for order and organization. All items are in the form of statements laid out in a Likert-type format with a five-point response continuum from strongly disagree (1) to strongly agree (5).

7. *Beck Depression Inventory* (BDI) [40]. In this study the BDI was used to provide a measure of depressive symptomatology.
8. *Social Adjustment Scale* (SAS) [41]. The SAS is a brief self-report of functional impairment. The SAS looks at five areas of social adjustment: ability to work; ability to continue with social activities; home management abilities; involvement with private activities and the ability to form and maintain relationships. The scale is assessed by means of a visual analog from 0 being "no handicap" to 8 being "very severely handicapped and the patient cannot participate with the activity." In the results and analysis, the scores for the first four scales are summed as the general measure of restriction in activities and the final scale concerning relationships considered separately.

Statistical analyses

After tests for normality, *t*-tests for independent samples were used to compare the two groups on age, and chi-square analyses were used for gender, social class, marital status, ethnicity, and level of academic achievement. A Mann–Whitney *U*-test was used to compare the groups on duration of illness, which was not normally distributed.

The significance of group differences for all the psychological variables and the SAS were assessed using analysis of covariance in SPSS. The covariates tested were age, gender, social class, duration of illness, and an adjusted BDI score for all analyses. The BDI score was corrected by removing the effect of the fatigue variables, tiredness and effort to work, on the total score (BDI_{corr}). This was to avoid distortion of the BDI score, used as a general measure of depression, by core symptoms of CFS present in patients without depression. To test social class as a covariate, it was recoded into two classes: one for professional and managerial occupations (Social Classes 1 and 2; see Table I) and students, the other class for remaining occupations (Social Classes 3N, 3M, 4, and 5; Table I).

RESULTS

Response rates

One hundred twenty CFS patients were given questionnaires, and 101 were returned (84%). Sixty questionnaires were given to the control group (RA) and 45 were returned (75%). Nonresponders in the CFS group did not differ from responders in terms of gender, age, and duration of illness. No information was available on nonresponders in the RA controls.

Sociodemographic and clinical characteristics

The sociodemographic and clinical characteristics of the subject and control groups are summarized in Table I. The groups differed significantly in gender, age, educational achievement, social class distribution, and duration of illness. There were no significant differences in marital status or ethnicity. The control group of RA patients contained a higher proportion of females, was older and of lower social class and academic achievement than the CFS patients, and had been ill longer. BDI scores (Table IIc) were significantly higher in the CFS group even when the effect of the items assessing fatigue was removed from the total (BDI_{corr}).

Instruments

The results of the questionnaire scores are shown in Tables IIa, IIb, and IIc. The most frequently occurring significant covariate for the psychological measures was the corrected BDI score (BDI_{corr}) and these correlations are presented. On both crude and adjusted analyses there were no differences between the groups on responses to Maclean's questionnaire on attitudes to mental illness, to the Adjective Check List for defensiveness or to the Crowne–Marlowe questionnaire on social desirability (Table IIa). There were no overall differences on the harm avoidance and reward dependence scales of the TPQ. As expected, the CFS group did score higher

on the "fatigability and asthenia" subscale of the TPQ (Harm Avoidance, subscale 4). This was substantially related to BDI scores (Pearson's correlation coefficient: $R=+0.42$, $p<0.001$), but the differences remained significant even when adjusted for the corrected BDI scores.

Total alexithymia scores as measured by the TAS-20 were greater in the RA than CFS patient group as were scores on the subscale measuring ability to identify affects and distinguish from bodily sensations. The differences in these scores reached significance only after adjustment for the BDI scores. No differences were found on the other subscales of describing affects or of externally orientated thinking (Table IIb). Assessment of perfectionism by the MPS showed no significant differences between the groups for any of the subscale or total scores (Table IIc).

The CFS patients had substantially higher scores on the SAS (Table IIc), assessing their overall restriction in activities and relationship difficulties resulting from their illness as far greater than did the RA patients. Again, these scores were highly related to the BDI scores ($R=+0.49$, $p<0.001$ and $R=+0.55$, $p<0.001$, respectively), but the differences remained significant after adjustment for the corrected BDI scores.

As there was considerable imbalance in the numbers of male and female patients studied, and in particular only nine men in the control group of RA patients, the statistical analyses were repeated for the female patients only. This had little impact on the general pattern of the results. The only alterations in significance were marginal and confined to a subscale of the TPQ. Among female patients, those with CFS scored significantly higher on the reward dependence scale than the RA patients on the crude analysis ($p=0.04$), but not when adjusted for covariates (age, duration of illness, social class, and corrected BDI scores).

DISCUSSION

We present a large scale controlled study of personality and social attitudes in CFS patients. Contrary to our hypotheses and the media accounts of CFS, we found no evidence that CFS patients are characterized by particularly hostile attitudes to mental distress. It is possible that such attitudes still existed in our sample, but the responders were unwilling to admit to them. We consider this to be unlikely. It is possible that our sample has a pro-psychiatry bias, because, although we operate a broad-based service in a general hospital, we make no secret of our professional affiliations. However, when we participated in a multicenter study with colleagues in Boston and Sydney, the results showed that our patients were typical of those seen in the other centers, and that our service did not see a particularly "psychiatric" group [25]. We consider it more likely that it is the media perception of CFS that is in error, and that the media portrayal of CFS reflects an atypical and unrepresentative stereotype.

Our study also failed to demonstrate any overall differences in personality traits that may underlie negative attitudes to mental illness or psychiatry, namely social desirability, defensiveness, and harm avoidance. Harm avoidance has been linked to the dimension of neuroticism [37, 38], hence our findings differ from several previous studies which, with one exception [15], have reported elevations on measures of neuroticism in chronically fatigued populations [12–14, 16, 17].

Table IIa.—Questionnaire scores

Questionnaire	CFS (n = 101), mean (SD)	RA (n = 45), mean (SD)	Significance, CFS vs. RA (raw data)	Significance, CFS vs. RA (adjusted for covariates)	Significant covariates[a]	Correlation coefficient with BDI_{corr} (Pearson's R)
Attitudes to Mental Illness						
Sympathy Scale	22.0 (SD = 3.2)	22.3 (SD = 2.3)	$F = 0.23, p = 0.63$	$F = 0.001, p = 0.98$	ns	$R = +0.08, p = 0.39$
Social Distance Scale	51.9 (SD = 9.1)	50.6 (SD = 9.6)	$F = 0.61, p = 0.44$	$F = 0.27, p = 0.60$	ns	$R = -0.16, p = 0.08$
Social Desirability	18.1 (SD = 5.8)	17.5 (SD = 5.6)	$F = 0.35, p = 0.55$	$F = 2.62, p = 0.11$	ns	$R = -0.10, p = 0.28$
Check List						
Defensiveness (ACL)	17.3 (SD = 6.5)	18.4 (SD = 5.7)	$F = 0.93, p = 0.34$	$F = 0.80, p = 0.38$	Gender BDI_{corr}	$R = -0.22, p = 0.01$[b]

[a] Covariates tested: age, gender, social class, duration of illness; BDI_{corr} score for all analyses.
[b] Significant at $p = 0.05$.

Table IIb.—Questionnaire scores

Questionnaire	CFS (n = 101), mean (SD)	RA (n = 45), mean (SD)	Significance, CFS vs. RA (raw data)	Significance, CFS vs. RA (adjusted for covariates)	Significant covariates[a]	Correlation coefficient with BDI_{corr} (Pearson's R)
TPQ						
(a) Harm Avoidance						
Subscale 1	4.3 (2.6)	3.8 (2.3)	$F = 1.12, p = 0.29$	$F = 0.01, p = 0.91$	BDI_{corr}	$R = +0.40, p < 0.001$[b]
Subscale 2	4.7 (1.9)	4.8 (2.0)	$F = 0.11, p = 0.74$	$F = 0.09, p = 0.76$	NS	$R = +0.20, p = 0.07$
Subscale 3	3.3 (2.1)	2.9 (2.3)	$F = 1.19, p = 0.28$	$F = 0.87, p = 0.35$	NS	$R = +0.18, p = 0.06$
Subscale 4	6.8 (2.1)	5.3 (2.2)	$F = 14.87, p < 0.01$[b]	$F = 4.97, p = 0.03$[b]	age, BDI_{corr}	$R = +0.42, p < 0.001$[b]
Subtotal (1, 2, 3)	12.3 (5.4)	11.4 (5.7)	$F = 0.77, p = 0.38$	$F = 0.29, p = 0.59$	BDI_{corr}	$R = +0.34, p < 0.001$[b]
Total (1, 2, 3, 4)	19.1 (6.5)	16.8 (6.7)	$F = 3.9, p = 0.06$	$F = 1.32, p = 0.22$	BDI_{corr}	$R = +0.35, p < 0.001$[b]
(b) Reward Dependence	18.7 (4.9)	17.8 (4.5)	$F = 1.07, p = 0.30$	$F = 0.73, p = 0.40$	Gender	$R = -0.01, p = 0.93$
(c) Novelty Seeking	14.3 (4.7)	15.2 (4.2)	$F = 3.82, p = 0.26$	$F = 4.46, p = 0.04$[b]	Age	$R = -0.11, p = 0.24$
TAS-20 (Alexithymia)						
(a) Identifying affects/ distinguishing from sensations	15.0 (5.2)	14.5 (5.8)	$F = 3.82, p = 0.06$	$F = 8.88, p = 0.004$[b]	Gender, BDI_{corr}	$R = +0.55, p < 0.001$[b]
(b) Describing affects	12.6 (4.8)	14.3 (5.0)	$F = 0.25, p = 0.62$	$F = 2.14, p = 0.15$	BDI_{corr}	$R = +0.38, p < 0.001$[b]
(c) Externally orientated thinking	17.9 (4.4)	19.6 (5.2)	$F = 3.54, p = 0.07$	$F = 1.75, p = 0.19$	Gender, BDI_{corr}	$R = +0.04, p = 0.68$
(d) Total (a, b, c)	45.5 (10.5)	47.7 (10.8)	$F = 1.21, p = 0.27$	$F = 5.92, p = 0.02$[b]	Gender, BDI_{corr}	$R = +0.48, p < 0.001$[b]

[a] Covariates tested: age, gender, social class, duration of illness; BDI_{corr} score for all analyses.
[b] Significant at $p = 0.05$.

Table IIc.—Questionnaire scores

Questionnaire	CFS (n = 101), mean (SD)	RA (n = 45), mean (SD)	Significance, CFS vs. RA (raw data)	Significance, CFS vs. RA (adjusted for covariates)	Significant covariates[a]	Correlation coefficient with BDI_{corr} (Pearson's R)
MPS (Perfectionism)						
(a) Concern over mistakes	22.3 (10.5)	21.5 (8.4)	$F = 0.19, p = 0.66$	$F = 1.58, p = 0.21$	Duration, BDI_{corr}	$R = +0.35, p < 0.001$[b]
(b) Doubts	10.0 (4.8)	8.8 (3.4)	$F = 2.29, p = 0.13$	$F = 0.35, p = 0.56$	BDI_{corr}	$R = +0.46, p < 0.001$[b]
(c) Personal standards	24.3 (7.0)	21.9 (8.1)	$F = 3.52, p = 0.07$	$F = 0.73, p = 0.39$	Social class	$R = +0.15, p = 0.10$
(d) Parental expectations	11.6 (6.2)	12.4 (5.4)	$F = 0.59, p = 0.45$	$F = 0.75, p = 0.39$	NS	$R = +0.12, p = 0.19$
(e) Parental criticism	8.2 (4.6)	8.3 (4.3)	$F = 0.01, p = 0.91$	$F = 0.10, p = 0.76$	Age, BDI_{corr}	$R = +0.18, p = 0.05$[b]
(f) Orderliness	24.4 (5.3)	25.4 (5.1)	$F = 1.16, p = 0.28$	$F = 0.06, p = 0.80$	Age	$R = +0.02, p = 0.99$
(g) Total (a, b, c, d, e)	76.8 (24.2)	73.5 (22.5)	$F = 0.58, p = 0.45$	$F = 0.29, p = 0.59$	BDI_{corr}, age, duration	$R = +0.37, p < 0.001$[b]
BDI (Depression)	15.3 (8.6)	11.8 (7.5)	$F = 5.41, p = 0.01$[b]	$F = 11.3, p = 0.001$[b]	NS	
BDI_{corr}	13.6 (8.2)	10.9 (7.4)	$F = 3.94, p = 0.03$[b]	$F = 7.81, p = 0.009$[b]	NS	
Social Adjustment Scale (SAS)						
(a) Total	22.9 (5.9)	11.0 (8.6)	$F = 92.2, p < 0.001$[b]	$F = 59.9, p < 0.001$[b]	BDI_{corr}	$R = +0.49, p < 0.001$[b]
(b) Relationships	4.0 (2.7)	1.2 (2.1)	$F = 38.4, p < 0.001$[b]	$F = 18.6, p < 0.001$[b]	BDI_{corr}	$R = +0.55, p < 0.001$[b]

[a] Covariates tested: age, gender, social class, duration of illness; BDI_{corr} score for all analyses.
[b] Significant at $p = 0.05$.

The lower alexithymia scores found in the CFS compared with the RA patients were contrary to our original hypothesis. The difference between the groups was in the dimension measuring ability to identify and distinguish affects from physical sensations in which the RA patients did worse. Interestingly, this difference only reached significance after adjustment for BDI scores. It may be that aspects of alexithymia have a complex relationship with depression. On the one hand, as suggested by the positive correlation between them, the ability to identify and distinguish affects from physical sensations may be acutely disturbed during a depressive illness in a state-dependent manner. On the other hand, a focus on somatic complaints in chronic physical illness may actually mitigate against the experience of depression and thus represent a protective mechanism. Other investigators finding raised alexithymia scores in RA patients compared with healthy controls [42] have suggested a similar argument. Such a relationship could be consistent with our results. If the "alexithymia" of our CFS group is more the consequence of depression while that of the RA group represents more a protective mechanism against the experience of depression, then adjustment for depression would reduce the alexithymic dimension of the CFS group relative to the RA group. However, it seems unlikely that the concept of alexithymia is related to attitudes toward mental illness as there was no difference between CFS and RA patients in hostility to mental illness on crude or adjusted analyses.

This study also failed to demonstrate any differences in perfectionism between CFS and RA patients. Once again, these findings are at odds with the media and self-help literature stereotypes of CFS sufferers, perhaps suggesting a selection bias whereby sufferers who express their public opinions are more likely to have been perfectionists premorbidly, or at least to consider themselves as such. Previous studies of chronically fatigued populations using the type A personality construct as a proxy for perfectionism give contradictory results [19, 20].

The main positive findings in this study are the highly significant differences between the CFS and RA patients in the measures of depressive symptomatology (BDI) and of social adjustment (SAS), which were closely related. The higher depression scores in our CFS patients are in line with previous evidence of high rates of depression in CFS even in comparison with other chronically physically disabled populations [5, 43, 44]. Interestingly, despite higher BDI scores, our CFS group did not show more deviant personality traits than the RA control group. Johnson et al.'s study of personality in CFS [17] found that patients with concurrent depression accounted for most of the personality pathology in their CFS sample. Whereas personality disorders have been noted to predispose to depression [45], there is also evidence for state dependency of personality assessments made in the context of major depression [22, 23]. The clear demarcation of personality pathology between depressed and nondepressed CFS subgroups in Johnson's study suggests that the personality measures were confounded by psychiatric state. It is interesting in this context that the most frequently found significant covariate for the various personality measures employed in our study was the BDI score (corrected to remove the effects of the fatigue variables). Lack of significant personality differences in our CFS patients may therefore reflect our own observation that the rates of depressive disorder in our CFS clinic have been decreasing over time, perhaps reflecting better recognition and/or treatment of depressive disorders by general practitioners.

Several possible limitations to the current study merit consideration. One is the use of RA patients as a comparison group. The lack of differences between our CFS and RA patients may be due to similar "abnormal" personality profiles common to both groups. This would be an important limitation of the study if such personality factors were present premorbidly in RA patients, but evidence for premorbid personality factors in RA that are independent of selection bias is not convincing [24]. If, as seems more likely, personality descriptors in RA are associated with other confounders, such as chronic disabling illness and depression, RA patients make a very appropriate comparison group for the investigation of personality factors more specific to CFS.

We employed a relatively large number of statistical tests in the analysis of the inventories used. We did not undertake formal statistical correction for multiple analyses, but, in taking a p-value of 0.05 for significance, the expected number of false positive findings is 1.35. It is also possible that some negative findings are type 2 errors.

The use of the BDI as a measure of depression in this study also merits consideration. The BDI contains several items relating to physical symptoms that may be positive in CFS patients without depression. However, some such items may also be positive in RA patients irrespective of depression reducing this limitation of the BDI in a comparative study. Although using the BDI as a covariate was a fairly crude tool in adjusting for the effect of current depression on personality measures, the fatigue variables were removed for the analysis. To have removed further BDI items overlapping with CFS symptoms would have risked severely skewing the profile of depression in the sample by excluding too many features of depression that may be irrespective of other illness (CFS or RA). In the event, adjustment for BDI scores had little impact on the significant results.

The alternative interpretation of the BDI scores as reflecting, at least in part, severity of CFS symptoms, and not solely the extent of current depression, is important. The associations found between various psychological measures and the BDI scores may then be explained partially by a particular subgroup of patients with severe symptoms (reflected in high BDI scores) and significant personality profiles. This would be consistent with the view of CFS as a heterogenous condition [46]. Data from such subgroups of patients may be concealed in a general study of CFS patients such as we have reported. Previous researchers have found an association between perfectionism and fatigue in general [47]. However it is most unlikely that our psychological measures relate simply to severity of fatigue as the associations were with BDI scores corrected to remove the effect of the fatigue variables (BDI_{corr}).

A final important concern is that of the applicability of our findings to men given the predominance of female subjects overall and particularly the small number of male controls. Our results clearly require replication before they can be generalized to male CFS patients with confidence.

In summary, we have found little evidence that any particular personality trait discriminates CFS patients in a specialist setting from other patients suffering a physically disabling condition, albeit more chronic and painful, with a firmly established physical cause. Popular representations of CFS patients in the media may not apply to the entire population of sufferers and may represent the views of an atypi-

cal subgroup and/or a media stereotype of CFS patients. Whereas lack of a healthy matched control group limits our ability to generalize from our findings, this study provides no evidence to support the anti-psychiatry tone that is so striking in the popular literature on CFS. On the other hand, the positive stereotype of the high-achieving, overdedicated sufferer with high personal standards receives no support either. We conclude that this sample of CFS patients is not characterized by any of the personality traits suggested in the popular literature on the condition, when compared with patients suffering a physically disabling illness of established physical etiology.

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