Personality and perfectionism in chronic fatigue syndrome: A closer look

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Objective: To test the hypothesis that people with chronic fatigue syndrome (CFS) would differ significantly from a healthy control group on measures of general personality and perfectionism, specifically on measures of neuroticism and unhealthy perfectionism. Method: A total of 27 female CFS outpatients and 30 female healthy controls completed questionnaires, including the NEO Personality Inventory-Revised, the Multi-dimensional Perfectionism Scale and measures of anxiety and depression. Results: The CFS group was significantly more fatigued, anxious and depressed than healthy controls. They scored significantly higher on neuroticism and unhealthy perfectionism. Healthy and unhealthy perfectionism were positively correlated in the CFS group, but not in the control group. Conclusion: The present study confirms the link between neuroticism and fatigue and finds a link between unhealthy perfectionism and fatigue. A ‘healthy trait’, such as healthy perfectionism, when coupled with evaluative concerns is not necessarily healthy in a fatigued population. Researchers and clinicians should note the context in which apparently benign traits are expressed, and how they interact with other traits.

Keywords: chronic fatigue syndrome; personality; perfectionism; neuroticism

Introduction
There is increasing evidence that chronic fatigue syndrome (CFS) is unlikely to be caused or maintained by a single agent and is probably the result of an interplay of several factors. This evidence is operationalised in the cognitive behavioural model of CFS which distinguishes between predisposing, precipitating and maintaining factors (Deary, Chalder, & Sharpe, 2007). Among factors that have been identified as potential predisposing factors are a history of depression, somatisation and lack of social support (Addington, Gallo, Ford, & Eaton, 2001; Chalder, 1998). Stressful life events and more severe viral infections are common precipitants (Hatcher & House, 2003; Hotopf, Noah, & Wessely, 1996; White et al., 2001). In terms of maintenance, alteration of the functioning of the hypothalamus pituitary adrenal axis; avoidance of activity, driven by beliefs that activity is harmful; physical illness attributions and symptom focussing are implicated (Deale, Chalder, & Wessely, 1998; Gaab et al., 2005; Ray, Jefferies, & Weir, 1997).

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Neuroticism

Personality traits may be additional predisposing factors. Neuroticism has been widely implicated in a variety of medically unexplained symptoms (MUS): high levels of neuroticism have been associated with functional dysphonia and a history of MUS (Deary, Scott, & Wilson, 1997), with irritable bowel syndrome (Hazlett-Stevens, Craske, Mayer, Chang, & Naliboff, 2003) and with general MUS (Costa & McCrae, 1987; Kirmayer, Robbins & Paris, 1994). Watson and Pennebaker (1989) suggest that the trait of neuroticism can be seen as predisposing to somatopsychic distress in general. Recent integrative overviews agree that a general tendency to physical and emotional distress contributes to the likelihood of experiencing a range of medically unexplained disorders (De Gucht, Fischler, & Heiser, 2004; Henningsen, Zimmermann, & Sattel, 2003). CFS groups have higher neuroticism and lower extraversion than controls in some studies (Blakely et al., 1991; Buckley et al., 1999; Taillefer, Kirmayer, Robbins, & Lasry, 2003). Others have questioned whether this apparent between group difference is an artefact of comorbid depression (Johnson, De Lucas, & Natelson, 1996). Most of these studies have been cross-sectional. Kato, Sullivan, Evengard, and Pedersen (2006) conducted one of the few prospective population-based studies, and showed that emotional instability (aka neuroticism) predicted chronic fatigue 25 years later. Most of these studies of neuroticism and CFS have utilised overall neuroticism measures, whereas it is known that neuroticism comprises a number of sub-factors (Costa & McCrae, 1992), only some of which might relate to CFS.

Perfectionism

In addition to neuroticism, a recurring hypothesis is that perfectionism is a pre-disposing factor to fatigue and CFS. Several mechanisms have been proposed to explain how they might be associated. One of the prevailing stereotypes of CFS patients is that of the ‘burnt out’ high achieving perfectionist. There is some evidence for this. Ware and Kleinman (1992) report that CFS patients report themselves as having excessively high standards and working hard to achieve them, whilst Van Houdenhove and Neerinckx (1999) propose that overactivity predicts and perpetuates fatigue. Thus the striving for perfection may drive physical overexertion which could, over time, have physical consequences. Another potentially deleterious aspect of perfectionism is the associated thinking style, specifically self-doubt, self-criticism and all or nothing thinking (Arpin-Cribbie & Cribbie, 2007). These more obviously negative aspects of perfectionism are associated with anxiety, depression and general distress, which are in themselves associated with fatigue, and may also contribute to fatiguing patterns of behaviour such as overstriving to reach unreachable standards (see Arpin-Cribbie & Cribbie, 2007, for a fuller discussion of this). These different facets of perfectionism, and the ways in which they may relate to fatigue, bring us to the issue of what perfectionism actually is, and what the ‘active ingredient’ might be in distress and fatigue proneness.

The nature and effect of perfectionism has been the subject of some debate in recent years. Shafran, Cooper, and Fairburn (2002) propose that the pathogenic core feature of what they call clinical perfectionism is a uni-dimensional construct characterised by ‘the overdependence of self-evaluation on the determined pursuit of personally demanding, self-imposed standards in at least one highly salient domain, despite adverse consequences.’ (p. 778). Against this proposal Hewitt, Flett, Besser, Sherry, and McGee (2003) have asserted the multi-dimensional nature of perfectionism which in their model comprises high self-standards, critical self-evaluation, standards imposed on other people
and standards perceived to be imposed by others. They place particular emphasis on these latter interpersonal dimensions as being important in the production of distress. In a reply to both these papers, Dunkley, Blankstein, Masheb, and Grilo (2006) in an analysis of existing studies and through analysis of novel data, conclude that perfectionism comprises two related but independent factors. These are ‘personal standards’, characterised by high self-standards and achievement striving, and ‘evaluative concerns’ characterised by self-doubt and self-criticism. They propose that the self-criticism of evaluative concerns accounts for the relationship between perfectionism and distress. As they observe, there is considerable empirical and theoretical precedent for this two-factor model, and it is closely related to the concepts of healthy and unhealthy perfectionism, proposed by Stumpf and Parker (2000), which we will discuss below.

Empirically, the association between perfectionism and fatigue has some support from a study of fatigability in a non-CFS sample (Magnusson, Nias, & White, 1996). Attempts to test it in relation to CFS have been less conclusive, with some studies showing no association (Blenikorn, Edwards, & Lynch, 1999; Woods & Wessely, 1999), whilst White and Schweitzer (2000) found that people with chronic fatigue were more likely to report negative aspects of perfectionism, such as evaluative concerns. In their recent review of this field, Geelen, Sinnema, Hermans, and Kuis (2007) comment that this lack of consensus is remarkable, given that the same instruments are being used. In fact, this is not the case. Their confusion has arisen because there are two scales which carry the title Multi-dimensional Perfectionism Scale (MPS). These have different psychometric properties which emerge when they are compared to standardised personality measures. The currently most statistically robust model of personality is the so-called five-factor model, which comprises traits of neuroticism, extraversion, openness, agreeableness and conscientiousness (Costa & McCrae, 1992). Hewitt and Flett’s (1991) perfectionism measure (used in the studies by Blenikorn et al. (1999), and Woods & Wessely, 1999) which found no relation with fatigue) has three dimensions, two of which have significant correlations with the five-factor model. The ‘self-oriented’ perfectionism subscale correlates significantly with conscientiousness and also has small correlations with agreeableness and neuroticism. Socially prescribed perfectionism had correlations with the depression subscale of neuroticism (Hill & McIntire, 1997).

The other MPS is by Frost, Marten, Lahart, and Rosenblate (1990) and it has six dimensions. This measure was used by White and Schweitzer (2000). They did find a correlation with CFS and the negative aspects of perfectionism, such as ‘concern over mistakes’ and ‘doubts about actions’ (see method: personality measures below for a full list of sub-factors). A subsequent factor analysis of this questionnaire reduced it to two ‘superfactors’ of healthy perfectionism, to do with standards and organisation, and unhealthy perfectionism to do with doubts and concerns (Stumpf & Parker, 2000). Dunkley et al. (2006), in distinguishing personal standards and evaluative concerns find their distinction supported by data from both Multi-dimensional Perfectionism Questionnaires, and their distinction is essentially identical to Stumpf and Parker’s (2000), with personal standards corresponding to healthy perfectionism, and evaluative concerns corresponding to unhealthy perfectionism. Both papers report that unhealthy perfectionism/evaluative concerns correlates positively with neuroticism, whilst healthy perfectionism/personal standards correlates positively with conscientiousness. Both sets of authors suggest that unhealthy perfectionism/evaluative concerns is the key factor linking perfectionism with distress.

This work on general personality factors and fatigue, and on perfectionism and fatigue forms the background to the present study. Our first aim was to further test the hypothesis.
that neuroticism was linked to fatigue, and to do so using a measure which would access the subcomponents of neuroticism. With regard to perfectionism our aim was to further investigate the relationship between the negative aspects of perfectionism and fatigue. To do so, we chose to utilise Frost et al.'s (1990) MPS in the light Stumpf and Parker's (2000) analysis of it into the two dimensions of healthy and unhealthy perfectionism. It was hypothesised that compared to a normal population, a chronically fatigued population would score higher on measures of unhealthily perfectionism and neuroticism.

Method

Subjects

A case control design was employed, and only women were recruited. CFS is 2–3 times more common in women (Chalder, 1998); therefore even with a relatively large sample size, there would still be a statistically negligible male group. Since there are well-replicated sex differences in personality (Costa & McCrae, 1992) and perfectionism measures (Blenikorn et al., 1999; White & Schweitzer, 2000), sex differences could confound between group differences. Following ethical approval, subjects were drawn from the current waiting list of the CFS Research and Treatment Unit, Kings College Hospital, London. They were assessed by a qualified psychiatrist prior to entry into the study and they were also clinically evaluated to establish that they fulfilled either the Centre for Disease Control (Fukuda et al., 1994) or the Oxford (Sharpe, Archard, & Banatvala, 1991) criteria for CFS.

50 patients were approached; 33 agreed to take part; and 27 completed and returned the study questionnaires. All but four fulfilled both criteria for CFS and those four fulfilled the Oxford criteria. From their clinical letters, none was clinically depressed, though, as usual in this patient group, there was some low mood attributable to the illness.

The control group of 30 women was selected by a process of interpersonal dissemination in which friends and colleagues of the authors were asked to recruit friends and colleagues of their own. This approach successfully produced a group matched on age and education to the CFS group.

Measures

Hospital anxiety and depression measure

This was employed to measure anxiety and depression in both groups (Zigmond & Snaith, 1983). The two subscales are scored from 0–21. Scores of 0–7 indicate no significant anxiety/depression; scores of 8–10 indicate possible cases; and scores of 11 and above indicate probable cases.

Chalder fatigue scale

Fatigue severity was assessed in both groups on this questionnaire with a possible score range from 0 to 33 (Chalder, Berelowitz, & Pawlikoska, 1993). This questionnaire has been well validated for use in people with CFS.

Level of education

Subjects were asked for their highest level of education reached, and this was then given a categorical score. No qualifications = 0; GSCE’s or O Grades = 1; A levels or Higher Grades = 2; Degree = 3; Post-Graduate Degree = 4.
Personality measures

NEO personality inventory-revised
This is a 240 item questionnaire which measures the five broad personality dimensions of Extraversion (E), Neuroticism (N), Openness to experience (O), Agreeableness (A), and Conscientiousness (C) (Costa & McCrae, 1992). In this detailed version of the questionnaire, each dimension is further divided into six facets, each of which is assessed by 8 questions. Each individual question is scored by the respondent reading a sentence and reflecting on how well it describes their own personality on a scale from ‘strongly agree’ (4) to ‘strongly disagree (0).

Multi-dimensional perfectionism scale
This is a 35-item measure of 6 different subscales of perfectionism (Frost et al., 1990). It assesses doubts about actions; concern over mistakes; parental criticism; parental expectations, organisation and personal standards. Questions are scored on a likert scale from 0 = strongly disagree, to 5 = strongly agree. According to the analysis of Stumpf and Parker, concern over mistakes, doubts about actions, parental expectations and parental criticism constitute the superfactor of Unhealthy Perfectionism. Personal standards and organisation constitute Healthy Perfectionism. They report congruence coefficients for these factors in excess of 0.95 (Stumpf & Parker, 2000).

Analyses
Two-tailed independent t-tests were used to compare means on all baseline variables, other than level of education which was coded categorically and analysed using a Chi-square test. A multivariate analysis of variance (MANOVA) was used to examine whether there were significant between group differences on the NEO-Personality Inventory and the MPS. If the overall MANOVA proved significant then a univariate analysis, with Bonferroni correction, was performed on each of the questionnaires dimensions. Post hoc analyses of dimension sub-facets were then performed on the dimensions that differed significantly between groups. All calculations were performed using the SPSS 15.0 package, except differences between correlations which were examined for significance using the ‘indepcorr’ programme.

Results
Mean differences between CFS and control groups
Table 1 shows the demographic and baseline data. The groups are similar in age and educational experience. Both groups were well educated. As expected, the CFS group were significantly more fatigued than the control group \( p<0.01 \) with a mean fatigue score of 24.2 (SD = 6.7) out of a possible maximum of 33. The CFS group, in accordance with previous findings, were also significantly more anxious and depressed \( p<0.01 \) in both cases. Mean duration was 6.5 years (SD = 4.90) and mean onset was 35.3 (SD = 8.6).

There were significant associations among personality trait scales in the NEO-PI-R, and the two aspects of perfectionism were significantly correlated. Therefore, MANOVA was conducted using the scales of the respective questionnaires as the dependent variables and group status (fatigue versus control) as the independent variable.
For the NEO-PI-R the multivariate test (Wilks’ lambda) was of borderline significance ($F=2.73$, d.f. = 5.51, $p=0.061$). Univariate tests (with Bonferroni correction) of the individual personality trait scales within the Neo-PI-R revealed significant differences for the Neuroticism ($F=7.90$, d.f. = 1.55, $p=0.007$) and Extraversion ($F=4.44$, d.f. = 1.55, $p=0.040$) scales (Table 2). Overall, the fatigue group had significantly higher neuroticism and lower extraversion scores. Post hoc analyses of individual facets of Neuroticism revealed that the fatigue group scored significantly higher on four out of the six facets: Anxiety ($p=0.036$), Hostility ($p=0.044$), Depression ($p=0.001$), and Self-consciousness ($p=0.013$). Post hoc analyses of individual facets of Extraversion revealed that the fatigue group scored significantly lower on two out of the six facets: Gregariousness ($p=0.014$) and Activity ($p=0.034$). The control group mean score for Neuroticism (85.47, SD = 20.48) corresponded closely to the published population norms (83.1, SD = 21.7), as did their Extraversion score (115.77, SD = 21.57 for this population, 110.3, SD = 18.4 for population norms) (Costa & McCrae, 1992).

For the overall MPS score, the multivariate test (Wilks’ lambda) was significant ($F=4.53$, d.f. = 2.54, $p=0.015$). In accordance with the literature cited in the introduction, the MPS was then analysed at the level of the two factors of Healthy and Unhealthy Perfectionism (Table 3). Univariate tests of these factors (with Bonferroni correction) within the MPS revealed a significant between-group difference for Unhealthy Perfectionism ($F=9.13$, d.f. = 1.55, $p=0.004$), but not for Healthy Perfectionism ($F=1.66$, d.f. = 1.55, $p=0.20$). Overall, the fatigue group had significantly higher scores...
on Unhealthy Perfectionism. Post hoc analyses of individual facets of the MPS revealed that the fatigue group scored significantly higher on three out of the six facets, all of which were facets of Unhealthy Perfectionism: Concern Over Mistakes ($F = 5.99$, d.f. = 1,55, $p = 0.018$); Doubts About Actions ($F = 9.730$, d.f. = 1,55, $p = 0.003$) and Parental Criticism ($F = 9.78$, d.f. = 1,55, $p = 0.003$).

Finally, we looked at the associations between Healthy and Unhealthy Perfectionism in the fatigued and in the control population. In the CFS group, there was a positive correlation of Healthy and Unhealthy Perfectionism (0.5, $p < 0.01$); these dimensions were uncorrelated in the normal population. This difference between correlations was significant ($p < 0.05$).

**Discussion**

**Main findings**

The main findings of the study were the following: the chronic fatigue population showed significantly higher neuroticism than the normal population on most of its sub-dimensions; they were significantly less extraverted but only on two of its sub-dimensions, gregariousness and activity; they scored higher on unhealthy perfectionism. Finally, healthy perfectionism and unhealthy perfectionism were positively correlated in the CFS population but uncorrelated in the controls.

**Personality, perfectionism and fatigue**

Unlike previous studies, the present one looked at the sub-dimensions of the NEO-PI-R. Perhaps the most telling finding here is extraversion. It is unsurprising that someone with fatigue would be both less gregarious and less active than someone less fatigued. These were the only significant extraversion factors, so perhaps we should look with more caution at studies which implicate introversion in CFS susceptibility as this personality difference, on closer inspection, could equally likely be an illness artefact. The neuroticism finding is more robust across most of its sub-dimensions and less easily dismissed as an illness artefact. However it could still be argued that the higher anxiety, depression, hostility and self-consciousness were the consequence rather than the cause of fatigue.

The distinction between healthy perfectionism and unhealthy perfectionism that has been noted in the literature is borne out by the present study. Some authors

<table>
<thead>
<tr>
<th>MPS factors</th>
<th>CFS mean $n=27$</th>
<th>SD</th>
<th>Control mean $n=30$</th>
<th>SD</th>
<th>$p$</th>
<th>$t^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy perfectionism (HP)</td>
<td>42.7</td>
<td>9.3</td>
<td>40.1</td>
<td>5.7</td>
<td>0.20</td>
<td>1.29</td>
</tr>
<tr>
<td>Unhealthy perfectionism (UP)</td>
<td>60.1</td>
<td>19.3</td>
<td>47.1</td>
<td>13.1</td>
<td>0.004**</td>
<td>3.02</td>
</tr>
<tr>
<td>Concern about mistakes (UP)</td>
<td>25.63</td>
<td>9.77</td>
<td>20.10</td>
<td>7.20</td>
<td>0.018*</td>
<td>2.50</td>
</tr>
<tr>
<td>Doubts about actions (UP)</td>
<td>11.63</td>
<td>3.99</td>
<td>8.77</td>
<td>3.05</td>
<td>0.003**</td>
<td>3.06</td>
</tr>
<tr>
<td>Parental expectations (UP)</td>
<td>11.20</td>
<td>6.77</td>
<td>11.20</td>
<td>4.20</td>
<td>0.337</td>
<td>0.97</td>
</tr>
<tr>
<td>Parental criticism (UP)</td>
<td>10.26</td>
<td>4.65</td>
<td>7.00</td>
<td>3.14</td>
<td>0.003**</td>
<td>3.061</td>
</tr>
<tr>
<td>Personal standards (HP)</td>
<td>24.48</td>
<td>6.77</td>
<td>21.73</td>
<td>3.91</td>
<td>0.063</td>
<td>1.90</td>
</tr>
<tr>
<td>Organisation (HP)</td>
<td>18.19</td>
<td>4.31</td>
<td>18.33</td>
<td>3.40</td>
<td>0.885</td>
<td>0.145</td>
</tr>
</tbody>
</table>

Notes: $^a$d.f. = 55 for all comparisons. $^*p<0.05$; $^{**}p<0.01$. 

Table 3. Perfectionism in CFS and control groups.
(Frost et al., 1990; Hewitt & Flett, 1991) have noted the relationship between the negative side of perfectionism – or what Hamachek (1978) calls neurotic perfectionism – and various markers of ill health and distress: suicidal ideation, procrastination, compulsivity and low self-esteem to name a few. Burns (1980) defines neurotic perfectionism as the dependence of self-worth on the attainment of impossible goals. Some items from the MPS give a flavour of this:

‘I should be upset if I made a mistake’.
‘People will probably think less of me if I made a mistake’
‘Even when I have done something carefully, I feel that it is not quite right.’

In contrast, healthy perfectionism, as defined by Hamachek (1978), is characterised by pleasure in achievement, goal directedness and organisation, with self-esteem being less dependent on task outcomes.

The present study shows that there is a significant tendency for people with CFS to report more unhealthy perfectionism. Indeed, Hamachek’s (1978) term neurotic perfectionism emerges as a singularly appropriate label, for, in line with previous studies, the present studies showed a high correlation between unhealthy perfectionism and neuroticism. This, then, offers a fairly straightforward conclusion: unhealthy perfectionism as a trait is associated with CFS.

However the picture may be slightly more complicated. Healthy perfectionism and unhealthy perfectionism were uncorrelated in the normal sample but positively correlated in the CFS group. In the fatigued group the higher self-standards and organisation of healthy perfectionism are matched by the doubts, concerns and self-criticism of unhealthy perfectionism. It may not be either trait in itself, but their interaction that is important. Attempting to maintain the high standards associated with healthy perfectionism in the face of the worry, doubt and self-criticism of unhealthy perfectionism may be both a predisposing and a perpetuating factor of fatigue. Dunkley et al. (2006) propose a similar interaction in eating disorder patients. As one of the CFS respondents put it:

‘Not only do I have to climb Mount Everest, I also have to do it with a piano on my back’

This throws further light on the model sketched by White and Schweitzer (2000). They suggest that the negative factors of perfectionism, coupled with high environmental demand, create an impossible problem for the individual that is, in a way, ‘solved’ by becoming ill. They predict that chronicity of fatigue will be predicted by maintenance of these standards despite illness, and continued attempts to implement them in periods of remission, leading to further relapse. Whether this picture is valid or not must be tested by further research, but we can now add further specification to this model.

The ‘unhealthiness’ of perfectionism may be an interactional term rather than an independent factor. In a relatively low-neuroticism, unfatigued population, where the standards of healthy perfectionism are unrelated to the concerns of unhealthy perfectionism, overall perfectionism may be a benign or useful trait. On the other hand, in a population where the standards of healthy perfectionism are matched by the doubts of unhealthy perfectionism, the same level of ‘healthy perfectionism’ may become unhealthy, as in the current study. It is worth emphasising that in our study the CFS population had the same level of self-standards and organisation (healthy perfectionism) as the control population. Where they differed was as to their self-doubt, concern over mistakes and past experience of criticism about maintaining these standards. In terms of the current debate on the nature of perfectionism and its pathogenic ingredient(s), the current study would tend to support the position of Dunkley et al. (2006), that perfectionism should be
considered as two dimensional. Further it suggests that it is not just the absolute level of evaluative concerns (aka unhealthy perfectionism) that is the determinant of distress, but also its interaction with personal standards (aka healthy perfectionism).

How might unhealthy perfectionism be linked to distress and fatigue? Combining this study with previous work in both perfectionism and fatigue a tentative model could be sketched. The unhealthy/evaluative concerns dimension of perfectionism is experienced and embodied in the individual as physiological arousal, emotional distress, cognitive activation and behavioural striving to eliminate or perfect the stimuli causing this experience of distress. With relatively more self-doubt and self-criticism as to the success of this striving, this process will continue for longer. If this process was continued for a long enough period of time, in a phase of high demand, and if the person was further impacted by life events, then the ongoing physiological arousal, emotional distress and cognitive and behavioural activation could result in the kind of physiological ‘burn out’ response, specifically alteration of the hypothalamus-pituitary adrenal axis function, that appears to be at work in CFS. Whilst the parts of this picture fit with the multi-factorial evidence base of CFS, the systemic links and mechanisms are far from being elucidated and tested.

A more parsimonious account of the extant data, the current study included, needs also to be considered. In the present study, as in previous studies, unhealthy perfectionism correlated significantly and positively with measures of neuroticism. It could be that the evaluative concerns of unhealthy perfectionism are merely the expression of a more general tendency to somatopsychic distress. This latter may be the underlying factor determining the association between levels of physical symptoms, emotional distress and evaluative concerns. Further work needs to be done to tease out the specific contribution, of unhealthy perfectionism to fatigue. Either way one could argue, along with Dunkley et al. (2006), that the clinical implications are the same. It may not be so important to tackle and reduce high standards as it is to target the self-doubt and the self-criticism associated with them.

This study obviously has the limitations of all cross-sectional studies in that it is impossible to infer causality in any of these factors. It uses a normal rather than an illness control group, and it restricts itself to a female population with a high degree of education. Whilst this latter demographic reflects the reality of the secondary and tertiary care demographics of CFS, it is not necessarily representative of the CFS population at large.

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