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Personality and chronic fatigue syndrome: Methodological and conceptual issues[☆]

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Abstract

Among clinical psychologists, consulting physicians, scientific researchers and society in general an image has emerged of patients with chronic fatigue syndrome (CFS) as perfectionist, conscientious, hardworking, somewhat neurotic and introverted individuals with high personal standards, a great desire to be socially accepted and with a history of continuously pushing themselves past their limits. The aim of this article is to (a) give a concise review of the main recent studies on personality and CFS, (b) address the major methodological problems in the study of personality in CFS and (c) discuss some of the conceptual assumptions that seem to limit the research on personality and CFS. The results of the reviewed studies range from no evidence of major differences between the personalities of patients with CFS and controls, to evidence of severe psychopathology and personality disorder in patients with CFS. Although personality seems to play a role in CFS, it is difficult to draw general conclusions on the relation between personality and CFS. It is argued that this is partially due to the diversity and heterogeneity in study methods, patient populations, control groups and CFS case definitions. Personality should be regarded as an important factor to be studied in CFS. However, additional studies are needed, not focusing exclusively on personality disorder, or personality considered on a general trait level. In recent developments in personality research, the continually evolving life narrative that makes sense of, and gives direction to, an individual's life is also regarded as an important aspect of personality. New insights into personality and CFS might be gained by systematically studying the self-narratives of patients with the syndrome.

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Keywords: Chronic fatigue syndrome; Personality; Clinical psychology; Narrative; Medicine

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1. Introduction

This article's main concern is the study of personality in the chronic fatigue syndrome (CFS). CFS is a syndrome of unknown origin. It is mainly characterized by a severely disabling fatigue and it is commonly associated with symptoms such as myalgias, headache, sleep disturbance, swollen lymph nodes and cognitive impairment. In recent years CFS has become a growing concern, not only for patients suffering from the illness and for their families, but also for medical science, clinical psychology and society in general.

Some of these concerns already become apparent in defining what CFS is. In many cases, it is difficult to distinguish between idiopathic chronic fatigue, CFS and other unexplained medical conditions such as fibromyalgia, tension headache and irritable bowel syndrome, as these seem to be very similar and substantially overlapping (Aaron & Buchwald, 2001; Wessely, Nimnuan, & Sharpe, 1999). As no causes for CFS are found and definite markers for the illness are absent, the diagnostic process is usually extended and patients have to go through a whole battery of laboratory tests, physical examinations and psychological investigations before they are diagnosed with CFS. In 1988, the US Centers of Disease Control (CDC) proposed a set of diagnostic criteria to facilitate scientific research into CFS (Holmes et al., 1988). However, these criteria were criticized, not only because a large number of symptoms had to be present for a diagnosis of CFS, which might bias in favor of psychiatric morbidity (Katon & Russo, 1992), but also because it excluded such conditions as anxiety and depression, which some propose to be a result of the syndrome (Ray, 1991; Van Hoof, Cluydts, & De Meirleir, 2003). Therefore, less restrictive criteria were developed, amongst others in the UK by Sharpe et al. (1991). Consequently, the CDC criteria were also revised (Fukuda et al., 1994). At present these criteria are generally accepted and used for international research purposes. In Table 1 these criteria are presented.

Estimations on the prevalence of CFS range from 37/100 000 (Lloyd, Hickie, Boughton, Spencer, & Wakefield, 1990), to 75–267/100 000 (Buchwald et al., 1995), and even 740/100 000 (Lawrie, Manders, Geddes, & Pelosi, 1997). However, these numbers are difficult to compare as different populations were studied and varying CFS case definitions were used. Estimations on the incidence of CFS are rare but, based on their assumptions with regard to the prevalence of CFS, Lawrie et al. (1997) estimated the annual incidence of CFS to be 370/100 000.

Full recovery from CFS is unusual. In a recent review (Cairns & Hotopf, 2005) of studies on the prognosis of CFS, it was found that the median full recovery rate was only 5% and the median proportion of patients who had improved during follow-up was 39.5%. The prognosis for children and adolescents however, is generally somewhat better (Patel, Smith, Chalder, & Wessely, 2003). In a recent follow-up study of adolescent patients with CFS (Gill, Dosen, & Ziegler, 2004) it was found that, at a mean of 4.57 years after initial examination, 25% of the patients showed near to complete improvement and 31% showed partial improvement.

Etiological studies into the possible causes of CFS have been abundant. Active viral infection has frequently been associated with the symptoms of CFS, but evidence for this hypothesis has not consistently been found. There appear to be no significant differences between patients with CFS and healthy controls in the prevalence of human herpes viruses, Epstein–Barr virus, cytomegalovirus, hepatitis C virus, adenovirus and parvovirus B19, amongst many others. (Buchwald, Ashley, Pearlman, Kith, & Komaroff, 1996; Koelle et al., 2003; Wallace, Natelson, Gause, & Hay, 1999).

Immune dysfunction is another possible etiological factor that has been widely studied. Chronic lymphocyte overactivation with cytokine abnormalities in patients with CFS, associations between T cell markers and CFS, and associations between low natural killer cells and CFS have all been reported (Patarca-Montero, Antoni, Fletcher, &

Table 1
US Centers for Disease Control case definition of CFS, 1994

Diagnostic criteria:

At least 6 months of persistent or recurring fatigue for which no physical explanation has been found and which

- is of new onset, that is to say it has not been lifelong
- is not the result of ongoing exertion
- is not substantially alleviated by rest
- severely limits functioning

In combination with four or more of the following symptoms, persistent or regularly recurring over a period of six months and which must not have predated the fatigue:

- self-reported impairment in memory or concentration
- sore throat
- tender cervical lymph nodes
- muscle pain
- multi-joint pains
- headache
- unrefreshing sleep
- post-exertional malaise lasting 24 h or longer

Exclusionary criteria:

- any medical condition that may explain the presence of chronic fatigue
- a psychotic, major or bipolar depressive disorder (but not an uncomplicated depression)
- dementia
- anorexia or bulimia nervosa
- alcohol abuse or the use of drugs
- severe obesity

Klimas, 2001; Straus, Fritz, Dale, Gould, & Strober, 1993). However, in a recent systematic review of the immunology of CFS, the authors noted that studies supporting almost any conclusion regarding the presence, or absence of immunological abnormalities in CFS could now be found, and concluded that no consistent pattern could be identified (Lyall, Peakman, & Wessely, 2003).

The same holds true of studies on the role of the neuroendocrine system in CFS. Disturbed neuroendocrine–immune system interactions, low circulating cortisol, high nocturnal melatonin, abnormalities in the relationship between cortisol and central neurotransmitter function, a disturbance of neurotransmitters in HPA axis function, and alterations in adrenal function in CFS have all been suggested and some evidence for these claims has been found (Cleare, Blair, Chambers, & Wessely, 2001; Demitrack et al., 1991; Kavelaars, Kuis, Knook, Sinnema, & Heijnen, 2000; Knook, Kavelaars, Sinnema, Kuis, & Heijnen, 2000; Segal, Hindmarsh, & Viner, 2005). Again however, in an extensive review on the neuroendocrinology of CFS, it was concluded that no consistent evidence of abnormalities could be found and that it was unclear whether neuroendocrine changes (if any) are primary or secondary to behavioral changes in sleep or exercise (Parker, Wessely, & Cleare, 2001).

Along other lines of research, the psychiatric status of patients with CFS has received much attention. Several studies have reported a high prevalence of current psychiatric disorders in CFS, predominantly depression, somatization disorder and hypochondria (Ciccone, Busichio, Vickroy, & Natelson, 2003; Schweitzer, Robertson, Kelly, & Whiting, 1994). However, while some studies concluded that psychiatric illness in many cases predated the development of CFS (Katon, Buchwald, Simon, Russo, & Mease, 1991; Lane, Manu, & Matthews, 1991), other studies concluded that psychiatric disorder was concurrent with the onset of CFS and therefore more likely to be a consequence of, rather than a risk factor to CFS (Axe & Satz, 2000; Hickie, Lloyd, Wakefield, & Parker, 1990). In that case, CFS is not seen as a manifestation of an underlying psychiatric disorder and more somatic causes are presumed (Komaroff & Buchwald, 1998).

Neuropsychological deficits and impaired cognitive functioning in patients with CFS have also received widespread attention, and have frequently been implied to be an important explanatory factor for some of the symptoms of CFS. People with CFS often complain of difficulties with memory and concentration. Several studies have described an impaired cognitive performance of patients with CFS on neuropsychological tests measuring speed of information processing, memory, motor speed and executive functioning (Busichio, Tiersky, Deluca, & Natelson, 2004; Cluydts & Michiels, 2001). Problems with neuropsychological functioning were found to be unrelated to depression, fatigue or

anxiety (Short, McCabe, & Tooley, 2002) and have instead been related to low levels of physical activity (Vercoulen et al., 1998), a more extensive use of frontal and parietal brain regions (Lange et al., 2005) and even genetic traits (Mahurin et al., 2004). In contrast with this, many other studies have found no difference in cognitive performance between patients with CFS and controls, and no evidence of any neuropsychological deficits in CFS (Fry & Martin, 1996; Schmalig, DiClementi, Cullum, & Jones, 1994). However, although in many studies objectively no cognitive differences between patients with CFS and controls are found, patients with CFS consistently report cognitive complaints and underestimate their actual performance on neuropsychological tests. This difference between the subjective perception of cognitive impairment and the absence of any objective evidence has led some researchers to speculate that, in contrast to laboratory cognitive tests, in CFS everyday cognitive tasks may require excessive processing resources leaving patients with CFS diminished spare attentional capacity (Wearden & Appleby, 1996), and other researchers to suggest that patients with CFS set impossibly high standards of personal performance (Metzger & Denney, 2002).

Other risk factors for the development of CFS that have been implied (and for which some evidence has been found) are birth order (Brimacombe, Helmer, & Natelson, 2002), family reinforcement of illness behavior (Brace, Scott-Smith, McCauley, & Sherry, 2000), maternal overprotection in relation to the formation of belief systems about activity avoidance (Fisher & Chalder, 2003) and a family history of physical and mental illness (Endicott, 1999). However, as with all of the etiological studies that have been discussed so far, the contrary conclusions can also be found. In a large birth cohort study into childhood predictors of CFS in adulthood, in which more than 11 000 people were followed up until the age of 30, no associations between maternal or child psychological distress, parental illness or birth order, and an increased risk of lifetime CFS were identified (Viner & Hotopf, 2004).

There have also been many studies into possibly effective treatment strategies for CFS. However, presently there is no established, universally beneficial intervention for the management and treatment of CFS (Whiting et al., 2001). With regard to medical and pharmacological treatment, amongst others, intramuscular dialyzable leukocyte extract (Lloyd et al., 1993), intravenous immunoglobulin (Vollmer-Conna et al., 1997), hydrocortisone (McKenzie et al., 1998) and antidepressants (Vercoulen et al., 1996; Natelson et al., 1998) were investigated in placebo-controlled studies, without proving their effectiveness. Recently, the effects of galantamine hydrobromide (Blacker et al., 2004), polynutrient supplements (Brouwers, Van der Werf, Bleijenberg, Van der Zee, & Van der Meer, 2002), homeopathic treatment (Weatherley-Jones et al., 2004) and corticosteroids (Kakumanu, Mende, Lehman, Hughes, & Craig, 2003) have been studied in randomized controlled trials, but were also found to be ineffective. At the moment, only cognitive behavior therapy (Price & Couper, 2000; Prins et al., 2001; Sharpe, 1998) and graded exercise therapy (Wallman, Morton, Goodman, Grove, & Guilfoyle, 2004; Edmonds, McGuire, & Price, 2004) have shown some effectiveness, for a proportion of patients, in randomized controlled trials.

So, CFS seems surrounded by controversy. Patients are confronted with a highly ambiguous illness that severely incapacitates them. In addition to this they suffer from the consequences of the unclear medical status of the disease. Due to the uncertainties surrounding the etiology of CFS, its symptomatology and the overall objective ‘realness’ of the syndrome, they are likely to encounter disbelief concerning their medical condition (Friedberg & Jason, 2001). At present it is being discussed whether the impact of labeling patients with a diagnosis of CFS is enabling, or rather disabling (Huibers & Wessely, 2006). In the absence of a clear biological marker for the illness, which would permit a definite diagnosis instead of a descriptive one, based almost solely on the exclusion of other disease entities, patients are often faced with skepticism by their families, employers, insurance companies, psychologists and physicians. In a recent study on illness experience in CFS it was found that lack of illness recognition ranked high as a source of dissatisfaction for patients and was thought to aggravate psychiatric morbidity (Lehman, Lehman, Hemphill, Mandel, & Cooper, 2002). In contrast with this, physicians participating in a study on their perspectives on patients with CFS (Åsbring & Närvänen, 2003) expressed the view that patients seem to exaggerate the severity of their problems, and that there appears to be a discrepancy between their reported health and the way they look and behave.

Although it has been widely recognized that a positive and co-operative caregiver–patient relationship is of the utmost importance in the successful treatment of CFS (Sharpe, Chalder, Palmer, & Wessely, 1997), uncertainty and conflicts about the causal attribution of the syndrome, in many cases, put this relationship under pressure. Steven et al. (2000) showed that one-third of a group of more than two-thousand general practitioners did not believe that CFS was a distinct syndrome and thought the most likely cause was depression. This finding was confirmed by another study in which it became clear that while most of the doctors participating in the study believed CFS to have a psychological cause, all of the patients attributed their illness to a physical cause (Deale & Wessely, 2001). This disagreement over the

perceived origins of CFS was thought to largely account for the fact that two-thirds of the patients in this study were dissatisfied with the quality of the medical care they had received.

This same dispute about the etiology of the syndrome, in combination with concerns about its nosological status, seems to have characterized and dichotomized medical and psychological thought on CFS. In spite of the great advances medical science has made in the explanation and treatment of diseases with an evident organic cause, the causes for CFS remain unclear and our understanding of the illness progresses only slowly. This “*prototypical mind/body problem*” (Johnson, DeLuca, & Natelson, 1999, p. 258) seems to confront medicine with the limitations of the traditional paradigm, through which it has made such progress in the understanding and treatment of ‘classical’ diseases. As is now widely acknowledged the debates on chronic fatigue and immune dysfunction syndrome, neurasthenia, postviral fatigue syndrome, myalgic encephalomyelitis, chronic mononucleosis and chronic Epstein–Barr virus infection, as CFS was formerly known, were, and not uncommonly still are, characterized by a mind/body dualism that seems inherent to a biomedical model of thought, oriented towards monocausal explanation (Lewis, 1996; Taerk & Gnam, 1994; Ware, 1994). On the one hand, there are those who believe that CFS is initiated by a still unknown physical cause such as a chronic or relapsing viral infection, immunological deficiencies or abnormalities in the neuroendocrinological system. The absence of a clear and objective organic cause, on the other hand, leads others to relegate CFS to the realm of the mental and ‘subjective’ illnesses. In that case CFS is mostly thought of as a psychiatric disorder (e.g. a masked expression of depression, or a form of somatization), or a cognitive phenomenon.

However, a more logical explanation of the variety of findings and opinions on CFS would be that the illness is multifactorial. Social, mental and somatic causes, and psychological and physical effects are not easily discernible, but instead appear to be interrelated. In recent years, a more biopsychosocial approach in the scientific research into CFS has become the standard (Main, Richards, & Fortune, 2000). In line with this approach (and in addition to the already mentioned studies) researchers have now also begun to study the iatrogenic factors in CFS (Deale & Wessely, 2001), associations in symptoms between patients with CFS and their parents (Van de Putte et al., 2006), the illness beliefs and attributions of patients with CFS (Deale, Chalder, & Wessely, 1998; Van Houdenhove, Neerinckx, Onghena, Lysens, & Vertommen, 2000), the psychological adjustment of patients with CFS (Van Middendorp, Geenen, Kuis, Heijnen, & Sinnema, 2001), the health-related quality of life of patients with CFS (Hardt et al., 2001), the locus of health control in patients with CFS (Van de Putte et al., 2005), the relationship between ethnicity and CFS (Luthra & Wessely, 2004), the coping strategies of patients with CFS (Ax, Gregg, & Jones, 2001), the influence of family members in CFS (Gray et al., 2001), the cultural and historical context of CFS (Abbey & Garfinkel, 1991; Ware, 1994; Ware & Kleinman, 1992; Wessely 1990; Wessely, 1996) and the personalities of individuals who have developed CFS (reviewed in this article).

So, within the biopsychosocial model of CFS one of the aspects studied, that might have a perpetuating and even a predisposing role in the syndrome, is the personality of people suffering from CFS. Among clinical psychologists, consulting physicians, scientific researchers and in society in general, a typical image has emerged of patients with CFS as perfectionist, conscientious, hardworking, somewhat neurotic and introverted individuals with high personal standards, a great desire to be socially accepted and with a history of continuously pushing themselves past their limits. (Lewis, Cooper, & Bennett, 1994; Surawy, Hackmann, Hawton, & Sharpe, 1995). In addition to this, they are characterized as being particularly averse to any psychological or psychiatric explanation of the syndrome and extremely persistent in fixed beliefs concerning their illness, thereby reducing the chance of successful treatment (Sharpe, 1998). However, this image of people suffering from CFS was never really scrutinized, with most of the research activity concerning the individual with CFS focusing on psychopathology and possible psychiatric disorder.

The aim of this article is to (a) give a concise review of the main recent studies on personality and CFS, (b) address the major methodological problems in the study of personality in CFS and (c) discuss some of the conceptual assumptions that seem to limit the research on personality and CFS.

2. Selection of studies

The PubMed and PsychINFO databases from 1988 (when the original Centers for Disease Control criteria for CFS were first established) to November 2006 were searched using the keywords *CFS and personality*, *CFS and psychology*, *CFS and individual*, *CFS and identity*. On PubMed this generated 623 hits and on PsychINFO an additional 333 hits. All 956 abstracts were read. In addition the reference lists of the retrieved articles were examined.

The intention in the selection of studies was to include all original articles describing primary research on personality and CFS. Review articles, articles describing studies without mentioning which CFS case definition criteria

were used, or without an appropriate control group, and articles focusing exclusively on psychiatric morbidity, were all excluded. Using these criteria led to the inclusion of a final 16 studies.¹ This review might not have captured all relevant studies. However, the discussed articles are the most important ones and can be seen as representative of the current state of affairs in the field. In [Table 2](#) a concise overview of the main recent studies on the role of personality in CFS is given.

3. Results

Studying these results, it soon becomes obvious that the findings regarding the association of personality and CFS are not definitive. Although some studies seem to confirm, for a proportion of patients, *some* of the aspects of the aforementioned stereotype of people suffering from CFS, other studies found no such evidence. Some findings however, seem to be more consistent than others.

3.1. Neuroticism

All in all, there seems to be most empirical evidence for an increased level of neuroticism in patients with CFS. [Taillefer, Kirmayer, Robbins and Lasry \(2003\)](#) found significantly higher neuroticism scores in patients with CFS compared to the general population. [Chubb et al. \(1999\)](#) found increased scores in their CFS subjects with concurrent depression. [Masuda, Munemoto, Yamanaka, Takei, and Tei \(2002\)](#) found elevated neuroticism scores in their noninfectious CFS group, although not in their postinfectious CFS group. [Fiedler et al. \(2000\)](#), [Blakely et al. \(1991\)](#), [Buckley et al. \(1999\)](#) and [Johnson, DeLuca and Natelson \(1996\)](#) also found significant differences in neuroticism scores between patients with CFS and healthy controls and [Rangel, Garralda, Levin, and Roberts \(2000\)](#) found the related items of conscientiousness, worthlessness and emotional lability to be significantly more common in patients than in controls. However, most subjects in their study were recovered and their mothers, instead of the patients themselves, had been used as informants. Several other important limitations in the interpretation of these findings regarding neuroticism should also be mentioned. One study found elevated scores of neuroticism only in comparison to non-study recruited norm values for a general population ([Taillefer et al., 2003](#)). In addition, generally no differences in neuroticism between patients with CFS and other patients suffering from a chronic disease were found ([Johnson et al., 1996](#); [Taillefer et al., 2003](#); [Wood & Wessely, 1999](#)). Other studies used the MMPI to detect neuroticism ([Blakely et al., 1991](#); [Schmaling & Jones, 1996](#)) which, due to its sensitivity to physical symptoms, has been found to perform poorly in CFS and to overestimate psychopathology in chronically ill populations ([Johnson, De Luca, & Natelson, 1996](#)) and finally, many of the findings of high neuroticism were later accounted for by co-morbid depression ([Chubb et al., 1999](#); [Fiedler et al., 2000](#); [Johnson et al., 1996](#); [Taillefer et al., 2003](#)).

3.2. Personality disorder

Furthermore, there also seems to be evidence for the prevalence of personality disorder in a *proportion* of patients with CFS. In the first study on personality and CFS, [Millon et al. \(1989\)](#) found elevated base rate means, above those of a non-clinical population, on the histrionic, schizoid and avoidant scales of the MCMI, measuring DSM axis II personality disorders. [Henderson and Tannock \(2004\)](#) also found quite a high level of personality disorder (39%), predominantly obsessive–compulsive personality disorders, in their sample of patients with CFS. Similar rates and findings were reported by [Ciccone et al. \(2003\)](#). In the study by [Johnson et al. \(1996\)](#), 37% of the subjects with CFS met the criteria for at least one personality disorder, predominantly histrionic and borderline personality disorders. So, there certainly seems to be a somewhat higher rate of personality disorder within the CFS population than in non-clinical populations, in which it is estimated to be between 10–19% ([Moran, Coffey, Carlin, & Patton, 2006](#); [Zimmerman & Coryell, 1990](#)). However, personality disorder rates were similar in patients with CFS and those with other medical conditions ([Johnson et al., 1996](#)). Also, it should be noted that personality disorder was *not* found in the majority of patients. Furthermore, again there are some important confounding aspects and the generalizability of the findings in the abovementioned studies can be questioned. For example, some studies did not have a control group ([Ciccone et al., 2003](#); [Millon et al., 1989](#)). Moreover, the MCMI that Millon et al. used includes many items that tap

¹ [Millon et al. \(1989\)](#), being the first to study the role of personality in CFS, was included although the study lacked an appropriate control group.

Table 2
Primary research on personality in CFS

Study	Number of participants	Study methods	Major findings
Henderson and Tannock (2004)	61 patients with CFS (CDC, 1994 (Fukuda et al., 1994)) 40 psychiatric inpatients with depressive disorder 45 healthy controls	Structured Clinical Interview for DSM-III-R Diagnoses (SCID-II)	39% of the CFS group, 73% of the depressed group and 4% of the healthy group were diagnosed with personality disorders. Cluster C disorders (avoidant, dependent, obsessive–compulsive, self-defeating and passive–aggressive) were the most common in both the CFS and depressed group. Personality disorder in patient with CFS could not be accounted for by co-morbid depression.
Taillefer et al., (2003)	45 patients with CFS (CDC, 1988 (Holmes et al., 1988)) 40 patients with multiple sclerosis	Illness Worry Scale, Neo Five-Factor Inventory (NEO-FFI), SCL-90R Depression Scale, Symptom Interpretation Questionnaire (SIQ)	There was no difference between the groups on neuroticism, depressive symptoms, or on the SIQ. The CFS group did have significantly higher scores than the MS group on the Illness Worry Scale. When the CFS group was divided into more and less depressed patients, the neuroticism scores were found to be significantly higher than the general population in the more depressed CFS group.
Masuda et al., (2002)	16 patients with postinfectious CFS (CDC, 1992 (Schlunderberg et al., 1992)) 20 patients with noninfectious CFS (CDC, 1992 (Sharpe et al., 1992)) 20 healthy controls	Holmes Social Readjustment Rating Scale, Cornell Medical Index (CMI), Maudsley Personality Inventory (MPI), Yatabe–Guilford test, Self-rating Depression Scale (SDS)	The stress, maladjustment, marked anxiety, depressive tendency and hypertense state scores of both CFS groups were significantly higher than in the control group. No significant differences between both CFS groups on these scores were observed. However members of the postinfectious CFS group were diagnosed as social extroverts, while those in the noninfectious CFS group were neurotic and introspective.
Van Houdenhove et al., (2001)	A randomized sample of a 100 patients out of 124 patients with CFS (CDC, 1994 (Fukuda et al., 1994)) 68 patients with fibromyalgia (FM)	Questionnaire for Habitual Action-proneness (HAB)	The patients and their significant others scored the questionnaire similar. These scores were higher than the norm values, suggesting that high “action-proneness” and an associated “overactive” lifestyle may be one of the factors playing a predisposing, initiating as well as a perpetuating role in CFS and FM.
White and Schweitzer (2000)	44 patients with CFS (CDC, 1994 (Fukuda et al., 1994)) 44 healthy controls	Multidimensional Perfectionism Scale (MPS), Rosenberg Self-Esteem Scale (RSE), Courtauld Emotional Scale (CECS), Marlowe–Crowne Social Desirability Scale (MCS)	The study demonstrated higher perfectionism scores and lower self-esteem in individuals with CFS, than in individuals in the healthy control group. The results suggest that individuals with CFS have a maladaptive perfectionist personality style.
Rangel et al., (2000)	25 adolescent patients with CFS (Oxford Criteria, 1991 (Sharpe et al., 1991)) <i>At the time of the study two-thirds (n = 17) had recovered and the subject's mothers were used as informants</i> 15 healthy controls	Personality Assessment Schedule (PAS), Kiddie-SADS Psychiatric Interview (K-SADS), Children's Global Assessment Scale (CGAS), Child Behaviour Checklist (CBCL)	Subjects with CFS demonstrated increased scores for introspection, sensitivity, conscientiousness, vulnerability, lability and worthlessness. Personality difficulty may either be a contributory factor to CFS in children, or result from the prolonged disease.

(continued on next page)

Table 2 (continued)

Study	Number of participants	Study methods	Major findings
Fiedler et al. (2000)	35 veterans with CFS (CDC, 1994 (Fukuda et al., 1994)) and comorbid psychiatric disorder 23 veterans with CFS and no comorbid psychiatric disorder 45 healthy veterans	Combat Exposure Scale (CES), Operation Desert Storm Survey (ODS Survey), Childhood Traumatic Events Scale, Psychiatric Epidemiology Research Interview-Life Events Scale (PERI), Neuroticism, Extroversion, Openness Personality Inventory (NEO-PI), Toronto Alexithymia Scale (TAS), Marlowe–Crowne Social Desirability Scale	Measures of personality and negative coping strategies (as well as self-reported combat and chemical exposures) significantly differentiated healthy veterans from those with CFS. On the neuroticism subscales of anxiety, hostility, depression, self-consciousness, impulsivity and vulnerability the CFS/psychiatric group scored significantly higher than the two other groups. Veterans with CFS reported a poorer ability to identify and communicate feelings than did healthy controls.
Chubb et al. (1999)	62 patients with CFS (CDC, 1994 (Fukuda et al., 1994)) and 48 healthy controls completed the EPQ. 50 patients with CFS (CDC, 1994 (Fukuda et al., 1994)), 100 healthy controls and 37 depressed patients completed the ASQ.	Eysenck Personality Questionnaire (EPQ), Attributional Style Questionnaire (ASQ)	Patients with CFS and concurrent depression scored significantly higher than individuals with CFS without concurrent depression or healthy controls on the neuroticism subscale. On the social desirability subscale subjects with CFS did not differ from the controls. Scores on both questionnaires show no difference between patients with CFS and healthy controls except for those subjects with CFS who are also concurrently depressed. In these cases the scores resemble patients with depression.
Buckley et al. (1999)	30 non-depressed patients with CFS (CDC, 1994 (Fukuda et al., 1994)) 20 patients with major depressive disorder (MDD) 15 healthy controls	Revised NEO Five-Factor Inventory, Eysenck Personality Questionnaire	Higher scores on neuroticism and introversion in patients with CFS than in healthy controls. Lower neuroticism in CFS than MDD patients. Patients with CFS reported increased postmorbid neuroticism and introversion, suggesting that personality may have changed as a result of the illness.
Christodoulou et al. (1999)	38 patients with CFS (CDC, 1994 (Fukuda et al., 1994)) 40 patients with multiple sclerosis 40 healthy controls	Diagnostic Interview Schedule (Q-DIS), Tridimensional Personality Questionnaire (TPQ)	Personality profiles of CFS and MS subjects were generally similar. Both the MS and the CFS groups showed elevated levels of Harm Avoidance and lower levels of Reward Dependence in comparison to healthy subjects. The only difference was on the dimension of persistence, where the CFS group displayed preserved persistence and the MS group showed a reduction. There was no evidence to suggest that patients with CFS possessed an unusual level of negativity that would have predisposed them to develop their illness.
Wood and Wessely (1999)	101 patients with CFS (Oxford Criteria, 1991 (Sharpe et al., 1991) and CDC, 1994 (Fukuda et al., 1994)) 45 patients with rheumatoid arthritis (RA)	MacLean's questionnaire on attitudes towards mental illness, Social Desirability Questionnaire, Defensiveness Scale of Adjective Check List, Twenty-Item Toronto Alexithymia Scale, Tridimensional Personality Questionnaire, Multidimensional Perfectionism Scale, Beck Depression Inventory (BDI) Social Adjustment Scale (SAS)	Alexithymia scores were greater in the RA patient group and social adjustment was poorer in the CFS group. No differences were found between CFS and RA patients in measures of perfectionism, attitudes towards mental illness, defensiveness, social desirability, or sensitivity to punishment. There was no evidence from this study of major differences between the personalities of patients with CFS and patients with RA.

Table 2 (continued)

Study	Number of participants	Study methods	Major findings
Blenkiron et al., (1999)	40 patients with CFS (CDC, 1994 (Fukuda et al., 1994)) 31 healthy controls	Multidimensional Perfectionism Scale, Chalder Fatigue Questionnaire, Hospital Anxiety and Depression Scale (HAD)	Women more than men with CFS tend to set lower expectations and standards for others. The values for perfectionism found on the MPS were lower in the CFS sample (reflecting fewer perfectionist traits) than in the control group. This may indicate that the CFS respondents in this survey had already moderated their perfectionist tendencies and reset their standards to cope with the unpredictabilities of the disorder.
Schmaling and Jones (1996)	53 patients with CFS (Approximately CDC, 1988/ 1994 (Holmes et al., 1988; Fukuda et al., 1994)) 43 healthy controls	Minnesota Multiphasic Personality Inventory (MMPI)	The aggregate MMPI profile of patients with CFS suggests that they have significant physical complaints and difficulties with cognitive functioning, are concerned about their symptoms, and are emotionally distressed. Their profile is similar to that of patients with chronic pain.
Johnson et al., (1996)	35 patients with CFS (CDC, 1988/ 1992 (Holmes et al., 1988; Sharpe et al., 1992)) 20 patients with multiple sclerosis 24 depressed patients 40 healthy controls	The NEO Neuroticism Scale, Personality Diagnostic Questionnaire-Revised (PDQ-R), Beck Depression Inventory	The study found progressively higher rates of personality disorders (PD) and neuroticism from healthy controls through CFS and MS (who did not differ) to the depressed group. The most common PD's among subjects with CFS were histrionic (23%) and borderline (17%). The CFS group with concurrent depressive disorder (34% of the CFS group) was found to account for most of the personality disorder.
Blakely et al. (1991)	58 patients with CFS (McKenzie (New Zealand) criteria, 1988) 81 patients with chronic pain (CP) 104 healthy controls	Minnesota Multiphasic Personality Inventory, Beck Depression Inventory, General Health Questionnaire (GHQ) Lazarus ways of Coping (WoC)	Progressively more elevated scores on most scales from healthy controls through chronic pain to patients with CFS were found. The individuals with CFS showed more deviant personality traits reflecting emotionality or neuroticism, inward hostility, self-criticism and guilt, although personality profiles fell into different groups. The hypothesis is brought forward that in CFS we are dealing with a particular subpopulation of patients with CP, who are particularly extreme and relatively homogenous in their endorsement of CFS symptoms.
Millon et al. (1989)	24 patients with CFS (CDC, 1988 (Holmes et al., 1988)) No appropriate control group	Millon Clinical Multiaxial Inventory (MCMI-II), Profile of Mood States Hamilton Rating Scale of Depression (HAM-D), Folstein Mini-Mental Examination The Wechsler Memory Scale (WMS)	Evidence of severe personality pathology and affective distress was found. Anxiety, somatic disorder and depression were particularly prominent. Histrionic (33%), schizoid (29%) and avoidant, narcissistic and aggressive/sadistic (each 25%) personality scales were pathologically elevated.

somatic concerns, thereby increasing the likelihood of a diagnosis of personality disorder in chronically ill patients. Co-morbid depression accounted for most personality pathology in one study (Johnson et al., 1996) and although this was not the case in the study by Henderson and Tannock, they only included patients attending a teaching hospital, who are likely to have a more severe form of CFS.

3.3. Perfectionism, social desirability and extroversion/introversion

Although perfectionism, social desirability and introversion have commonly been referred to as some of the most characteristic features of the personalities of patients with CFS, the scientific evidence on this subject is far less clear-cut. White and Schweitzer (2000) found higher perfectionism scores in individuals with CFS than in their control group and Christodoulou et al. (1999) found the only difference between their CFS and MS groups to be an elevated persistence score, which they related to perfectionism. However, in contrast to these findings Wood and Wessely (1999), and Blenkiron, Edwards and Lynch (1999) did not find higher perfectionism scores in patients than in controls.

There were three studies that specifically studied social desirability among patients with CFS (Buckley et al., 1999; Chubb et al., 1999; Wood & Wessely, 1999), but these studies revealed no differences between patients and control groups. With regard to extroversion and introversion, Masuda et al. (2002) found the members of their postinfectious CFS group to score higher on extroversion than controls, although the members of their noninfectious CFS group were found to be more introspective. And finally, while Buckley et al. found that patients with CFS scored significantly lower than their healthy controls on extroversion, Chubb et al. found the scores on extroversion of their CFS group not to be different from those of their healthy control group.

3.4. Personality: predisposing, initiating or perpetuating?

So, the results vary from the uncovering of “evidence of severe personality pathology and affective distress” (Millon et al., 1989, p. 131), to the finding of “little evidence that any particular personality trait discriminates CFS patients [...] from other patients suffering a physically disabling condition” (Wood & Wessely, 1999, p. 395). However, even when evidence of abnormalities in the personality profiles of patients with CFS is found, there remains a considerable lack of clarity regarding the precise role of personality in the syndrome, and this is reflected in the conclusions these studies draw. For example, while Van Houdenhove, Neerinx, Onghena, Lysens, and Vertommen (2001) conclude that “high ‘action-proneness’ and an associated ‘overactive’ lifestyle may be one of the factors playing a predisposing, initiating as well as a perpetuating role in CFS” (p. 575), Christodoulou et al. (1999) found no evidence to suggest that patients with CFS had any particular personality traits that would have predisposed them to develop their illness. Rangel et al. (2000) conclude that personality difficulty might either be a contributory factor to CFS, or result from the prolonged disease, and Buckley et al. (1999) and Blenkiron et al. (1999) conclude that the personality of subjects with CFS might have changed as a result of their disease.

Although the impression of many psychologists, physicians and researchers, that the personality of patients is a factor in CFS, seems to be justified by clinical experience and is supported somewhat by the available research, decisive conclusions on this subject are difficult to draw on the basis of the relevant scientific studies. Even though these studies have scrutinized the aforementioned image of the ‘typical’ individual with CFS, no definitive conclusions for the patients as a group can be drawn, and a general and uniform answer to the question of the role of personality in CFS is hard to formulate. A provisional conclusion might be that it is “difficult to disentangle personality factors that may have contributed to the development of the condition from emotional reactions that are consequences of the debilitating symptoms and the mixed responses of others to the illness” (Lewis, 1996, p. 237).

However, part of the reason for this opaqueness, seems to be due to a certain heterogeneity of the reviewed studies with regard to study methods, patient populations, control groups and CFS case definitions. Therefore, before discussing what seem to be some shared conceptual assumptions of these studies, in the next section some of the major methodological issues concerning the study of personality in CFS will be addressed.

4. Methodological issues regarding the study of personality in CFS

4.1. Study methods

An obvious reason for the discrepancies in the conclusions of the studies discussed might be the use of different methods to measure personality. This diversity seems almost inevitable when we consider the variety and divergence in health care settings and traditions of personality research. However, even when using the same instruments there often was no uniformity in the findings. In three studies, all using the Multidimensional Perfectionism Scale (MPS) for example, a remarkable lack of consensus in the results emerges. While White and Schweitzer (2000) demonstrated

higher perfectionism scores in individuals with CFS than in persons in their healthy control group, Wood and Wessely (1999) using the same MPS, found *no differences* in measures of perfectionism between the patients with CFS and the patients with rheumatoid arthritis in their control group. This difference might be explained by the fact that these studies used different control groups. However, Blenkiron et al. (1999) also used a healthy control group and in contrast with White and Schweitzer, they found the values for perfectionism on the MPS to be *lower* in their CFS sample than in their healthy control group. This example brings us to another issue in the possible explanation of the lack of uniformity in the major findings of the studies.

4.2. Control groups

Another possible reason for a lack of consistency in the major findings could be that not all studies used comparable control groups. Whereas many studies used healthy individuals as (part of) their control group (Blakely et al., 1991; Blenkiron et al., 1999; Buckley et al., 1999; Christodoulou et al., 1999; Chubb et al., 1999; Fiedler et al., 2000; Johnson et al., 1996; Masuda et al., 2002; Rangel et al., 2000; Schmalig & Jones, 1996; White & Schweitzer, 2000), others used patients with fibromyalgia/chronic pain (Blakely et al., 1991; Van Houdenhove et al., 2001), depressed patients (Buckley et al., 1999; Chubb et al., 1999; Johnson et al., 1996), patients with multiple sclerosis (Christodoulou et al., 1999; Johnson et al., 1996; Taillefer et al., 2003), or patients with rheumatoid arthritis (Wood & Wessely, 1999). As a consequence, the results of the studies can only be interpreted relative to the specific control groups that were used. Certain differences between patients with CFS and controls that might be obvious with one control group, might become less significant, or even get completely lost with another.

4.3. Patient populations and CFS case definitions

So, the results of a specific study can only be interpreted in the light of the control group that was used. However, this is of course rather common in medical and psychological research. Be that as it may, in the case of CFS the same applies to the patient groups that were included, which is far less usual. While most studies used adult patients with CFS, one study used adolescent patients with CFS of whom most were recovered (Rangel et al., 2000) and another study exclusively included combat exposed Gulf War veterans with CFS (Fiedler et al., 2000). Nevertheless, this would seem to leave all the studies using ‘ordinary’ adult individuals with CFS to be comparable. However, as different CFS case definitions were used, this is not the case. Some studies used the original CDC criteria of 1988 (Holmes et al., 1988), others the revised CDC criteria of 1992 (Schlunderberg et al., 1992), others the revised CDC criteria of 1994 (Fukuda et al., 1994), others the UK operational criteria of 1991 (Sharpe et al., 1991) and one New Zealand’s McKenzie criteria of 1988 (McKenzie, 1988). To add to the confusion and making the different findings even more difficult to compare, some studies distinguished between noninfectious and postinfectious CFS patients (Masuda et al., 2002), some studies distinguished between patients with CFS and co-morbid psychiatric disorder/depression and patients with CFS without co-morbid psychiatric disorder/depression (Chubb et al., 1999; Fiedler et al., 2000), and one study only included non-depressed patients with CFS (Buckley et al., 1999). This brings us to the next important problem, the influence of depression on the study of CFS and personality.

4.4. CFS and depression

Several studies on the psychiatric status of patients with CFS were discussed in the Introduction. However, as was mentioned there, depression is not an exclusionary criterion for the diagnosis of CFS and therefore inevitably plays an important role in the personality studies on CFS. As was noted by Buchwald (1996) and Wessely, Chalder, Hirsch, Wallace, and Wright (1996), amongst others, there is a considerable overlap between the criteria used for several psychiatric DSM-diagnoses (most notably depression) and CFS. As a consequence patients with symptoms required for a diagnosis of CFS, at the same time have symptoms fitting into a diagnosis of depression.

When distinguishing between patients with or without depression, some found that depression had a great impact on the major findings of their study. In the study by Fiedler et al. (2000), the CFS with psychiatric co-morbidity group scored significantly higher than the CFS without psychiatric co-morbidity group on the neuroticism subscales of anxiety, hostility, self-consciousness, impulsivity and vulnerability. Chubb et al. (1999) found that the scores of patients with CFS were not different from those of healthy controls, except for those subjects with CFS who were concurrently

depressed, where the scores resembled the scores of their depressed control group. Johnson et al. (1996) also found that most of the personality disorders in their CFS group were accounted for by the CFS group with concurrent depressive disorder. However, in contrast with these findings, Henderson and Tannock (2004) concluded that they were *unable* to account for the presence of personality disorder in their assessment of patients with CFS, by co-morbid depression. An additional problem is that the Beck Depression Inventory (BDI), which three of the studies used (Blakely et al., 1991; Johnson et al., 1996; Wood & Wessely, 1999), was found to perform poorly as a screener for depression in subjects with CFS (Farmer et al., 1996).

All in all, the role of depression in CFS is extremely difficult to determine as there are at least three plausible relationships. It could be that depression is a predisposing, causative factor in CFS. On the other hand, it might be that “CFS is no more than depression masquerading as a physical illness” (Ray, 1991, p. 2), but it is also possible that depression is a reaction to the illness and to the lack of clarity that surrounds CFS. In this case it would be likely that depression is caused by the stress of being diagnosed with a disease of unknown origin, in combination with the absence of a standard treatment and the possible disbelief encountered in the health care setting. As it seems to be the case with many of the findings of abnormalities in CFS, the role of depression in the pathogenesis and perpetuation of CFS remains unclear. These questions of causality and nosology however, are somewhat beyond the reach of this article and will therefore not be discussed further.² Nevertheless, by raising these questions we get to a more fundamental level of inquiry. In the next section some conceptual issues regarding the study of personality in CFS will be addressed.

5. Conceptual background of personality studies in CFS

As mentioned, the methods used to study personality in CFS are quite diverse. Nonetheless, in the approach of the reviewed studies, a shared conceptual model regarding the possible association of personality and CFS, and the appropriate way to scientifically study it, seems to be reflected.

Firstly, these studies have focused much of their attention on personality *disorder*. Psychological *malfunctioning*, rather than ordinary, non-pathological and everyday aspects of personality, which are commonly seen as a primary concern of personality psychology, has been a main interest of personality research in CFS so far. By such a focus on, and an overrepresentation of the psychopathological aspects of personality, it is easy to provide only a one-sided and too stringent image of the personality of individuals with CFS.

Secondly, on the whole these studies have tended to conceptualize personality mainly in its most general and decontextualized structures. With the use of psychological tests like the Tridimensional Personality Questionnaire, the NEO Five-Factor Inventory and the Eysenk Personality Questionnaire, certain characteristics of personality, such as extroversion, neuroticism and social desirability can accurately be studied and compared. However, in this way personality is approached primarily in its most basic and undifferentiated structure, and only a limited understanding of personality is provided (Block, 1995). Although personality traits can provide a kind of dispositional signature of the person, few links have been made between traits and actual contextualized behavior (Funder, 2001) and it seems unlikely that the exclusive knowledge of such a basic structure of relatively non-conditional and noncontingent dispositional traits, or psychopathological personality profiles, is enough to *wholly* explain and account for the behavioral consequences of CFS, or the complex association between personality and the syndrome.

Within the humanities and the social sciences, especially personality psychology, there has been an increasing awareness that persons do not *merely* act and experience on the basis of quantifiable, general traits. They primarily evaluate and motivate their behavior and beliefs in qualitative, contextualized terms (Richardson, Rogers, & McCaroll, 1998; Taylor, 1989). On the basis of these terms, persons assess their behavior, interpret themselves, articulate what they believe to be important, try to make sense of their past, give meaning to the present, direct their future projects and provide their life with purpose and unity (McAdams, 1995). Personality is not a static, independent, self-contained and decontextualized ‘given’, but is always dynamically constructed in dialogue with others, and against a ‘meaningful’ background provided by social practices and culturally shared moral values (Hermans, Kempen, & Van Loon, 1992; Taylor, 1995). In recent decades, the idea of the ‘narrative’ has emerged as a new metaphor not only within personality

² See, for example, Abbey and Garfinkel (1990), Moss-Morris and Petrie (2001), and Swartz (1988) for some of the articles concerned with the relation between CFS and depression, Wessely et al. (1999) and Aaron and Buchwald (2001) for a more general discussion concerning the nosological status of CFS, and Bolton (2001) and Borch-Jacobsen (2001) for a more philosophical and a historical discussion of nosological problems in the definition of psychiatric disorders.

psychology (Hermans, 1996; Sarbin, 1986), but also within clinical psychology (Guignon, 1998; Hermans & Dimaggio, 2004; McLeod, 1997). From this approach, persons are understood as the creators of meaning, and narrative thought is seen as the process by which these meanings are developed and changed (Bruner, 1991). The narrative is seen not only as a novel way of conceptualizing human experience and identity, but also as a useful clinical tool to help individuals understand why they act, and organize their lives, in certain ways, and to aid them in retelling and reorganizing their lifestory. In a broader concept of personality, than that which was used so far in the research on CFS, the lifestory could be seen as a special kind of psychosocial construction and individuals might be understood as trying to coauthor a thematically coherent and meaningful narrative with, and against the background of, their culture and social world.

Dispositional traits and life narratives can be regarded as two different levels of personality (McAdams et al., 2004), each with their own methods of study, frameworks and taxonomies. In CFS, personality traits are usually studied through the use of standardized questionnaires and (semi) structured interviews in the search for abnormalities, or deviations from the average. The benefit and attraction of studying personality in this way is not only that it is rather time and cost effective, but also that it produces objective, quantifiable and comparable data and as such seems to be in accordance with the rigorous methods of the natural sciences. The downside to this approach is that, to a considerable extent, it decontextualizes human experience and behavior from its real life setting, and its social and cultural background. The usefulness and attraction of studying personality on the level of the life narrative, on the other hand, is that it can remain much closer to the continually evolving and subjectively experienced reality of the person. Starting from the assumption of normality, personality on this level is usually studied through an open dialogue in which the subject matters are decided, not primarily by the investigator, but in the first place by the person him — or herself. Just as with personality considered on a trait level however, the benefits to this approach also entail its main drawbacks. Besides being rather time-consuming, the obtained data might be difficult to compare and, because of their specific temporal and spatial context, be of a contingent and subjective nature. This can lead to the assumption that personality, considered as a developing lifestory changing through time, cannot be categorized, quantified or systematically researched (McAdams, 1995) and that it, because of this, cannot be studied in a proper methodical way.

Within the scientific debates on CFS, some have tried to draw attention to the fact that the lifestories of the patients seem to have been neglected. Van Houdenhove (2002) for example, states that *“much of the etiological and therapeutic controversies about the so called chronic fatigue syndrome (CFS)[...] may be due to the relative neglect of the patient's story — in clinical practice as well as in research. More specifically I believe that insufficient attention is being paid to the mostly significant context in which the illness began, and the possible connection between the illness and the patient's life history. [T]he patient's biography should be part of each diagnostic evaluation and considered an important focus of psychological/psychiatric research in CFS.”* (p. 495) At present, there have been few who have addressed these concerns. Some qualitative studies have described, in narrative terms, the experience of patients of the impact of CFS as a disruption and disorganization of their pre-morbid lifestory and identity. The transformation and rewriting of those stories is depicted as an inescapable consequence of getting CFS and is usually followed by a subsequent quest for the restoration and reorganization of a meaningful autobiographical self-narrative (Bülow & Hydén, 2003; Clark & James, 2003; Whitehead, 2006). Currently however, the biggest challenge for those wishing to systematically study the association of personality, considered on the narrative level, and CFS, will be to do so with methods that are firmly based in psychological theories about personality and psychotherapy and that have been specifically designed to analyze and categorize a person's narrative into its most meaningful temporal constituents. Moreover, such methods should be psychometrically validated and not only allow a study of the idiosyncrasies of the single case, but these methods must also have been developed in such a way that they can be generalized to a population and that quantitative comparisons between different groups can be made (e.g. Baillio & Lyddon, 2000; Hermans & Hermans-Jansen, 1995; Van Geel & De Mey, 2003).

6. Conclusion

Every science, whether it be psychology, medicine, physics or sociology, is based on a set of conceptual assumptions. Usually, when these disciplines are functioning satisfactory, these presuppositions remain implicit and there is no need to make them explicit. However, when problems arise that seem difficult to solve with the normal instruments of these sciences, we have to focus our attention explicitly on these conceptual assumptions and ask ourselves whether our understanding of the problem is not somehow obscured by the commonly accepted model of thought. For psychology and medicine, CFS poses exactly such a problem.

In this article the first aim was to give a concise review of the current research on personality and CFS. There seems to be consistent evidence that patients with CFS often score higher on some personality traits, most notably neuroticism, than healthy controls. Furthermore, higher levels of DSM axis II diagnoses, most notably obsessive–compulsive, histrionic and borderline personality disorders, within the CFS population, in comparison to healthy populations are found. *However*, there are some important confounding elements in these findings. When compared to patients with another chronic illness, the finding of specific personality differences is far less common and usually annulled. Additionally, the finding of divergence could often be explained by co-morbid depression/psychiatric disorder. Another limitation is that, at times, instruments have been used to study certain aspects of personality (e.g. the MMPI, the BDI and the MCMI) that have later been found to perform inadequately for patients with CFS. And lastly, many studies eventually conclude that the found personality differences are consequences of the disease, rather than precipitating factors and as such play no causal role in CFS. All in all, under careful scrutiny the previously mentioned stereotype of patients with CFS does not seem to be justified. Nonetheless, at present there do seem to be at least three *overarching* conclusions that can be drawn with regard to personality and CFS. Firstly, the heterogeneity of findings *within* the CFS groups implies that, on the trait or psychopathological level, there are no unique personality characteristics that are either a necessary condition for, or an unavoidable consequence of CFS. Secondly, although personality traits such as neuroticism and perfectionism are generally considered to be stable, non-conditional and not effected by life changes (Watson & Walker, 1996; Costa et al., 1986), most studies seem to agree on the possibility that the pre-morbid personalities of their subjects might have changed as a result of their condition. Diverse forms of chronic illness seem to be able to alter personality in similar ways and increased levels of neuroticism and introversion for example (not to mention depression), could well be a feature of many different diseases. In fact, the American Psychiatric Association acknowledges the possibility of personality change as a result of chronic illness (American Psychiatric Association, 1994). Thirdly, as a consequence of this, it can be concluded that cross-sectional designs in the long run will probably not be able to provide definitive answers to the question of the exact role of personality in CFS.

In the section on the methodological problems of these personality studies it was suggested that *some* of the confusion that remains regarding the association between personality and CFS might be due to a variety in study methods, control groups and CFS case definitions. This diversity seems almost unavoidable. However, with regard to control groups, the substantial overlap between CFS and some psychiatric diagnoses (e.g. depression), and other unexplained medical conditions (e.g. fibromyalgia) is truly confusing in research, and makes patients from these populations difficult to compare. Age and sex matched healthy individuals, and patients with a somatic illness in which fatigue is also a main complaint (e.g. rheumatoid arthritis, multiple sclerosis) seem to be much better suited as control groups. With regard to study methods, the exclusion of general psychopathology or shared problems on a dispositional trait level in CFS has of course been essential and valuable in the personality research on CFS. However, the cross-sectional designs of the reviewed studies make inferences about causality very difficult. New insights might be gained by longitudinal designs, studying the predictive validity of certain personality traits as risk factors for the development of CFS. Prospective studies in clinical populations of mood disorders and emotional risk factors in relation to CFS for example, have already been able to provide some evidence regarding their precipitating role (Moss-Morris & Spence, 2006; White et al., 2001). In addition, it will prove insightful to follow-up a cohort of patients with a relatively short illness duration (i.e. a recent diagnosis of CFS) in order to study whether certain personality characteristics, and levels of depression, changed as a consequence of prolonged illness duration.

Finally, in the section on the conceptual background of the study on personality in CFS, it was argued that although the methods used so far were diverse, the studies seemed to share some basic conceptual assumptions regarding personality and the way to study it. Up to now, personality research in CFS has either been in search for personality disorder and psychological malfunctioning, or has been conducted on a general, non-relational trait level. Nevertheless, the fact that to a large extent personality is something that can only exist in, and develop through the inherent relations and dialogues with family, peers, colleagues, media, society and culture in general, must be taken in account. In previous issues of this journal a similar perspective has been brought forward by Dwairy (2002, 1997) with regard to the understanding of the personality and (mental) health within collective cultures, but it also seems particularly true in the study of CFS. Future personality research in CFS should not only take the abovementioned methodological issues into account and be of a more longitudinal nature, but should also be directed towards, and become aware of the dialogically constructed, historically contextualized and indissoluble relational terms by which persons understand, evaluate and articulate themselves.

Modern individualized society, to a considerable degree, is focused on achievement, consumption and success, and is characterized by a plurality of rapid economical, political, religious, technological and cultural changes. Against this background, modernity confronts people in a whole new fashion with a multiplicity of problems and possible ways of life and the need, and imperative, to find and develop a meaningful identity. New insights into the possible difficulties and stumbling-blocks in the personality of individuals with CFS might be gained, if research attention would also concentrate on systematically and comparatively studying individuals with CFS, as socioculturally embedded agents who are trying to construct a coherent and intelligible self-narrative.

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