

ORIGINAL 'RESEARCH

Comparison of Activity Limitations/Participation Restrictions Among Fibromyalgia and Chronic Fatigue Syndrome Patients

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ABSTRACT. Fibromyalgia (FM) and Chronic Fatigue Syndrome (CFS) are related yet overlapping disorders; the current case definitions prohibit a clear-cut differential diagnosis. These diagnostic criteria mainly address the impairment level of the World Health Organization's International Classification of Functioning, Disability and Health. This study aimed at comparing activity limitations and participation restrictions in patients with FM (n = 90) and CFS (n = 47). The Chronic Fatigue Syndrome Activities and Participation Questionnaire (CFS-APQ) was used for assessing functionality in both groups. The convergent validity of the scores obtained with the questionnaire with visual analogue scales for pain, fatigue and concentration was investigated in FM patients, as well as the content validity. No differences in total scores and 25 out of 26 individual items on the CFS-APQ were observed between the 2 groups (independent samples Mann-Whitney U test). This sample of FM patients reported to be more disabled in 'sitting for two hours' as compared to the CFS group (mean scores 3.0 I 1.0 and 2.3 I 1.0; $P = .004$). Four hundred and thirty-seven of the 497 (87.9%) responses to the request to list difficult activities matched the content of the CFS-APQ. The overall scores of the CFS-APQ correlated statistically significant in respect to visual analogue scales for pain and concentration (Spearman rho for the total scores ranged between .44 and .49). These data question the disease specificity of the CFS-APQ for CFS, but suggests its applicability in 'the Chronic Pain-Fatigue Syndromes.' The present report provides evidence for both the content and convergent validity of the CFS-APQ in FM patients. (*Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HA WORTH. E-mail address: <docdelivery@haworthpress.com> Website: <http://www.HaworthPress.com> @ 2003 by The Haworth Press, Inc. All rights reserved.*)

KEYWORDS. Fibromyalgia, activities, participation, questionnaire, Chronic Fatigue Syndrome

INTRODUCTION

Fibromyalgia (FM) and Chronic Fatigue Syndrome (CFS) are related yet overlapping disorders both characterised by sleep impairments, fatigue, headache, muscle and joint aches, swollen and painful lymph nodes, nausea, gastro-intestinal symptoms and neurocognitive disturbances. The severity of the patients' symptomatology appears to be the only differentiating feature, however none of the currently internationally accepted criteria (1-3) stipulate the usage of a severity index. A

number of 'chronic fatigued' patients fulfil both the CDC (Centers for Disease Control and Prevention) case definition for CFS and the ACR (American College of Rheumatology) criteria for FM (4-6). Indeed, when comparing these criteria (Table 1), one can only conclude that differentiating these syndromes is nearly impossible. Laylander (1999) suggested to combine FM and CFS into 'chronic pain-fatigue syndromes' (7,8). Remarkably, FM is categorised as a rheumatic disorder, while CFS patients are generally referred to practitioners of internal or neurological medicine. According to the World Health Organisation's International Classification of Functioning, Disability and Health (WHO-ICF: <http://www3.who.int/cf/cftemplate.cfm>), the criteria for both CFS and FM mainly address the impairment level. Therefore, CFS and FM patients may differ in activity limitations/participation restrictions.

Our group recently developed the Chronic Fatigue Syndrome Activities and Participation Questionnaire (CFS-APQ), a disease specific measure for assessing activity limitations and participation restriction in CFS patients. The way this questionnaire was constructed, based on a literature review and on self-reported activity limitations and participation restrictions of 141 CFS patients (9), substantiates the content validity and disease-specificity of this new measure. In addition, the unidimensionality, test-retest reliability, convergent validity and two different aspects of the content validity have been found to be satisfactory (to). In this study, CFS-APQ data from 90 FM patients and 47 CFS patients were collected and compared. We hypothesised that no major differences in activity limitations/participation restrictions exist between the 2 patient groups, consequently that this new assessment tool might be useful for assessing part of the health status in FM patients as well. Therefore, the content validity and convergent validity of the scores obtained with the CFS-APQ in FM patients were investigated.

METHODS

FM Patients

For the purpose of this trial, all primary FM patients that had visited the private practice for internal medicine of the fourth author in the year prior to data collection (n = 183) were selected. The questionnaire (CFS-APQ), accompanied by a letter, was sent to all 183 primary FM patients by mail. All included patients were diagnosed as a "primary

TABLE 1. Confrontation of the diagnostic criteria for FM [American College of Rheumatology, Wolfe et al. 1990 (3)] with the case definition for CFS [Fukuda et al. 1994 (1), Holmes et al. 1988 (2)].

| Fibromyalgia [Wolfe et al. 1990 (3)] | Chronic Fatigue Syndrome [Fukuda et al. 1994 (1)]* | Chronic Fatigue Syndrome [Holmes et al. 1988 (2)]† |
|---|--|---|
| <ul style="list-style-type: none"> - Widespread pain for at least 3 months. Pain is considered widespread when all of the following are present: pain in the left side of the body, pain in the right side of the body, pain above the waist, and pain below the waist. In addition, axial skeletal pain must be present. - Pain in 11 of 18 tender point sites on digital palpation. Digital palpation should be performed with an approximate force of 4 kg/cm². For a tender point to be considered "positive" the subject must state that the palpation was painful. "Tender" is not to be considered "painful." <p>Other common symptoms:</p> <ul style="list-style-type: none"> - fatigue | <ul style="list-style-type: none"> - Multi-joints aches (without redness and swelling) and myalgia are both 'minor criteria' (m). At least four minor criteria have to be present to fulfill the Fukuda-CFS case definition. - Myalgia and multi-joints aches (m) <p>- fatigue is the main criterium; clinically evaluated, unexplained, persistent or relapsing chronic fatigue that is of new or definite onset (has not been lifelong); is not the result of ongoing exertion; is not substantially alleviated by rest; and results in substantial reduction in previous levels of occupational, educational, social, or personal activities</p> <ul style="list-style-type: none"> - unrefreshing sleep (m) - headache (m) of a new type, pattern or severity - impairments in short term memory or the ability to concentrate (m), severe enough to impair professional, educational and personal activities - other conditions that may explain chronic fatigue should be excluded <p>Other, not overlapping criteria:</p> <ul style="list-style-type: none"> - sore throat (m) - tender cervical or axillary lymph nodes (m) - more than 24 hours of malaise following exercise (m) <p>Sensitivity = 92% (20) Specificity = 43% (20)</p> | <ul style="list-style-type: none"> - muscle discomfort or myalgie (m) - migratory arthralgia without joint swelling or redness (m) - muscle discomfort or myalgie (m) - migratory arthralgia without joint swelling or redness (m) <p>- fatigue of new onset, that is severe enough to impair average daily activity below 50% of the patient's premorbid activity level for a period of at least 6 months (major criterium)</p> <ul style="list-style-type: none"> - sleep disturbances: hypersomnia of insomnia (m) - generalised headache (of a type, severity, or pattern that is different from headaches the patient may have had in the premorbid state) - neuropsychologic complaints (one or more of the following: photophobia, transient visual scotomata, forgetfulness, excessive irritability, confusion, difficulty thinking, inability to concentrate, depression) (m) - other clinical conditions that may produce similar symptoms must be excluded by thorough evaluation, based on history, physical examination, and appropriate laboratory findings (major criterion) <p>Other, not overlapping criteria:</p> <ul style="list-style-type: none"> - low grade fever (m and f) - sore throat (m and f) - tender cervical or axillary lymph nodes (m and f) - unexplained, generalised muscle weakness (m) - prolonged (24 hours or greater) generalised fatigue after levels of exercise that would have been easily tolerated in the patient's premorbid state (m) <p>Sensitivity = 93% (20) Specificity = 25% (20)</p> |
| <ul style="list-style-type: none"> - sleep disturbances - headache - memory disturbances - the presence of a second clinical disorder does not exclude the diagnosis of fibromyalgia <p>Other, not overlapping criteria:</p> <ul style="list-style-type: none"> - morning stiffness - paresthesias - anxiety - irritable bowel - menstrual and sexual dysfunction - prior depression - Raynaud's phenomenon - Sicca symptoms - dysmenorrhea history <p>Sensitivity = 88% (3) Specificity = 81% (3)</p> | | |

* To fulfill the Fukuda et al. 1994 case definition, a patient must fit the main criterion. Additionally, the concurrent occurrence of four or more of the minor criteria, all of which must have persisted or recurred during 6 or more consecutive months of illness and must not have predated the fatigue, is required.

† According to the Holmes et al. case definition, a CFS patient needs to fulfill both major criteria, in combination with 8 out of 11 minor criteria (m), or a combination of 6 minor criteria with at least 2 out of 3 physical (f) [established during the physical examination]. To fulfill a minor criterion, a symptom must have begun at or after the time of onset of increased fatigability, and must have persisted or recurred over a period of at least 6 months [individual symptoms may or may not have occurred simultaneously].

FM patient" when they fulfilled the ACR criteria for FM (3) and if their symptoms could not be explained by any other condition. The latter implicates that, although the presence of a second clinical disorder does not exclude the diagnosis of FM (3), all J patients fulfilling the FM criteria as a co-morbid condition were not selected for this investigation. Likewise, all FM patients fulfilling the 1994 case definition for CFS (1) were excluded from the sample. The 1990 ACR criteria for the classification of FM requires the history of at least three months widespread pain which is defined as axial skeletal pain, pain in the right and left side of the body, and pain above and below the waist (3). In addition, pain in **11** of 18 tender point sites must be present on digital palpation with an approximate force of 4 kg (3).

The accompanying letter explained the exact nature and purpose of the research protocol and it clearly stipulated that patients were not obliged to participate and that anonymity was guaranteed. The introducing letter was followed by standardised sheets for the assessment of the demographic features of each patient (age, sex and illness duration), and the verification of eligibility for study participation (exclusion criteria). Indeed, patients were asked about their current health situation, about their native language and corrected vision. Patients were excluded if they did not read or speak Dutch, had forgotten to wear their contact lenses or glasses to avoid reading difficulties, or if they were < 18 or ≥ 60 years of age. Non-responders were contacted by telephone, in an attempt to monitor reasons for not participating (see Results section).

CFS Patients

Studying some of the psychometric properties of the scores obtained with the CFS-APQ, 47 consecutive CFS patients were recruited (10). These data were reused for the present study, implicating that the reader is referred to reference number 10 for a detailed description of the recruitment of the sample of CFS patients. Briefly, one hundred and eleven chronic fatigue patients, visiting the Chronic Fatigue Clinic of the Vrije Universiteit Brussel (VUB), completed the questionnaire. Patients not fulfilling the 1994 case definition for CFS (1), or fulfilling the ACR criteria for FM (3), were excluded from the sample. To fulfil the CDC criteria for CFS, clinically evaluated, unexplained, persistent or relapsing chronic fatigue that is of new or definite onset should result in a substantial reduction in previous levels of occupational, educational, social, or personal activities (3). Additionally, at least four of the following symptoms must have persisted or recurred during 6 or more con

secutive months and must have not predated the fatigue: impairment in short-term memory or concentration, tender cervical or axillary lymph nodes, muscle pain, multi-joint pain, headache, unrefreshing sleep and post-exertional malaise > 24 hours (3). Contrary to the diagnosis of FM, any active medical condition that may explain the presence of chronic fatigue prohibits the diagnosis of CFS. Therefore, all subjects underwent an extensive medical evaluation, consisting of a standard physical examination, medical history, exercise capacity test and routine laboratory tests. The laboratory tests included a complete blood cell count, determination of the erythrocyte sedimentation rate, serum electrolyte panel, measures of renal, hepatic and thyroid function, as well as rheumatic and viral screens. When judged necessary, a structured psychiatric interview was performed. In a number of cases, further neurological, gynaecological, endocrine, cardiac and/or gastrointestinal evaluations were performed. The medical records were also reviewed to determine if patients suffered from organic or psychiatric illnesses that could explain their symptoms. Apart from the diagnosis, exactly the same procedure for the selection of study participants was used as outlined above (in- and exclusionary criteria for the selection of the FM patients).

Measurement Instruments

The Dutch version of the Chronic Fatigue Syndrome Activities and Participation Questionnaire (CFS-APQ) was used for the assessment of activity limitations and participation restriction in patients with CFS as well as for the FM patients. The CFS-APQ is a self-administered questionnaire which is aimed at monitoring activity limitations/participation restrictions in patients with CFS (9). Its construction was based on self reported activity limitations/participation restrictions of a large sample of CFS patients (9). The scoring system of the CFS-APQ, as described elsewhere (9,10), generates two overall scores. The scoring system of the Quality of Life Index (11-13), which acknowledges that people value things differently, was used to calculate total score 1. The reasoning behind the approach of the importance verification is based on the assumption that a patient with significant disability in activities of importance to areas of his/her life has a lower quality of life than those who are only disabled for less important activities (11). A total score of 1 indicates no activity limitations or participation restrictions while 16 represents the maximum score. The second total score, ranging between 1 and 4, does not take this importance verification into account. Some of the psychometric properties of the scores obtained with this question

naire were investigated in the present sample of CFS patients, and reported elsewhere (10). The Cronbach's Alpha coefficient was .94, and the test-retest reliability coefficients of the overall scores were = .95 (intraclass correlation coefficients; $P = .001$) (10). In the same study, the overall scores on the CFS-APQ correlated statistically significant with visual analogue scales for pain (Spearman $\rho = .51$; $P = .001$) and fatigue ($\rho = .50$; $P = .001$), substantiating the convergent validity of the scores obtained with the Dutch CFS-APQ (10). Additionally, data documenting the content validity of this measure in CFS patients has been reported as well (10).

Before filling in the questionnaire, the FM patients were asked to list at least five activities/tasks that have become difficult due to their complaints. Others have used this method for investigating the content validity (14). To investigate the convergent validity of this measure in FM patients, visual analogue scales (V AS-100 mm) for fatigue, pain and concentration were used. For the assessment of pain severity, the V AS is believed to be both reliable (15,16) and sensitive (17) to change.

Statistics

Data were administrated in Microsoft Excel™ 4.0, coded and transferred to the Collaborative Pain Research Unit, University of Newcastle, Callaghan, Australia, where statistical analysis was performed. For comparison of the CFS-APQ data between FM and CFS patients, the univariate Mann-Whitney U-test was used (Statistica™ version 5.1, Statsoft, Tulsa, OK, USA). Simple descriptive statistics were used for the analysis of the content validity data. Spearman correlations were used for the analysis of the data highlighting the convergent validity of the CFS-APQ with the V AS for pain, fatigue and concentration. The significance level of the tests was set at .01 to help protect against potential type I errors.

RESULTS

Sample

Ninety-eight of the 183 primary FM patients (53%) returned the questionnaire by mail. Fourteen patients (7%) no longer accommodated at the address listed in their medical record, consequently the questionnaires were returned automatically. Eight of the 98 returned question

naires were excluded from the data analysis, because they were not filled in properly (3 questionnaires), because patient reported to fulfil the CFS as well as the FM criteria (2 cases, probably because they visited another physician) or because Dutch was not the patients' native language (2 cases). One patient returned the questionnaire but no longer complied with the requirements for FM. All non-responders (71 patients, 47% of the FM sample) were contacted by telephone once, in an attempt to monitor selection bias. In 39 cases (54% of all non-responders), we were not able to contact the non-responder (unanswered call/ wrong number/patient was not at home/answering machine). In 15 cases (21 %), a telephone number was not available. Five patients did not return the questionnaire because they were cured, while 2 subjects reported French as their native language. Five subjects refused to participate (one argued she could not bare the confrontation with her incapacity to perform tasks), another FM patient denied having received a questionnaire, while two cases reported to have returned the questionnaire although we did not receive them. Two patients did remember having received the questionnaire, but forgot to return it.

The FM ($n = 90$) and CFS ($n = 47$) patients differed in respect to age (44.3 ± 8.6 years versus 36.4 ± 11.1 years; $P = .001$), however not for sex characteristics (77 out of 90 females versus 39 out of 47; $P = .69$) nor for illness duration (5.2 ± 3.3 years versus 4.8 ± 4.9 ; $P = .57$). Therefore, one person, blinded to the results on the questionnaires, matched both groups according to age, sex and illness duration. The matching procedure resulted in two groups of 36 subjects (results presented in Table 2). Matched groups were both characterised by a mean age of 40.2 years (± 9.5 for the FM subjects, and ± 9.4 for the CFS patients; $P = 1.0$), a mean illness duration of 5.1 ± 3.3 in FM versus 5.3 ± 5.4 in the CFS group ($P = .87$), while both groups consisted out 31 females (86%; $P = 1.0$).

Comparison FM-CFS

The mean total score 1 (CFS-APQ) for the FM patients ($n = 92$) and the CFS patients ($n = 47$) were 9.4 ± 2.3 and 8.5 ± 2.4 , respectively. Still, these data should not be compared because of the age difference between the 2 patient groups. Statistical analysis to assess possible differences between the 2 groups was therefore exclusively performed on the data of the matched group ($n = 36$ for both groups). Compared to the CFS sample (VAS pain = 36 ± 26), the mean visual an

alogue scales for pain ($P = .001$) were statistically significantly increased in the FM patients (VAS pain = 58 :t 22). No statistically significant differences in VAS concentration (FM: 58 :t 25, CFS: 52:t 30; $P = .36$) or V AS fatigue (66:t 23 versus 54:t 24; $P = .017 > .01$) were observed. No major differences in activity limitations/participation restrictions were observed between these FM and CFS patients. Indeed, neither the total scores, nor 25 of the 26 individual items on the CFS-APQ, differed statistically significant. FM patients presented with mean total scores of 9.5:t 2.4 and 3.1 :t .5, compared to 8.6:t 2.5 and 2.8 :t .7 in the CFS group ($P = .15$ and $.08$, respectively). Compared to the CFS group, these FM patients reported to be more disabled in 'sitting for two hours' (mean scores 2.3 :t 1.0 and 3.0:t 1.0, respectively; $P = .004$).

Content Validity

In response to the request to list at least 5 activities/tasks which became difficult due to their complaints, 90 patients with FM reported 497 answers. Table 3 presents all the different answers and corresponding frequencies. Four hundred and thirty-seven (87.9%) answers matched the content of the CFS-APQ. 'Cleaning,' 'social activities,' 'reading,' 'cycling' and 'work' were each mentioned by at least 25 FM patients. These activity limitations/participation restrictions are all encompassed by the questionnaire. Communication activities and 'sleeping' were severely disabled in this FM sample; only sixteen tasks were reported more frequently. According to the ICF taxonomy, however, 'sleeping' is defined as a function (global mental functions/sleep functions) and is therefore not suitable for a measure that aims at assessing activity limitations/participation restrictions. On the other hand, the high number of patients reporting communication activities to be disabled, justifies its admission in a questionnaire for assessing activity limitations/participation restrictions in patients with primary FM. Indeed, 18 tasks were mentioned more frequently by this sample, while the CFS-APQ encompasses no more than 25 different items.

Convergent Validity

Among the 90 FM patients studied here, a strong statistical significance was observed for the correlation of the total scores on the CFS-APQ with the VAS for pain (Spearman rho = .47, $P = .001$ for total

TABLE 2. Comparison of the mean scores on the CFS-APQ between matched FM (n = 36) and CFS (n = 36) patients.

| Item | FM Mean | SD | CFS Mean | SD | P-value |
|------------|---------|-----|----------|-----|-------------|
| CFS-APQ 1* | 9.5 | 2.4 | 8.6 | 2.5 | .15 |
| CFS-APQ 2† | 3.1 | .5 | 2.8 | .7 | .08 |
| QA1‡ | 3.2 | .8 | 3.2 | .7 | .92 |
| QB1§ | 3.1 | .7 | 3.2 | .7 | .77 |
| QA2 | 2.2 | 1.0 | 2.0 | 1.0 | .37 |
| QB2 | 2.9 | .8 | 2.7 | .9 | .36 |
| QA3 | 2.8 | .9 | 2.7 | .9 | .76 |
| QB3 | 3.0 | .8 | 2.9 | .7 | .50 |
| QA4 | 1.8 | .8 | 1.7 | .9 | .77 |
| QB4 | 3.2 | .8 | 3.0 | .9 | .29 |
| QA5 | 3.6 | .7 | 3.3 | .8 | .29 |
| QB5 | 3.0 | .9 | 2.8 | .9 | .32 |
| QA6 | 2.5 | 1.1 | 2.2 | 1.1 | .35 |
| QB6 | 2.0 | .8 | 2.4 | 1.0 | .21 |
| QA7 | 3.7 | .6 | 3.5 | .9 | .30 |
| QB7 | 3.4 | .6 | 3.3 | .7 | .56 |
| QA8 | 3.1 | .9 | 2.9 | 1.0 | .62 |
| QB8 | 2.9 | .8 | 3.1 | .7 | .33 |
| QA9 | 3.5 | .7 | 3.4 | .9 | .77 |
| QB9 | 3.0 | .8 | 3.1 | .9 | .78 |
| QA10 | 3.0 | 1.0 | 2.3 | 1.0 | .004 |
| QB10 | 3.1 | .8 | 3.0 | .8 | .67 |
| QA11 | 3.0 | 1.0 | 2.7 | 1.2 | .34 |
| QB11 | 3.3 | .6 | 3.4 | .6 | .64 |
| QA12 | 3.1 | 1.0 | 3.1 | .9 | .97 |
| QB12 | 2.8 | .8 | 2.7 | 1.0 | .56 |
| QA13 | 3.7 | .6 | 3.5 | .7 | .27 |
| QB13 | 2.6 | .8 | 2.6 | .8 | .76 |
| QA14 | 3.3 | .9 | 2.9 | 1.2 | .09 |
| QB14 | 2.8 | .8 | 2.7 | .9 | .75 |
| QA15 | 2.4 | .9 | 2.3 | 1.1 | .59 |
| QB15 | 2.0 | .9 | 2.1 | .9 | .92 |
| QA16 | 2.4 | 1.0 | 2.3 | 1.1 | .64 |
| QB16 | 2.0 | .9 | 1.9 | .8 | .66 |
| QA17 | 2.5 | .9 | 2.1 | 1.1 | .11 |
| QB17 | 2.9 | .7 | 2.6 | .9 | .18 |
| QA18 | 3.2 | .9 | 3.1 | 1.0 | .62 |
| QB18 | 3.1 | .8 | 3.2 | .8 | .62 |
| QA19 | 3.7 | .8 | 3.5 | .7 | .48 |
| QB19 | 3.7 | .6 | 3.5 | .7 | .42 |
| QA20 | 3.8 | .4 | 3.5 | .9 | .10 |
| QB20 | 3.6 | .5 | 3.5 | .8 | .76 |
| QA21 | 3.7 | .6 | 3.6 | .8 | .69 |
| QB21 | 3.8 | .4 | 4.0 | .2 | .19 |
| QA22 | 3.8 | .5 | 3.6 | .5 | .35 |
| QB22 | 3.2 | .8 | 3.3 | .8 | .63 |
| QA23 | 3.5 | .9 | 3.5 | .7 | .92 |
| QB23 | 3.3 | .8 | 3.2 | .8 | .89 |
| QA24 | 2.5 | .8 | 2.4 | .9 | .37 |
| QB24 | 3.5 | .5 | 3.4 | .7 | .49 |
| QA25 | 2.4 | .7 | 2.2 | .9 | .32 |
| QB25 | 3.5 | .6 | 3.4 | .7 | .38 |
| QA26 | 2.9 | 1.0 | 2.7 | .9 | .52 |
| QB26 | 3.6 | .7 | 3.6 | .9 | .76 |

* total score 1 on the CFS-APQ; † total score 2 on the CFS-APQ; ‡ question number 1, part A [satisfaction part]; § question number 1, part B [importance verification]

TABLE 3. List of the answers and corresponding frequencies of activity limitations/participation restriction reported by 90 FM patients.

| Activity limitation and participation restriction | Corresponding CFS-APQ question | Frequency | Percent of all answers |
|---|--------------------------------|------------|------------------------|
| Clean | 1 | 38 | 7.65 |
| Vacuum | 1 | 5 | 1.01 |
| Wash windows | 1 | 2 | .40 |
| Housekeeping | 1, 2, 3 & 4 | 31 | 6.24 |
| Shopping | 11 | 17 | 3.42 |
| Hang out the laundry | 4 | 2 | .40 |
| Iron | 3 | 17 | 3.42 |
| Preparing a meal | 25 | 11 | 2.21 |
| Caring for a child | 26 | 3 | .60 |
| Repairing clothes for children | 26 | 1 | .20 |
| Sit | 10 | 13 | 2.62 |
| Stand | 9 | 16 | 3.22 |
| Write | 14 | 8 | 1.61 |
| Read | 18 | 25 | 5.03 |
| Study | 23 | 6 | 1.21 |
| Computer-work | 12 | 3 | .60 |
| Driving a car | 24 | 17 | 3.42 |
| Gardening | 5 | 17 | 3.42 |
| Social activities | 19 | 30 | 6.04 |
| Go on an outing | 19, 26, 24 & 7 | 1 | .20 |
| Sports | 22 | 17 | 3.42 |
| Cycling | 22 | 26 | 5.23 |
| Stretching | 22 | 1 | .20 |
| Hobbies | 19 & 22 | 6 | 1.21 |
| Listening to a lecture | 20 & 21 | 4 | .80 |
| Work | 20 & 21 | 32 | 6.44 |
| Physical work | 20, 21 & 22 | 8 | 1.61 |
| Walking | 7 | 44 | 8.85 |
| Climbing stairs | 8 | 15 | 3.02 |
| Carry [grocery bag, heavy objects] | 13 | 11 | 2.21 |
| Lifting heavy objects | 13 | 7 | 1.41 |
| Total (answers fitting the content of the CFS-APQ) | | 437 | 87.93 |
| Having a long conversation | - | 8 | 1.61 |
| Communication | - | 1 | .20 |
| Listening to radio for hours | - | 1 | .20 |
| Tracing the right track | - | 1 | .20 |
| Stress-control | - | 1 | .20 |
| Sex | - | 3 | .60 |
| Getting up [early] | - | 4 | .80 |
| Sleep | - | 13 | 2.62 |
| Lay down | - | 1 | .20 |
| Lifting your arms for a long time | - | 2 | .40 |
| Wash | - | 3 | .60 |
| Dress | - | 1 | .20 |
| Personal hygiene | - | 1 | .20 |
| Stoop | - | 5 | 1.01 |
| Watching TV | - | 2 | .40 |
| Staying crowded places | - | 1 | .20 |
| Organize | - | 1 | .20 |
| Eat | - | 3 | .60 |
| Preparing briefcase | - | 1 | .20 |
| Travelling | - | 3 | .60 |
| Remember | - | 1 | .20 |
| Revalidation / exercise | - | 1 | .20 |
| Wearing shoes | - | 1 | .20 |
| Think | - | 1 | .20 |
| Total (answers not fitting the content of the CFS-APQ) | | 60 | 12.07 |
| TOTAL | | 497 | 100 |

score I; $\rho = .49$, $P = .001$ for total score 2) and concentration ($R = .44$, $P = .001$; $R = .47$, $P = .001$). No statistically significant associations were observed between the overall scores on the questionnaire and the scores obtained with VAS for fatigue ($\rho = .24$, $P = .039$; $\rho = .29$, $P = .011$).

DISCUSSION

Comparison FM-CFS

The differential diagnosis FM-CFS appears to be a very difficult task. Table I confronts the diagnostic criteria for FM (3) with the 2 most frequently used definitions for CFS (1,2). Myalgia, multi-joint arthralgia, fatigue, sleep disturbances, headache and neurocognitive deficits are all characteristic for both FM and CFS patients. Morning stiffness, paresthesias, anxiety, irritable bowel, menstrual and sexual dysfunction, Raynaud's phenomenon and Sicca symptoms are only encompassed by the FM definition, although their presence is not obliged to fulfil the ACR criteria for FM (3) and does not preclude a diagnosis of CFS according to Fukuda et al. (1) or Holmes et al. (2). A working hypothesis of CFS does not exclude a co-morbid FM, conversely a patient with a diagnosis of FM may still comply with the CFS criteria. In addition, current treatment options implicate the differential diagnosis FM-CFS to be less important. Indeed, graded exercise and behavioural therapies are widely used in both FM and CFS (18,19). Nevertheless, the inability of differentiating these syndromes with the currently available criteria questions the validity of these case definitions. While the sensitivity and the specificity of the ACR criteria for FM are of sufficient strength (3), the specificity of both the 1994 (1) and 1988 (2) case definitions for CFS are unacceptably low (42.9 and 25%, respectively) (20). The usage of a severity index for the assessment of symptoms may be useful for differentiating between FM and CFS. Indeed, the present study suggests that FM patients present with statistically significant elevated mean pain intensity compared to CFS patients.

Except for 'sitting for 2 hours,' these data indicate the lack of differences in the 25 activity limitations/participation restrictions encompassed by the CFS-APQ between CFS and FM patients. Since the utilised questionnaire assesses nothing but the most important activity limitations and participation restrictions in CFS patients (10), FM and CFS patients may still differ in respect to some activity limitations/participation

restrictions. These results sustain the growing awareness of the great similarity between the 2 syndromes.

The way the CFS-APQ was constructed, based on self-reported activity limitations and participation restriction of 141 CFS patients, substantiates its disease specificity. Nevertheless, a disease specific measure is expected to provide different results between distinct patients groups.

Therefore, a comparative study of scores on the CFS-APQ between CFS patients and subjects with a disorder characterised by fatigue was still required to establish the disease specificity. Because of the similarity in clinical presentation and the ongoing controversy regarding differences between FM and CFS, the usage of FM patients for establishing disease specificity of a CFS orientated questionnaire may be inappropriate. On the other hand, the lack of major differences in CFS-APQ scores between the 2 groups as observed in this investigation, suggest this measure to be applicable for assessing activity limitations/participation restrictions in FM patients as well. One can argue that before the usage of the CFS-APQ in clinical practice and research settings with FM patients can be advised, the reliability and some additional aspects of validity still have to be established.

Content Validity

The present study provides evidence for the content validity of the Dutch version of the CFS-APQ in FM patients, with similar results as obtained in a sample of CFS patients (10). In this sample of FM patients, the CFS-APQ encompassed nearly 90% of all self-reported activity limitations/participation restrictions. Still, 'communication activities' was the 18th most frequently reported activity limitation. The comprehensiveness of item selection is crucial for a questionnaire that aims at monitoring activity limitations and participation restrictions. Therefore, these data suggest the need of adding a question highlighting 'communication activities' for usage in FM patients.

Convergent Validity

These data provide evidence for the convergent validity of the scores obtained with the CFS-APQ with visual analogue scales for pain and concentration in FM patients. Compared to similar research data obtained for the validation of the scores obtained with the CFS-APQ in CFS patients (10), one can only conclude the convergent validity to be of a higher standard in CFS patients as compared to FM patients. In addition, the observed correlations between the impairment (fatigue/pain/

concentration) and the activity/participation dimension of the ICF are too low to assume that symptom severity is indicative of activity limitations/participation restrictions in patients with FM. This is in accordance to similar research data obtained for patients with shoulder dysfunction (21). These data therefore suggest that health care workers, aiming at a comprehensive assessment of FM patients' health status, are obliged to assess both the activity/participation and impairment dimension of the ICF.

One can question the need of a disease specific questionnaire to assess functionality in FM patients besides the Fibromyalgia Impact Questionnaire (FIQ) and the Fibromyalgia Health Assessment Questionnaire (FHAQ). The FIQ is a frequently used measure that has been found to be reliable and valid in many different languages (22-25). This assessment tool is constructed based on the content of the arthritis impact measurement scale and its disease specificity and content validity have therefore been questioned (22,23). Others argue the FIQ systematically underestimates functional abilities in FM patients (26). Additionally, although the FIQ assesses mainly the activity/participation dimension of the ICF, some of its questions encompass the impairment level. The FHAQ is a recently developed questionnaire, based on the most prevalent items of the Health Assessment Questionnaire (HAQ) among FM patients (26), but insufficient available data concerning the validity limits its usage in daily practice.

These results should be interpreted with caution. The data collection for the 2 groups was performed in a distinct way. Indeed, consecutive patients visiting a fatigue clinic were included in the CFS group, while data collection in the FM group was done using a mail inquiry. Since only highly motivated patients are likely to fill in and return a questionnaire, this may well have biased these results. In an attempt to monitor this selection bias, all non-responders were contacted by telephone. Too little data were collected to adequately describe the non-responders; it is therefore impossible to predict in what way this methodological failure has biased these results. Additionally, a mail inquiry implicates that we cannot ascertain that the patients in the FM group still fulfilled the ACR criteria for FM at the time they filled in the self-report measures.

CONCLUSIONS

Taken together, these results question the disease specificity of the CFS-APQ for CFS patients, but suggest its specificity for the 'chronic pain-fatigue syndromes.' The latter was supported by the sufficient

convergent and content validity of the CFS-APQ as seen in this sample of FM patients. The FM patients reported more difficulties in 'sitting for two hours' as compared to the CFS group, while no other differences in CFS-APQ scores were observed between the 2 groups. Future research should address the responsiveness, congruent validity, criterion validity of the CFS-APQ scores, and the ability of this measure to monitor differences between CFS and a fatigue-characterised clinical disorder like Multiple Sclerosis or Rheumatoid Arthritis.

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