

Health Status in Fibromyalgia — A Followup Study

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ABSTRACT. *Objective.* To examine symptoms, physical function, and nutritional status in patients with fibromyalgia (FM) after 6 to 8 years.

Methods. Of 51 women with FM initially included in exercise and patient education programs 6 and 8 years ago, 33 agreed to participate. Median (range) age was 45.5 years (33–64) and symptom duration 18 years (8–46). Symptoms (visual analog scales), cardiovascular capacity (Astrand's test), and restriction on daily activities (Fibromyalgia Impact Questionnaire) were measured. Employment status and experience of coping with everyday life were addressed in an interview. Nutritional status was evaluated by anthropometric measurements and dietary intake.

Results. All the 33 participants had widespread chronic pain, and 79% had enough tender points to satisfy the FM classification criteria. Compared with initial data there were significant reductions in the number of tender points ($p = 0.004$) in the exercise group, and in fatigue ($p = 0.008$) and pain ($p = 0.5$) in the patient education group. Cardiovascular capacity was within normal limits in 33% of the participants. Currently, 26 performed regular physical activity and of these, 10 were engaged in organized exercise. Seventy-two percent reported regular use of dietary supplements and attached importance to a healthy diet. Still, there was a significant increase in weight and body fat, and 24% were obese (BMI > 30). The coping strategies adopted were adjustments to the new situation and distraction from symptoms.

Conclusion. No worsening of symptoms and no change in employment status, as well as frequent participation in physical activities, suggests a benign longterm outcome in these patients with FM. (J Rheumatol 2001;28:2085–9)

Key Indexing Terms:

FIBROMYALGIA
NUTRITIONAL STATUS

HEALTH STATUS

PHYSICAL FUNCTION
LONGTERM OUTCOME

Fibromyalgia (FM) is a noninflammatory rheumatic disorder characterized by chronic widespread musculoskeletal pain, excessive fatigue, and sleep problems¹. The etiology is unknown and the pathogenesis is unclear. FM is a common rheumatic disorder, and the prevalence has been found to be about 3 to 5%^{2,3}. It has been reported that FM is accompanied by a considerable degree of disability in the form of an inability to work⁴, difficulty in performing activities of daily living⁵, and depression⁶. As many patients finally receive a disability pension, this disorder also has economic implications for society as a whole⁷.

FM has no known cure. A metaanalysis of studies up to 1996 revealed that nonpharmacological treatments like exercise, patient education, and cognitive behavioral therapy are more effective than drugs in reducing symptoms and physical disability⁸. Few studies have been devoted to examining the longterm outcome of FM⁹. One study showed increased functional disability, levels of anxiety, and depression at a 4 year

followup examination compared with baseline¹⁰. Another study reported higher scores for pain, functional disability, fatigue, sleep disturbance, and psychological status at a 7 year followup examination compared with initial values, but the severity of the symptoms seemed to remain relatively stable over time¹¹. In both studies the patients were recruited from tertiary health care. In contrast, another study found remission in 24% of patients with FM at 2 year followup in a group recruited from the primary health service¹².

The International Classification of Functioning and Disabilities (ICIDH) was developed to classify functions and disabilities¹³. There are 3 dimensions of classification — body structure and function (i.e., reduced physical fitness), participation in activities (i.e., in daily activities), and social participation (i.e., in employment). In FM, dysfunction has been found at all 3 dimensions^{14–16}. Variables of physical function within all 3 dimensions were measured in this study.

Our objectives were to examine how many patients still met the classification criteria for FM¹⁷ after 6 to 8 years and to examine their symptoms, physical function, and nutritional status.

MATERIALS AND METHODS

Patient sample. Patients were recruited from a sample mainly from municipal health services comprising 51 patients. They had previously participated in 2 studies examining the effects of an exercise program¹⁸ and an interdisciplinary patient education program¹⁹ conducted 8 and 6 years earlier, respectively. At that time all the patients fulfilled the American College of

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Rheumatology (ACR) classification criteria for FM¹⁷ and none had concomitant diseases. Their median age (range) was 36 years (21–58) and the median duration (range) of symptoms 8 years (2–40). Twenty-four (47%) patients were in full or part-time jobs.

All these patients except one who could not be traced ($n = 50$) were invited to participate in the present followup examination (Figure 1). Thirty-three (66%) agreed to participate. Their median (range) age was 45.5 (33–64) years, and the duration of symptoms 18 years (8–46).

Symptoms, physical function, and nutritional status. The previous results for pain intensity, fatigue severity, sleep problems, tender point count, nutritional status, and employment status were compared with those obtained at the present examination. Additionally, cardiovascular capacity and restrictions on daily life activities were also assessed at the followup examination.

Symptoms and tender points. Pain, fatigue, stiffness, and sleep problems were assessed on 10 cm visual analog scales (VAS). Tender points were identified on the basis of the ACR criteria¹⁷.

Physical function. Physical fitness was examined by monitoring cardiovascular capacity according to Astrand's indirect method¹⁸. Restrictions on daily life activities were assessed by means of 10 of the items of the Fibromyalgia Impact Questionnaire (FIQ), while the remaining 9 questions dealt with work and symptoms. All the 19 items of the FIQ were calculated as a sum score, the total FIQ score²⁰. Employment status, participation in physical leisure activities, and coping with daily life function were addressed in a semistructured interview.

Nutritional status. The anthropometric measurements weight (W, in kilograms), height (H, meters), and triceps skinfold (TSF, millimeters) were performed both at baseline and at followup for 18 of the patients from the exercise study and only at followup for the 15 patients from the patient education study. Body mass index (BMI) was calculated as W/H^2 . Food and nutrient intake was estimated by means of a 4 day food record by household measurements and calculated by a computer program using the values in the Norwegian Food Composition Table²¹ at both time points for 26 patients.

Data analysis. Central trends and distribution of data are given as median, range, and 95% confidence interval of the median (CI). To assess within-group differences between the results at baseline and followup, the Wilcoxon test for matched pairs was used. Differences between groups were analyzed by the Fisher exact test and Mann-Whitney test for unmatched samples²².

Two-tailed tests were used, and p values ≤ 0.05 were regarded as statistically significant. The semistructured interview was analyzed by classifying the answers into meaning units²³.

RESULTS

Baseline assessments of participants and nonparticipants. Of the 51 participants from the previous studies, only 33 were reexamined at the present (Figure 1). All but one of the nonparticipants had previously participated in an exercise study. Thus, the baseline recordings of the nonparticipants and participants of the exercise study were compared. They did not differ in any variables at baseline (Table 1). However, the participants in the exercise study were significantly younger and had lower pain intensity than the participants of the patient education study at baseline (Table 1).

Present pain classification. Four of those who did not participate in the present study no longer reported chronic pain (8% of the initial sample, $n = 51$). They had significantly lower pain intensity initially than those currently classified as having FM ($p < 0.05$). All of the 33 patients who did participate had chronic widespread muscle pain according to the ACR criteria. Only 26 (79% of 33) still fulfilled the classification criteria for the number of tender points, i.e., 7 patients had less than 11 tender points. None had developed concomitant disease.

Symptoms, tender points, and medication. As the exercise and the education groups were significantly different in age and pain intensity initially, the longterm outcome was determined for each group and for the total sample (Table 2). Participants in the exercise group showed a significant reduction in the number of tender points ($p = 0.004$), while the education group reported a reduced fatigue severity ($p = 0.008$) and pain

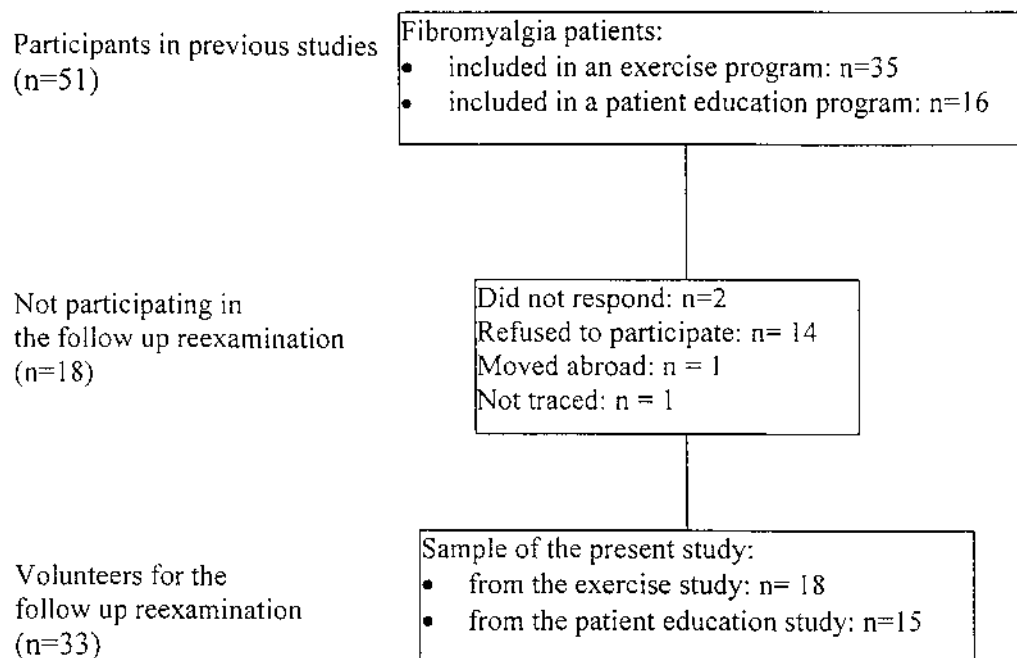


Figure 1. The sampling procedure for the study.

Table 1. The baseline characteristics of participants and nonparticipants.

	Participants in Previous Exercise Study, n = 35		Participants in Previous Patient Education Study, n = 16
	Participants in the Present Study, n = 18	Nonparticipants in Present Study, n = 17	Participants in the Present Study, n = 15
Age, median (CI), yrs	35 (25–42)	33 (21–40)	47 (38–51)**
Pain duration, yrs, median (CI)	10 (5–18)	6 (5–15)	10 (4–17)
No. tender points, median (CI)	16 (12–18)	16 (11–18)	—
Pain intensity [†] , median (CI)	58 (48–70)	60 (41–74)	71 (66–80)**
Fatigue severity [†] , median (CI)	71 (59–78)	62 (53–75)	77 (54–85)
Sleep problems [†] , median (CI)	60 (20–74)	46 (18–70)	68 (60–84)
Education level, in number:			
≤ 9 yrs/9–12 yrs / > 12 yrs	3/3/12	1/6/10	—
Employed, number	7	8	5

CI: 95% confidential interval of median.

[†] Measured by 10 cm visual analog scales.

Statistically significant difference between the 2 participating groups, **at 1% level.

Table 2. Severity of symptoms and number of tender points of the participants from 2 previous treatment programs (n = 33).

	Pain (VAS 0–100) Median (CI)	Fatigue (VAS 0–100) Median (CI)	Sleep Problems (VAS 0–100) Median (CI)	No. of Tender Points (0–18) Median (CI)
Exercise group, n = 18				
At baseline	58 (48–70)	71 (59–78)	60 (20–74)	16 (12–18)
8 yrs afterward	56 (46–73)	67 (41–75)	67 (54–80)	12 (12–13)**
Patient education group, n = 15				
At baseline	71 (66–80)	77 (54–85)	68 (60–84)	No available data
6 yrs afterward	53 (39–68)*	67 (41–75)**	56 (43–77)	13 (9–13)
Total patient sample, n = 33				
At baseline	67 (58–72)	75 (61–79)	65 (58–80)	—
6–8 yrs afterward	53 (48–68)	65 (42–74)*	62 (52–72)	13 (12–13)

Within-group difference between data at baseline and present examination, *at 5% level, ** at 1% level.

intensity ($p = 0.05$). In the total sample there was a statistically significant reduction in fatigue ($p = 0.01$). Regularly or whenever needed the patients reported that they used painkillers ($n = 17$), nonsteroidal antiinflammatory drugs ($n = 7$), muscle relaxants ($n = 6$), antidepressants ($n = 7$), sleeping pills ($n = 5$), and thyroxin ($n = 4$).

Physical function. At followup 52% had low and 33% had average cardiovascular capacity, while 15% of these patients did not complete the test because of pain aggravation. Twenty-six (79%) reported that they were engaged in regular physical activity one or more times a week and of these, 10 were engaged in organized exercise. At followup the participants had a median (CI) self-reported restriction on daily activities (FIQ function) of 3.3 (2–4) and a total FIQ score of 75 (55–88). They reported 2 (1–5) good days during the previous week. There was no statistically significant difference in FIQ function score ($p = 0.3$) and total FIQ score ($p = 0.2$) between

the groups with average and those with low cardiovascular capacity. At baseline 12 (36%) were full or part-time employed versus 17 (52%) at followup (NS).

The coping strategies were described in response to an open question about what they did in order to cope with their daily life. These strategies were classified into adjustments and distractions. All had made adjustments to the new situation, such as reducing the standard of housecleaning and the time at work, introducing more time for rest, and using aids and assistance from other family members, and spent time in regular physical exercise like walking, swimming, dancing, and bicycling. Everyone practised some kind of distraction from the symptoms, most usually by reading, listening to music, practicing relaxation techniques, and participating in social and physical activities. Two patients had given up, as their way of coping did not help, and they reported that the symptoms controlled their lives.

Nutritional status. There was a significant increase in weight ($p < 0.01$) and body fat ($p = 0.01$) in 19 participants as assessed by TSF. At baseline 5 of the 18 patients were overweight (BMI > 25), and one patient was obese (BMI > 30). Eight years later 7 patients in this group were overweight and 4 (21%) were obese. The current dietary intake was similar to that 8 and 6 years before and was well within the recommended dietary allowances²³.

DISCUSSION

All the 33 participants of the present study had chronic widespread pain, but 7 had less than 11 positive tender points. None had acquired any additional disease. They showed no worsening in symptoms compared with previous data, and a reduction in fatigue was observed for the total sample. There was a significant reduction in number of tender points in the previous exercise group and in fatigue and pain in the patient education group. Adjustments to the situation and performing activities to distract from symptoms were reported to be effective strategies for coping with everyday life.

This was a followup study of patients previously attending exercise and patient education programs. There were no differences in the present outcome between those previously in the control group and those attending an exercise program, and we had no control group for the patient education group. Thus, the present outcome in the exercise group cannot be ascribed to the exercise program, and is also unknown for the education group. Treatment programs demanding that participants play an active role probably recruit active patients. This might be reflected by the fact that as many as 76% reported that they were engaged in regular physical activity and of these, 30% participated in regular organized exercise classes. Further, the participants in the present study were mainly recruited from primary health care services. They probably have better health status than patients recruited from hospitals or specialized health care. Thus, the present sample may represent a physically active group of patients within the primary health care.

The fact that a high number of those invited did not participate in the study was a problem. One hypothesis could be that those being most healthy attended the study. All but one of the nonparticipants belonged to the previous exercise study group. Analysis of their baseline data suggests that the nonparticipants were comparable with the present participants in the exercise study group. Both the present nonparticipants and the participants from the exercise group, however, were younger and had lower pain intensity than those recruited from the patient education study group. Thus, it is likely that the participants in the present study represent 2 different subgroups of FM.

The results for those who still had chronic widespread pain are in agreement with studies showing that the symptoms remain relatively stable over time^{10-12,24}. A 7 year followup outcome study from several rheumatology centers showed lit-

tle improvement in symptoms, functional disability, and health satisfaction¹¹. Four patients from the exercise group called us to say that they did not want to attend the study because they no longer experienced chronic pain. Ledingham and co-workers¹⁰ found that 7% of patients previously diagnosed with FM were pain-free at the time of reexamination. An Australian group reported that 25% of the patients were in remission 2 years after diagnosis¹². In patients with chronic widespread muscle pain, studies have shown that 15% were pain-free 2 years afterwards²⁵ and 3% after 5.5 years²⁶. This suggests that patients referred from primary health care have a fairly good prognosis, and some may even recover from fibromyalgia. However, the studies share the shortcoming of the present study in that the patient samples are small.

The results of the semistructured interview showed that several patients, both from the previous exercise group and from the patient education group, had chosen strategies to solve problems of everyday life similar to those taught in our patient education programs¹⁹. An important aim in nonmedical treatment programs is to encourage the patients to be physically active²⁷, and that was highlighted in both previous therapy programs. The high frequency of participation in physical activities might thus be ascribed to an effect of learning from the therapy programs. In the present study about one-third had cardiovascular capacity within the normal range, but they did not have less symptoms than the group with low cardiovascular capacity. This is in conflict with the assumption that FM is a deconditioning syndrome²⁸. We suggest that being physically active is important, not for symptom modulation, but for general physical and mental health in individuals with FM, just as it is for the healthy population.

Weight and triceps skinfold measurements had increased significantly between the 2 time points. However, age related weight gain is a common trend in the western world²⁹, and the FM patients followed this pattern. According to the National Institute of Public Health, 9% of the general population of women in the geographical area of the study are obese. In the FM group 21% were obese. The participants reported a high frequency of physical activity. However, this suggests that the exercise intensity and/or duration might not be optimal.

To summarize, no worsening of symptoms, unchanged employment status, reduced fatigue, and the patients' use of active coping strategies suggest a benign prognosis in these patients with FM.

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