Psychological aspects of fibromyalgia compared with chronic and non-chronic pain

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Revised version of:
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Chapter 11

Introduction

In spite of extensive research on fibromyalgia prompted by increasing interest in this syndrome, many aspects remain poorly understood. At the clinical level much research has been done to describe the clinical features of the syndrome (1). As a result of these studies, making a correct diagnosis is no longer a great problem. Many, but not all studies showed evidence for psychological abnormality in patients with fibromyalgia (2-10).

Most of the aspects that are found are elevated scores on subscales of questionnaires. Anxiety and depression are the most prominent aspects that are reported (see also chapter 10). Anxiety and depression are also common features in other chronic pain conditions.

Therefore we hypothesize that most of the psychological features of fibromyalgia patients can be considered to be aspects of chronic pain, that is, pain existing for a period longer than 6 months and which lacks an apparent somatic explanation. If so, then this has implications for possible forms of treatment for fibromyalgia. As has been proven useful in (multidisciplinary) treatment programs for chronic pain patients, fibromyalgia patients have to learn coping with their complaints and problems related to their complaints, such as professional status. In this treatment programs the attention of the patients is shifted from things that are no longer possible to activities that the patients still can perform, thus increasing the activity, and possibly also the level of self esteem.

According to an advisory committee of the Dutch Ministry of Health (11) patients with chronic pain share several characteristics. These are derived from the International Association for the Study of Pain (12).

1. At onset of the chronic pain syndrome the patient with chronic pain cannot be distinguished from other patients with pain.
2. The pain is present for a period of at least 6 months.
3. There is no clear causal relationship between the pain and somatic pathology.
4. The chronic pain patient has a history many contacts with medical and paramedical specialists, often in addition to a fair number of contacts with non-allopathic healers. The chronic pain patient has undergone a variety of diagnostic procedures, therapies (sometimes even surgery) without lasting beneficial effect, and appears to be a regular visitor of the general practitioner for relatively harmless physical complaints.
5. There is an important, partly iatrogenic reinforced fixation on the pattern of complaining.
6. The pain complaints are incrementally accompanied by disturbed psychosocial functioning and by some related features:
   - medication abuse
   - diminished physical functioning and ability of performance paired to the pain and/or the fear of damaging the body due to physical activity (inadequate signal
function)
- dependency on passive forms of physiotherapy
- increased helplessness and hopelessness, highly resistant to therapy
- emotional conflicts with persons in the direct social environment
- withdrawal from psychosocial activities
- lasting negative emotional and affective changes
- receiving or attempting to receive money from a social security fund.

Many of these characteristics seem to describe the psychological problems of fibromyalgia patients as well as those of other chronic pain patients. Therefore our hypothesis is that fibromyalgia patients share many psychological and other aspects as stated above with other chronic pain patients.

Materials and methods
Three groups of patients with pain:
1. a non-chronic pain group (n=34),
2. a chronic pain group (n=99),
3. and a fibromyalgia group (n=36)
were compared, using a standard interview technique and three self-administered standardized psychologic tests (Dutch versions, translated and adapted from already existing questionnaires):
- the Symptom CheckList (SCL-90R)(13),
- the Illness Behaviour Questionnaire (IBQ)(14),
- and the Chronic Illness Problem Inventory (CIPI)(14).

The subjects of chronic pain group and the fibromyalgia group were outpatients of the Department of Rehabilitation of the University Hospital of Groningen (the Netherlands) in the period January 1986 - May 1987. The patients in the non-chronic pain group were selected in a period of 6 weeks in February-March 1987. Patients visited the department because of musculoskeletal pain, and they were mainly referred by family practitioners, neurologists or surgeons.
The inclusion and exclusion criteria of the three groups are represented in Table 1.
Among patients in the non-chronic group, 38% had pain complaints in the lower extremities, and 32% in the neck-shoulder region. The pain complaints in this group were mainly caused by distortion, rupture or fracture. In the chronic group 39% had low back pain, 48% had pain complaints in the lower extremities, and 35% in the neck-shoulder region which could not be explained by underlying somatic pathology in the vision of the physiatrist. In this group the physiatrist discovered no dysfunctions in strength, mobility, coordination, sensibility, tonus, balance, condition, or posture. In the fibromyalgia group 94% had pain complaints in the lower extremities, 81% in the
neck-shoulder region and 75% in the lower back region.

Table 1
INCLUSION AND EXCLUSION CRITERIA FOR THE NON CHRONIC PAIN, CHRONIC PAIN AND FIBROMYALGIA GROUP

<table>
<thead>
<tr>
<th>Inclusion Criteria</th>
<th>Non Chronic</th>
<th>Chronic</th>
<th>Fibromyalgia</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Musculoskeletal pain</td>
<td>* Musculoskeletal pain</td>
<td>* Fibromyalgia according to criteria of Yunus (15)</td>
<td></td>
</tr>
<tr>
<td>* Duration &lt; 6 months</td>
<td>* Duration &gt; 6 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Clear relation between pain and somatic pathology</td>
<td>* No (clear) relation between pain and somatic pathology</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The variables that characterize chronic pain as described in the report of the Dutch advisory committee are shown in Table 2. Duration of complaints was determined on the interview question: "How long have you had these complaints?". If the patient could not give a clear, reliable answer, the first time that he visited a doctor with the complaints was taken as the measuring point.

The groups were compared with each other using the Oneway analysis of variance, where a parametric test was allowed (16). Multiple comparisons were made with the modified least-significant difference test. Applying the Bonferroni procedure (17) (with type-I error for each comparison set to 0.05) significance was set to 0.005. For the analysis of nominal variables a chi-square test was used to determine statistical dependency between groups and variables.
### Table 2
**CONCEPTS THAT CHARACTERIZE CHRONIC PAIN**

<table>
<thead>
<tr>
<th>Concept</th>
<th>Mode of measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration of the pain complaint:</td>
<td>Duration (in months) according to the interview data.</td>
</tr>
<tr>
<td>Progress of the complaints since onset:</td>
<td>Answer on interview question. (better, no change, worse)</td>
</tr>
<tr>
<td>Number of other physical complaints:</td>
<td>Answer on interview question: the subjects were asked to check off a list.</td>
</tr>
<tr>
<td>Medication use:</td>
<td>Answer on interview question. (yes or no)</td>
</tr>
<tr>
<td>Number of painful localizations:</td>
<td>Subjects had to mark the spots in a drawing of a human body. Considered as a localization were: a) head and neck b) upper back c) low back d) gluteal/genital region e) chest f) abdomen g) arms h) legs.</td>
</tr>
<tr>
<td>Extent of somatization:</td>
<td>Somatization-scale SCL-90R</td>
</tr>
<tr>
<td>Fixation on complaining:</td>
<td>Preoccupation-scale IBQ</td>
</tr>
<tr>
<td>Diminished physical functioning:</td>
<td>Body Deterioration-scale C1PI</td>
</tr>
<tr>
<td>Emotional conflicts with others:</td>
<td>Hostility-scale SCL-90R</td>
</tr>
<tr>
<td>Negative emotional and affective changes:</td>
<td>Anxiety- and Depression-scale SCL-90R</td>
</tr>
</tbody>
</table>

### Results
The mean age and standard deviation in the three groups were: 43.7±17.1 in the non-chronic pain group, 36.0±11.3 in the chronic pain group and 39.0±10.4 in the fibromyalgia group. There was a difference between the three groups on age (Oneway F=5.11 p=0.0070). The least significance procedure reveals that the mean age in non-chronic group is significant (p<0.05) higher than in the chronic pain group. The percentages female subjects were 56 in the non-chronic pain group, 74 in the chronic pain group and 64 in the fibromyalgia group. No significant differences (p<0.05) between the three groups were found for sex, using the chi-square-test.

We found no satisfactory explanation for the relatively low percentage of female subjects in the fibromyalgia group when compared with other researcher reports (1). The comparison of the three groups involved in this study is displayed in Table 3. To keep the focus on the variables related to our hypothesis, other subscales of the questionnaires were not included in this table (e.g. the sensitivity-scale SCL-90R).
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Table 3
COMPARISON OF MEAN SCORES IN THE THREE GROUPS.
* = SIGNIFICANT DIFFERENCE BETWEEN CHRONIC AND NON CHRONIC GROUP
@ = SIGNIFICANT DIFFERENCE BETWEEN CHRONIC AND FIBROMYALGIA GROUP
# = SIGNIFICANT DIFFERENCE BETWEEN NON CHRONIC AND FIBROMYALGIA GROUP
NS = NO DIFFERENCES BETWEEN GROUPS (ONEWAY, p < 0.005)

<table>
<thead>
<tr>
<th>variable</th>
<th>chronic group (mean ± SD)</th>
<th>non-chronic group (mean ± SD)</th>
<th>fibromyalgia (mean ± SD)</th>
<th>sign. diff.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration (months)</td>
<td>53.9±58.8</td>
<td>3.3±2.7</td>
<td>82.0±60.0</td>
<td>* # @</td>
</tr>
<tr>
<td>N other complaints</td>
<td>5.0±4.0</td>
<td>1.8±2.3</td>
<td>6.5±3.3</td>
<td>* # @</td>
</tr>
<tr>
<td>N painful localizations</td>
<td>2.3±1.4</td>
<td>1.4±0.6</td>
<td>4.8±1.8</td>
<td>* # @</td>
</tr>
<tr>
<td>Somatization SCL-90R</td>
<td>23.1±8.0</td>
<td>17.8±4.8</td>
<td>28.2±5.7</td>
<td>* # @</td>
</tr>
<tr>
<td>Preoccupation IBQ</td>
<td>1.8±1.4</td>
<td>1.0±1.5</td>
<td>1.6±1.1</td>
<td>NS</td>
</tr>
<tr>
<td>Body Deterioration CIPI</td>
<td>7.3±3.7</td>
<td>5.6±2.5</td>
<td>8.5±4.4</td>
<td>* #</td>
</tr>
<tr>
<td>Hostility SC-90R</td>
<td>8.0±3.0</td>
<td>6.9±1.1</td>
<td>7.7±2.7</td>
<td>NS</td>
</tr>
<tr>
<td>Anxiety SCL-90R</td>
<td>15.7±7.0</td>
<td>13.2±3.3</td>
<td>16.0±4.7</td>
<td>NS</td>
</tr>
<tr>
<td>Depression SCL-90R</td>
<td>25.3±10.5</td>
<td>21.0±5.4</td>
<td>26.1±9.7</td>
<td>NS</td>
</tr>
</tbody>
</table>

As expected, the chronic group had higher scores on most of the variables when compared to the non-chronic group. Difference in the variable "duration" was caused by the selection criteria of the groups.
When compared to the non-chronic group, the chronic group has more "other complaints", not directly related to the complaint for which they visited the physician, more painful localizations and they show more somatization. Differences on the variables preoccupation IBQ, body deterioration CIPI, hostility, anxiety, and depression SCL-90R did not reach significance. Almost the same pattern of differences occurs when fibromyalgia patients are compared with non-chronic pain patients. Fibromyalgia patients report also more body deterioration than non-chronic pain patients.
Fibromyalgia patients report more painful localizations than chronic pain patients and have a higher score on the somatization scale. Other variables show no differences between these two groups.
On the variable "progress of complaints" 44% of the non-chronic group stated that they were getting better, 29% reported no change and 27% a worsening of their complaints. In the chronic group only 3% reported that they were getting better, 17% reported no change and 80% a worsening of their complaints. In the fibromyalgia group no subject stated that he or she was getting better, 6% reported no change and 94% reported that the complaints were getting worse (chi-square = 61.6, p<0.00001).
In the non-chronic group 18% used medication, in the chronic group 46%, and in the
fibromyalgia group 50% used medication (chi-square = 9.3, p<0.009).

Discussion
We started our research in 1986, using the criteria for fibromyalgia diagnosis from Yunus et al. (15) In the meantime, in 1990, the American College of Rheumatology adopted new criteria for the classification of fibromyalgia (18): widespread pain in combination with 11 or more of the 18 specific tender point sites. In their report the authors also provide the sensitivity, specificity and accuracy of previous criteria sets in their study population. It appeared that the criteria described by Yunus et al. performed fairly well in their study sample, with a sensitivity of 83.6% and a specificity of 76.6%. Therefore we don not expect very much problems with the generalizability of our data.

The hypothesis that fibromyalgia patients are very similar to other chronic pain patients when compared on psychological variables is supported by the results above. The fibromyalgia group shows many characteristics of chronic pain and even more painful localizations and a higher extent of somatization. The fact that fibromyalgia patients report more painful localizations is not very surprising, because one of the clinical characteristics of fibromyalgia is having "pain all over". The fact that fibromyalgia patients have higher scores on the somatization scale of the SCL-90R seems to be related to this aspect of fibromyalgia, since this scale contains items such as: headaches, low back pain, painful muscles, etc. When the items that are related to the physical complaints of fibromyalgia patients are removed, there is no longer a significant difference between the two groups (chronic group: m=8.9 SD=3.8, fibromyalgia group: m=10.0 SD=2.7; t-value=-1.79, p<0.078).

An important aspect is the duration of the pain complaint. All but one of the fibromyalgia patients had pain complaints for over one year. Many researchers in the field of chronic pain state that having pain complaints for a period between 2 and 6 months can be sufficient to develop chronic pain (19,20). The finding that our fibromyalgia group is characterized by a long duration of the pain complaint is probably not exceptional. The recognition and acknowledgement of the diagnosis "fibromyalgia" is complex and time-consuming.

Considering fibromyalgia patients as chronic pain patients has important implications for treatment. A strictly somatic approach of the complaints in treating chronic pain patients may lead to a strong fixation on the somatic aspects of these complaints (21-23).

A multidisciplinary approach seems to be the best way to deal with complexity of the patient's situation in the treatment of chronic pain (24,25). Further research must point out if this is also a good option in the treatment of fibromyalgia.
References