

## Use of the Short-Form-36 Health Survey to detect a subgroup of fibromyalgia patients with psychological dysfunction

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**Abstract** The aim of the present study was to examine the in-depth application of the Short-Form-(SF)-36 Health Survey to score the general well-being in fibromyalgia syndrome (FS) patients. Quality of life was evaluated in 12 patients with FS. With respect to mental well-being (social functioning, role limitation due to emotional health problems, and mental health), two distinguished groups were found concerning psychological functioning. One group ( $n = 8$ ) demonstrated psychological dysfunction, whereas the other ( $n = 4$ ) showed normal psychological scores. Physical well-being scores (physical functioning, role limitation due to physical health problems, bodily pain, general health, and vitality) did not differ between FS patients but were altogether below the normal range. Regarding the psychological scores of the two groups of patients, SF-36 can be used to differentiate between patients with and without psychological dysfunction independent of pain. Therefore, we propose that the SF-36 could be of help to provide the most adequate therapy to achieve an optimal outcome in patients with FS and psychological disturbances.

**Keywords** Fibromyalgia syndrome · Psychological dysfunction · Short-Form-36 · Subgroups

### Introduction

Fibromyalgia syndrome (FS) is a chronic widespread pain condition that affects 1–4% of the population and is

characterized by diffuse pain in the absence of synovitis or myositis [1]. The musculoskeletal examination is unremarkable except for tenderness upon palpation of discrete anatomical locations termed tender points [2]. Associated symptoms include sleep disturbance, fatigue, irritable bowel syndrome, cognitive disturbances, and mood disorders [1].

The patients who fulfill the classification criteria of the American College of Rheumatology (ACR) for the diagnosis of FS [3] are not a homogenous group. It has been postulated that FS is not a distinct clinical entity [4]. There are different subgroups of primary FS. At least three different subgroups have been described: one group with high pain sensitivity without any associated psychological/cognitive factors, a second group which displays moderate tenderness and normal mental well-being, and a third group in which psychological/cognitive factors may play a major role in pain manifestation [4, 5]. There is also growing evidence for a substantial lifetime psychiatric comorbidity in individuals with FS [6].

Assessment of patients with FS should therefore not only focus on myofascial pain and the search for the tender points but also on concomitant affective disorders. Considering distinct subgroups, one might be able to provide the patients with an adequate individual therapy.

While postulating different subgroups of FS with possible psychiatric comorbidity, an easily applied instrument for the differentiation between individuals with and without affective distress needs to be found. Subjective information has proven to be a useful tool in the assessment of rheumatoid arthritis patients [7, 8] as well as in FS patients [9]. Birtane et al. [10] found in their study, using SF-36, that patients with FS are more severely affected in mental health when compared to patients with rheumatoid arthritis. The SF-36 is providing information on patients' physical, functional, emotional, and social well-being. Whether using SF-36 helps to distinguish

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between patients with and without affective disorders needs to be investigated. We therefore test the hypothesis that SF-36 is a tool to select patients with FS in need of specialized psychological therapy.

## Materials and methods

### Patient selection

The study was performed in FS patients who presented at the Department of Rheumatology, University Hospital of Zurich, Switzerland. The diagnosis of FS was made according to the ACR classification criteria available for the disease [3]. Twelve patients were prospectively included during the study period. The patients were of sufficient intellectual capacity to fill out the SF-36 and they need to give informed consent to participate in the study. Patients underwent a complete physical examination and specific consultations when needed. Patients with additional systemic health disorders, which may have the potential to influence the functional capacity of the patients, were not included in the study. Before the performance of physical examination, demographic characteristics, such as age, gender, height, and weight, and social parameters, such as employment, educational, economical, and marital status of the study participants, were noted.

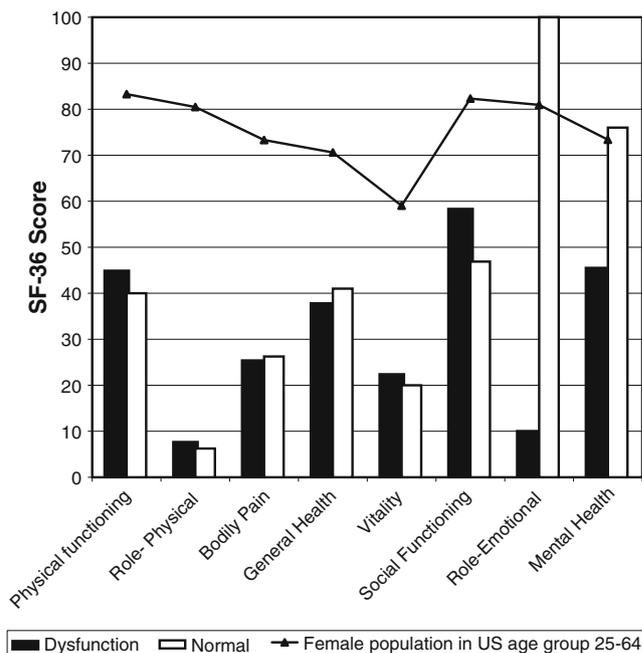
### Measurements

#### Health Survey Questionnaire (SF-36)

The SF-36 was used to evaluate the quality of life of each FS subject and to distinguish FS patients with and without emotional impairment [11]. All the patients with FS completed the SF-36 questionnaire at the time of their clinical evaluation. The SF-36 consists of 36 items that are employed to calculate scores on eight dimensions: physical functioning, role limitation due to physical health problems, bodily pain, general health, vitality, social functioning, role limitation due to emotional health problems, and mental health. Scores range from 0 to 100, with a higher score indicating a better health-related quality of life. The SF-36 questionnaire data are presented as graphs (Fig. 1).

## Results

In analyzing our data, we found two different groups of patients with FS in terms of psychological well-being independent of pain intensity (Fig. 1). Patients with values below 50 were considered as patients with emotional problems. Black bars show an example of the general health



**Fig. 1** Health survey questionnaire (SF-36) score of fibromyalgia patients with and without disturbed “role emotional.” White bars represent the general health score of the patients with normal emotional status. Black bars show the general health of the patients with reduced emotional role. The line represents healthy female reference population [11] in the same age range as the patients. 0 Most severe failure, 100 most healthy state. Means are given

of the patients with emotional problems and pain ( $n=8$ ), which were showing extensively reduced emotional role, and white bars present patients ( $n=4$ ) with good emotional role and pain. Both groups showed similar physical dysfunction. Regarding role limitation due to emotional health problems, mental health, and social functioning, the data demonstrated dysfunction in one distinct group. The physical function, bodily pain, and vitality parameters were reduced in both the subgroups compared to control group of age-matched US healthy women (line).

## Discussion

Pain and depression may affect the daily life and functional activities of the FM patients, which can be measured by the SF-36. Our study compared the quality of life of 12 patients with FS. Analyzing the scores of the SF-36, we found differences in both emotional and mental health and social functioning. These findings help to confirm the clinical suspicion of different subgroups of patients with FS. While one group scored normal psychological results, the other showed psychological dysfunction. Differentiating the latter subgroup based on responses to the Multidimensional Pain Inventory study by Thieme et al. [1, 12], nearly 75% of the patients with FS exhibited anxiety and mood

disorders. Arnold et al. [13] found heightened incidence of FS combined with major mood disorders in families. The high degree of familial aggregation found in the study of Arnold et al. could not be plausibly explained in the absence of genetic factors [14, 15].

The results of our study suggest that the SF-36 allows a differentiation of subgroups in FS patients in terms of psychological impairment. Observing the role limitation due to emotional health problems, a clear separation of patients with mood disorders can be seen. Using just one dimension of the SF-36, this differentiation of the subgroups is possible. Therefore, we conclude that patients with a negative score on role limitation due to emotional health problems need to be treated against psychological dysfunction assuming that there is a mood disorder.

Postulating different subgroups in patients with FS, the application of multimodal individualized treatment programs needs consideration in the multifaceted nature of FS. Therefore, examination of FS patients should not only include the search for the tender points but also for the presence of affective disorders. Treatment should aim at physical and emotional well-being. Because of the small number of patients in our study, statistical analysis was not performed. However, the results suggest how important the consideration of the mental health in FS patients may be in regard to their individual therapy regime.

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