Subthreshold mood symptoms in patients with fibromyalgia and rheumatoid arthritis

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ABSTRACT

Objective. *Although several findings have highlighted the prevalence of Axis I psychiatric disorders in fibromyalgia (FM) and rheumatoid arthritis (RA), very little information is available on the prevalence of subthreshold mood symptoms in these conditions. Therefore, we aimed at comparing the prevalence of subthreshold mood symptoms in rheumatic patients suffering from FM and RA. The hypothesis is that subthreshold mood symptoms are more represented in FM, given the evidence of higher rates of Axis I psychopathology in FM than in RA.*

Methods. *Sixty patients suffering from FM and 50 from RA, assessed according to the American College of Rheumatology (ACR) criteria, selected in a Rheumatology Department, were included in the study. The subthreshold affective symptoms were assessed by means of the Mood Spectrum-Self Report (MOODS-SR).*

Results. *The results showed that FM patients presented significantly higher scores than RA patients in "mood depressive", "cognition depressive" domains and in total depressive component.*

Conclusion. *The present study demonstrates that subthreshold depressive symptoms are more represented in FM than in RA patients. This fact could play a role in the worse quality of life and in the major perception of pain which characterises FM.*

Introduction

Fibromyalgia (FM) is a chronic, non-articular rheumatic condition characterised by diffuse aching, pain or stiffness in the muscles or joints, and the presence of tenderness on examination at specific, predictable anatomic sites known as tender points (TPs) (1). According to the American College of Rheumatology (ACR), FM is defined by the following criteria: a) widespread pain of at least 3 months' duration; b) tenderness of at least 11 of the 18 specific TPs on examination (2). FM has been related to a more severe disability in daily activities and to a more negative impact on almost all aspects of the health-related quality of life (HRQoL) than other rheumatic conditions, including rheumatoid arthritis (RA) (3-5).

RA is a chronic illness, the symptoms of which include physical deterioration usually associated with impairment in emotional well-being (6). The ACR criteria for defining a case are 4 or more of the following symptoms: stiffness in the morning, arthritis of 3 or more joint areas, arthritis of hand joints, symmetric arthritis, rheumatoid nodules, serum rheumatoid factor, and radiographic changes (7).

Both FM and RA are chronic diseases, characterised by pain and associated with different psychiatric disorders. A growing body of literature has investigated this matter in patients with FM, reporting prevalence rates ranging between 35.7% and 87.6%, with major depression (MD) being the most frequently reported diagnosis (8-17). On the contrary, bipolar disorder (BD) seems to be less frequent in FM patients, with a prevalence rate between 1.3% and 12.8% (18, 19). In addition, BD patients seem to suffer more frequently from pain syndromes than patients with MD (20). As far as RA is concerned, some evidence supports rates of MD between 17% and 27% (21-23), while no data is available for BD.

Very little information is available on the prevalence and impact of subthreshold affective symptoms in FM and RA patients, which are quite common in the general population and in psychiatric patients (24-26).

In the last years, a growing interest has been focused on subthreshold psycho-

pathology as it seems to produce a negative impact on the quality of life and functioning. In particular, subthreshold symptoms of depression, which occur in community samples at a higher prevalence than the full syndrome and often co-occur with chronic diseases, may further increase psychosocial dysfunction both in psychiatric and medical outpatients (24). Subthreshold depression is linked to an increased functional disability, decreased energy, less interest in leisure, lower motivation, and problems with interpersonal relationships; there is also a major risk for more disability days, more hospitalisations, and greater loss in functional status (24-26). In addition, a recent re-analysis of the Epidemiological Catchment Area data found that also subsyndromal manic symptoms are not "benign", because in the general population they resulted as being associated with an increased need of assistance for mental health problems (27). Recently, along this suggestion, a questionnaire based on a dimensional approach to mood psychopathology has been developed and validated, that explores the full spectrum of mood phenomenology (Mood Spectrum-Self Report [MOODS-SR]) (28). This instrument focuses on manic and depressive symptoms and features, including isolated/atypical symptoms, traits, and lifestyles that may characterise the temperamental mood dysregulations, present throughout the lifespan both in fully syndromal and subthreshold mood disturbances. Using this instrument, two recent studies have shown a relationship between lifetime depressive spectrum symptoms and health-related quality of life in RA patients (29), as well as an association between manic spectrum symptoms and severity of pain and health-related quality of life in FM patients (30).

Taking into account the important clinical value of subsyndromal mood psychopathology, the aim of the present study was to investigate and compare, by using the MOODS-SR, the prevalence of subthreshold mood symptoms in FM and RA patients. Given the evidence of higher rates of comorbid Axis I disorders in FM than in RA, our hypothesis is that a similar prevalence can be founded also for subthreshold mood symptoms.

Materials and methods

Subjects

Six hundred and sixty consecutive outpatients of the Rheumatology Unit of the University of Pisa, of at least 18 years of age were evaluated over a period of one year. The total number of eligible subjects was 63 FM patients and 51 RA patients. The inclusion criteria were: meeting the ACR criteria for diagnoses (2, 7), willingness to fill in psychiatric self report questionnaires and to undergo psychiatric evaluation, absence of severe and uncontrolled medical illnesses, neurological disorders, major communicative disorders or pregnancy, absence of lifetime or current psychiatric axis I diagnoses.

The local ethics committee approved the recruitment and assessment procedures. All patients were asked about their willingness to participate in the study and underwent a psychiatric assessment after a routinely scheduled appointment. Eligible subjects provided written informed consent after receiving a complete description of the study and having an opportunity to ask questions.

Assessment

Socio-demographic data were collected using interviewer-administered questionnaires. A structured interview format was used to record sex, age, educational level, marital status, employment and duration of illness. The diagnosis of FM and AR were made according to ACR criteria a by a rheumatologist.

Axis I psychiatric diagnoses were excluded by using the Structured Clinical Interview for the DSM-IV Axis I disorders (SCID-I/P) (31), administered by trained psychiatrists.

The MOODS-SR lifetime version (28) was also administered. It is a validated questionnaire for the assessment of mood spectrum symptomatology, which includes 161 items coded as present/absent, for one or more periods of at least 3-5 days across the lifespan. Items are organised into three manic and three depressive domains exploring mood, energy, and cognition, plus a domain that investigates disturbances in rhythmicity and vegetative functions. Each domain score corresponds to the sum of the items answered as "present". The sum of the scores in the three manic domains constitutes the "manic component" (62 items), while that of the depressive domains constitutes the "depressive component" (63 items). In accordance with the aim of the present study, the manic and depressive components of the MOODS-SR were explored. The instrument can be downloaded from the website *www.spectrum-project.net*.

Statistical analyses

Taking into account that the investigated variables were not normally distributed, non parametric analyses were performed. The Mann-Whitney U-test was used to compare the mean scores of the MOOD-SR domains in FM and RA patients. All the analyses were performed by using the Statistical Package for the Social Sciences (SPSS Inc., Chicago 2006), version 14.0.

Results

All FM patients were women (age, mean ± SD: 48.35±9.68 years). In the

Table I. Demographic characteristics of the sample.

	FM group (n=63)	AR group (n=51)
Age (years, mean±SD)	48.35 ± 9.68	52.14 ± 8.57
Sex (n, %)		
Men	0 (0%)	15 (29.4%)
Women	63 (100%)	36 (70.6%)
Marital status (n, %)		
Married	50 (79.4%)	44 (86.3%)
Unmarried (single, separated, divorced)	13 (20.6%)	7 (13.7%)
Work status (n, %)		
Employed	31 (49.2%)	25 (49%)
Unemployed (retired, housewife)	32 (50.8%)	26 (51%)

Table II. The MOODS-SR domains and total mean scores in the FM and RA groups of patients (Mann-Whitney U-test).

	mood depressive			energy depressive			cognition depressive		
	mean±SD	*p*-value	Z	mean±SD	*p*-value	Z	mean±SD	*p*-value	Z
FM	8.78 ± 7.13	0.018	-2.374	2.95 ± 2.57	0.534	-0.622	8.62 ± 6.24	0.000	-3.898
AR	5.49 ± 5.19			2.51 ± 2.02			4.29 ± 3.92		
	mood manic			energy manic			cognition manic		
FM	8.03 ± 4.92	0.089	-1.700	3.84 ± 3.14	0.192	-1.304	4.25 ± 3.25	0.104	-1.624
AR	6.49 ± 4.43			2.92 ± 2.29			3.27 ± 2.92		
	total depressive			total manic			total MOODS-SR		
FM	20.35 ± 14.28	0.002	-3.138	16.13 ± 9.77	0.073	-1.791	48.37 ± 25.69	0.016	-2.420
AR	12.29 ± 9.09			12.69 ± 8.12			36.35 ± 17.82		

RA group, 15 patients (29.4%) were men and 36 (70.6%) women (age, mean ± SD: 52.14±8.57 years).

The demographic characteristics of the sample are reported in Table I.

Statistically significant differences were detected in "mood depressive" (p=0.018, Z = -2.374) and "cognition depressive" (p=0.000, Z = -3.898) domains with higher scores for FM patients. Further, the total depressive component score (p=0.002, Z = -3.138) and the total MOOD-SR score (p=0.016, Z = -2.420) resulted significantly higher in FM patients than in RA ones (Table II).

It is worth mentioning that FM patients showed higher, albeit not significant, total scores than RA patients in all manic domains (Fig. 1).

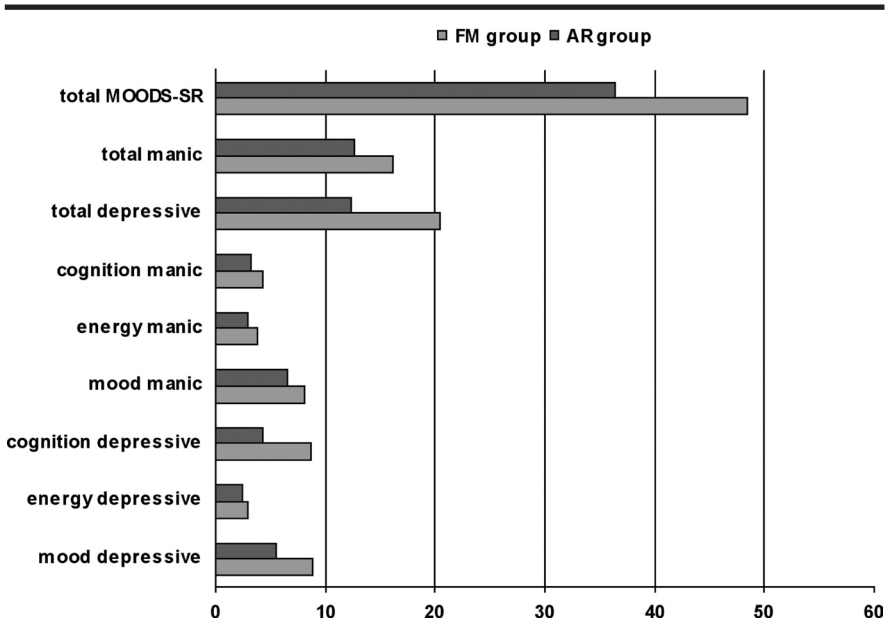

Fig 1. The MOODS-SR domains and total mean scores in the FM and RA groups.

Discussion

The results of the present study show that FM patients had higher subthreshold affective symptoms, in particular subthreshold depressive symptoms, than RA patients. This feature could partially explain why FM has been related to a more severe disability in daily activities and to a more negative impact on almost all aspects of the daily life than other rheumatic conditions, including RA (3-5). This is in line with a recent study in which the authors compared quality of life scores in 30 patients with fibromyalgia, 30 with rheumatoid arthritis, and 30 control subjects. All domains of quality of life were worse in FM patients than control subjects, and even worse than RA in the domains of physical role, social functioning, and bodily pain. Depressive symptoms strongly correlated with the worse quality of life in FM patients (32). In addition, in a more recent study, 3 outcome variables (work disability, opioid use, depression) and 12 clinical predictor variables were compared in FM and RA patients, while showing that all measures of status and outcome were more altered in FM than in RA, this may support the hypothesis that FM is at the end of a severity continuum, but with an additional psychological factor as integral part of the syndrome (33).

The high frequency of depressive symptoms in FM patients permits to speculate that FM should be considered within the "affective spectrum disorder" (34). Indeed, the hypothesis that depressive symptoms can be simply interpreted as a reaction to a chronic and disabling disorder is not supported by the evidence that the percentage of FM patients with depressive symptoms is significantly higher than that found in other comparably severe chronic diseases (19). The link between FM and depression is sustained by the evidence of shared alterations such as the HPA axis dysfunction, with elevated levels of corticotropin-releasing hormone (35), the dysregulation of central and peripheral noradrenergic/serotonergic pathways (36, 37), substance P and neurosteroids (38). Finally, the impaired function of cytokines has also been supposed to be the common underlying factor: in particular IL-6 induces both hyperalgesia and depression (39)

and IL-8 has been correlated with the intensity of pain in FM patients with comorbid depression (40). Moreover, depression is independently associated with a reduction of pain threshold due to the altered functioning of structures modulating pain such as prefrontal and insular cortex, hippocampus, amygdala and periacqueductal grey (41, 42). Another explanation for the higher perception of pain in FM patients with depressive symptoms is the tendency of depressed patients to adopt a cognitive style defined "catastrophising", which means the tendency to perceive pain as awful and intolerable, caused by the modification of attention and the anticipation of the pain itself, emphasising emotional responses (43, 44).

The results of the present study should be interpreted keeping in mind the limitation caused by the fact that all FM patients are women and we know that depressive symptoms are more common in women than in men.

In conclusion, the present study demonstrates that subthreshold depressive symptoms are more represented in FM than in RA patients. This fact could play a role in the worse quality of life and in the major perception of pain which characterises FM. A study is in progress to assess and compare the impact of subthreshold affective symptoms on the quality of life in FM and RA with our questionnaire. In any case, our findings underline the need of a careful screening of subthreshold depressive symptoms and of their proper management in order to improve the pain symptomatology, as well as the quality of life of FM patients.

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