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Brief communication

Characterization of the pain, sleep and alexithymia patterns of patients with fibromyalgia treated in a Brazilian tertiary center



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ABSTRACT

Objectives: Fibromyalgia (FM) is a complex syndrome that is characterized by lasting and diffuse chronic musculoskeletal pain, derived from non-inflammatory causes and classically associated with the presence of specific tender points. However, studies have highlighted other important symptoms associated with a lower quality of life (QOL) in FM, such as sleep disturbances and alexithymia. This study aimed to investigate the pain, sleep and alexithymia patterns of FM patients treated in a Brazilian tertiary center.

Methods: 20 patients with FM who were followed-up in the Rheumatology outpatient clinic of a Brazilian tertiary center (Faculdade de Medicina de São José do Rio Preto – FAMERP, São Paulo, Brazil) and 20 patients without FM from other outpatient services of the FAMERP completed a clinical and socio-demographic questionnaire, the Fibromyalgia Impact Questionnaire (FIQ), the Pittsburgh Sleep Quality Index (PSQI), the Toronto Alexithymia Scale (TAS-20) and the SF-36 (WHOQOL).

Results: The patients with FM presented worse performances in all QOL dimensions of the SF-36 and higher scores on the PSQI ($p=0.01$), and the TAS-20 ($p=0.02$). Patients with FM also scored significantly higher in all specific domains of PSQI and TAS-20.

Discussion: The present data were in accordance with literature, disclosing a worse performance of patients with FM on pain impact, sleep complains and more presence of alexithymia.

Conclusion: Studies have disclosed the presence of important and frequently underdiagnosed symptoms beyond pain complaints in FM, such as sleep complaints and alexithymia, and a better knowledge of such disturbances might improve FM patients' approach and treatment.

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Caracterização dos padrões de dor, sono e alexitimia em pacientes com fibromialgia atendidos em um centro terciário brasileiro

R E S U M O

Palavras-chave:

Fibromialgia
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Qualidade de vida
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Pittsburgh Sleep Quality Index
Toronto Alexithymia Scale

Objetivos: Fibromialgia (FM) é uma síndrome complexa, caracterizada por uma dor musculoesquelética crônica duradoura e difusa, derivada de causas não inflamatórias e classicamente associada à presença de pontos sensíveis específicos. No entanto, estudos destacaram outros sintomas importantes associados à má qualidade de vida (QDV) em pacientes com FM, por exemplo, distúrbios do sono e alexitimia. Esse estudo teve por objetivo investigar os padrões de dor, sono e alexitimia de pacientes com FM em um centro terciário brasileiro.

Métodos: 20 pacientes com FM acompanhados na clínica ambulatorial de reumatologia de um centro terciário brasileiro (Faculdade de Medicina de São José do Rio Preto – FAMERP, São Paulo, Brasil) e 20 pacientes sem FM provenientes de outros serviços ambulatoriais da FAMERP completaram um questionário clínico e sociodemográfico, o *Fibromyalgia Impact Questionnaire* (FIQ), o *Pittsburgh Sleep Quality Index* (PSQI), o *Toronto Alexithymia Scale* (TAS-20) e o SF-36 (WHOQOL).

Resultados: Os pacientes com FM tiveram desempenhos piores em todas as dimensões de QDV do SF-36 e escores mais altos no PSQI ($P = 0,01$) e no TAS-20 ($P = 0,02$). Pacientes com FM também tiveram escores significativamente mais altos em todos os domínios específicos do PSQI e TAS-20.

Discussão: Os presentes dados concordavam com a literatura, evidenciando pior desempenho de pacientes com FM no impacto da dor, queixas de sono e maior presença de alexitimia.

Conclusão: Estudos evidenciaram, além das queixas de dor, a presença de sintomas importantes e frequentemente subdiagnosticados, em pacientes com FM, como queixas relativas ao sono e alexitimia. Um conhecimento mais aprofundado desses distúrbios poderia melhorar a abordagem e o tratamento dos pacientes com FM.

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Introduction

Fibromyalgia (FM) is a complex syndrome that is characterized by lasting and diffuse chronic musculoskeletal pain, derived from non-inflammatory causes and classically associated with the presence of specific tender points.¹⁻⁵ It is the second most common rheumatologic disease, with a worldwide prevalence of 0.5% to 5%. Women aged between 40 and 55 years are predominantly affected, with a prevalence approximately seven fold higher than in men.^{1,4,5} The diagnosis of FM remains essentially clinical, although the aid of subsidiary exams can be useful for associated diagnosis.⁵⁻⁷

Recent studies have highlighted other important symptoms associated with a lower quality of life (QOL) in FM, such as sleep disturbances and alexithymia.⁸⁻¹⁰ The major sleep complaints reported by patients include insomnia, feeling tired upon waking, decreased sleep time and an increased number of sleep interruptions per night. In addition, the high prevalence of sleep disorders in patients with FM impairs their QOL in two ways: difficulty obtaining restorative sleep and increased sleepiness during the day, characterized by difficulty maintaining wakefulness.⁸⁻¹⁰

In accordance with the definition provided by Campbell (1996), “alexithymia” is characterized by difficulty identifying one’s own emotional state, with the inability to focus on external and somatic interests and to productively fantasize.¹¹⁻¹⁵

Studies have reported that FM patients have a specific difficulty in recognizing their own emotions in association with more complaints of increased pain, fatigue and decreased physical function.¹⁴⁻¹⁶ In addition to alexithymia, patients exhibit “sensory amplification”, which consists of a greater sensitivity and responsiveness to different sensory stimuli, including pain.¹⁷ Based on these definitions and previous studies of FM, the present study aimed to investigate, in a more detailed manner, the pain, sleep and alexithymia patterns of FM patients treated in a Brazilian tertiary center.

Patients and methods

Participants

The included patients were followed-up in the Rheumatology outpatient clinic of a Brazilian tertiary center (Faculdade de Medicina de São José do Rio Preto – FAMERP, São José do Rio Preto, Brazil), and all patients were receiving treatment at the time of the study. After receiving Ethical Committee approval, the advantages and risks of participation were explained, and informed consent was obtained. The inclusion criteria for the patient group were an age between 18 and 65 years, the presence of a current diagnosis of FM accordingly to the American College of Rheumatology (ACR) and having been treated in our unit for at least six months. Patients younger than 18 years or

Table 1 – Demographic data of patients with fibromyalgia and a control group.

Demographic data	FM	CG	P
Number of subjects	20	20	-
Age in years (mean $\pm$ SD)	32.7 $\pm$ 9.1	32.2 $\pm$ 7.1	0.82
Number of females (%)	19 (95)	18 (90)	0.85
Years of schooling (mean $\pm$ SD)	9.2 $\pm$ 6.3	12.8 $\pm$ 5.1	0.12

CG, control group; FM, fibromyalgia group; SD, standard deviation.

older than 65 years, those with pain syndromes not diagnosed as FM and with any other rheumatologic disease in addition to FM were excluded. The study sample included 40 individuals divided into two groups: 20 patients with FM (patient group – PG) and 20 patients from other outpatient services of the FAMERP (control group – CG). These groups were created to include patients exposed to similar levels of hospital stress in both groups, eliminating this possible bias.

Procedures

A clinical and socio-demographic questionnaire including age, gender, schooling, psychiatric family history and drug treatment was administered. The FM patients were then administered specific questionnaires:

- Fibromyalgia Impact Questionnaire (FIQ)* – to analyze specific aspects of the pain complaints. This instrument has ten domains (functional capacity, well-being, work absences, ability to work, pain, fatigue, sleep, morning stiffness, anxiety and depression), and the general score can range from 0 to 80. Patients with higher pain impact present higher scores;
- Pittsburgh Sleep Quality Index (PSQI)* – to analyze aspects associated with sleep. This instrument has seven domains (subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disorders, use of medications for sleep and daytime dysfunction). The maximum total score is 21 points, and the higher the value, the lower the quality of sleep evidenced. Total scores greater than 5 are indicative of poor sleep quality;
- Toronto Alexithymia Scale (TAS-20)* – to assess the presence of symptoms associated with alexithymia. This instrument examines three main domains: ability to identify and to describe feelings, and to distinguish feelings of bodily sensations, ability to daydream and preference for focusing on external events rather than inner experiences. The score indicated by the instrument ranges from 26 to 130. Values lower than 62 do not indicate symptoms of alexithymia, and values higher than 74 indicate the presence of these symptoms. Values between 63 and 73 are inconclusive;
- The *SF-36 (WHOQOL)* – to analyze the QOL in eight domains: functional, limitations due to physical aspects, bodily pain, general health, vitality, social functioning, emotional health and mental health. The lower the score is, the worse the QOL.

Statistics

Demographic data are presented as the mean $\pm$ standard deviation. Age and gender matching between patients and

controls were evaluated using the two independent samples t-test and Fisher's exact test, respectively. Data from the questionnaires were analyzed using nonparametric tests (unpaired t-test, Mann-Whitney Test and Spearman correlation). The statistical significance level was set at 5%.

Results

Thirty-seven females (19 from the PG and 18 from the CG) and three males (one from the PG and two from the CG) were enrolled in the study. Groups were matched by gender ($p=0.85$), age ($p=0.82$) and years of schooling ($p=0.12$) (Table 1).

Regarding the impact of FM as assessed by the FIQ, there were significant differences between the PG and the CG. The mean general score was 52.0 ± 13.54 for the PG and 26.0 ± 16.06 for the CG ($p < 0.0001$). Higher scores were observed in the PG in all 10 domains. The SF-36 also showed significant differences between both groups, with the PG presenting significantly lower mean scores in all eight domains compared with the CG. Regarding the sleep aspects assessed by the PSQI, there was a significant difference between the total scores of the CG (6.65 ± 4.46) and the PG (11.65 ± 4.48) ($p=0.01$). The PG scored higher in all seven domains of the PSQI. Regarding the symptoms of alexithymia assessed by the TAS-20, the mean total score was 67.10 ± 9.34 for the PG and 59.15 ± 8.70 for the CG ($p=0.03$). Comparisons between the two groups for the domains of all of the instruments are shown in Table 2.

Discussion

FM is a complex disease with a significant prevalence among the general population and is characterized by complaints of pain that are often underdiagnosed. Moreover, the current literature highlights the existence of other important and underdiagnosed symptoms, such as sleep disturbances and alexithymia, which could be associated with lower QOL among patients with FM. Thus, the investigation of these aspects and the search for tools to assess such complaints are necessary.⁶⁻¹⁸

In the present study, the FIQ differentiated the impact of pain between the PG and the CG, disclosing a higher impact in the PG compared to the CG in all 10 fields, as originally expected. Other studies have confirmed this finding, reporting impairments of the same skills in patients with FM.^{6-10,18,19} In addition, the results regarding the QOL measured using the SF-36 showed an overall reduction in all domains of the questionnaire in the PG compared with the CG. This observation has also been described in other studies showing the negative

Table 2 – Comparisons of the domains of all tested instruments between the patient and control groups.

Instrument	Domain	PG (mean ± SD)	CG (mean ± SD)	p
Fibromyalgia Impact Questionnaire (FIQ)	Functional capacity	3.0 ± 2.59	1.0 ± 0.39	0.001 ^a
	Well-being	6.0 ± 3.52	4.0 ± 3.85	0.09
	Work absences	3.0 ± 2.12	1.0 ± 0.84	0.004 ^a
	Ability to work	6.0 ± 2.95	1.0 ± 1.50	<0.001 ^a
	Fatigue	7.0 ± 2.85	2.0 ± 1.49	<0.001 ^a
	Sleep	8.0 ± 2.62	5.0 ± 3.56	0.004 ^a
	Morning stiffness	7.0 ± 3.07	1.0 ± 0.86	<0.001 ^a
	Anxiety	7.0 ± 3.23	5.0 ± 3.07	0.04 ^a
	Depression	7.0 ± 3.57	4.0 ± 3.15	0.007 ^a
SF-36 (WHOQOL)	Functional skills	41.75 ± 25.89	80.0 ± 28.35	<0.001 ^a
	Physical aspects	17.50 ± 28.67	76.0 ± 30.87	<0.001 ^a
	Bodily pain	32.65 ± 19.03	67.0 ± 28.46	<0.001 ^a
	General health	36.55 ± 21.91	57.85 ± 14.89	0.009 ^a
	Vitality	28.0 ± 21.16	50.25 ± 22.75	0.002 ^a
	Social functioning	45.0 ± 34.45	70.62 ± 30.58	0.01 ^a
	Emotional aspects	34.95 ± 41.38	74.32 ± 38.24	0.003 ^a
	Mental health	41.20 ± 32.27	66.40 ± 21.71	0.006 ^a
	Subjective sleep quality	1.70	1.20	0.12
Pittsburgh Sleep Quality Index (PSQI)	Sleep latency	2.10	1.25	0.01 ^a
	Sleep duration	1.40	0.85	0.01 ^a
	Habitual sleep efficiency	1.15	0.45	0.11
	Sleep disorders	1.95	1.30	0.002 ^a
	Use of sleeping medications	1.65	0.70	0.02 ^a
	Daytime dysfunction	1.80	0.90	0.001 ^a
Toronto Alexithymia Scale (TAS-20)	Ability to identify/describe feelings	36.85 ± 10.64	31.95 ± 7.92	0.01 ^a
	Ability to daydream	17.70 ± 5.47	16.60 ± 3.41	0.45
	Preference for focusing on external events	12.55 ± 2.91	10.60 ± 2.78	0.03 ^a

CG, control group; PG, patient group; SD, standard deviation.

^a p < 0.05.

impact of FM on patients, reducing their QOL and affecting both their physical and mental health.^{6,8,18-21}

The results of the PSQI demonstrated more frequent sleep complaints among patients with FM. These results are in accordance with the most recently published studies, which have highlighted the importance of sleep disorders in the clinical condition and in the QOL of patients with FM.^{15-18,22,23}

Among the aspects studied, the domain “using medications to sleep” suggests that FM patients rely on medications to aid sleep and do not reach “habitual sleep efficiency” or “subjective sleep quality”. In addition, the domains of “daytime dysfunction” and “sleep amendment” suggest the persistence of non-restorative sleep, resulting in a considerable deficit in the ability to perform daily activities.^{15-18,22,23} However, even with significant differences in scores between the PG and the CG on the PSQI, both groups showed low sleep quality (scores above 5). This finding can be explained by the stress caused by both disease and treatment in a tertiary center, to which the two groups were exposed at the time of the study. Other studies have also observed such effects when patients with FM were compared with patients with other chronic and disabling disorders, such as rheumatoid arthritis and depression.^{20,21}

Regarding the presence of alexithymia symptoms measured using the TAS, the PG presented significantly higher scores than the CG. However, both groups scored very close to

the average, with values adjacent to the “inconclusive interval” of the instrument. This finding could be a consequence of the small number of participants, which is an important limitation of this study.^{15,23,24} Lane and Sechrest (1998) administered the TAS-20 to 380 individuals stratified by age, gender, socioeconomic status and years of education, and they also observed that this instrument had a tendency to report worse results for patients with advanced age, male gender, low socioeconomic status and fewer years of education.²³ Therefore, one can infer that the present results are also affected by low socioeconomic status and few years of education, which were present in both groups, thus narrowing the expected difference between the PG and the CG.

To conclude, the present study demonstrated that patients with FM had worse performances in all QOL dimensions of the SF-36 as well as higher overall scores on the PSQI and the TAS-20. In addition, patients with FM scored significantly higher in all specific domains of the PSQI and the TAS-20. Therefore, broader evaluations using accessible and adequate questionnaires are valuable for characterizing the impact of FM on patients. Because FM has a multifactorial etiology and variable clinical presentations, more careful investigation of other important and frequently underdiagnosed symptoms in this population, such as sleep complaints and alexithymia, which occur in addition to pain complaints, is highly encouraged.

Conflicts of interest

The authors declare no conflicts of interest.

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