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Clinical profiles in fibromyalgia patients of the community mental health center: a predictive index of psychopathological severity

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Introduction. In recent years we have seen an increasing demand for mental health care in patients with fibromyalgia and psychiatric symptoms, although it is not clear if the symptoms are primary or secondary to the presence of the syndrome. This fact has led mental health providers to think that there would be some psychological factors influencing the vulnerability of suffering this painful syndrome, because its etiology is quite non-specific. Bradley et al. (1978) identified different psychopathological profiles within chronic pain syndromes with the MMPI, which were subsequently adapted by Yunus et al. (1991) for fibromyalgia. This present work studied the clinical profile in patients with fibromyalgia.

Method. Sample: 75 patients with fibromyalgia from the community mental health center and 55 healthy subjects. Tools: STAI-E/R, BDI, MMPI-2, MMPI-2 personality disorders, MMPI-2 PSY-5. Statistical analysis: descriptive statistics and mean comparison (Student's *t* test). Confirmatory cluster analysis. Discriminative analysis of subgroups.

Results. Two different patterns were obtained: group A (32 %) with a typical chronic pain profile (CP) and group B (68 %) with a psychological maladjustment profile (PM). With the discriminative analysis, we obtained the coefficients of the discriminative canonical functions that maximize the differences between both groups.

Conclusions. We confirmed Bradley's classification, obtaining two different psychopathological patterns in the fibromyalgia syndrome sample we studied. We obtained an index of psychopathological profile in fibromyalgia, which would form a new scale, from MMPI-2 for discriminating psychopathological severity in fibromyalgia.

Key words:
Fibromyalgia. MMPI-2. Profile subgroups. Psychopathology. Personality. Personality disorders.

Actas Esp Psiquiatr 2006;34(2):112-122

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Perfiles clínicos en pacientes con fibromialgia que acuden a un centro de salud mental: obtención de un índice predictivo de gravedad psicopatológica

Introducción. En los últimos años se ha visto incrementada la demanda asistencial en salud mental de pacientes que presentan fibromialgia y sintomatología psiquiátrica, y no queda claro en la mayoría de los casos si esta patología es primaria o secundaria a la aparición del síndrome, Esto ha hecho plantearse a los profesionales de la salud mental la influencia de distintos factores psicológicos de vulnerabilidad a padecer este síndrome doloroso dada la inespecificidad a nivel etiológico. Bradley et al. (1978) identificaron a través del MMPI distintos perfiles psicopatológicos dentro de síndromes con dolor crónico que posteriormente fueron adaptados por Yunus et al. (1991) para la fibromialgia. En el presente trabajo se estudian los perfiles clínicos en pacientes con fibromialgia.

Método. Muestra: 75 pacientes derivados al centro de salud mental que presentan fibromialgia; 55 sujetos control sanos. Instrumentos: STAI-E/R, BDI, MMPI-2, MMPI-2, trastornos de la personalidad, MMPI-2 PSY-5. Análisis estadísticos: estadísticos descriptivos y comparación de medias (*t* de Student). Análisis de clúster confirmatorio. Análisis discriminante de los subgrupos.

Resultados. Se obtienen dos patrones diferenciales: grupo A (32 %) con un perfil típico del dolor crónico (DC) y grupo B (68 %) con un perfil de desajuste psicológico (DP). Mediante el análisis discriminante obtuvimos los coeficientes de las funciones canónicas discriminantes que maximizan las diferencias entre los dos grupos.

Conclusiones. Se confirma la clasificación de Bradley obteniendo dos patrones psicopatológicos diferenciales en la muestra de síndrome de fibromialgia estudiada. Se obtiene un índice de perfil psicopatológico en fibromialgia que configura una nueva escala a partir del MMPI-2, que discrimina gravedad psicopatológica en la fibromialgia.

Palabras clave:
Fibromialgia. MMPI-2. Perfiles. Psicopatología. Personalidad. Trastornos de personalidad.

INTRODUCTION

The demand in mental health care centers for care by patients who come due to emotional disorders accompanied by a diagnosis of fibromyalgia has increased in recent years. As this is a rheumatology disease, combined psychiatric and psychological treatment is increasingly frequent due to this syndrome's affect on mood state, anxiety, quality of life and personality in patients who suffer it[1].

Generally, they visit the rheumatology service, reporting generalized and persistent pain without signs of articular inflammation, with morning stiffness, weakness and tiredness as well as months or even years of evolution. Most of these patients report a history of health care pilgrimages, which intensify emotional malaise and feeling of frustration due to the diagnostic difficulties, all of which are linked to social lack of knowledge.

Chronic diseases, above all those accompanied by painful conditions, generally coexist with anxious-depressive symptoms, both conditions having a mutual influence[2-4]. Surprisingly, given its physiological non-specificity, fibromyalgia has the greatest psychiatric comorbidity among all of them (rheumatoid arthritis, arthrosis, etc.)[5,6]. In fact, fibromyalgia implies both a physical as well as psychological condition. At present, there is a controversy on the primary character (inherent to the disease) or secondary one (posterior to the disease) of the psychological symptoms in this syndrome. That is why its study elicits increasingly more interest within mental health.

A review of the concept takes us back to the year 1843, where the first historic information related with the fibromyalgia syndrome (FMS) appeared when Froriep described the association between rheumatisms and painful points. In 1904, Growers proposed the name of «fibrositis»[2] to define the muscle type pain due to fibrous tissue inflammation. Years later, in 1947, Boland[7] called it «psychogenic rheumatism» when he verified its constant association with depression and stress. It was not until 1976 when Hench[7] coined the term «fibromyalgia,» substituting the previous terms. Subsequently, the «fibromyalgia syndrome» (FMS) was defined, requiring the presence of 11 of 18 presently identified painful points for its diagnosis[8].

Fibromyalgia is a pain modulation disorder, whose etiology and pathogenesis are unclear. It is a form of rheumatism, which is characterized by diffuse musculoskeletal pain which is neither articular (arthrosis, arthritis, low back pain) nor localized (gout, fibrotendinitis, epicondylitis) of chronic evolution, with generalized morning stiffness, fatigue, non-repairing sleep and many points sensitive to contact in specific anatomical zones, also called «tender points»[9].

The American College of Rheumatology (ACR) diagnostic criteria[8] are: *a)* history of chronic, generalized, musculoskeletal pain of more than three months durations, affecting both sides of the body, with pain above and below the pelvic girdle and also with presentation of pain in the axial skeleton (thorax, cervical, dorsal and lumber spine), and *b)* selective pain on digital pressure (4 kg) on 11 of the 18 tender points, mainly located in the musculotendinous junction zones of the shoulder and pelvic girdle, elbows and knees. The point must be painful and not only sensitive, on palpation. Diagnosis is established if both criteria are fulfilled and there is no other systemic disease that could be the cause of the underlying pain.

In regards to physical symptoms, fibromyalgia is frequently associated to headaches, intestinal disorders (irritable colon, constipation, diarrhea), premenstrual syndrome and dysmenorrhea, irritable bladder, sensitivity to cold or Raynaud's phenomenon, paresthesias in arms or legs, chronic fatigue, morning stiffness, numbing sensation, little tolerance to physical exercise, subjective sensation of swelling, peripheral circulation abnormalities based on environment factors, dermographism, etc.[10].

It is also associated to certain psychological manifestations, such as anxiety, depression, sleep disorder, general malaise perception, attention and concentration difficulty, mnesic difficulties, somatizations, hypochondriasis, and certain personality traits. Finally, FMS tends to be considered as a multifactorial condition, in which biological, psychological and social elements participate. Its central phenomenon constitutes an alteration in pain modulation.

There are several FMS subtypes in regards to pain etiology: primary fibromyalgia as absence of another disease; secondary fibromyalgia that occurs in presence of an underlying disease (rheumatoid arthritis, rheumatic polymyalgia, lupus erythematosus, hypothyroidism) that may explain fibromyalgic symptoms, which resolve when this disease is treated; associated or concomitant fibromyalgia that occurs in the presence of another disease (arthrosis) that cannot explain the general manifestations of fibromyalgia.

Regarding epidemiology[11,12], it is a syndrome that predominantly appears in the female population (80 %-90 %), and it is not known why it affects one gender more than the other and why the onset age is between 25 and 45 years. The difficulties to reach an exact diagnosis affect the consensus on the data prevalence, which differ according to the studies, considering values from 2 % in a general population, between 2 %-6 % in primary health care clinics, reaching 10 %-20 % in rheumatology clinics, it being, in fact, one of the most common musculoskeletal disorders. There is also no consensus on their data in studies on demographic characteristics.

At present, there are several etiological theories, no causal factor capable of explaining this syndrome by itself being found. Other hypotheses[13] suggest serotonin deficit[14], low platelet MAO activity[15], sleep disorders[16] and affective disorders[17]. However, the presence of certain factors, both predis-

posing and precipitating ones of FMS, have been identified. Psychological factors play an important role in both cases[2]. In fact, some investigations have identified high levels of anxiety and depression in fibromyalgia patients compared to a control group[18], using psychology evaluation questionnaires such as the State Trait Anxiety Inventory (STAI)[1] and Beck Depression Inventory (BDI)[1,19], or Hamilton[18], respectively. Presence of certain personality traits, measured with different questionnaires, has also been observed[18]. In a study carried out with the Eysenck Personality Questionnaire (EPQ) (Eysenck, 1975), significant differences were found between a fibromyalgia group and control group, in psychoticism and neuroticism traits, the scores being higher in the latter in the fibromyalgia group[1].

Few studies have been found on fibromyalgia associated personality disorders. In a study with 47 fibromyalgia patients and a healthy control group, Martínez et al.[18] observed a 68 % prevalence of personality disorders in the fibromyalgia group versus 8 % in the control group.

The Minnesota Multiphasic Personality Inventory (MMPI) is one of the instruments used most in psychological assessment of chronic pain[20] since its profiles may be used in different ways. These may be to discriminate between cases of organic and functional or psychogenic pain, to assess the incapacity level in these patients, and to predict treatment outcomes[21]. Since Hanvik[22] published one of the first studies in this area in the beginning of the 1950's, the number of studies using the instrument in question has noticeably increased[21]. Significantly higher profiles have been obtained in fibromyalgia patients, the scores in Hypochondriasis, hysteria and psychasthenia standing out. However, other investigations conclude that there are no objective data that support the existence of a psychological profile in fibromyalgia[3]. In 1991, Yunus et al.[23] conducted a study with 103 fibromyalgia patients who were administered the MMPI. The results were classified into three categories, based on the classification originally made by Bradley (1978)[24]. This was based on a study of patients with chronic lumbar pain, which was the first attempt to identify empirically homogeneous subgroups of patients, using cluster techniques. The categories were the following: a first normal profile, with scores on all the scales within the normality range (scores $T < 70$); a second typical profile of chronic pain, with $T \geq 70$ scores on one or more of the three scales (hypochondriasis, Depression and hysteria) and a third psychological maladjustment profile with $T \geq 70$ scores in four or more scales. Twenty seven of these 103 patients had a normal profile, 52 a typical profile of chronic pain and 24 a psychological maladjustment profile, according to the Bradley classification[23].

Another study compared the profiles of out-patients with primary fibromyalgia with a control group. It obtained significant scores in the former in 8 of the 13 MMPI scales: infrequency, correction, hypochondriasis, depression, hysteria, psychasthenia, schizophrenia and social introversion. In comparison with rheumatoid arthritis, the patients with fibromyalgia obtained significant scores in 4 of the 13 scales: hypochondriasis, hysteria, psychasthenia and schizophrenia, the fibromyalgia group always being the one to present a more pathological profile. In the same study, following the Bradley classification, 35.6 % of the out-patient group with fibromyalgia obtained a normal profile, 33.3 % typical profile of chronic pain and 31 % with psychological maladjustment profile[25].

Furthermore, presently there are studies that use the MMPI to predict response to specific treatments[26,27] in these types of patients. They conclude that the evaluation of patients with fibromyalgia does not only consist in the application of ACR diagnostic criteria (1990)[8], but also that it should consider a psychodiagnostic criterion, within a more exhaustive psychological evalaution[28] since it may determine response to treatment in order to be able to combine it with psychotherapy that helps the patients approach their underlying psychological problems[26].

Finally, it can be stressed that some recent investigations[29] also find that patients with fibromyalgia who comply with the ACR criteria are not a homogeneous group, but rather differ in their symptoms and their expression, according to the influence of different biological, psychological and cognitive factors. In this way, several subgroups are shaped through cluster analysis, which supports the clinical impression of group heterogeneity in these types of patients from a biopsychosocial perspective.

This present work aims to study the different clinical and psychopathological profiles characteristic of fibromyalgia patients who come to a mental health care center. We also aim to obtain the variables that discriminate between the different profiles, according to the Bradley classification based on the MMPI-2 (adapted by Yunus et al. [1991] for the fibromyalgia syndrome) in order to make a predictive index of psychopathological seriousness operational, with the secondary objective of helping to understand this disease when conducting psychotherapeutic interventions.

METHODO

Sample

The sample was made up of 75 patients with fibromyalgia who came to our mental health center (69 women), with a mean age of 49.03 years, standard deviations of 10.09, and minimum range of 25 and maximum range of 72 years. The control group was made up of a sample of 55 subjects (50 women) obtained from the normal population, the mean age being 47.55 years, standard deviation 10.77, with minimum range of 23 and maximum range of 73 years. The age and gender variables were controlled in the healthy control group versus the fibromyalgia group, there really being no statistically significant differences in both groups regarding the age variable ($p > 0.05$).

The sociodemographic data of the two samples are shown in table 1. In regards to the sociodemographic profile of the fibromyalgia sample, most are women (92 %), married (78.4 %), with primary study level (40.6 %), housewives (50 %) and with a non-working occupational situation (27.9 %) or temporary work incapacity (25 %). In the same way, the diagnosis on axis I (DSM-IV-TR) was gathered on a clinical level in the fibromyalgia sample, which was made up basically by patients with dysthymia (64 %) and mixed adaptive disorder (14.7 %).

Table 1 Sociodemographic data of the fibromyalgia (FM) sample and control (CN) sample

	FM (n = 75)		CN (n = 55)	
	Fr	%	Fr	%
Gender				
Women	69	92,0	50	90,9
Man	6	8,0	5	9,1
Civil status				
Single	7	9,5	11	20,0
Married	58	78,4	35	63,3
Separated	4	5,4	2	3,6
Divorced	2	2,7	1	1,8
With partner	2	2,7	3	5,5
Widow (er)	1	1,4	3	5,5
Study levell				
Illiteracy	3	4.3	0	0
Primary studies	28	40.6	11	20.4
Compulsory education	17	24.6	12	22.2
High school-Vocational training	11	15.9	8	14.8
Pre-university course-Vocational training	6	8.7	3	5.6
Diploma (3 years)	3	4.3	14	25.9
Degree	1	1.4	6	11.1
Profession				
Housewife	35	50.0	22	40.7
Unskilled worker	8	11.4	2	3.7
Skilled worker	12	17.1	11	20.4
Administrative	4	5.7	4	7.4
State worker	3	4.3	6	11.1
Liberal professional	4	5.7	3	5.6
Businessman or self-employed	4	5.7	2	3.7
Student	0	0	4	7.4
Work situation				
Active	9	13.2	31	56.4
Not working	19	27.9	22	40.0
Unemployed	4	5.3	2	3.6
Temporary occupational incapacity	17	25.0	0	0
Permanent occupational incapacity	13	19.1	0	0
Retirement	6	8.8	0	0

Instruments

1. *Beck Depression Inventory* (BDI). Beck, 1979. Spanish adaptation by Vázquez[30]. It is made up of 21 items and evaluates intensity of depression during the last week.

2. *State-Trait Anxiety Inventory* (STAI). Spielberger et al., 1970[31]. It includes two subscales: anxiety-trait, originally designed to measure a stable dimension of personality and anxiety-state, that makes it possible to detect anxiety behaviors in the patient's present situation. It is made up of 40 items.

3. *Minnesota Multiphasic Personality Inventory-2* (MMPI-2). Hathaway SR and McKlinley JC, 1989. Spanish adaptation of Ávila-Espada and Jiménez-Gómez, 1999)[32]. The following scales from this questionnaire are used:

- Validity (L, F, K), clinical (Hs, D, Hy, Pd, Mf, Pa, Pt, Sc, Ma, Si) and content (ANX, FRS, OBS, DEP, HEA, BIZ, ANG, CYN, ASP, TPA, LSE, SOD, FAM, WRK, TRT) scales.
- Scales to measure personality disorders according to DSM-IV (paranoid, schizoid, schizotypal, antisocial, borderline, histrionic, narcissistic, avoidant, dependent and obsessive) based on the MMPI-2 items developed by Ben-Porath et al. (Somwaru and Ben-Porath, 1994)[33,34], scales which, according to the authors (personal communication, 6-7-2003) should be assumed not as diagnostic scales but for investigation and to indicate symptoms of the disorder.
- Personality Psychopathology Five Factors Scales (PSY-5; Harkness and McNulty, 1994)[35,36] that makes a dimensional description of psychopathological personality traits grouped into five factors based on some MMPI-2 items: aggressiveness (A), psychoticism (P), constriction (C), negative emotionality/neuroticism (N) and positive emotionality/extraversion (E).

Procedure

The sample was enrolled from a mental health center (CSM-Reus) in the period 2002-03. They were first diagnosed by a psychiatrist and then referred to the psychology service where they signed an informed consent, and underwent a data collection interview and series of tests. Validity criteria of the MMPI-2 protocols were established for investigation (standardized scores in $F \geq 120$ or standardized scores in L or $K \geq 80$; Butcher et al., 1995), it not being necessary to exclude any of them.

The statistical analyses applied were the descriptive ones for sociodemographic data (frequency and percentage in

qualitative variables; mean and standard deviation in the quantitative type variables, difference of means (Student's *t* test) for independent samples for the MMPI-2 scales (considering different statistical significance levels), exploratory and discriminating cluster analysis to obtain underlying groups in the sample and coefficient formula of the discriminating canonic functions. The SPSS 11.5 statistical program for Windows was used.

RESULTS

Two groups of patients were obtained from the fibromyalgia sample (n = 75) after conducting an exploratory cluster analysis with all the MMPI-2 variables in their different configurations: validity, clinical, content, personality disorders (Somwaru and Ben-Porath, 1994) and psychopathological personality dimensions scales (PSY-5; Harkness and McNulty, 1994): group A (n = 24; 32 %), called chronic pain (CP) profile and group B (n = 51; 68 %), considered as psychological maladjustment (PM) profile.

Mean age of group A is 47,38 and of group B 49,80, there being no statistically significant differences in both groups regarding the age variable (p > 0,05).

Anxiety and depression based on MMPI-2 profiles

Table 2 shows the means and standard deviations of the direct scores on the state anxiety (STAI-E), trait anxiety (STAI-R) questionnaire and the Beck depression inventory (BDI) in two fibromyalgia groups found in the confirmatory cluster analysis (A and B) and the control group (C). If we compare the two fibromyalgia groups (Student's *t* test), we observe that there are statistically significant differences in the STAI-state ($p \leq 0.01$), STAI-trait ($p \leq 0.001$) and BDI ($p \leq 0.001$), group B always being the one that had the greatest scores. When we compare the two fibromyalgia groups with the control group, we also obtain statistically significant differences ($p \leq 0.001$) in the three instruments, always with greater scores in favor of group B (profile with psychological maladjustment).

Validity, clinical and content scales based on MMPI-2 profiles

Table 3 shows the means and standard deviations of the typical scores (T) of the two fibromyalgia groups (A and B) and of the control group (C) on the validity, clinical and content scales of MMPI-2. Group A significantly scored on the clinical level ($T \geq 65$) in the clinical scales of hypochondriasis, hysteria and, to a lesser degree, in depression, configuring a typical profile of chronic pain and also scored significantly in the content scale of health concerns, while group B obtained a clinically significant score ($T \geq 65$) in the infrequency validity scale, in the clinical scales of hypochondriasis, hysteria and depression, together with schizophrenia, psychasthenia, social introversion, paranoia and in the content scales of health concerns, depression, work interference, anxiety, low self-esteem and negative treatment indicators, thus configuring a profile with greater psychological maladjustments than the previous group. The control group obtains standardized scores ($T < 65$) in all the previous scales (figs. 1 and 2).

In regards to the comparison of means, there were statistically significant differences on different levels between group A (CP) and group B (PM) on all the validity, clinical and content scales of MMPI-2, except ($p > 0.05$) on hypochondriasis, hysteria, masculinity-femininity, hypomania and antisocial behavior scales. Group A scored higher on the validity scales of correction factor ($p \leq 0.001$) and lie ($p \leq 0.01$), and group B on the infrequency validity scale ($p \leq 0.001$), on the depression, paranoia, psychasthenia, schizophrenia, social interversion clinical scales ($p \leq 0.001$) and psychopathic deviation ($p \leq 0.05$), and on the content scales of anxiety, obsessions, depression, health concerns, bizarre mentation, anxiety, low self-esteem, social discomfort, family problems, work interference and negative treatment indicators ($p \leq 0.001$), phobias, cynicism and type A behavior pattern ($p \leq 0.01$).

Table 2 Comparison of means in anxiety (STAI-E/R) and depression (BDI) in the group having typical profile of chronic pain (A), in the conceptualized group with psychological maladjustments (B) and the control group (C)

	Group A (n = 24)		Group B (n = 51)		Control (n = 55)		p A-B	p A-C	p B-C
	Mean	Sd	Mean	Sd	Mean	Sd			
STAI-state	28.43	11.89	34.63	12.96	15.09	9.38	0.002**	0.000***	0.000***
STAR-trait	32.81	9.42	40.75	8.24	18.89	10.46	0.000***	0.000***	0.000***
BDI	17.50	7.62	27	10.25	5.80	5.53	0.000***	0.000***	0.000***

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$.

Table 3 Comparison of means in the validity, clinical and content scales of the MMPI-2

	Group A (n = 24)		Group B (n = 51)		Control (n = 55)		p A-B	p A-C	p B-C
	Mean	Sd	Mean	Sd	Mean	Sd			
L	63.58	8.54	55.92	9.76	55.58	9.14	0.002**	0.000***	0.854
F	52.13	7.68	98.56	12.74	50.42	9.70	0.000***	0.498	0.000***
K	51	6.21	42.83	6.51	50.87	9.25	0.000***	0.950	0.000***
HS	74.83	11.92	79.94	9.87	52.89	12.45	0.055	0.000***	0.000***
D	64.21	10.73	75.61	9.10	48.24	10.61	0.000***	0.000***	0.000***
HY	72.21	12.05	76.39	12.21	50.96	10.54	0.169	0.000***	0.000***
PD	53.92	10.46	60.22	11.71	46.56	9.54	0.028*	0.003**	0.000***
MF	50.50	6.72	47.95	10.15	50.27	9.49	0.266	0.916	0.230
PA	55.21	8.79	65.86	11.75	47.45	9.08	0.000***	0.001***	0.000***
PT	57.06	8.87	70.73	7.85	42.24	11.44	0.000***	0.021*	0.000***
SC	56.13	8.98	73.51	11.46	47.95	10.84	0.000***	0.002**	0.000***
MA	52.23	8.89	52.33	11.70	46.68	9.39	0.971	0.022*	0.008**
SI	52.88	8.16	66.37	9.39	52.89	8.97	0.000***	0.994	0.000***
ANX	55.63	6.58	66.61	5.51	49.98	10.97	0.000***	0.022*	0.000***
FRS	53.25	9.05	60.71	9.76	50.76	9.84	0.002**	0.294	0.041*
OBS	47.46	6.78	62.98	6.91	48.71	10.85	0.000***	0.604	0.000***
DEP	54.21	7.99	71.22	9.37	47.69	9.36	0.000***	0.004**	0.000***
HEA	70.67	10.54	80.37	10.32	53.44	11.80	0.000***	0.000***	0.000***
BIZ	48.17	8.91	63.26	14.06	49.07	10.62	0.000***	0.716	0.000***
ANG	46.83	8.31	54.35	8.55	47.82	9.11	0.001***	0.652	0.000***
CYN	50.71	9.24	57.33	8.81	50.98	11.58	0.004**	0.919	0.002**
ASP	49.85	9.46	51.86	9.30	48.40	8.76	0.388	0.566	0.053
TPA	46.48	8.31	52.53	8.93	47.40	9.93	0.007**	0.644	0.006**
LSE	49.21	8.37	66.43	7.68	49.84	10.08	0.000***	0.790	0.000***
SOD	50.54	8.56	62.57	10.67	49.51	8.65	0.000***	0.626	0.000***
FAM	48.38	6.38	58	9.97	47.91	8.77	0.000***	0.815	0.000***
WRK	52.08	6.25	67.80	6.40	48.55	10.57	0.000***	0.132	0.000***
TRT	50.33	8.24	65.86	6.75	50.80	11.24	0.000***	0.855	0.000***

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$. L: sincerity; K: infrequency; K: correction; Hs: hypochondriasis; D: depression; Hy: hysteria; Pd: psychopathic deviation; Mf: masculinity femininity; Pa: paranoia; Pt: psychasthenia; Sc: schizophrenia; Ma: hypomania; Si: social introversion; ANX: anxiety; FRS: fears; OBS: obsessions; DEP: depression; HEA: health concerns; BIZ: bizarre mentation; ANG: anguish; CYN: cynicism; ASP: antisocial behaviors; TPA: type A behavior pattern; LSE: low self-esteem; SOD: social discomfort; FAM: family problems; WRK: work interference; TRT: negative treatment indicators.

There are also statistically significant differences on a different level between group A (CP) and the control group, on the validity scales of lie ($p \leq 0.001$), on the clinical scales of hypochondriasis, depression, hysteria, paranoia ($p \leq 0.001$), psychopathic deviation, schizophrenia ($p \leq 0.01$), psychasthenia and hypomania ($p \leq 0.05$), and on the health concern content ($p \leq 0.001$), depression ($p \leq 0.01$) and anxiety ($p \leq 0.05$) scales, and group A always scored the highest.

When group B (PM) was compared with the control group, we found statistically significant differences also on a different level, in the infrequency validity and correction factor scales ($p \leq 0.001$), on the clinical scales of hypochondriasis, depression, hysteria, psychopathic deviation, paranoia, psychasthenia, schizophrenia, social introversion ($p \leq 0.001$) and hypomania ($p \leq 0.01$) and on the content scales of anxiety, obsessions, depression, health concerns, bizarre mentation, anxiety, low self-esteem, social discomfort, family problems, work interference, negative treatment indicators ($p \leq 0.001$), cynicism, type A behavior pattern ($p \leq 0.01$) and phobias ($p \leq 0.05$), group B always scoring higher.

Personality disorders based on MMPI-2 profiles

Table 4 collects the means and standard deviations of the direct scores of the two fibromyalgia groups and

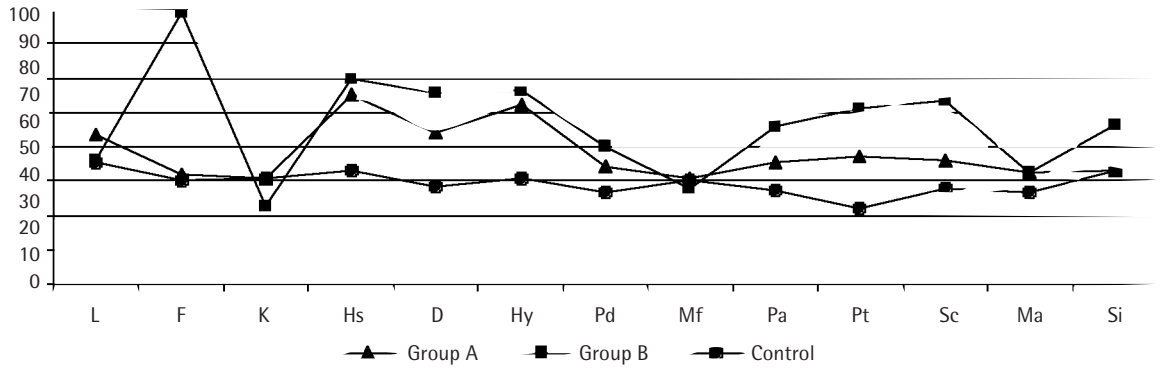

Figure 1 *Psychopathological profile in the validity and clinical scales of the MMPI-2. L: sincerity; F: infrequency; K: correction; Hs: hypochondriasis; D: depression; Hy: hysteria; Pd: psychopathic deviation; Mf: masculinity femininity; Pa: paranoia; Pt: psychasthenia; Sc: schizophrenia; Ma: hypomania; Si: social introversion.*

the control group on the personality disorder scales of MMPI-2 (Somwaru and Ben-Porath, 1994). When the means of these scales are compared between the two fibromyalgia groups, statistically significant differences are observed on different levels, in all of them except on the antisocial personality disorder scale ($p > 0.05$). Group A obtained significantly higher scores on the histrionic personality disorder scales ($p \leq 0.001$) and the narcissistic one ($p \leq 0.01$), while group B scored significantly higher on the schizoid personality, schizotypal, borderline, avoidant, dependent, obsession ($p \leq 0.001$) and paranoid ($p \leq 0.01$) disorders.

If we compare the means of these scales between group A and the control group, there are no statistically significant differences ($p > 0.05$) in any of the personality disorder scales between both groups, an aspect that repeats for the antisocial personality disorder scale ($p > 0.05$) when group B is compared with the control group, in which there are statistically significant differences on different levels in the other scales, group B scoring higher on the paranoid, schizoid, schizotypal, borderline, avoidant, dependent and obsession scales ($p \leq 0.001$), and the control group on the histrionic and narcissistic scales ($p \leq 0.001$).

Dimensions of psychopathological personality based on MMPI-2 profiles

Regarding the psychopathological personality dimensions of MMPI-2 (PSY-5; Harkness and McNulty, 1994), table 5 collects the means and standard deviations of the direct scores of the two fibromyalgia groups and the control group. There are statistically significant differences on different levels between group A and group B on all the scales except ($p > 0.05$) Constriction, group A scoring significantly higher in

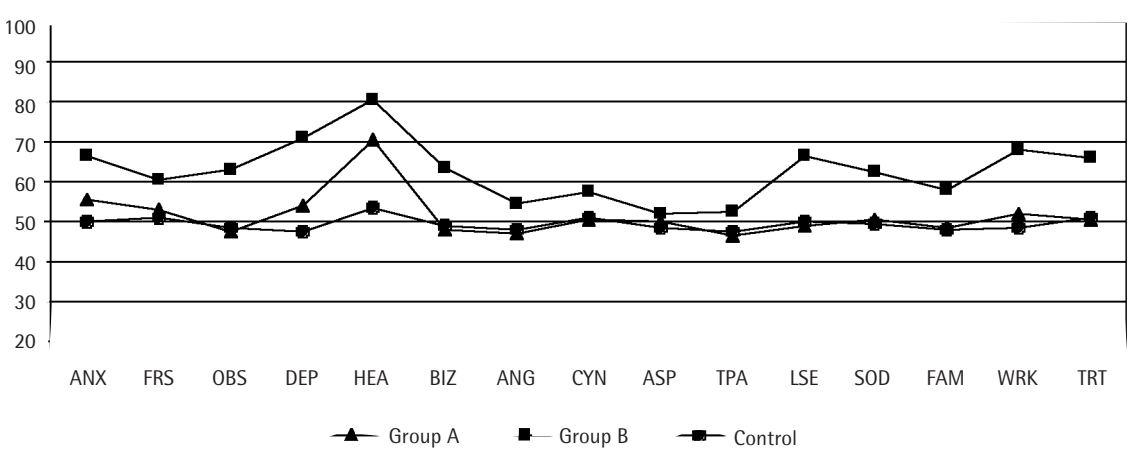

Figure 2 *Psychopathological profiles in the content scales of the MMPI-2. ANX: anxiety; FRS: fears; OBS: obsessions; DEP: depression; HEA: health concerns; BIZ: bizarre mentation; ANG: anguish; CYN: cynism; APS: antisocial behaviors; TPA: type A behavior pattern; LSE: low self-esteem; SOD: social discomfort; FAM: family problems; WRK: work interference; TRT: negative treatment indicators.*

Table 4 Comparison of means in the personality disorder scales (Somwaru and Ben-Porath, 1994) of the MMPI-2

	Group A (n = 24)		Group B (n = 51)		Control (n = 55)		p A-B	p A-C	p B-C
	Mean	Sd	Mean	Sd	Mean	Sd			
Paranoid	9.79	4.60	13.02	4.31	9.55	5.12	0.004**	0.845	0.000***
Schizoid	8.21	3.74	13.05	4.97	7.44	4.32	0.000***	0.453	0.000***
Schizotypal	8.13	4.88	14.60	6.15	7.15	6.31	0.000***	0.504	0.000***
Antisocial	7.04	4.53	7.58	3.32	6.76	3.23	0.608	0.753	0.201
Borderline	16	7.05	24.90	8.04	12.92	8.58	0.000***	0.127	0.000***
Histrionic	8.92	3.11	6.64	3.20	9.63	3.27	0.005**	0.368	0.000***
Narcissistic	11.29	2.31	6.81	2.56	10.66	2.76	0.000***	0.333	0.000***
Avoidant	12.42	4.87	20.95	5.85	12.87	5.45	0.000***	0.728	0.000***
Dependent	8.88	3.73	16.83	4.07	10.74	4.86	0.000***	0.098	0.000***
Obsessive	8.33	2.24	12.97	2.26	9.09	3.95	0.000***	0.384	0.000***

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$.

Extroversion/Positive Emotionality ($p \leq 0.001$) and Aggressiveness ($p \leq 0.05$), and Group B in Psychoticism and Neuroticism/Negative Emotionality ($p \leq 0.001$). When we compare both groups with the control group, group B scores significantly higher in Psychoticism and neuroticism/negative emotionality ($p \leq 0.001$) than the control group, the latter obtaining higher scores in extroversion/positive emotionality than group A ($p \leq 0.05$) and B ($p \leq 0.001$).

Index of psychopathological profile in fibromyalgia(I_{PPF})

Using the discriminating analysis based on all the MMPI-2 scales, with the two groups of patients with fibromyalgia, coefficients are obtained of the discriminating canonic functions that maximize the inter-group differences. This formula is made up of the variables schizophrenia and social introversion (clinical scales) and narcissistic and personality obsessive disorder (personality disorders scales of Somwaru and Ben-Porath), being shaped into a psychopathological profile in fibromyalgia (I_{PPF}), as follows:

$$I_{PPF} = 0.044\,(Sc) + 0.043\,(Si) - 0.138\,(Narc) + 0.347\,(Obs) - 8.543$$

The centroid functions of the groups were –2.435 by group A, and 1.146 by group B, with a minimum-maximum range in the sample of –4.64 and –0.89 by group A, and –0.45 and 3.76 by group B.

Table 5 Means and deviation in the five psychopathological factors (PSY-5; Harkeness and McNulty, 1994) of the MMPI-2

	Group A (n = 24)		Group B (n = 51)		Control (n = 55)		p A-B	p A-C	p B-C
	Mean	Sd	Mean	Sd	Mean	Sd			
A	8.63	3.02	6.71	3.05	7.76	2.53	0.013*	0.193	0.055
P	4.42	2.89	8.53	4.23	4.59	3.81	0.000***	0.847	0.000***
C	19.33	4.57	20.35	3.38	19.86	2.90	0.281	0.542	0.417
N	15	4.67	20.63	3.64	13.91	5.66	0.000***	0.412	0.000***
E	20.13	4.94	14.77	5.49	22.58	4.53	0.000***	0.034*	0.000***

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$. A: aggressiveness; P: psychoticism; C: constriction; N: neuroticism or negative emotionality; E: extroversion or negative emotionality.

DISCUSSION

In the present work, the clinical profiles in patients with fibromyalgia who simultaneously come to visit a mental health center have been studied. In most of the cases, it is not clear if the psychiatric symptoms that occur are primary or secondary to the syndrome appearance, reason why the influence of different psychological factors of vulnerability to suffer this painful syndrome is posed to the mental health professionals, given the etiologic non-specificity.

In our study, in the interest of better understanding this type of patient, we have found that most are women, married, with basic level studies, who have no paid work or are presently on temporary sick leave[11,18] and who come to request treatment in mental health by referral of their general physician. It is important to stress that most fulfill diagnostic criteria for dysthymic disorder or mixed adaptive disorder when they come to the mental health center, which was also indicated by other studies[6].

Through all this and based on a statistical analysis of exploratory type clusters, two types of psychopathologic profiles of the three possible profiles according to the classification originally made by Bradley et al. (1978) and later adapted by Yunnus et al. (1991) for the FMS have been obtained in the MMPI-2. We call them group A or patients with fibromyalgia that shape a typical chronic pain profile (CP) according to the MMPI-2 clinical scales (Hs, Hy, D) and group B or patients with fibromyalgia who shape a profile with greater psychological maladaptation (PM profile) according to the MMPI-2 clinical scales (Hs, Hy, D, Sc, Pt, Si, Pa). In our studies, these account for 2/3 of the fibromyalgia sample, on the contrary to other studies in which this proportion is distributed differently[25].

It can be stated that no standardized psychopathological profile in the MMPI-2 has been found in this study, surely due to the selection bias of the sample in a mental health center, since the fact that the patients with fibromyalgia are receiving psychiatric or psychologic treatment leads to the assumption of the presence of some type of psychopathology.

Clinically, the group A patients form a typical psychopathologic profile in the MMPI-2 of patients with diseases that occur with some type of chronic pain (CP profile). These patients are concerned about somatic symptoms and health problems in relationship to which they show mild anxiety, are prone to develop physical symptoms under stress, tremors, dizziness and fatigue being common. They are not incapacitated, but are ineffective and tire easily. Socially, they are competent, are expressive but also inhibited. They want to be considered as confident, happy, friendly, affectionate, responsible. They prefer to have a normal life and try to achieve it by dominating their symptoms, considering things on the positive side and avoiding that which could be unpleasant or disruptive of their disease. However, they subtlely avoid responsibility and are considered more dependent by others than by themselves.

In regards to the treatment, as they have a personality conversion disorder, they may be resistant to understanding their problem and to psychological intervention. They are not introspective and prefer medical explanations to speaking about emotional problems. They are impressionable and focused on symptom relief. However, they tolerate help well. Furthermore, they tend to be more introverted and to have personality disorder traits that are similar to those found in the normal population.

In addition to having the characteristics that define the previous group, group B patients, with a psychopathological profile characterized by having psychological maladaptation according to the MMPI-2 (PM profile), are patients who have limited resources to confront stress and demand help when perceiving difficulties, confusion and discomfort. They place greater emphasis on cognitive, sensorial, musculoskeletal and neurological symptoms. They are characterized because they have confusion and fear symptoms, are reserved, uncommitted, with a tendency to dreaming and fantasy. They have a greater level of anxiety, tension and dysphoria. They manifest characteristics of dependency that are more severe than the previous group (CP profile) with fear of conflicts, inhibition of anger and tolerance to control. They are introverted, with absence of self-security and interests, very controlled and submissive. They are sensitive and hyperreactive to criticism, offended by demands, prone to feeling controlled and to resist, with feelings of being maltreated. They have feelings of great stress and extreme vulnerability to mental disorders due to deceptions or difficulties and fear that a sudden unexpected event will lead to loss of control. They report rumiations, dysphoria, mood changes, apprehension, concerns, fatigue, pessimism, lack of interest, self-criticism and irritability. They have low self-esteem, admitting personal and interpersonal defects, with a low threshold for self-censuring and self-criticism and tendency to abandonment when faced with the least anxiety.

They have greater work interference, that is manifested in a wide range of problems and obstacles in work performance, referring both to interpersonal difficulties and attitudes and symptoms that hinder efficiency and make production difficult and they feel weak and lacking capacity or want others to think they are.

Regarding treatment, they tend to have low motivation and are not capacity of being sincere and they also have negative attitudes towards the mental health physicians and treatment. They believe that no one can take care of them or help them. They do not feel comfortable discussing their problems with others. They may not want to change anything in their lives or believe that change is possible. They prefer to give in to crisis or difficulties.

Regarding personality psychopathological dimensions, they tend to reject commitment with the world and other

persons in conventional terms and have a greater affective frame of mind towards experimenting negative emotions and less frame of mind towards the positive ones, seeking and enjoyment of social experiences and decreased energy to pursue life goals[1].

Regarding the presence of personality disorder traits, it may be stated that the patients who have this type of profile have more elevated traits[18] of avoidant, dependent, obsessive (cluster C), paranoid, schizoid, schizotypal (cluster A) and borderline (cluster B) personality disorder and are less histrionic and narcissistic than the normal population compared to the wide extended belief in the mental health setting on these types of patients. Regarding antisocial personality disorder, they are similar to those presented in the normal population.

In conclusion, the patients who are included within this group are characterized by having greater general maladaptation and subjective stress, especially depressive mood state and feelings of personal immaturity than group A.

Thus, in the patients who obtain a more typical profile of diseases that occur with chronic pain (group A), the psychiatric symptoms they have could be understood as reactive or adaptive to the difficulties that fibromyalgia symptoms cause, understood as a syndrome that occurs with chronic pain, as occurs with other chronic diseases having an organic base known as rheumatoid arthritis[25], among others, in which similar psychopathological profiles would be obtained. In this sense, we believe that these patient would be more similar on this level to those patients with fibromyalgia who are not treated in mental health, an aspect that would be interesting to study in future investigations.

Regarding the patients who fulfill the psychological major maladaptation profile (group B), fibromyalgia could be explained as a somatization that would be at the basis of a major intrapsychic and personality disorder, who would channel all their underlying psychological discomfort through the pain, which can be approached mainly from the mental health setting.

In this study, among all the variables used, we have found those that discriminate between the two types of profiles found after the analysis of confirmatory clusters, thus forming an equation that helps us, in the clinical practice, to know if a patient with fibromyalgia who comes to a mental health center belongs to one profile or another. This is thus used as an indicator of psychopathological seriousness or «index of psychopathological profile in fibromyalgia» (I_{PPF}). Based on this formula, a new scale can be derived and is formed by 172 items of the MMPI-2 that only includes the items of the variables that discriminate between both profiles. This would mean a reduction in the total number of MMPI-2 items and economizing on time and effort both for the patient in filling out the questionnaire and for the mental health care professional in regards to its correction and interpretation when making the psychological evaluation of these patients. Thus, we stress the utility of this screening index of fibromyalgia patients according to the degree of underlying psychopathology and stress the importance of its use as diagnostic orientation when making psychotherapeutic interventions in these types of patients.

One of the limitations of this study is that these results can only be generalized to patients who have fibromyalgia and are receiving mental health treatment, it being necessary to select the sample from more general services and to increase the sample size in future investigations to be able to generalize the results to the entire group suffering fibromyalgia.

CONCLUSIONS

In most of the patients who come to a mental health center, fibromyalgia is a somatic manifestation of underlying affective and personality psychopathology, which would imply vulnerability to suffer this syndrome. These results would support the hypothesis of the primary character (inherent to the disease) of the psychological symptoms in this syndrome, in the subgroup with greater degree of psychopathology, which includes 2/3 of the sample. It is necessary to consider psychotherapies that are not only centered on the physical symptom or pain but also on the underlying psychological discomfort in these types of patients.

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