
The influence of psychiatric comorbidity on sexual satisfaction in fibromyalgia patients

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ABSTRACT

Objective. To investigate the influence of psychiatric comorbidity on sexual satisfaction in premenopausal and postmenopausal female affected by fibromyalgia (FM).

Methods. We enrolled 100 FM females and 40 age-matched healthy females.

Psychiatric diagnoses were carried out using the Structured Clinical Interview for DSM-IV Axis I Disorders-Patient Edition; sexual satisfaction was evaluated using the Index of Sexual Satisfaction (ISS), clinical assessment included the Fibromyalgia Impact Questionnaire (FIQ), tender point (TP) count and pain evaluation by means of a visual analogue scale (VAS).

Results. The data were analysed according to the presence and absence of psychiatric comorbidity in FM patients (all FM, only FM, FM with a lifetime psychiatric disorder, FM with a current psychiatric disorder). FM patients with a current psychiatric comorbidity ($n=24$) showed ISS values significantly higher (41.5 ± 17.5) with respect to patients with only FM ($n=45$) (27.3 ± 17.4 , $p<0.05$) and healthy controls (24.1 ± 12.8 , $p<0.01$). The FIQ values of patients with current psychiatric comorbidity were significantly higher (68.4 ± 13.5) compared to the values of patients with only FM (55.7 ± 17.9) ($p<0.05$). No differences were found between VAS pain or the number of TP of the three groups of patients.

Conclusion. Our results suggest that psychiatric comorbidity has more influence on the sexual satisfaction of FM patients than the presence of the rheumatic disease itself.

Because the ISS gives an indication of the relationship with partners, this finding suggests that emotional aspects may play a crucial role in sexual behavior, in particular in those FM patients with current psychiatric comorbidity.

Introduction

Fibromyalgia syndrome (FM) is a chronic, generalised pain condition (1, 2) with characteristic tender points on physical examination (regions of the body that evoke severe pain upon gentle digital palpation), often accompanied by a number of associated symptoms such as fatigue, sleep disturbance, headache, irritable bowel syndrome, temporomandibular joint disorder, spasmophilia, and cognitive impairment. Moreover, FM patients show a high rate (80.8%) of lifetime and/or current comorbidity with mood and anxiety disorders (3).

The pathophysiology and aetiology of FM still remain unclear; it affects at least 2% of the general population in Italy and more than 90% of the patients are female (4). Moreover, FM represents 30% of rheumatic diseases in the general population (5) and may also be associated with other rheumatic diseases.

The instrumental and laboratory examinations performed in these patients are usually standard, the diagnosis is currently clinical and the severity of the disease is difficult to quantify.

A more recent analysis of the syndrome has drawn increasing attention to the associated symptoms and this change in focus has recently been epitomised in the new suggested diagnostic criteria published for FM (6).

Sexual satisfaction and sexual functioning are important issues relating to the quality of life and are adversely affected by many rheumatic diseases including FM (7-10).

The reasons for disturbed sexual satisfaction and functioning in FM patients comprise disease-related factors such as pain, fatigue, stiffness, depression, anxiety, negative body image, diminished desire (11-12) and therapy (13).

Also other factors including vulvo-

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dynia and vaginismus, often present in these patients, may be linked to sexual dysfunction (14).

The purpose of the present study was to investigate sexual satisfaction in FM patients and the influence of psychiatric comorbidity on the sexual satisfaction itself. The relationship between the sexual dysfunction and pain and quality of life was also investigated. Sexual satisfaction is an aspect of sexual functioning that has been scarcely investigated in FM patients. The originality of our methods is represented by the use, for the first time, of a questionnaire which evaluates the preponderance of sexual components in the problems of a couple and by an accurate assessment of psychiatric comorbidity through a Structured Clinical Interview administered by a psychiatrist.

Materials and methods

Participants

One hundred FM females aged 47.8 ± 8.8 yrs (mean age \pm SD) were recruited at the Rheumatology Division of the University of Pisa and were clinically classified by a rheumatologist according to the 1990 American College of Rheumatology criteria (ACR criteria) (1). All subjects had a heterosexual relationship.

Exclusion criteria for patients included the presence of a major clinical condition other than FM (pulmonary, hepatic, haematological diseases, endocrine disorders, malignancies) and the lack of knowledge of Italian or other limits to verbal communication that would impair the ability of the subject to follow the protocol.

The demographic features of patients including hormonal and marital status were collected. A detailed pharmacological anamnesis was performed on all the FM patients. Medication used by patients with only FM, FM with psychiatric lifetime comorbidity or current comorbidity were respectively: benzodiazepines (3%, 24%, 7%), selective serotonin reuptake inhibitors (SSRI) (13%, 38%, 67%), serotonin-norepinephrine reuptake inhibitors (SNRIs) (6%, 19%, 37%), tricyclics (10%, 18%, 33%), opioids (12%, 5%, 7%), corti-

sone (6%, 9%, 0%), muscle relaxants (63%, 57%, 7%), anticonvulsant (26%, 43%, 67%), non-steroidal anti-inflammatory drugs (39%, 43%, 37%).

Forty age-matched healthy females (45.3 ± 10.5 yrs) were enrolled as controls by the rheumatologist. They were women employed at the hospital and their friends, all without any complaints of FM or psychiatric disorders and were not taking any medication.

The Human Studies Research Committee approved all procedures, and all subjects provided written informed consent before inclusion in the study.

Evaluation of the tender points

On physical examination, the number and localisation of tender points of FM patients were assessed by digital pressure. The pain threshold was calculated for 18 points, and the tender point (TP) count was determined by the number of TP that had a threshold of ≤ 4 kg/cm². The total fibromyalgic tender point score (right + left) was used in the statistical analysis.

Fibromyalgia Impact Questionnaire

To estimate the impact of FM on the quality of life and physical disability, the patients received the self-administered questionnaire "Fibromyalgia Impact Questionnaire" (FIQ) (15).

The resulting score (FIQ total score), which indicates the impact of the disease on life, ranged from 0 (no impact) to 100 (maximum impact). For each patient, an evaluation of pain was also made by means of a visual analogue scale (VAS, 0 = no pain/10 = the highest pain).

Questionnaire used to test sexual dysfunction:

the Index of Sexual Satisfaction

The Index of Sexual Satisfaction (ISS) (16) is an ancillary survey consisting of 25 items presented on a 7-grade scale. The ISS is used to evaluate sexual satisfaction of both men and women. It focuses not on the typical model of sexual reaction but on the functioning of sex life as a natural part of a relationship. Using the ISS scale it is possible to evaluate satisfaction as well as to identify anomalies in the intimate

conjugal life. It shows how people feel satisfied with their sexual life, how they express sexual emotions towards their partner, evaluate the quality of their sexual partnership (*e.g.* exciting, monotonous) and define motivations for sexual intercourse. High scores in this dimension indicate a low quality of sexual life and some problems in the sexual part of the relationship. The final results of the ISS are obtained by summing up item points and implementing a special ISS formula (16). The range of possible total score is from 0 (maximal satisfaction) to 100 points (minimal satisfaction), which results in a linear dependence: the more points in the ISS scale, the lower the satisfaction with sexual life (17). In particular, the patients with an overall score higher than 30 points (cut-off point) were considered to have sexual dysfunction.

In this study we used an Italian version of the ISS obtained from the original English version by a standard translation procedure (*i.e.* one bilingual researcher translated the ISS from English into Italian, another bilingual researcher independently back translated the Italian version into English, and any discrepancies were corrected by agreement between the two).

Assessment of psychiatric comorbidity

Psychiatric diagnoses were carried out by psychiatrists using the Structured Clinical Interview for DSM-IV Axis I Disorders-Patient Edition (18). The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) is a diagnostic exam used to determine DSM-IV Axis I disorders (major mental disorders) and Axis II disorders (personality disorders). The instrument was designed to be administered by a psychiatrist who has relevant professional training and has had experience in performing unstructured, open-ended question, diagnostic evaluations.

On the basis of the presence and absence of psychiatric comorbidity, FM patients were grouped in three subgroups: all FM, only FM (FM1), FM with a lifetime psychiatric disorder (FM2), FM with a current psychiatric disorder (FM3).

Table I. Demographic characteristics of research participants and clinical features of FM females.

	FM (n=100)	HC (n=40)	p-value
Age (years, mean ± SD)	47.8±8.8	45.3±10.5	NS
Min-max	25-68	26-65	
Post menopausal	42	14	NS
Married	71	30	NS
Engaged	13	5	NS
Divorced and in a relationship	8	2	NS
Duration of symptoms (yrs)	6.2±6.2 (1-40)	ND	
VAS pain	6.3±2.6	ND	
FIQ	60±18	ND	
Number of tender points (TP)	17±3	ND	

FM: fibromyalgic patients; HC: healthy controls.
 Statistical analysis used: *t*-test and Chi-Squared test.

Statistical analysis

The statistical analysis was performed using SPSS 11.5 for windows. Continuous variables were tested using the Kolmogorov-Smirnov test for normality and they resulted normally distributed in both groups. Variables were described as mean ± standard deviation. Student's *t*-test for continuous data and Chi-squared test for categorical data were used to compare the demographic characteristics of FM patients and healthy subjects. The comparisons between groups were performed by means of ANOVA (one-way analysis of variance, Bonferroni's Multiple Comparison Test). Correlations were investigated using Spearman's correlation method. A multiple linear regression analysis was performed using the score of the

ISS as a dependent variable, and age, pain, use of antidepressants, and current comorbid psychiatric diagnosis as independent variables. Statistical significance was based on a value of *p*<0.05 with a 95% confidence interval.

Results

Demographic and clinical characteristics of FM patients and healthy controls

The demographic characteristics of the research participants and clinical features of FM patients are shown in Table I. No significant difference was found between patients and controls in terms of age, hormonal phase, or marital status. Pre- and post-menopausal ISS did not differ from each other either in the FM

patients (32.6±18.5 vs. 36.5±21.0) or in the healthy controls (25.6±12.5 vs. 22.8±12.4).

The percentage of patients with only FM who had ISS>30 was higher compared to that of the healthy subjects (43% vs. 28%, *p*=0.03).

Psychiatric characteristics

We evidenced that fifty-five patients were suffering from psychiatric comorbidity of whom 31 with lifetime disease (20 with major depression, 2 bipolar disorders, 12 panic disorders), 24 with a current disease (8 major depression, 9 bipolar disorders and 7 panic disorders) and 45 patients were not (only FM) (Table II).

Clinical characteristics of FM according to psychiatric comorbidity

Table II shows the results analysed according to the presence and absence of psychiatric comorbidity in FM patients (all FM, only FM, FM with a lifetime psychiatric disorder, FM with a current psychiatric disorder and the healthy controls).

The mean ISS values of all FM patients were significantly higher than that of healthy controls (34.2±19.4 vs. 24.1±12.8, *p*<0.01).

FM with a lifetime psychiatric disorder showed significantly higher mean ISS values (41.5±17.5) with respect to only FM patients (27.3±17.4, *p*<0.05) and healthy controls (24.1±12.8, *p*<0.01).

The mean ISS values of the FM

Table II. Comparison of features and ISS scores among FM patients grouped according to the presence or absence of psychiatric comorbidity and healthy controls.

	All FM (n=100)	FM 1 (n=45)	FM 2 (n=31)	FM 3 (n=24)	HC (n=40)
Age	47.8 ± 8.8	48.1 ± 8.3 (30-62)	46.2 ± 7.6 (29-63)	49.5±10.7 (25-68)	45.3 ± 10.5 (26-65)
Duration of symptoms	6.2 ± 6.2	5.6 ± 5.4	5.4 ± 4.3	8.5 ± 9.0	ND
ISS	34.2 ± 19.4*	27.3 ± 17.4*	38.4 ± 21.2*	41.5 ± 17.5*	24.1 ± 12.8*
TPs	17 ± 3	17.6 ± 1.2	15.8 ± 4.3	16.6 ± 3.3	ND
FIQ	60 ± 18	55.7 ± 17.9*	58.6 ± 20.1	68.4 ± 13.5*	ND
VAS pain	6.3 ± 2.6	6.1 ± 2.3	6.2 ± 2.8	6.6 ± 2.1	ND

Results are expressed as mean ± SD.

FM 1: patients with only FM; FM 2: patients with a lifetime psychiatric comorbidity (20 major depression, 2 bipolar disorder, 12 panic disorder); FM 3: patients with current comorbidity (8 major depression, 9 bipolar disorder, 7 panic disorder); HC: healthy controls; FIQ: Fibromyalgia Impact Questionnaire; TPs: tender points.

ANOVA (one-way analysis of variance, Bonferroni's Multiple Comparison Test)

*Significant ISS comparisons:

- All FM vs. HC **p*<0.05
- FM 2 vs. HC **p*<0.05
- FM 3 vs. HC ***p*<0.01

*Significant FIQ comparison:

- FM 3 vs. FM 1 *p*<0.05

with a lifetime psychiatric disorder (38.4±21.2) were significantly higher than that of the healthy controls (24.1±12.8) ($p<0.05$) and did not differ from those of the FM with current psychiatric disorder (41.5±17.5) or from the only FM group (27.3±17.4).

The mean ISS values of the only FM patients and those of healthy controls did not differ from each other (27.3±17.4 vs. 24.1±12.8).

The FIQ values of the FM patients with current psychiatric disorder were significantly higher (68.4±13.5) compared to the values of only FM (55.7±17.9) ($p<0.05$) and did not differ from that of the FM with lifetime psychiatric disorder (58.6±20.1). Instead, the FIQ values of the FM patients with lifetime psychiatric disorder did not differ from that of the only FM (55.7±17.9).

The duration of symptoms, the values of TP number and VAS pain did not differ between the three groups of FM patients studied.

The percentage of patients with an ISS score >30, indicative of sexual dysfunction, was significantly higher in the group of FM with current psychiatric disorders (76%) and FM with lifetime psychiatric disorder (64%) with respect to those of the only FM group (43%) ($p=0.0001$, $p=0.005$, respectively).

Correlations between ISS and clinical characteristics

No correlation (Spearman) was found between ISS values and TP, FIQ, age and disease duration in the three studied subgroups.

Role of concomitant medications

The role of concomitant antidepressant medications on sexual satisfaction was explored by means of the Student's *t*-test comparing the ISS score of FM patients who were taking antidepressants (38.6±20.29) with those who were not (32.14±18.9). Sexual satisfaction did not differ between patients who did and did not use antidepressants.

Predictors of sexual satisfaction

The variables age, pain, use of antidepressants and current psychiatric comorbidity were correlated with the ISS scores. These four variables were en-

Table III. Pearson product-moment correlation and regression weights (β) of multiple regression analysis predicting sexual satisfaction from four predictors: age, pain, use of antidepressants and psychiatric comorbidity.

	r	Adjusted r	β	t	p-value
Age	0.104	0.062	0.141	0.504	0.616
Pain	0.081	0.027	0.194	0.221	0.826
Use of antidepressants	0.144	0.069	2.796	0.564	0.575
Current psychiatric comorbidity	0.331	0.299	12.467	2.449	0.017*

tered into a multiple regression analysis to examine their relative predictive contribution to individual differences in sexual satisfaction.

The multiple regression analysis showed that the presence of current psychiatric comorbidity has a significant impact on sexual satisfaction ($\beta=12.47$, $t=2.45$, $p=0.017$), and also the correlation confirmed the relation between these two variables ($r=0.3$ and adjusted $r=0.29$) (Table III).

Discussion

Our results show that the total of the FM patients recruited had a poor quality of sexual life, concerning the emotional aspects of sexual life, compared to age- and sex-matched controls. It seems that the presence of a psychiatric comorbidity, and in particular the presence of a current psychiatric disease, increased disability and sexual life of patients. In fact, FM patients with a current psychiatric disease had mean FIQ values and mean ISS values significantly higher than only FM patients and the controls.

The most intriguing result is that the FM patients without psychiatric comorbidity did not differ from controls regarding sexual satisfaction detected by means of the ISS questionnaire.

Moreover, we did not evidence differences in TP number or VAS pain between the three groups of FM patients. From the results of multivariate analysis it seems that the presence of a current psychiatric disease has more weight than pain on sexual satisfaction. We can hypothesise that psychiatric current comorbidity plays an important role in worsening the sexual life of FM patients.

Our results refer not only to a sample of pre-menopausal patients but also include post-menopausal patients affect-

ed by fibromyalgia with and without psychiatric comorbidity with a current or lifetime disease. The originality of our work is represented by an accurate assessment of psychiatric comorbidity through a Structured Clinical Interview administered by a psychiatrist. Moreover, the assessed psychiatric comorbidity did not only include major depression, but also bipolar and panic disorders. In fact, our Unit has significant experience in mood disorders that allows us to make accurate diagnoses on disorders that are often misdiagnosed bipolar (Bipolar disorder II often diagnosed as Depression).

The reason for disturbed sexual satisfaction and functioning could be related to the use of antidepressant drugs but we have seen that it is not so in our sample of FM patients.

Unlike the articles in the literature which focused the study of sexual impairment using a questionnaire that specifically evaluates sexual functioning, we used, for the first time, a questionnaire that gives indications as to the emotional impairment of sexual life, in order to evaluate sexual satisfaction, which is scarcely investigated in FM patients.

Although people with FM have a high prevalence of sexual dysfunction, only a few studies have been carried out on sexual function in FM patients. Unfortunately, talking about sexuality is often considered embarrassing to both the physician and patient, and for this reason many sexual problems related to FM remain unknown.

Scientific studies show that this disease is related to several female sexual dysfunctions such as a decrease in sexual arousal, orgasmic experience alterations, increased coital activity-related pain, and, even if the questionnaires used are often different, they are con-

sistent in stating that all dimensions of sexual functioning are disturbed in FM patients. (19, 20).

Several articles have reported that sexual dysfunction appears to be particularly associated with the degree of depression, even if the investigation of the role of depression in sexual dysfunction of patients with FM has resulted in conflicting results.

Aydin *et al.* (10) found an association between sexual dysfunction and depression in a sample of premenopausal women with FM.

On the other hand, Tikiz *et al.* (21) reported that only widespread pain was associated with sexual dysfunction in FM patients and the presence of major depression had no additional negative effect on sexual function.

Prins *et al.* (22) found that FM patients reported more problems with sexual desire and satisfaction. They also stated that mental distress, but not pain, was a significant predictor of virtually all aspects of sexual dysfunction. Lange and Peterman (23) in a recent systematic review concluded that FM patients with depressive symptoms show more sleep disturbances, loss of physical function level, lower quality of life and sexual dysfunction. Also Yilmaz *et al.* (24), in their last article published on sexual dysfunction in FM patients, stated that FM had negative effects on female sexual function and this was worsened by the presence of depression.

A limitation of our work concerns the difficulties in assessing the influence of patients' medications because their use was evenly distributed among the various groups. Another limitation is that the sample of healthy subjects is relatively small but, due to the difficulties connected with discussing the topic, it is not easy to recruit people who are matched with patients. Moreover, the study was performed in a single center, not a multicenter and so it cannot be generalised to the whole population.

Conclusions

In conclusion our study shows that the sexual satisfaction of FM patients, measured by the ISS, is affected by the

presence of psychiatric comorbidity. In particular, the presence of a current psychiatric disease appears to have considerable weight in the sexual part of the relationship, suggesting that emotions may play a crucial role in the sexual life of FM patients.

Given the importance that the issue of sexual aspects has in relation to the quality of life, we support the importance of an interdisciplinary treatment (25). The assessment of psychiatric comorbidity should be included in the routine diagnostics of FM in order to develop prevention and treatment strategies in collaboration with gynecologists and psychiatrists.

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