Fibromyalgia and sexual problems

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SUMMARY

The aim of this review was to describe the recent literature concerning sexual dysfunction in fibromyalgic patients. To this end, we used the common online databases PubMed, MEDLINE and EMBASE (up to June 2012) and searched for the key words *fibromyalgia* (FM) and *sexual dysfunction*. All the studies examined underlined that FM is strictly associated with sexual dysfunction in women. The major findings observed were related to a decreased sexual desire and arousal, decreased experience of orgasm, and in some studies an increase in genital pain. The psychological aspects, together with the stress related to the constant presence of chronic widespread pain, fatigue and sleep disturbances, are certainly a major factor that adversely affects the sexuality of the patient with FM. Moreover, the drugs most commonly used in these cases may interfere negatively on the sexuality and sexual function of these patients. Therefore, the therapeutic intervention should be targeted and the side effects should be weighed up against the positive effects. It is of the utmost importance to recognise the problem of sexuality and sexual dysfunction in a more complex form of its expression and undertake a multidisciplinary therapeutic intervention to improve the quality of FM patients' life.

Key words: *Fibromyalgia, sexual dysfunction, female.*

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INTRODUCTION

Fibromyalgia (FM) is a controversial musculoskeletal pain disorder estimated to affect from 200 to 400 million people worldwide (1). As defined by the American College of Rheumatology, it is a condition of chronic (≥3 months) widespread pain, with pain perceived on palpation of at least 11 out of 18 tender point sites throughout the body (2). In addition to pain and tenderness, patients with FM also report secondary but invalidating symptoms, including sleep disruption, fatigue, depression, anxiety, memory and concentration problems, headaches, numbness/tingling, and other symptoms (3). Therefore, new criteria focusing on the dysfunctional disorders associated with widespread pain have been proposed (4). FM may cause functional disability and have a significantly negative effect on quality of life (5). The prevalence of FM increases with age and it is especially more frequent at or near menopause (6). In the last few years sexual dysfunction has also been ranked in the context of the disorders more frequently complained of by FM patients and, to support this, an abundance of scientific papers have been published addressing and investigating the problem (7). Whether or not they are pathophysiologically connected to FM, the fact remains that FM patients are unequivocally more prone to develop sexual dysfunction compared to healthy controls. The leading causes for the greater incidence of sexual problems include contact-avoidance behavior due to tenderness, depression, fatigue and the effect of medications, but a history of sexual abuse, frequently reported by women affected by FM, may also contribute. Understanding the association between sexual dysfunction and FM is of importance for the development of prevention and treatment strategies.

The aim of this review was, therefore, to describe the recent literature concerning sexual dysfunction in FM patients. We shall attempt to describe what is currently known about the association between FM and sexual dysfunction in women. Attention will be directed towards possible

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mechanisms of such association, through a careful analysis of the instruments used, as well as the burden of psychiatric comorbidity. Finally, the changes in the various phases of the sexual cycle and the impact of sexual dysfunction on quality of life will be investigated.

METHODS

For this review article, we searched the common online databases PubMed, MEDLINE and EMBASE (up to June 2012) using the key words *fibromyalgia* and *sexual dysfunction* and reviewed all the relevant articles in English (35 articles were identified). Moreover, we consulted an expert in sexology to evaluate the methodological approach and the choice of sexual evaluation tools.

RESULTS

In the last few years, numerous studies concerning the association between FM and sexual dysfunction have been published. In Table I we reported the most common tools used to investigate the FM sexual impairment. In Table II we presented a brief report on the main results.

In the first study of sexual dysfunction in FM patients, De Costa et al. (8) compared 20 women affected by FM with 20 healthy controls using the Beck Depression Inventory-II (BDI-II) and Sexual Experience Questionnaire (SEQ). The patients with FM showed significantly greater modification in sexual activities (P=0.01), greater difficulty in having orgasm (P=0.01), and were more likely to masturbate (P=0.053). The main problem with this work was the small sample size and the differences in age between the FM patients and the control group. In the study by Tikiz et al. (9), 40 female FM patients were studied using the Female Sexual Function Index (FSFI) (10). An important aspect of this work was the presence of mood impairment evaluation; in fact, 27 of these females suffered from depression. The main result of this study was that the reduction of FSFI was significantly decreased in the FM and FM plus

Table I - Main results of the studies that evaluated the association between fibromyalgia and sexual dysfunction.

Study	Female FM group: number (age)	Female control group: number (age)	Sexual evaluation tools	Psychiatric evaluation tools	Other evaluations
De Costa et al. 2004	20	20	SEQ	BDI-II	
Tikiz et al. 2005	40 27 with depression comorbidity	33	FSFI	DSM-IV interview, HRSD	FIQ, Lattinen pain scale
Shaver et al., 2006	442	205	Telephone survey: questionnaire of 10 sexuality items		
Prins et al., 2006	63 (21-54 yrs)	66 (20-55 yrs)	QSD-SF		RAND SF-36 Health survey
Kool et al., 2006	63 (21-54 yrs)	-			
Aydin et al., 2006	48 (37.5±5.7 yrs)	38 (36.7±6.7 yrs)	FSFI	STAI, BDI-II	TP, VAS pain, biochemical analysis
Ryan et al., 2008	60	-	Questionnaire of 11 items	-	-
Orellana et al., 2008	31 (49.6±7.5 yrs)	20 (45.9±8.5 yrs) 26 patients with RA (50.6±10.1 yrs)	CSFQ	STAI, BDI	VAS pain
Ablin et al., 2011	50 (24-66 yrs)	55 (25-66 yrs)	ASEX	-	TP
Yilmaz et al., 2012	126	132	FSFI	BDI-II	TP, FIQ, VAS pain

FM, fibromyalgia; SEQ, Sexual Experience Questionnaire; BDI-II, Back Depression Inventory; FSFI, Female Sexual Function Index; DSM, Diagnostic and Statistical Manual of Mental Disorders; HRSD, Hamilton Rating Scale for Depression; FIQ, Fibromyalgia Impact Questionnaire; QSD-SF, Questionnaire for screening Sexual Dysfunctions - Short Form; STAI, State-Trait Anxiety Inventory; TP, Tender Points; VAS, Visual Analog Scale; CSFQ, Changes in Sexual Functioning Questionnaire; ASEX, Arizona Sexual Experience Scale.

Table II - Domains results of the sexual questionnaires utilized for patients with fibromyalgia.

Study	Desire	Arousal	Orgasm	Satisfaction	Lubrication	Genital pain	Genital insensitivity
De Costa et al., 2004			Low				
Tikiz et al., 2005	Low	Low	Low	Low	Low	Yes	
Shaver et al., 2006	Normal	Low	Low	Low	Low	Yes	
Prins et al., 2006	Low	Normal	Normal	Low	Normal		Yes
Aydin et al., 2006	Low	Normal	Low	Low	Normal	Yes	
Orellana et al., 2008	Low	Low	Low	Low	----		
Ablin et al., 2011	Low	Low	Low	Low	Low		
Rico-Villademoros et al., 2011	Low	Low	Low	Low	----		
Yilmaz et al., 2012	Low	Low	Low	Low	Low	Yes	

major depression groups compared with that in the healthy controls (21.83±5.84 and 22.43±7.00 *vs* 28.10± 6.52, respectively; P=0.001). Moreover, women with FM and FM plus major depression had significantly lower values of all FSFI parameters (*i.e.*, desire, arousal, lubrication, orgasm, satisfaction, and more frequently experienced pain during or after vaginal penetration) in comparison with the healthy controls. No significant difference was found between FM and FM plus major depression patients. The authors concluded that female patients with FM have a distinct sexual dysfunction compared with healthy controls, and that coexistent major depression has no additional negative effect on sexual function.

Shaver et al. (11) evaluated sexual impairment in 442 patients with FM and in 205 controls by telephone interviews. After controlling for demographic data, marital status, educational status and the presence of a diagnosis of major depression, they found that FM patients had significantly more negative changes in sexual function than women without FM. In particular, they found that women with FM showed a significant decrease in sexual arousal and excitement, a decrease in orgasm and self-pleasure/masturbation, an increase in vaginal tightness during penetration, and in pain during intercourse. On the other hand, women with FM did not show any decline in sexual desire compared with healthy controls.

Prins et al. (12) examined the sexual functioning of 63 women with FM using the Questionnaire for screening Sexual Dysfunctions - Short Form (QSD-SF). The authors examined sexual functioning at the specific phases of the sexual response cycle in 63 premenopausal women with FM (21-54 yrs) using the QSD-SF. The authors found that women with FM reported more problems with the most common sexual activities in the desire phase (Mann-Whitney test: -3.36) and with sexual satisfaction (Mann-Whitney test: -2.059, P<0.05) than controls, while none of the scales of the sexual excitement phase and the sexual orgasm phase showed a difference between patients and controls. Moreover, women with FM reported more problems with genital insensitivity (Mann-Whitney test: -2.217, P<0.05) as well as pain in other parts of their body before, during and after having sexual contact with their partner (Mann-Whitney test: -8.543, P≤0.001). The authors stated that mental distress, but not pain, was a significant predictor of virtually all aspects of sexual dysfunction and that the psychological, but not the physiological, aspects of the sexual response cycle appear more disturbed than normal.

A short report was published by Aydin et al. (13) who studied the sexual status in 48 female patients with FM by means of the FSFI. All the patients and controls were evaluated in terms of anxiety by means of the State-Trait Anxiety Inventory (STAI) and in terms of depression by means of the Beck Depression Inventory-II (BDI-II). The serum hormonal levels were also evaluated. The mean total FSFI score of patients was significantly lower than the score for the controls (21.6±1.1 *vs* 26.5 ±0.8, P=0.001). Analyzing the subscores of

FSFI, the most common sexual problem in patients with respect to controls was: diminished desire (3.1±0.2 *vs* 3.9±0.2, P=0.003), orgasm (3.6±0.2 *vs* 4.5±0.2, P=0.007), satisfaction (3.4±0.2 *vs* 4.6±0.2, P=0.000) and pain (3.9±0.3 *vs* 5±0.2, P=0.002). The most common sexual problem was diminished desire in patients with respect to controls (62.5% *vs* 28.9%). The proportion of subjects with a decreased score for sexual desire, arousal, orgasm satisfaction and pain domains, but not the lubrication domain, was significantly greater in patients with FM than in controls. These results are consistent with previously published reports. The BDI-II scores for FM patients were significantly greater than those for the controls and, according to the authors, this might be related to diminished desire and/or arousal, and to the fact that depression is a risk factor for Female Sexual Dysfunction (FSD). In the correlation analyses, FSFI showed a significant negative correlation with the BDI-II score (r=-0.403, P=0.005) and the STAI score (r=-0.413, P=0.004) only in FM patients.

In the work by Kool et al. (14), the strongest predictor of problematic sexual functioning in women with FM was a low degree of relationship satisfaction. In 2008, Orellana et al. (15) investigated the prevalence of sexual dysfunction in 31 women with FM, the impact of FM on sexual activity and the factors associated with sexual dysfunction in these patients. They also studied the sexual dysfunction in 26 patients with rheumatoid arthritis (RA). Sexual dysfunction was more frequent among FM patients (97%) than in RA patients (84%) but with no statistical difference. All domain scores of the Changes in Sexual Functioning Questionnaire (CSFQ) were significantly lower in FM and RA patients compared to controls. Patients with FM showed a significantly higher pain score compared to both RA (79.4 *vs* 44.4, P=0.0001) and the control group (79.4 *vs* 35, P=0.0001). Moreover, the percentage of patients with moderate to severe depression among patients with FM was very high (77.4%) and significantly higher than in the RA patients (29%, P<0.0002) and the controls (8%, P<0.0001). In the multivariate analysis, only the intensity of depression was independently and inversely associated (P=0.012) with the sexual dysfunction in patients with FM. The authors stated that it is difficult, or practically impossible, to evaluate whether the main factor leading to sexual dysfunction is depression or FM. However, the authors concluded that sexual function in FM patients was very frequently and severely impaired and this appeared to be particularly associated with the degree of depression. In the work published by Ryan et al. (16), 78% of the 60 female patients recruited stated that FM limits sexual intercourse in some way.

More recently, Ablin et al. (3) published another study on sexual dysfunction in FM patients. In this case, the author studied sexual impairment among 50 female FM patients (24-66 yrs) using the Arizona Sexual Experience Scale (ASEX) and found that FM patients had significantly lower scores on all the five aspects of sexual function assessed, *i.e.,* sexual drive, sexual arousal, vaginal wetting, orgasm and sexual satisfaction (ANOVA F=52.9, P<0.0001, F=79.0, P<0.0001, F=59.3, P<0.0001, F=47.1, P<0.0001, F=41.0, P<0.0001, respectively). The authors also found positive correlations between the tender point counts and sexual satisfaction, sexual arousal and orgasmatic scales. The findings in this article are in contradiction with those by Prins et al. (12) who documented a less pervasive impairment of the aspects of sexual function. In their study, Prins et al. (12) linked the tender point counts to muscular tenderness, which is negatively correlated with the various parameters of sexual function. However, this work has some limitations: there were differences between FM patients and controls in the level of employment, level of education and in the percentage of immigrants, which might be confounding factors on the various parameters of sexual function.

In a recent work published by Yilmaz et al. (17), the authors investigated the relationship between clinical parameters of FM and sexuality. In particular, the authors studied the FSFI, tender point count, BDI-

II, Fibromyalgia Impact Questionnaire (FIQ), and Visual Analog Scale (VAS) of 126 females with FM and 132 healthy controls. They found that the FM patients had higher BDI-II scores and a lower frequency of sexual intercourse than the control subjects. Moreover, the mean FSFI scores (total and all domains) were significantly lower in FM patients than the controls. In light of this data, they suggested that FM had negative effects on sexual function, and a decrease in sexual activities was aggravated by depression, as suggested by the correlation with BDI-II. All sub-items of the FSFI were still lower in patients with fibromyalgia and depression compared to patients with fibromyalgia alone, except for the aspect of lubrication. Pain during intercourse was statistically higher in FM patients with depression. However, Yilmaz et al. (17), did not detect a reduction in the FSFI score in relation to pain.

DISCUSSION

Sexual dysfunction is common, affecting about 45% of women at least once during their lifetime (18). In an Italian study, performed using the FSFI, the percentage of women with a score under the mean was 24.4% (19).

The most common risk related to the self-administration of questionnaires assessing sexual trends is that the answers given may be not completely truthful because of poor social acceptability. This drawback is mitigated by the fact that the questionnaires are administered anonymously. Disorders in sexual behavior were observed more frequently in women with FM compared to healthy controls, as evidenced by several authors.

Several studies report a rate of sexual dysfunction in patients with chronic pain, and since FM is characterized by chronic widespread pain we expect the same relationship. In most studies, the pain is only moderately correlated with sexual dysfunction, and in certain subgroups of patients it is not associated with it (11) or it plays a weak predictive role. Tikiz et al. (9) reported that only widespread pain was associated with sexual dysfunction in patients with FM and that the coexistence of depression is not an additional factor. On the other hand, Orellana et al. (15) reported that even if the pain of FM patients is higher, it seemed related to depression levels. The VAS pain may be directly correlated with local pain - *e.g.*, vulvodynia, as has been reported in 21% of patients, and interstitial cystitis and burning pain during urination, as reported in 21.7% of FM patients - and it appears to significantly interfere with the psychological aspects of sexuality, as demonstrated by the decrease of sexual desire. Indeed, several authors have confirmed that the reduction in desire, probably the most common sexual problem in FM, can be identified with the difficulty of having positive feelings (20). In all the studies, the patients rated low on the satisfaction index. This is an important observation of the discomfort of FM patients within the sexual relationship and suggests the need for strategies and therapeutic interventions, including a cognitive-behavioral therapy with the sexual partner. In addition, some psychological aspects associated with pain, such as depression, feelings of catastrophization, fear leading

Table III - Balance between organic and psychological aspect in fibromyalgic patients.

Organic factors that influence sexuality in FM	Psychological factors that influence sexuality in FM
Chronic pain	Anxiety
Widespread pain	Depression
Vaginismus, pelvic pain, coccydynia , etc.	Catastrophization
Irritable bladder	Alexithymia
Pre-menstrual syndrome	Chronic stress, post-traumatic stress disorders
Sleep disorders	Sleep disorders
Drug effects	Drug effects

FM, fibromyalgia.

to avoidance behaviors of the desire itself, may suppress sexual desire (21).

As suggested by Yilmaz et al. (17), the factors accompanying FM such as stiffness, fatigue, and sleep disorders, and those affecting sexual life, such as body image, premorbid sexual functioning, life stress, coping abilities, sexual attractiveness, and skills of the partner may contribute to sexual function.

The psychological and physical factors, together with the stress related to the constant presence of chronic widespread pain, fatigue and sleep disturbances, are certainly major factors that adversely affect the sexuality of the patient with FM (Table III). The causes of FM are unknown, but physical and psychological trauma seem to be important. A history of sexual abuse is frequently related to FM, with direct effects on sexuality (22).

The genital response involves both sympathetic and parasympathetic components of the nervous system and both central and peripheral components. Perturbed activation of the sympathetic nervous system has been found in FM patients. Unlü et al. (23) found altered autonomic functions in FM patients that were not correlated with sexual dysfunction unlike depression and anxiety. Genetic factors are also important, resulting in an increased susceptibility to stressors (24). Mood disorders, especially major depression and anxiety, play an important role in FM. Nonetheless, it is difficult to assess the individual weight of these factors. FM is a non-homogeneous syndrome and in many studies depression and mental distress appear related to sexual dysfunction. These observations seem to indicate that sexual dysfunction in FM is related to a psychological more than to a physiological disorder. Moreover, the drugs most commonly used to reduce the pain in these patients (*e.g.*, selective serotonin reuptake inhibitors, serotonin and noradrenalin reuptake inhibitors and muscle relaxants) may negatively interfere on sexuality and sexual function. However, the burden of mood disorders and the influence of drug therapies are important, especially the influence of the latter on sexual function has not yet been evaluated. Therefore, the therapeutic intervention should be targeted and side effects should be weighed up against positive effects, for example by using the lowest effective dosage to reduce pain. It is of the utmost importance to recognise the problem of sexuality and sexual dysfunction in a more complex form of its expression and undertake a multidisciplinary therapeutic intervention to improve the quality of FM patients' life. Sexuality is such a fundamental aspect of life since it is related to sexual drive and the reproductive function, and it is also an important domain in the quality of life because it is related to pleasure. Further studies are needed to explain the individual weight of the plethora of FM symptoms on sexuality. A final question is to check whether sexual dysfunction is one of the causes of FM syndrome.

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