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Sex and pain: sexual satisfaction and sexual function in a sample of patients with chronic, non-pelvic pain

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ABSTRACT

Introduction: Most research is conclusive in relating chronic pain and decreased life quality in relationships. However, the sexual factor is not usually specifically analysed.

Design and methods: The aim of this study is to undertake a bibliographical review, divided by analgesic groups in order to focus on how painkillers influence sexual responses, and secondly, to describe the connection between pain and sexual response in non-cancer chronic pain patients.

Results: Results show that there is a high prevalence of sexual difficulties in Pain Unit patients. These difficulties are related to psychological alterations, type of pain and age of patients.

Conclusions: These results suggest that a multidisciplinary intervention, focusing on an exhaustive assessment of this problem, health education and sexual counselling, could contribute to improving the quality of life of our patients

Key words: Sexual dysfunction, chronic pain, antidepressant drugs, fibromyalgia.

RESUMEN

Introducción: La mayoría de los estudios son concluyentes al trazar la relación entre dolor crónico y disminución significativa de la calidad de vida. No obstante, no suele analizarse el factor sexual de una forma específica.

Material y método: El objetivo de este estudio consiste en realizar una revisión bibliográfica pormenorizada por grupos analgésicos para determinar de modo concreto la influencia del fármaco sobre la respuesta sexual y, en segundo lugar, describir la asociación entre dolor y respuesta sexual en pacientes con dolor crónico no oncológico.

Resultados: Los resultados reflejan que hay una alta prevalencia de dificultades sexuales en pacientes de las Unidades de Dolor. Estas dificultades están relacionadas con alteraciones psicológicas, con la tipología del dolor, con la edad y con el sexo de los pacientes.

Conclusiones: Estos resultados sugieren que desde las Unidades de Dolor se podría realizar una intervención multidisciplinar centrada en la valoración exhaustiva de esta problemática, educación sanitaria y asesoramiento en materia sexual, que contribuyese a la mejora de la calidad de vida de nuestros pacientes.

Palabras clave: Disfunción sexual, dolor crónico, antidepresivos, fibromialgia.

INTRODUCTION

Most studies are conclusive in relating chronic pain (CP) and a significant reduction in quality of life. Nevertheless, the sexual factor in is not usually analysed specifically. Sexuality is an integral part of human beings and involves a complex interaction of intrapsychic, interpersonal and social factors that play a role in its development and maintenance, a characteristic psychophysiological expression, a combination of physical and mental changes

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that represent a sexual response and is associated with quality of life.

Sexual response involves the endocrine, vascular, neurological and musculoskeletal systems. It is influenced by psychic, social, religious, family aspects and individual factors such as self-esteem and body image. A chronic illness may affect sexual life both in and organic and psychological sense (1).

Since the first systematized studies of sexual behaviour (of which Kinsey, and later Masters and Johnson were pioneers) up to contemporary research, results have been obtained that help to clarify the risk factors that contribute to establishing sexual dysfunction (SD). These studies show that 52% of women and 38.8% of men studied show one or more SD (2). A large number of population surveys show that SD is highly prevalent in the general population and increases with age, even though personal distress and reactive anxiety is reduced. These surveys show that in the USA, 40% of women and 30% of men have SD. The general study recently carried out, the Global Study of Sexual Attitudes and Behaviours, which included more than 29 countries and 27,500 persons showed that SD figures were practically identical to previous investigations. This study found that the most frequent SD was premature ejaculation (14%) and erectile dysfunction (10%) in males, and lack of sexual interest (21%), inability to achieve orgasm (16%) and difficulties with lubrication (16%) in women. In accordance with a recent review of SD epidemiology, this problem of growing prevalence with age at a worldwide level increases both in men and in women.

Furthermore, it is currently believed that pharmacological agents are the cause of more than 25% of SD and that these effects occur in all stages of sexual response, especially those with properties that inhibit serotonin and noradrenaline reuptake, frequently used in Pain Units (3).

SD can be defined it as a multi-factor combination of conditions associated with a number of anatomical, physiological, biological, medical and psychological aspects that may have a significant impact on self-esteem, quality of life, mood and relationships. This complexity is increased by the presence of chronic disease. Negative sexual effects have been broadly reported in studies of women with chronic diseases (such as metabolic syndrome, diabetes mellitus, chronic kidney disease, cancer, spinal cord injury, lupus, rheumatic diseases, Parkinson's, fibromyalgia and CP). Physical problems, emotional problems and the difficulties of association that arise from disease-related stress contribute to less active and less satisfactory sex life. CP, fatigue, low self-esteem and the use of certain drugs may also reduce sexual function and satisfaction. However, this effect of chronic disease on sexual response remains unknown, as there exist few investigations into the influence of CP on SD, exception diseases specifically associated with the pelvic floor (4).

Clinical reality shows that more and more patients that attend Specialized Pain Units and present clinically significant discomfort associated with sexual relationships that requires intervention by Clinical Psychology.

The objective of this study consists of determining the relationships between pain and sexual response in patients with a diagnosis of non-cancer CP. It excludes diagnosis of pelvic floor pain and other pain directly related with sexual pathologies, such as vulvodynia, proctalgia, vaginismus, or dyspareunia

The relationship between certain analgesic drugs and sexual response is well documented. Some substances like (5) thiazides, calcium channel blockers, angiotensin precursor enzyme inhibitors, anticholinergics, antidepressants, antiandrogens, ketoconazole and spironolactone may cause SD (6).

In the case of patients treated with gabapentin, pregabalin and anticonvulsants, the appearance of SD is a frequent side effect. Gabapentin and topiramate have been associated with orgasmic dysfunction in men and women, and reduced libido among women. Second-generation anticonvulsants offer the advantages of fewer side effects, including effects relating to sexual activity. The increase in serotonin concentration could be the origin of SD related with treatment using gabapentins in doses greater than 1,800 mg/day. Progressive decrease improves sexual symptomatology. That is, they seem to cause a dosage-dependent effect (7).

As regards antidepressants (AD) we have sufficient evidence to suggest that they cause SD both in men and in women, particularly those with strong serotonergic properties. However, it is difficult to estimate exact prevalence, as up to 70% of patients with depression may also have SD that could affect any stage of sexual activity. Selective serotonin reuptake inhibitors (SSRIs) and selective noradrenaline reuptake inhibitors, such as venlafaxine, desvenlafaxine and mirtazapine, inhibit desire, cause erectile dysfunction and reduce vaginal lubrication. Additionally, they limit orgasms in 5-71% of patients. As regards tricyclic drugs and monoamine oxidase inhibitors (MAOIs), they are associated with SD, specifically with respect to sexual desire and orgasm. The effects of specific drugs vary according to their mechanism of action. For example, clorimipramine is associated with orgasmic

difficulties in up to 90% of patients, while nortriptyline causes more erectile dysfunction, but has less effect on orgasm.

The only data regarding the use of antidepressants and sexual function in patients with fibromyalgia are taken from studies by Prins et al. and Orellana et al. (8,9). While Orellana et al. (8) did not find that treatment with AD is associated with SD, Prins et al. (9) described a greater impact on the arousal stage among women who received treatment with AD.

It has also been found that long-term therapy with opioids has a significant impact on the hypothalamic pituitary gonadal axis, which may appear clinically by SD. This circumstance is rarely reported by patients and, therefore, usually goes unnoticed and under-treated (10).

It has also been shown that treatment with these drugs affects the plasmatic levels of testosterone. Accordingly, their chronic administration can cause deterioration in testosterone and the means available to restore and maintain this hormone's physiological level. The endocrine changes that occur during treatment may play a role in body dysfunctions (11). The effects reported in male sexual function are alterations in sexual interest, delayed ejaculation and erection failure, and among women, alteration in sexual interest.

A special case is tramadol, a centrally-acting analgesic that combines activating opioid receptors and inhibiting serotonin and noradrenaline reuptake, which combines the side effects of both physiological processes, delaying ejaculation in males (12) and affecting desire and arousal (13).

In the case of the benzodiazepines, the results are not so clear; they have been related with orgasmic delay and erectile dysfunction in males and with inhibition of desire and orgasmic delay in females (13).

Human sexual response was first conceptualized by Masters and Johnson in 1966 after observing the sexual behaviour of over 300 men and the same number of women in a total of 10,000 sexual sequences that represented a major advance in the field of medicine and sexology. They described the following stages:

a) Arousal: excitement from physical or psychological stimuli and is shown physiologically by lubrication and erection. It is a phenomenon of vascular congestion.

b) Plateau: in this phase, levels of arousal are intensified and stay at high levels. They have variable duration and are shown by increased heartbeat and blood and muscular pressure, sweating, swelling of external and internal genitals and its attainment depends on different psychological, neural, endocrine and vascular interactions.

c) Orgasm: final result of the sexual relationship. High point of maximum and uncontrollable pressure, accumulated from the outset. Maximum feeling of pleasure.

d) Resolution: final stage of sexual behaviour characterized by recovery of baseline values, flaccidity of external organs and drop in vascular congestion. It is accompanied by intense relaxation and significant physical fatigue, with variable duration between several minutes and one hour. During this stage it is common that the males cannot perform a new sexual relationship.

Subsequently, Kaplan, in 1978, included a new stage, the desire phase, prior to the above, characterized by thoughts, behaviour and desires to have sexual relationships. A brain activation occurs, releasing hormones and neurotransmitters responsible for the sexual response.

In the referenced research, the phases of arousal-plateau are grouped together and influence of the resolution phase is not mentioned.

Below we summarize, in Figures 1 and 2, the repercussion of different drugs on each one of these stages, segregated by gender.

In the case of males, the scientific evidence shows that opioids affect all stages, diminishing both desire and arousal, plateau and orgasm, compared with AD, which are responsible for the reduction in the capacity for arousal and orgasmic inhibition or delay. Anticonvulsants have a particular influence on this last stage.

In the case of females, the evidence is similar regarding

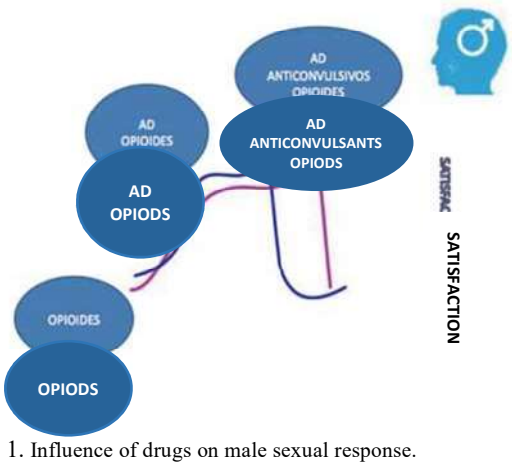

Fig. 1. Influence of drugs on male sexual response.

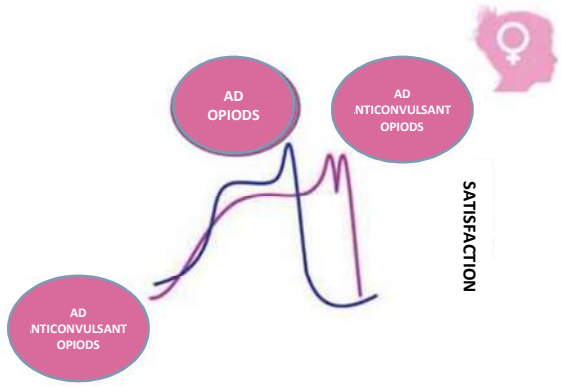

Fig. 2. Influence of drugs on female sexual response.

the influence of opioids, although they seem to be more vulnerable with AD, with interference also on the stage of desire, arousal, orgasm, therefore generating a decrease in the frequency of sexual relationships and in sexual satisfaction with less desire, less lubrication and arousability and low-intensity orgasms or anorgasmia.

Anticonvulsivants seem to influence the first and last stage, reducing desire, but with adequate vasomotor function, although with an attenuated or delayed final response.

Results regarding the resolution phase are not shown for any of the drugs studied.

Pharmacological or physiological factors associated with the diagnosis or treatment of CP are very relevant, although there also exists a decisive influence regarding sexual function associated with other biological factors, such as age, and social and emotional factors. For example, the lack of intimacy and confidence, communication difficulties in the couple, role changes and energy regulation associated with pain, inability to approach the partner, prolonged hospitalization and cultural non-acceptance of sexuality during illness, or during the aging process.

Additionally, while sexual function is affected by physical sensations, mobility and physiological changes in the genital region, the appreciation of intimacy is much less dependent on physical capacities. Accordingly, sexual dissatisfaction in chronic illnesses is highly variable and is significantly modulated by personal, social and relationship factors (13, 14). Ryan et al. show that 73% of those interviewed reported pain and other discomfort during sexual activity, such as problems during arousal, position, exacerbated pain, low confidence, performance problems relationship problems. All, except position difficulties, associated with less frequent sexual activity, reporting few differences between men and women.

Fractured vertebrae, arthritis and inflammation can also cause also a narrowing of spaces in the spine and where it leads to pinched nerves, causing numerous symptoms, including those related with sexual dysfunctions. Furthermore, sexual problems triggered by spinal stenosis and back pain also affect the patients' partner (15). The frequency and intensity of sexual activity may diminish, achieving orgasm may be more problematic than usual (for example, a couple may be reluctant to begin sexual activity or respond to the normal signs and the pain-free participant may be worried about harming their partner). Alcántara et al. (15) report that 80% of people affected by lumbago say that their sex life has been affected. There are two main complaints: fear of increasing pain intensity during or after sexual activity and the drop in sexual desire.

According to a number of studies, in rheumatoid arthritis, as well as other inflammatory illnesses, sexual problems affect between 31% and 76% of patients. Sexual disability in these cases is related to difficulty with certain positions during coitus, especially when involving a hip impairment, dyspareunia due to vaginal dryness in secondary Sjögren's syndrome, arthralgia and fatigue during coitus. The most significant determining factor in sexual disability among women has been associated with physical disability. Additionally, reduced desire has also been reported in 50%, a decrease in the frequency of coitus in 73% and a decrease in sexual satisfaction compared with levels before the disease. All determined mainly by pain, age and depression reactivates the functional disability (5).

There exist few controlled studies published regarding sexual impairment in the various rheumatic diseases and it is a subject rarely dealt with either in clinical visits or in rheumatology. In general, sexual impairment can be caused by: 1) sexual disability as the difficulty to carry out coitus, and 2) diminished libido with both a decrease in desire and in satisfaction.

In a systematic review, Tristiano (16) showed that, in patients with rheumatoid arthritis and ankylosing spondylitis, pain and depression could be the main factors that contribute to SD. Furthermore, among women with Sjögren's syndrome, systemic lupus erythematosus and systemic sclerosis, SD seems to be more associated with vaginal discomfort or pain during sexual relationships.

Fibromyalgia is a paradigmatic disease whose repercussion on sexual relationships is studied in detail. Ryan et al. (14) report that pain, rigidity, fatigue and other associated symptoms have a negative effect on sexual pleasure and on sexual impulse and the impact of drug therapy is the main reason. The symptoms associated with fibromyalgia had a negative effect on sexual pleasure. Hill (17) established that depression associated with fibromyalgia is the main cause of the appearance of SD; the negative effects of fibromyalgia on sexual function among women increased with depressive symptomatology. In the investigation carried out by Burri (4), women with widespread CP reported more difficulties with lubrication, more sexual pain and greater levels of sexual distress. The potential predictors of sexual problems were heterogeneous, and the relationship of dissatisfaction associated with lower levels of sexual function in every sphere. Prins (8) examined sexual function in the specific phases of the cycle of sexual response in fibromyalgia. The results showed that women with fibromyalgia did not differ from healthy women of a reference age group with respect to function in the arousal and orgasm phases, but reported more problems with sexual desire and satisfaction, more body pain and insensitivity (but not pain) in their genitals before during or after sexual relationships. Mental distress, but not pain, was a significant predictor of practically all the aspects of SD. Bazzichi (18), in 2013, investigated 140 women (100 with fibromyalgia and 40 healthy) regarding the influence of psychiatric comorbidity on sexual satisfaction. The results suggest that psychiatric comorbidity has more influence on sexual satisfaction among patients with fibromyalgia than the presence of the rheumatic disease itself. This finding suggests that emotional aspects can play a crucial role in sexual response and, in particular, among women with fibromyalgia and psychiatric comorbidity. Other studies (5,19) show that half the patients with fibromyalgia have altered SD, especially reduced sexual desire, reduced orgasm and pain with coitus. The factors involved are depression, irritable bladder, vaginismus, sexual abuse and myofascial pain.

In short, there is a high prevalence of SD in patients with CP that are treated in Pain Units. These difficulties are not simply related with mood or disability. The range of problems and dysfunctions reported by patients suggest that a multi-disciplinary intervention is required.

Table I shows a summary of the above information.

TABLE I
INFLUENCE OF DISEASES ACCOMPANIED BY FUNCTIONAL SEXUAL PAIN

CHRONIC PAIN (Basson, 2007) (Nicholas, 2001)	High prevalence of sexual problems 50% more than among the general population With comorbidity with anxiety/depression, greater SD
CANAL STENOSIS	It influences the frequency and intensity of sexual activity Generates delayed orgasm Mechanical causes: it also influences the couple for fear of causing harm
LUMBAGO	80% of patients report alterations in sexual function
RHEUMÁTISM	They produce greater levels of dissatisfaction They a reduction in desire (50%) and a reduction in frequency (73%) SD is influenced by: pain, fatigue, rigidity, functional disability, depression, anxiety, negative self-image, hormonal alterations and pharmacotherapy Two identified causes: - Functional disability to carry out coitus - Reduction in satisfaction due to lower sexual appetite
FIBROMYALGIA *(Yilmaz, 2012)* *(Prins, 2006)* *(Juvani, 2010)* *(Orellana, 2013)*	It is the disease most studied and most prevalent, as regards SD. 50% of patients refer reduced desire, delayed orgasm and pain during coitus Symptomatology is associated with: pain, rigidity and reduced desire. This is associated with: sexual dissatisfaction and reduced frequency in relationships: less lubrication, greater pelvic floor pain, greater sexual anxiety There is no difference regarding the general population between levels of arousal and orgasm Differences do appear in satisfaction and desire

MATERIAL AND METHODOLOGY

Cases were recruited from the Pain Unit and community alert controls and stratified by sex and age as regards case group.

Random sampling was carried out to select the experimental group of patients who attended the Therapeutic Unit for the Study and Treatment of Pain at the University and Polytechnic Hospital La Fe de Valencia during the month of March 2017, following the criteria below:

- Patients diagnosed with CP. The diagnoses of informants were grouped as follows to facilitate statistical analysis:
  - Purely neuropathic (comprising diagnoses of brachial plexus pain, trigeminal neuralgia and complex regional pain syndrome).
  - Nociceptive (comprising diagnoses of multi-level algias, metataralgia, polyarthralgia and trochanteric bursitis).
  - Mixed (comprising diagnoses of lower back pain, spondylolisthesis, capsulitis, knee pain).
  - Myofascial (comprising diagnoses of myofascial pain and fibromyalgia).
- Sexually active.
- Above 18 years' old
  - And who did not meet any of the exclusion criteria, set forth below:
  - CP associated with pelvic floor.
  - Serious physical disease in acute phase.
  - Serious mental illness.
  - No wish to participate.
  - No signature of informed consent.

Tools used, validated for the Spanish population and with acknowledged psychometric properties, were self-administered questionnaires with a maximum duration of no more than 15 minutes.

- ***Ad hoc*** questionnaire designed to reflect descriptive variables: level of education, employment situation, type of partnership, medical and psychological background and their characteristics, type of pain and drugs at the time of answering the questionnaire.
- VAS: Visual analog pain scale.
- Female CSFQ (20) / male CSFQ: this values overall sexual function and the different phases: desire, arousal and orgasm. In the scale corresponding to the Spanish population, the median score is 67.3 and SD = 12,8. The range of scores is as follows:
  - 29-59: low.
  - 60-69: medium.
  - 70-79: high.
  - 80-89: very high.
- NSSS (21) ***new sexual satisfaction scale****:* provides an overall assessment of 5 factor scores (sensation, awareness, exchange, closeness and sexual activity). There is no criterion approach: the higher the score, the greater the level of sexual satisfaction.

Data analysis was carried out with the SPSS package version 22. The differences between groups (case-control) in demographic and clinical variables were analysed with the Chi-square test for categorical variables and with univariate ANOVA for continuous variables. Subsequently, analysing the case group, ANCOVA was carried out including, as an independent inter-subject variable, gender (man-woman) and, as covariables, their pharmacological treatment (antidepressants, benzodiazepines, opiates and antiepileptic's) and sexual function and satisfaction as dependent variables. Another ANCOVA was carried out to analyse the influence of the pain type (neuropathic, nociceptive, mixed and myofascial) regarding sexual function and response, using the same covariables. ANCOVA was also carried out with the same covariables and dependent variables to analyse the influence of psychological background. Finally, a correlation was made between patients' pain intensity and sexual satisfaction and response.

RESULTS

Table II shows the differences between groups and controls in the socio-demographic and clinical variables. A total of 85 persons (n = 36 males and n = 49 females) took part in the investigation. 30% of them have university studies and 33% have primary studies or less. 45% were working at the time of the investigation. 83% live with their own family.

As regards medical background, 23% of the sample reports chronic medical antecedents (n = 19) such as diabetes, cancer or respiratory problems, etc. and 28.2% (n = 24) show antecedents related with mental health, anxiety-depression and adaptive equivalents.

The average rate of satisfaction of the whole sample is slightly lower the Spanish population, (X = 58.35, SD = 19.84) which stands at 67.3 and SD = 12,8 although it would be close to that of the control group.

TABLE II
SUMMARY OF RESULTS

	Control group	*Experimental group*	*Total*	
Sex	38.8 % (n = 33) F: 13 M: 20	61.2 % (n = 52) F:2 3 M: 29	N = 85 42.4 % (F: 36) 57.6 % (M: 49)	
Age	X = 50.07 (SD = 11.31)	X = 51.45 (SD = 11.11)	X = 50.27 (SD = 11.21) Mín. = 23 Max. = 73	T-T over 50 years old satisfaction t= -5.21 p = 0.000* Sexual function t = 4.63 p = 0.000 *
Diagnosis *Pure neuropathic* *Nociceptive* *N. mixed* *Myofascial*		5.76 % (n = 3) 23.07 % (n = 12) 51.92 % (n = 27) 19.23 % (n = 10)		Satisfaction S. Function S.
Medical antecedents			N = 85 77.6 % (n = 66)	
Psychological antecedents			N = 85 71.8 %(n = 61)	Sexual function f = 10, p = 0.002**
Pain (VAS)		X = 7.53 (SD = 1.65) Min. = 4 Max. = 9.8		Sex and pain intensity f = -0.21 and p = 0.125
Index of satisfaction	X = 69.42 (SD = 16.49)	X = 51.31 (SD = 18.65)	X = 58.35 (SD = 19.84)	Sex/satisfaction f = 0.44 p = 0.5 Pain/satisfaction t = -4.55 p = 0.000*
Sexual function	X = 51.70 (SD = 9.65)	X = 42.73 (SD = 13.75)	X = 46.21 (SD = 13.02)	Sex/function sexual f = 6.4 p = 0.013*** Pain/function sexual t = -2.45 p = 0.0002
Desire	X = 15.64 (SD = 3.81)	X = 13.08 (SD = 5.16)	X = 14.07 (SD = 4.82)	Sex/function sexual f = 7.69 p = 0.007 ** Pain/function sexual t=-2.45 p=0.016***
Arousal	X = 16.03 SD = 3.58	X = 12.90 SD = 4.09	X = 14.02 SD = 4.17	Sex/function sexual f = 1.2 p = 0.27 Pain/function ssexual t = -3.59 p = 0.0001*
Orgasm	X = 16.36 SD = 2.58	X = 13.75 SD = 3.69	X = 14.76 SD = 3.53	Sex/function sexual f = 9.66 p = 0.003 ** Pain/function sexual t = -3.54 p = 0.001*

* significant at p = 0.001; ** significant at p = 0.01; ***significant at p = 0.05.

Regarding sexual function, no reference values exist for the Spanish population. The values of our sample are stand (min = 15 and max = 77) at x = 46.21.

In the ANOVA analysis, significant differences exist between males and females in sexual function, in desire (F = 11.18 and a = 0.0001) and a tendency towards significance both in arousal (F = 8.38 and a = 0.005) and orgasm (F = 6.05 and a = 0.016), and to a lesser extent in the rate of satisfaction (F = 1.62, a = 0.20). Nevertheless, there does seem to exist a tendency to significance that could be achieved by increasing the sample. In general terms, in all functions the scores are higher in males. In short: males score higher although the difference is not significant between men and women except in desire, in favour of males.

If we conduct the study using average age (X = 50) as a cut-off point, we may conclude that: n = 47, over 50; n = 38, below 50). Sexual satisfaction (x = 49.53 and SD = 18.17) above 50 years old is less than in those under 50 (X = 69.24 and SD = 16.,22), and the same occurs in sexual function and its stages (X = 40.94 and SD = 12.25; compared with X = 52.74 and SD = 10.91). In other words, in general, younger persons report higher rates of sexual satisfaction and sexual function, and this difference is significant in all variables (T-Test for two independent samples).

Sexual satisfaction, sexual response and CP. The ANOVA analysis shows the difference between both groups as significant with a = 0.001, in all variables, both in satisfaction and in sexual function, and in this last variable, both in general function, and in the different stages (Table III).

Regarding pharmacological treatment, after the ANOVA analysis no significant differences appeared either with regard to rate of satisfaction or with sexual function among persons with antidepressant treatment. To determine the relationship between satisfaction and sexual function and drugs, we used a unifactorial design with each of the drug groups, with no significant differences appearing in of the associations studied, only a certain trend to significance between sexual function and antidepressants, with none of the other drug groups seeming relevant: anticonvulsants, benzodiazepines and opioids (Table IV).

Sexual response and sexual satisfaction according to type of pain have been studied by multivariate analysis controlling the drugs. We found a significant relationship in satisfaction (f = 5.15, a = 0.001), in sexual function (f = 5.05, a = 0.001) in arousal (f = 3.97, a = 0.006) and a certain trend to significance in desire (f = 2.46 and a = 0.052) and in orgasm (f = 3.16 and a = 0,.18). All this in favour of pure neuropathic pain, over myofascial, mixed and nociceptive.

Satisfaction and sexual function are preserved more among patients with pure neuropathic pain, more than patients with myofascial, mixed and nociceptive pain. If we analyse sexual function by stages, we find that desire and sexual arousal follow this same pattern, but in the case of orgasm, it is altered slightly in favour of nociceptive above mixed.

With respect to psychological antecedents, controlling drugs, they do not show an effect regarding satisfaction (f = 3.58 and p = 0.64) but there does seem to exist a trend towards significance in sexual function in the experimental group (f = 10, a = 0.002), specifically in desire (f = 16.11 and p = 0.000). However, if we include medical antecedents, controlling drugs, they have no effect as regards satisfaction (f = 0.81, p = 0.37) nor in sexual function (f = 0.23, p = 0.62).

Pain intensity, measured by VAS, shows that a correlation exists between sexual function and rate of satisfaction (f = 0.79, a = 0.000), although there was no association between pain intensity and sexual function (f = -0.215 and p = 0.125), nor between VAS and sexual satisfaction (f = -0.21 and p = 0.134).

Our investigation has analysed the independent variables using descriptive statistics and the results coincide with those presented by Basson et al. (1); when aiming to describe sexual function and its relationship with psychological measures in patients with DC, they found no relationship between pain intensity, duration and medical antecedents, although they did see a relationship between

TABLE III
TEST CONTROL Y EXPERIMENTAL GROUPS IN SEXUAL SATISFACTION AND FUNCTION

T-TEST for independent samples	*t*	*df*	*Sig. 2 tailed*
Index of satisfaction	-4.559	85	0.000
Sexual function	-3.267	85	0.002
Sexual desire	-2.452	85	0.016
Arousal	-3.598	85	0.001
Orgasm	-3.544 -3.831	85	0.001

TABLE IV
UNIFACTORIAL MANCOVA
ANTI-DPRESSANT DRUGS

	F	*Sig.*
Index of satisfaction	2.311	0.135
Sexual function	5.123	0.028

state of disability, age, several psychological variables and various domains of sexual function. They concluded that sexual problems are common among patients with DC, especially those that reported depression symptoms and anxiety. Similarly, the worst sexual function does not seem to be related with severity of pain, but with an age over 50, with gender and with antecedents of depression and anxiety. These results coincide with the literature. However, when we introduce the variables related with sexual function and satisfaction, they are actually surprising in the scope of our study.

The influence of drugs has not appeared to be especially relevant, except for a certain trend towards statistical significance in antidepressants (AD) on sexual satisfaction ($f = 2.31$ and $p = 0.13$) and human sexual response ($f = 5.12$, and $p = 0.028$). In any case, the literature regarding the impact of antidepressants on sexual function is very extensive and points to the fact that most antidepressants, but especially SSRI and SNRI (commonly used for fibromyalgia), are associated with a high frequency of SD. SD related with psychotropic is quite common with the usual serotoninergic and hyperprolactinaemic antipsychotics (50-70%). Deterioration of libido, orgasm and the function of arousal are frequent complaints that cause deterioration in quality of life. Conversely, noradrenergic, melatoninergic or dopaminergic AD have not shown evidence of SD as other authors report (3), where patients that received antidepressants had poorer sexual function in every dimension except desire and frequency, the differences being most marked in health controls regarding erection and orgasm, which would support our hypothesis. Among women with fibromyalgia who received antidepressants, they also presented worse sexual function in the dimensions of pleasure and desire-interest (14,18). Other AD normally used to alleviate neuropathic pain with demonstrated evidence (4) for their side-effects in sexual response such as amitriptyline or carbamazepine, were not found.

Regarding the rest of drugs, we have not been able to find this relationship and it seems that (12) satisfaction in sexual relationships can be significantly determined by age in the satisfaction with the sexual relationship and general satisfaction. They concluded that the dosage of morphine correlates significantly with the intensity of SD. Here could lie the key to the lack of significance, by not having considered either the time of administration nor dose.

With respect to typology of pain, the results coincide with updated bibliography, finding that sexual satisfaction and sexual function are preserved more among patients with pure neuropathic pain, above patients with myofascial, mixed and nociceptive pain. Tristiano (16) demonstrates that in patients with rheumatoid arthritis and ankylosing spondylitis, pain and depression could be the main factors that contribute to SD. It seems that when CP is of a neuropathic nature, it preserves sexual function more than when it is of a myofascial or nociceptive nature.

CONCLUSIONS

CP has a decisive repercussion on quality of life for persons who suffer it and on their environment. Sexual function is especially vulnerable in all its stages (desire, arousal, orgasm and satisfaction), as shown in standard consultations by at least 50% of these patients, although it is one of the parameters least investigated. This work aims to provide the key aspects in determining the factors that may play a role, such as age, type of pain, common psychological antecedents such as anxiety and depression, but not with the severity of pain or with low-dose or recently-prescribed drugs. Nevertheless, we should bear in mind that drugs commonly-used in treating pain may contribute to reducing patients' sexual functionality, to a lack of adherence thereto, to an absence of effectiveness, to their abandonment and a verified increase in health-care costs. The fact we have obtained no conclusive results does not mean that a prospective or longitudinal investigation may not appear in the medium term.

Health-care professionals should consider integrating patients' sexual needs and dysfunctions in the diagnosis and treatment of CP. Education and advice could contribute to a better quality of life despite their chronic disease (5).

The contribution of the American College of Rheumatology is useful by recommending an active sex life as a natural method of liberating endorphins, considered a natural strategy to control CP (22).

The main limitation of this project lies in not considering certain variables that could affect the results obtained, such as period of drug administration, the couple's emotional relationship and term of relationship, the period suffering CP, its characteristics, etc.

It would be interesting to continue and respond to these results with a longitudinal design and attempt to avoid the biases of the investigator and the control group in a subject so closely associated with the intimacy of personal relationships.

CONFLICTS OF INTEREST

The authors declare they have no conflicts of interest.

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