



# Comparison of sexual function in Tunisian women with rheumatoid arthritis and healthy controls

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## Abstract

**Objectives** To evaluate sexual function in Tunisian women with rheumatoid arthritis (RA) and to compare it with that in voluntary healthy controls.

**Methods** We conducted a cross-sectional study including 71 women with a confirmed diagnosis of RA according to the American College of Rheumatology/European League Against Rheumatism (ACR/EULAR) 2010 Criteria and 71 healthy age-matched controls. Clinical and sociodemographic characteristics were collected. Patients and controls were asked to complete the Female Sexual Function Index (FSFI). It contains 19 questions, assessing six areas of female sexual function in the previous 4 weeks. The sexual dysfunction was defined as an FSFI score less than or equal to 26.55. The patients' self-perception of their sexuality was assessed, and the frequency of sexual intercourse was noted.

**Results** The prevalence of female sexual dysfunction in women with RA was 49.3% versus 23.9% in controls, with a significant difference ( $p = 0.002$ ). Comparison between both groups as regards the mean of area scores of FSFI revealed that desire, arousal, and satisfaction in patients with RA were significantly lower than those in the control group ( $p = 0.05$ ,  $p = 0.038$ , and  $p = 0.024$ , respectively). The score of lubrication, orgasm, and pain was comparable between the two groups. In univariate analysis, a significant association was found between sexual dysfunction and pain ( $p = 0.001$ ), tender joint counts ( $p = 0.04$ ), DAS28 ESR ( $p = 0.043$ ), fatigue ( $p = 0.028$ ), and functional disability ( $p = 0.02$ ). No association was found between sexual dysfunction and treatment. In multivariate analysis, only pain was a predictive factor of sexual dysfunction in patients ( $p = 0.05$ , OR = 1.26 [1.16–1.3]). Based on patients' self-perception of their sexual function, 26.1% of patients reported a negative impact of RA on their sex life. According to them, the main factors influencing sexuality were joint pain (60.6%) and fatigue (51%). Moreover, 59% of patients reported a decrease in the frequency of sexual intercourse after the diagnosis of RA. However, no statistically significant difference was found between patients and controls in the frequency of sexual intercourse ( $p = 1$ ).

**Conclusion** Our study suggests that patients with RA experience high level of impairment of sexual function in comparison with a control group. Health providers must consider sexual function as an important part of quality of life. A therapeutic education directed towards a patient could be proposed to approach sexuality.

## Key Points

- The prevalence of female sexual dysfunction is higher in women with rheumatoid arthritis than in controls.
- In multivariate analysis, the global pain intensity visual analog scale was the only predictive factor of sexual dysfunction in patients.
- Based on patients' self-perception, joint pain and fatigue are the main factors influencing sexuality.

**Keywords** Rheumatoid arthritis · Sexuality

## Introduction

Sexual health is a state of physical, emotional, mental, and social wellbeing related to sexuality, not merely the absence of disease, dysfunction, or infirmity [1].

Female sexual dysfunction (FSD) is a common health problem affecting 20 to 50% of the population [2]. The

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definition of FSD used in clinical research was not uniform before the year 2000, where the International Consensus Development Conference on FSD defined it as a persistent or recurrent decrease in sexual arousal, dyspareunia, and difficulty or inability to achieve an orgasm which leads to personal distress and relationship difficulties [2].

Rheumatoid arthritis (RA) is the most common chronic inflammatory rheumatism affecting 0.3 to 1% of the adult population [3]. Some important consequences of RA, especially those relating to female sexuality, remain insufficiently considered and poorly documented [4].

In our Arabic and Islamic culture, the discussion of sexuality is often considered a taboo subject and studies on the sexual function of Tunisian women with RA are even rare. Only one study involving a small number of 10 Tunisian patients was performed [5]. Our study is the first in Tunisia to compare the sexual function of patients with RA with that of a control population.

## Methods

### Inclusion criteria

This study involved 71 patients with established RA, according to the criteria of the American College of Rheumatology/European League Against Rheumatism (ACR/EULAR 2010).

The control group consisted of 71 healthy age-matched women volunteers. They were not followed for rheumatologic pathology and randomly recruited from the accompaniment of patients.

All patients and volunteers were married and had a heterosexual activity within the last 4 weeks prior to the time of data collection. The local ethical committee approved the study. A written informed consent was obtained from the participants.

### Criteria of non-inclusion

Women or partners who have gynecological (or urological), neurological, psychiatric, and endocrine diseases or who take medications (antidepressants, neuroleptics) that may affect sexual function have not been included in the study.

### Data collection

Sociodemographic characteristics (age, level of education, living environment, professional status, age of partner, and duration of marriage) were documented for each patient and control.

In patients, disease duration and global fatigue intensity visual analog scale (VASF) were studied. Disease activity was evaluated by the global pain intensity visual analog scale (VASP), tender joint counts (TJCs), swollen joint counts

(SJC), erythrocyte sedimentation rate (ESR), and Disease Activity Score (DAS28) ESR. Functional disability was assessed by the Health Assessment Questionnaire (HAQ). Extra-articular manifestations and patients' treatment were noted.

## Assessment of sexual function

### Evaluation of sexual function by the Female Sexual Function Index

The evaluation of the sexual function of patients and controls was based on the Female Sexual Function Index (FSFI), in its validated Arabic version [6]. It contains 19 questions, assessing six areas of female sexual function in the previous 4 weeks. The global score is obtained by adding the scores of the different areas: desire (1.2–6), excitation (0–6), lubrication (0–6), orgasm (0–6), satisfaction (0.8–6), and pain (0–6). It ranges from 2 to 36. The definition of FSD was considered if the global score was less than or equal to 26.55.

### Evaluation of the self-perception of sexual function of patients with rheumatoid arthritis

The self-perception of sexual function of patients with RA was assessed by asking the following questions: “In your opinion, did RA have a negative impact on your sex life?” and “Are you satisfied with your sex life?”

In the case of negative impact, we noted the age of the onset of sexual difficulties, their onset time relative to the evolution of RA, and the reasons reported for these difficulties.

### Evaluation of the frequency of sexual intercourse

The number of sexual intercourse per month was specified for patients and controls.

## Statistical analysis

Data were analyzed using SPSS software package version 11.5 and expressed as range, mean, and standard deviation.

The correlation between two quantitative variables was performed using the Pearson test and between two qualitative variables using the chi-square test. Student's test was used to study the association between a qualitative and a quantitative variable. In the case of small numbers, the Mann and Whitney test was used. The significance level was set at  $p \leq 0.05$ .

Significant factors ( $p \leq 0.05$ ) were included in a logistic regression model to determine factors independently associated with sexual dysfunction. Results were presented as odds ratios (OR) with 95% confidence interval (CI).

## Results

### Demographic characteristics of patients and controls

The demographic characteristics of patients with RA and controls are listed in Table 1. No significant differences in demographic characteristics between both groups were found.

### Disease characteristics

The mean disease duration of RA was  $9.2 \pm 6.7$  years. The VASF was on average  $50 \pm 25.9$ , and the VASP was  $57.0 \pm 25.8$ . The TJC<sub>s</sub> and the SJC<sub>s</sub> were on average  $3.6 \pm 4.3$  and  $1.3 \pm 2.2$ , respectively. The mean DAS28 ESR was  $3.3 \pm 1.4$ . The HAQ was  $0.3 \pm 0.6$ . Eight patients had secondary Sjogren syndrome (SGJ). Thirty-one patients (43.6%) were on corticosteroid therapy. The mean dose of corticosteroid was  $5.3 \pm 2.2$  mg/day (2.5–15).

Sixty-one patients were on treatment. Forty-nine of them were taking *conventional synthetic disease-modifying anti-rheumatic drugs* (csDMARDs) distributed as follows: methotrexate ( $n = 36$ ), sulfasalazine ( $n = 9$ ), and leflunomide ( $n = 4$ ). Thirteen patients were taking *biologic disease-modifying anti-rheumatic drugs* (bDMARDs): rituximab ( $n = 1$ ), adalimumab ( $n = 3$ ), etanercept ( $n = 4$ ), and tocilizumab ( $n = 5$ ).

Seven patients were recently diagnosed and were in the process of initiation of treatment at the time of inclusion. Three patients were out of treatment for pregnancy desire.

### Sexual function index in patients with RA and controls

No patient had refused to reply to the questionnaire. Based on the FSFI, the prevalence of FSD was significantly greater in

the RA group (49.3%,  $n = 35$ ) than in the control group (23.9%,  $n = 17$ ) with  $p = 0.002$  (Table 2).

Comparison of the mean scores of FSFI areas between both groups revealed that desire, arousal, and satisfaction in patients with RA were significantly lower than those in the control group (Table 2).

### Parameters linked to sexual dysfunction in women with RA

A significant association was found between FSD and VASP ( $p = 0.001$ ), TJC<sub>s</sub> ( $p = 0.04$ ), DAS28 ESR ( $p = 0.043$ ), VASF ( $p = 0.028$ ), and HAQ ( $p = 0.02$ ).

However, the FSD was not significantly associated with the SGJ ( $p = 0.865$ ). It was also not related to the dose of corticoids ( $p = 0.504$ ) and to the use of csDMARDs ( $p = 0.230$ ) or bDMARDs ( $p = 0.856$ ).

In multivariate analysis, only the VASP was the predictive factor of FSD in patients with RA ( $p = 0.05$ , OR = 1.26 [1.16–1.3]).

### Self-perception of sexual function by patients with RA

Based on patients' self-perception of their sexual function, 26.1% ( $n = 18$ ) reported a negative impact of RA on their sex life, while 73.9% ( $n = 51$ ) were satisfied by their sexuality. The mean age of onset of sexual difficulties was  $43 \pm 2.1$  years [32–59]. The onset of sexual disorders in relation to the disease evolution was  $1.3 \pm 2.9$  years [0–12]. It was abrupt and concomitant to the diagnosis in 50% of patients. According to patients, the main factors influencing sexuality were joint pain (60.6%), fatigue (51%), sad mood (39.4%), morning stiffness (31%), sleep disorders (31%), and hip pain (16.9%). Eighty-three percent of patients ( $n = 59$ ) did not consider RA as an obstacle to different sexual postures. They adapted the postures to their joint pain.

**Table 1** Demographic characteristics of patients with RA and controls

Variables	Patients	Control	<i>p</i>
Age	47.6 ± 8.2	49.5 ± 7.8	0.314
Level of education			
Primary, <i>n</i> (%)	20 (28.0)	19 (26)	0.854
Secondary, <i>n</i> (%)	30 (42.5)	30 (43.2)	0.956
University, <i>n</i> (%)	11 (15.5)	7 (9.8)	0.348
Professional status			
Active, <i>n</i> (%)	34 (48)	43 (63)	0.073
Retired, <i>n</i> (%)	15 (20)	7 (10.3)	0.087
Housewives, <i>n</i> (%)	22 (32)	19 (26.7)	0.254
Living environment			
Urban, <i>n</i> (%)	40 (56)	56 (79)	0.985
Rural, <i>n</i> (%)	31 (44)	15 (21)	0.930
Duration of marriage (years) ± SD	20.3 ± 10.5	23.7 ± 13.8	0.946
Age of partner (years) ± SD	50.9 ± 8.0	52.1 ± 7	0.933

*n* number of patients, *SD* standard deviation

**Table 2** Comparison of the global score, the mean scores of FSFI areas, and the prevalence of dysfunction between patients and controls

Areas	RA ( <i>n</i> = 71)	Control ( <i>n</i> = 71)	<i>p</i>
Desire	2.92 ± 1.3	3.92 ± 1.3	0.040
Arousal	3.27 ± 1.5	4.49 ± 1.5	0.038
Lubrication	4.17 ± 1.4	4.57 ± 1.2	0.069
Orgasm	3.77 ± 1.5	4.18 ± 1.2	0.083
Satisfaction	4.41 ± 1.6	4.95 ± 1.2	0.024
Pain	5.31 ± 1.2	5.36 ± 0.9	0.757
Global score	24.51 ± 6.7	27.05 ± 5.3	0.013
Sexual dysfunction, <i>n</i> (%)	35 (49.3)	17 (23.9)	0.002

*n* number of patients, *RA* rheumatoid arthritis

## Comparison of the frequency of sexual intercourse between patients and controls

The frequency of sexual intercourse among patients averaged  $5.7 \pm 4$  per month [1–16]. It was  $5.9 \pm 3$  among the controls. The difference was not statistically significant ( $p = 1$ ). Twenty-nine patients (40.8%) and 32 controls (45%) reported having at least one weekly sexual intercourse. However, 59% of patients ( $n = 42$ ) reported a decrease in the frequency of sexual intercourse after the diagnosis of RA.

## Discussion

The prevalence of sexual problems in women with RA varies between 36 and 70% [5, 7–10]. This difference can be attributed to the diversity of the questionnaires used and the populations studied in terms of their sexual behavior, cultures, and habits [11].

Despite our reserved culture, we evaluated the sexual function of women with RA using a validated questionnaire. The prevalence of sexual dysfunction in RA patients was 49.3%. It was similar to that of a Chinese study (48.2%) [9] and to that of a Greek study (48.8%) [12]. However, the prevalence in our study was much lower than that reported in other Muslim populations. Indeed, in the Tunisian study by Frikha et al., 70% of women had sexual dysfunction [5]. In one Iranian study, the prevalence was 80% [13], and in two Moroccan studies, it was 71.9% and 76%, respectively [14, 15]. This difference could be explained by the fact that in our study, 14% of the patients were illiterate and 28% were of primary level and required our help to answer the questionnaire. So, the prevalence of sexual difficulties could have been underestimated because these might not be properly admitted by these patients.

The sexuality of patients with RA has rarely been compared with that of a control population. Khnaba et al. found that sexual difficulties were significantly more common in RA patients compared with controls (71.9% versus 54%) [15]. These results have been confirmed by two other studies [7, 13]. Our study is the first in Tunisia to compare the sexual function of patients with RA with that of controls. The prevalence of sexual dysfunction was significantly higher in patients than in controls (49.3% versus 23.9%,  $p = 0.002$ ).

Sexual difficulties during RA are numerous and can affect all areas. In the literature, similar to our result, the area that seems to be the most altered is sexual desire.

In the study of Ostensen [16] and Hill [17], loss of desire was the most common sexual difficulty, described by 46 and 60% of patients respectively.

This could be explained by the cognitive and emotional aspects of sexual desire, often altered during chronic illnesses.

Most areas of sexual function (arousal, satisfaction, orgasm, and lubrication) are often more impaired in patients than in controls [7, 13, 14]. However, sexual pain is often comparable between the two groups [15].

As a consequence of impaired sexual function, most studies support a decrease in the frequency of sexual intercourse during RA [17, 18]. In Ferreira et al.'s study, 24.2% of patients with RA were unable to engage in sexual intercourse because of their pain [19]. In our study, 59% of patients reported a decrease in the frequency of sexual intercourse after the diagnosis of RA.

Few studies have compared the frequency of sexual intercourse between RA patients and healthy controls [20]. Similar to our study, an absence of difference in the frequency of sexual intercourse between RA patients and controls has been described in one study [21].

Pain and fatigue are the most common symptoms of RA. They can affect sexual health in a number of ways: by reducing sexual desire and satisfaction or by decreasing the frequency of sexual intercourse [18]. Indeed, patients may have to shorten the duration of their sexual intercourse or refrain from it for fear of triggering joint pain [22]. In agreement with data from the literature [8, 10, 13], VASP and VASF were significantly related to sexual dysfunction in our study. Moreover, in multivariate analysis, VASP was the only predictive factor of FSD.

Concerning the activity of RA and in agreement with two literature studies [13, 15], we found an association between FSD and DAS28 ESR in the univariate analysis but not in the multivariate analysis.

The rare studies on the effect of DMARDs on sexuality have evaluated male sexual function and in particular erectile dysfunction [23]. In our study, no link was found between the existence of FSD and the use of corticoids, csDMARDs, or bDMARDs. It was also the case for the study of Abdel-Nasser et al. [18], about the csDMARDs. To our knowledge, there are no studies in the literature concerning the direct effect of bDMARDs on sexual function.

The concept of self-perception is recent in RA and used by some studies for the evaluation of the sexual satisfaction [24, 25]. Two major surveys were conducted in France. In 2007, the French Association of Polyarthritis sent a questionnaire to its members on their perception of the disease. Of the 7700 RA patients who responded, about 51% reported a negative influence of the disease on their sexuality [26]. More recently, the National Association for the Defense of Rheumatoid Arthritis (ANDAR) sent a questionnaire to its members concerning fatigue and sexuality [27]. Seventy percent of patients reported a negative influence of RA on their sex life. In our study, only 26.1% of patients reported a negative impact of the disease on their sexuality.

In a survey of 74 patients with RA in England, fatigue was the most common explanation for the patient's sexual dysfunction, followed by pain and morning stiffness [17]. Fifty-six percent of patients in Linde et al.'s study also rated pain

and fatigue as the most incriminated factors in their sexual dysfunction [10]. These results are consistent with those of our study. Indeed, joint pain was mentioned in 60.6% of cases, followed by fatigue (51%) and morning stiffness (31%).

It should be noted that our study has some limitations. It was a monocentric study, so results cannot be generalized to the rest of the population. The partner's point of view and sexual function were not evaluated. Forty-seven percent of patients were illiterate or had a primary education level and needed our help to complete the questionnaires, which may limit the relevance of the data collected.

## Conclusion

Our study suggests that patients with RA experience high levels of sexual dysfunction in comparison with the control group. Several areas of sexuality were affected particularly desire, arousal, and satisfaction. Hence, health providers must consider sexual function as a part of quality of life and should guide them by providing information as part of a therapeutic patient education and refer them to specialists when appropriate.

## Compliance with ethical standards

**Disclosures** None.

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