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ORIGINAL ARTICLE

Sexual and sleep disorders in male patients with rheumatoid arthritis - High disease activity and functional disability are associated factors.

Desordenes sexuales y del sueño en hombres con artritis reumatoide – la actividad alta de la enfermedad y la discapacidad funcional son factores asociados

Distúrbios sexuais e do sono em homens com artrite reumatoide – a alta atividade da doença e a deficiência funcional são fatores associados.

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ORIGINAL ARTICLE

Sexual and sleep disorders in male patients with rheumatoid arthritis - High disease activity and functional disability are associated factors.

Summary

In English

Introduction

Rheumatoid arthritis (RA) is a chronic disease of autoimmune origin and occurs most frequently between the ages of 40 and 60. RA is associated with comorbidities such as sexual disorders and sleep disorders that affect the patient's quality of life.

Objective:

To evaluate the associated risk factors and prevalence of sexual and sleep disorders in male patients with RA.

Methodology

Analytical cross-sectional study. 273 men diagnosed with RA were included, who were evaluated by psychology and diagnosed with the Diagnostic and Statistical Manual of Mental Disorders (DSM-V).

Results

The prevalence of sexual disorders was 37.7% (103/273) with a median age of 61 years (Interquartile range [IQR]: 55-65) (p = 0.058).

Regarding sleep disorders, a prevalence of 30.7% (84/273) was observed with a median age of 62 years (IQR: 58-67) (p<0.001). An association was observed between the presence of comorbidities such as diabetes, hypertension (20.3% vs. 10.6%, p = 0.025), autoimmune comorbidities (78.6% vs. 59.4%, p = 0.001) with sexual disorders.

Conclusions

Sexual and sleep disorders are present in a third of male patients with RA. An association was found between age and the presence of autoimmune comorbidities with sexual and sleep disorders.
The management of sexual and sleep disorders should be part of a comprehensive management scheme in RA.

Keywords (MeSH)

Rheumatoid arthritis, Sexual dysfunction, Sleep disorders, Quality of life, Psychological disorders.

Key Messages

- High Prevalence of Sexual and Sleep Disorders: This study found that 37.7% of male patients with rheumatoid arthritis (RA) experienced sexual disorders, primarily premature ejaculation. While 30.7% had sleep disorders, mainly insomnia. These findings align with previous studies and highlight the significant impact of RA on men's sexual and sleep health.
- An association was observed between comorbidities (including autoinmmune) with sexual disorders. Patients with diabetes and hypertension (20.3% Vs 10.6%), respectively, were more frequent.
- Need for Improved Patient-Physician Communication: Effective communication between patients and healthcare providers is crucial. Many male patients may not report symptoms related to sexual and sleep disorders due to cultural stigmas or lack of trust. Improving this dialogue can lead to better diagnosis and management of these conditions.

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Resumen

En Español

Introducción

La artritis reumatoide (AR) es una enfermedad crónica de origen autoinmune y se presenta con mayor frecuencia entre los 40 y 60 años. La AR se asocia a comorbilidades como trastornos sexuales y trastornos del sueño que afectan la calidad de vida del paciente.

Objetivo

Evaluar los factores de riesgo asociados y la prevalencia de los trastornos sexuales y del sueño en pacientes varones con AR.

Metodología

Estudio de corte transversal analítico. Se incluyeron 273 varones diagnosticados con AR, que fueron evaluados por psicología y se diagnosticaron con el Manual Diagnóstico y Estadístico de los Trastornos Mentales (DSM-V).

Resultados

La prevalencia de trastornos sexuales fue del 37,7% (103/273) con una mediana de edad de 61 años (Interquartile range [IQR]: 55-65) (p = 0,058). Con respecto a los trastornos del sueño, la prevalencia fue del 30,7% (84/273) con una mediana de edad de 62 años (IQR: 58-67) (p<0,001). Se observó asociación entre la presencia de comorbilidades: diabetes, hipertensión (20,3% vs. 10,6%, p = 0,025), y las comorbilidades autoinmunes (78,6% vs. 59,4%, p = 0,001) con los trastornos sexuales.

Conclusiones

Los trastornos sexuales y del sueño están presentes en un tercio de los pacientes varones con AR. Se encontró asociación entre la edad, y la presencia de comorbilidades autoinmunes con los trastornos sexuales y del sueño. El manejo de los trastornos sexuales y del sueño debe ser parte de un esquema de manejo integral en la AR.

Palabras clave (MeSH)

Artritis reumatoide, Disfunción sexual, Trastornos del sueño, Calidad de vida, Trastornos psicológicos.

Mensajes clave

- Alta prevalencia de trastornos sexuales y del sueño: Este estudio encontró que el 37.7% de los pacientes masculinos con artritis reumatoide (AR) experimentaron trastornos sexuales, principalmente eyaculación precoz; mientras que el 30.7% presentó trastornos del sueño, principalmente insomnio. Estos hallazgos están en línea con estudios previos y resaltan el impacto significativo de la AR en la salud sexual y del sueño de los hombres.
- Asociación entre comorbilidades y trastornos sexuales: Se observó una asociación entre la presencia de comorbilidades (incluyendo enfermedades autoinmunes) y los trastornos sexuales. Los pacientes con diabetes e hipertensión fueron más frecuentes (20.3% vs. 10.6%, respectivamente).
- Necesidad de mejorar la comunicación paciente-médico: La comunicación efectiva entre los pacientes y los profesionales de la salud es fundamental. Muchos pacientes masculinos pueden no reportar síntomas relacionados con trastornos sexuales y del sueño debido a estigmas culturales o falta de confianza. Mejorar este diálogo puede llevar a un mejor diagnóstico y manejo de estas condiciones.

Resumo

Em Português

Introdução

A artrite reumatoide (AR) é uma doença crônica de origem autoimune e ocorre com maior frequência entre 40 e 60 anos. A AR está associada a comorbidades como distúrbios sexuais e distúrbios do sono que afetam a qualidade de vida do paciente.

Objetivo

Avaliar os fatores de risco associados e a prevalência de distúrbios sexuais e do sono em pacientes do sexo masculino com AR.

Metodologia

Estudo transversal analítico. Foram incluídos 273 homens com diagnóstico de AR, avaliados pela psicologia e diagnosticados com o Manual Diagnóstico e Estatístico de Transtornos Mentais (DSM-V).

Resultados

A prevalência de distúrbios sexuais foi de 37,7% (103/273) com mediana de idade de 61 anos (intervalo interquartil [IIQ]: 55-65) (p = 0,058). Em relação aos distúrbios do sono, observou-se uma prevalência de 30,7% (84/273) com mediana de idade de 62 anos (IIQ: 58-67) (p<0,001). Foi observada associação entre a presença de comorbidades como diabetes, hipertensão (20,3% vs. 10,6%, p = 0,025), comorbidades autoimunes (78,6% vs. 59,4%, p = 0,001) com distúrbios sexuais.

Conclusões

A prevalência de distúrbios sexuais e do sono está presente em um terço dos pacientes. Foi encontrada associação entre idade e presença de comorbidades autoimunes com distúrbios sexuais e do sono. O manejo dos distúrbios sexuais e do sono deve fazer parte de um esquema abrangente de manejo na AR.

Palavras-chave

Artrite reumatóide, Disfunção sexual, Distúrbios do sono, Qualidade de vida, Distúrbios psicológicos.

Mensajes clave

- Alta prevalência de distúrbios sexuais e do sono: Este estudo encontrou que 37,7% dos pacientes do sexo masculino com artrite reumatoide (AR) apresentaram distúrbios sexuais, principalmente ejaculação precoce, enquanto 30,7% tiveram distúrbios do sono. Esses achados estão alinhados com estudos anteriores e destacam o impacto significativo da AR na saúde sexual e do sono dos homens.
- Associação entre comorbidades e distúrbios sexuais: Foi observada uma associação entre a presença de comorbidades e os distúrbios sexuais. Pacientes com diabetes e hipertensão foram mais frequentes (20,3% vs. 10,6%, respectivamente).
- Necessidade de melhorar a comunicação paciente-médico: A comunicação eficaz entre pacientes e profissionais de saúde é fundamental. Muitos pacientes do sexo masculino podem não relatar sintomas relacionados a distúrbios sexuais e do sono devido a estigmas culturais ou falta de confiança. Melhorar esse diálogo pode levar a um melhor diagnóstico e manejo dessas condições.

Introduction

Rheumatoid arthritis (RA) is a chronic disease of autoimmune origin, which affects the musculoskeletal system and in most of cases, involves both psycho-affective and physical aspects [1]. The prevalence of RA ranges between 1 to 1.5% in the world population. These values are similar for Latin America (0.9% to 1.5%) and occur most frequently between 40 and 60 years of age [2-4]. RA is often associated with comorbidities such as sexual and sleep disorders that can vary between 31 to 70% [5, 6], and which clearly affect the patient's quality of life. RA is more frequent in women than in men with a ratio of 3 to 1, and specifically for men prevalence range between 0.2 and 0.5% [7]. The patients' well-being perception is associated with disability as well as pain management, and the ability to communicate it .

RA affects sexual function, reproductive ability, and causes secondary symptoms that affect sleep quality, mood changes and social interaction. The prevalence of sexual dysfunction and sleep disorders in patients with RA is notably high. Sexual dysfunction is a significant concern. Studies showing that 67% of RA patients experience sexual dysfunction, particularly difficulties in sex drive, arousal, and orgasm(8). In female patients, sexual dysfunction prevalence is 47.8%, compared to 14.2% in healthy controls, highlighting the significant burden of this condition in RA (9). A meta-analysis reports a pooled prevalence of female sexual disorders (FSD) in RA patients of 49.1%, with depression and menopause being major risk factors (10).

For men, acknowledging these changes can be difficult due to societal expectations surrounding masculinity [6, 11]. In this manner, the patient-physician relationship becomes the only bridge to find-out about these types of conditions, where patients expect to find spaces of confidence to refer to the "private" or "unimportant" symptoms that affect their quality of life [12-14]. In men population, the relationship between sexual alterations and the presence of RA is known [15], which reaches up to 15% of prevalence. The study published by Guo G, et al. reported that psychological alterations have been under-recorded in male patients with RA, due to the lack of diagnosis by health professionals. However, they found a prevalence of 78.6% sleep disorders in male patients with RA [16, 17].

Sexual dysfunction and sleep disorders significantly impact the quality of life (QoL) in patients with RA, as evidenced by several studies. Tanski found that patients with reduced QoL and pain limiting social life, had a higher risk of sexual dysfunction, highlighting the need for comprehensive management of these symptoms to improve overall well-being (18). Poor sleep quality is linked to decreased physical and mental health-related QoL, as demonstrated by studies using the Pittsburgh Sleep Quality Index (PSQI) and the Short Form Health Survey (SF-36) (19,20).

There are theories that explain sleep disorders with immunological mechanisms, as well as the use of biological drugs. In the same way,

the use of medications such as sulfasalazine and leflunomide have reported a relationship with sleep disorders, as well as endothelial damage, hence vascular and erectile dysfunction [20, 21, 22]. The description of these pathologies has been done mainly in women. On the other hand, for men the evidence regarding these disorders is scarce [7]. According to the above, the objective of this study was to know the frequency and the associated risk factors of sexual and sleep disorders in a population of male patients with a diagnosis of RA attending a specialized center .

Methods

Design

An observational analytical cross-sectional study was carried-out in a specialized center for the treatment of autoimmune pathologies in Bogotá, Colombia.

Population

Inclusion criteria: we included all male patients over 18 years, with an RA diagnosis considering the ACR/EULAR 2010 Rheumatoid Arthritis Classification Criteria [23]. Patients were followed-up and treated by a rheumatologist who carried out a clinical examination (tender and swollen joint count, DAS28, HAQ, etc), and a whole blood test for: ESR, creatinine, alanine aminotraferase, alkaline phosphatase, rheumatoid factor, and anticitrullinated antibodies. Patients were also evaluated by a comprehensive care program for RA patients which includes a multidisciplinary evaluation by different health care professionals (rheumatologist, psychologist, physiatrist, physical therapist, occupational therapist, nutritionist and pharmaceutical chemist). We excluded patients without information about disease activity (DAS28) and functionality (HAQ) . Data Collection: Data were sourced from the clinical records system of the rheumatology center [24]. To guarantee the patients' confidentiality, the information analyzed did not include variables that could identify the patient. The information included in this study was collected between July of 2011 to July 2021.

Variables

The presence of sexual and sleep disorders was established as a dependent variable. All other variables were considered as independent variables or related factors: DAS28 (Disease Activity Score) to classify the disease activity, which was categorized as non-activity: remission (<2.6), low disease activity (>=2.6 - 3.2<), moderate disease activity (>=3.2 - 5.1<) [25] high disease activity (> = 5.1) and functionality/functional capacity with the HAQ (Health Assessment Questionnaire) scale, categorized into: no disability (<0.1), mild disability (>=0.1-1<), moderate disability (>=1-2<) and severe disability (>= 2) [26, 27] . The treatment was classified in conventional DMARDs (csDMARDs) and treatment with biological DMARDs (bDMARDs). For the diagnosis of sexual disorders and sleep disorders (psychological disorders), patients were evaluated by a psychologist with experience in

RA, who based their diagnosis in the Diagnostic and Statistical Manual of Mental Illnesses (DSM-V), which is a comprehensive classification system for mental disorders, developed by the American Psychiatric Association. It serves as a critical tool for clinicians and researchers providing standardized criteria for the diagnosis of mental disorders [28]. Although other questionnaires could have been used to provide additional insights, these were not included due to time constraints.

In the same way, the clinical evaluation by health professionals, who are part of the comprehensive care program, includes an interdisciplinary board that allows evaluating the diagnosis of sexual and sleep disorders, suggested by the clinical psychologist.

Statistical analysis

A descriptive analysis of the data was made using absolute and relative frequencies for the categorical variables, and measures of central tendency and dispersion for continuous variables. We assessed the relationship between variables comparing the first assessment versus comparing the control at the time of diagnosis; a p-value less than 0.05 was considered for the hypothesis test. Data was analyzed in STATA 12.

Ethical considerations

All the patients gave the written informed consent previous explanation, for analyzes of the data. This study took in to account the international regulation for research with human beings and considered the Colombian research regulation (Resolution 8430-1993, "classifying: minimum risk"). It was presented to and approved by the BIOMAB research committee in ordinary session on April 4, 2019, registered in folder 25.

Results

A total of 273 male patients with a diagnosis of RA were analyzed. The median age was 60 (Interquartile range (IQR): 54-64). The majority were married (64.1%), while 11.7% were single, 19% divorced, and 5.1% widowed. Regarding employment status 143 patients (52.4%) were actively working, 65 (23.8%) were dedicated to recreation/sports, and 62 (22.7%) do not have special activity; of the last ones, 30 patients (10.7%) were engaged in household activities (Table 1).

The frequency of sexual disorders was 37.7% (103/273) with a median age of 61 years (IQR: 55-65). Out of all the patients with sexual disorders, the most frequent one was premature ejaculation with 34.9% (Figure 1).

When analyzing factors associated with sexual disorders, patients with these conditions were significantly older ($p = 0.049$) and were more frequently single (25.2% vs. 15.3%, $p = 0.001$). Additionally, smoking (21.3% vs. 11.2%, $p = 0.022$), diabetes-hypertension (20.3% vs. 10.6%, $p = 0.025$), and the presence of autoimmune comorbidities (78.6% vs. 59.4%, $p = 0.001$) were significantly associated with sexual dysfunction (Table 2).

When we assessed the presence of comorbidities, 60 patients (21.9%) had other autoimmune diseases different of RA, non-autoimmune diseases in 122 patients (44.6%), and 44 subjects (16.1%) had a

coexistence of autoimmune and non-autoimmune diseases.

The remaining 91 cases (33.3%) did not report comorbidities.

With regards to the characteristics of RA in the population studied, the disease activity showed that 89 (32.6%) were in remission, 50 (18.3%) in low disease activity, 93 (34.1%) in moderate disease activity, and 41 (15%) in high disease activity. In relation to pharmacological therapy, 68 (24.9%) were being treated with bDMARDs and 205 (75.1%) with csDMARDs (Table 2).

We compared the clinical measurements related to RA, the disease activity (DAS28) at the time of the initial evaluation, presenting a median of DAS28 of 3.17 (IQR: 2.38-4.49). In the case of functional capacity (HAQ) the median in the initial assessment was 0.25 (IQR: 0.12-0.75). This analysis showed a median DAS28 of 3.55 in the cases of patients with sexual disorders (IQR: 2.63-4.73) and without sexual disorders a median of 3.02 (IQR. 2.24-4.29) (p = 0.004), while in the case of functionality, the HAQ in patients with sexual disorders showed a median of 0.375 (IQR: 0.125-0.1125) and in patients without sexual disorders a median of 0.125 (IQR: 0.12-0.5) (p = 0.001).

The frequency of sleep disorders was 30.7% (84/273). Mean age of participants with sleep disorders was 62 years (IQR: 58-67). The most common sleep disturbances are described in Figure 2 with insomnia as the most prevalent sleep disorder (77.3%). In the same way, as in sexual disorders, the associations between sleep disorders and the socio-demographic and clinical variables were explored, and it was found that age and the presence of comorbidities were associated with sleep disorders. Like sexual disorders, patients with sleep disorders were significantly older (p = 0.001) and more frequently unemployed (35.7% vs. 49.7%, p = 0.032). Additionally, the presence of autoimmune comorbidities was strongly associated with sleep disorders (84.5% vs. 58.7%, p = 0.001) (Table 2). The DAS28 and HAQ of the first evaluation were also compared according to the presence of sleep disorders, which are shown below: for the case of DAS28, patients with sleep disorders presented a median of 3.79 (IQR: 3.08-5.42), while those without a sleep disorder had a median of 2.94 (IQR: 2.24-4.17) (p = < 0.001). Regarding functional capacity, the HAQ in the group of sleep disorders a median of 0.37 (IQR: 0.122-1) was observed, compared with a median of 0.25 (0.12-0.625) in the group that had no sleep disorder (p = 0.008).

Discussion

The association between RA and sexual and sleep disorders has been understudied in men, despite its impact on quality of life, and the comprehensive management of this chronic disease. This study, conducted at a specialized rheumatology center in Bogotá, Colombia, focuses on a population underrepresented in the scientific literature, highlighting clinical and sociodemographic factors associated with these conditions. Compared to other populations, the Colombian male RA cohort examined in this study reflects a distinct set of challenges,

highlighting the importance of considering differences in characteristics in the management of these disorders.

This study discovered that sexual disorders were found in a third of patients, most commonly premature ejaculation, and were associated with higher disease activity (median DAS28 of 3.55) and worse functional capacity (median HAQ of 0.375). These findings are in line with previous studies, but the prevalence rate observed here is lower than the 50-60% typically reported in the literature for male RA patients (29). Sleep disorders affected a third of patients, with similar associations to disease activity (median DAS28 of 3.79) and functional impairment (median HAQ of 0.37). These findings highlight the significant frequency of sexual and sleep disorders in RA male patients and underscore the need for an improved communication and a comprehensive management that includes attention to these aspects of patient health.

The relationship between the symptoms of RA and its impact on psychological aspects is clear, which implies an alteration in quality of life and social welfare (18). For this reason, identification of pathologies such as sexual and sleep disorders have become part of the comprehensive management when a patient with RA is approached, forcing treatment centers to structure interdisciplinary care programs, with the goal of attaining a global improvement for the patients and their disease. This is why these interventions have shown effectiveness independently of gender. We clarify that the analysis carried out in this study re-affirms the need for a comprehensive approach for all patients with RA, despite the fact that there is no difference between men and women, the male population represents a considerably smaller proportion and, therefore, the probability of consultation decreases. [11, 13]. According to the above, the approach begins with an adequate relationship between the patient and the health professional, which requires that spaces of confidence be given so that the patient can communicate this type of symptoms, or making experts in psychology available within the interdisciplinary team, under the cultural context, where the macho society hinders the communication of the male patient with the treating doctor [30]. This need is reflected in studies that report that only 36% of patients mentioned other pathologies concomitant to their baseline RA and the remaining 64% did not trust their doctor, or the consultation was too short to talk about it [30].

Additionally, between 31% and 56% believe that these types of diseases are not relevant and are not associated with RA, as well as the presence of mental illnesses such as depression and anxiety that have been related to RA [31-34]. Due to the above, education, coping and acceptance of the disease, become tools to improve this communication and thus guarantee a global treatment for RA and its comorbidities.

Our results, report a lower frequency of sexual disorders, but it could be explained by the patient's lack of trust in the health professionals, given that the patients included in this study entered the comprehensive care program of the RA reference center. This argument is in agreement with those described in the literature, as early identification usually occurs in the second or third consultation, once the

doctor-patient relationship has been established. [35]. Van Berlo points out that men tend to prioritize their physical appearance and body functionality, while women place greater emphasis on emotional, social, and cultural aspects. This contrast reflects how social expectations influence the perception of conditions associated with RA in both genders [37].

According to what was analyzed in this study, the relationship between disease activity and patent functionality is clear, with the presence of sexual disorders ($p = 0.004$), because the patients without sexual alterations had better clinical measurements in the first evaluation. This reinforces the notion that disease activity, particularly its impact on functionality, is a key factor contributing to sexual dysfunction in male RA patients. This association is understood by the pathophysiology of RA, which involves stiffness, acute and chronic pain, and alteration in the hormonal mechanisms that are related to immunomodulation; this could also explain the association between autoimmune comorbidities and the presence of sexual disorders ($p = 0.001$) and sleep disorders ($p < 0.001$). With regards to pain, joint compromise, specifically in the hip, knee and upper limbs, hinder activities related to intercourse, more in men than in women, which affects sexual activity, sexual desire, and masturbation [19, 29, 36]. This distinction between men and women in the way that joint compromise impacts sexual activity underscores the need for a gender-specific approach when addressing sexual dysfunction in RA patients.

Another relevant aspect that was associated with sexual disorders was tobacco consumption, autoimmune comorbidities, depression-anxiety, and diabetes-hypertension, which are related to erectile dysfunction and which are explained by direct damage to the endothelium, alterations in the smooth muscle, and its direct consequence in vascular insufficiency [15, 19]. The complex interplay between these factors and sexual dysfunction highlights the need for an integrated approach to RA treatment that considers not only the RA symptoms but also the comorbidities that may exacerbate sexual health issues.

However, in this study no association was found between sexual disorders and sleep disorders, with depression and anxiety, despite the fact that some authors report significant relationships [6]. This relationship can be explained, because if there is a basic mental pathology, the other emotional components are affected, within these the sexual ones. In the same way, it is well known that this type of pathology is directly related to sleep disorders, either by the pathology per se or by concomitant pharmacological treatment. It is important to note that this relationship is also associated with age, as the older patients are more likely to have atherosclerotic vascular alterations, which reaffirms what was found in this study [36]. As such, age should be considered a significant factor when evaluating the risk of sexual dysfunction and sleep disorders in RA patients.

When compared with women's sexual disorders, the difference in symptoms is clear, since what most often affects men is premature ejaculation and orgasmic decrease, whereas in women it is dyspareunia and vaginal dryness. These problems could be improved if there is a

treatment for RA and a psychological intervention with both the patient and his partner [38, 39].

Finally, no significant differences were found with the use of DMARDs (p = 0.85), and sexual dysfunction, although the literature suggests it, specifically with the use of methotrexate and leflunomide. This finding contrasts with some literature reports, but it could reflect differences in the study populations or treatment regimens. Once RA is diagnosed and drug treatment is started, with improving the disease activity, is expected a direct impact on the psychological and sexual aspects of the patient [6].

With respect to sleep disorders, there is an explanation regarding a pathological cycle that begins with the presence of chronic pain and ends with the alteration of proinflammatory mechanisms. Abad describes that sleep disturbances elevate TNF and IL- 6 which are present in autoimmune processes, and in patients with RA worsen and increase the activity of the disease, and that by not being controlled generate chronic pain, which in turn cause sleep alterations such as sleep quality, non-restful sleep, and multiple awakenings [18, 39]. Another pathology described in this type of disorders is obstructive sleep apnea/hypopnea syndrome (OSAHS), which is more frequent in men due to their muscle structure and is associated with the reduction of the mandibular opening due to joint involvement (temporomandibular), and in some cases arthritis in the cricoarytenoid joint is present, generating hypoxia and sleep deprivation, being more frequent in men than in women [18, 35].

Finally, in this study, it was possible to establish the association between age (p = < with sexual and sleep disorders, and work activity (p = 0.003) with sleep disorder, which could be explained as men are more active at work which improves their physical activity and therefore chronic pain [40]. Engaging in work and physical activity may help mitigate chronic pain and improve overall health. As such, RA treatment should incorporate lifestyle modifications alongside pharmacological interventions to optimize patient outcomes [40].

New pharmacological developments have allowed for better control of the disease. However, the costs and adverse effects that have not yet been described in detail require pharmacovigilance monitoring by the health professional. This must go under an integral structure where cultural and gender characteristics are considered. According to this, comprehensive treatment centers play a relevant role in RA management and personalized treatment, where “objectives by target” has become the path that shows better results. In this same way, once the patient is approached comprehensively, there can be comprehensive educational strategies as well as recreational activities that could improve quality of life, and that will directly impact the patient's disease activity and functionality.

It is important to highlight the relevance of generating spaces adapted to each patient, where the personal and cultural context play a significant role when comprehensively addressing the exclusive pathologies of men, forcing the construction and adaptation of strategies, to actively search for sexual and sleep disorders, and initiate timely treatment. All these actions would decrease the times of diagnosis and start of treatment, directly affecting the

prognosis, both of the RA and of comorbidities [9, 41].

This study has important limitations, considering that specific scales were not used, only the DSM-V for the diagnosis of sexual and sleep disorders. However, the experience acquired, and the support of the interdisciplinary group, especially the psychological evaluation, bring us closer to the reality of these patients. Another weakness of the study is that, despite being an analytical cross-sectional study, it cannot establish a direct causal association due to its design. However, it does allow for the examination of variables of interest that may influence the outcomes described. Among the main biases present is selection bias, as the chosen population is highly specific to a reference center for rheumatoid arthritis, and the selection was made based on convenience.

To address these issues, future studies could incorporate more objective measures and consider broader, more diverse populations. Additionally, it would be valuable to routinely assess sexual function and sleep disorders during consultations for male patients with rheumatoid arthritis, to improve early detection and intervention, thereby enhancing the quality of life for these patients.

Conclusions

Our study reports a frequency of sexual and sleep disorders in one third of male patients with RA, which is likely to the descriptions reported in similar studies. We found that age, the presence of non-autoimmune and autoimmune comorbidities, disease activity, and the functionality of the patient was associated with sexual and sleep disorders. Finally, communication skills between patients and health professionals considering the characteristics of each patient and their social and cultural context, needs improvement. This strategy should be part of a comprehensive management scheme that involves different health specialties that offer not only a pharmacological treatment but a treatment that also prevents comorbidities. To improve clinical practice, it is crucial to integrate routine evaluations of sexual health and sleep quality into patient assessments for those with RA. This approach could lead to better management and outcomes for these patients, helping to identify and address issues that may impact their quality of life.helping to identify and address issues that may impact their quality of life.

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Pedro Rodriguez-Linares contribution in redaction, writing the paper, and comments.

Conflict of interests

The authors declare that there are no conflicts of interest regarding this manuscript.

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Figure 1. Description of sexual disorders

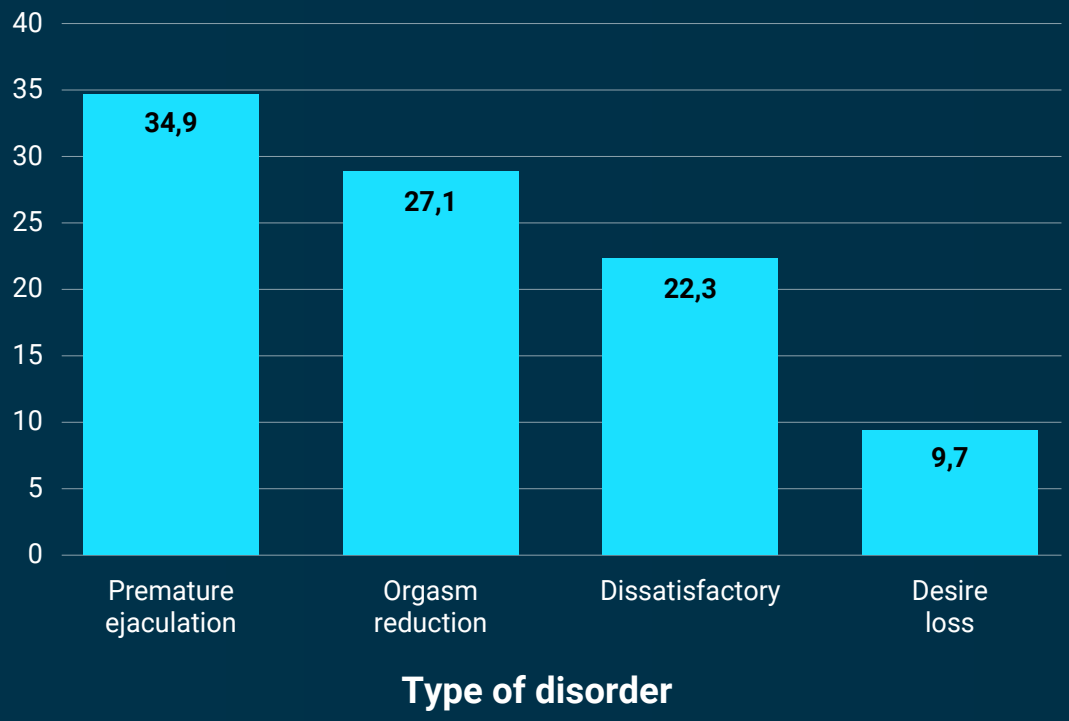

Figure 2. Description of sleep disorders

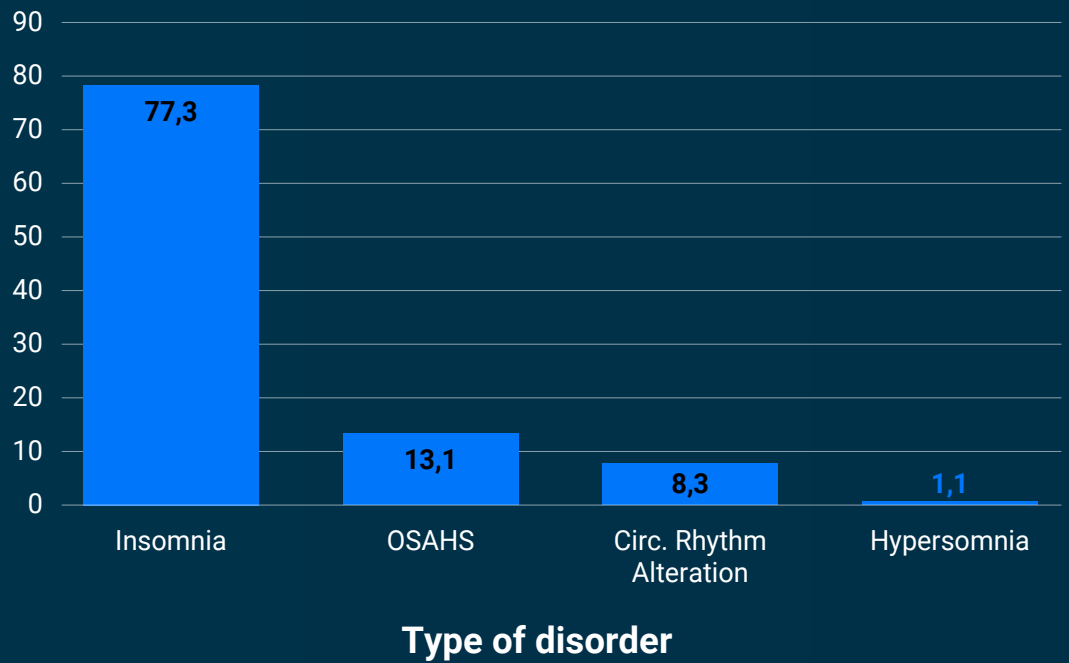

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Table 1. Population characteristics baseline

Variable	n (%)
Age - median (IQR)	60 (54-64) years
RA Evolution Time - median (IQR)	10 (6-16) years
RA Treatment time - median (IQR)	5 (3-8) years
Civil status	
Single	32 (11.7)
Married	175 (64.1)
Divorced	52 (19)
Widowed	14 (5,1)
Scholarship	
Illiterate	27 (9.9)
Primary	149 (54.6)
High School	72 (26.3)
University	25 (9.1)
Activity	
None	32 (12.0)
Self Care	3 (1.1)
Household activities	30 (10.7)
Recreation and sports	65 (23.8)
Crafts	24 (8.8)
Intellectual	45 (16.5)
Mixed	74 (27.1)
Toxicological background	
Smoking	41 (15)
Consumption of alcohol	18 (6.6)

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Table 2. Bivariate analysis between possible factors associated with the presence of sexual and sleep disorders.

Variable	Sexual disorder		P-value	Sleep disorder		P-value
	YES (n = 103)	NO (n = 170)		YES (n = 84)	NO (n = 189)	
Age † - median (IQR ‡)	61 (55-65)	59 (53-64)	0.049*	62 (58-67)	58 (51-64)	0.001*
Civil status						
Single	26 (25.2)	26 (15.3)	0.001	10 (11,9)	22 (11,6)	0.73
Married	85 (82.5)	90 (52.9)		51 (60.7)	124 (65.6)	
Separated	61 (55-65)	42 (24.7)		17 (20.2)	35 (18.5)	
Widowed	2 (1.9)	12 (7.1)		6 (7.1)	8 (4.2)	
Active labor						
Yes	63 (61.2)	86 (50.6)	0.08	54 (64.3)	95 (50.3)	0.032
No	40 (38.8)	84 (49.4)		30 (35.7)	94 (49.7)	
Scholarship						
Illiterate	12 (11.6)	15 (8.2)	0.10	8 (9.5)	19 (10)	0.16
Primary	86 (50.6)	86 (50.6)		54 (64.3)	95 (50.3)	
Secondary	49 (28.8)	49 (28.8)		16 (19)	56 (29.6)	
University	20 (11.8)	20 (11.7)		6 (7.1)	19 (10)	
Lives alone	18 (17.5)	31 (18.2)	0.84	15 (17.9)	34 (18)	0.97
Activity						
Self-care	0 (0)	3 (1.8)	0.50	1.2	2 (1.1)	0.56
Recreation and sports	25 (24.3)	40 (23.5)		20 (23.8)	45 (23.8)	
Crafts	15 (14.6)	9 (5.3)		6 (7.1)	18 (9.5)	
Intellectual	19 (18.4)	26 (15.3)		15 (17.9)	30 (15.9)	
Mixed	24 (23.3)	50 (29.4)		20 (23.8)	54 (28.6)	
Associated Pathologies						
Smoking	22 (21.3)	19 (11.2)	0.022	14 (16.7)	162 (85.7)	0.61
Alcohol consumption	4 (3.9)	14 (8.2)	0.12	8 (9.5)	10 (5.3)	0.19
Depression - anxiety	9 (8.7)	14 (8.2)	0.8	6 (7.1)	17 (8.9)	0.2
Diabetes - Hypertension	21 (20.3)	18 (10.6)	0.025	12 (14.3)	27 (14.3)	1.0
Autoimmune comorbidities	81 (78.6)	101 (59.4)	0.001	71 (84.5)	111 (58.7)	0.001
Pharmacotherapy						
Biological	25 (24.3)	43 (25.3)	0.85	17 (20.2)	51 (27)	0.23
DMARDs **	78 (75.3)	127 (74.7)		67 (79.8)	138 (73)	
RA Evolution Time † - median (IQR ‡)	12 (6-18)	10 (5-15)	0.14*	11 (6.5-17)	10 (5-16)	0.19*
RA Treatment time † - median (IQR ‡)	5 (3-8)	5 (3-8)	0.84*	5 (3-9.5)	4 (3-8)	0.22*

† Years, ‡ Interquartile range, * Wilcoxon statistical test, Chi-square statistical test, ** Disease-Modifying Antirheumatic Drugs. Values p <0.05 were considered statistically significant.

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