EPIDEMIOLOGY

Sexual Health and Dysfunction in Patients With Rheumatoid Arthritis: A Cross-sectional Single-Center Study

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ABSTRACT

Introduction: An increased risk of sexual health problems is seen among patients with chronic illnesses. The background is likely to be multifactorial, but it remains poorly understood.

Aim: To investigate the sexual health and functioning of patients with rheumatoid arthritis (RA) and to examine gender differences, general population comparisons, and possible somatic, psychological, and disease-specific determinants.

Methods: A cross-sectional study using a digital questionnaire distributed among 380 patients diagnosed with RA in a Danish university hospital outpatient setting.

Main Outcome Measure: A range of patient-reported outcomes were obtained, including scores from the validated rating scale Changes in Sexual Functioning Questionnaire. Furthermore, individual medical record information was collected.

Results: A total of 329 patients (250 women and 79 men) were included (age range: 25–73 years; mean age: 57.2 years). The Changes in Sexual Functioning Questionnaire scoring indicated an overall sexual dysfunction in 33.8% of men and 58.1% of women.More than one-third (37.6%) of patients felt that RA had made their sex life more complicated, and 32.4% feared that this might someday be the case. In total, 29.2% patients had experienced sexual problems due to their RA treatment. Of the respondents who experienced RA-related fatigue, 46.5% reported that this impacted negatively on their sexual activity. The risk of one or more sexual health adversities was significantly correlated with female gender, older age, moderate or severe depression, moderate to moderately high loneliness, more than 2 comorbidities, and a fatigue score above 75 out of 100 on a visual analogue scale. Compared to the general population, significantly fewer patients with RA considered their sex life important, and significantly fewer patients appraised their current sex life as good or very good. Moreover, significantly more women with RA (32.1%) than women from the general population (15.7%) had not had any sex life during the past year. A vast majority of patients with RA (93.5% of women and 85.5% of men) had not discussed sexual issues with a health-care professional during the last 5 years. Of all, 32.5% would like health-care professionals to address sexual topics in the consultation occasionally.

Conclusion: Sexual dysfunction is highly prevalent in patients with RA, but the problems are not regularly addressed in consultations provided by the rheumatology department. **Bay LT, Graugaard C, Nielsen DS, et al. Sexual Health and Dysfunction in Patients With Rheumatoid Arthritis: A Cross-sectional Single-Center Study. Sex Med 2020;8:615–630.**

Key Words: Rheumatoid Arthritis; Sexual Dysfunction; Sexuality; Chronic Illness; Consultations; Communication; Questionnaires

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INTRODUCTION

It is well-established that sexuality and health are intimately entwined—sexual functioning may impact dimensions of general health both positively and negatively. In contrast, dimensions of general health may either facilitate or disrupt sexual functioning. Mental diseases constitute major risk factors for sexual difficulties and dysfunctions as many mental health problems, for example, depression, may impair sexual life in all domains, including desire, arousal, and satisfaction.[1] However, somatic diseases may also pose a risk to sexual life and functioning in different domains, for example, due to physical impairment, pain, and side effects from medication.[2,3]

The mechanisms behind the increased risk of sexual problems among chronically ill patients are multifactorial. They are the result of a complex interplay between biological, psychological, and social factors: Somatic patients usually experience both biological challenges (ie, physical complications and drug side effects such as fatigue, pain, and nausea),[2,4] psychological challenges (ie, mood swings, lack of self-confidence, and body image disorders)[5-7] and social challenges (ie, social exclusion, loneliness, and relational tensions)[8] that may in sum lead to sexual dysfunctions, relational distress, and increased overall vulnerability.

Rheumatoid arthritis is a chronic inflammatory autoimmune disease that causes joint swelling, pain, and fatigue resulting in disfiguration, disability, and psychosocial limitations. Such strains may impact sexual functioning and relational competencies negatively.[9] Concurrently, patients with RA are at increased risk of cardiovascular disease, which further adds to the hazard of sexual dysfunctions.[4,10]

The first choice of RA treatment is methotrexate (MTX). Some studies suggest that MTX may increase the risk of erectile dysfunction and Peyronie's disease in male patients.[11] Other RA-relevant medications may increase the risk of sexual dysfunctions in both genders, but results are far from unequivocal.[11,12]

Despite chronic patients' well-known need for sexual counseling,[13,14] numerous studies have shown a striking lack of prioritization of the subject in the health system,[8,14-16] leading to an unfortunate "two-way taboo" between patients and their healthcare professionals.[17]

Generally, sexual dysfunctions are more frequent among women than men,[18] and this tendency was recently confirmed by a representative sample of 15- to 89-year-old Danes.[19] In addition, most studies on sexual dysfunctions among patients with RA focus on female participants because most patients with RA are women (male-female ratio, 1:4). In Denmark, gender differences in sexual health have been studied in patients with chronic diseases such as diabetes and cardiovascular disease.[16,20] These studies have suggested that women's sexual functioning is mostly influenced by mental factors, whereas men's sexual functioning is mainly influenced by physical factors.[21] To our knowledge, studies on the sexual impact of RA on both men and women are scarce.

This article focuses on the sexuality of Danish patients with RA, and it aims to (i) investigate the sexual health and functioning, (ii) ascertain differences in sexual outcomes between men and women, (iii) establish possible risk factor for sexual ill-health among patients with RA, and (iv) to compare patients with RA to the general population concerning central sexual variables. Furthermore, the study aims (v) to highlight the request for sexual counseling expressed by the participating patients.

METHODS

Study Design

The study design was a cross-sectional questionnaire survey with consecutive enrolment of patients with RA and subsequent collection of relevant information from the individual medical records. Data were collected in an outpatient university department of rheumatology using a digital database. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for observational studies were applied.[22]

Participants

Patients diagnosed with RA (M059 seropositive RA, M060 seronegative RA, M069 RA no specification) were included. Participants must be older than 18 years of age and able to speak and understand Danish.

Participants were consecutively recruited among patients with RA visiting the outpatient clinic of rheumatology at Odense University Hospital, from December 4th, 2017, to June 1st, 2018. The digital survey was distributed via email to patients between April 24th, 2018, and September 5th, 2018. The collection of data ended on October 1st, 2018 (Figure 1). The recruitment period was restricted because of the time limits of the study.

The average age of the participants was 57.2 years (range: 25−73 years), and the mean disease duration was 13.8 years (range: 2.3−53.3 years). Most of both men (94.8%) and women (88.0%) identified themselves as heterosexuals.

Of the 380 patients (90 men and 290 women) invited to participate in the study, 329 (250 women and 79 men) answered at least the baseline items including demographic and disease-specific questions (response rate: 86.6%) (Figure 1).

Measurements

Demographics, Lifestyle, and Disease-Specific Information

Self-reported baseline data included information about demographics (education level, relationship, and cohabitation status), lifestyle factors (alcohol, smoking, and body mass index). Disease-related information (disease duration, medication use, pain) was collected as well as fatigue reported on a visual analog scale (VAS) and comorbidity using Charlson's Comorbidity

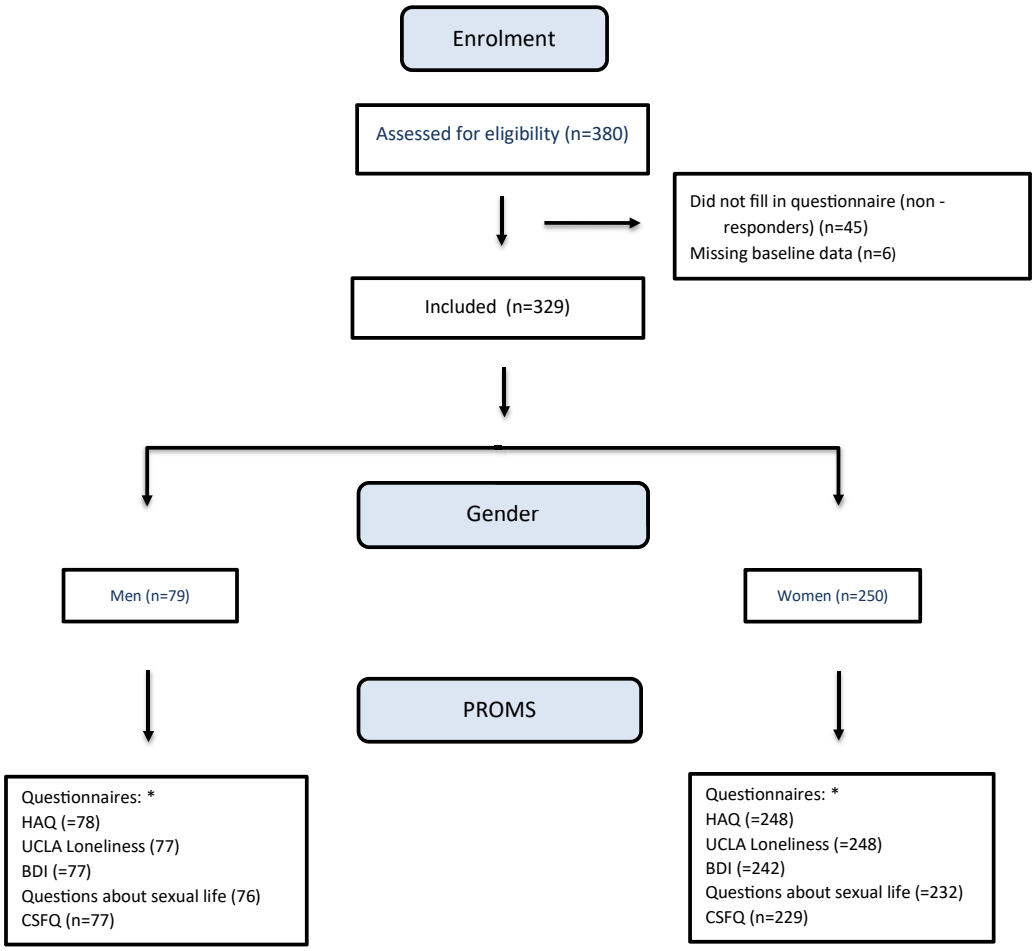

Figure 1. Flow Diagram. *Listed in the same order as when presented to respondents. Responses were mandatory to continue to next questionnaire. BDI = Beck Depression Inventory; CSFQ = Changes in Sexual Functioning Questionnaire; HAQ = Health Assessment Questionnaire; UCLA = University of Los Angeles.

Index.[23] Paraclinical data (anticitrullinated peptide antibody and immunoglobulin rheumatoid factor) were collected from individual medical records.

Participants completed 4 validated questionnaires: the gender-specific Changes in Sexual Functioning Questionnaire (CSFQ-14) that examines changes in sexual function due to illness and/or treatment in 5 domains (score range: 14−70; cutoff indicating a sexual dysfunction: ≤41 [men] and ≤47 [women])[24,25]; The Health Assessment Questionnaire (HAQ) (score range: 0−3)[26]; the University of California Los Angeles (UCLA) Loneliness Scale (score range: 20−80)[27]; the Beck Depression Inventory (BDI) (score range: 0−63; cutoff for severe depression: ≥29).[28]

Comparative Data from External Sources

To compare specific outcomes to the general Danish population, 4 questions were duplicated verbatim from the Danish Project SEXUS, which is a comprehensive population-based cohort study on sexual health among 15- to 89-year-old Danes (n = 62,675). The study was carried out in 2017−2018, and a thorough report of key findings was published online in October 2019.[19] The vast Project SEXUS sample was used as a control group. Comparisons were performed on age group−adjusted Project SEXUS data.

Statistical Methods

All data were processed by Stata,[29] and the categorical descriptive variables were reported both gender specifically and in total. All results were reported as counts with proportions and numerical variables. Mean values with SD were calculated depending on the normality of the variable as evaluated by quantile-quantile plots. Total gender-specific scores were calculated for the CSFQ-14,[30] HAQ,[26] UCLA,[27] BDI,[28] and domain scores of the CSFQ-14.

Univariate linear regression analysis was used to compare the CSFQ scale outcomes between genders, and univariate logistic regression analysis was used to compare proportions below CSFQ cutoffs.

To investigate possible associations between sexual health variables and various determinants, univariate logistic regression was used (not shown), and a multivariate logistic regression model including the covariates specified in Table 4 and stratified by gender was developed.

Table 1. Basic sociodemographic and disease-specific data

Basic data	Men‖, N = 79 (%)	Women‖, N = 250 (%)	Total, N = 329 (%)
Age, mean [SD]	58.0 [8.61]	57.0 [10.10]	57.2 [9.76]
25–44	5 (6.3)	31 (12.4)	36 (10.9)
45–64	50 (63.3)	162 (64.8)	212 (64.4)
65–73	24 (30.4)	57 (22.8)	81 (24.6)
Sexual orientation			
Heterosexual	73 (92.4)	206 (82.4)	279 (84.8)
Homosexual	0 (0.0)	2 (0.8)	2 (0.6)
Bisexual	0 (0.0)	0 (0.0)	0 (0.0)
Asexual	0 (0.0)	2 (0.8)	2 (0.6)
Don't know	3 (3.8)	15 (6.0)	18 (5.5)
None of the above/missing	3 (3.8)	25 (10.0)	28 (8.5)
Education†			
Secondary education	19 (24.1)	49 (19.6)	68 (20.7)
Youth education or postcompulsory education	2 (2.5)	6 (2.4)	8 (2.4)
Low or intermediate further education	51 (64.6)	160 (64.0)	211 (64.1)
High further education	5 (6.3)	25 (10.0)	30 (9.1)
Never completed any education	2 (2.5)	9 (3.6)	11 (3.3)
Don't know	0 (0.0)	1 (0.4)	1 (0.3)
Relationship status			
Single	13 (16.5)	72 (28.8)	85 (25.8)
In a relationship	66 (83.5)	178 (71.2)	244 (74.2)
Cohabitation status			
Living alone	15 (19.0)	64 (25.6)	79 (24.0)
Living together with partner and/or children	64 (81.0)	186 (74.4)	250 (76.0)
BMI‡ (n = 326)			
BMI, mean [SD]	27.28 [3.8]	26.92 [6.2]	27.01 [5.7]
<18.5	0 (0.0)	9 (3.6)	9 (2.8)
18.5–24.9	23 (29.1)	95 (38.5)	118 (36.2)
25–29.9	41 (51.9)	77 (31.2)	118 (36.2)
30–39.9	15 (19.0)	58 (23.5)	73 (22.4)
≥40	0 (0.0)	8 (3.2)	8 (2.5)
Smoking			
No daily smoking	62 (78.5)	205 (82.0)	267 (81.2)
Daily smoking	17 (21.5)	45 (18.0)	62 (18.8)
Alcohol consumption (recent week)			
0 units	33 (41.8)	158 (63.2)	191 (58.1)
1–7 (females)/1–14 (males)	37 (46.8)	68 (27.2)	105 (31.9)
7+ (females)/14+ (males)	9 (11.4)	18 (7.2)	27 (8.2)
Missing	0 (0.0)	6 (2.4)	6 (1.8)
Comorbidity (Charlson's Comorbidity Index) (self-reported) (n = 329)			
0–1	74 (93.7)	237 (94.8)	311 (94.5)
2+	5 (6.3)	13 (5.2)	18 (5.5)
Anti-CCP/ACPA (n = 329)			
Negative*	15 (19.0)	50 (20.0)	65 (19.8)
Positive	47 (59.5)	128 (51.2)	175 (53.2)
Missing data	17 (21.5)	72 (28.8)	89 (27.1)
IgM-RF (n = 329)			
Negative*	11 (13.9)	42 (16.8)	53 (16.1)
Positive	56 (70.9)	149 (59.6)	205 (62.3)
Missing data	12 (15.2)	59 (23.6)	71 (21.6)

(continued)

Table 1. Continued

Basic data	Men‖, N = 79 (%)	Women‖, N = 250 (%)	Total, N = 329 (%)
Biologic treatment (n = 329)			
Previously treated	8 (10.1)	21 (8.4)	29 (8.8)
Presently treated	22 (27.8)	74 (29.6)	96 (29.2)
Never treated/unknown/missing§	49 (62.0)	155 (62.0)	204 (62.0)
Methotrexate (n = 329)			
Previously treated	18 (22.8)	65 (26.0)	83 (25.2)
Presently treated	57 (72.2)	167 (66.8)	224 (68.1)
Never treated/unknown/missing§	4 (3.1)	18 (7.4)	22 (6.7)
Disease duration, years, mean [SD]	11.84 [7.95]	14.42 [10.19]	13.80 [9.75]
Physical function (HAQ score) (n = 326)			
HAQ mean [SD]	0.48 [0.58]	0.94 [0.74]	0.83 [0.73]
0–1 (mild to moderate disability)	63 (80.8)	134 (54.0)	197 (60.4)
1–2 (moderate to severe disability)	13 (16.7)	87 (35.1)	100 (30.7)
2–3 (severe to very severe disability)	2 (2.6)	27 (10.9)	29 (8.9)
RA-related pain (VAS), mean [SD] (n = 326)	32.55 [21.40]	39.90 [24.17]	38.14 [23.72]
RA-related fatigue (VAS), mean [SD] (n = 326)	41.49 [24.85]	50.92 [26.25]	48.66 [26.20]
Depression (BDI score) (n = 319)			
BDI mean [SD]	6.55 [5.36]	9.71 [8.18]	8.95 [7.71]
≤13 (minimal or no depression)	65 (84.4)	180 (74.4)	245 (76.8)
14–19 (light depression)	10 (13.0)	31 (12.8)	41 (12.9)
20–28 (moderate depression)	2 (2.6)	23 (9.5)	25 (7.8)
≥29 (severe depression)	0 (0.0)	8 (3.3)	8 (2.5)
Loneliness (UCLA Loneliness score) (n = 319)			
UCLA mean [SD]	34.34 [12.12]	36.44 [12.86]	35.94 [12.70]
20–34 (low)	37 (48.1)	110 (45.5)	147 (46.1)
35–49 (moderate)	32 (41.6)	90 (37.2)	122 (38.2)
50–64 (moderately high)	8 (10.4)	39 (16.1)	47 (14.7)
65–80 (high)	0 (0.0)	3 (1.2)	3 (0.9)

Abbreviations: ACPA = anti-citrullinated protein antibodies; BDI = Beck Depression Inventory; BMI = body mass index; CCP = cyclic citrullinated peptide; HAQ = Health Assessment Questionnaire; IgM-RF = immunoglobulin M rheumatoid factor; RA = rheumatoid arthritis; UCLA = University of California Los Angeles; VAS = Visual Analog Scale.

*Negative Anti-CCP and negative IgM-RF = as defined by local laboratory cutoffs.

†Level of education: Secondary education (7–10 years education), youth education or postcompulsory education (10–12 years education), low further education/intermediate further education (13–15 years education), high further education (15–17 years of education), never completed any education (0–6 years education).

‡BMI < 18.5 underweight; 18.5–24.9 normal weight; 25–29.9 overweight; >30–39.9 severe overweight; BMI > 40 extreme overweight.

§Categories never treated/unknown/missing merged due to small numbers

‖Identification as transgender or nonbinary gender was not addressed in the questionnaire.

Key data from the patients with RA were compared to gender-stratified population data from Project SEXUS, using the chi-square test or Fisher's exact test in case of counts below 5. The data from Project SEXUS were weighted with regard to general population demographics, and for comparative purposes, only 25- to 73-year-old respondents were included.

$P < .05$ was considered statistically significant.

Missing values were excluded from each specific analysis but reported as separate categories.

Ethical Considerations

All procedures were conducted in accordance with the ethical standards of the Danish Code of Conduct for Research Integrity. In concordance with the Danish Law of Research for survey studies, the study was not registered at the Danish National Committee on Health Research Ethics. The study was registered by the Danish Data Protection Agency (case number: 2008-58-003). Furthermore, the study was reported to the Danish Patient Safety Authority to obtain permission to collect data from medical records (case number: 3-3013-1445/1/).

Table 2. Domains of sexual dysfunction according to the Sexual Functioning Questionnaire

All respondents (n = 306)	Men (n = 77)	Women (n = 229)	*P* value, χ^2 test
Changes in Sexual Functioning Questionnaire, mean [SD]	48.58 [10.26]	36.95 [10.87]	<.001
Sexual dysfunction,* n (%)	26 (33.8)	133 (58.1)	
Pleasure, mean [SD]	3.26 [1.16]	2.61 [1.30]	.003
Pleasure dysfunction,† n (%)	42 (54.5)	167 (72.9)	
Desire/frequency, mean (SD)	6.09 [1.96]	4.48 [1.71]	.003
Desire/frequency dysfunction,† n (%)	61 (79.2)	139 (60.7)	
Desire/interest, mean (SD)	8.12 [2.90]	5.48 [2.25]	.019
Desire/interest dysfunction,† n (%)	60 (77.9)	203 (88.6)	
Arousal/excitement, mean (SD)	10.88 [3.27]	7.22 [3.04]	<.001
Arousal/excitement dysfunction,† n (%)	49 (63.6)	212 (92.6)	
Orgasm/completion, mean (SD)	10.74 [2.91]	8.17 [3.86]	.167
Orgasm/completion dysfunction,† n (%)	57 (74.0)	150 (65.5)	

Significant *P* values in italic.
*Risk of sexual dysfunction cutoff: men < 47, women < 41.
†Cutoff subdomains: pleasure = men < 4, women < 4; desire/frequency = men < 8, women < 6; desire/interest = men < 11, women < 9; arousal/excitement = men < 13, women < 12; orgasm/completion = men < 13, women < 11.

All participants signed a consent form after reviewing both oral and written information.

RESULTS

Basic Gender Differences

As shown in Table 1, marked differences between male and female patients were seen in several basic categories: More women than men were single (28.8% vs 16.5%), more women than men were within a normal weight range (38.5% vs 29.1%), more women than men showed signs of moderate/severe depression (12.8% vs 2.6%), and men tended to consume more alcohol than women. The mean HAQ score was 0.83, and a higher proportion of men (80.8%) than women (54.0%) scored in the lowest group (0−1 points), indicating a high level of physical functioning.

Sexual Dysfunction

In total, 306 (77 men and 229 women) of 329 respondents answered the CSFQ questionnaire and the basic questions concerning their sexual life. Overall, 33.8% and 58.1% of men and women, respectively, had a CSFQ score indicative of sexual dysfunction. Women reported significantly more sexual dysfunctions than men in the domains of pleasure (72.9% vs 54.5%, $P < .001$), desire/interest (88.6% vs 77.9%, $P = .003$), and arousal/excitement (92.6% vs 63.6%, $P < .001$), while men exhibited more, yet nonsignificant, signs of orgasm/completion dysfunction (74.0% vs 65.5%, $P = .167$) and significantly more signs of desire/frequency dysfunction (79.2% vs 60.7%, $P = .019$) than women (Table 2). Nearly one-fifth (18.4%) of male respondents had used medication to treat erectile dysfunction (Table 3).

The multivariate analysis (Table 4) revealed that women had a significantly higher risk of sexual dysfunction within the last month (measured by the CSFQ) than men (odds ratio [OR], 2.5). The risk of sexual dysfunction was significantly higher in the age groups 45−65 years (OR, 3.5) and +65 years (OR, 10.6) than in the age group <45 years. The presence of fatigue above 75 on a 100-point VAS also increased the risk of sexual dysfunction substantially (OR, 4.1).

Sexual Life Related to RA

As depicted in Table 3, a total of 37.6% of respondents reported that RA had made their sexual life more complicated to some or a high extent, and 32.4% feared that RA would complicate their sex life in the future. Almost half (46.5%) of respondents, who experienced RA-induced fatigue, found that the fatigue had impacted negatively on their sexual activity, and almost one-third (29.2%) reported that they had experienced sexual problems caused by their medical RA treatment. Of all, 29.9% (32.2% of women vs 22.4% of men) claimed that RA had altered their body image negatively.

A vast majority (91.6%; 85.5% of men vs 93.5% of women) stated that they had not discussed sexual issues with a health-care professional within the past 5 years. Approximately, one in 10 (10.7%; 6.9% of women vs 22.4% of men) reported that a health professional had addressed their sexual life about RA at least once during the recent year. One-third (32.5%; 27.2% of women vs 48.7% of men) reported that they would like health professionals to address sexual issues.

Reporting a bad/very bad sex life during the last year was significantly associated with having light or severe depressive symptoms (OR, 4.4; OR, 31.9), and the same was true for having a UCLA Loneliness Scale score between 50 and 64 (OR, 6.0). A significantly increased risk of lacking sexual meaningfulness and pleasure during the past year was seen in +65-year-olds compared to younger age groups (OR, 5.7), in respondents with UCLA Loneliness Scale scores between 35 and 49 (OR, 3.7) and between

Table 3. Basic questions concerning sexuality

Questions about sexuality	Men, n (%)	Women, n (%)	Total, n (%)
To what extent did you experience that rheumatoid arthritis (RA) made your sex life more complicated?			
To a high/some extent	25 (32.9)	91 (39.2)	116 (37.6)
To a low extent/not at all	48 (63.1)	115 (49.6)	163 (52.9)
Don't know	3 (3.9)	26 (11.2)	29 (9.4)
To what extent do you fear that RA will complicate your sex life in the long run?			
To a high/some extent	31 (40.8)	69 (29.7)	100 (32.4)
To a low extent/not at all	36 (47.4)	114 (49.1)	150 (48.7)
Don't know	9 (11.8)	49 (21.1)	58 (18.8)
Did your experience of fatigue influence your sexual activity?*			
No	33 (47.8)	94 (43.3)	127 (44.4)
Yes	31 (44.9)	102 (47.0)	133 (46.5)
Missing	5 (7.2)	21 (9.7)	26 (9.1)
Have you ever experienced sexual problems caused by the medical treatment for RA?			
No	41 (53.9)	101 (43.5)	142 (46.1)
Yes	23 (30.3)	67 (28.9)	90 (29.2)
Don't know	12 (15.8)	64 (27.6)	76 (24.7)
Have you ever used medication for treatment of erectile dysfunction (ED)?			
No	62 (81.6)	N/A	62 (81.6)
Yes	14 (18.4)	N/A	14 (18.4)
To what extent did RA alter your body image?			
My body image is unchanged	47 (61.8)	113 (48.7)	160 (51.9)
My body image has become more positive	3 (3.9)	10 (4.3)	13 (4.2)
My body image has become more negative	17 (22.4)	75 (32.3)	92 (29.9)
Don't know	9 (11.8)	34 (14.7)	43 (14.0)
To what extent do you think that RA altered your partner's view on your body?†			
His/her view is unchanged	44 (69.8)	113 (66.9)	157 (67.7)
His/her view has become more positive	1 (1.6)	3 (1.8)	4 (1.7)
His/her view has become more negative	5 (7.9)	8 (4.7)	13 (5.6)
Don't know	13 (20.6)	45 (26.6)	58 (25.0)
During the last 5 years, did you discuss sexual questions or problems with a health-care professional?			
No	65 (85.5)	217 (93.5)	282 (91.6)
Yes, and I initiated the discussion	7 (9.2)	7 (3.0)	14 (4.5)
Yes, and the healthcare professional initiated the discussion	1 (1.3)	3 (1.3)	4 (1.3)
Don't know	3 (3.9)	5 (2.2)	8 (2.6)
During the last year, how often did a health-care professional address your sexual life in relation to RA?			
At least one time (several/a couple of/one time(s))	17 (22.4)	16 (6.9)	33 (10.7)
Not at all	55 (72.4)	199 (85.8)	254 (82.5)
Don't know	4 (5.3)	17 (7.3)	21 (6.8)
To what extent do you want health-care professionals to occasionally address your sexual life and offer you information, guidance, and other assistance?			
To a high/some/low extent	37 (48.7)	63 (27.2)	100 (32.5)
Not at all	30 (39.5)	127 (54.7)	157 (51.0)
Don't know	9 (11.8)	42 (18.1)	51 (16.6)

*Only participants who responded positively on experiencing RA-induced fatigue.
†Only participants who responded positively to having a partner.

50 and 64 (OR, 6.1) and in respondents who reported fatigue between 35 and 74 (OR, 4.7) on a 100-point VAS.

Having more than 2 comorbidities on the Charlson's Comorbidity Index (OR, 4.4) or displaying signs of a light depression (OR, 2.8) increased the risk of reporting that sexual needs had not/to a low extent been met in the past year.

Having a partner increased the risk of experiencing sexual problems due to RA treatment (OR, 7.4) and so did a score between 35 and 49 on the UCLA Loneliness Scale (OR, 2.9). Reporting RA-induced sex life complications to a high or some extent was significantly associated with 2 or more comorbidities (OR, 4.0), low alcohol intake (OR, 2.1), and current treatment with MTX (OR, 3.3).

Having a partner (OR, 4.3) and high alcohol consumption (OR, 3.4) also increased the risk of having a negative body image, as did signs of moderate or severe depression (OR, 4.5; OR, 38.3).

Sexual Health in Patients With RA Compared to the General Population

When comparing our findings among patients with RA to nationally representative and age group−matched data from the general Danish population (Table 5), significantly fewer male patients than male controls (79.2% vs 90.3%, $P = .012$) and female patients than female controls (54.0% vs 75.4%, $P < .001$) considered it important to have a good sex life. Similarly, significantly fewer male patients than male controls (39.0% vs 49.9%, $P = .043$) and female patients than female controls (30.9% vs 47.4%, $P < .001$) reported that their sex life had been good/very good in the past year.

Finally, significantly more female patients than female controls (26.6% vs 8.3%, $P < .001$) reported no sexual desire over the past year. Among men, this difference (3.9% vs 2.1%, $P = .321$) did not reach statistical significance, and neither did differences between patients and controls regarding pleasure and meaningfulness of recent sex life.

Significantly more female patients than female controls (32.1% vs 15.7%, $P < .001$) had not had any sex life during the past year. Also, significantly fewer female patients than control women (25.3% vs 41.7%, $P < .001$) reported that their sexual needs had been met to a high/very high extent during the last year.

DISCUSSION

The present study found that one-third of men and more than half of women with RA scored within the range indicative of sexual dysfunction according to the CSFQ score. Besides, fewer RA patients than Danes from the general population rated their current sex life as good or very good. Among both men and women, the proportion of patients with RA who considered a good sex life to be important was significantly lower than among the Danish population, and a similar pattern was detected in questions concerning the meaningfulness and fulfillment of the recent sexual life.

The high prevalence of sexual dysfunctions among female patients with RA was also shown in a recent systematic review and meta analysis,[31] with studies using the Female Sexual Function Index to measure sexual dysfunction. All domains in the Female Sexual Function Index were lower in women with RA than healthy controls and with 79.7% women with RA reporting sexual dysfunction. Similar to us, Puchner et al[32] found increased sexual dysfunction in all domains among women with RA (n = 203) compared to healthy controls (n = 169) using the CSFQ score. No comparisons to males with RA were made, but a systematic review found an increased prevalence of sexual dysfunction in men with RA (33−62%) compared to healthy controls (11−40%).[33]

A newly published study found sexual dysfunction to be prevalent in one-third of patients with RA, and gender, age above 50 years, disease activity, mental health, and cohabitation were among factors associated with sexual dysfunction.[34] The present study found no significant association between sexual dysfunction and disease activity (measured with the HAQ) or cohabitation. However, significant associations were present between general questions about sex life and disease activity, depression, loneliness, and alcohol consumption. Such questions of a more exploratory nature were not addressed in the aforementioned studies.

A meta-analysis that investigated RA as a risk factor for sexual dysfunction among both genders found that both women (relative risk, 1.73) and men (relative risk, 1.99) with RA had an increased risk of sexual dysfunction,[35] which is in line with our study. It is essential to take into consideration that although the CSFQ scores show a high level of possible sexual dysfunction, we did not measure possible sexual distress.

Several bio-psycho-social factors are known to potentially impact sexual function, and some of these may be more prominent for patients with RA. Our study revealed that fatigue had a negative impact on the patients' sex life and that a high VAS score of fatigue was significantly associated with the presence of sexual dysfunction the past year. One out of 4 patients reported RA-related fatigue, and of these, almost half (47%) claimed that it affected their sex life negatively. In a study by Hill et al,[36] 56% of patients with RA (n = 57; 10 men and 47 women) stated that they experienced limitations in sexual intercourse, and the main reasons for this were fatigue or pain. A similar pattern was seen in a descriptive study among women (n = 100) with a range of chronic illnesses which found that fatigue was associated with lower sexual function.[37] Fatigue is highly prevalent among patients with RA.[38] Still, despite the indications that it is one of the most sexually burdensome symptoms of RA, there is a lack of studies investigating the specific impact of fatigue on RA patients' general and sexual well-being.

Our results showed that moderate to severe depression was present more in female than in male respondents (12.8% vs

Table 4. Multivariate analysis of possible determinants of sexual ill health

Characteristics	Sexual dysfunction during last month** OR (95% CI)	Bad/very bad sex life during last year OR (95% CI)	Sex life not at all/to a low extent meaningful during last year OR (95% CI)	Sexual needs not at all/to a low extent accommodated during last year OR (95% CI)	Sex life to a high/some extent more complicated because of RA OR (95% CI)	Ever experienced sexual problems due to RA treatment OR (95% CI)	RA induced negative body image OR (95% CI)
Sociodemographic data							
Gender							
Male	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Female	**2.5 (1.3–4.8)**	0.9 (0.4–2.8)	1.1 (0.4–2.6)	1.1 (0.5–2.4)	1.3 (0.6–2.7)	0.9 (0.5–1.8)	1.5 (0.7–3.3)
Age group							
Age < 45	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Age 45–65	**3.5 (1.3–9.4)**	1.1 (0.3–4.7)	3.8 (0.9–15.4)	3.6 (0.8–17.0)	0.7 (0.3–1.9)	1.0.(0.4–2.7)	**0.4 (0.2–0.9)**
Age 65+	**10.6 (3.5–32.5)**	0.6 (0.1–3.6)	**5.7 (1.2–28.2)**	3.4 (0.6–18.4)	0.7 (0.2–2.0)	1.1 (0.4–3.1)	**0.1 (0.0–0.3)**
Cohabitating status							
Living alone	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Cohabitating	0.8 (0.3–2.7)	1.37 (0.2–10.5)	0.9 (0.1–5.7)	0.7 (0.1–3.2)	1.3 (0.4–4.6)	0.5 (0.1–2.1)	0.4 (0.1–1.6)
Partner status							
Single	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In a relationship	0.6 (0.2–1.8)	1.7 (0.3–11.0)	1.9 (0.3–11.9)	1.2 (0.3–6.0)	0.7 (0.2–2.2)	**7.4 (1.7–33.0)**	**4.3 (1.2–16.4)**
Characteristics related to RA							
Paraclinical variables							
Anti-CCP negative*	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Anti-CCP positive*	2.1 (0.9–4.8)	0.6 (0.2–2.13)	0.8 (0.3–2.3)	2.0 (0.6–6.7)	0.7 (0.3–1.7)	1.1 (0.5–2.7)	0.9 (0.4–2.7)
IgM-RF negative†	1.00	1.00	1.00	1.00	1.00	1.00	1.00
IgM-RF positive†	0.5 (0.2–1.3)	1.01 (0.3–4.0)	1.5 (0.4–5.2)	0.6 (0.2–1.8)	0.9 (0.4–2.5)	0.6 (0.2–1.5)	2.7 (0.9–8.1)
Comorbidity							
CCI 0–1	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CCI 2+	0.7 (0.2–2.7)	1.3 (0.3–6.8)	2.3 (0.4–13.2)	**4.4 (1.2–16.2)**	**4.0 (1.1–15.5)**	2.7 (0.7–9.6)	0.9 (0.2–3.8)
Medical treatment related to RA							
Methotrexate							
Previous	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Current	0.8 (0.4–1.6)	0.8 (0.3–2.3)	0.9 (0.4–2.12)	0.9 (0.4–2.2)	**3.3 (1.4–7.7)**	1.1 (0.6–2.1)	1.3 (0.6–2.7)
Never	0.4 (0.0–6.6)	2.5 (0.1–72.9)	1.4 (0.1–36.6)	1.00 (.-.)††	0.9 (0.1–12.5)	0.2 (0.0–3.0)	0.2 (0.1–3.7)
Biologics‡							
Previous	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Biologics: present	1.4 (0.5–4.2)	2.1 (0.4–11.8)	1.3 (0.3–5.5)	0.6 (0.2–2.0)	0.4 (0.1–1.4)	0.9 (0.3–2.9)	0.7 (0.2–2.1)
Biologics: never	2.1 (0.8–6.0)	2.6 (0.5–12.7)	1.5 (0.4–5.7)	0.4 (0.1–1.1)	0.9 (0.3–2.8)	0.8 (0.3–2.3)	0.5 (0.2–1.5)

(continued)

Table 4. Continued

Characteristics	Sexual dysfunction during last month** OR (95% CI)	Bad/very bad sex life during last year OR (95% CI)	Sex life not at all/to a low extent meaningful during last year OR (95% CI)	Sexual needs not at all/to a low extent accommodated during last year OR (95% CI)	Sex life to a high/some extent more complicated because of RA OR (95% CI)	Ever experienced sexual problems due to RA treatment OR (95% CI)	RA induced negative body image OR (95% CI)
Lifestyle factors							
BMI categories§							
<18.5	0.8 (0.2–3.7)	0.9 (0.1–16.3)	4.3 (0.4–45.6)	0.8 (0.1–10.9)	2.2 (0.3–14.9)	1.5 (0.2–9.7)	3.5 (0.5–27.1)
18.5–24	1.00	1.00	1.00	1.00	1.00	1.00	1.00
25–29	1.1 (0.6–2.2)	1.1 (0.4–3.1)	0.9 (0.4–2.4)	1.9 (0.8–4.4)	1.1 (0.5–2.3)	0.6 (0.3–1.2)	1.0 (0.5–2.1)
30–39	0.9 (0.5–2.1)	1.1 (0.4–3.2)	2.0 (0.8–5.1)	1.8 (0.7–4.7)	1.0 (0.5–2.4)	0.7 (0.3–1.5)	1.7 (0.8–3.7)
40+	1.9 (0.3–14.3)	2.0 (0.2–22.2)	4.4 (0.3–55.9)	5.7 (0.8–38.0)	0.5 (0.0–6.0)	0.3 (0.0–2.3)	0.5 (0.0–4.0)
Smoking categories							
No daily smoking	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Daily smoking	0.6 (0.3–1.3)	0.7 (0.2–2.4)	1.4 (0.5–3.9)	1.3 (0.5–3.3)	1.4 (0.6–3.1)	0.7 (0.3–1.5)	1.6 (0.7–3.6)
Alcohol categories							
No weekly alcohol	1.00	1.00	1.00	1.00	1.00	1.00	1.00
<7/<14 units/week	1.1 (0.6–2.1)	1.4 (0.5–3.9)	1.1 (0.5–2.7)	1.5 (0.7–3.4)	**2.2 (1.1–4.5)**	1.3 (0.6–2.5)	2.0 (0.9–4.1)
>7/>14 units/week	0.9 (0.3–2.7)	0.9 (0.2–4.2)	0.3 (0.1–1.4)	0.6 (0.1–2.8)	2.2 (0.7–6.7)	1.1 (0.4–3.1)	**3.4 (1.2–9.9)**
Patient-reported outcomes							
Physical function categories‖							
HAQ 0–1	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HAQ 1–2	1.6 (0.8–3.3)	0.9 (0.3–2.7)	1.1 (0.4–2.9)	0.8 (0.4–1.9)	**0.4 (0.2–0.9)**	1.3 (0.6–2.7)	1.3 (0.6–2.7)
HAQ 2–3	2.0 (0.4–8.8)	3.1 (0.5–19.6)	2.9 (0.5–15.9)	2.8 (0.7–11.8)	0.8 (0.2–3.8)	2.0 (0.5–7.6)	0.8 (0.2–3.5)
Depression categories¶							
BDI ≤ 13	1.00	1.00	1.00	1.00	1.00	1.00	1.00
BDI 14–19	2.4 (0.9–6.1)	**4.4 (1.5–13.3)**	2.9 (0.9–8.7)	**2.8 (1.1–7.3)**	1.7 (0.6–4.9)	1.0 (0.4–2.5)	2.1 (0.9–5.3)
BDI 20–28	2.4 (0.6–9.7)	3.3 (0.8–13.4)	2.1 (0.5–10.0)	1.0 (0.3–4.1)	1.5 (0.3–6.7)	1.7 (0.5–5.7)	**4.5 (1.3–15.3)**
BDI ≥ 29	1.8 (0.1–26.1)	**31.9 (1.9–546.9)**	5.6 (0.3–101.8)	2.5 (0.2–29.6)	1.00 (.-.)††	1.9 (0.2–17.2)	**38.3 (2.3–636.4)**
Loneliness categories#							
UCLA 20–34	1.00	1.00	1.00	1.00	1.00	1.00	1.00
UCLA 35–49	1.8 (0.9–3.3)	2.6 (0.9–7.5)	3.7 (1.5–8.9)	1.4 (0.7–3.1)	0.5 (0.3–1.0)	**2.9 (1.5–5.6)**	1.8 (0.9–3.6)
UCLA 50–64	1.8 (0.7–5.0)	**6.0 (1.6–23.3)**	**6.1 (1.5–25.1)**	1.7 (0.6–5.3)	0.5 (0.1–1.5)	1.5 (0.5–4.3)	0.9 (0.3–2.7)
UCLA 65–80	1.00 (.-.)††	1.00 (.-.)††	1.00 (.-.)††	1.00 (.-.)††	1.00 (.-.)††	11.0 (0.4–299.5)	0.3 (0.1–8.7)

(continued)

Table 4. Continued

Characteristics	Sexual dysfunction during last month** OR (95% CI)	Bad/very bad sex life during last year OR (95% CI)	Sex life not at all/to a low extent meaningful during last year OR (95% CI)	Sexual needs not at all/to a low extent accommodated during last year OR (95% CI)	Sex life to a high/some extent more complicated because of RA OR (95% CI)	Ever experienced sexual problems due to RA treatment OR (95% CI)	RA induced negative body image OR (95% CI)
Pain categories							
VAS Pain 0–34	1.00	1.00	1.00	1.00	1.00	1.00	1.00
VAS Pain 35–74	0.7 (0.3–1.4)	0.8 (0.3–2.4)	0.3 (0.1–0.8)	0.6 (0.3–1.5)	0.7 (0.3–1.4)	1.4 (0.7–2.9)	0.9 (0.4–2.1)
VAS Pain 75+	1.2 (0.2–7.9)	0.6 (0.1–5.3)	0.4 (0.0–4.3)	0.9 (0.1–5.3)	0.7 (0.1–6.0)	2.2 (0.4–11.8)	1.3 (0.3–6.9)
Fatigue categories							
VAS Fatigue 0–34	1.00	1.00	1.00 (.-.)	1.00	1.00	1.00	1.00
VAS Fatigue 35–74	1.9 (0.9–4.1)	2.4 (0.7–8.4	4.7 (1.7–12.9)	1.7 (0.7–4.4)	**0.4 (0.2–0.9)**	0.9 (0.4–2.0)	1.3 (0.6–3.0)
VAS Fatigue 75+	**4.1 (1.4–12.3)**	1.3 (0.3–6.3)	2.1 (0.4–10.2)	2.7 (0.7–9.7)	0.6 (0.2–2.1)	1.1 (0.4–3.2)	1.6 (0.5–4.9)

Abbreviations: BDI = Beck Depression Inventory; BMI = body mass index; CCI = Charlson's Comorbidity Index; CCP = cyclic citrullinated peptide; CI = confidence interval; HAQ = Health Assessment Questionnaire; IgM-RF = immunoglobulin M rheumatoid factor; MTX = methotrexate; OR = odds ratio; RA = rheumatoid arthritis; UCLA = University of California Los Angeles; VAS = Visual Analog Scale. All ORs are mutually adjusted for all characteristics included in the table. Bold values indicating OR to be significantly different from 1 at a 0.05 significance level.

*Anti-CCP positive/negative, cutoff as defined by local laboratory.

†IgM-RF positive/negative, cutoff as defined by local laboratory.

‡Biologics include anakinra, tocilizumab, abatacept, etanercept, certolizumab, adalimumab, infliximab, golimumab.

§BMI categories: <18.5 underweight; 18.5–24.9 normal weight; 25–29.9 overweight; >30–39.9 severe overweight; BMI >40 extreme overweight.

‖HAQ categories: 0–1 mild to moderate difficulty; 1–2 moderate to severe disability; 2–3 severe to very severe disability.

¶BDI categories: ≤13 minimal or no depression; 14–19 light depression; 20–28 moderate depression; ≥29 severe depression.

#UCLA Loneliness categories: 20–34, low; 35–49, moderate; 50–64, moderately high; 65–80, high.

**Sexual dysfunction measured with CSFQ score, cutoff 47≤ for men and ≤41 for women.

††Numbers too small to calculate OR and CI.

Table 5. Key questions about sexual health in the rheumatoid arthritis (RA) sample and the general population*

Respondents	Male		Female	
	Patients with RA, n (%)	General population,* n (%)	Patients with RA, n (%)	General population,* n (%)
How important is it for you to have a good sex life?	n = 77, n = 22,870		n = 239 n = 22,892	
	$P^{\dagger}$ = **0.012**		$P <$ **.001**	
Highly important/very important/important	61 (79.2%)	20,644 (90.3%)	129 (54.0%)	17,266 (75.4%)
Not important/not important at all	13 (16.9%)	2,067 (9.0%)	93 (38.9%)	5,323 (23.3%)
Don't know	3 (3.9%)	158 (0,7%)	17 (7.1%)	343 (1.5%)
During the last year, how would you generally appraise your sex life?	n = 77, n = 22,870		n = 237, n = 22,892	
	P = **.043**		$P <$ **.001**	
Very good/good	30 (39.0%)	11,413 (49.9%)	73 (30.9%)	10,844 (47.4%)
Neither good nor bad	30 (39.0%)	5,943 (26.0%)	46 (19.4%)	5,299 (23.1%)
Bad/very bad	9 (11.7%)	3,779 (16.6%)	31 (13.1%)	2,953 (12.9%)
Did not have any sexual life	5 (6.5%)	1,652 (7.2%)	76 (32.1%)	3,600 (15.7%)
Don't know	3 (3.9%)	79 (0,4%)	11 (4.6%)	196 (0,9%)
During the last year, to what extent did you experience your sex life as a meaningful and rewarding part of life?	n = 72, n = 21,218		n = 161, n = 19,292	
	P = .390		P = .063	
To a very high/high extent	28 (38.9%)	10,519 (49.6%)	53 (32.9%)	8,676 (45.0%)
To some extent	23 (32.0%)	6,125 (28.9%)	50 (31.0%)	6,023 (31.2%)
To a low extent/not at all	16 (22.2%)	4,317 (20.3%)	41 (25.5%)	4,182 (21.7%)
Don't know	5 (6.9%)	257 (1.2%)	17 (10.6%)	410 (2.1%)
During the last year, to what extent were your sexual needs accommodated?	n = 77, n = 22,870		n = 237, n = 22,892	
	P = .321		$P <$ **.001**	
To a very high/high extent	26 (33.8%)	8,791 (38.4%)	60 (25.3%)	9,555 (41.7%)
To some extent	30 (39.0%)	7,881 (34.5%)	55 (23.2%)	6,055 (26.5%)
To a low extent/not at all	15 (19.5%)	5,585 (24.4%)	45 (19.0%)	4,998 (21.8%)
Did not have sexual desires	3 (3.9%)	470 (2.1%)	63 (26.6%)	1,911 (8.3%)
Don't know	3 (3.9%)	142 (0.6%)	14 (6.0%)	379 (1.7%)

Significant P values emphasized in bold.
*Weighted data from the Project SEXUS cohort (25- to 73-year-old respondents).[22]
†P values comparing RA sample and general population stratified by gender, bold P values indicate significance at the <0.05 level, P value calculated by χ^2 test.

2.6%), generally leaving women in a more vulnerable position. Imran et al[39] reported overall higher rates of depression among patients with RA (n = 100) than our study; they found that 22.5% had moderate depression, while 18.6% had severe depression measured with BDI. Although the results from our study showed a lesser extent of depression in patients with RA, multivariate analysis revealed an association between both light and severe depression and the experience of a bad/very bad sex life. It is well known from other studies that depression and sexual function are closely linked and that the relationship between depression and sexual dysfunction can be bidirectional.[40] Results from a previous cross-sectional study investigating depression and sexual function in patients with RA showed that depression, along with age and female sex, was predictive of sexual dysfunction. This was independent of other physical aspects.[7]

The present study also showed an association between moderate/severe depression and a negative body image induced by RA, and nearly one-third of the patients (30%; 32% of females vs 22% of males) stated that RA had negatively altered their body image. In contrast, just 5.6% of the patients thought that RA had changed their partner's appraisal of their body negatively, but 25.0% responded that they were unaware of how their partner felt of their body. These results are in line with 2 other smaller studies. In a study of 82 men and women, Jorge et al found a significant worse body image perception as well as lower self-esteem in patients with RA compared to healthy controls.[41] Monaghan et al found that concerns of appearance and physical functioning were predictive of depression in men and women with recent-onset or chronic RA.[42]

Furthermore, our study found that a moderate to high loneliness score was associated with experiencing sexual problems and not finding one's current sex life meaningful. Data from the same cohort have previously shown that the existence of loneliness can be tabooed, although it is generally burdensome for persons with RA.[43] Studies on sexual dysfunction and loneliness are scarce. One cross-sectional study investigating the correlation between sexual dysfunction and loneliness among patients on hemodialysis found no association.[44] A study on (healthy) older adults found that a higher score on the UCLA Loneliness Scale was associated with less frequent sexual activity and fewer feelings of intimacy, indicating sexual dysfunction.[45]

In our sample, 18.4% of the men reported having ever used medication for treating erectile dysfunction, and 63.6% of the male patients showed signs of an arousal/excitement dysfunction. Erectile dysfunction is a well-known complication of several chronic diseases, especially cardiovascular disease and diabetes.[46] Still, only a few studies have previously shown an increased risk of erectile problems in male patients with RA.[47,48] Male sexual function can be affected by testosterone,[49] and this was examined in a small sample of men with RA, showing decreased testosterone levels and increased ED and lack of libido compared to healthy controls.[50] Unfortunately, we were not able to collect data on the testosterone levels of male participants.

Medical side effects are well-documented reasons for sexual problems.[51-53] In our sample, 30.3% of men and 28.9% of women had ever experienced a negative impact of RA medication on their sexual life. Nearly all our patients were presently or previously treated with MTX, and 29.2% were currently being treated with biological treatment. A few studies have shown that MTX for dermatological use may cause loss of libido or erectile dysfunction,[11] but larger scale studies are needed.

The impact of RA treatment on female sexual dysfunction is scarcely investigated. Although Alia et al[54] found no association between RA treatment and female sexual function, our results suggest that men and women may equally experience negative influence on their sex life from the medical treatment. It is generally difficult to differentiate between the adverse effects of the disease and its treatment, but based on our findings, clinicians should consider adverse sexual events caused by medication in both men and women. However, further research is needed to confirm the suggested associations between medical RA treatment and sexual dysfunction.

Female dysfunction in the subdomain of sexual arousal/excitement could be explained by either drug-related side effects[40] or Sjögren's disease that may accompany RA, leading to vaginal dryness.[55] Also, reduced lubrication is prevalent after menopause,[56] and this may aggravate existing risk factors of sexual dysfunction in postmenopausal RA patients. Lubrication problems have been explicitly investigated in premenopausal patients with breast cancer.[57] Still, to our knowledge, no studies have as yet shed light on drug-induced vaginal dryness in women with RA.

Finally, our study showed that the majority of both male and female patients (92%; 86% of men vs 94% of women) had *not* discussed sexual questions or problems with a health-care professional in the last 5 years. A total of 83% (72% of men vs 86% of women) had not experienced any health-care provider address sex life issues during the past year. These results are similar to findings from other studies, including both patients with RA and patients with other chronic illnesses. For example, Josefsson and Gard[9] found that 75% of Swedish patients with RA had never discussed sexual questions in the consultation, while 65% expressed a wish to talk to a health professional about such topics. Similarly, a Danish study on men and women with heart diseases showed that even in patients with conditions with a well-known adverse effect on sexual function, most patients experienced that sexual issues were not addressed in the consultation.[16]

Surprisingly, half of the participants in our study stated that they did not want health-care professionals to address sexual themes occasionally. This is in contrast to the aforementioned Swedish study,[9] where just 14% of the participants did not want to receive any information about sexuality from health professionals, while 27% preferred to discuss sexual issues with their partner. However, it should be noted that 18% of women and 12% of men in our study answered "Don't know" to the question about the need for a clinical dialog about sexual topics, suggesting a general perception of sexual problems and sexual dysfunction as a sensitive subject. It is, thus, well known that a "two-way taboo" may exist, where both patients and professionals avoid the subject, waiting in vain for the other part of bringing it up.[17] This silencing may leave patients with RA in a vulnerable position, where refusing a need to discuss sexual problems seems more natural than to bring the issue up. Such a dynamic is supported by several other studies,[14,58] and it may also be part of the reason why significantly more RA patients than Danes from the general population deemed a good sex life unimportant.

CONCLUSION AND CLINICAL PERSPECTIVES

Our results confirm and add to existing knowledge of sexual problems and ill health among both male and female patients with RA. Sexual adversities may be caused directly by RA-specific changes (ie, pain, fatigue, or medical side effects), but they may also result from indirect or confounding factors such as high body mass index, comorbidity, depression, loneliness, or body image disturbances. Furthermore, old age and female gender seem to increase the risk of sexual problems in patients with RA.

Results from our study indicate that having RA can make patients' sexual life more complicated, impact their body image negatively, or raise speculations about future sexual health. One-third of patients with RA would like to discuss sexual issues openly with their health-care provider, but the vast majority of patients have not been invited to such talks. This underscores the importance of a holistic approach in rheumatological practice, and doctors and nurses should be aware that a significant

proportion of their patients have unmet needs for sexual information and counseling. Thus, health-care professionals should actively disrupt the "two-way taboo" to ensure the sexual and relational health of their patients with RA. Also, issues such as depression, loneliness, insecurity, and body image disorders should be considered when RA patients are expressing sexual difficulties.

Strengths and Limitations of the Study

The strengths of the study include its relatively large sample size of 350 patients. In addition, it is a strength that 79 men were included, as most RA studies restrict themselves to investigating female patients. However, a larger number of male participants would have strengthened the study and made its conclusions more robust.

The study limitations include a significant risk of selection bias. Patients were recruited consecutively, as they showed up in the outpatient department. Thus, patients with deficient disease activity (who did not feel a need to show up) or very high disease activity (who did not have the strength to show up) may have been missed because of nonattendance. The same may be right for low-resource and poorly adherent patients. Although there was a relatively high response rate (86.5%), there is a risk of nonresponse bias because we have no data on the dropouts and nonresponders. Recall bias and social desirability bias may also be present, primarily because some of the questionnaires dealt with delicate questions on private and intimate matters.[59]

The cross-sectional study design did not allow for a dynamic lifetime approach.

Furthermore, the lack of a healthy control group to directly compare with the included patient-reported outcome measures (BDI; UCLA; CSFQ) impaired conclusions regarding the impact and causality of various risk factors.

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