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ΕΡΕΥΝΗΤΙΚΗ ΕΡΓΑΣΙΑ

Health-related quality of life of patients with rheumatic diseases in the Southern Aegean region, Greece

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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2022, 39(3):344–353

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Ποιότητα ζωής ασθενών με ρευματικές παθήσεις στην περιφέρεια νοτίου Αιγαίου (Ελλάδα)

Περίληψη στο τέλος του άρθρου

OBJECTIVE **To assess the quality of life (QoL) of patients with common rheumatic diseases.** METHOD **A cross-sectional study was carried out during September–November 2018 in the Southern Aegean, Greece, collecting data from 465 patients. The SF-36 scale was used, with levels of QoL compared between three groups of patients: (a) Those with rheumatoid arthritis (RA) only, (b) those with RA and other rheumatic diseases, and (c) those with another rheumatic disease.** RESULTS **The mean age of the respondents was 58.6 ±13.9 years, and 75.9% were females; 64.3% were diagnosed with RA, 18.5% with systemic lupus erythematosus (SLE) and 17.2% with spondyloarthritis. All the patients were found to have moderate to low levels of QoL, according to the scores on SF-36, with the highest mean level in "mental health" compared with "general health" (57.0 vs 39.1, p<0.001). A significant difference was found between the scores on the two main components, "mental health" and "physical health" (52.1 vs 41.2, p<0.001). Patients with RA and other rheumatic diseases recorded lower scores on physical functioning, bodily pain, general health, vitality, social functioning and mental health than the other two groups (p<0.05), and in the total "physical health" and "mental health" components (p<0.01). A higher likelihood of low QoL was found in "physical health" for patients with RA and other rheumatic diseases (OR: 1.89, p=0.042) and for low QoL in "physical" and "mental health" in females and patients with increased comorbidity (p<0.05).** CONCLUSIONS **All the health-related QoL components of patients with rheumatic diseases were found to be more impaired in patients with a combination of RA and other rheumatic diseases.**

Key words

Morbidity status
Quality assessment
Quality of life
Rheumatic diseases
SF-36

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Rheumatic diseases are defined as non-traumatic diseases of the musculoskeletal system, affecting joints, tendons, ligaments, serous pockets, muscles, bones and spine. The individual and social impact of these diseases is associated with decreased quality of life (QoL), loss of productivity and increased health service costs.[1]

This group of diseases includes rheumatoid arthritis (RA) and spondyloarthritis (SpA), localized/painful inflammatory systemic diseases, such as systemic autoimmune rheumatic diseases, systemic lupus erythematosus (SLE), and systemic scleroderma (SSc), metabolic diseases, such as osteoporosis, and rare diseases such as familial Mediterranean fever (FMF).[2]

In the last 15 years a rapid increase in the prevalence of these related diseases has been observed. In 2015, a significantly higher rate of patients living with chronic disabilities due to these diseases was recorded in Europe, compared with other continents, followed by America, Asia and Oceania, with Africa coming last.[3]

One of the most commonly documented rheumatic diseases is RA, which is a chronic, systemic autoimmune disease associated with inflammatory activity and joint damage that can lead to a gradual loss of physical function.[1] The number of recorded RA cases doubled worldwide between 1990 and 2017 (an increase in prevalence of 7.4%).[4] RA is followed by SLE, which is an autoimmune, chronic connective tissue disease with a very widely varying clinical picture. SLE occurs ten times more frequently in adolescent women or in people in their early forties.[5,6] The incidence of the disease has been found to be higher in black populations and lower in Caucasians, and women are more commonly affected among all ethnicities.[7]

SpA is an umbrella term that includes a number of inflammatory diseases of the spine.[8] The highest prevalence of SpA has been recorded in indigenous communities in the Northern arctic, and in studies carried out in North America and Europe, compared with South and Southeast Asia. The prevalence of SpA was significantly higher in areas of the Northern hemisphere.[9]

The onset of a chronic disease is often considered to be a situation that interrupts the daily routine and brings about unintended changes in life style, with unforeseen consequences, such as limited physical activity and self-image crisis. Inflammatory rheumatic diseases are considered chronic diseases that are not directly life-threatening, but the chronic form of the disease may require adjustment and reorganization of the patients' daily lives, with a direct impact on their social life and various other areas of their lives, sometimes with severe limitation of the working life.[10] The main effects of rheumatic diseases on the QoL of patients are due to fatigue associated with sleep disorders, depression, anxiety and pain.[11] Depression is characterized by four main losses (i.e., energy, pleasure, desire, and reaction); sleep disorders do not allow patients to be more relaxed in the morning and to feel better as the day goes on, while impulsivity, irritability and aggression resulting from insomnia adversely affect their interpersonal relationships.[12] Another factor concerns the sexual and reproductive life of patients, the basic characteristic being small family size. The reasons why families may have a small number of children are multiple and include impaired sexual function, decreased gonadal function, miscarriages and personal choice. Sexuality contributes to QoL in patients with rheumatic disease, but is often overlooked by health professionals. Factors related to the disease and the psychological reactions to chronic diseases can impair sexual life and function.[13] The QoL of patients with rheumatic diseases is directly related to their health status. This correlation is a special multidimensional equation often defined as *"the patient's subjective perception of the impact of his disease and its treatment(s) on his daily life, physical, psychological, and social functioning and well-being"*.[5]

The aim of this study was to investigate the level of QoL in patients with rheumatic diseases in the South Aegean region in Greece.

MATERIAL AND METHOD

Study design, sample and participants

A cross-sectional study was conducted over three months, from September to November 2018. The study sample consisted exclusively of patients with a confirmed diagnosis of rheumatic disease living in the South Aegean region, Greece. The study sample was drawn from the outpatient clinics and the Rheumatology Clinic of the University General Hospital of Heraklion, Crete, which is the rheumatic diseases reference hospital for the South Aegean regional units. The total number of patients participating in the study was 465.

Research tools

The research study tool was based on the SF-36 questionnaire,[14] which determines eight components of physical and mental health: Physical functioning (PF), role physical (RP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role emotional (RE) and mental health (MH), while the additional question "Compared to a year ago, how would you assess your health now?" was independent, and does not form part of any component. The physical component (PC) and the mental component (MC) are the main two scoring components, which were also classified into three categories, based on general population scoring levels as defined by the mean value (50) and one standard deviation (SD±10), namely low QoL or <40, medium QoL or 40–60 and high QoL >60; (http://scireproject.com/wp-content/uploads/Clinician-Summary-v.5.0_SF36.pdf). The SF-36 questionnaire reliability test showed high consistency (Cronbach's α=0.941).

Data collection

The data collection was carried out on a daily basis by the researchers in the outpatient clinics and the Rheumatology Clinic of the University General Hospital of Heraklion, Crete. All patients were informed of the purpose of the study, shown the study permit and assured of anonymity. They were asked to participate voluntarily and those agreeing to participate gave their written consent at the beginning of the study. Because of the presence of concomitant rheumatic diseases such as RA, SLE, SpA, fibromyalgia, FMF, gout, systemic vasculitis, connective tissue diseases, cartilage diseases and retroperitoneal fibrosis, the patients were placed in three groups: (a) those with RA only, (b) those with RA and other rheumatic diseases, and (c) those with other rheumatic diseases. The descriptive/demographic characteristics of all the participants were recorded, and the SF-36 questionnaire was completed by all the patients. The time taken for the completion of the questionnaire was approximately 15–20 minutes.

Ethical considerations

Ethical approval was obtained from the Research and Bioethics Committee (IRB; University Hospital Heraklion Crete 11510/August 03, 2018). The study participants were informed about the study objectives, expected outcomes and associated benefits and risks. They did not receive compensation for their participation in the study. Written consent was provided by the participants before they answered the questionnaire. Permission to use the hospital

facilities was also obtained by the author prior to data collection.

Statistical analysis

The data were analyzed using the Statistical Package for Social Sciences (SPSS) software (IBM SPSS Statistics for Windows, Armonk, IBM Corp, NY), version 25.0. Frequency distributions of descriptive characteristics were estimated. For the prevalence of RA and other relevant diseases, the relevant 95% confidence intervals (95% CIs) were estimated based on bootstrap techniques. The scores on the eight SF-36 components were compared using the non-parametric Friedman test, while the scores on the two main components, physical and mental health, were compared using the Wilcoxon test. The relationship between QoL scores and the descriptive characteristics of the patients was estimated based on Spearman's rho. The non-parametric Kruskal-Wallis test was used to compare QoL between the three groups of patients (those with only RA, RA and other rheumatic diseases, and other rheumatic diseases). Multiple logistic regression analysis was performed for patients with low levels of QoL (<40) according to the SF-36 PC and MC or their combination, in relation to presence of the different rheumatic diseases and characteristics.

RESULTS

A total of 465 patients were enrolled in the study, of which 353 (75.9%) were female. Their mean age was 58.6±13.9 years, and 15.5% had a university degree, 70.1% were married, 36.3% lived in small villages, 37.0% were retired and 24.1% were smokers. The characteristics of the study participants are shown in table 1.

According to their morbidity status (fig. 1), 64.3% were diagnosed with RA, 18.5% with SLE and 17.2% with SpA, while the lowest percentage (0.4%) were diagnosed with gout. Regarding multimorbidity, 37.4% had arterial hypertension, 15.9% had diabetes mellitus (DM) and 14.2% had circulatory diseases, while 24% of patients with RA were diagnosed with two or more diseases. The average diagnosis time of rheumatic diseases was 12 years, and 36.4% of those who were sexually active stated that the disease had not affected their sexual life at all.

Regarding the scores on SF-36, it was observed that for all the components determining QoL, the mean average values were near the center of the scale (tab. 2), indicating in some cases low QoL, with a higher mean value in "mental health" and a lower mean value in "general health" (57.0 vs 39.1, respectively, p<0.001). Similarly, significant difference was observed between the two basic components, with the higher mean value recorded in the "mental health" compared to "physical health" (52.1 vs 41.2, respectively, p<0.001). Low levels of QoL were reported by 52.7% (95% CI 48.1, 57.2) for "physical health" and 37.0% (95% CI 32.7, 41.4) for "mental health", and 57.8% (95% CI 53.3, 62.3) for low "physical" and or "mental health". However, 67.1% of the participants reported their health level as excellent/very good, and 38.1% reported that there had been no significant change in the last year.

Univariate correlations of the two main components, "physical health" and "mental health" health with patients' basic characteristics (tab. 3) showed that women are associated with significantly lower scores on "physical health" (rho=-0.268, p<0.05) and "mental health" (rho=-0.311, p<0.05). Increased age was correlated with significantly lower scores on "physical health" QoL (rho=-0.168, p<0.05), and higher educational level was associated with signifi-

Table 1. Characteristics of study patients with rheumatic diseases in the South Aegean region of Greece (n=465).

		n	%
Gender	Male	112	24.1
	Female	353	75.9
Age (years)	Mean±SD (min-max)	58.6±13.9 (17–95)	
	<50	112	24.1
	50–64	179	38.5
	65+	174	37.4
Educational level	Primary school	204	43.9
	High school	179	40.6
	University	72	15.5
Family status	Married	326	70.1
	Divorced	28	6.0
	Unmarried	43	9.2
	Widowed	68	14.7
Place of residence (population)	>100,000	152	32.7
	10,000–100,000	79	17.0
	1,000–10,000	65	14.0
	<1,000	169	36.3
Occupation	Private sector worker	53	11.4
	Public sector worker	33	7.1
	Self-employed	26	5.6
	Farmer	61	13.1
	Household	95	20.4
	Retired	172	37.0
	Other (unemployed, student, etc.)	25	5.4
Smoking habit	Non smoker	250	53.8
	Ex-smoker	103	22.2
	Smoker	112	24.1

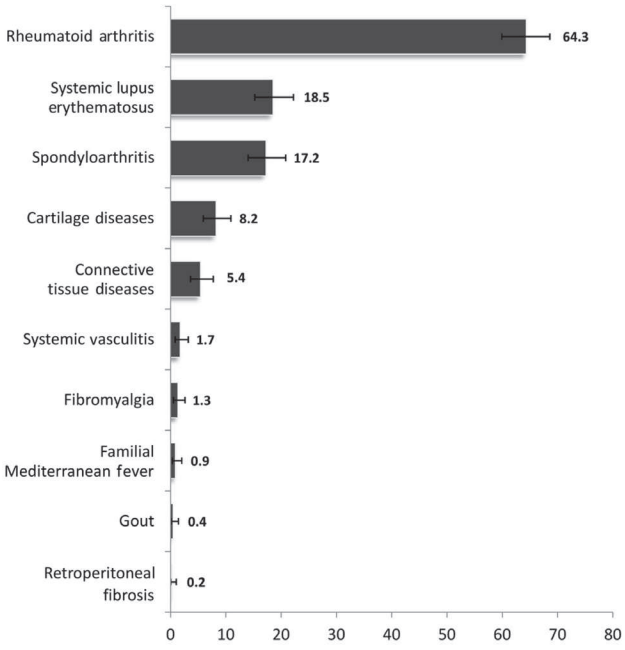

Figure 1. Morbidity prevalence of study patients with rheumatic diseases in the South Aegean region of Greece (n=465).

cantly higher scores on both "physical health" (rho=0.230, p<0.05) and "mental health" (rho=0.158, p<0.05), and occupation (employment status, p<0.05). The presence of RA was associated with significantly lower scores on "physical health" (rho=-0.134, p<0.05), and presented increased coherence with significantly lower "physical" (rho=-0.247, p<0.05) and "mental" QoL (rho=-0.177, p<0.05).

Table 4 presents the scores on the SF-36 components determining QoL, in terms of RA morbidity. Patients with RA and other rheumatic diseases recorded a significantly lower mean score in physical functioning, bodily pain, general health, vitality, social functioning and mental health than the other two groups of patients, those with RA only or with other rheumatic diseases (p<0.05). The same applies to the PC and MC (p<0.01).

Logistic regression analysis (tab. 5) revealed significantly higher odds for a low score in physical health only in patients with "RA and other rheumatic diseases" (OR: 1.89, p=0.042), but not in mental health (p=0.133) or combined physical/mental health (p=0.137), or in the other groups, RA only,

Table 2. Scores on the quality of life (QoL) components on the SF-39 questionnaire of study patients with rheumatic diseases in the South Aegean region of Greece (n=465).

QoL components	Mean	SD	Median	Min	Max
Physical functioning (PF)	43.7	29.3	40.0	0	100
Role physical (RP)	41.8	45.5	25.0	0	100
Bodily pain (BP)	40.3	24.7	40.0	0	90
General health (GH)	39.1	22.8	35.0	0	100
Vitality (VT)	43.8	22.2	40.0	0	100
Social functioning (SF)	55.8	30.0	50.0	0	100
Role emotional (RE)	51.7	46.5	66.7	0	100
Mental health (MH)	57.0	22.9	56.0	0	100
Physical component (PC)	41.2	25.2	37.5	0	100
Low (<40)	n=245 (52.7%; 95% CI: 48.1, 57.2)				
Medium (40–60)	n=103 (22.2%; 95% CI: 18.6, 26.1)				
High (>60)	n=117 (25.2%; 95% CI: 21.4, 29.3)				
Mental component (MC)	52.1	24.8	51.6	0	100
Low (<40)	n=172 (37.0%; 95% CI: 32.7, 41.4)				
Medium (40–60)	n=102 (21.9%; 95% CI: 18.4, 25.9)				
High (>60)	n=191 (41.1%; 95% CI: 36.7, 45.6)				
Low PC and or MC (at least one <40)	n=269 (57.8%; 95% CI: 53.3, 62.3)				
Medium/high PC and MC (both 40+)	n=196 (42.2%; 95% CI: 37.7, 46.7)				

QoL: Quality of life; 95% CI: 95% confidence interval
Friedman test between the eight components, p<0.001
Wilcoxon test between the two main components, p<0.001

Table 3. Univariate correlation coefficients of the scores on the main SF-36 components in relation to the characteristics of study patients with rheumatic diseases in the South Aegean region of Greece (n=465).

	SF-36 components	
	Physical	Mental
	Spearman's Rho	
Gender (1: Male, 2: Female)	-0.268*	-0.311*
Age (years)	-0.168*	-0.070
Education (1: Primary school, 2: High school, 3: University)	0.230*	0.158*
Family status (1: Married, 2: Divorced, unmarried, widowed)	0.008	-0.064
Place of residence (1: >100,000 residents, 2: 10,000–100,000, 3: 1,000–10,000, 4: <1,000)	-0.041	0.031
Occupation (1: Employed, 2: Retired, household, unemployed, student)	-0.206*	-0.174*
Rheumatoid arthritis (1: No, 2: Yes)	-0.134*	-0.059
Systematic lupus erythematosus (1: No, 2: Yes)	-0.070	-0.114
Spondyloarthritis (1: No, 2: Yes)	-0.009	0.042
Years of disease	-0.134*	-0.089
Comorbidity (number of diseases)	-0.247*	-0.177*

* p<0.05

Table 4. Level of quality of life (QoL) according to scores on the SF-36 components of patients with rheumatic diseases in the South Aegean region of Greece (n=465), according to classification of disease.

Components of QoL	Patients with:			p-value
	Rheumatoid arthritis and other rheumatic diseases (n=62)	Only rheumatoid arthritis (n=237)	Other rheumatic diseases (n=166)	
	Mean (median)			
Physical functioning (PF)	30.9 (35.0)	40.7 (35.0)	52.9 (55.0)	<0.001
Role physical (RP)	28.6 (0.0)	43.5 (25.0)	44.4 (25.0)	0.054
Bodily pain (BP)	29.4 (30.0)	40.0 (40.0)	44.9 (40.0)	<0.001
General health (GH)	30.7 (27.5)	39.4 (35.0)	41.6 (40.0)	0.004
Vitality (VT)	33.1 (30.0)	45.4 (45.0)	45.5 (45.0)	<0.001
Social functioning (SF)	46.6 (50.0)	56.2 (50.0)	58.7 (62.5)	0.019
Role emotional (RE)	39.2 (0.0)	54.0 (66.7)	53.0 (66.7)	0.067
Mental health (MH)	50.1 (44.0)	57.5 (56.0)	59.0 (60.0)	0.015
Physical component (PC)	29.9 (25.1)	40.9 (37.5)	45.9 (43.8)	<0.001
Mental component (MC)	42.3 (40.3)	53.3 (52.5)	54.0 (53.1)	0.003

QoL: Quality of life

Kruskal-Wallis tests

Table 5. Multiple logistic regression analysis of level of quality of life (QoL) according to the SF-36 physical and mental health components, of study patients with rheumatic diseases in the South Aegean region of Greece (n=465) in relation to classification of disease and their characteristics.

	Physical component (PC) (low vs medium/high)			Mental component (MC) (low vs medium/high)			Low PC and or MC vs medium/high		
	OR	95% CIs	p-value	OR	95% CIs	p-value	OR	95% CIs	p-value
Rheumatoid arthritis and other rheumatic diseases *(yes vs no)*	1.89	1.02, 3.50	0.042	1.54	0.88, 2.69	0.133	1.61	0.86, 3.00	0.137
Gender *(female vs male)*	2.99	1.85, 4.84	<0.001	2.46	1.46, 4.13	0.001	3.06	1.91, 4.89	<0.001
Age *(per year)*	1.00	0.98, 1.02	0.852	0.98	0.97, 1.00	0.062	1.00	0.98, 1.01	0.660
Family status *(divorced, unmarried, widowed vs married)*	0.78	0.51, 1.21	0.266	0.83	0.54, 1.27	0.389	0.86	0.56, 1.34	0.514
Education *(per level as university, high school, primary school)*	0.69	0.50, 0.96	0.026	0.66	0.47, 0.92	0.015	0.74	0.53, 1.02	0.067
Occupation *(retired, household, unemployed, student vs employed)*	1.29	0.84, 1.98	0.252	1.13	0.73, 1.75	0.584	1.28	0.83, 1.97	0.266
Comorbidity *(per number of disease)*	1.46	1.16, 1.84	0.001	1.29	1.04, 1.59	0.021	1.60	1.25, 2.04	<0.001
Only rheumatoid arthritis *(yes vs no)*	0.82	0.54, 1.24	0.352	0.68	0.45, 1.03	0.069	0.82	0.54, 1.24	0.338
Gender *(female vs male)*	3.21	1.99, 5.18	<0.001	2.62	1.56, 4.41	<0.001	3.23	2.02, 5.15	<0.001
Age *(per year)*	1.00	0.99, 1.02	0.678	0.99	0.97, 1.01	0.160	1.00	0.98, 1.02	0.837
Family status *(divorced, unmarried, widowed vs married)*	0.79	0.51, 1.22	0.285	0.84	0.54, 1.29	0.421	0.87	0.56, 1.35	0.543
Education *(per level as university, high school, primary school)*	0.68	0.49, 0.93	0.018	0.63	0.45, 0.89	0.009	0.72	0.52, 1.00	0.050
Occupation *(retired, household, unemployed, student vs employed)*	1.30	0.85, 2.00	0.227	1.11	0.71, 1.72	0.650	1.28	0.83, 1.97	0.260
Comorbidity *(per number of disease)*	1.46	1.16, 1.84	0.001	1.29	1.04, 1.60	0.019	1.60	1.25, 2.04	<0.001
Other rheumatic diseases *(yes vs no)*	0.88	0.57, 1.37	0.582	1.20	0.77, 1.87	0.433	0.98	0.63, 1.52	0.931
Gender *(female vs male)*	3.12	1.93, 5.05	<0.001	2.64	1.57, 4.45	<0.001	3.18	1.99, 5.10	<0.001
Age *(per year)*	1.00	0.98, 1.02	0.938	0.98	0.97, 1.00	0.112	1.00	0.98, 1.01	0.671
Family status *(divorced, unmarried, widowed vs married)*	0.78	0.51, 1.21	0.265	0.83	0.54, 1.28	0.398	0.87	0.56, 1.34	0.521
Education *(per level as university, high school, primary school)*	0.69	0.50, 0.95	0.025	0.64	0.46, 0.90	0.011	0.73	0.53, 1.01	0.060
Occupation *(retired, household, unemployed, student vs employed)*	1.34	0.88, 2.06	0.174	1.15	0.74, 1.78	0.529	1.31	0.85, 2.02	0.213
Comorbidity *(per number of disease)*	1.45	1.15, 1.82	0.002	1.28	1.04, 1.59	0.022	1.59	1.25, 2.03	<0.001

OR: Odds ratio, 95% CI: 95% confidence interval, vs: Versus

and other rheumatic diseases. Several characteristics were confirmed to be associated with low scores on PC, MC, with significantly higher odds, namely female gender and co-morbidity ($p<0.05$), and lower educational level ($p<0.05$).

DISCUSSION

The aim of this study was to investigate the QoL in patients with rheumatic diseases and the effect of their illness on their daily activities and mental health. In summary, the following results were observed: (a) Patients with rheumatic diseases had moderate or low quality of life (the highest scores were for "mental health" and the lowest for "general health"); (b) the overall "mental health" score was significantly higher than that for "physical health", although two-thirds of the participants reported excellent/very good health; and (c) patients with RA and other rheumatic diseases had a significantly lower mean score for QoL than those with RA only or with other rheumatic diseases.

The patient profile showed that the majority of the 465

participants with rheumatic diseases were women. Their average age was over fifty years, and most were married, living in small villages, and were non-smokers. These findings results are similar to those in a large number of studies.[15–20] In contrast, studies focusing mainly on people with axial SpA reported that the patients were predominantly male,[21,22] and the mean age of patients in studies focusing on with SLE was younger.[23]

Most of the patients in the study sample suffered from RA, and other rheumatic diseases were represented in lower percentages. Similar distribution is observed in most other studies.[15,17,20] Many presented comorbidity, with the main disease being hypertension, followed by DM and circulatory diseases. It is of note that a significant percentage of the sample presented two or more co-morbid diseases. Similar results for the main co-disease are observed in the majority of the available literature,[15,20,24] although in one study chronic obstructive pulmonary disease (COPD) was reported to be the main co-disease.[25] It is clear that many rheumatic diseases, especially when they occur at older ages, are often complicated by comorbidities that also affect the daily life of these patients. Regarding the presence of more than one co-disease, a study in Italy found a rate of 54.7%, while particularly high co-morbidity (100%) was observed in Mexico.[20,24,26] In terms of their sexual health, the patients of the present study stated that they were sexually active, compared with those of other studies, who mainly reported sexual dysfunction.[27–29] In the present study, the mean scores recorded on the components determining QoL were near the center of the scale, indicating moderate, and in some cases, low levels of QoL, with higher mean values in "mental health" and lower in "general health". Significant difference was observed between the two basic components, with the higher mean value recorded in "mental health" compared with "physical health". The available literature confirms the negative effect of rheumatic diseases on the QoL of patients, and particularly the physical components of QoL.[22,30,31]

Referring to their general level of health, the study participants stated that it was at a very good level and had not changed over the last year. Comparing these results with those obtained from the measurement of the components according to SF-36, it is apparent that the patients either do not fully understand their state of health, or they do not want to accept it. Knowing the problems that the disease can cause, they compare themselves with people with those problems, rather than to the healthy population, and thus consider their health status to be good. This may explain the paradoxical finding of this study that, while the clinical assessment of the QoL was not good, most of the patients described their health status as very good, in agreement with the current literature.[17,32,33] It is also noted that the female gender are associated with significantly lower mean scores on "physical health" and "mental health", and thus, generally poorer QoL. The results of a meta-analysis study confirm this finding, showing that women with rheumatic diseases had significantly lower QoL.[18]

In the present study, increased age was associated with significantly lower score on "physical health", confirming the report of a Swedish study, which also found a negative correlation between age and physical component summary (PCS) QoL.[21] The results are conflicting in systematic reviews and meta-analysis studies, where age is correlated negatively with the PCS score, but positively with the mental component summary (MCS) score, a possible explanation being that younger patients pay more attention to the disease and its restrictions than older patients.[19,22,34] Higher educational level of the participants in the present study was associated with significantly higher scores on "physical health" and "mental health". A study conducted in China[35] confirms this result, while studies in Korea and Italy found a positive correlation only for MCS.[36,37] It is therefore concluded that a high educational level is likely to affect the self-sufficiency of patients, and their sense of control allows them to use a greater number of methods to reduce the burden of the disease.

The presence of RA also appears to be associated with significantly lower "physical health" QoL. There are not enough studies in the available literature to confirm or to refute this finding, but one other study reported a negative association with PCS and MCS.[38]

A higher comorbidity rate is significantly associated with lower scores on "physical health" and "mental health". A study conducted in 2016 in Greece also demonstrated that the presence of co-morbidity negatively and significantly affects health-related quality of life (HRQoL) (physical and mental health) in patients with RA. In contrast, it did not affect any of the QoL parameters in patient with SLE,[39] and a meta-analysis study demonstrated correlation only with PCS.[34]

In the present study, the duration of the disease was negatively correlated with the scores on both the PC and MC scales, which can be expected, due to the progressive deterioration in these diseases, and confirms the results of studies in China and Korea.[35,36] Other studies, however, have shown a negative correlation only with PCS.[15,21] Of particular interest is the opposite finding, with positive correlation only for MCS, found in a study conducted by Matcham and colleagues in 2014.[19] The probable explanation is that

patients who have had the symptoms of the disease for many years are more accepting of their condition.

Finally, the patients with RA and other rheumatic diseases recorded significantly lower scores for physical functioning, bodily pain, general health, vitality, social functioning and mental life than the groups with RA only or with other rheumatic diseases. The same applies to both the PC and the MC. The studies of which the results are in agreement investigated the effect of QoL in patients with RA and comorbid fibromyalgia,[40–42] but further studies should be carried out on RA comorbidity with other rheumatic diseases and the effects on patients' QoL. Daily health habits, such as physical activity, play a major role; studies have found that any type of regular physical activity is beneficial in improving the QoL of these patients.[43] Finally, the modification of eating habits, with the adoption of foods rich in anti-inflammatory agents, appears to improve the physical health of these patients.[44]

There were some losses during data collection due to patients declining to complete the questionnaires for personal reasons; it was not possible to record their descriptive characteristics, which may be a source of bias. However, the outpatient clinics where patients were recruited for the study cover a wide geographical range and therefore a large number and range of patients. This study did not include data on certain health habits such as physical activity, as the research tool was limited to the SF-36 questionnaire. The researchers believe that the QoL of RA patients is directly dependent on their physical activity and other health habits, such as non-consumption of alcohol, a low-fat diet and high consumption of fruit and vegetables, factors which should be explored in future studies.

In conclusion, the main aim of the present study, in Greece, a country with a particularly high rate of rheumatic diseases, was to investigate, in addition to the overall QoL in patients with rheumatic diseases, the effects of the disease on their daily lives and especially their physical and mental and sexual health, as well as the relation with comorbidity. All the health-related QoL components of these patients according to their scores on SF-36, were found to be more impaired in patients with RA and comorbid rheumatic diseases.

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ΠΕΡΙΛΗΨΗ

Ποιότητα ζωής ασθενών με ρευματικές παθήσεις στην περιφέρεια νοτίου Αιγαίου (Ελλάδα)

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ΣΚΟΠΟΣ Η εκτίμηση της ποιότητας ζωής των ασθενών με συχνές ρευματικές παθήσεις. **ΥΛΙΚΟ-ΜΕΘΟΔΟΣ** Σχεδιάστηκε και διεξήχθη μια συγχρονική μελέτη τον Σεπτέμβριο και τον Νοέμβριο του 2018 στο νότιο Αιγαίο στην Ελλάδα, συλλέγοντας δεδομένα από 465 ασθενείς. Χρησιμοποιήθηκε η κλίμακα SF-36, συγκρίνοντας τα επίπεδά της σε τρεις ομάδες ασθενών: (α) αυτούς με ρευματοειδή αρθρίτιδα μόνο, (β) εκείνους με ρευματοειδή αρθρίτιδα και άλλες ρευματικές παθήσεις και (γ) τους ασθενείς με άλλες ρευματικές παθήσεις. **ΑΠΟΤΕΛΕΣΜΑΤΑ** Το 75,9% των ερωτηθέντων ήταν γυναίκες και η μέση ηλικία όλων των συμμετεχόντων ήταν τα 58,6 έτη (±13,9). Ποσοστό 64,3% διαγνώστηκε με ρευματοειδή αρθρίτιδα, 18,5% με συστηματικό ερυθηματώδη λύκο και 17,2% με σπονδυλοαρθρίτιδα. Όλοι οι ασθενείς βρέθηκαν να έχουν μέτρια έως χαμηλά επίπεδα ποιότητας ζωής, με το υψηλότερο μέσο επίπεδο να καταγράφεται στην «ψυχική υγεία» σε σύγκριση με τη «γενική υγεία» (57,0 έναντι 39,1, p<0,001). Σημαντική διαφορά διαπιστώθηκε μεταξύ των δύο κύριων συνιστωσών, «ψυχική» και «σωματική» (52,1 έναντι 41,2, p<0,001). Οι ασθενείς με «ρευματοειδή αρθρίτιδα και άλλες ρευματικές παθήσεις» φάνηκε ότι είχαν χαμηλότερα επίπεδα ποιότητας ζωής στη «φυσική λειτουργικότητα», στον «σωματικό πόνο», στη «γενική υγεία», στη «ζωτικότητα», στην «κοινωνική λειτουργικότητα» και στην «ψυχική υγεία» σε σύγκριση με τις άλλες δύο ομάδες (p<0,05), καθώς και συνολικά στη «σωματική» και στην «ψυχική» συνιστώσα (p<0,01). Υψηλότερες πιθανότητες για χαμηλή ποιότητα ζωής βρέθηκαν στη «φυσική υγεία» για ασθενείς με ρευματοειδή αρθρίτιδα και άλλες ρευματικές παθήσεις (OR: 1,89, p=0,042) ή για χαμηλή

ποιότητα ζωής στη «σωματική» και στην «ψυχική υγεία» των γυναικών και σε ασθενείς με αυξημένη συννοσηρότητα (p<0,05). **ΣΥΜΠΕΡΑΣΜΑΤΑ** Όλες οι συνιστώσες της ποιότητας ζωής που σχετίζονται με την υγεία των εν λόγω ασθενών έχει βρεθεί ότι διαφοροποιούνται σε σχέση με τη νόσο και με τις συνοδές ρευματικές παθήσεις.

Λέξεις ευρετηρίου: Αξιολόγηση της ποιότητας, Νοσηρότητα, Ποιότητα ζωής, Ρευματικές παθήσεις, SF-36

References

1. ANNO S, SUGIOKA Y, INUI K, TADA M, OKANO T, MAMOTO K ET AL. Evaluation of work disability in Japanese patients with rheumatoid arthritis: From the TOMORROW study. *Clin Rheumatol* 2018, 37:1763–1771
2. BIJLSMA JWJ, HACHULLA E, DA SILVA J, DOHERTY M, VAN LAAR J, CIMMINO M ET AL. *EULAR textbook on rheumatic diseases.* 2nd ed. BMJ Publishing Group, London, 2015
3. SEBBAG E, FELTEN R, SAGEZ F, SIBILIA J, DEVILLIERS H, ARNAUD L. The world-wide burden of musculoskeletal diseases: A systematic analysis of the World Health Organization Burden of Diseases Database. *Ann Rheum Dis* 2019, 78:844–848
4. SAFIRI S, KOLAHI AA, HOY D, SMITH E, BETTAMPADI D, MANSOURNIA MA ET AL. Global, regional and national burden of rheumatoid arthritis 1990–2017: A systematic analysis of the Global Burden of Disease study 2017. *Ann Rheum Dis* 2019, 78:1463–1471
5. GALLOP K, NIXON A, SWINBURN P, STERLING KL, NAEGELI AN, SILK MET. Development of a conceptual model of health-related quality of life for systemic lupus erythematosus from the patient's perspective. *Lupus* 2012, 21:934–943
6. KULCZYCKA L, SYSA-JEDRZEJOWSKA A, ROBAK E. Quality of life and satisfaction with life in SLE patients – the importance of clinical manifestations. *Clin Rheumatol* 2010, 29:991–997
7. REES F, DOHERTY M, GRAINGE MJ, LANYON P, ZHANG W. The worldwide incidence and prevalence of systemic lupus erythematosus: A systematic review of epidemiological studies. *Rheumatology (Oxford)* 2017, 56:1945–1961
8. WANG R, WARD MM. Epidemiology of axial spondyloarthritis: An update. *Curr Opin Rheumatol* 2018, 30:137–143
9. STOLWIJK C, VAN ONNA M, BOONEN A, VAN TUBERGEN A. Global prevalence of spondyloarthritis: A systematic review and meta-regression analysis. *Arthritis Care Res (Hoboken)* 2016, 68:1320–1331
10. MATTUKAT K, SCHMIDT S, MAU W, STOYE A. Krankheitsbewältigung bei Betroffenen mit entzündlich-rheumatischen Erkrankungen – Indikationsspezifische Besonderheiten und Unterstützungsmöglichkeiten durch Rheumatologen. *Aktuel Rheumatol* 2018, 43:297–308
11. DURUOZ MT, UNAL C, BINGUL DK, ULUTATAR F. Fatigue in familial Mediterranean fever and its relations with other clinical parameters. *Rheumatol Int* 2018, 38:75–81
12. DUPOND JL. Fatigue in patients with rheumatic diseases. *Joint Bone Spine* 2011, 78:156–160
13. ØSTENSEN M. Sexual and reproductive health in rheumatic disease. *Nat Rev Rheumatol* 2017, 13:485–493
14. ANAGNOSTOPOULOS F, NIAKAS D, PAPPA E. Construct validation of the Greek SF-36 Health Survey. *Qual Life Res* 2005, 14:1959–1965
15. ANYFANTI P, TRIANTAFYLLOU A, PANAGOPOULOS P, TRIANTAFYLLOU G, PYRPASOPOULOU A, CHATZIMICHAILIDOU S ET AL. Predictors of impaired quality of life in patients with rheumatic diseases. *Clin Rheumatol* 2016, 35:1705–1711
16. BERNSTEIN EJ, BARR RG, AUSTIN JHM, KAWUT SM, RAGHU G, SELL JL ET AL. Rheumatoid arthritis-associated autoantibodies and subclinical interstitial lung disease: The Multi-Ethnic Study of Atherosclerosis. *Thorax* 2016, 71:1082–1090
17. GONZÁLEZ CM, CARMONA L, DE TORO J, BATLLE-GUALDA E, TORRALBA AI, ARTEAGA MJ ET AL. Perceptions of patients with rheumatic diseases on the impact on daily life and satisfaction with their medications: RHEU-LIFE, a survey to patients treated with subcutaneous biological products. *Patient Prefer Adherence* 2017, 11:1243–1252
18. LI Z, YANG Y, DONG C, LI L, CUI Y, ZHAO Q ET AL. The prevalence of suicidal ideation and suicide attempt in patients with rheumatic diseases: A systematic review and meta-analysis. *Psychol Health Med* 2018, 23:1025–1036
19. MATCHAM F, SCOTT IC, RAYNER L, HOTOPF M, KINGSLEY GH, NORTON S ET AL. The impact of rheumatoid arthritis on quality-of-life assessed using the SF-36: A systematic review and meta-analysis. *Semin Arthritis Rheum* 2014, 44:123–130
20. SALAFFI F, DI CARLO M, CAROTTI M, FARAH S. The Patient-Reported Outcomes Thermometer-5-Item Scale (5T-PROs): Validation of a new tool for the quick assessment of overall health status in painful rheumatic diseases. *Pain Res Manag* 2018, 2018:3496846
21. LAW L, REHNMAN JB, DEMINGER A, KLINGBERG E, JACOBSSON LTH, FORSBLAD-D'ELIA H. Factors related to health-related quality of life in ankylosing spondylitis, overall and stratified by sex. *Arthritis Res Ther* 2018, 20:284
22. YANG X, FAN D, XIA Q, WANG M, ZHANG X, LI X ET AL. The health-related quality of life of ankylosing spondylitis patients assessed by SF-36: A systematic review and meta-analysis. *Qual Life Res* 2016, 25:2711–2723
23. KIM IJ, KIM HA, SUH CH, PARK YW, LEE HS, BANG SY ET AL. Impact of childbearing decisions on family size of Korean women with systemic lupus erythematosus. *J Korean Med Sci* 2016, 31:729–734
24. GALARZA-DELGADO DA, AZPIRI-LOPEZ JR, COLUNGA-PEDRAZA IJ, CÁRDENAS-DE LA GARZA JA, VERA-PINEDA R, WAH-SUÁREZ M ET AL. Prevalence of comorbidities in Mexican mestizo patients with rheumatoid arthritis. *Rheumatol Int* 2017, 37:1507–1511
25. RADNER H, LESPERANCE T, ACCORTT NA, SOLOMON DH. Incidence and prevalence of cardiovascular risk factors among patients with rheumatoid arthritis, psoriasis, or psoriatic arthritis. *Arthritis Care Res (Hoboken)* 2017, 69:1510–1518

26. SALAFFI F, DI CARLO M, CAROTTI M, FARAH S, CIAPETTI A, GUTIERREZ M. The impact of different rheumatic diseases on health-related quality of life: A comparison with a selected sample of healthy individuals using SF-36 questionnaire, EQ-5D and SF-6D utility values. *Acta Biomed* 2019, 89:541–557
27. ANYFANTI P, PYRPASOPOULOU A, TRIANTAFYLLOU A, TRIANTAFYLLOU G, GAVRIILAKI E, CHATZIMICHAILIDOU S ET AL. Association between mental health disorders and sexual dysfunction in patients suffering from rheumatic diseases. *J Sex Med* 2014, 11:2653–2660
28. DORNER TE, BERNER C, HAIDER S, GRABOVAC I, LAMPRECHT T, FENZL KH ET AL. Sexual health in patients with rheumatoid arthritis and the association between physical fitness and sexual function: A cross-sectional study. *Rheumatol Int* 2018, 38:1103–1114
29. SANTANA T, SKARE T, DELBONI VS, SIMIONE J, CAMPOS APB, NISIHARA R. Erectile dysfunction in ankylosing spondylitis patients. *Int Braz J Urol* 2017, 43:730–735
30. GU M, CHENG Q, WANG X, YUAN F, SAM NB, PAN H ET AL. The impact of SLE on health-related quality of life assessed with SF-36: A systemic review and meta-analysis. *Lupus* 2019, 28:371–382
31. HUANG JC, QIAN BP, QIU Y, WANG B, YU Y, ZHU ZZ ET AL. Quality of life and correlation with clinical and radiographic variables in patients with ankylosing spondylitis: A retrospective case series study. *BMC Musculoskelet Disord* 2017, 18:352
32. BERNER C, ERLACHER L, FENZL KH, DORNER TE. A cross-sectional study on self-reported physical and mental health-related quality of life in rheumatoid arthritis and the role of illness perception. *Health Qual Life Outcomes* 2018, 16:238
33. DE AZEVEDO BRANCO LG, OLIVEIRA SR, CORRÊA JD, CALDERARO DC, MENDONÇA SMS, DE QUEIROZ CUNHA F ET AL. Oral health-related quality of life among individuals with rheumatoid arthritis. *Clin Rheumatol* 2019, 38:2433–2441
34. MORRISROE K, HUDSON M, BARON M, DE VRIES-BOUWSTRA J, CARREIRA PE, WUTTGE DM ET AL. Determinants of health-related quality of life in a multinational systemic sclerosis inception cohort. *Clin Exp Rheumatol* 2018, 36(Suppl 113):53–60
35. ZHOU Y, WANG X, AN Y, ZHANG X, HAN S, LI X ET AL. Disability and health-related quality of life in Chinese patients with rheumatoid arthritis: A cross-sectional study. *Int J Rheum Dis* 2018, 21:1709–1715
36. MOON SJ, KANG KY, KWOK SK, JU JH, HONG YS, PARK SH ET AL. Differences in quality of life determinants according to the presence of fibromyalgia in middle-aged female patients with systemic lupus erythematosus: A multicenter, cross-sectional, single-ethnicity cohort. *Int J Rheum Dis* 2018, 21:1173–1184
37. SALAFFI F, CAROTTI M, GASPARINI S, INTORCIA M, GRASSI W. The health-related quality of life in rheumatoid arthritis, ankylosing spondylitis, and psoriatic arthritis: A comparison with a selected sample of healthy people. *Health Qual Life Outcomes* 2009, 7:25
38. LIU L, XU X, XU N, WANG L. Disease activity, resilience and health-related quality of life in Chinese patients with rheumatoid arthritis: A multi-center, cross-sectional study. *Health Qual Life Outcomes* 2017, 15:149
39. KOUTSOUBAS A. *Quality of life in patients with rheumatic diseases.* Hellenic Open University, Patras, 2016
40. DUFFIELD SJ, MILLER N, ZHAO S, GOODSON NJ. Concomitant fibromyalgia complicating chronic inflammatory arthritis: A systematic review and meta-analysis. *Rheumatology (Oxford)* 2018, 57:1453–1460
41. SALAFFI F, GERARDI MC, ATZENI F, BATTICCIOTTO A, TALOTTA R, DRAGHESSI A ET AL. The influence of fibromyalgia on achieving remission in patients with long-standing rheumatoid arthritis. *Rheumatol Int* 2017, 37:2035–2042
42. SIMON TA, KAWABATA H, RAY N, BAHETI A, SUISSA S, ESDAILE JM. Prevalence of co-existing autoimmune disease in rheumatoid arthritis: A cross-sectional study. *Adv Ther* 2017, 34:2481–2490
43. BAILLET A, ZEBOULON N, GOSSEC L, COMBESCURE C, BODIN LA, JUVIN R ET AL. Efficacy of cardiorespiratory aerobic exercise in rheumatoid arthritis: Meta-analysis of randomized controlled trials. *Arthritis Care Res (Hoboken)* 2010, 62:984–992
44. VADELL AKE, BÄREBRING L, HULANDER E, GJERTSSON I, LINDQVIST HM, WINKVIST A. Anti-inflammatory Diet In Rheumatoid Arthritis (ADIRA) – a randomized, controlled cross-over trial indicating effects on disease activity. *Am J Clin Nutr* 2020, 111:1203–1213

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