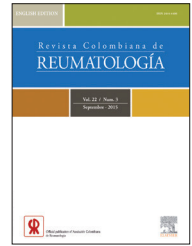


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Original Investigation

Health Related Quality of Life in Patients With Rheumatoid Arthritis From Medellín-Colombia, 2014[☆]

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ABSTRACT

Background: Rheumatoid arthritis affects the health related quality of life (HRQOL); the HRQOL complements clinical evaluation and is explained by multiple clinical and sociodemographic factors.

Objective: To evaluate the impact of rheumatoid arthritis on HRQOL and identify its main associated factors in a population of Medellín.

Materials and methods: Cross-sectional study all patients with rheumatoid arthritis of an institution of Medellín. A survey with demographic, socioeconomic and clinical variables, the Health Assessment Questionnaire Disability Index and International Physical Activity Questionnaires were applied. HRQOL was assessed with the Medical Outcome Study Short Form 36 (MOSSF-36). Analyses were based on frequencies, summary measures, U Mann Whitney test and Kruskal Wallis, Spearman correlations and multiple linear regression model in SPSS 21.0.

Results: 112 patients were included with a mean age of 53 ± 12 years, 63.4% sedentary, the average years of diagnosis of the disease was 10.6 ± 6.5 years, 75% with any comorbidity; the mean HAQ-DI score was $0.84 \pm .57$. The dimension most affected in the HRQOL was physical performance with 35.3 points and lower was social function with 67.7 points. The functionality and physical activity, overweight, years of diagnosis, sex, age, and socioeconomic status were established as the main associated factors with HRQOL.

Conclusion: Rheumatoid arthritis negatively impacts HRQOL. The identification of associated factors with HRQOL allows the implementation of interventions to improve the quality of

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life of these patients, while allowing focus the attention and monitoring in high risk groups such as sedentary and overweight or obese patients.

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Calidad de vida relacionada con la salud en pacientes con artritis reumatoide de Medellín-Colombia, 2014

R E S U M E N

Palabras clave:
Artritis reumatoide
Calidad de vida
Predicción
Factores de riesgo

Introducción: La artritis reumatoide afecta la calidad de vida relacionada con la salud (CVRS); esta complementa la evaluación clínica y está determinada por múltiples factores clínicos y sociodemográficos.

Objetivo: Evaluar el impacto sobre la CVRS en una población de individuos con artritis reumatoide en Medellín e identificar sus factores asociados.

Materiales y métodos: Estudio transversal de la totalidad de pacientes con artritis reumatoide de una institución de Medellín. Se aplicó una encuesta con variables demográficas, socioeconómicas, clínicas, de funcionalidad física (*Health Assessment Questionnaire Disability Index* [HAQ-DI]) y actividad física (*International Physical Activity Questionnaires*). La CVRS se evaluó con el *Medical Outcome Study Short Form 36* (MOSSF-36). El análisis de los datos se basó en el cálculo de: frecuencias, medidas de resumen, pruebas U de Mann Whitney y Kruskal Wallis, correlaciones de Spearman y modelos de regresión lineal múltiple mediante el SPSS 21.0.

Resultados: Se incluyeron 112 pacientes con edad promedio de 53 ± 12 años; el 63,4% era sedentario, el promedio de años de diagnóstico de la enfermedad fue de $10,6 \pm 6,5$ años, el 75% presentaba alguna comorbilidad y el puntaje promedio del HAQ-DI fue de $0,84 \pm 0,57$. En la CVRS se halló mayor afectación del desempeño físico con 35,3 puntos y menor en la función social con 67,7 puntos. La funcionalidad y la actividad física, el sobrepeso, los años de diagnóstico, el sexo, la edad y el nivel socioeconómico se constituyeron en los principales factores asociados a la CVRS.

Conclusión: La artritis reumatoide impacta negativamente en la CVRS. La identificación de los factores asociados a la CVRS permite direccionar acciones de intervención intersectorial e interdisciplinar para la mejora de la calidad de vida de este grupo de pacientes, al tiempo que permite focalizar la atención y el seguimiento de los grupos de mayor riesgo, como los sedentarios y los pacientes con sobrepeso u obesidad.

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Introduction

Rheumatoid arthritis is a worldwide distributed disease, whose prevalence has been estimated between 0.5%-1.0% of the adult population. It generally affects more women than men in a ratio of 3 to 1 and its causality has not been clearly established; hence, there have been suggested various genetic, infectious and environmental factors.^{1,2}

Clinically, it constitutes a chronic inflammatory autoimmune disease that occurs mainly in the joints, with different degrees of deformity, leading the patient to manifest pain, fatigue, physical disability, depression and increase of comorbidities.³ The described clinical effects are associated with negative outcomes for the patient and the society, such as loss of productivity, increased costs of health care services, years of life lost, decrease in physical functionality and deterioration in quality of life.⁴⁻⁶

The quality of life, and particularly the health-related quality of life (HRQOL), is defined as the degree of satisfaction of the individual regarding his physical, emotional and social well-being; its evaluation in the individual with rheumatoid arthritis has been recommended by the American College of Rheumatology (ACR) and the European League against rheumatism (EULAR), since it transcends the clinical and epidemiological measurements traditionally applied in the evaluation of the disease, such as biochemical parameters, radiological indexes, disability, morbidity and mortality.⁷⁻⁹

The assessment of the HRQOL in patients with rheumatoid arthritis can be accomplished through the application of generic or specific instruments; the first are characterized in that they can be applied both in the general population and in specific groups of patients, allowing comparisons between sick and healthy people¹⁰; these include: the *Medical Outcome Study Short Form 36* (MOSSF-36), the *World Health Organization Quality of Life short version* (WHOQOL-BREF), the *Nottingham*

Health Profile (NPH), the EuroQol 5D (EQ-5D) and the Sickness Impact Profile (SIP).¹¹ On the other hand, the specific instruments include dimensions of the HRQOL that are concrete for the disease or the group of patients, and therefore they show greater clinical sensitivity.¹⁰ In this group stand out the Rheumatoid Arthritis Quality of Life (RAQoL) and the Arthritis Impact Measurement Scales (AIMS).¹¹

Among the above-mentioned instruments, the MOSSF-36 has evidenced a broad application and usefulness in clinical and epidemiological research in patients with rheumatoid arthritis worldwide,¹² given the excellent performance of its psychometric properties, among which stand out: its criterion validity, construct validity and reliability,¹³⁻¹⁸ its good correlation with the specific clinical measurements of the disease,^{19,20} its extensive transcultural adaptation^{13-18,21} and its better sensitivity to the clinical changes of the disease compared with other generic scales.⁴

In research studies that have evaluated the HRQOL in patients with rheumatoid arthritis using the MOSSF-36, it has been demonstrated that it is not only affected by the clinical aspects of the disease –such as its duration, inflammatory activity, radiological damage and physical functionality– but also by demographic and socioeconomic factors,²² that is how the studies of Salaffi et al.²³ and Ovayolu et al.²⁴ concluded that low socioeconomic and educational levels are associated with decreased HRQOL scores.

In Colombia, a small number of studies have evaluated the impact of rheumatoid arthritis on the HRQOL of the affected individual. In this regard, Jáuregui et al.,²⁵ Fernández et al.²⁶ and Londoño et al.²⁷ evaluated the HRQOL as a secondary outcome measure for a pharmacological intervention; meanwhile, Escobar and Grisales²⁸ and Tobón et al.²⁹ evaluated the HRQOL through the MOSSF-36 and the RAQoL, respectively; none of them identified the associated clinical and sociodemographic factors which had greater explanatory power.

The evaluation of the HRQOL in patients with rheumatoid arthritis and the establishment of its factors associated with higher explanatory power are basic activities for the establishment of effective intervention strategies by the decision-makers, which will address the disease from a multidimensional approach, given its implications in the clinical, emotional and social aspects of the individual.

Given the above, this study aimed to assess the impact of rheumatoid arthritis on the HRQOL and the clinical, demographic and socioeconomic factors associated with a higher explanatory power of the HRQOL profile in these patients.

Materials and Methods

Type of Study

Descriptive cross-sectional.

Population

Composed of 112 individuals older than 18 years with a diagnosis of rheumatoid arthritis, according to the ACR/EULAR classification criteria (2010), who received medical attention

in a specialized institution provider of healthcare services (IPS, for its acronym in Spanish) in Medellín during the first semester of 2014, and who voluntarily agreed to participate in the study. The patients with mental disorders and who according to medical criteria did not have the adequate functional and cognitive capacity to answer the questions of the survey, and therefore could generate information biases, were excluded. It should be noted that no calculation of the sample size or sampling was performed, since the research was of census type, taking as reference population the patients of the IPS.

Collection of the Information

We used a primary source of information based on a survey of individual and anonymous application –which included demographic, socioeconomic and clinical variables– and the following questionnaires: the *Health Assessment Questionnaire Disability Index* (HAQ-DI); the MOSSF-36, validated for the Colombian population and specifically for Medellín²¹; the *Simplified Medication Adherence Questionnaire* (SMAQ) and the *International Physical Activity Questionnaires* (IPAQ). Initial contact was made with representatives of the IPS and the project was presented, encouraging participation therein.

Measurement Instruments

The SMAQ was initially developed to measure the adherence to antiretroviral treatments in patients with AIDS. It consists of 6 questions that assess different aspects related with the compliance with treatment: forgetfulness, routine, adverse effects and quantification of omissions. A patient is classified as non-adherent if he gives a positive answer in terms of non-compliance, and regarding the quantification questions, if he refers having missed more than 2 doses in the last week or refers having not taken the medication during more than 2 full days in the last 3 months.³⁰

The IPAQ short form consists of 5 questions about the frequency, duration and intensity (vigorous and moderate) of the physical activity in the last 7 days, as well as walking and the time spent sitting on a weekday. It allows the assignment of individuals to 3 categories of physical activity: low (sedentary), medium and high.³¹

The HAQ-DI consists of 20 questions on activities of daily living, which evaluates the fine movements of the upper and lower limbs. It is divided into 8 categories including: getting dressed, getting up, eating, walking, personal hygiene, reaching and grasping for objects and other activities. Each question has 4 possible answers rated from 0 to 3, with 0 indicating absence of difficulty, and 3 indicating impossibility to perform the activity during the last week. The overall score, which may vary from 0 (without disability) to 3 (severe disability) is the result of the average of the 8 categories. This questionnaire also has several corrective questions, divided into 2 groups that evaluate the need for assistance by another person or the need to use utensils or technical aids to perform the activities described in the 20 items. The purpose of these questions is that they can modify the scores of the areas that are affected by them.³² The HAQ-DI has been an instrument widely applied in the evalua-

tion of the physical functionality of people with rheumatoid arthritis, endorsed by the ACR, available in more than 60 languages and dialects and with an excellent performance of its properties of validity (construct and criterion), reliability (test-retest and intra-interobserver) and sensitivity to change.³²

The MOSSF-36 is a questionnaire with 36 questions that measures 8 dimensions related to the HRQOL: physical function, physical performance, bodily pain, perception of general health, social function, emotional performance, mental health and vitality; the first 4 summarize the physical component of the instrument, while the remaining correspond to the mental component. In addition, there is an element not included in these 8 categories that explores the changes in health status experienced during the last year. The MOSSF-36 score ranges from 0 (worse status) to 100 (best status) and a reference value for the physical and mental components established in the healthy population of 50 ± 10 .³³

Statistical Analysis

A descriptive analysis of the collected sociodemographic and clinical variables was carried out by calculating ratios and summary measures according to the nature of the variable. The description of physical functionality and HRQOL domains was performed using summary measures. The association of each of the dimensions of the HRQOL of MOSSF-36 with the most relevant sociodemographic and clinical aspects was explored; comparisons with quantitative variables were made using Spearman's correlation coefficients, comparisons with bicategorical qualitative variables were made using the Mann Whitney U test, and the Kruskal-Wallis H test was used for the polytomous variables, given the failure of the normality assumption assessed by the Smirnov-Kolmogorov tests with correction of Lilliefors and Shapiro-Wilk. A multiple linear regression model for each of the assessed dimensions of the HRQOL was made in the multivariate analysis in order to describe the simultaneous and reciprocal effect of the clinical and sociodemographic variables on each of the dimensions of the MOSSF-36 and to identify the factors associated with a greater explanatory capacity of the HRQOL. For each of the models (independent for each domain of the HRQOL) the assumptions of randomness of the dependent variable were verified with the runs test, the linearity with the Anova; the normality and the constant variance of the residuals, as well as the incorrelation of the residuals, by means of the Durbin-Watson; and the non-collinearity between the independent variables, through the variance inflation factor (VIF) and the statistical significance of the regression coefficients. In addition to this, the coefficients of determination were presented in order to establish the explanatory potential that the independent variables included in each regression model have on each dimension of HRQOL.

A level of statistical significance of 0.05 was taken in all the analyses. The data were stored and analyzed in a database using the SPSS, version 21.0.

Ethical Aspects

The project was designed and executed under the principles of the Declaration of Helsinki of the World Medical

Table 1 – Sociodemographic and Clinical Characteristics of the Population.

	n	%	
<i>Gender</i>			
Male	15	13.4	
Female	97	86.6	
<i>Marital status</i>			
Married	61	54.5	
Single	27	24.1	
Separated or widow	24	21.4	
<i>Schooling</i>			
None	3	2.7	
Primary	39	34.8	
Secondary	44	39.3	
Superior	21	18.7	
Postgraduate	5	4.5	
<i>Socioeconomic stratum</i>			
1	12	10.7	
2	45	40.2	
3	38	33.9	
≥ 4	17	15.2	
<i>Affiliation regime</i>			
Subsidized	23	20.5	
Contributory	89	79.5	
<i>Satisfaction with family support</i>			
Dissatisfied	38	33.9	
Satisfied	74	66.1	
<i>Economic satisfaction</i>			
Dissatisfied	84	75.0	
Satisfied	28	25.0	
<i>Physical activity</i>			
Low	71	63.4	
Moderate	41	36.6	
Normal	60	53.6	
<i>Presence of comorbidity</i>			
Yes	84	75.0	
No	28	25.0	
<i>Adherence to treatment</i>			
Adherent	47	42.0	
Non-adherent	65	58.0	
	Mean ± SD	Median (IR)	Range
Age	53 ± 12	53 (47-60)	18-82
Weekly hours of work	32 ± 24	38 (0-48)	0-84
Monthly income (thousands)	730 ± 846	580 (62-100)	0-4000
Years of diagnosis	10.6 ± 6.5	10 (6-12)	1-36
HAQ-DI	0.84 ± 0.58	0.87 (0.25-1.33)	0-2.25

SD: standard deviation, IR: interquartile range.

Association, so it prevailed the respect for the integrity and privacy of the person, the protection of the rights and the guarantee of the veracity of the results, in addition to the evaluation of risks and benefits; likewise, it was governed by Resolution 8430, which establishes the scientific, technical and administrative standards for health research in Colombia.

Table 2 – Profile of the HRQOL of the Study Population.

SF-36 Domain	Mean \pm SD	Median (IR)	Range
Physical function	49.1 \pm 25.3	45.0 (30.0-65.0)	0.0-100.0
Physical performance	35.3 \pm 43.0	0.0 (0.0-100.0)	0.0-100.0
Bodily pain	46.4 \pm 23.0	44.4 (33.3-66.7)	0.0-100.0
General health	40.1 \pm 12.1	40.0 (35.0-45.0)	5.0-70.0
Vitality	45.7 \pm 27.6	40.0 (25.0-70.0)	0.0-100.0
Social function	67.7 \pm 28.2	62.5 (50.0-100.0)	0.0-100.0
Emotional performance	58.6 \pm 48.4	100.0 (0.0-100.0)	0.0-100.0
Mental health	62.1 \pm 23.3	64.0 (48.0-80.0)	8.0-100.0

SD: standard deviation; IR: interquartile range.

The project was approved by the Bioethics Committee of the Cooperative University of Colombia (*Universidad Cooperativa de Colombia*), Medellin campus, by the report 0800-0034.

Results

The average age of the population was 53 ± 12 years; 86.6% were women, 54.5% were married, 34.8% had a basic primary education level and 39.3% a secondary basic education level; 85% belonged to socioeconomic strata 1, 2 or 3, 50% had a monthly income of COP\$580,000 or less and 75% said they were not satisfied with their current financial situation (Table 1). 36.3% had a paid employment, 44.6% were engaged in household chores and the remaining percentage had other occupations.

The prevalence of sedentarism was 63.4%, the average years of diagnosis of the disease was 10.6 ± 6.5 years, 75% of the group reported the presence of concomitant disease, 46.4% were overweight or obese and 58% were non-adherent to treatment for arthritis, while the average score for the physical functionality evaluated through the HAQ-DI was 0.84 ± 0.57 (Table 1).

The evaluation of the HRQOL showed a greater affectation of the domains of physical performance and general health, with average scores of 35.3 ± 43.0 and 40.0 ± 12.1 , respectively; meanwhile, the domains corresponding to the mental component evidenced less affectation, being the social function the domain which showed the highest score with 67.7 ± 28.2 (Table 2).

In the analysis of the HRQOL scores according to demographic, socio-economic and clinical characteristics, the physical function was significantly decreased in individuals dissatisfied with their economic situation, belonging to the subsidized regime, with presence of comorbidity, overweight, and sedentary. In the domain of physical performance, the individuals with low levels of schooling, dissatisfied with their economic situation and sedentary, showed greater affectation, while the low scores in the domain of bodily pain were associated with the presence of overweight or obesity and sedentary lifestyle (Table 3).

In the domain of vitality it was found that individuals who were sedentary and not satisfied with their economic situation exhibited significantly decreased scores. The social function was mostly affected in individuals of low socioeconomic status, dissatisfied with their financial situation and seden-

tary; meanwhile, the affectation of the mental health of the individuals was associated with the dissatisfaction with their economic situation and the family support, in addition to the affiliation to the subsidized regime (Table 3).

The physical functionality evaluated through the HAQ-DI was the only parameter associated with domains of the HRQOL addressed in the MOSSF-36, showing different degrees of inverse correlation with each of them (Table 3).

Physical functionality became the factor associated with greater capacity to explain small variations in the domain of general health (5 points less for every increase in one unit in the HAQ-DI score) until the explanation of large variations in the scores of the domain of physical performance (difference of 54.7 points per unit of change in the HAQ-DI), which shows the convergence of these measurements. Physical activity was important for the physical and social function of the individual, where those non-sedentary would have, respectively, 6.9 and 15.3 points less in the evaluation of these domains. The age was a factor associated with the emotional performance and mental health of the individual, in which each increase of one year of age will imply 0.7 and 0.4 points more, respectively, in the assessment of these domains; meanwhile, the gender was related to the scores of the bodily pain domain with a difference of 10 points more in women (Table 4).

The highest coefficient of determination appeared in the physical function, in this it is concluded that the score of the HAQ-DI, the level of physical activity and the BMI explain 75.1% of the variability of the score in this dimension; meanwhile, the lowest value for this coefficient was found in the dimension of general health (Table 4).

Discussion

The results of this study reveal a deterioration of the HRQOL and physical functionality of the studied population, in addition to the association of diverse clinical, demographic and socioeconomic factors with negative outcomes in the HRQOL, of which the physical activity and functionality, the BMI, the age, the gender, the social stratum and the economic satisfaction evidenced an explanatory capacity of the scores in the different domains of the MOSSF-36 for the patients with rheumatoid arthritis.

The scores in the domains of physical function, physical performance, bodily pain, general health, vitality, social func-

Table 3 – Analysis of the Dimensions or the MOSSF-36 According to the Demographic, Clinical and Socioeconomic Characteristics.

	PF	PP	BP	SG	VT	SF	EP	MH
Median of the scores								
<i>Gender^a</i>								
Male	50.0	0.0	33.3	35.0	50.0	50.0	0.0	52.0
Female	45.0	0.0	44.4	40.0	40.0	75.0	100.0	64.0
p	0.703	0.783	0.137	0.063	0.881	0.411	0.325	0.344
<i>Marital status^b</i>								
Married	50.0	0.0	44.4	40.0	40.0	62.5	100.0	64.0
Single	40.0	0.0	44.4	40.0	40.0	75.0	100.0	76.0
Separated-Widow	47.5	25.0	44.4	37.5	30.0	68.8	100.0	58.0
p	0.483	0.527	0.978	0.298	0.848	0.972	0.604	0.252
<i>Schooling^b</i>								
None	0.0	22.2	40.0	40.0	25.0	25.0	0.0	36.0
Primary	0.0	44.4	40.0	40.0	62.5	62.5	100.0	60.0
Secondary	25.0	44.4	40.0	42.5	81.3	81.3	66.7	60.0
Superior	37.5	44.4	40.0	42.5	81.3	81.3	100.0	68.0
p	0.008**	0.046*	0.384	0.955	0.411	0.282	0.469	0.318
<i>Socioeconomic stratum^b</i>								
1	52.5	25.0	50.0	40.0	35.0	56.3	100.0	66.0
2	45.0	0.0	44.4	40.0	30.0	50.0	100.0	52.0
3	50.0	25.0	44.4	40.0	50.0	87.5	100.0	76.0
≥ 4	50.0	0.0	55.6	40.0	40.0	87.5	100.0	64.0
p	0.816	0.775	0.317	0.635	0.328	0.014*	0.804	0.024*
<i>Economic satisfaction^a</i>								
Dissatisfied	42.5	0.0	44.4	40.0	37.5	62.5	100.0	54.0
Satisfied	62.5	25.0	55.6	40.0	70.0	87.5	100.0	78.0
p	0.031*	0.027*	0.088	0.852	0.001**	0.016*	0.093	0.000**
<i>Family support^a</i>								
Dissatisfied	45.0	0.0	44.4	40.0	40.0	62.5	66.7	56.0
Satisfied	47.5	0.0	44.4	40.0	40.0	81.3	100.0	68.0
p	0.404	0.348	0.260	0.127	0.966	0.668	0.245	0.040*
<i>Regime of affiliation^a</i>								
Contributory	50.0	25.0	44.4	40.0	40.0	75.0	100.0	68.0
Subsidized	30.0	0.0	33.3	40.0	30.0	62.5	0.0	52.0
p	0.024*	0.156	0.080	0.694	0.222	0.980	0.055	0.030
<i>BMI^a</i>								
Normal	55.0	25.0	44.0	40.0	40.0	87.5	100.0	62.0
Overweight or obesity	40.0	0.0	44.0	40.0	40.0	62.5	100.0	68.0
p	0.010**	0.518	0.039*	0.141	0.939	0.060	0.758	0.151
<i>Comorbidity^a</i>								
Yes	40.0	0.0	44.4	40.0	40.0	62.5	100.0	64.0
No	57.5	50.0	44.0	40.0	55.0	87.5	100.0	70.0
p	0.010**	0.080	0.546	0.309	0.082	0.093	0.160	0.408
<i>Adherence^a</i>								
Adherent	45.0	0.0	44.4	40.0	45.0	75.0	100.0	64.0
Non-adherent	50.0	0.0	44.0	40.0	40.0	62.5	100.0	64.0
p	0.448	0.418	0.504	0.448	0.458	0.62	0.190	0.355
<i>Physical activity^a</i>								
Low	40.0	0.0	44.0	40.0	30.0	50.0	100.0	64.0
Moderate	60.0	25.0	55.6	45.0	55.0	87.5	100.0	68.0
p	0.000**	0.006**	0.013*	0.060	0.003**	0.000**	0.874	0.062
<i>Spearman's correlation coefficients</i>								
HAQ-DI	-0.84**	-0.72**	-0.63**	-0.21*	-0.50**	-0.40**	-0.34**	-0.38**

BP: bodily pain; EP: emotional performance; PP: physical performance; PF: physical function; SF: social function; GH: general health; MH: mental health; VT: vitality.

^a Mann-Whitney U test.

^b Kruskal-Wallis H test.

* p < 0.05.

** p < 0.01.

tion, emotional performance and mental health of the population in this study were lower than those obtained by García

et al.²¹ in the assessment of the HRQOL of a healthy population with similar sociodemographic characteristics (139 resi-

Table 4 – Multiple Linear Regression Models for the Factors Associated With HRQOL.

SF-36 dimension	Associated factors	b	R ²
Physical function	HAQ-DI	-34.8**	0.751
	Physical activity (low/moderate)	6.9*	
	BMI (normal/overweight)	-5.8*	
Physical performance	HAQ-DI	-54.7**	0.545
Bodily pain	HAQ-DI	-25.3**	0.448
	Years of diagnosis	0.8**	
	Gender (man/woman)	9.9*	
General health	HAQ-DI	-5.0**	0.136
	Monthly income	-0.3*	
	BMI	-0.5*	
Vitality	HAQ-DI	-22.5**	0.331
	Economic satisfaction (No/Yes)	17.1**	
Social function	HAQ-DI	-17.3**	0.287
	Social stratum	5.9*	
	Physical activity (low/moderate)	15.3**	
Emotional performance	HAQ-DI	-30.1**	0.137
	Age	0.7*	
Mental health	HAQ-DI	-16.0**	0.283
	Age	0.4*	
	Economic satisfaction (No/Yes)	15.1**	

β : regression coefficient; R²: coefficient of determination.
 * $p < 0.05$.
 ** $p < 0.01$.

dents in the city of Medellín aged between 18 and 65 years,) and similar to those obtained by Kvien et al.²⁰ in 1,030 patients from Norway, Vinaccia et al.³⁴ in 82 Colombian patients and Salaffi et al.²³ in 264 Italian patients, which demonstrates a clear affectation of the HRQOL in people who suffer from rheumatoid arthritis.

With reference to the physical functionality of the studied population, it was found that the majority of patients had a HAQ-DI score of mild to moderate degree, whilst this parameter was identified as a factor associated with the score in the domains of HRQOL, finding that converges with the reported by Hodgkinson et al.³⁵ in their study of 171 patients with rheumatoid arthritis; similarly, Chiu et al.,³⁶ Cho et al.³⁷ and Cohen et al.³⁸ reported the ability of this measure to predict the HRQOL scores assessed through the WHOQOL-BREF, the EQ-5D and the AIMS2, respectively.

In addition to the foregoing, the HAQ-DI has turned out to be a scale for the evaluation, follow-up and prognosis of rheumatoid arthritis,^{3,39} given its association with clinical parameters and outcomes characteristic of the disease, such as the duration,^{40,41} the radiological damage,⁴¹⁻⁴³ the inflammatory activity,⁴³ the risk of mortality⁴⁴ and the development of occupational disability,^{45,46} which confers to this scale important characteristics to be applied in the daily clinical practice and in the clinical and epidemiological research of patients with rheumatoid arthritis.

As clinical factors, overweight and obesity were associated with the physical function of the patient with rheumatoid arthritis, where overweight individuals obtained a lower score in the evaluation of this domain compared with people whose BMI was normal; similarly, García-Poma et al.⁴⁷ and Eisenberg et al.,⁴⁸ in their studies, revealed that obesity in patients with rheumatoid arthritis was a factor associated with a poor qual-

ity of life assessed through the MOSSF-36. Likewise, the years of diagnosis became a factor associated with the evaluation of the bodily pain, in which each additional year of duration of the disease implied a better assessment of this domain, which could be explained from the concept of adaptive coping,⁴⁹ defined as the acquired ability of the patient to counteract the effects of the bodily pain through diverse interventions during the course of the disease.

Among the demographic variables, the gender was identified as a factor associated with bodily pain, indicating a higher score in this domain in women; similarly, West and Wallberg-Jonsson⁵⁰ reported, in a longitudinal study, a lower affectation in the baseline assessment of bodily pain in women compared with men. On the other hand, the age was also identified as a demographic variable associated with the domains of mental health and emotional performance, with better scores in older individuals; in this regard, López-García et al.,⁵¹ in their study on reference values of the MOSSF-36 in population over 60 years old, reported the mental health as the most stable domain through the years, while the emotional performance was the least affected, explaining in this results a kind of "survival effect" in the sense that the older people have surpassed their life expectancy, with the consequent improved perception of their emotional well-being, but not of their physical well-being.

The economic satisfaction as a surrogate variable of the level of income was a factor associated with the vitality and the mental health; thus, those individuals who are financially dissatisfied will have a lower valuation of these domains in comparison with those who say they are satisfied; similarly, Alishiri et al.,⁵² in their study on the predictive factors of the HRQOL in patients with rheumatoid arthritis, reported that low income predicted a low score in the physical and mental

components of the MOSSF-36; Marra et al.⁵³ found an association between low income levels and the affectation in the HRQOL evaluated by the *Health Utilities Index Mark 3* (HUI3), the *Short Form 6D* (SF-6D) and the RAQoL. These results reflect the importance of the economic capacity of the individual as a mitigating factor of the unfavorable conditions of suffering from the disease, derived from a greater availability of resources and mechanisms to cope with arthritis and to have a better perception of wellness.

The main limitations of this study include the fact that the associations are not causal; a specific HRQOL scale was not included, since its validation in Medellín has been exiguous, and the effect of the inflammatory activity was not analyzed because in the collection of the information the timing of both measurements did not coincide, that is, the MOSSF-36 assesses aspects of the daily life of the patient in the last 4 weeks, and at the time when it was applied, the clinical data of the inflammatory activity corresponded to different periods.

Conclusion

The evaluation of the HRQOL of the patient with rheumatoid arthritis in routine clinical practice emerges as an activity whose outcome complements the biological approach traditionally applied, while it facilitates the understanding of the impact that the disease and its treatment have on the daily life of the individual; this is important to ensure therapeutic success. In addition, the identification of the factors associated with the HRQOL allows addressing actions of intersectoral and interdisciplinary intervention for the improvement of the quality of life of this group of patients, while it allows focusing the attention and follow-up of the groups at higher risk, such as the sedentary and overweight or obese patients.

Ethical Disclosures

Protection of people and animals. The authors declare that no experiments were performed on human beings or animals for this research.

Data confidentiality. The authors declare that they have followed the protocols of their workplace on the publication of patient data.

Right to privacy and informed consent. The authors state that patient data do not appear in this article.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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