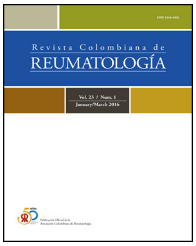
REV COLOMB REUMATOL. 2023;**29(4)**:293–302

Revista Colombiana de
REUMATOLOGÍA

www.elsevier.es/rcreuma



Original Investigation

Modifications in self-care, quality of life and therapeutic adherence in patients with rheumatoid arthritis during the SARS-CoV-2 pandemic treated by telehealth

Sandra Milena Hernández-Zambrano[a,*], *Ruth-Alexandra Castiblanco-Montañez*[a], *Angie Marcela Valencia Serna*[a], *Valentina Nonzoque Toro*[a], *Maria Paula Sánchez Camargo*[a], *Leidy Natalia Restrepo Rodríguez*[a], *Gabriel-Santiago Rodríguez-Vargas*[b], *Laura Villareal*[b], *Jaime-Andrés Rubio-Rubio*[b], *Elías Quintero-Muñoz*[b], *María Alejandra Gómez Pineda*[b], *Josefina Chávez-Chavéz*[b], *Diana Rivera-Triana*[b], *Rosangela Casanova*[b], *Adriana Rojas-Villarraga*[b], *Pedro Santos-Moreno*[c]

[a] *Faculty of Nursing, Care Perspectives Research Group, Health Sciences University Foundaton (FUCS), Bogotá, Colombia*
[b] *Health Sciences University Foundation (FUCS), Bogotá, Colombia*
[c] *Biomab IPS, Bogotá, Colombia*

ARTICLE INFO

Article history:
Received 1 October 2021
Accepted 1 March 2022
Available online 23 January 2023

Keywords:
Rheumatoid arthritis
Telehealth
Quality of life
Self-care and treatment adherence
COVID-19

ABSTRACT

Introduction: Rheumatoid arthritis (RA) is an autoimmune disease characterized by chronic inflammation, causing pain and stiffness in the joints. SARS-CoV-2 increases the clinical vulnerability of the population with RA and has led to the implementation and/or development of telemedicine.

Objective: To describe changes in level of therapeutic adherence, quality of life and capacity for self-care agency, during the follow-up period of a group of patients linked to a non-face-to-face multidisciplinary consultation model during the SARS-CoV-2 pandemic.

Methodology: Descriptive cohort study (July to October 2020). Description of the level of therapeutic adherence (Morisky Green Test), quality of life (EuroQOL-5-Dimensions-3-Level-version) and self-care capacity (ASA-R Scale) in the context of a telehealth model. A univariate and bivariate analysis was performed (Stata Software, Considered p-value <0.05).

Results: Of 71 patients treated under the telehealth model, 85.9% were women, the age range was between 33 and 86 years with a median of 63. The most prevalent comorbidity was arterial hypertension (35.2%). Quality of life did not change during follow-up nor did adherence to treatment, apart from in one item [the patients did not stop taking the medication when they were well ($p = 0.029$)]. In self-care capacity, there were significant improvements in five dimensions ($p < 0.05$), without significant differences in the global score.

PII of original article: S0121-8123(22)00038-X

* *Corresponding author.*
E-mail address: smhernandez3@fucsalud.edu.co (S.M. Hernández-Zambrano).

Conclusion: Patients with RA evaluated in the context of telehealth in a period of pandemic did not present significant changes in quality of life, adherence to treatment, or capacity for self-care, and remained close to baseline values when they attended a traditional face-to-face assessment.

Modificaciones en el autocuidado, calidad de vida y adherencia terapéutica en pacientes con artritis reumatoide durante la pandemia por SARS-CoV-2 atendidos por telesalud

Palabras clave:
Artritis reumatoide
Telesalud
Calidad de vida
Autocuidado y adherencia al tratamiento
COVID-19

RESUMEN

Introducción: La artritis reumatoide (AR) es una enfermedad autoinmune caracterizada por una inflamación crónica que produce dolor y rigidez articular. El SARS-CoV-2 aumenta la vulnerabilidad clínica en pacientes con AR, lo que ha conllevado la implementación o el desarrollo de la telesalud.
Objetivo: Describir los cambios en el nivel de adherencia terapéutica, la calidad de vida y la capacidad de autocuidado durante el periodo de seguimiento, en un grupo de pacientes con AR vinculados con un modelo de consulta multidisciplinar no presencial, en el curso de la pandemia por SARS-CoV-2.
Metodología: Estudio de cohorte descriptiva (julio a octubre del 2020). Descripción del nivel de adherencia terapéutica (*Test Morisky Green*), calidad de vida (*EuroQOL-5-Dimensions–3-Level-version*) y capacidad de autocuidado (Escala ASA-R) en el contexto de un modelo de telesalud. Se realizó análisis univariado y bivariado (*software* Stata®, valor de p considerado <0,05).
Resultados: De 71 pacientes atendidos en modalidad de telesalud, el 85,9% fueron mujeres, la mediana de la edad fue de 63 (33–86) años. La comorbilidad más prevalente fue la hipertensión (35,2%). La calidad de vida no tuvo cambios durante el seguimiento, al igual que la adherencia al tratamiento, excepto en uno de los ítems (los pacientes no dejaron de tomar la medicación cuando se encontraban bien; p = 0,029). En la capacidad de autocuidado hubo mejoras significativas en 5 dimensiones (p < 0,05), sin diferencias significativas en el puntaje global.
Conclusión: Los pacientes con AR evaluados en el contexto de la telesalud, en un periodo de pandemia, no presentaron cambios significativos en la calidad de vida, la adherencia al tratamiento y la capacidad de autocuidado; se mantuvieron en niveles similares a los valores basales cuando asistían a valoración tradicional presencial.

Introduction

Rheumatoid arthritis (RA) is an autoimmune, chronic, inflammatory, and multisystemic disease.[1] This condition affects 1% of the population worldwide; For the year 2018, according to the Community Oriented Program for Control of Rheumatic Diseases (COPCORD) questionnaire; a prevalence of RA of 1.49% was estimated in Colombia,[2] which makes it the most prevalent inflammatory rheumatic disease.

Due to the alarming levels of propagation and severity of the SARS-CoV-2 virus, the World Health Organization (WHO) declared that coronavirus 19 disease (COVID-19) constituted a pandemic.[3] In Colombia, in response to the declaration of a health emergency, specific measures, such as mandatory preventive isolation and restriction of access to health-care centers in person, were adopted to mitigate the rapid spread of the virus. For this reason, strategies such as telehealth, which is based on remote service through information and telecommunication technologies, were defined.[4–6] The patients diagnosed with RA usually have a higher risk of infection compared with the general population, due to impaired immune system, added to the iatrogenic effect generated by the different drugs that control the disease.[7] Taking into account that these characteristics alter the immune response to infectious diseases, it can be considered that the patients with RA are more vulnerable to covid-19 and, therefore, the telehealth strategy would help to mitigate the risk of contagion.

With regard to telehealth in the population with RA, a systematic literature review revealed a high viability and good level of acceptance, with a proven effectiveness greater than or equal to that of conventional consultation.[8] In the context of the health emergency due to Covid-19, the experience of implementing telehealth in patients with RA in China was reported, and it was concluded that the access to medical services through online tools avoids saturation of outpatient services and reduces cross-infections, by restricting face-to-face attendance during the pandemic.[9] In the same line, a research conducted in Bogotá (Colombia) identified that there was no incidence of COVID-19 infection in a cohort of patients treated by telemedicine at the beginning of the pandemic, and it was found that almost 75% of the patients were well controlled.[10] Before the pandemic period, Cajas et al.[11] conducted a descriptive study, between August 2017 and March 2020, in which they determined the performance of synchronous telehealth in several cities of the country, including 479 patients with RA. When measuring the disease activity (using the DAS-28), they found a decrease in the proportion of patients with high disease activity of up to 57%, which demonstrated the clinical efficacy of telehealth.

Some of the fundamental dimensions for monitoring health care, and in this case telehealth, are: the assessment of self-care agency, described by Dorothea Orem as a set of intentional actions carried out by the person to control internal or external factors that can compromise his/her life[12]; the quality of life, defined by the WHO as the perception that the individual has of his/her position in life with respect to the culture and value systems that surround him/her[13]; and finally, the adherence to treatment, understood as the degree of behavior of a patient, related to taking medications and following healthy habits[14].These 3 dimensions then allow to comprehensively assess the physical, social, and emotional aspects in patients with chronic diseases, such as RA, since the clinical manifestations have an impact on the decrease in quality of life and the performance of their daily activities.[15]

Meanwhile, there are no studies in the literature that describe the effect of telehealth on the outcomes of self-care agency capacity, and there are very few studies that assess adherence to treatment in this context in patients with RA. The objective of this study was to describe the changes in the level of therapeutic adherence, quality of life and self-care agency capacity, during a follow-up period, in a group of patients with RA connected with a non-face-to-face multidisciplinary consultation model during the COVID-19 pandemic.

Methodology

Study design and study population

This study is a subanalysis of the research project entitled “Evaluation of a non-face-to-face multidisciplinary health care model in a population with RA, highly vulnerable to SARS-CoV-2/COVID-19, in a situation of health emergency”. It corresponds to a descriptive cohort study in a 12-week follow-up period, between July and October 2020. It was made a description of the levels of therapeutic adherence, quality of life and self-care capacity, which were measured using structured questionnaires. These questionnaires were carried out through telehealth care (synchronous telemedicine), in accordance with the regulations in force in the country where the study was conducted, for which a telephone call was made, in the context of a non-face-to-face multidiscilinary care, in a health provider institution (IPS) located in Bogotá, Colombia. The population consisted of patients with RA, highly vulnerable to SARS-CoV-2, who had the power to voluntarily migrate between the non-face-to-face and face-to-face models during follow-up.

Patients over 18 years of age with a confirmed diagnosis of RA and access to information and communication technologies (ICT) by telephone were included. Patients who did not accept to enter to the study, patients who did not have access to the telephone call and those who, due to their cognitive conditions, did not have the capacity to provide the reliable information necessary for the development of the study, were excluded.

Variables assessed

Information on sociodemographic and clinical variables was collected by data extraction from medical records.

For the evaluation of possible changes in the quality of life, adherence to treatment and self-care capacity, within the framework of telehealth care, two measurements were made: one at the beginning of the follow-up (week 0) and the other at the end (week 12), through telephone calls by the research group, which was composed of health professionals who are experts in each area and in the application of these scales. In the same telephone call during the attention, the health professionals applied the three questionnaires of the measured scales.

The *European Quality of Life 5 Dimensions 3 Levels* (EQ-5D-3L) scale validated in Spanish was used for the evaluation of the quality of life.[16,17] The results are presented as the changes in each of its 5 spheres when comparing the final measurement with the initial one. In addition, for the EQ-5D-3L, an overall index score was calculated, measuring from the lowest (worst) to the highest (best) score for each patient and time point. Likewise, we used the time trade-off (TTO) assessment technique, based on the list of sets of preference values currently available for the EQ-5D-3L for each state of health, obtained from studies in the general population. This is an index that can range between the value 1 (the best state of health) and 0 (death). For this calculation, the sets of values from Spain were chosen, since none of them is currently available for Colombia. Finally, the state of health was also measured with the global valoration scale (global VAS) with a score from 0 to 100, in which higher scores are equivalent to a better state of health.

For the assessment of the adherence to treatment, the *Morisky Green Levine Medication Adherence Scale* (MGLS) was applied,[18,19] and 2 levels of adherence to medication were obtained, based on the MGLS score: high (adherent) and low (non-adherent) adherence, with 0 and 1–4 points, respectively. The changes in the scores of each item at the end with respect to the beginning were analyzed, as well as the change of the adherent and non-adherent status.

In order to assess self-care capacity, the *Appraisal of Self-care Agency Scale-Revised* (ASA-R), adapted to Spanish, was used.[12] This scale has a total of 15 questions in 3 areas, and each question is developed from a 5-point Likert scale; the area that lacks of self-care capacity is reverse-coded. The changes in the proportion of answers for each question were analyzed, according to the 5 items, and in turn the total score; a higher total score was interpreted as a higher level of self-care capacity.

Data collection and statistical analysis

The data collection was carried out in the period between July and October 2020; it was recorded in the Redcap software (https://www.project-redcap.org/) and then exported to the Stata® 13 program for the respective statistical analyses.

The calculation of the sample size is described in detail in Annex Appendix B, available in the Supplementary File 1. The analysis was reported using absolute and relative frequencies for the qualitative variables and means with standard deviation or medians, with minimum and maximum values or interquartile range (IQR), for the quantitative ones, in accordance with the distribution of the data. To evaluate the possible changes (from the initial measurement to the final measurement) in the quality of life, adherence to treatment and self-care capacity, when the categories (dichotomous qualitative variables) were analyzed, the McNemar test was used, and the Wilcoxon test was used when non-dichotomous variables were analyzed. It was determined that the statistical differences were significant with p-values <0.05.

Ethical considerations

The research was developed under legal ethical criteria, taking into account Resolution 8430 of 1993, which classifies the research as of minimal risk. Authorization for the use of personal data was requested, in accordance to Law 1581 of 2012. This study was approved by the Human Research Ethics Committee HSJ-FUCS (CEISH) 0235-2019 of the *Hospital de San José*. Verbal informed consent was obtained by telephone from the clinical setting, in which the procedures performed within the telehealth model established by the IPS were explained.

Results

One hundred individuals who met the inclusion criteria and provided informed consent were invited and included. During the study follow-up, 29 patients evaluated through telehealth voluntarily migrated to the face-to-face model, which is why the descriptive cohort of 71 individuals who remained in the telehealth modality throughout the study was analyzed. The data of the individuals who preferred to continue face-to-face care are not presented or analyzed. 86% were women (n = 61), the age range was between 33 and 86 years, with a median of 63 years (Table 1). The most prevalent comorbidities were arterial hypertension and diabetes mellitus, each with 35.2% (Table 1).

As for the quality of life, assessed through the categories of the 5 questions of the EQ-5D-3L, as well as with the global VAS, the TTO and the score of the overall index evaluated using the same scale, statistically significant differences were not observed (Table 2).

In relation to treatment adherence, although there were no statistically significant differences in total adherence, a decrease was observed in patients who were not adherents, from 45.1% to 32.2% between the 2 measures. The only dimen-

Table 1 – Sociodemographic characteristics and clinical antecedents.

Variable	$n = 71$	%
Age		
Median 63 (min. 33/max. 86)		
Sex		
Female	61	85.9
Male	10	14.1
Marital status		
Single	22	30.9
Married	31	43.6
Divorced	4	5.6
Widower	10	14.1
Free Union	4	5.6
Socioeconomic stratum[a]		
1	6	8.5
2	37	52.1
3	21	29.6
4	5	7.0
5	1	1.4
6	1	1.4
Origin		
Bogotá	50	70.4
Out of Bogotá	21	29.6
Occupation		
Intelectual or office activities	10	14.1
Manual activities	15	20.1
Household	31	43.7
Retired	9	12.7
Independent	3	4.2
Unemployed	3	4.2
Educational level		
Elementary	33	46.5
High school	19	26.8
Technician	14	19.7
University	4	5.6
Posgraduate	1	1.4

General pathological antecedents at the beginning of the study

Variable	*n*	%
Age at diagnosis of RA		
Median 50 (min 16/max 77)		
Erosivity (n = 67)		
Yes	35	47.8
Pathological antecedents (n = 71)		
Arterial hypertension	25	35.2
Diabetes mellitus	6	35.2
Kidney disease	1	1.4
Ischemic heart disease	3	4.2
Infection	4	5.6
Osteoarthrosis	58	82.9
Fibromyalgia	1	1.4
Hypothyroidism	18	25.4
Osteoporosis	23	32.4
Other cardiovascular	3	4.2
Other musculoskeletal	10	14.1
Metabolic	4	5.6
Respiratory	5	7.0
Neoplasms	1	1.4
Dermatological	2	2.8
Gastrointestinal	6	8.4

– Table 1 (*Continued*)

Variable	*n* = 71	%
Psychiatric	1	1.4
Renal	4	5.6
Ophthalmological	2	2.8

Source: table elaborated by the researchers.

[a] Tariff system for public services and taxes in Colombia, which is administered through socioeconomic stratification, based on the characteristics of the dwellings and their surroundings; stratum 1 is defined as the lowest and stratum 6 as the highest.

sion that showed a significant difference was “when you feel well, you stop taking the medication” (p = 0.0253) (Table 3).

Regarding the self-care capacity, significant improvements were observed at the end of the follow-up in the following dimensions: “When I have to take a new medicine, I get informed about the side effects to take better care of myself” (p = 0.0028); “In the past, I have changed some habits in order to improve my health” (p = 0.0442); “I usually take measures to guarantee my safety and that of my family” (p = 0.0003); “In my day to day, I barely have time to take care of myself” (p = 0.0025); “I rarely have time for myself” (p = 0.0213). However, when the total score was evaluated, no significant differences were found in the self-care capacity at the end, when compared with the beginning of the follow-up (Table 4).

Discussion

The present study describes the findings of the evaluation of a group of patients with RA assessed in the context of telehealth in a pandemic period, without finding significant changes in the quality of life, the adherence to treatment, and the capacity for self-care, which remained similar to the baseline values when they attended face-to-face care. The sociodemographic characteristics of the population studied are similar to those described in other populations evaluated in the context of telehealth in a pandemic or in the Colombian population in the context of traditional care.[20,21] The comorbidities most frequently associated with RA were also analyzed, finding similarities with other studies.[22]

As for telehealth, studies such as that conducted by Song et al. have implemented clinical assessment models in patients with RA using telemedicine.[14] The investigations developed by Chew et al. and by Ferucci et al. used tools to evaluate the disease activity in patients with RA, in a model of telehealth follow-up prior to the pandemic.[23,24] During this, a study designed by Zhang et al. reported the experience of

Table 2 – Change in the quality of life variable at the beginning and the end of the follow-up.

Scales	Beginning n = 71		End n = 71		
EQ-5D-3L	*n*	%	*n*	%	*p*-Value*
Mobility					0.486
No problems	38	53.5	33	46.5	
Some problems	29	40.9	35	49.3	
Disability	4	5.6	3	4.2	
Personal care					0.574
No problems	54	76.1	51	71.8	
Some problems	16	22.5	19	26.8	
Disability	1	1.4	1	1.4	
Daily activities					0.535
No problems	40	56.3	36	50.7	
Some problems	27	38.1	31	43.7	
Disability	4	5.6	4	5.6	
Pain/discomfort					0.564
No problems	20	28.2	14	19.7	
Some problems	44	62.0	53	74.7	
Disability	7	9.9	4	5.6	
Anxiety/depression					0.438
	39	54.9	42	59.1	
No problems	28	39.4	29	40.9	0.1153
Disability	4	5.6	0	0	0.411
Disability	Median	(IQR)	Median	(IQR)	0.4294
EQ5-VAS global	70	(50–80)	70	(60–80)	
EQ5-TTO	0.7	(0.6–0.9)	0.7	(0.6–0.9)	
EQ5-general index score	0.7	(0.5–0.8)	0.7	(0.5–0.8)	

EQ-5D-3L: European Quality of Life 5 Dimensions 3 Levels (EQ-5D-3L); IQR: interquartile range; TTO: time trade-off evaluation technique; VAS: Visual Analogue Scale, scale of global assessment.

Source: table elaborated by the researchers.

* Wlcoxon test.

Table 3 – Changes in therapeutic adherence variables at the beginning and at the end of the follow-up.

MGLS	*n*	%	*n*	%	*p-Value*[*]
Adherent	39	54.9	48	67.6	0.060
Non-adherent	32	45.1	23	32.4	
Analysis item by item					
Do you ever forget to take your medications					
No	55	77.46	59	83.1	0.205
Yes	16	22.54	12	16.9	
Do you take the medications at the indicated times					
No	14	19.7	9	12.7	0.165
Yes	57	80.2	62	87.3	
When you are well, you stop to take the medication					
No	66	93.0	71	100	0.025
Yes	5	7.0	0	0	
If it ever makes you feel bad. You stop taking it					
No	57	80.3	56	78.9	0.818
Yes	14	19.7	15	21.1	

MGLS: Morisky Green Levine Scale.
Source: table elaborated by the researchers.
[*] McNemar's test.

76 patients with this disease who participated in a telehealth assessment program to reduce the effects of contagion. As a result, satisfaction was demonstrated in the experience with virtual management and an average score of 4.6 out of 5 was obtained in the evaluation of the satisfaction of these patients,[9] which proves that telehealth is useful for chronic conditions that require strict follow-up.

With regard to the variables of interest in the population with RA, no significant changes were found in adherence to treatment in the total group, which demonstrates that there was no decrease in adherence, but neither was there an increase. This suggests that telehealth does not induce a reduction in the intake of medications. With respect to the final effect of the follow-up in the present study, improvements were evident, since 100% of the studied population demonstrated that they did not interrupt the continuity of their treatment during the periods in which they stated that they were in full general health, unlike the baseline, in which 7% decided to stop taking the medication when they felt well.

Several studies consider that the current evidence on the self-care for RA is limited and that the factors that influence the self-care capacity in these patients are insufficient.[25,26] It should be noted that most of these studies that assess self-care capacity have been conducted in patients with RA assessed in person. There is no report of studies that have evaluated the self-care agency with the ASA-R instrument in patients with RA under the telehealth model during a pandemic, which is a novel aspect of the present study. Although no significant differences were found in self-care capacity during follow-up, improvements were noted in the aforementioned dimensions. Thus, self-care during the health emergency remained constant during the follow-up period and improved in some areas, thus contributing, most likely, to the personal and interpersonal well-being and functionality of the patients evaluated.

There are few studies that have measured quality of life in the telehealth context with the EQ-5D-3L instrument in patients with RA. In the research conducted by Munchey et al., developed in a face-to-face care context, the dimension most commonly reported was pain/ discomfort (66.1%), in which the EQ-5D utility score obtained a median (IQR) of 0.65 (0.5–0.73) and a median EQ-VAS score of 70, similar to what was presented in our case.[27] In the present study, no significant differences were found in the dimensions evaluated before and after the follow-up of this variable, which could indicate that the patients maintained the same levels of pain/discomfort during the period evaluated, without deteriorating their quality of life.

Limitations

Since there are very few studies that have used the Morisky Green, EQ-5D-3L and ASA-R scales in research that includes patients with RA in the context of telehealth, it was difficult to contrast the results with other similar studies. There is a high risk of selection bias in this study, due to its methodological characteristics. In order to prevent some of them from being presented, strict compliance with the above mentioned inclusion criteria was applied. A weakness of the study is the lack of analysis of the outcomes of disease activity (e.g., DAS28) and response, as well as the typification of the treatments received. It should be made clear that it was not carried out because it was not our objective. The short follow-up period could also be considered a weakness; however, it was adjusted to the periods of strict quarantine, in accordance with the rhythms of the COVID-19 pandemic. In addition, in some scenarios, the use of an exclusively telephone tool to assess the patients in this telehealth model could be considered a weakness, however, we consider that the contributions of this study may be valuable, considering that in many opportunities in our country other type of ICT that involves videos or screens for said attention is not available. In the present study, the impact of telehealth on the economic dimension of the healthcare system was not evaluated, and multivariate analyses to assess the relationship between quality of life, adherence, and self-care

Table 4 – Changes in the self-care capacity variables at the beginning and at the end of the follow-up.

Self-care capacity	*n*	%	*n*	%	*p*-Value*
1. As my circumstances change, I am making the adjustments that I need to stay healthy					0.2782
Strongly disagree	0	0	0	0	
Disagree	2	2.9	0	0	
Neither agree nor disagree	2	2.9	6	8.4	
Agree	55	78.6	46	64.8	
Totally agree	11	15.7	19	26.8	
2. If I have problems moving or scrolling I make the necessary adjustments					0.9465
Strongly disagree	1	1.5	0	0	
Disagree	3	4.3	3	4.2	
Neither agree nor disagree	7	10.1	11	15.5	
Agree	45	65.2	41	57.8	
Totally agree	13	18.8	16	22.5	
3. When necessary, I establish as new priorities the most appropriate measures to stay healthy					0.4467
Strongly disagree	0	0	0	0	
Disagree	1	1.5	0	0	
Neither agree nor disagree	5	7.3	4	5.6	
Agree	41	59.4	41	57.8	
Totally agree	22	31.8	26	36.6	
4. I often lack the strength needed to take care of myself as I know I should					0.7113
Strongly disagree	10	14.1	5	7.1	
Disagree	24	33.8	30	42.3	
Neither agree nor disagree	5	7.1	4	5.6	
Agree	23	22.4	22	31.0	
Totally agree	9	12.7	10	14.1	
5. I seek better ways to take care of myself					0.1478
Strongly disagree	1	1.4	1	1.4	
Disagree	1	1.4	1	1.4	
Neither agree nor disagree	1	1.4	5	7.1	
Agree	54	76.1	38	53.5	
Totally agree	14	19.7	26	36.6	
6. If I need it, I find time to take care of myself					0.3492
Strongly disagree	0	0	0	0	
Disagree	3	4.2	2	2.8	
Neither agree nor disagree	2	2.8	2	2.8	
Agree	48	67.6	44	62.0	
Totally agree	18	25.4	23	32.4	
7. When I have to take a new medicine, I get informed about the side effects to take better care of myself					0.0028
Strongly disagree	11	15.5	1	1.4	
Disagree	14	19.7	19	26.8	
Neither agree nor disagree	10	14.1	3	4.2	
Agree	28	39.4	24	33.8	
Totally agree	8	11.3	24	33.8	
8. In the past, I have changed some habits in order to improve my health					0.0442
Strongly disagree	5	7.1	0	0	
Disagree	5	7.1	5	7.1	
Neither agree nor disagree	0	0	4	5.6	
Agree	49	69.0	38	53.5	
Totally agree	12	16.9	24	33.8	
9. I usually take measures to guarantee my safety and that of my family					0.0003
Strongly disagree	1	1.4	0	0	
Disagree	2	2.8	1	1.4	
Neither agree nor disagree	1	1.4	3	4.2	
Agree	51	71.8	28	39.4	
Totally agree	16	22.5	39	54.9	

– Table 4 (*Continued*)

Self-care capacity	*n*	%	*n*	%	*p*-Value*
10. I usually evaluate whether the things I do to stay healthy are working					0.3429
Strongly disagree	0	0	0	0	
Disagree	6	8.5	8	11.3	
Neither agree nor disagree	10	14.1	8	11.3	
Agree	47	66.2	39	54.9	
Totally agree	8	11.3	16	22.5	
11. In my day to day, I barely have time to take care of myself					0.0025
Strongly disagree	11	15.5	5	7.1	
Disagree	46	64.8	35	49.3	
Neither agree nor disagree	3	4.2	5	7.1	
Agree	8	11.3	24	33.8	
Totally agree	3	4.2	2	2.8	
12. I am able to find the information that I need when my health is threatened					0.2080
Strongly disagree	2	2.8	1	1.41	
Disagree	4	5.6	11	15.5	
Neither agree nor disagree	6	8.5	4	5.6	
Agree	53	74.7	35	49.3	
Totalmente de acuerdo	6	8.5	20	28.2	
13. I seek help when I cannot take care of myself					0.3329
Strongly disagree	0	0	0	0	
Disagree	7	9.9	4	5.6	
Neither agree nor disagree	1	1.4	3	4.2	
De acuerdo	33	46.5	28	39.4	
Totally agree	30	42.3	36	50.7	
14. I rarely have time for myself					0.0213
Strongly disagree	18	25.7	2	2.8	
Disagree	36	51.4	50	70.4	
Neither agree nor disagree	7	10.0	7	9.9	
Agree	8	11.4	12	16.9	
Totally agree	1	1.4	0	0	
15. I cannot always take care of myself as I would like					0.2869
Strongly disagree	8	11.4	2	2.8	
Disagree	13	18.6	19	26.8	
Neither agree nor disagree	11	15.7	9	12.7	
Agree	34	48.6	31	43.7	
Totally agree	4	5.7	10	14,.1	
ASAS-R total score	Median 65	(IQR) (60–69)	Median 67	(IQR) (63–71)	0.1481

IQR: interquartile range.

Source: table elaborated by the researchers.

* Wilcoxon test.

capacity with the variables specific to RA, in order to analyze the outcome of disease activity were not performed. Finally, due to the type of design of the present study, there are very important confounding factors since patients with difficulties in using the telemedicine service, with cognitive alterations or who did not have access to technology were excluded, which could be related to the educational and socioeconomic status, and multivariate analyses were not carried out to eliminate said biases.

Conclusions

Through the present descriptive cohort study, it is demonstrated that, in a very short follow-up period, in particular conditions such as the covid-19 pandemic and quarantine, in patients with RA evaluated through telehealth there are no major changes in their quality of life, adherence and self-care capacity levels, and stability is maintained during the telehealth intervention.

In the context of the pandemic, telehealth has relied on ICTs and has achieved an exchange of valid information for the diagnosis, treatment, prevention, research and evaluation of the disease, which has made it possible to implement this strategy for the care of patients with RA through mixed models (face-to-face and remote). It is possible that this type of care allows the approach to multidisciplinary assessment of patients with RA who live in dispersed populations and with difficult access to face-to-face consultation, thus enabling timely access. We consider necessary to continue implementing strategies to evaluate and enhance adherence to treatment and the self-care capacity of the population who suffer from chronic rheumatological pathologies treated by telehealth.

Funding

The institutional research committee of the University Health Sciences Foundation (FUCS) financed this study through a research promotion announcement of 2020, Law number DI-I-0362-20 (US 7204), and the Colombian Association of Rheumatology (Asoreuma), through the Asoreuma call for projects, Act number 15-3-21 (US 2768). There was no participation in the design, collection, analysis and interpretation of data by the funding sources.

Authorship

All authors contributed significatively to this study, SH-Z and RC-M from the conception and design of the study; DR-T, JC-C and R-C participated in the statistical analyses, as well as in the design of the study, A-V, V-N, M-S and L-R, from data analysis and interpretation; GR-V, JR, E-Q and M-G, in the acquisition of the data and the critical review of the intellectual content, PS-M and AR-V participated in all phases from planning to writing the manuscript.

Conflict of interest

The authors declare that they have no conflict of interest in the preparation of this article.

Acknowledgments

To the multidisciplinary health care team that performs the daily evaluation of these patients.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.rcreue.2022.03.004.

REFERENCES

1. González ML, Rueda J, González H, Cantor E, Martínez A. Artritis reumatoide temprana: resultados clínicos y funcionales de una cohorte en un centro de alta complejidad, Cali-Colombia. Rev Colomb Reumatol. 2016;23:148–54.
2. Londoño J, Peláez Ballestas I, Cuervo F, Angarita I, Giraldo R, Rueda JC, et al. Prevalencia de la enfermedad reumática en Colombia, según estrategia Copcord-Asociación Colombiana de Reumatología. Estudio de prevalencia de enfermedad reumática en población colombiana mayor de 18 años. Rev Colomb Reumatol. 2018;25:245–56.
3. Organización Mundial de la Salud (OMS). Cronología de la actuación de la OMS 11 de marzo del 2020 [Update 29 June 2020; Accessed 22 June 2020] Available from: https://www.who.int/es/news/item/27-04-2020-who-timeline--covid-19.
4. Ministerio de Salud y Protección Social. Resolución número 385 del 12 de marzo de 2020 por la cual se declara la emergencia sanitaria por causa del coronavirus, covid-19 y se adoptan medidas para hacerle frente el virus. Boletín oficial del Estado [consultado 20 May 2020]. Disponible: https://www.minsalud.gov.co/Normatividad.Nuevo/Resolución No. 0385 de 2020.pdf.
5. Ministerio de Salud y Protección Social. Resolución 521 del 28 de marzo de 2020 por la cual se adopta el procedimiento para la atención ambulatoria de población en aislamiento preventivo obligatorio. Boletin oficial del Estado [Accessed 22 August 2020]. Available from: https://www.minsalud.gov.co/RID/resolucion-521-de-2020.pdf.
6. Ministerio de Salud y Protección Social. Resolución 2654 de 2019 [consultado 22 Ago 2020]. Disponible en: https://www.minsalud.gov.co/Normatividad Nuevo/Resolución No. 2654 del 2019.pdf.
7. Favalli EG, Ingegnoli F, Cimaz R, Caporali R, de Lucia O, Cincinelli G. Covid-19 infection and rheumatoid arthritis: faraway, so close! Autoimmun Rev. 2020;19:102523, http://dx.doi.org/10.1016/j.autrev.2020.102523.
8. Piga M, Cangemi I, Mathieu A, Cauli A. Telemedicine for patients with rheumatic diseases: systematic review and proposal for research agenda. Semin Arthritis Rheum. 2017;47:121–8, http://dx.doi.org/10.1016/j.semarthrit.2017.03.014.
9. Zhang Y, Wang J, Zhao L, Xiao J, Shi Z. Online management of rheumatoid arthritis during covid-19 pandemic. Ann Rheum Dis. 2021;80:e4, http://dx.doi.org/10.1136/annrheumdis-2020-217548.
10. Santos-Moreno P, Chavez-Chavez J, Hernández-Zambrano SM, Rivera-Triana DP, Castiblanco-Montañez RA, Aza A, et al. Experience of telemedicine use in a big cohort of patients with rheumatoid arthritis during covid-19 pandemic. Ann Rheum Dis. 2021;80:e65, http://dx.doi.org/10.1136/annrheumdis-2020-218165.
11. Cajas Santana LJ, López JG. Descripción de un servicio de telerreumatología en una institución colombiana. Rev Colomb Reumatol. 2021;28:161–70, http://dx.doi.org/10.1016/j.rcreu.2020.08.002.
12. Alhambra-Borrás T, Durá-Ferrandis E, Garcés-Ferrer J, Sánchez-García J. The appraisal of self-care agency scale-revised (ASA-R): adaptation and validation in a sample of Spanish older adults. Span J Psychol. 2017;20:E48, http://dx.doi.org/10.1017/sjp.2017.52.
13. Martinec R, Pinjatela R, Balen D. Quality of life in patients with rheumatoid arthritis — a preliminary study. Acta Clin Croat. 2019;58:157–66, http://dx.doi.org/10.20471/acc.2019.58.01.20.
14. Song Y, Reifsnider E, Zhao S, Xie X, Chen H. A randomized controlled trial of the effects of a telehealth educational intervention on medication adherence and disease activity in rheumatoid arthritis patients. J Adv Nurs. 2020;76:1172–81, http://dx.doi.org/10.1111/jan.14319.
15. 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;44:123–30, http://dx.doi.org/10.1016/j.semarthrit.2014.05.001.
16. Cabasés JM. El EQ-5D como medida de resultados en salud The EQ-5D as a measure of health outcomes. Gac Sanit. 2015;29:401–3, http://dx.doi.org/10.1016/j.gaceta.2015.08.007.
17. Senanayake S, Mahesh PKB, Gunawardena N, Graves N, Kularatna S. Validity and internal consistency of EQ-5D-3L quality of life tool among pre-dialysis patients with chronic kidney disease in Sri Lanka, a lower middle-income country. PLoS One. 2018;14:e0211604, http://dx.doi.org/10.1371/journal.pone.0211604.
18. Morisky DE, Green LW, Levine DM. Concurrent and predictive validity of a self-reported measure of medication adherence. Med Care. 1986;24:67–74, http://dx.doi.org/10.1097/00005650-198601000-00007.

19. Guarín-Loaiza GM, Pinilla-Roa AE. Adherencia al tratamiento antihipertensivo y su relación con la calidad de vida en pacientes de dos hospitales de Bogotá, D.C. 2013-2014. Rev la Fac Med. 2016;64:651, http://dx.doi.org/10.15446/revfacmed.v64n4.52217.
20. Tornero-Molina J, Sánchez-Alonso F, Fernández-Prada M, Bris-Ochaita ML. AS-G y JV-F. Telerreumatología en tiempos de crisis durante la pandemia por covid-19. Reumatol Clin. 2022;18:157–63, http://dx.doi.org/10.1016/j.reuma.2020.10.004.
21. Bautista-Molano W, Fernández-Avila D, Jiménez R, Cardozo R, Marín A, Soler M, del P, et al. Perfil epidemiológico de pacientes colombianos con artritis reumatoide evaluados en una clínica especializada de atención integral. Reumatol Clínica. 2016;12:313–8 [Accessed 4 April 2019]. Available from: https://linkinghub.elsevier.com/retrieve/pii/S1699258X15002041
22. Luque Ramos A, Redeker I, Hoffmann F, Callhoff J, Zink A, Albrecht K. Comorbidities in patients with rheumatoid arthritis and their association with patient-reported outcomes: results of claims data linked to questionnaire survey. J Rheumatol. 2019;46:564–71, http://dx.doi.org/10.3899/jrheum.180668.
23. Chew LC, Xin X, Yang H, Thumboo J. An evaluation of the virtual monitoring clinic, a novel nurse-led service for monitoring patients with stable rheumatoid arthritis. Int J Rheum Dis. 2019;22:619–25, http://dx.doi.org/10.1111/1756-185X.13436.
24. Ferucci ED, Holck P, Day GM, Choromanski TL, Freeman SL. Factors associated with use of telemedicine for follow-up of rheumatoid arthritis. Arthritis Care Res (Hoboken). 2020;72:1404–9, http://dx.doi.org/10.1002/acr.24049.
25. Shao JH, Yu KH, Chen SH. Feasibility and acceptability of a self-management program for patients with rheumatoid arthritis. Orthop Nurs. 2020;39:238–45.
26. Sok SR, Ryu JS, Park SH, Seong MH. Factors influencing self-care competence in Korean women with rheumatoid arthritis. J Nurs Res. 2020;39:238–45, http://dx.doi.org/10.1097/NOR.0000000000000676.
27. Munchey R, Pongmesa T. Health-related quality of life and functional ability of patients with rheumatoid arthritis: a study from a tertiary care hospital in Thailand. Value Health Reg Issues. 2018;15:76–81, http://dx.doi.org/10.1016/j.vhri.2017.08.012.