
Mental health and well-being during the COVID-19 pandemic: stress vulnerability, resilience and mood disturbances in fibromyalgia and rheumatoid arthritis

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ABSTRACT

Objective. The COVID-19 pandemic severely increased the stress levels in the population. The aim of present study was to investigate the impact of the lockdown measures on emotional well-being and disease activity in patients with fibromyalgia (FM) and rheumatoid arthritis (RA) through a telemedicine approach.

Methods. An on-line survey, including demographic characteristics, disease-activity and psychometric scales (Stress-related Vulnerability Scale, Resiliency scale), Zung Anxiety and Depression Self-assessment Scale), was anonymously administered to FM, RA and healthy controls (HC). Disease activities were compared to the pre-lockdown cohort referring to our centre.

Results. Levels of anxiety and depression worthy of psychiatric attention were documented in 36.7% of FM, 14.6% of RA, 12.5% of HC and in 50% of FM, 17.1% of RA, 15% of HC, respectively. HC featured the highest stress scores, followed FM and then RA. RA showed higher resiliency than FM. Both anxiety and depression scores were significantly higher in FM than RA and HC. Disease severity was higher in RA patients and lower in FM patients when compared to the respective historical cohorts.

Conclusion. Lockdown significantly affected the emotional well-being and disease activity of patients suffering from rheumatic diseases. While HC showed a higher vulnerability to stress, RA patients showed a greater resilience compared to both HC and to FM patients, especially. Emotional disturbances are greater in patients with RDs and in particular with FM. The use of a telemedicine approach to screen for severe symptoms represents a useful addition to the overall management of rheumatic patients.

Introduction

The novel coronavirus disease (COVID-19) pandemic has affected the entire community worldwide. There will forever be a watershed between before and after COVID-19 outbreak. By the beginning of March 2020, the pandemic of COVID-19 imposed severe lockdown measures opposing the viral spread, causing a significant rise of reported anxiety, depression and suicidal thoughts and rate, that is still ongoing (1). The long-term effects of the pandemic are not yet fully known; they include post-traumatic stress disorder and an increase of sleep disturbances, asthenia and widespread musculoskeletal pain.

An increased daily stress has been reported in general population during lockdown, and has been associated to a negative mental health outcome and an increased prevalence of mood disorders. Several factors may intervene as stress cause in lockdown situations: being under quarantine, having a relative affected by COVID-19, working activity discontinued due to lockdown measures and other stressful events (*i.e.* working, financial, relationship, or housing problems) due to the pandemic or lockdown measures (2).

Patients affected by chronic rheumatic disorders (RDs) are themselves at increased risk of mood disorders, such as depression and anxiety, for the chronic course of the disease itself and for the related disability. In fact, adverse mental health is a major contributor to morbidity and poor quality of life in patients affected with RDs.

Fibromyalgia (FM) is a major cause of chronic widespread pain. It is also characterised by other distinctive features, such as fatigue, sleep disturbances, morning stiffness, paraesthesia, headache, mood disorders, memory prob-

Competing interests: none declared.

lems, sicca symptoms, irritable bowel disease, and Raynaud's phenomenon (3). After osteoarthritis and low back pain, FM is the most common RD, with a prevalence varying between 2-8% of the general population. The pain in FM is defined nociplastic and the pathogenesis of the disease involves central sensitisation and an amplified perception of pain in which external stressors seems to have a trigger role. The pathogenesis of FM involves psychological, behavioural and social factors that also complicate its treatment (4). Psychologically, in patients with FM there is a generalised distress state (5). Mood disorders can have a very wide variability in FM, from simple alterations to full-blown psychiatric syndromes, representing an important part of the morbidity of the disease. Recent reports in patients with chronic pain showed an increased perception of pain severity, anxiety and depressed mood, increased loneliness and reduced levels of physical exercise following lockdown. Pain catastrophising, a typical feature of FM, was an independent predictor of symptoms (6). These results suggest a potential impact of COVID-19 lockdown both on physical and psychological symptoms of FM.

Among RDs, there are also chronic inflammatory diseases, such as rheumatoid arthritis (RA); even if the nature of these pathologies is very different, mood disorders represent both a consequence and the cause of flare-ups of the pathology itself. RA affects 0.2-1.2% of the general population. Depression is a relevant and rather frequent clinical aspect in RA, with a percentage ranging from 13 to 42% of patients, depending on the studies (7). Although there is a direct association between the most severe, disabling RA and depressive disorders, factors such as social stresses and social isolation may be relevant for depression to develop in patients with less severe RA (8).

Several reports demonstrated that major and minor stressors can modulate the course of the disease activity in RA. Major stressful events, such as severe long-term illness or death of a spouse, divorce of parents or death of a parent,

modulate the disease course in a different fashion compared to minor stress, characterised by daily, small intensity hassles. Observational studies showed how daily, minor stressors in RA patients were associated to a poorer outcome while strong major stress, which is likely accompanied by a large and long-lived release of stress axes mediators, was associated with a decrease in disease activity (9).

The aim of present study was to investigate the impact of the lockdown measures and the COVID-19 pandemic on emotional well-being and disease activity in patients affected by FM and RA through a telemedicine approach.

Methods

Patients

Starting from the month of April 2020, we consecutively enrolled subjects affected by FM, diagnosed according to 2016 revised criteria (10) and subjects affected by RA, diagnosed according to ACR/EULAR 2010 criteria (11), previously referred to the Rheumatologic out-patient Clinic of Policlinico Umberto I, University Hospital of Rome, Italy. Each patient was asked to answer an online survey including questions on demographic characteristics, specific clinimetric scales for disease activity evaluation and psychometric scales, administered through *Google Modules* platform, completely anonymously. Each patient was asked also to invite his best friend, matched for age and sex, to participate the survey, as healthy control (HC) group. The enrolment of subject has been carried out for 2 months, coinciding with the period of strict lockdown in Italy for the COVID-19 pandemics.

For the evaluation of the effect of lockdown on disease activity, we selected also clinical records of FM and RA patients from the same out-patient clinics, matched for age and sex, as pre-pandemic group. The clinical record extracted were limited to a lag of time of three months before the lockdown.

Survey

The survey included demographic questions (age range, sex, scholarship, work and civil status) and the validated,

Italian version of psychometric scales, including:

Stress-related vulnerability scale (SVS): A 9-items questionnaire, scored on 4-point scale (not at all, a little, quite a bit, a lot), evaluating the perceived stressfulness of events and the subjective perception of social support (12). The global SVS score identify three classes of stress vulnerability: SVS 0-10 normal stress vulnerability; SVS 11-18 increased stress vulnerability; SVS >18 high stress vulnerability.

14-items resiliency scale (RS): A 14-items questionnaire evaluating subjective resilience, intended as the capacity for or an outcome of successful adaptation despite challenging or threatening circumstances (13). Each item is answered in base of the degree of agreement or disagreement on a 7-point Likert-type scale from 1 (strongly disagree) to 7 (strongly agree). All the items are positively scored, and the global RS identifies various classes of resilience: RS <56 very low resilience level; RS 57-64 low resilience level; RS 65-73 low-moderate resilience level; RS 74-81 moderate resilience level; RS 82-90 moderately high resilience level; RS >91 high resilience level.

Zung Anxiety Self-assessment Scale (ZUNG A): A 20-items questionnaire, scored on a Likert-type scale of 1-4 (a little of the time, some of the time, good part of the time, most of the time)(14). The global raw score is converted to an "Anxiety Index" which defines classes of anxiety: 20-44 Normal Range; 45-59 Mild to Moderate Anxiety Levels; 60-74 Marked to Severe Anxiety Levels;>75 Extreme Anxiety Levels.

Zung Depression Self-assessment Scale (ZUNG D): A 20-items questionnaire, scored on a Likert-type scale of 1-4 (a little of the time, some of the time, good part of the time, most of the time)(15). The global raw score defines classes of depression: 20-39 Normal Range; 40-47 Mild Depression Levels; 48-55 Marked Depression Levels;>56 Severe Depression Levels.

Disease-specific, clinimetric scales have been administered respectively to FM (FIQR) and RA (RADAI-5, VAS pain, VAS disease activity) patients:

The Revised Fibromyalgia Impact Questionnaire (FIQR): A validated, self-administered 20-items questionnaire, scored on a 0–10 numeric scale, designed for the evaluation of multidimensional aspects FM (16). The global FIQR score defines the disease activity classification: ≤30 remission; 30–45 low disease activity (LDA); 46–65 moderate disease activity (MDA); >65 high disease activity (HDA) (17).

Rheumatoid Arthritis Disease Activity Index-5 (RADAI-5): A 5-items patient-assessed measures, scored on a 0–10 ordered category scale, for disease activity evaluation in RA which has been shown to detect flare of RA with equal sensitivity to the Disease Activity Score 28 (DAS28) and to discriminate European League Against Rheumatism good responders from moderate and non-responders. Cut-offs for disease activity classification were: <1.4 remission; 1.5–3.1 LDA; 3.2–5.5 MDA; >5.6 HAD (18).

Visual Analogic Scale (VAS) for pain and disease activity: RA patients were asked also to score their pain and disease activity on a 0 (no pain/disease activity) to 10 (extreme pain/disease activity) visual analogue scale.

For pre-pandemic groups, the disease activity has been evaluated through FIQR and DAS28, respectively for FM and RA patients.

Statistical analysis

Continuous variables are shown as mean ± SD or as median (range) for normally and non-normally distributed data, respectively. Categorical variables are presented as frequencies. Comparisons of continuous variables between two groups were performed using an independent samples T test or Mann-Whitney U test, whilst comparisons between more than two groups were tested through the ANOVA (with Bonferroni’s correction for *post-hoc* adjustment) or Kruskal-Wallis test, according to data distribution. Chi-squared analysis tested the differences between categorical variables. An ordinal regression model (PLUM) has been created to assess the associations between variables and the belonging to higher depression or anxiety classes.

Table I. Demographic characteristics of enrolled subjects.

		FM (n=72)	RA (n=82)	HC (n=40)
AGE	18-29	1 (1.4)	0	5 (12.5)
	30-39	5 (6.9)	9 (11)	9 (22.5)
	40-49	16 (22.2)	14 (17.1)	14 (35)
	50-59	40 (55.6)	24 (29.3)	3 (7.5)
	60-69	10 (13.9)	23 (28)	8 (20)
	>70	0	12 (14.6)	1 (2.5)
SCOLARITY	PRIMARY	0	1 (1.2)	0
	SECONDARY	15 (20.8)	18 (22)	4 (10)
	TERTIARY	35 (48.6)	37 (45.1)	16 (40)
	DEGREE	22 (30.6)	26 (31.7)	20 (50)
WORK	OCCUPIED	43 (59.7)	37 (45.1)	27 (67.5)
	HOUSEWIFE	6 (8.3)	14 (17.1)	4 (10)
	PENSION	7 (9.7)	23 (28)	5 (12.5)
	WAITING FOR AN OCCUPATION	9 (12.5)	3 (3.7)	4 (10)
	STUDENT	0 1 (1.2)	0	
	LAYOFFS	1 (1.4)	1 (1.2)	0
	PAID HOLIDAYS	2 (2.8)	1 (1.2)	0
	LEAVE OF ABSENCE	4 (5.6)	1 (1.2)	0
	OTHER	0	1 (1.2)	0
CIVIL STATUS	MARRIED	49 (68.1)	55 (67.1)	21 (52.5)
	WIDOW	3 (4.2)	4 (4.9)	0
	SINGLE	8 (11.1)	17 (20.7)	12 (30)
	DIVORCED	12 (16.7)	6 (7.3)	7 (17.5)

Data are reported as frequency (percentage). RA: rheumatoid arthritis; FM: fibromyalgia; HC: healthy controls.

Table II. Frequency of psychometric scales classes of the enrolled patients.

		FM (n=72)	RA (n=82)	HC (n=40)
SVS CLASS	LOW STRESS	32 (44.4)	43 (52.4)	0
	INCREASED STRESS	30 (41.7)	35 (42.7)	24 (60)
	HIGH STRESS	10 (13.9)	4 (4.9)	16 (40)
RS CLASS	VERY LOW	22 (27.8)	13 (15.9)	6 (15)
	LOW	11 (13.9)	11 (13.4)	7 (17.5)
	LOW-MODERATE	19 (24.1)	12 (14.6)	3 (7.5)
	MODERATE	10 (12.7)	18 (22)	9 (22.5)
	HIGH-MODERATE	15 (19)	21 (25.6)	14 (35)
	HIGH	2 (2.5)	7 (8.5)	1 (2.5)
ZUNG A CLASS	NORMAL	2 (2.5)	10 (12.2)	10 (25)
	MINIMAL-MODERATE	48 (60.8)	60 (73.2)	25 (62.5)
	MARKED- SEVERE	27 (34.2)	12 (14.6)	5 (12.5)
	EXTREME	2 (2.5)	0	0
ZUNG D CLASS	VERY LOW	14 (19.4)	39 (47.6)	25 (62.5)
	LOW	22 (30.6)	27 (32.9)	9 (22.5)
	MODERATE	26 (36.1)	13 (15.9)	4 (10)
	HIGH	10 (13.9)	1 (1.2)	2 (5)

Data are reported as frequency (percentage). RA: rheumatoid arthritis; FM: fibromyalgia; HC: healthy controls; SVS: stress-related vulnerability scale; RS: 14-items resiliency scale; ZUNG A: Zung Anxiety Self-assessment Scale; ZUNG D: Zung Depression Self-assessment Scale.

All statistical analyses were performed using the SPSS Statistics version 25.0 software package (SPSS Inc., Chicago, IL, USA), and a two-sided *p*-value <0.05 was considered statistically significant.

Results

The cohort was composed by a total of 72 FM patients (69 F, 3 M), 82 RA patients (69 F, 13 M) and 40 HC (34 F, 6 M). The demographic characteristics and the frequency of the various

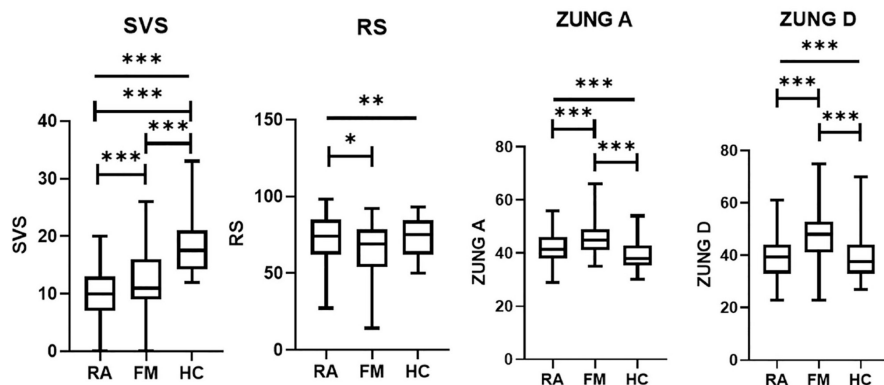


Fig. 1. Distributions of SVS, RS, ZUNG A and ZUNG D scores among enrolled subjects. RA: rheumatoid arthritis; FM: fibromyalgia; HC: healthy controls; SVS: stress-related vulnerability Scale; ZUNG A: Zung Anxiety Self-assessment Scale; RS: 14-items Resiliency scale; ZUNG D: Zung Depression Self-assessment Scale.

psychometric scales classes of enrolled subjects are respectively shown in Table I and II.

A level of anxiety worthy for specialistic psychiatric attention was documented by Zung Anxiety Self-assessment Scale in 36.7% of FM patients, 14.6% of RA patients and 12.5% of HC. Similarly, levels of depression worthy of psychiatric attention were documented by Zung Depression Self-assessment Scale in 50 % of FM patients, 17.1% of RA patients and 15% of HC.

There were no differences between groups in the frequencies of the various demographic characteristics and in the frequency of the various RS classes ($p=0.069$). At the comparison between the three groups, there were statistically significant differences in all the psychometric scales scores evaluated (SVS $p<0.0001$; RS $p=0.015$; ZUNG A $p<0.0001$; ZUNG D $p<0.0001$; Fig. 1). Multiple comparisons showed that HC featured the highest stress scores, followed FM patients and then RA patients. RA patients showed also higher

resiliency when compared to FM patients. Both anxiety and depression scores were significantly higher in FM patients compared to RA patients and HC, with no differences between the last two groups (Fig. 1).

Regarding the psychometric classes according to the scales, there was a significant difference in the frequency of the various SVS classes ($p<0.0001$), with HC showing more frequently increased or high stress vulnerability (Fig. 2). A statistically significant difference was present also in the frequency of the various anxiety ($p<0.0001$) and depression ($p<0.0001$) classes according to Zung self-assessment scales, with patients affected by FM belonging more frequently to higher classes of anxiety and depression (Fig. 2).

To assess the associations of various characteristics with the probability to belong to higher anxiety and depression classes, ordinal regression models were built (Table III and IV). SVS score and the diagnosis of FM were significantly associated to higher class-

es of both anxiety and depression. RA diagnosis was significantly associated to higher classes of anxiety.

Comparing historical cohort with post-COVID cohort, patients with FM showed a significant lower frequency of HDA ($p=0.015$, Fig. 3). On the contrary, patients with RA post-COVID showed a higher frequency of MDA and HDA when compared to historical cohort ($p<0.0001$, Fig. 4), in spite of no differences in VAS pain and VAS disease activity.

There were no differences in the frequency of the various classes of the psychometric scales among the different disease activity classes. However, patients with high severity of FM showed a higher frequency of marked and severe ZUNG D classes ($p=0,001$). An inverse correlation between RS score and FIQR score was also present ($Rho= -0.23$; $p=0.046$).

Discussion

During this time of the COVID-19 pandemic, a telemedicine approach was useful in highlighting the frailties in the mood and general well-being of a cohort of patients suffering from RDs and of their best healthy friends. In particular, attention was paid to vulnerability to stress, levels of resilience and mood disorders. This approach has shown a greater vulnerability to stress on the part of healthy subjects, a greater resilience of RA patients compared to healthy controls, but especially compared to FM patients. Finally, emotional disturbances, such as anxiety and depression, are greater in patients with RDs and in particular with FM.

To our knowledge, the impact of the COVID-19 pandemic on FM patients

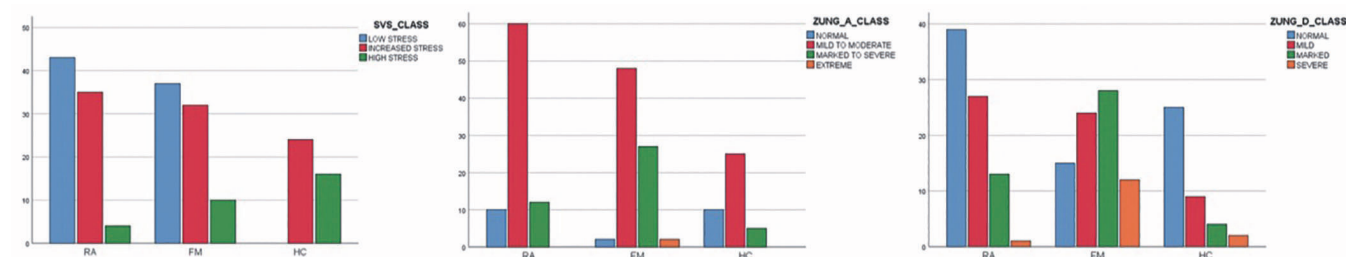


Fig. 2. Frequency of the various SVS, ZUNG A and ZUNG D classes among enrolled subjects. RA: rheumatoid arthritis; FM: fibromyalgia; HC: healthy controls; SVS: stress-related vulnerability scale; ZUNG A: Zung Anxiety Self-assessment Scale; ZUNG D: Zung Depression Self-assessment Scale.

Table III. Ordinal regression model for higher classes of ZUNG A.

	Estimation	Standard Error	Wald	Sign.	CI 95%	
					Lower bound	Upper bound
SVS_TOT	0.153	0.039	15.461	0.000	0.077	0.230
RS_TOT	-0.010	0.012	0.716	0.398	-0.033	0.013
ZUNG_D_TOT	0.018	0.018	1.017	0.313	-0.017	0.054
[Diagnosis=RA]	1.840	0.539	11.657	0.001	0.784	2.896
[Diagnosis=FM]	2.683	0.576	21.677	0.000	1.553	3.812

ZUNG A: Zung Anxiety Self-assessment Scale.

Table IV. Ordinal regression model for higher classes of ZUNG D.

	Estimation	Standard Error	Wald	Sign.	CI 95%	
					Lower bound	Upper bound
SVS_TOT	0.073	0.036	4.263	0.039	0.004	0.143
RS_TOT	0.004	0.011	0.11	0.74	-0.017	0.024
ZUNG_A_TOT	0.049	0.028	3.11	0.078	-0.005	0.103
[Diagnosis=RA]	0.88	0.491	3.215	0.073	-0.082	1.843
[Diagnosis=FM]	2.029	0.514	15.575	0.00	1.021	3.036

ZUNG D: Zung Depression Self-assessment Scale.

has been studied to a very small extent, even if COVID-19 pandemic has to be considered a relevant stressor.

In a recent study, Aloush *et al.* claimed that FM patients reported adverse mental and physical outcomes during the COVID-19 outbreak. Factors such as stopping current treatments seem to play a central role. Social support and a positive life approach appeared to be protective (19).

On the other hand, several studies reported an impact on mental health of the general population, showing increased levels of anxiety, stress and depression and all the authors conclude that dysthymic symptoms need tailored intervention systems to support large proportions of the general public (20). Our results demonstrate that HC featured the highest stress scores, followed by FM patients and then by RA patients. Probably those who are not sick are more vulnerable to stress because less used to tackling situations of physical and mental discomfort and the consequent precariousness. The disease itself has to be considered a stressor so that patients with chronic diseases are more used to facing unpleasant and risky situations.

On the other hand, RA patients, and not FM, show greater resilience respect to

HC in a stressful period. Resilience is strictly involved in the stress response and it is well known that FM patients frequently have dysfunction of the stress response system (4). In fact, being resilient does not mean not experiencing stress, but knowing how to deal with suffering and difficulties and to find a keystone to manage the situation. Learning adaptive coping strategies and improving acceptance capacity are some of the objectives in FM management. On the other side, RA patients acquire resilience in a dynamic process of learning in response to new challenges. Shaw *et al.* conclude that RA patients use a combination of behavioural and emotion management strategies to cultivate resilience (21). To this extent, FM treatment would require important lifestyle changes: cognitive/emotional/behavioural re-education are fundamental for a good therapeutic success (22).

The reduced FM resilience can lead to the development of post-traumatic stress disorder, depression and mood disorders. Our results show how both anxiety and depression scores were significantly higher in FM patients compared to RA patients and HC and that there was an inverse relationship between RS score and FIQR score. It is well known as mood disorders are

part of the core symptoms of FM. On the converse, the presence of psychiatric symptoms has a great impact the course and on the severity of FM.

Recently, a large meta-analysis showed that about one in every ten individuals of general population experienced post-traumatic stress disorder symptoms in COVID-19 outbreaks, and as consequence mental health care should be considered to prevent this condition during and after the pandemic (23). Our results showed a similar prevalence of anxiety and depressive symptoms worthy for psychiatric attention among healthy controls, a slightly higher prevalence among RA patients and a much greater prevalence in FM patients, indicating a higher vulnerability of RDs patients to clinically significant mood disorders and suggesting that mental health care should be addressed with peculiar regard in those patients. Indeed, a diagnosis of RA and especially of FM were associated to higher classes of anxiety and depression. Moreover, our results suggest that the use of psychometric scale through a telemedicine approach, such as the SVS, may be helpful in the identification of patients at higher risk of severe mood disorders.

Compared to historical cohort, after lockdown there was a lower frequency of severe grade FM according to FIQR. Cavalli *et al.* recently reported the results of an on-line survey on a small group of FM patients after lockdown, showing no differences in the mean FIQR global score assessed before and after lockdown. However, assessing FIQR variations on individual basis, the authors reported a worsening of clinical status in 67% of the patients while an improvement was present in 33% of patients. Self-reported reasons for worsening were the inability to exercise and anxiety while improvement were mostly attributed to beneficial effects of smart working and the opportunity to exercise more regularly (24). The variability in the intensity of clinical symptoms on individual basis as consequence of the lockdown may thus be related to changes in lifestyle depending on various factors, including social, familiar and working status. In

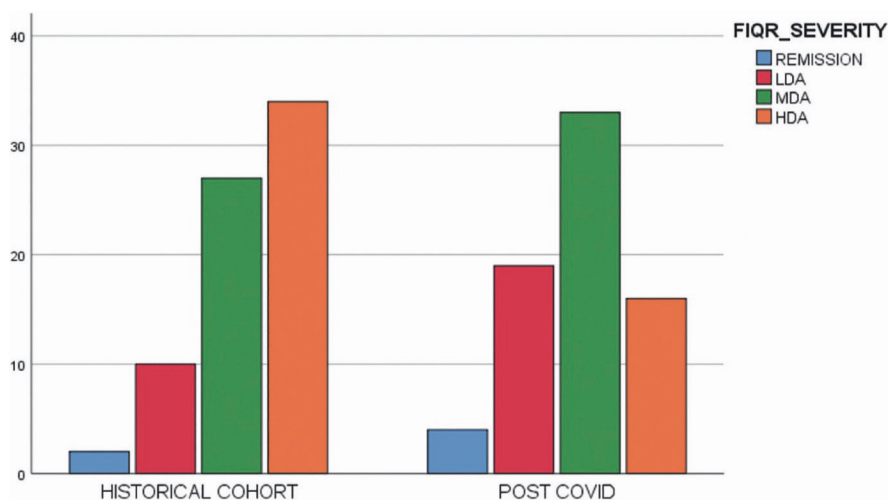


Fig. 3. Comparison of disease activity classes in fibromyalgia before and after the lockdown. FIQR: Revised Fibromyalgia Impact Questionnaire; LDA: low disease activity; MDA: moderate disease activity; HAD: high disease activity.

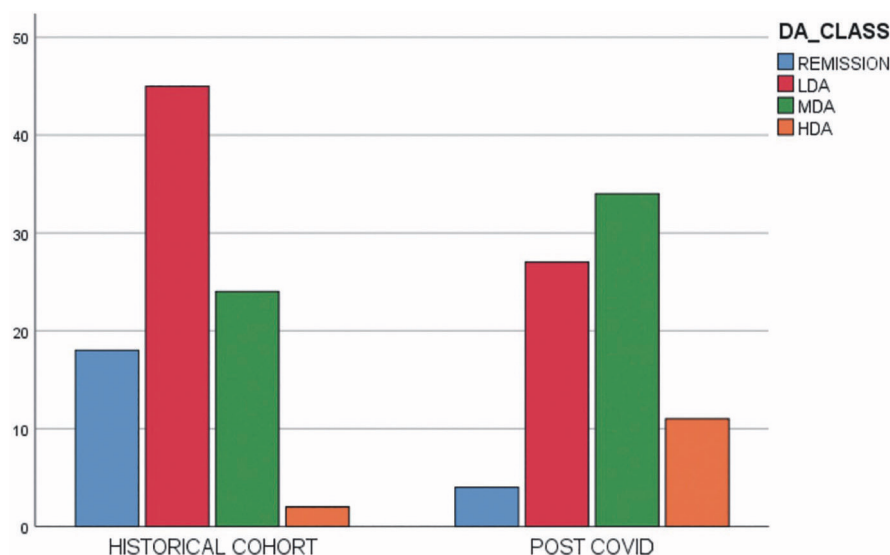


Fig. 4. Comparison of disease activity classes in rheumatoid arthritis before and after the lockdown. LDA: low disease activity; MDA: moderate disease activity; HAD: high disease activity; DA CLASS: disease activity class.

some contexts, the restrictions imposed by the lockdown may reduce the daily hassles of some families, reducing consequently the level of stress. The closing of sport clubs and extracurricular activities for example, increasing the free time and decreasing the daily duties of parents, has been reported to facilitate parent-child bonding (25). Considering that the most effective treatments for FM are not pharmacological, mainly physical exercise, some patients may have had benefit from the reduced daily stress and the increased free time, improving their lifestyle and perhaps, their symptoms.

On the contrary, a significant worsening in the frequency of higher disease activity classes was present in RA patients. Several reasons may explain this finding. Mood disorders may affect disease activity assessment, influencing self-reported, subjective clinimetric parameters. Matcham *et al.* reported a strong association between depression and anxiety and the subjective components of DAS28, tender joints and patient global assessment, suggesting that psychological comorbidity and the not-inflammatory pain may worsen disease activity estimation in spite of a well-controlled inflammation

(26). However, in our study there were no differences of the VAS pain in the historical cohort compared to the post-lockdown cohort. Tight control is currently a treatment paradigm in RA (27). The restrictions imposed by lockdown limited significantly the healthcare access for rheumatic patients. According to the REUMAVID study, involving 1800 patients with RDs, up to 58% of patients had their planned rheumatology appointment cancelled (28). Prompt treatment modifications in case of disease activity fluctuation during the course of RA may have been limited for the restrictions imposed on face-to-face visits, potentially justifying in part the observed increase of disease activity. At last, a reduced treatment adherence has been reported during the first COVID-19 lockdown. López-Medina *et al.* showed that 20.3% spaced and stopped their rheumatic treatment for the fear that the immunosuppression could increase the risk of infection (29), despite many of these drugs were frequently used to treat the COVID-19 itself (30). In this sense, the increasing use of telemedicine, via remote contact, seems to be a successful strategy to mitigate the effects of lockdown. Indeed, Ciurea *et al.* demonstrated how a short interruption of in-person visits had no major detrimental impact on the disease course of inflammatory arthritis as assessed by patient-reported outcomes, in front of an increased telemedicine resort (31).

Several limitations have to be noticed in our study. Although our results show a potential utility of telemedicine-administered psychometric scale in the identification of severe mood disorders, an in-person psychiatric evaluation is irreplaceable for establish a correct diagnosis. In particular, one of the major impediment is the absence of visual cue in a psychiatric colloquy conducted by telephone (32). Although the wider use of videoconferencing and telepsychiatry may overcome this limit, psychometric scales should be considered as a first screening tool in situations in which the healthcare access is limited (33). The anonymous data derived from the survey, chose to avoid privacy issues, limited the exact

estimation of the effect of lockdown of disease activity, not providing paired data. At last, although the concordance between DAS28 and RADAI-5 in the estimation of disease activity is high (34), the use of the same clinimetric evaluation for RA patients disease activity before and after the lockdown could have provided more reliable data, albeit the sudden establishment of the lockdown made this planning unachievable.

Conclusions

There is relatively little but increasing empirical research into the psychological impacts of pandemic outbreaks. So far, studies do show that pandemics can have substantial psychological effects on the general population. Based on this existing literature, is it likely that COVID-19 will have a significant mental health impact which may be particularly acute among individuals with RDs. For the intrinsic characteristic of FM, these patients can show a particular fragility to mood disorders, and this should be taken into account by the rheumatologist. Considering that the full extent of the COVID-19 pandemic remains unknown, given that the crisis is still unfolding, studies that reported on past pandemics can provide valuable insights (35) into how anxiety, depressive symptoms and disease activity fluctuation might occur in response to COVID-19. Meanwhile, the use of a telemedicine approach to screen for severe symptoms represents a useful addition to the overall management of rheumatic patients.

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