

The Psychological State and Changes in the Routine of the Patients with Rheumatic Diseases during the First Month of the Lockdown of the Coronavirus Disease (COVID-19) Outbreak in Turkey

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Abstract

Objective: We hypothesized that patients with rheumatic diseases (RD) would have increased psychological distress during the COVID-19 outbreak; therefore assessed their psychological symptoms and changes in their routine.

Methods: A web-based study was conducted in a cross-sectional design in 3 groups of participants: 1. patients with RD, 2. hospital workers and 3. high-school teachers/non-medical academic staff. Psychiatric status was evaluated using Hospital Anxiety and Depression Scale and Impact of Event Scale-Revised scale.

Results: We studied 771 patients with RD, 535 hospital workers, and 917 teachers/academic staff. Most of the patients with RD were unwilling to go to the hospital (86 %) while 22 % discontinued their medications (78%). Biological DMARDs were the most frequent drugs whose doses were altered. Only 4 % were willing to take hydroxychloroquine for protection. Moreover, the frequency of anxiety (20%), depression (43%) and post-traumatic stress (28%) among patients with RD were found to be comparable to that among the teachers/academic staff (23%, 43% and 29%, respectively), whereas significantly less than that among the hospital workers (40%, 62% and 46%, respectively) ($p < 0.0001$). Female gender, over social media exposure, comorbid disease, or a psychiatric disorder were found to be independently associated with psychiatric symptoms in total study population.

Conclusions: The majority of the patients were unwilling to attend outpatient visits and one fifth skipped or stopped their immunosuppressive agents. Psychiatric symptoms in patient's and teacher's populations were of considerable clinical concern, despite being significantly lower than that observed among the hospital workers.

Key Points

- A great majority of the patients with RD complied strictly with restrictions and were unwilling to attend outpatient visits.
- One fifth discontinued or stopped taking their immunosuppressives.
- Biological DMARDs were the most frequent agents which patients skipped or stopped.
- The anxiety, depression and post-traumatic stress levels among patients with RD were found to be similar to that found among teachers/academic staff.
- Hospital workers had the highest levels of anxiety, depression, post-traumatic stress and sleep problems in the whole study population.

Introduction

Coronavirus disease (COVID-19) was first identified in China in December 2019 and resulted in a pandemic. The first case in Turkey was officially confirmed on March, 11 2020 and Istanbul became the hardest hit city so far (1). Starting from March 16, 2020, the government issued several restrictions to prevent the spread of the virus. First, schools and all public gathering places were closed and a permanent lockdown for elderly or with chronic illnesses was declared, this was followed by weekend curfews. Eligible hospitals were transformed into 'pandemic hospitals' (1). Many inpatient clinics became care units for COVID-19 patients, elective surgical or interventional operations were postponed, and the performance of outpatient clinics was considerably reduced to prioritize the care of these patients. All these unprecedented measures have profoundly affected the health care system as well as the social life.

Several studies revealed that being older than 60 years, smoking and comorbid medical conditions such as cardiovascular disease, chronic lung disease, hypertension, diabetes mellitus, and obesity are the major contributors for the severe outcome among patients with COVID-19 (2). Close monitoring of those with immunosuppression, cancer and chronic renal disease is also warranted (2).

Since the time of the declaration of the first COVID-19 case, we have received several calls from our patients having a rheumatic diseases (RD) reflecting their concerns and fears regarding their compromised immune status. We therefore assessed the impact of the pandemic and its related control measures on the psychological state of patients with RD. As control groups, we investigated 2 different occupational groups: the first was hospital workers in whom a higher prevalence of psychological symptoms were observed during the COVID-19 outbreak (3-6); and the other was high-school teachers or academic staff in whom we assumed that psychological symptoms would be less, given that they were working from home since the schools had been closed. Additionally, we investigated the immediate change in the routine concerning outpatient visits or regular use of drugs only among patients with RD.

Patients And Methods

A web-based survey was conducted in a cross-sectional design using the Survey Monkey software (SurveyMonkey, San Mateo, CA, USA) and sent out to the participants via WhatsApp link. The study groups consisted of patients with RD, hospital workers and high-school teachers or non-medical academic staff. The online survey contained three parts. The first part included questions on socio-demographic and other variables. The second and third parts included the evaluation of psychological distress.

a) Identification of socio-demographic variables and probable risk factors for COVID-19

Demographic data, age, gender, occupation, marital status, having child/children (yes or no), educational status, household size, source of information related with COVID-19, types of social media and, daily hours of TV / social media exposure were collected. The presence/absence of contracting COVID in the participant itself, in a close friend or in a family relative was sought. Participants were also asked whether they were smokers (active, quitted or never) and have been previously diagnosed with a comorbid disease (such as cardiovascular disease, chronic lung disease, hypertension, diabetes mellitus or else) and a psychiatric disorder or had previously used a psychiatric drug for at least three months.

The following questions were only asked to patients with RD. These were related with adherence to stay home warnings (loose; moderate or strict); the obligation to go outside for work; satisfaction with the medical support or information received for COVID-19 (much; enough; not at all); visiting the outpatient clinic (regularly; as it was before; did not want to; wanted to but could not contact anyone; was advised not to come, or did not have a scheduled visit); proper use of the medications (yes, as it was before; yes, but decreased or skipped the dose; no, completely stopped); the type of medication the patient altered the dose of or stopped taking and thought about taking hydroxychloroquine for protective measures (Yes, I recently started; yes I thought about it but I have some hesitations; I already take it as a prescribed drug; no, never thought about it) (7).

b) Evaluation of the psychiatric symptoms

Anxious and depressive symptoms were assessed using Hospital Anxiety and Depression Scale (HADS) (8). Scores for anxiety and depression were derived by summing the responses for each of the subscales (HADS-A and HADS-D). In addition, cut-off points of ≥ 11 and ≥ 8 were used for quantification of anxiety and depression, respectively. Symptoms of post-traumatic stress (PTS) were assessed using Impact of Event Scale-Revised (IES-R) (9-10). This tool evaluates intrusion, avoidance and hyperarousal in three subdimensions and presents a total score for subjective stress (IES-R score). A cut-off point of ≥ 33 provided the best diagnostic accuracy for PTS (9-10). Both HADS and IES-R were validated previously in Turkish (11-12). In addition, sleep problems were evaluated using two questions of IES-R; choosing 'severe' or 'very severe' as an answer was considered as the presence of a trouble in maintaining sleep (no.2) and trouble in falling asleep (no.15).

Participants who completely responded filled in either the HADS or the IES-R were found eligible for the study.

Identification and selection of the study population

A flow chart shows the evolution of the study population(Supplement Figure 1).

Group 1: Patients with RD

We identified six subgroups of rheumatic diseases: 1) rheumatoid arthritis (RA); 2) connective tissue disease (CTD) which included systemic lupus erythematosus, systemic sclerosis and primary Sjögren syndrome; 3) spondyloarthropathies (SpA); 4) Behçet's syndrome (BS); 5) familial Mediterranean fever (FMF); 6) vasculitis. Patients who were examined within the last six months in our outpatient clinic were identified and 300 patients from each subgroup were consecutively selected as the target study population. Of these 1800 patients, 771 (42.8 %) were found eligible for the study.

Group 2: Hospital workers

The staff of a university hospital and two state hospitals in Istanbul, which became 'coronavirus pandemic hospitals' and allocated in Istanbul were chosen as the target hospital workers population. Web-based questionnaire was sent to medical (700 doctors and 1400 nurses), and non-medical staff (n =300) such as secretaries, security guards, care takers, and lab workers. Of these 2400 hospital workers, only 535 (22.3%) were found suitable for the study.

Group 3: Teachers and academic staff

This group included around 2000 high-school teachers from 50 high-schools and 200 academic members from four non-medical universities. All teachers and academic personnel were living and studying in Istanbul. A total of 917 (41.7%) were eligible for the study.

Overall response rate was calculated as 34.7% (2223/ 6400) while that among the hospital workers (22.3%) was significantly lower than that observed among patients with RD (42.8%) and teachers/academic staff (41.7 %) ($p < 0.001$). The survey ran from between 4-24 April, 2020.

Ethical statement

This study was approved by the Ethics Committee of I. U.-C., Cerrahpaşa Medical Faculty. Electronic informed consent was presented on the first page of the survey citing that the survey is voluntary and participants could withdraw from the survey at anytime.

Statistical Analysis

Normality distribution of the numeric variables was tested by the Shapiro Wilk test. Kruskal Wallis test was used for comparison of IES-R and HAD scales' scores, and then Dunn's test with Bonferroni correction was used for multiple comparisons when the significantly meaningful difference was obtained. Categorical variables were compared using Pearson's chi-square test. The Mann-Whitney U test was used for comparison of the scale scores between medical and non medical health workers. Reliability of the scales was assessed as Cronbach's alpha coefficient.

We also used multivariate logistic regression analysis with enter method to examine the relationships among 13 various socio-demographic or clinical risk factors and the presence or absence of anxiety, depression and PTSD combining all three study groups. The reference categories were identified as: Group 2 for the group variable, male for gender, >8 years for education, married for marital status, none for having child, ≤ 3 for household size, ≤ 1 hours for duration of TV or social media exposure, no for the presence of COVID-19 in the participant or family, no for the presence of someone ≥ 65 years in the household, never for smoking habit, no for the presence of comorbid diseases, and no for the history of psychiatric disorders or psychiatric drug use for at least three months. IBM SPSS Statistics for Windows, v.20.0 (IBM Corp., Armonk, NY, USA) was used in the statistical analysis. A p value of less than 0.05 was accepted as statistical significance.

Results

In total, we studied in total 771 (245 M/ 526 F) patients with RD (Group 1), 535 (181 M/ 354 F) hospital workers (Group 2) and 917(258 M/ 659 F) teachers/academic staff (Group 3). Patients with RD were categorized in six subgroups: 1) RA (n=131; 21 M/ 110 F); 2)CTD (n= 171; 18 M/ 153 F); 3) SpA (n= 102; 58 M/ 44 F); 4) BS (n=171; 108 M/ 63 F); 5) FMF (n= 79; 21 M/58 F); 6) Vasculitis (n=117; 19 M/ 98 F). Of these 771 patients, 21 were off drugs, while the remaining were prescribed one or more of the following drugs such as biological disease-modifying anti-rheumatic drugs (DMARDs) (n = 317, 42.3%), non-biological DMARDs (n =441,58.7%), and prednisolone (n = 340, 45.3%), at the time of the survey. Hydroxychloroquine (n= 198, 25.7%) and colchicine (n = 194,25.9%) were also listed among the prescribed drugs.

Hospital workers included medical [doctors (n= 233; 94 M/139 F) and nurses (n=158; 16 M/ 142 F)] and non-medical workers (n= 144;71 M/ 73 F). Group 3 included 851 (234 M/ 617 F) high-school teachers and 66 (24 M/ 42 F) academic personnel.

1) Socio-demographic characteristics (Table1)

Respondents were mostly female in all study groups, somewhat slightly more in teachers/academic staff group. Besides that, there were significant socio-demographic differences between the study groups. The most striking was that the patients with RD were significantly older and less educated compared to both hospital workers and teachers/academic staff. Additionally, most of the patients with RD were married and had children and a household size of ≥ 4 . While TV and social media were the basic sources of information about COVID-19 for all study groups, hospital workers seemed to receive most of the information from their institution. Patients with RD appeared to use social media less frequently and to spend less hours watching TV or using social media when compared to the rest of the study groups.

Table1. Socio-demographic variables and resources of information about COVID

	Group1 Patientswith RD (n=771)	Group2 Hospitalworkers (n =535)	Group3 Teachers/academic staff (n=917)	P
Age, mean± SD, years	42,8 ±12,7	33,8 ±8,7	37,4 ±10,3	<0.001*†§
Male/Female, n (rate)	245/526(0.46)	181/354(0.51)	258/659(0.39)	0.058
Educational status, n(%)				
Primary/middle school	281(36.4)	18(3.4)	1(0.1)	<0.0001*†§
High school or higher	490(75.6)	517(96.6)	916(99.9)	
Maritalstatus, n (%)				
Married	701(69)	284(53.3)	602(66.2)	<0.0001*§
Single	171(31)	249(46.7)	308(33.7)	
Havechild, n (%)	524(68.8)	228(45.4)	497(57.6)	<0.0001*†§
Householdsize, n (%)				
£3	408(52.9)	259(57.9)	545(63.3)	<0.0001†
≥4	363(47.1)	188(42.1)	316(36.7)	
Source ofinformation related to COVID-19, n (%)				
TV	698(90.5)	367(68.6)	817(89.1)	<0.0001*§
Social media	479(62.1)	397(74.2)	824(89.9)	<0.0001*†§
Institution	79(10.2)	443(82.8)	224(24.4)	<0.0001*†§
Friends	167(21.7)	303(56.6)	428(46.7)	<0.0001*†§
Socialmedia resources				
Instagram	425(55.1)	348(65.0)	628(68.5)	<0.0001*†
Twitter	206(26.7)	211(39.4)	535(58.3)	<0.0001*†§
Facebook	315(40.9)	192(35.9)	365(39.8)	0.175
WhatsApp groups	277(35.9)	371(69.3)	529(57.7)	<0.0001*†§
Internet websites	344(44.6)	349(65.2)	610(66.5)	<0.0001*
Hoursspent daily watching TV/using social media				
≤ 1 hour	335(43.5)	142(26.5)	238(26.0)	<0.0001*†
≥2hours	436(56.5)	393(73.5)	679(74.0)	

P*:Group 1 vs Group 2, †: Group 1 vs Group 3, §: Group 2 vsGroup 3

2) Frequency of COVID-19 diagnosis and the frequency ofits potential risk factors (Table 2)

Those who contracted COVID-19 were significantly more commonamong the hospital workers and this was also true for the familymembers and or close friends who had been diagnosed with COVID-19.Groups were roughly balanced regarding the presence of a householdmember of ≥ 65 years and the frequency of active smoking, whileboth risk factors were

slightly higher in teachers/academic staff group. Patients with RD had the highest frequency of comorbid and psychiatric diseases, whereas teachers/academic staff had the lowest.

Table 2. COVID-19 diagnosis and risk factors for COVID-19

	Group 1 Patients with RD (n=771)	Group 2 Hospital workers (n=535)	Group 3 Teachers/academic staff (n=917)	P
Diagnosed with COVID-19 (n %)	4(0.5)	14(2.6)	3(0.3)	<0.0001*§
Family relative or close friends diagnosed with COVID-19, n(%)	92(11.9)	174(32.8)	88(9.7)	<0.0001*†§
Presence of a relative in the household ≥ 65 years of age, n(%)	367(48.0)	274(51.6)	525(57.6)	<0.0001†
Smoking status, n (%)				
Active	290(37.8)	201(37.8)	390(42.8)	<0.0001*†
Quit	125(16.3)	40(7.5)	74(8.1)	
Never	353(46.0)	291(54.7)	447(49.1)	
Presence of comorbid diseases, n (%)	257(33.3)	75(14.0)	122(13.3)	<0.0001*†
History of psychiatric disorders or psychiatric drug use for at least three months, n (%)	247(32.0)	129(24.1)	140(15.3)	<0.0001*†§

P *Group 1 vs Group 2, † : Group 1 vs Group 3, §: Group 2 vs Group 3

3) Socio-demographic characteristics and response to the outbreak between different types of rheumatic diseases (Table 3)

Patients with RA were the oldest, while patients with FMF were the youngest among the subgroups. Males were in the majority in SpA and BS, whereas females predominated in the remaining subgroups. It seemed that a significant number of patients strictly adhered to stay-home warnings (> 89 %), while adherence was a bit less in the SpA and BS subgroups (82.4 % and 81.3 %, respectively). This was also true for being obliged to go out for work which was significantly higher among patients with SpA (40.6 %) and BS (44.7%), compared to the rest of the subgroups. Most of the patients in all subgroups (≥ 74%) were satisfied with the medical support or information about COVID-19. After the outbreak, a small percentage of the patients who had a scheduled out-patient visit (n = 382) attended the outpatient-clinic 'as it was before' (14.4%) and this was similar among all subgroups. The remaining either 'did not want to come' (42.7%), 'wanted to come but could not contact anyone in the hospital' (15.4%), or was advised to postpone their visits (27.5%). A significant number of patients continued their medications (582/750; 77.6%), while only 16.4% (123/750) decreased or skipped their dose and 6.0% (45/750) stopped taking them. This trend was almost similar among all study groups, except patients with SpA whose 53.7 % discontinued or stopped taking their medications.

Table 3. Socio-demographic characteristics and immediate behavior change after the outbreak in different types of rheumatic diseases

	Total n =771	RA n=131	CTDn=171	SpA n=102	BS n=171	FMF n=79	Vasculitism=117	P
Age, meanage ± SD, years	42.8 ±12.7	51.0±13.3	43.0±12.6	41.3±10.6	40.9±10.0	31.5±10.0	45.0±12.2	<0.0001
Male/Female, n (%)	245/526	21/110	18/153	58/44	108/63	21/58	19/98	<0.0001
Strict compliance with 'stay home' warnings', n(%)	678(88.2)	122(93.8)	152(89.4)	84(82.4)	139(81.3)	72(91.1)	109(93.2)	0.002
Need to goout for work, n (%)	213(27.8)	21(16.0)	30(17.5)	41(40.6)	76(44.7)	24(30.8)	21(18.1)	<0.0001
Received enough medical support or information, n(%)	591(72.7)	103(78.6)	131(76.6)	78(76.5)	129(75.4)	63(79.7)	87(74.4)	0.675
Attended the outpatient clinic, n (%)*								
Regularly, as it was before	55(14.4)	6(10.7)	5(6.2)	10(20.8)	14(16.1)	4(12.1)	16(20.8)	0.119
Did not want to	163(42.7)	26(46.4)	35(43.2)	16(33.3)	32(36.8)	18(54.5)	36(46.8)	
Wanted to but could not contact anyone	59(15.4)	9(16.1)	11(13.6)	10(20.8)	13(14.9)	7(21.2)	9(11.7)	
Was advised not to come	105(27.5)	15(26.8)	30(37.0)	12(25.0)	28(32.2)	4(12.1)	16(20.8)	
Continued medications**								
Yes, as it was before	582(77.6)	104(81.3)	142(85.5)	44(46.3)	132(79.5)	67(84.8)	93(80.2)	<0.0001
Yes but decreased or skipped the dose	123(16.4)	19(14.8)	21(12.7)	28(29.5)	22(13.3)	12(15.2)	21(18.1)	
No, stopped taking them	45(6.0)	5(3.9)	3(1.8)	23(24.2)	12(7.2)	0	2(1.7)	

RA:rheumatoid arthritis; CTD: connective tissue diseases; SpA:Spondylarthropathies; BS: Behçet's syndrome; FMF: familialMediterranean fever;

SD:standard deviation; *n =382; ** n= 750

4) Medications that are decreased in dosage/ skipped or stopped (Table 4)

Biological DMARDs were the most frequent drugs which patients decreased their dose, skipped or stopped taking (anti-IL-1 agents:40 %, anti-TNF agents: 34.6 %, interferon: 33.3 %, tocilizumab 29.2%, rituximab: 6.7 %). Prednisolone (low dose), hydroxychloroquine, azathioprine, methotrexate, leflunomide, colchicine and sulfasalazine were least likely (≤ 10 % for each drug) to be skipped or stopped.

A total of 753 patients responded to the 'Plaquenil' question. A great majority of the patients (539/753; 71.6%) have not attempted to take hydroxychloroquine for protective measures while 1.1%(8/753) had started taking it recently and 2.5% (19/753) were willing to take it despite having hesitations. The remaining(187/753; 24.8%) were already regular users of hydroxychloroquine.

Table 4. The prescribed drugs and those whose doses were either skipped or stopped

Drugs	Dosedecreased, skipped or stopped, n	Totalprescribed, n	%
BiologicalDMARDs			
Anti-tumor necrosis factoragents	66	191	34.6
Tocilizumab	7	24	29.2
Anti-IL-1 agents	6	15	40.0
Rituximab	5	75	6.7
Interferon	3	9	33.3
Non-biologicalDMARDs			
Azathioprine	18	187	9.6
Methotrexate	12	149	8.0
Leflunomide	2	26	7.7
Mycophenolate mofetil/sodium	6	29	20.7
Sulfasalazine	6	69	8.7
Others			
Corticosteroids	32	340	9.4
Hydroxychloroquine	21	198	10.6
Colchicine	19	194	9.8
Cyclophosphamide	3	12	25.0

DMARDs:disease-modifying anti-rheumatic drugs

5) Psychological symptoms (Table 5)

Both HADS and IES-R exhibited high internal consistency;Cronbach's alpha coefficients were 0.896 and 0.893, respectivelyfor HADS and IES-R.

Anxiety, depression and IES-R scores of the patients with RD(Group 1) were found similar when compared to that of theteachers/academic staff (Group 3), whereas significantly lower whencompared with that of the hospital workers (Group 2). The sameholds true for all sub-dimensions of IES-R, except avoidance whichwas evenly distributed among the study groups while being slightlyhigher in Group 3. Although the hospital workers had the highestscores in both HADS and IES-R as well as the highest frequencyrates of anxiety (39.8 %), depression (61.6 %) and PTS (46.4%) asdetermined by the cut-off values, they still thought significantlyless that the outbreak was very dangerous. The frequency of sleepproblems in patients with RD was significantly higher than that ofthe teachers/academic staff, but then again, significantly lowerthan

that reported in the hospital workers. These results were also true when we excluded those with a previous history of psychiatric disorder or the use of psychiatric drug for at least three months.

Additionally, all psychological symptoms were similar in frequency among the subgroups in Group 1 and between medical and non-medical hospital workers in Group 2 (data not shown).

It has to be noted that anxiety, depression and PTSD symptoms above the severity threshold for clinical concern were not infrequent in Group 1 and Group 3. They had a prevalence of 19.6%, 42.8% and 28.4% respectively, in Group 1 and a prevalence of 23.1%, 42.7% and 29.1% respectively, in Group 3. The same holds true for the sleep problems.

Table 5. Psychiatric symptoms

	Group1 Patients with RD n=771	Group2 Hospital workers n =535	Group3 Teachers/Academic staff n=917	P
HADS Anxiety level, mean±SD	7 ±4.4	9.3 ±4.9	7.4 ±4.3	<0.001*§
≥11 cutoff, n (%)	148(19.6)	200(39.8)	202(23.1)	<0.001*§
HADS Depression level, mean±SD	6.9 ±4.2	8.7 ±4.4	6.8 ±3.9	<0.001*§
≥8 cutoff, n (%)	324(42.8)	309(61.6)	373(42.7)	<0.001*§
IES-R(total), mean±SD	25.5 ±14.2	31.3 ±16	26.3 ±13.4	<0.001*§
Intrusion	7.7 ±6.2	11.1 ±7.6	8.2 ±5.9	<0.001*§
Avoidance	11.3 ±5	11.5 ±5.2	12.1 ±4.9	0.012†
Hyperarousal	6.5 ±5.5	8.6 ±5.8	6.1 ±5	<0.001*§
PTS cutoff (≥33)	210(28.4)	219(46.4)	232(29.1)	<0.001*§
Sleep disturbances, n (%)				
Trouble staying asleep	175(23.7)	139(29.4)	128(16.0)	<0.001*†§
Trouble falling asleep	176(23.8)	139(29.4)	145(18.2)	<0.001*†§
Is the outbreak dangerous? n (%)				0.001*§
Very dangerous	681(88.3)	432(81.2)	792(86.6)	
Partly or no dangerous at all	90(11.7)	103(18.8)	125(13.4)	

RD: rheumatic disease; HADS: Hospital anxiety and depression scale; IES-R: Impact of event scale-revised version; PTS: post-traumatic stress; SD: standard deviation

P*: Group 1 vs Group 2; †: Group 1 vs Group 3; §: Group 2 vs Group 3

Risk factors associated with psychological symptoms (Table 6)

Of the 13 probable risk factors that were entered to the multivariate logistic regression model, seven variables (groups, age, gender, hours spent watching TV or using social media, diagnosis of COVID-19 in the participant or in a relative or close friend, presence of a comorbid or psychiatric disorder) were found to be independently associated with at least one of the psychological symptoms. According to these analyses, female gender, working in a hospital, a lower level of education, having a child, living in a crowded family, watching TV or social media for ≥ 1 hour, contracting COVID (the participant itself, family relative or a close friend), being a smoker (either currently or in the past), having a comorbid disease, and a history of psychiatric illness increase the odds ratios of psychiatric symptoms during the COVID-19 outbreak. Although

being elderly emerged as an independent protective risk factor, its effect seems to be considerably weak with an odds ratio of 0.95 for 1 year increase (CI 95 %: 0.93 -0.96).

Table 6. Effect of socio-demographic variables, resources of information about COVID-19, COVID - 19 diagnosis, and risk factors for COVID-19 on anxiety, depression and IES-R

		HADS-Anxiety ≥ 11		HADS-Depression ≥ 8		IES-R ≥ 33	
		P	OR (95%CI)	p	OR (95%CI)	p	OR (95%CI)
Groups	<i>Group 1 (Patients with RD)</i>	<0.001	0.39 (0.28-0.54)	<0.001	0.52 (0.39-0.70)	<0.001	0.45 (0.33-0.62)
	<i>Group 3 (Teachers/Academic staff)</i>	<0.001	0.50 (0.37-0.67)	<0.001	0.52 (0.40-0.68)	<0.001	0.51 (0.38-0.69)
<i>Age, one year increase</i>		<0.001	0.95 (0.93-0.96)	<0.001	0.97 (0.96-0.98)	<0.001	0.97 (0.95-0.98)
<i>Gender, being female</i>		<0.001	3.07 (2.29-4.12)	<0.001	1.57 (1.27-1.95)	<0.001	2.54 (1.97-3.29)
<i>Length of education, ≤ 8 years</i>		0.023	1.60 (1.07-2.40)	0.548	1.11 (0.80-1.53)	0.002	1.78 (1.24-2.54)
<i>Marital status, being single</i>		0.190	0.81 (0.58-1.11)	0.216	0.84 (0.64-1.10)	0.944	0.99 (0.73-1.33)
<i>Have child, yes</i>		0.011	1.59 (1.11-2.26)	0.283	1.17 (0.88-1.58)	0.006	1.59 (1.14-2.20)
<i>Household size, ≥ 4</i>		0.022	1.32 (1.04-1.68)	0.262	1.12 (0.92-1.37)	0.710	0.96 (0.77-1.20)
<i>Times spent watching TV or using social media, > 1 hours</i>		0.008	1.44 (1.10-1.88)	0.010	1.33 (1.07-1.65)	0.004	1.43 (1.12-1.83)
<i>Presence of COVID-19 in the participant, or in family or close friends, Yes</i>		0.005	1.52 (1.13-2.04)	0.005	1.48 (1.13-1.95)	0.062	1.31 (0.99-1.75)
<i>Presence of a relative in the household ≥ 65 years of age, Yes</i>		0.190	1.17 (0.93-1.48)	0.033	1.24 (1.02-1.5)	0.108	1.19 (0.96-1.48)
<i>Smoking status, Active or quit</i>		0.057	1.25 (0.99-1.58)	0.001	1.39 (1.14-1.69)	0.004	1.38 (1.11-1.72)
<i>Comorbid diseases, Yes</i>		0.006	1.45 (1.11-1.89)	<0.001	1.67 (1.33-2.10)	<0.001	1.55 (1.21-1.99)
<i>History of psychiatric disorders or psychiatric drug use for at least three months, Yes</i>		<0.001	1.95 (1.50-2.54)	0.008	1.38 (1.09-1.74)	0.002	1.49 (1.16-1.92)

Reference categories are as follows: Group 2 (Hospital workers) for Group variable, one year decrease for age, being male for gender, >8 years for length of education, being married for marital status, no for having child, ≤3 for household size, ≤1 hour for time spent watching TV or using social media, no for presence of COVID-19 in the participant or family, no for the presence of a relative in the household of ≥ 65 years of age, never for smoking status, none for comorbid diseases, and none for history of psychiatric disorders or psychiatric drug use for at least three months.

Discussion

This cross-sectional web based survey done in a large population during the first month of COVID-19 outbreak revealed rather important findings. Faced with an unprecedented situation, patients with RD tried to adapt expectedly by changing their routine: 85.6 % were unwilling to attend outpatient visits, 88.2% complied strictly with the restrictions, and 22.4 % discontinued or stopped their medications. They seemed to be satisfied with the medical support/information and were unwilling to use 'hydroxychloroquine' which became increasingly attractive during the COVID-19 outbreak (7). The frequency of the psychological symptoms among patients with RD was similar to that found among teachers/academic staff, whereas significantly lower than that observed among the hospital workers. Nevertheless, anxiety, depression and PTS levels defined as above the severity threshold for clinical concern were not infrequent in patient's and teacher's population. Significant anxiety was reported by one fifth, significant depressive symptoms by a nearly half and PTS by one third of the patients. The same holds true for the sleep problems, for which more than 20% in the sample reported at least severe or very severe degree of trouble. These findings indicate a significant traumatic impact of COVID-19 pandemic and related control measures over psychological well-being of individuals in a deeply affected city.

Additionally, being female, a lower level of education, having a child, living in a crowded family, a duration of social media/TV exposure above 1 hour per day, participant or someone in the vicinity contracting COVID-19, having a comorbid disease or a previous psychiatric diagnosis were found to be independent risk factors associated with the increased PTS, anxiety and depression in our total study population, in line with the previous reports (6, 13-20). These findings essentially emphasize a higher risk for certain individuals for psychological distress during the pandemic, based on their pre-trauma features such as gender, education and psychiatric or medical history, as well as features such as trauma directness, personal victimization of the individual and closer relatives and the amount of exposure through TV and social media. Of concern, the latter two can become particularly fertile grounds for anxiety-provoking information and disinformation during a pandemic.

We observed that patients with SpA and BS were less likely to comply strictly to 'stay home' restrictions and more likely to go out for work, most probably due to the male predominance and relatively younger age. Additionally, it was not surprising to see that SpA subgroup which is usually treated with anti-TNF agents was the only subgroup in which regular drug use had been considerably disrupted. Biological DMARDs were by far the most frequent drugs which patients skipped or stopped completely. Another important finding of the study is that patients in the great majority quite possibly consider low dose prednisolone and many of the non-biological DMARDs 'safe' since the discontinuation rate was only < 10% for each of the drug.

We would have expected that patients with RD to have higher levels of anxiety or depression because of the several potential risk factors. Much to our surprise, the level of their psychological distress did not significantly differ from that of the teachers/academic staff, a group which we assumed to be unlikely to be exposed to trauma that the frontline healthcare workers are encountering, and which therefore would show less severe distress. This finding may suggest that patients with RD might have developed a positive adaptation to the stressors related to having a chronic disease with unpredictable exacerbations and remissions for many years, and became more resilient to further stressors concerning health. Compared to teachers and academic staff group, patients with RD reported having more sleep problems, which in our opinion could be related with increased frequency of psychiatric disorders, problems of pain and/or increased frequency of regular prednisolone use.

In line with what we have found, health workers had high prevalence rates of severe insomnia, anxiety, depression, somatization, and obsessive-compulsive symptoms during the ongoing COVID-19 pandemic, as reported in several studies (3-6, 15, 20-21). This was also evident with previous outbreaks such as that of SARS and MERS-Cov (22-25). The reluctance of hospital workers to participate in our study as observed by the lower response rate could be also interpreted as a reflection of their low mood. Interestingly, contrary to what have been reported, the level of psychological distress did not differ between medical and non-medical hospital workers in our survey (15).

This study has several limitations. We were not able to evaluate the psychological state before the outbreak. It is difficult to make causal inferences. There is possibility of selection bias. The sampling of our study was voluntary; therefore those who had been severely affected mentally may not be available for the evaluation. Due to the socio-cultural differences, our results may not be generalized. Absence of a disease control group could be another limitation. Finally, while we think that our results reflect the immediate response of the population as the survey was done 3 weeks after the outbreak, it could be rather difficult to discriminate the effect of the lockdown itself from that of the COVID-19 outbreak.

Conclusions

During the first month of the COVID-19 outbreak, most of the patients with RD could not attend outpatient visits. About one fifth discontinued or stopped their medications. The level of psychiatric distress observed among patients with RD was comparable to that among teachers/academic staff, whereas significantly less when compared to that among hospital workers. Yet, significant anxiety reported by a fifth, depression by nearly a half, and PTSD by a third of both patients and teachers population were of considerable concern indicating significant traumatic impact of COVID-19 pandemic on general population. Additionally, female gender, lower level of education, living in a crowded family, social media exposure, contracting COVID, smoking, having a comorbid disease, or a psychiatric disorder were found to be independently associated with psychiatric symptoms during the COVID-19 outbreak.

Declarations

Conflict of interest: The authors declare no competing interests.

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