Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
Original article

Effect of COVID-19 confinement on the mental status of patients with systemic lupus erythematosus

Ana Santos-Ruiz, Eva Montero-López, Norberto Ortego-Centeno, María Isabel Peralta-Ramírez

Departamento de Psicología de la Salud, Universidad de Alicante, Spain
Departamento de Psicología, Universidad de Jaén, Spain
Departamento de Medicina, Universidad de Granada, Spain
Unidad de enfermedades Autoinmunes Sistémicas, Hospital Clínico San Cecilio, Granada, Spain
Instituto de Investigación Biosanitaria, IBS, Granada, Spain
Centro de Investigación Mente, Cerebro, y Comportamiento (CIMCYC), Departamento de Personalidad, Evaluación y Tratamiento Psicológico, Universidad de Granada, Spain

A R T I C L E   I N F O

Article history:
Received 30 July 2020
Accepted 2 December 2020
Available online 18 March 2021

Keywords:
Confinement
COVID-19
Perceived stress
Systemic lupus erythematosus
Psychopathological symptoms

A B S T R A C T

Background and objective: Patients with systemic lupus erythematosus (SLE) are more vulnerable to higher levels of stress and psychopathological symptoms than the general healthy population. Therefore, the COVID-19 outbreak could alter their psychological state. The objective was to analyze the psychological impact of the pandemic and confinement on stress levels and psychopathological symptoms in patients with SLE.

Patients and method: In this cross-sectional study, stress levels were compared with the Perceived Stress Scale, the Stress Vulnerability Inventory and psychopathological symptoms of the SCL-90-R Symptom Inventory in patients with SLE during the period of confinement (group 1; n = 276) in comparison to patients with SLE evaluated in a period before the pandemic (group 2; n = 152).

Results: The comparison between both groups showed there were statistically significant differences in vulnerability to stress (p < 0.0001), depression (p < 0.05), anxiety (p < 0.05), phobic anxiety (p < 0.0001), interpersonal sensitivity (p ≤ 0.043), and psychoticism (p ≤ 0.023). In these variables, the group of patients with lupus in confinement obtained higher scores.

Conclusions: The confinement and threat of the COVID-19 outbreak had important repercussions on the psychological state of patients with SLE with high levels of stress, anxiety, and depression. These findings show their vulnerability to a public health alert and indicate the need to carry out a psychological approach to these patients while the state of health emergency lasts as well as to possible outbreaks of the virus.

© 2021 Elsevier España, S.L.U. All rights reserved.

Efecto del confinamiento por COVID-19 en el estado mental de pacientes con lupus eritematoso sistémico

R E S U M E N

Antecedentes y objetivo: Las pacientes con lupus eritematoso sistémico (LES) son más vulnerables a presentar mayores niveles de estrés y síntomas psicopatológicos que la población general sana, por lo que el brote de la COVID-19 podría alterar su estado psicológico. El objetivo fue analizar el impacto psicológico de la pandemia y del confinamiento sobre los niveles de estrés y sintomatología psicopatológica en pacientes con LES.

Pacientes y método: En este estudio transversal se compararon niveles de estrés mediante la Escala de Estrés Percibido y el Inventario de Vulnerabilidad al Estrés, y síntomas psicopatológicos mediante el Inventario de síntomas SCL-90-R, en pacientes con LES durante el período de confinamiento (grupo 1; n = 276) con respecto a pacientes con LES evaluadas en un periodo anterior a la pandemia (grupo 2; n = 152).

Palabras clave:
Confinamiento
COVID-19
Estrés percibido
Lupus eritematoso sistémico
Síntomas psicopatológicos

Please cite this article as: Santos-Ruiz A, Montero-López E, Ortego-Centeno N, Peralta-Ramírez ML. Efecto del confinamiento por COVID-19 en el estado mental de pacientes con lupus eritematoso sistémico. Med Clin (Barc). 2021;156:379–385.
* Corresponding author.
E-mail address: emontero@ujaen.es (E. Montero-López).

2387-0206 © 2021 Elsevier España, S.L.U. All rights reserved.
Introduction

Coronavirus disease (COVID-19) was first reported in Wuhan City, China, in December 2019\(^1\), leading to a lockdown situation in most of the affected countries.

This disease has also been shown to primarily affect older people and people with underlying diseases such as hypertension, cardiovascular disease, diabetes mellitus, chronic obstructive pulmonary disease, malignancies, and chronic kidney disease\(^2\). Although everyone is vulnerable to this virus, special attention should be paid to older people and people with underlying and immunosuppressed diseases such as people with autoimmune disease who have been shown to be vulnerable to COVID-19\(^3\). Patients with systemic autoimmune show a higher probability of hospitalization, while people with inflammatory arthritis or systemic lupus erythematosus (SLE) do not show the same risk\(^4\). However, people with SLE are also susceptible to serious health complications from COVID-19 infection, mainly those with kidney failure or obesity\(^5\).

A study with a healthy population at the beginning of the pandemic in China showed that 53.8% rated the psychological impact of COVID-19 as moderate to severe. Their symptoms of depression (16.5%), anxiety (28.8%) and stress (8.1%) were also moderate to severe\(^6\). On the other hand, being female, a student, having specific physical symptoms (e.g., myalgia or dizziness), and poor self-reported health status were significantly associated with greater psychological impact of the pandemic and higher levels of stress, anxiety, and depression.

In addition to these factors, other reactions to COVID-19 such as the presence of specific and uncontrolled fears related to becoming infected, generalized anxiety, loneliness, frustration, and boredom seem to be related to a reduction in subjective psychological well-being and quality of life. In contrast, resilience and social support are shown to be protective factors that facilitate the development of mechanisms for readaptation to the health emergency situation\(^7\).

In the case of patients with SLE, they show higher levels of perceived stress, as well as psychopathological symptoms compared to the healthy population\(^8\). Specifically, they score higher on somatizations, obsessions/compulsions, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, and psychoticism. Furthermore, these variables are largely related to the levels of stress experienced. In particular, it has been shown that everyday stress, rather than stressful life events, is associated with a worsening of SLE\(^9\). Also, there is a higher prevalence of anxiety and depression in patients with SLE\(^10\). These findings could indicate an increased vulnerability of these patients to psychological disorders during the health emergency situation with consequences on their disease, as the state of alarm decree together with the lockdown measures adopted could increase stress levels and negatively affect the psychological and physical well-being of these patients.

In addition, the perception of increased vulnerability to the consequences of this new disease, as well as the lockdown measures adopted, can lead to stress and psychological distress.

Therefore, the objective of this study was to analyse the psychological impact of COVID-19 and the lockdown situation associated with the pandemic on stress levels and psychopathological symptoms in patients with SLE.

Results: The comparison between both groups showed that there were significant differences in vulnerability to stress (p < 0.0001), depression (p < 0.05), anxiety (p < 0.05), anxiety phobic (p < 0.0001), interpersonal sensitivity (p < 0.043), and psychotism (p < 0.023). In these variables, the group of patients with lupus in confinement evaluated controls increased stress.

Conclusions: The confinement and the amenaza of brote by COVID-19 has had important repercussions in the psychological state of the patients with SLE, showing high levels of stress, anxiety, and depression. These hallmarks demonstrate their vulnerability to a public emergency alert, and they believe that the need to follow a close medical control, as well as psychological, is fundamental to avoid possible outbreaks of the virus.

© 2021 Elsevier España, S.L.U. Todos los derechos reservados.
of appetite, general malaise, joint pain, tiredness or fatigue, skin rashes, abdominal pain, and shortness of breath. This tool has a high internal consistency with a Cronbach’s α of 0.86; furthermore, the inter-rater reliability analysis shows a high agreement between the medical report and the test scores.

Psychological variables

- **Perceived stress scale**[^13]. The Spanish version of Remor and Carrobles was used[^14]. It is a self-report tool that assesses the level of perceived stress and the degree to which people find their life to be unpredictable, uncontrollable, or overloaded. It consists of 14 items with 5 possible answers, the highest score corresponds to the highest perceived stress. The Spanish version of the Perceived Stress Scale (14 items) demonstrated adequate reliability (internal consistency 0.81 and test-retest 0.73), concurrent validity and sensitivity[^15].

- **Stress vulnerability inventory[^16]** in the Spanish version[^17]. It is composed of 22 items with 2 possible answers (yes = 1; no = 0) and assesses the individual’s predisposition to be influenced by stress symptoms. It has a Cronbach’s α of 0.87 and adequate convergent validity, showing a statistically positive correlation (p < 0.01) with other assessment tools: State-Trait Anxiety Inventory STAI, Beck Depression Inventory and Somatic Symptom Scale.

- **Inventory of psychopathological symptoms SCL-90-R[^18]**. Used to evaluate psychopathological symptoms. It is a self-report scale made up of 90 items, with 5 possible answers (0–4). The person must respond based on how they have felt during the last 7 days, including the day when the inventory was administered. It evaluates 9 primary dimensions (somatizations, obsessions and compulsions, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism), and 3 global indices of psychological distress (Global Severity Index [GSi], total of positive symptoms [PS] and positive symptomatic distress index [PSDI]). For statistical analyses, the percentile of the results of each participant in this inventory was calculated.

COVID-19 lockdown variables

The lockdown experience of the lockdown group was assessed through a series of criterion questions related to housing characteristics, living with other people and the quality of relationships, their work situation during lockdown, the amount of time they had spent without leaving home (lockdown time), the diagnosis of COVID-19 or the existence of symptoms, the recent loss of close people, possible sleep problems, fear of contagion, perceived social support, psychological assistance (telephone or online), follow the news about COVID-19, routines and hobbies practiced during this period, healthy eating habits or increase in smoking.

Procedure

The participants in the pre-lockdown group were recruited and informed before the pandemic by their autoimmune disease specialist doctors at the hospital regarding participation in a study on psychopathological symptoms and stress in patients with SLE. Once they agreed to participate in the research, they were provided with the form containing the previously mentioned evaluation tools. On the other hand, the lockdown group participants were recruited and assessed in May 2020, during the state of health emergency and lockdown due to COVID-19 in Spain, by their specialist doctors and through social networks of SLE-related associations. This group, in addition to completing the questionnaires related to the psychological and clinical variables, also answered the questions related to lockdown.

Statistical analysis

The statistical analysis of the results was carried out using the IBM® SPSS® Statistics v.26 software (IBM Corporation, Armonk, New York, USA). First, to test for significant differences between the two groups in the main socio-demographic and disease variables, the Student's
t test was used for continuous variables and the Chi-square test ($\chi^2$) for categorical variables.

Second, in order to check whether there were differences in the variables of stress and psychopathological symptoms between the lockdown group and the pre-lockdown group, different Student’s $t$ tests were carried out with the independent variable being the 2-level group (lockdown group versus pre-lockdown group) and the dependent variables being the scores obtained on the subscales of the SCL-90-R, perceived stress and vulnerability to stress. Beforehand, the psychological variables were tested for normality using the Kolmogorov–Smirnov test and for homoscedasticity using Levene’s test, meeting the assumptions of normality.

The level of statistical significance used was 5% bilateral. For variables where significant differences were found, effect sizes were then calculated using Cohen’s $d$, using the following values for interpretation: small effect size $>0.20$, medium effect size $>0.50$ and large effect size $>0.80$.

Results

Sample description

The results showed differences between groups in some of the sociodemographic variables such as age, educational level, or country of origin (Table 1). In addition, the time of disease progression and the perception of lupus symptoms were found to be significantly greater in the lockdown group.

Regarding the lockdown variables, half of the lockdown group reported having experienced an exacerbation of the disease during the health emergency situation. In addition, 64.1% claimed to have contacted their doctor during lockdown and in 71.7% of the cases they maintained their treatment without changes. On the other hand, both groups were equal in terms of drug treatment with antimalarials, corticosteroids and immunosuppressants.

Regarding the variables associated with lockdown, the lockdown group reported that their work situation during this period was characterized by 35% having work activity, while 5.8% had lost their job due to COVID-19 and 17.4% were unemployed prior to the pandemic (Table 2).

On the other hand, they showed a medium-high level of fear of contagion, and 46% of them stated that they had been in lockdown for more than 8 weeks. More than half of the group resided in a large dwelling with their family, with only 27.9% reporting an increase in conflict. Regarding perceived social support, more than half of the group stated that they did not feel alone during lockdown, and only 11.2% received psychological assistance (telephone or online) in this period. A positive COVID-19 diagnosis was only found in 1.1%, and 21.4% of the sample stated that they had lost a loved one due to the pandemic. In reference to lifestyle, 68.1% showed sleep problems, only 10.1% increased smoking, 64.1% maintained a balanced diet, and more than 60% followed a daily routine or pursued their hobbies during most lockdown days. Finally, pandemic news follow up was over 90% of the sample for all or most days.

As can be seen in Table 3, the analysis of the differences in stress and psychopathological symptoms between the lockdown group and the pre-lockdown group showed that there were statistically significant differences in vulnerability to stress ($p < 0.001$), and in the SCL-90-R subdomains: depression ($p < 0.05$), anxiety ($p < 0.05$), phobic anxiety ($p < 0.001$), interpersonal sensitivity ($p < 0.043$) and psychoticism ($p < 0.023$), and in the global GSI domains ($p < 0.001$) and PS ($p < 0.008$), in which the lockdown group obtained higher scores.

In addition, a marginal significance was obtained in the comparison of the somatization’s subdomain ($p < 0.06$). On the other hand, group 2 showed significantly higher scores in the obsessions/compulsion’s subdomain ($p < 0.023$).

No statistically significant differences were found for the levels of perceived stress, although these were shown to be high in both groups, exceeding the cut-off point 22.

In Fig. 1 the scores of vulnerability to stress and of the subdomains of the SCL-90-R are presented, where significant differences were found between the 2 groups.

Discussion

The objective of this study was to analyse the psychological impact of COVID-19 and the lockdown situation on stress levels and psychopathological symptoms of patients with SLE compared to patients with SLE evaluated prior to the pandemic.

The results showed that SLE patients assessed during lockdown had higher levels of psychopathological symptomatology than patients assessed earlier. Specifically, greater depressive symptoms, anxiety, phobic anxiety, interpersonal sensitivity, psychoticism, and somatization were found, as well as greater vulnerability to stress. However, it is noteworthy that no differences were found in the level of perceived stress during the last month, with both groups being clinically significant.

Previous studies have looked at the psychological consequences of viral outbreaks such as SARS in 2003. The results showed that between 10% and 18% of the sample had psychopathology related to post-traumatic stress disorder, anxiety, and depression. Furthermore, the severity of this psychopathology is associated with a high perception of threat to life and low emotional support. In this sense, the presence of protective factors against these symptoms of anxiety, stress, or depression, such as stress control and coping tools, would be of high adaptive value to guarantee both physical and psychological quality of life and the prevention of possible exacerbations or worsening of the course of the disease.

These findings are in line with those of the present study since, during the health emergency period, SLE patients showed higher levels of anxiety and depression than those previously assessed. This increase together with the high levels of interpersonal sensitivity also coincide with the results of studies carried out on the psychological impact of the coronavirus pandemic in a healthy Spanish population.

Therefore, dysphoric mood, nervousness, fears, as well as personal feelings of inadequacy when compared to others, are present during a pandemic situation, in addition to the presence of symptoms of somatization, phobic anxiety and psychoticism in SLE patients, which have been shown to be higher than in the prepandemic group and in the healthy population. Furthermore, they seem to show greater vulnerability to stress and to suffer psychopathological disorders and, together with the situation of social isolation, could contribute to a decrease in their psychological well-being, as well as a possible worsening of symptoms. In our study, more than half of the patients reported having suffered an exacerbation of the disease during lockdown, an aspect that could be explained by the high levels of stress experienced.

Although the data do not allow these causal relationships to be established, it should be noted that the perception of threat, uncertainty and lack of control associated with the alarm state are factors that trigger the stress response, which has been shown to worsen SLE. In addition, social isolation due to lockdown may represent another risk factor for patients with SLE, due to its association with systemic inflammation (high levels of C-reactive protein).

Lockdown generates increased anxiety in the population due to over-information together with fear of contagion and could therefore be influential factors in increasing vulnerability to stress, anxiety, and phobic anxiety, with the phobic object being the virus.
Table 2
Description of the lockdown-related variables in the lockdown group.

| Variables                                                                 | Alternatives                                      | n (%)     |
|--------------------------------------------------------------------------|---------------------------------------------------|-----------|
| Fear of contagion (1–10), F (SD)                                        | None                                             | 6.48 (2.59) |
| How long have you been in lockdown? Not leaving the house at all (weeks) | None                                             | 18 (6.5) |
|                                                                          | 1–4 weeks                                        | 40 (14.5) |
|                                                                          | 5–8 weeks                                        | 91 (33)   |
|                                                                          | More than 8                                      | 127 (46)  |
| What is your home like?                                                  | Small                                            | 116 (42)  |
|                                                                          | Mid-size                                         | 99 (35.8) |
|                                                                          | Large                                            | 61 (22.1) |
|                                                                          | Retired                                          | 44 (15.9) |
| What is your employment status during lockdown?                          | Student                                          | 16 (5.8)  |
|                                                                          | Employed                                         | 98 (35.5) |
|                                                                          | Unemployed due to COVID-19                       | 16 (5.8)  |
|                                                                          | Previously unemployed                             | 48 (17.4) |
|                                                                          | Medical sick leave                               | 54 (19.6) |
| With whom did you spend your quarantine?                                | Alone                                            | 21 (7.6)  |
|                                                                          | Family                                           | 197 (71.4) |
|                                                                          | Partner                                          | 55 (19.9) |
|                                                                          | Other                                            | 3 (1.1)   |
| Have there been more conflicts with the cohabitant during the quarantine?| Yes                                              | 77 (27.9) |
|                                                                          | No                                               | 180 (65.2) |
|                                                                          | I live alone                                     | 19 (6.9)  |
| Have you felt lonely during lockdown?                                    | Not at all                                       | 105 (38)  |
|                                                                          | A little                                         | 101 (36.6) |
|                                                                          | Moderately                                       | 36 (13)   |
|                                                                          | Quite                                            | 34 (12.3) |
|                                                                          | Yes                                              | 31 (11.2) |
|                                                                          | No                                               | 245 (88.8) |
| Have you received psychological care during lockdown?                    | No                                               | 255 (92.4) |
|                                                                          | Mild symptoms, but no test                       | 17 (6.2)  |
|                                                                          | Mild symptoms and + test                         | 3 (1.1)   |
| Are you showing symptoms, or have you been diagnosed with COVID-19?      | Severe symptoms                                  | 1 (0.4)   |
|                                                                          | Yes                                              | 59 (21.4) |
|                                                                          | No                                               | 217 (78.6) |
|                                                                          | Yes                                              | 188 (68.1) |
|                                                                          | No                                               | 88 (31.9) |
| Have you suffered the loss of a loved one recently?                      | I do not smoke                                   | 200 (72.5) |
|                                                                          | No, I smoke the same                             | 33 (12)   |
|                                                                          | Yes, I smoke less                                | 15 (5.4)  |
|                                                                          | Yes, I smoke more                                | 28 (10.1) |
| Have there been any changes in your daily smoking?                       | None                                             | 44 (15.9) |
|                                                                          | Most days                                        | 171 (62)  |
|                                                                          | Every day                                        | 61 (22.1) |
|                                                                          | Never                                            | 53 (19.2) |
|                                                                          | Most days                                        | 177 (64.1) |
|                                                                          | Every day                                        | 46 (16.7) |
| Have you followed a daily routine (getting up in the morning, doing the same activities, etc.) since the lockdown began? | I do not smoke                                   | 200 (72.5) |
|                                                                          | No                                               | 33 (12)   |
|                                                                          | Yes, I smoke less                                | 15 (5.4)  |
|                                                                          | Yes, I smoke more                                | 28 (10.1) |
| Have you followed a varied and healthy diet?                             | None                                             | 44 (15.9) |
|                                                                          | Most days                                        | 171 (62)  |
|                                                                          | Every day                                        | 61 (22.1) |
|                                                                          | Never                                            | 53 (19.2) |
|                                                                          | Most days                                        | 177 (64.1) |
|                                                                          | Every day                                        | 46 (16.7) |
| Have you looked at COVID-19 news and updates very often?                 | I do not smoke                                   | 200 (72.5) |
|                                                                          | No                                               | 33 (12)   |
|                                                                          | Yes, I smoke less                                | 15 (5.4)  |
|                                                                          | Yes, I smoke more                                | 28 (10.1) |
| Have you taken the opportunity to pursue hobbies or pending tasks?       | None                                             | 44 (15.9) |
|                                                                          | Most days                                        | 171 (62)  |
|                                                                          | Every day                                        | 61 (22.1) |

Figure 1. Mean scores of the subdomains of psychopathological symptoms (SCL-90-R) that showed statistically significant differences between both groups.
Another factor that could lead to psychological distress during the pandemic was to be obstacles to receiving medical care. In our study, however, access to medical care during the pandemic was optimal for 64.1% of the patients.

On the other hand, protective factors for psychological well-being during the pandemic include resilience and emotional support as facilitators of the development of coping mechanisms. In addition, adherence to recommended isolation policies has also been shown to reduce anxiety caused by the coronavirus.

Finally, the following limitations must be taken into account. Firstly, the evaluation was carried out during the last month of lockdown, which does not allow us to know the psychological state of the participants at the beginning of the lockdown. Likewise, obtaining other complementary measurements such as cortisol, quality of life index or disease activity would have been of interest. However, access to these variables was not possible due to the health care collapse.

In conclusion, SLE patients have experienced a considerable increase in stress levels and psychopathological symptoms during lockdown, which were already higher than those of the general population. This study has important research and clinical implications, since the results of this study suggest that future research should be directed towards the study of protective factors to reduce these variables. Clinically speaking, it would be essential to prevent and implement psychological training interventions for effective coping strategies to cushion the psychological impact associated with these situations.

Conflict of interests

None.

References

1. World Health Organization. Coronavirus disease (COVID-19) pandemic. Available from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen [Accessed 9 July 2020].
2. Emamian A, Jawamiri-F, Pirbeyneh N, Abbari A. Prevalence of underlying diseases in hospitalized patients with COVID-19: a systematic review and meta-analysis. Arch Acad Emerg Med. 2020;8:e35.
3. Gianfrancesco M, Hyrich KL, Al-Adely S, Carmona I, Danila ML, Gossec L, et al. Characteristics associated with hospitalization for COVID-19 in people with rheumatic disease: data from the COVID-19 Global Rheumatology Alliance physician-reported registry. Ann Rheum Dis. 2020;79:859–66, http://dx.doi.org/10.1136/annrheumdis-2020-217871.
4. Pablos JL, Abasolo L, Alvaro-Gracia JM, Blanco FJ, Blanco R, Castrejón I, et al. Prevalence of hospital PCR-confirmed COVID-19 cases in patients with chronic inflammatory and autoimmune rheumatic diseases. Ann Rheum Dis. doi:10.1136/annrheumdis-2020-217763.
5. Mathian A, Mahévas M, Rohmer J, Roumier M, Cohen-Aubart F, Amador-Borrero B, et al. Clinical course of coronavirus disease 2019 (COVID-19) in a series of 17 patients with systemic lupus erythematosus under long-term treatment with hydroxychloroquine. Ann Rheum Dis. 2020;79:837–9, http://dx.doi.org/10.1136/annrheumdis-2020-217566.
6. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, et al. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. Int J Environ Res Public Health. 2020;17:1729, http://dx.doi.org/10.3390/ijerph17051729.
7. Serafini G, Parmigiani B, Amerio A, Aguglia A, Sher I, Amore M. The psychological impact of COVID-19 on the mental health in the general population. QJM An Int J Med. 2020;113:531–7, http://dx.doi.org/10.1093/qjmed/hca201.
8. Peralta-Ramírez MI, Pérez-Márpol JM, Castañeda-Cabestany M, Santos-Ruiz A, Montero-López E, Callejas-Rubio JL, et al. Association between perceived level of stress, clinical characteristics and psychopathological symptoms in women with systemic lupus erythematosus. Clin Exp Rheumatol. 2018;36:434–41.
9. Peralta-Ramírez MI, Jiménez-Alonso J, Godoy-García JF, Pérez-García M, Group Lupus Virgen de las Nieves. The effects of daily stress and stressful life events on the clinical symptomatology of patients with lupus erythematosus. Psychosom Med. 2004;66:788–94.
10. Zhang L, Fu T, Yin R, Zhang Q, Shen B. Prevalence of depression and anxiety in systemic lupus erythematosus: a systematic review and meta-analysis. BMC Psychiatry. 2017;17:70.
11. World Medical Association. Medical ethics manual. 3rd edition World Medical Association; 2015.
12. Peralta-Ramírez MI, Verdejo A, Muñoz MA, Sabio JM, Jiménez-Alonso JF, Pérez-García M, et al. Lupus symptoms inventory (LSI): development and validation of a self-evaluation inventory of the subjective symptoms of systemic lupus erythematosus. J Clin Psychol Med Settings. 2007;14:344–50, http://dx.doi.org/10.1007/s10880-007-9086-3.
13. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. J Health Soc Behav. 1983;24:385–96, http://dx.doi.org/10.1177/002214658302400405.
14. Remor E, Carrobles JA. Versión española de la Escala de Estrés Percibido (PSS-14). Estudio psicométrico en una muestra VIH+. Ansidad y Estrés. 2001;7:195–201.
15. Remor E. Psychometric properties of a European Spanish version of the Perceived Stress Scale (PSS). Span J Psychol. 2006;9:86–93.
16. Beech HR, Burns LE, Sheffield BF. Tratamiento del Estrés: un enfoque comportamental. Madrid: Alhambra; 1986.
17. Robles-Ortega H, Peralta-Ramírez MI, Navarrete-Navarrete N. Validación de la versión española del Inventario de Vulnerabilidad al Estrés de Beech, Burns y Sheffield. In: Avances en psicología de la salud. Granada: Sider; 2006. p. 62.
18. De las Cuevas C, González de Rivera JL, Henry Benitez M, Monterrey AL, Rodríguez-Pulido F, Gracia Marco R. Análisis factorial de la versión española del SCL-90-R en la población general. An Psiquiatr. 1991;7:93–6.
19. Cohen J. Statistical power analysis for the behavioral sciences. Routledge: Aca- demic press; 2013.
20. Wu KK, Chan SK, Ma TM. Posttraumatic stress, anxiety, and depression in survivors of severe acute respiratory syndrome (SARS). J Trauma Stress. 2005;18:39–42, http://dx.doi.org/10.1002/jts.20004.
21. Navarrete-Navarrete N, Peralta-Ramírez MI, Sabio-Sánchez JM, Coin MA, Robles-Ortega H, Hidalgo-Tenorio C, et al. Efficacy of cognitive behavioral therapy for the
treatment of chronic stress in patients with lupus erythematosus: a randomized controlled trial. Psychother Psychosom. 2010;79:107–15.
22. Rodríguez-Rey R, Garrido-Hernansaiz H, Collado S. Psychological impact of COVID-19 in Spain: early data report. Psychol Trauma Theory Res Pract Policy. 2020;12:550, http://dx.doi.org/10.1037/tra0000943.
23. Becerra-García JA, Giménez Ballesta G, Sánchez-Gutiérrez T, Barbeito Resa S, Calvo Calvo A. Síntomas psicopatológicos durante la cuarentena por Covid-19 en población general española: un análisis preliminar en función de variables sociodemográficas y ambientales-ocupacionales. Rev Esp Salud Publica. 2020.
24. Smith KJ, Gavey S, Riddell NE, Kontari P, Victor C. The association between loneliness, social isolation and inflammation: a systematic review and meta-analysis. Neurosci Biobehav Rev. 2020;112:519–41, http://dx.doi.org/10.1016/j.neubiorev.2020.02.002.
25. Lee SA. How much “Thinking” about COVID-19 is clinically dysfunctional? Brain Behav Immun. 2020;87:97–8, http://dx.doi.org/10.1016/j.bbi.2020.04.067.
26. Milman E, Lee SA, Neimeyer RA. Social isolation and the mitigation of coronavirus anxiety: the mediating role of meaning. Death Stud. Published online. 2020:1–13.