

## Article

# Psychosocial Impact of the COVID-19 Pandemic on Healthcare Professionals in Spain

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**Abstract:** In December 2019, a new virus called SARS-CoV-2 appeared, and the disease it produced was named COVID-19. After the pandemic situation was declared by the World Health Organization in March 2020, an increasing worsening of the mental health of the population, especially healthcare professionals, became apparent. To determine the psychosocial impact of the pandemic on healthcare professionals in Spain, a longitudinal study was conducted at two time points separated by 5 weeks (n time 1 = 169; n time 2 = 65). Participants completed an online questionnaire assessing depression, anxiety, and stress (Depression Anxiety Stress Scale, DASS-21), burnout (Maslach Burnout Inventory—MBI), resilience (Brief Resilience Scale—BRS), and health-related quality of life (SF-36 Health Questionnaire). The results showed high levels of depression, anxiety, stress, and burnout, as well as moderate levels of resilience and low levels of quality of life at the first assessment. Resilience was negatively related to negative experiences, and positively related to the quality of life, also at the first assessment. Overall, there was an improvement in the mental health of healthcare professionals when comparing the two assessments. In this improvement, having COVID-19 in the first assessment had a positive effect on perceived mental health in the second assessment.

**Keywords:** resilience; depression; anxiety; stress; burnout; health-related quality of life; healthcare professionals; COVID-19



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## 1. Introduction

A new epidemic disease characterized by a respiratory tract infection progressing to bilateral pneumonia emerged in December 2019 [1]. The etiological agent was a new coronavirus named SARS-CoV-2, which produces a disease named COVID-19 [2]. Its spread was such that the World Health Organization (WHO) declared a pandemic situation on 11 March 2020 [3]. A few weeks earlier, on 31 January 2020, the Spanish National Microbiology Centre had already declared the first case of coronavirus in Spain, detected in La Gomera (Canary Islands) [4]. By September 2022, more than 613 million people had been infected with the virus worldwide, and more than 6.5 million had died [5]. This situation has led to a borderline health crisis, which is also reflected in an economic and social crisis [6].

Although it is a new virus, the clinical manifestations and evolution of this disease seem to be well established [7–9]. Moreover, an indirect consequence associated with the virus is its impact on mental health, not only in COVID-19 patients but also in the rest of the population [10]. In this regard, since the beginning of the pandemic, data have been collected on symptoms related to depression, anxiety, and post-traumatic stress [11,12].

Given that, in normal situations, healthcare workers face a wide variety of job demands that are often very intense, such as work overload, the constant need to concentrate, or the

performance of tasks for which they are not adequately trained [13], it is to be expected that mental health problems will be greater in this group than in the general population during the COVID-19 pandemic. Some studies show symptoms related to depression, anxiety, or insomnia in such professionals [14–17]. Already during the SARS outbreaks in 2003 and the Ebola virus disease in 2014, there was an increase in these symptoms, resulting in an increase in psychiatric disorders such as depression, anxiety, and post-traumatic stress disorder in frontline healthcare workers [18].

According to the Dual Spiral Model of Occupational Health [19], the existence of an imbalance between job demands and the job resources available to employees to cope with these demands is considered a psychosocial risk. This imbalance will have consequences (in the short or long term) on the psychosocial health of employees that may turn into ‘psychosocial harm’ or negative experiences such as depression, anxiety, burnout, technostress, etc., or the reduction of positive experiences such as work engagement or job satisfaction. These psychosocial harms, in the longer term, may have consequences for the organization in the form of ‘organizational harms’ such as absenteeism, reduced performance, involuntary turnover, etc., situations that are undesirable in general but particularly harmful at the health care level during a pandemic.

Burnout could be defined as a prolonged response to chronic personal and relational stressors at work, determined by the dimensions known as emotional exhaustion, depersonalization/cynicism, and professional inefficacy [20], and is relatively common in healthcare professionals [21]. Emotional exhaustion refers to feelings of not being able to give more emotionally and a decrease in one’s emotional resources. Depersonalization refers to a response of negative distance, feelings, and cynical behavior toward other people, who are usually the service or care users. Professional inefficacy refers to diminished feelings of competence and achievement at work [22]. Since the beginning of the COVID-19 pandemic, higher levels of burnout have been reported in healthcare professionals [23,24].

Health-related quality of life (HRQoL) is a comprehensive concept that attempts to assess all factors that impact an individual’s health. It does not refer to other aspects of quality of life that do not directly impact health, such as the political or economic circumstances being experienced [25]. Previous research has shown that the health situation experienced since the emergence of the coronavirus has had a negative impact on the HRQoL of the population [26–28]. In addition, other studies have found that those with suspected or confirmed COVID-19 appear to have poorer levels of HRQoL [29]. Despite this, few studies have focused on HRQoL levels, specifically in healthcare professionals who have worked during the pandemic.

According to the Dual Spiral Model of Occupational Health [19], employees’ personal resources, such as self-efficacy or resilience, can modulate the relationship between job demands and job resources and are responsible for two distinct psychological processes that develop over time in the form of spirals: (1) the health deterioration spiral and (2) the motivation spiral. On the one hand, the deterioration spiral occurs if the employee has low levels of personal resources, as he/she will perceive it difficult to effectively control his/her work environment, which will increase his/her perception of imbalance between his/her job demands and job resources and the likelihood of experiencing psychological damages such as burnout. On the other hand, having high levels of personal resources will increase the likelihood that the person will perceive that they can adequately control their environment, which will reduce their perception of imbalance between job demands and job resources, causing them to experience positive consequences such as satisfaction, constituting the motivation spiral. The existence of these two types of spirals allows us to understand that two employees with the same level of job demands and job resources manifest different levels of burnout or satisfaction.

Therefore, one of the personal resources that can have a positive effect on the mental health of employees in general, and healthcare employees in particular, is resilience. Resilience can be defined as the ability to overcome with perseverance the difficulties experienced in different areas of life [30]. As mentioned above, healthcare professionals are

exposed to a multitude of job demands and do not usually have sufficient job resources to compensate for them, so this personal resource takes on greater importance in their work reality. In the context of a health crisis such as the one experienced, some research shows low levels of resilience, as reflected in some studies carried out, for instance, in Ethiopia [31], which leads to an increase in the psychological distress of health professionals. Another study carried out in Spain shows moderate levels of resilience in healthcare employees during the COVID-19 pandemic [14]. In contrast, despite the difficulties generated by this health crisis, there is also literature that supports an important capacity for resilience on the part of health professionals, as shown in another study carried out in the United Kingdom [32]. Other research has shown other positive effects of resilience, the presence of which mitigated the professionals' fear of the coronavirus [33].

The main objective of this research is to test the levels of resilience of healthcare professionals at the beginning of the fourth wave of the COVID-19 pandemic in Spain, to analyze how these levels are related to the levels of depression, anxiety, stress, burnout, and HRQoL experienced, and to determine the evolution of the mental health of employees at the end of the fourth wave.

This general objective is divided into the following specific objectives:

1. To test the levels of resilience, depression, anxiety, stress, burnout, and HRQoL of the healthcare employees at the beginning of the fourth wave (Time 1, T1);
2. To relate the levels of resilience at T1 with the levels of depression, anxiety, stress, burnout, and HRQoL of the healthcare employees;
3. To test whether the levels of depression, anxiety, stress, burnout, resilience, and HRQoL improve at the end of the fourth wave (Time 2, T2) compared to T1;
4. To analyze whether not having COVID-19 affects the levels of anxiety, depression, stress, burnout, resilience, and HRQoL experienced at T2 compared to T1.

To achieve the objectives, the following hypotheses are proposed:

**Hypothesis 1a (H1a).** *Healthcare professionals will have high levels of depression, anxiety, stress, and burnout at T1.*

**Hypothesis 1b (H1b).** *Healthcare professionals will present low levels of resilience and HRQoL in all dimensions (i.e., general health, physical functioning, physical role, emotional role, social functioning, body pain, energy/vitality, and mental health) at T1.*

**Hypothesis 2a (H2a).** *The higher the level of resilience, the lower the level of depression, anxiety, stress, and burnout at T1.*

**Hypothesis 2b (H2b).** *The higher the level of resilience, the higher the level of HRQoL in all dimensions at T1.*

**Hypothesis 3a (H3a).** *Healthcare professionals will have lower levels of depression, anxiety, stress, and burnout at T2 compared to T1.*

**Hypothesis 3b (H3b).** *Healthcare professionals will have higher levels of resilience and HRQoL in all dimensions at T2 compared to T1.*

**Hypothesis 4a (H4a).** *Healthcare professionals who have passed COVID-19 at T1 will have lower levels of depression, anxiety, stress, and burnout at T2 compared to T1.*

**Hypothesis 4b (H4b).** *Healthcare professionals who have passed COVID-19 at T1 will have higher levels of resilience and HRQoL in all dimensions at T2 compared to T1.*

## 2. Materials and Methods

### 2.1. Design

This study was conducted using a quasi-experimental, longitudinal (pre-test and post-test), quantitative, within-group design. Data were collected at two different time periods: at the beginning of the fourth wave of the pandemic in Spain (mid-March 2021, T1) and when the fourth wave was ending five weeks later (early May 2021, T2).

### 2.2. Sample

Participants were chosen by non-probabilistic convenience sampling. Several inclusion and exclusion criteria were considered for participation in the sample:

Inclusion criteria:

- Healthcare professionals practicing their profession in Spain;
- Having been active and working in the healthcare practice for some time since the beginning of the pandemic.

Exclusion criteria:

- Healthcare professionals who were retired, unemployed, or on sick leave from the beginning of the pandemic until the time of the research.

Considering these criteria, the study sample, in a first evaluation (T1), is composed of 169 people, of whom a high percentage are women (82.2%). The mean age was 31.40 years (SD = 9.96), and the range was between 20 and 66 years. Slightly more than a third (39.9%) live in the community of Andalusia. Of the subjects, more than two-thirds are graduates, with the nursing profession being predominant (72.5%). Most of the participants have not suffered COVID-19 or do not know it, compared to 21.9% who had. Slightly more than half of the subjects have been working during the pandemic for the Public Health Service with a temporary contract. A high percentage of the sample worked full-time in a hospital (86.4%).

Of the aforementioned sample, 65 professionals participated in a second evaluation (T2), of whom a high percentage were still women (84.6%). The mean age was 31.82 years (SD = 9.88), and the range was between 20 and 64 years. A high percentage had been vaccinated against this disease (90.8%). More than half of this sample was working in Public Health Care, while the rest worked in Private Health Care or in both. Most of these professionals also worked in hospitals (69.2%). The others worked according to the following distribution: 13.8% in primary care, 7.7% in private centers, 4.6% in nursing homes, and 4.6% in pharmacies.

### 2.3. Procedure

The authors used social networks and e-mail as a means of disseminating the online questionnaire through which the participants were evaluated. The questionnaire was created using the Microsoft Forms platform (<https://www.microsoft.com/es-es/microsoft-365/online-surveys-polls-quizzes> (accessed on 15 March 2021)). At the beginning of the questionnaire, participants were asked to create a code to match the two questionnaires and to guarantee anonymity. At the end of the T1 questionnaire, an e-mail address was requested to send the questionnaire again at T2.

### 2.4. Instruments

The Brief Resilience Scale—BRS, validated by Rodríguez-Rey, Alonso-Tapia, and Hernansainz-Garrido in Spanish [34], consists of 6 stated items that are answered on a five-alternative Likert-type scale (from 1: strongly disagree to 5: strongly agree) [35]. Cronbach's  $\alpha$  at T1 = 0.77 and at T2 = 0.91.

The Depression Anxiety Stress Scale, DASS-21, an abbreviated version of the DASS questionnaire, and validated in Spanish by Daza, Novy, Stanley, and Averill [36], is a self-administered scale consisting of 21 items that measure three dimensions: depression ( $\alpha$  T1 = 0.86,  $\alpha$  T2 = 0.80), anxiety ( $\alpha$  T1 = 0.82,  $\alpha$  T2 = 0.82), and stress ( $\alpha$  T1 = 0.87,  $\alpha$  T2 = 0.87). Responses are rated using a 4-point scale (from 0: has not happened to me, to 3: has happened to me a lot or most of the time), and the total score is calculated by summing them.

The Maslach Burnout Inventory—MBI, validated in Spanish by Bresó, Salanova, Schaufeli, and Nogareda [37], is a questionnaire that assesses burnout through three dimensions: emotional exhaustion ( $\alpha$  T1 = 0.88,  $\alpha$  T2 = 0.91), cynicism ( $\alpha$  T1 = 0.79,  $\alpha$  T2 = 0.82) and professional inefficacy ( $\alpha$  T1 = 0.80,  $\alpha$  T2 = 0.76). The questionnaire consists of 15 items that are answered according to a seven-point frequency scale (from 0: never to 6: always). The higher the score in all the dimensions, the higher the level of burnout.

Finally, we used the Spanish version of the SF-36 Health Questionnaire developed by Alonso, Prieto, and Antó [38]. It is a generic scale designed to be preferably self-administered, consisting of 36 items grouped into 8 dimensions: general health (T1  $\alpha$  = 0.81, T2  $\alpha$  = 0.85), physical functioning (T1  $\alpha$  = 0.95, T2  $\alpha$  = 0.93), physical role (T1  $\alpha$  = 0.89, T2  $\alpha$  = 0.91), emotional role ( $\alpha$  T1 = 0.88,  $\alpha$  T2 = 0.79), body pain ( $r$  T1 = 0.70,  $p$  < 0.0001;  $r$  T2 = 0.74,  $p$  < 0.0001), energy/vitality ( $\alpha$  T1 = 0.85,  $\alpha$  T2 = 0.83), mental health ( $\alpha$  T1 = 0.85,  $\alpha$  T2 = 0.78), and social functioning ( $r$  T1 = 0.73,  $p$  < 0.0001;  $r$  T2 = 0.88,  $p$  < 0.0001), and an extra item asking about health evolution. The items are answered according to a five-point frequency scale (from 1: always, to 5: never), so the higher the score obtained, the better the state of health.

### 2.5. Ethical Considerations

This study was approved by the bioethics committee of the University of Burgos (code IR06/2021), respecting the four Helsinki principles [39] and in accordance with Law 15/1999 of 13 December on the Protection of Personal Data [40].

In addition, the participants were informed about the legal and ethical aspects derived from the research on the first page of the questionnaire, which also included informed consent.

### 2.6. Data Analyses

All analyses were conducted with the SPSS Statistical Package (Version 25, IBM Corp, Armonk, NY, USA), and the level of significance was set at  $p \leq 0.05$ .

First, several one-sample Student's *t*-tests were calculated. Pearson correlations, Student's *t*-test for independent samples, and Student's *t*-tests for paired samples were then calculated.

## 3. Results

### 3.1. Student *t*-Test for One Sample

To test H1a and H1b, several one-sample *t*-tests were performed. The results show statistically significant differences in all the proposed variables apart from the body pain dimension (see Table 1). For the comparison of the data, the average values (from now normative mean) obtained in various previous studies were used [34,37,41,42]. To be able to compare the HRQoL dimensions, the scores were transformed to a 0–100-point scale.

Healthcare professionals show high levels of depression, anxiety, stress, emotional exhaustion, and professional inefficacy, as well as slightly low (moderate) levels of resilience. However, lower values than the normative mean are obtained in cynicism, general health, physical function, physical role, emotional role, social functioning, energy/vitality, and mental health. Levels of bodily pain are very similar to those of the normative sample. Thus, the hypotheses are partially confirmed.

**Table 1.** Comparison of resilience, depression, anxiety, stress, burnout, and HRQoL levels from the research with normative levels.

	Student <i>t</i> -Test					
	$M_n$	$M_s$	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Resilience	3.15	3.02	0.72	−2.332	168	0.021
Depression	2.28	4.69	4.36	3.866	168	0.0001
Anxiety	2.74	5.39	4.61	5.987	168	0.0001
Stress	4.71	8.26	5.11	8.8939	168	0.0001
Emotional exhaustion	2.86	3.27	1.27	4.150	168	0.0001
Cynicism	2.49	1.98	1.40	−4.728	168	0.0001
Professional inefficacy	4.05	4.67	0.83	9.682	168	0.0001
General health	80	72.78	16.09	−5.829	168	0.0001
Physical functioning	94.42	53.41	10.34	−51.558	168	0.0001
Physical role	91.13	78.46	20.62	−7.983	168	0.0001
Emotional role	90.19	77.43	19.59	−8.460	168	0.0001
Social functioning	96.03	70	23.32	−14.508	168	0.0001
Body pain	82.35	82.31	20.75	−0.026	168	0.979
Energy/vitality	69.99	56.42	17.27	−10.209	168	0.0001
Mental health	77.72	68.99	16.66	−6.805	168	0.0001

Note.  $M_n$  = normative mean;  $M_s$  = sample mean;  $M$  = mean; *SD* = standard deviation; *df* = degrees of freedom.

### 3.2. Pearsons Correlations

To test H2a and H2b, different Pearson correlations were carried out. The results are in the expected direction for all the variables measured, except for professional inefficacy and physical functioning, which do not show significant relationships. Table 2 shows that there are significant and inverse relationships between resilience and levels of emotional exhaustion, cynicism, depression, anxiety, and stress. That is, the higher the level of resilience, the lower the levels of burnout, depression, anxiety, and stress among healthcare professionals.

**Table 2.** Relationships between resilience, depression, anxiety, stress, burnout, and HRQoL.

Variables	Resilience	
	<i>r</i>	<i>p</i>
Depression	−0.356	0.0001
Anxiety	−0.337	0.0001
Stress	−0.400	0.0001
Emotional exhaustion	−0.322	0.0001
Cynicism	−0.280	0.0001
Professional inefficacy	−0.087	0.258
General health	0.439	0.0001
Physical functioning	0.130	0.093
Physical role	0.220	0.004
Emotional role	0.350	0.0001
Social functioning	0.366	0.0001
Body pain	0.263	0.001
Energy/vitality	0.389	0.0001
Mental health	0.454	0.0001

In addition, the results also show significant positive relationships between resilience and all dimensions of HRQoL. That is, the higher the level of resilience, the better the level obtained in general health, physical role, emotional role, social role, body pain, energy/vitality, and mental health. Thus, H2a and H2b can be confirmed.

### 3.3. Student *t*-Test for Paired Samples

To contrast H3a and H3b, several Student's *t*-tests for paired samples were performed. As can be seen in Table 3, the results indicate that there are significant differences in all the variables evaluated except for cynicism, professional inefficacy, general health, physical

functioning, physical role, and emotional role. For body pain and emotional role, the differences were tendentially significant  $p \leq 0.01$ . The healthcare professionals presented less emotional exhaustion, as well as higher levels of resilience in T2. In addition, they showed lower depression, anxiety, and stress, as well as better HRQoL in social functioning, bodily pain, energy/vitality, and mental health. Therefore, the hypotheses are partially confirmed.

**Table 3.** Mean differences in depression, anxiety, stress, burnout, resilience, and HRQoL between T1 and T2.

	Student <i>t</i> -Test						
	$M_{T1}$	$SD_{T1}$	$M_{T2}$	$SD_{T2}$	<i>t</i>	<i>df</i>	<i>p</i>
Depression	5.29	4.02	3.49	2.56	2.299	64	0.025
Anxiety	5.94	4.76	4.86	4.28	3.365	64	0.001
Stress	9.65	5.07	8.43	4.87	2.354	64	0.022
Emotional exhaustion	3.53	1.42	3.05	1.45	3.920	64	0.0001
Cynicism	2.22	1.45	2.17	1.54	0.384	64	0.703
Professional inefficacy	4.65	0.85	4.62	0.77	0.276	64	0.784
Resilience	2.85	0.65	3.04	0.77	−2.665	64	0.010
General health	3.48	0.83	3.60	0.82	−1.469	64	0.147
Physical functioning	2.69	0.48	2.73	0.43	−0.774	64	0.442
Physical role	3.85	1.06	4.02	1.03	−1.254	64	0.215
Emotional role	3.74	0.93	3.96	0.87	−1.881	64	0.065
Social functioning	3.32	1.17	3.74	1.14	−3.207	64	0.002
Body pain	3.95	1.07	4.18	1.03	−1.954	64	0.055
Energy/vitality	2.57	0.79	2.75	0.84	−2.186	64	0.032
Mental health	3.23	0.80	3.45	0.69	−0.067	64	0.005

Note. T1 = time 1; T2 = time 2; M = mean; SD = standard deviation; *df* = degrees of freedom.

### 3.4. Student *t*-Test for Independent Samples

Finally, to contrast H4a and H4b, several Student's *t*-tests for independent samples were conducted using the change scores (i.e., T2 minus T1) of the variables of interest. As can be seen in Table 4, the results show significant differences in emotional exhaustion, depression, stress, and social functioning. Participants who had passed COVID-19 improved their emotional exhaustion ( $p = 0.009$ ), depression ( $p = 0.04$ ), stress ( $p = 0.015$ ), and social functioning ( $p = 0.05$ ) more at T2 than those who had not passed the COVID-19 or do not know. Therefore, H4a and H4b are partially confirmed.

**Table 4.** Differences in depression, anxiety, stress, burnout, resilience, and HRQoL depending on COVID-19.

	COVID-19 Yes		COVID-19 No, or Don't Know		Student <i>t</i> -Test		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Depression	0.7	3.56	−2.17	4.34	2.250	60	0.040
Anxiety	−0.4	3.31	−1.01	3.85	0.474	60	0.637
Stress	0.7	1.94	−1.54	4.36	2.595	60	0.015
Emotional exhaustion	0.05	0.49	−0.55	1.03	2.837	60	0.009
Cynicism	0.1	0.99	−0.18	1.17	0.700	60	0.487
Professional inefficacy	−0.3	1.18	−0.02	0.71	−0.999	60	0.322
Resilience	0.25	0.63	0.18	0.55	0.345	60	0.732
General health	0.04	0.87	0.13	0.64	−0.388	60	0.700
Physical functioning	0.03	0.17	0.001	0.37	0.233	60	0.817
Physical role	0.02	0.93	0.22	1.11	−0.524	60	0.602
Emotional role	0.001	1.13	0.31	0.83	−1.028	60	0.308
Social functioning	−0.05	0.64	0.47	1.06	−2.071	60	0.051
Body pain	0.25	0.54	0.27	0.98	−0.060	60	0.952
Energy/vitality	0.001	0.66	0.24	0.64	−1.079	60	0.285
Mental health	0.22	0.63	0.21	0.63	0.021	60	0.983

Note. M = mean; SD = standard deviation; *df* = degrees of freedom.

#### 4. Discussion

Since the onset of the COVID-19 pandemic in March 2020, the scientific literature has provided increasing evidence of its psychological impact on society [10,43,44]. The aim of this study was to increase the evidence of the effect of the pandemic on the mental health of healthcare professionals in terms of resilience, depression, anxiety, stress, burnout, and HRQoL. First, participants were tested for their levels of these variables.

Participants showed higher levels of depression, anxiety, and stress obtained at T1, than those found in the scientific literature. A review of 12 articles based on samples from the same context showed mean scores of stress, anxiety, and depression in frontline professionals in Spain, notably lower than those obtained in our study [43]. Other research conducted with Croatian participants [45] and with participants from Vietnam [35] also found moderate levels of all three variables among their health professionals. As regards the levels of emotional exhaustion, cynicism, and professional inefficacy, these were also high at T1 (H1a). Similar results were obtained in several previous research studies. On the one hand, a large percentage of healthcare professionals reported high scores in at least one of the MBI domains [24]. On the other hand, there is also evidence of high levels of emotional exhaustion and cynicism, with higher burnout among frontline staff [46]. Another large-scale study reports moderate levels of emotional exhaustion and cynicism among nurses in several countries [47].

There was already evidence that healthcare professionals are among the public servants with the worst levels of resilience and quality of life [48]. This same reality was found in our research, where participants showed slightly below levels of resilience and below-average levels in almost all dimensions of HRQoL (H1b). There is evidence in different studies of a tendency for mental health to worsen in professionals who have worked directly with COVID patients compared to those who treated other patients [31,35,47,49,50], with higher levels of depression, anxiety, and stress also found among these professionals.

Secondly, we tested how healthcare professionals' resilience was related to their levels of depression, anxiety, stress, burnout, and HRQoL at T1 when the existence of the fourth wave of the pandemic in Spain was already known. The results allow us to confirm H2a and H2b; that is, the higher the level of resilience, the lower the depression, anxiety, stress, and burnout, and the better the HRQoL. Similar results were found in other research conducted with Spanish [14], South Korean [51], and Philippines participants [50] that also shows that high levels of resilience protect against experiencing depression, anxiety, stress, or burnout [14,51,52], associating resilience with lower psychological distress [53]. Although there is little evidence of the relationship between resilience and HRQoL in healthcare employees in the context of the COVID-19 pandemic, the literature has previously reported that resilience is a positive predictor of quality of life [54–58], which supports the results obtained in our research.

As suggested by the Dual Spiral Model of Occupational Health [19], resilience would act as a personal resource that would affect the perception of job demands and job resources, positively affecting the occupational health of healthcare professionals. The greater ability to adapt and cope with adversity in healthcare professionals has been investigated previously, confirming that work engagement, autonomy, and independence at work are related to resilience [59]. This also supports the results related to research objective three, which was to test whether levels of depression, anxiety, stress, burnout, resilience, and HRQoL improved at T2 compared to T1.

Specifically, the results showed that healthcare professionals showed lower levels of depression, stress, and emotional exhaustion (H3a) and higher levels of resilience in some dimensions of HRQoL, such as social functioning, energy/vitality, or mental health (H3b). These results were expected given the context in which the research was conducted, a first assessment was conducted when COVID-19 cases were increasing due to the fourth wave of the virus in Spain, and a second assessment, five weeks later, when cases were declining [60] and a vaccination campaign was being implemented by the Spanish government [61]. These findings provide evidence that medical teams are



also a vulnerable mental health population, despite the fact that research often focuses more attention on the people they treat. They are a clear example of miss-recognition or dis-recognition of the difficulties/pain/trauma also experienced by other types of communities in different contexts [62].

Finally, another objective was to test whether COVID-19 influenced the occupational health evolution of healthcare professionals. The results showed that those employees who had had the disease in T1 had improved their levels of depression, anxiety, emotional exhaustion, and social functioning compared to those who had not had the virus or were unaware of it. These results are not consistent with those obtained in previous studies. The literature reports that those who have passed the illness with mild pneumonia criteria have a deterioration in health-related quality of life [63]. In this line, there are data on low scores in the physical role, emotional role, and social functioning while maintaining high scores in general health, energy/vitality, and mental health [64]. Another study conducted with Bangladeshi participants describes that doctors who had symptoms compatible with the disease had higher levels of depression or anxiety [65]. There is also evidence of a positive association between experiencing burnout and having tested positive for COVID-19 [66].

Although not consistent with previous studies, our results can be interpreted from the Dual Spiral Model of Occupational Health [19]. It is possible that if healthcare employees have had the disease, they perceive lower job demands (i.e., less fear, less time pressure, less emotional overload) and greater personal resources (i.e., greater control), which would allow them to experience lower levels of psychosocial harms such as depression and stress, and higher levels of positive experiences such as social functioning. Previous studies have reported that almost half of healthcare professionals experienced fear of being infected by COVID-19, which increased their burnout levels [67].

Overall, the emergence of COVID-19, which meant that the treatment of illness and the management of hospitals became an issue of national/global importance, had the main consequence that the importance of medical teams was much more recognized and received more attention in the media. This has led to an important change in the recognition, meaning, and importance of their professions for the population, which may have contributed to the improvement in their mental health, as observed in this study, and also observed in other types of populations [68].

In addition, there are two other factors that help to better understand the results obtained. On the one hand, none of the participants in our study developed severe symptoms from COVID-19. In this sense, severity has been related in previous studies with a psychological impact on healthcare professionals [69] and also in the general population [70–72], showing higher levels of depression and anxiety in those whose symptomatology had been worse (i.e., long COVID). In this sense, the severity of the illness has been considered a risk factor associated with anxiety [73].

On the other hand, in our study, we assessed the effect that having passed the virus before the first assessment had on the mental health of employees five weeks later. Two of the job demands that have most affected the perceived stress of healthcare professionals during the pandemic are, on the one hand, the perceived risk of infection [33] and, on the other hand, the monitoring of protective measures to prevent the spread of the virus (e.g., hygiene behaviors) [74]. It is to be expected, therefore, that those professionals who had passed COVID-19 would have less fear of contagion [33,75] and would perceive fewer of these types of job demands, improving their mental health indicators. In addition, the second assessment of the participants coincided with a vaccination campaign promoted by the Spanish government's Ministry of Health [61], which may have further increased the perception of security against the virus.

Despite their psychological improvement, having passed the virus may lead to a relaxation of prevention measures, which could increase the likelihood of future reinfections. It is therefore recommended that hospitals establish suitable communication channels so that frontline employees can be kept well informed, which previous research has shown helps them to maintain adequate protective measures [76].

### *Limitations and Future Research*

The results of this study should be interpreted considering some limitations. Firstly, only 65 healthcare professionals participated in the two evaluations. There was, therefore, a rather large experimental mortality (104 people did not respond to the second assessment). Future similar studies should increase the sample to verify the results obtained in our research and to be able to generalize the data. Moreover, the sample was largely composed of women, so the results should be explored in samples with a greater representation of men.

Another limitation of the research is that we did not directly assess job demands and job resources, so their mediating effect between resilience and the experiences assessed could only be hypothesized. In future studies, it would be advisable to also assess demands such as work overload, role conflict, or role ambiguity, which are very common demands among healthcare professionals [77], as well as job resources such as social support received from colleagues or supervisors, which is often related to better occupational health [78].

Moreover, we did not put forward any hypothesis comparing different professional categories when it is possible that depending on the type of work carried out by the healthcare professionals, the effect of resilience, of the context in the two evaluations carried out or of COVID-19, was not the same. Future studies should attempt to collect a larger number of participants in each category to make statistically representative comparisons. However, there are no studies based on Spanish healthcare professionals that include such diverse professional categories, which may also be a strength of this study.

Finally, future research could test the effect of interventions aimed at increasing the perceived importance of health professionals on their mental health. In other professions, such as the military, such methodologies have been shown to be effective in improving mental health and resilience in the army [68].

### **5. Conclusions**

This research has highlighted the powerful psychosocial impact that the COVID-19 pandemic has had, and continues to have, on healthcare professionals in Spain. High levels of depression, anxiety, stress, and burnout were found, as well as slightly low levels of resilience and low levels of HRQoL. Evidence has also been obtained of the positive effect of resilience on the different variables evaluated.

Furthermore, the research has shown that not only personal resources can improve the occupational health of healthcare professionals but also that the context in which they carry out their work and having contracted and overcome COVID-19 also have a determining influence on their perception. Thus, it seems that when infections are declining and professionals have overcome the disease, their levels of depression and stress improve, and their levels of some dimensions of HRQoL, such as social functioning, increase.

This paper invites to reinforce the existing literature on the mental health of the population during the pandemic, that of healthcare professionals who have been closely involved in these circumstances. Moreover, it should serve as an impetus for further research focused on exploring the medium and long-term consequences of the already evident impact of the pandemic on them.

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**Data Availability Statement:** The data presented in the study are available from [https://osf.io/wq293/?view\\_only=5ba8b7306330450ab26de1dc0daf9a81](https://osf.io/wq293/?view_only=5ba8b7306330450ab26de1dc0daf9a81) (accessed on 7 September 2022).

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