

RESEARCH

Resilience and anxiety among intensive care unit professionals during the COVID-19 pandemic

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Abstract

Background: The situation of the COVID-19 global pandemic has generated an unprecedented state of emergency worldwide that has had a psychological impact on health care workers working in the ICU and this has created the need to implement different psychological strategies.

Aim: This study explores (a) the prevalence of symptoms associated with generalized anxiety disorder (GAD), (b) the relationship between GAD symptoms and resilience skills, and (c) which of the resilience skills were associated with a probable GAD among the ICU professionals during the COVID-19 pandemic.

Study design: Cross-sectional survey design.

Methods: We explored anxiety and resilience in 448 ICU health care workers using an online survey.

Results: The participants showed high resilience levels and more than half of them presented symptoms consistent with a possible diagnosis of GAD. The GAD symptoms were more prevalent among women, nursing assistants, interns, staff who worked on rotation and health care workers who had to attend to more than 20 COVID patients. Significant negative correlations between resilience skills and GAD symptoms were found. The multiple regression analysis showed that resilience skills contribute to 14.4% of the variance for GAD symptoms. The binary logistic regression showed that the only skill that had a significant and negative predictive effect was “I usually take things in my stride” (OR = 0.774, 95% CI 0.67, 0.88; $P = .000$). This ability was the differentiating skill between professionals who equal or exceed the cut-off point established for the diagnosis of a probable GAD regarding those who do not.

Conclusion: ICU professionals developed symptoms consistent with a possible diagnosis of GAD due to their exposure to extremely stressful circumstances. However, resilience skills acted as a protective factor.

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Relevance to clinical practice: The importance of incorporating programmes that mitigate these psychological effects and to promote adaptive coping styles during pandemics has become a need after what ICU professionals have gone through.

KEYWORDS

anxiety, COVID-19, health care professionals, intensive care unit, resilience

1 | BACKGROUND

In December of 2019, an acute respiratory illness with unknown aetiology, named coronavirus disease (COVID-19),¹ occurred in Wuhan, China² and the World Health Organization officially declared this disease as a pandemic in March 2020,³ causing the worst public health crisis in a generation.⁴ Spain had one of the highest burdens of COVID-19 worldwide and hospitals created emergency committees that included using containment measures, the opening of hospital rooms and intensive care units, the reorganization of psychiatric wards, and even the use of hotels as hospital facilities.⁵

Health workers throughout the entire world were more likely to come in contact with COVID-19 carriers, putting them at a greater risk of contracting the infection and spreading it to others.^{5,6} They were stretched to the point of exhaustion. Hospitals' intensive care units became saturated within a few weeks, and other departments had to be reorganized to receive COVID-19 patients. The critical care community had to increase their capacity by expanding into other areas, upscaling the number of ICU beds and necessary resources required to treat these patients as early as possible, increase labour resources, and enhance infection control practices.^{7,8}

The psychological pressure on health care professionals in the face of the catastrophic health emergency and the high transmission rates has caused great psychological distress.^{6,9-11} Furthermore, dealing with traumatic patient experiences and the unexpected loss of family, friends and colleagues has led these professionals to exhibit high rates of psychiatric morbidity and several mental health problems.^{6,12-14} The disruption of routine clinical practice, the sense of loss of control and the subsequent fear of potential destabilization of the health services, has provoked post-traumatic stress disorder (PTSD), generalized anxiety disorder (GAD), depression and stress disorders among health care professionals,^{5-6,10,15-16} a feature which is not uncommon of epidemics.¹⁷

However, not all subjects exposed to traumatic events develop psychological problems or mental disorders.¹⁸ Along with vulnerability factors, we find personality and external factors such as social and interpersonal resources that act as protective factors like optimism, social support and resilience.¹⁹⁻²⁰ Resilience is an individual's capacity to deal with significant adversity and to quickly recover and it has been shown to help to protect individuals against mental illness.²¹⁻²² It is the

What is known about the topic

- The unprecedented public health emergency crisis of the COVID-19 pandemic has affected intensive care unit professionals revealing a high prevalence of psychological impact causing stress, depression and anxiety.
- This pandemic, unlike any prior disaster, has been a traumatic experience for health care workers and especially for ICU professionals, causing several psychological consequences.
- Along with the negative impact, some people use protective factors, such as resilience, to cope with psychological trauma and reduce mental health problems.

What this paper adds

- In this study, the prevalence of symptoms consistent with a possible diagnosis of generalized anxiety disorder confirms the psychological impact and the challenge that health care professionals faced during the pandemic.
- Anxiety symptoms were more prevalent among women, nursing assistants, interns, staff who worked on rotation and health care workers who had to attend to more than 20 COVID patients.
- Resilience skills were protective factors against anxiety, and the ability to take things in stride has been shown to be the most protective skill against the development of anxiety.
- Health care professionals, not only from ICU departments, should be able to learn strategies that will reduce anxiety and promote resilience.
- The organizations and institutions should provide psychological support for health care workers during emergency crises.
- Strengthening the mental health conditions of health care workers and establish protocols may help to face this type of emergency situations.
- Future research should be aimed at strengthening the mental health conditions of health care workers and establishing protocols for facing this type of emergency situations.

ability to bounce back or cope successfully despite adverse circumstances and has been referred to as a dynamic process of positive adaptation to stress, involving dynamic interactions between personal and environmental factors and resources.²³ Researchers have identified resilience as a protective factor against the development of PTSD after life challenges, exposure to a serious stressor and disasters.²⁴

In the face of COVID-19, there was a need to cope with ongoing stressors whilst managing to keep psychological distress at a minimum. This pandemic is unlike any prior disaster and has been a traumatic experience for health care workers and especially for ICU professionals, causing psychological disorders.²⁵⁻²⁶ But along with the negative impact, some people are able to take advantage of protective factors, such as resilience, to cope with psychological trauma and reduce mental health problems.²⁴

Due to the interest in studying the psychological impact caused by COVID-19 and also to discover the protective factors for ICU professionals, this study aimed to explore the following: (a) the prevalence of symptoms associated with GAD; (b) the relationship between GAD symptoms and resilience skills; and (c) which of the resilience skills were associated with a probable GAD among the ICU professionals during the COVID-19 pandemic.

2 | METHODS

2.1 | Design

A cross-sectional survey design was used.

2.2 | Participant recruitment

Data collection was performed using an online electronic form designed for this purpose by the research team. On the first sheet of the questionnaire the aim of the study was presented, along with the informed consent form, which the participant had to sign. A non-probabilistic convenience sampling method was followed and the link to the questionnaires was sent to health care professionals within the Spanish health system who had been in contact with COVID-19 patients. The link also circulated on social media (Facebook, Twitter, LinkedIn) and emails were sent to ICU health professionals from hospitals all over the country, when these were available on the website.

For the current study, doctors, nurses and nursing assistants who had worked in the reanimation and critical care units between the months of March and May of 2020 were invited to participate. In this time, Spain was facing the first wave of the pandemic. The study was approved by the Ethics and clinical research committee of the hospital (Reference: 2088) and all participants signed the informed consent form before starting the questionnaire. The current study is supported by the Spanish Society for Intensive Nursing and Coronary Units.

2.3 | Measures/materials

General personal information

Participants were asked general personal information such as age, gender, education level, marital status, professional category, working status within the hospital, number of COVID patients they were attending, whether they had been moved to the ICU or worked there permanently, ratio of patient/health care worker, workload during the pandemic and average working hours per week.

The 14-Item *Resilience Scale* (RS-14) (Spanish version)²⁷ was administered to assess the degree of individual resilience, which was considered as a positive personality characteristic that allows the individual to adapt to adverse situations. It measures two factors: personal competence (self-confidence, independence, decision, ingenuity and perseverance) and acceptance of oneself and life (adaptability, balance, flexibility and a stable life perspective). It is scored using a Likert-type response scale with seven alternatives, ranging from 1 (totally disagree) to 7 (totally agree). The original scale²⁸ allows the classification of resilience into five progressive levels: very high resilience (range 98-82), high resilience (range 81-64), normal resilience (range 63-49), low resilience (range 48-31) and very low resilience (range 30-14). In the present sample, Cronbach's alpha was as follows: total scale was .94, personal competence was .93 and acceptance of oneself and life was .75.

The Spanish version of the *generalized anxiety disorder screener* (GAD-7)²⁹ was administered. It assesses anxiety symptoms that are scored using a four-point Likert scale from 0 "Not at all" to 3 "Nearly every day" generating a total score ranging from 0 to 21. The maximum score is 21 and the cut-off point, which corresponds to the Diagnostic and Statistical Manual of Mental Disorders algorithm, is 8, although a score greater than or equal to 9 and even 10 are better indicators of anxiety disorders. This instrument has been frequently used and validated as a brief screening tool among various populations for anxiety.³⁰ In the present sample Cronbach's alpha was .91.

2.4 | Statistical analysis

We used the SPSS 22 Statistics Package. Descriptive analyses were carried out (based on the level of measurement of the variables, measures of central tendency, dispersion of continuous variables, and frequency and percentage of categorical variables), along with internal consistency analyses (alpha de Cronbach). Means comparison analyses were performed (t tests and analysis of variances) as well as Pearson's correlations. Afterwards, taking into account the exploratory purposes of our study, a multiple regression analysis was performed with the total score of GAD as the dependent variable and the different items from the resilience scale as predictive variables.

Finally, a binary logistic regression was performed to analyse the predictive influence of resilience skills on a possible GAD diagnosis according to the most critical cut-off point, according to the theory (scores ≥ 10) (yes/no). The level of significance was set at $P \leq .05$. In

every case, the inclusion criteria for the variables in the multivariate analysis were of P (Wald) $< .20$ in the univariate regressions.³¹ Potentially related factors at $P < .20$ were included in the multivariate analysis. Then, BSTEP (LR) (forward stepwise logistic regression with the Likelihood ratio test) was combined, and the Hosmer and Lemeshow³¹ good fit test was applied.

3 | RESULTS

3.1 | Sample characteristics

A total of 448 ICU professionals who had worked in different hospitals from Spain participated in this study. In relation to the gender distribution of the sample, 84.8% were women ($n = 380$) and 15.2% were men ($n = 68$). The sample was mostly composed by nurses (68.8%, $n = 308$), 18.1% ($n = 81$) were nursing assistants and 13.2% ($n = 59$) were physicians. In relation to marital status, 32.1% ($n = 144$) were single, 61.2% ($n = 274$) lived with a partner and 6.7% ($n = 30$) were separated/divorced. Regarding their working status within the hospital, 49.6% ($n = 222$) worked permanently there, 21% ($n = 94$) were interns and 29.5% ($n = 132$) were temporary. Of them, 13.6% ($n = 61$) had fixed shifts, 37.7% ($n = 169$) rotated their shifts, another 10% ($n = 45$) did both shifts and on-calls, and the remaining 38.6% ($n = 173$) had 12/24-hour shifts.

The majority, 66.3% ($n = 297$), regularly worked in the ICU, and the remaining 33.7% ($n = 151$) were specifically sent there due to the

pandemic. A vast majority, 94.9% ($n = 425$), of the participants reported a higher than usual workload. The average hours of work per week was 45.01 (SD = 10.86), ranging from 20 to 100.

3.2 | Associations between socio-demographic factors and anxiety symptoms

The health care professionals from our sample presented a mean GAD-7 score of 10.96 (SD = 5.60), ranging between 0 and 21. Taking a score of 10 as cut-off, it was found that 58.7% ($n = 263$) presented symptoms consistent with a possible diagnosis of GAD. In relation to the socio-demographic profile, statistically significant negative correlations were found between GAD-7 and age, experience in the same position at work and average hours during the work week (see Table 1).

Statistically significant differences were found in relation to the position at work, with nursing assistants scoring higher than physicians and nurses in the GAD-7. Regarding working status at the hospital, statistically significant differences were found, finding higher scores for interns than for permanent workers. Statistically significant differences were also found in relation to shifts, with higher scores among staff who worked on rotation in comparison to others working shifts + oncall, and 12/24 shifts. In relation to the number of COVID patients under their care, significantly higher scores were found among health care workers who had to attend to more than 20 COVID patients in comparison to those who had fewer (See Table 1).

TABLE 1 Socio-demographic and work status differences on GAD-7

	<i>n</i>	%	Mean	SD	<i>t/F Post hoc (Cohen's d)</i>	<i>R</i> ²
Age			39.69	10.55		-.21***
Experience in the same position			9.78	9.21		-.18***
Average working hours per week			45.01	10.86		-.13**
<i>Work position</i>						
Physician (1)	59	13.16%	8.22	5.30	10.074***	
Nurse (2)	308	68.75%	11.12	5.40	1/2 days = -.54	
Nursing assistant (3)	81	18.08%	12.35	5.95	1/3 days = -.73	
<i>Work status in hospital</i>						
Permanent (1)	222	49.55%	10.21	5.31	4.88*	
Intern (2)	94	20.98%	12.14	6.09	1/2 days = -.33	
Temporary (3)	132	29.46%	11.37	5.58		
<i>Shifts</i>						
Fixed (1)	61	13.61%	11.09	4.75	7.556***	
Rotation (2)	169	37.72%	12.42	5.42	2/3 days = .57	
Shifts + oncall (3)	45	10.04%	9.20	5.83	2/4 days = .44	
12/24 shifts (4)	173	38.61%	9.94	5.69		
<i>Number of COVID patients</i>						
More than 20 (1)	265	59.15%	11.41	5.68	-2.048*	
Less than 20 (2)	183	40.84%	10.31	5.44	<i>d</i> = .20	

* $P < .05$. ** $P < .01$. *** $P < .001$.

TABLE 2 Means and SD of resilience skills

	Mean	SD	Range	R ² GAD-7
Total resilience	77.82	15.35	14-98	-.101*
Personal competence	62.12	12.09	11-77	-.084
Acceptance of oneself and life	15.70	3.72	3-21	-.141**
I usually manage one way or another	5.83	1.33	1-7	-.064
I feel proud that I have accomplished things in life	5.97	1.31	1-7	-.031
I usually take things in stride	5.02	1.55	1-7	-.223***
I'm someone with an adequate self-esteem	5.04	1.58	1-7	-.149**
I feel that I can handle many things at a time	5.17	1.45	1-7	-.059
I am determined	5.36	1.40	1-7	-.069
I can get through difficult times because I've experienced difficulty before	4.97	1.63	1-7	-.104*
I have self-discipline	5.62	1.43	1-7	.039
I remain interested in things	6.13	1.21	1-7	.118*
I can usually find something to laugh about	5.70	1.43	1-7	-.082
My belief in myself gets me through hard times	5.26	1.54	1-7	-.172***
In an emergency, I'm someone people can generally rely on	5.83	1.39	1-7	-.013
My life has meaning	6.01	1.41	1-7	-.111*
When I'm in a difficult situation, I can usually find my way out of it	5.85	1.24	1-7	-.101*

Note: Correlations between GAD-7 and resilience skills.

* $P < .05$. ** $P < .01$. *** $P < .001$.

TABLE 3 Multiple regression predicting symptoms consistent with possible general anxiety disorder^a from resilience skills

	R ²	F	B	B [95%CI]
Step 1				
I usually take things in my stride	.050	23.356	-.223***	-.807 [-1.134, -0.47]
Step 2				
I usually take things in my stride	.107	26.669	-.339***	1.23 [0.77, 1.68]
I remain interested in things			.266***	
Step 3				
I usually take things in my stride	.132	22.48	-.264***	
I remain interested in things			.330***	-0.71 [-1.10, -0.31]
My belief in myself gets me through hard times			-.196***	
Step 4				
I usually take things in my stride	.144	18.630	-.250***	-0.59 [-1.05, -0.13]
I remain interested in things			.389***	
My belief in myself gets me through hard times			-.150**	
My life has meaning			-.149*	

^aData reported are the resilience skills entered into the regression equation.

* $P < .05$. ** $P < .01$. *** $P < .001$.

Regarding gender, statistically significant differences ($t = -4.922$, $P < .001$, Cohen's $d = .65$) were found, with women presenting higher scores; it was found that 61.8% of the women presented symptoms consistent with a possible diagnosis of GAD (according to the cut-off point for a possible diagnosis) versus

41.2% of the men (chi-square = 10.161, $P = .001$). No statistically significant differences were found regarding marital status (having or not a partner) ($t = .684$, $P = .494$), educational level (chi-square = 3.614, $P = .164$), belonging to the ICU staff, having been sent there specifically because of COVID ($t = -.832$, $gI = 446$,

	B	SE	Wald	P	OR (Exp ^b)	[95% CI]
I usually take things in my stride	-.257	.067	14.727	<.001	.774	[0.67, 0.88]

TABLE 4 Logistic regressions predicting symptoms consistent with possible GAD diagnoses from resilience skills^a

^aData reported are the ones entered in the regression equation. Items 9, 11 and 13 remained out of the equation.

^bOmnibus tests of model coefficients: $\chi^2 = 5.067$, $P < .001$, $df = 4$; good fit test: $P = .280$.

$P = .406$) or due to patient ratio (higher than usual/same as usual) ($t = -1.146$, $gI = 446$, $P = .252$).

3.3 | Scores and distribution of resilience. Associations between resilience and anxiety symptoms

As shown in Table 2, resilience shows an average score of 77.82, which according to the original scale classification²⁸ corresponds to high resilience levels. Specifically, the percentages in our sample according to this classification²⁸ would be the following: very high resilience ($n = 213$, 47.5%), high resilience ($n = 171$, 38.2%), normal resilience ($n = 38$, 8.5%), low resilience ($n = 19$, 4.2%) and very low resilience ($n = 7$, 1.6%). A clear asymmetry of the distribution towards the high levels of resilience can be observed, coinciding with the results found in the Spanish validation of the scale,²⁷ whose mean scores also correspond to high levels of resilience, not supporting the results of the original classification.²⁸

Regarding the correlations between anxiety symptoms and resilience, GAD-7 scores correlate significant and negatively with global resilience and with acceptance of oneself and life. No significant correlations were found for personal competence. Regarding each of the skills independently, significant correlations were found for seven of them. All these correlations were negative, except for “I remain interested in things” (see Table 2).

Afterwards, based on the observed correlations, and including them as independent variables, we conducted a multiple regression analysis (forward step model) with the total score of the GAD-7 as the dependent variable. The final model showed a total of four resilience skills that contribute to 14.4% of the variance for a possible generalized anxiety disorder. These four skills refer to being able to take things in stride, to belief in oneself through hard times, to believe life has meaning and to take interest in things, the latter is the only one with a positive beta value (Table 3).

Finally, aiming to explore the predictive variables for symptoms consistent with possible GAD, and according to the clinical cut-off (scores ≥ 10), a binary logistic regression analysis was performed. The results showed that the only skill that had a significant and negative predictive effect was “I usually take things in my stride” (OR = 0.774, 95% CI 0.67, 0.88; $P = .000$) (see Table 4).

4 | DISCUSSION

The emerging literature of the psychological impact on health care workers during the COVID-19 outbreak has revealed a high incidence of psychological disorders among medical staff.^{26,32} In the present study, we found that 58.7% of the health professionals presented symptoms consistent with possible GAD. Systematic reviews⁶ and multicentre studies¹⁰ show the impact that this pandemic has had on health professionals, contributing to significantly increase levels of anxiety and depression. However, previous studies also agree that these levels, despite being significantly high, are not as high as those found in the general population during the pandemic.^{6,10} A possible explanation for this fact could be the high levels of resilience found in health care workers, as our results have shown and indicated by previous studies that additionally reveal that physicians exhibited higher levels of resilience than the general working population.³³

In Spain, the studies carried out are consistent with our findings, where health care professionals present percentages of anxiety that affect between the 32 and 58% of the workers during the pandemic.^{5,34} Lázaro et al³⁵ found that although the pandemic has had a global impact, the consequences have been different depending on the country, and in Spain, in particular, health professionals had to face, in a short period of time, a working environment with overcrowded hospitals, an increase in mortality, contradictory or non-existent protocols and a lack of individual protection equipment. These conditions along with health emergencies and death of their patients led to high levels of anxiety and stress.³⁵ Staff not only had to face caring for patients with a contagious and life-threatening illness, they also experienced several stressful factors that could increase anxiety in the face of an overwhelming situation, and in most cases whilst having limited resources.³⁵ In addition, the increased risk of exposure to the virus produced fear among health care workers, believing they may contract COVID-19 themselves.⁴

In this study, women showed more anxiety than men; specifically, 61.8% of women presented a diagnosis versus the 41.2% in men. Previous studies have revealed that women working in health care are prone to develop depression and anxiety, finding that female respondents show a higher risk of psychological distress when compared with males.^{5,36} Some studies have reported previously that females are at a greater risk for developing mental illness compared with men.⁵

On the other hand, our findings show that nursing assistants had more symptoms consistent with possible GAD in comparison to physicians and nurses. A recent study assessing the mental health of staff in a hospital attending COVID-19 patients also reported that nurses

had a higher incidence of anxiety than physicians.³² Previous studies have also reported higher levels of psychological and psychiatric morbidity, like anxiety, in nursing assistants in Spain,³⁵⁻³⁶ Brazil³⁷ and Nigeria.³⁸ In a similar manner, other studies have found that ICU nurses in the United Kingdom display a greater incidence of being at risk of psychiatric morbidity than doctors.³⁹

In accordance with our results, the profile of professionals with symptoms consistent with a possible diagnosis of GAD are those who are younger, with less work experience, who work fewer hours, who have temporary jobs, who work on rotation and who have to care for more than 20 COVID patients. In this same line, Erquicia et al³⁴ and Xing et al¹² also found that elderly participants had a lower risk of developing anxiety compared with younger population. They stated that although the elderly were at higher risk of developing COVID-19, younger participants might lack the knowledge about possible complications, faith or submission to mortality. Previous studies have reported that anxiety decreases with age, that the elderly are less likely to be affected by stressors and are more likely to react to stressors in a more adaptive manner than younger adults.⁴⁰

Regarding working hours, it is interesting to have found that there is a negative association between hours per week and symptoms consistent with a possible diagnosis of GAD. These results seem to contradict the classical theories of stress, as they suggest that increased workloads are a relevant stressor. Specifically, it has been found that participants who work more than 40 hours per week report experiencing higher levels of stressors and that working 40 hours or more may leave little time for actual recovery from work.³⁹ Nevertheless, these results have to be interpreted in light of the idiosyncratic health care situation created by the COVID-19 pandemic. We cannot forget that a considerably high percentage of health care workers were moved to the ICU and hired specifically for the COVID pandemic, and these are probably the workers who work the fewest hours per week. This could explain the association of other variables, such as lack of experience on ICU wards.

The participants in the current study obtained high scores in resilience. Previous literature has emphasized that, during emergencies, many people are able to make use of internal resources, which allow them to maintain mental health.²⁴ Regarding its relationship with GAD, it seems as though certain factors are protective of developing the disorder. Factors such as accepting oneself and life, being able to take things in stride (keep calm), to have adequate self-esteem, to get through difficult times, to be confident, to believe life has meaning and that difficult situations can be faced are all protective factors against anxiety. These variables are all associated to self-regulation and acceptance of internal experiences,⁴¹ which in this case seem to protect against negative stress responses.¹¹ In particular, our findings suggest that the ability to take things in stride is the most relevant skill in predicting a possible GAD diagnosis. This is a relevant result because normally the psychological reactions in handling emergency situations are composed of negative symptoms and emotions; but if the person can cope adaptively and self-regulate, they can develop habituation, acceptance and calm.¹²

In this context, to remain interested in things should be highlighted, as it is predictive of a possible diagnosis of GAD. A possible explanation could be that this interest in things could lead to negative emotions, fears and worries due to the unexpectedness of the emergency situation, the sensation of learned helplessness and the feelings generated due to the suffering and isolation of the patients. This concept has been widely studied and it is known as compassion fatigue, it occurs when the professionals are over-involved with patients, which can interfere with their objectivity, efficiency and their emotional balance.⁴² It generates a state of exhaustion and dysfunction that emerges as a result of prolonged, intense and repeated exposure to disease and suffering.⁴³

5 | LIMITATIONS

There are different studies that explore the prevalence of depression and anxiety during COVID-19 in health care workers, but to our knowledge there are no studies that explore anxiety and resilience among ICU professionals, something that limits the comparison of our results with similar studies. Nevertheless, there are some limitations that have to be considered. First, the sample size subgroup was small, which limits the generalizability of the findings, although the Spanish geography is represented. Second, although the online administration increases access to the sample, it is also limited by aspects such as sampling bias (being able to connect to the internet and having some computer skills). The lack of information on true response rate could possibly reflect a self-selection bias, so the data should be interpreted with caution. Third, assessments were based using self-reporting instruments that may show desirability biases and may lead, if not interpreted with caution, to an over-estimation of prevalence rates as compared with interviews administered by clinicians. Fourth, the cross-sectional nature of the design does not enable us to establish causal relationships between the variables studied. To better understand the impact of COVID-19, studies should integrate longitudinal and prospective designs that could identify, through relatively sophisticated data analytic approaches (eg, latent growth mixture modelling), more accurate assessments of long-term psychological adjustment. In fact, our future studies will aim to determine the effect of time on the results.

6 | CONCLUSIONS

This study confirmed the presence of vulnerability and protective factors in response to COVID-19 in a sample of ICU professionals. On the one hand, the prevalence of GAD symptoms confirms the psychological impact and the challenge that health care professionals faced during the pandemic. Although health care professionals showed high levels of resilience, more than half of them presented a possible GAD. The ability to take things in stride has been shown to be the most protective skill against the development of anxiety. To remain interested in things, on the other hand, has been shown to be maladaptive in the

specific circumstances created by the COVID emergency; this could be due to the feelings among health care professionals of helplessness and the consequent development of compassion fatigue.

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AUTHOR CONTRIBUTIONS

Cecilia Peñacoba: Contributed to the conceptualization, formal analysis, supervision and reviewed the manuscript. **Lilian Velasco:** Responsible for the conceptualization and reviewed, wrote the original draft and edited the manuscript. **Patricia Catalá:** Substantially contributed to the methodology and software and original draft. **Fernanda Gil-Almagro:** Contributed to the data curation and project administration. **Fernando J. García-hedreña:** Performed the data collection and contributed to the study design. **Javier Carmona-Monge:** Designed the investigation, found the resources and reviewed the manuscript. All authors have read and approved the final manuscript.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this manuscript will be made available by the authors, without undue reservation, to any qualified researcher.

ETHICS STATEMENT

The study was approved by the Ethics and clinical research committee of the hospital (Reference: 2088) and all participants signed the informed consent form before starting the questionnaire. The current study is supported by the Spanish Society for Intensive Nursing and Coronary Units (SEEIUC).

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