



## **Trabajo de Fin de Máster**

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### **Mental health, posttraumatic growth, and protective factors in healthcare professionals during the COVID-19 pandemic**

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## Abstract

**Introduction.** After two years of the COVID-19 pandemic, healthcare workers are exhausted and show important signs of psychological impact. We aimed to assess the adverse and positive psychological consequences of working as a healthcare professional during the pandemic and explore their association with personal and professional variables. **Method.** Participants were healthcare professionals working in Spain (N = 915) and were recruited following a snowball approach in November and December 2021. We measured several work-related variables, contact with COVID-19, resilience, emotion regulation (ER), experiential avoidance, connection to nature, depression, anxiety, posttraumatic stress symptoms (PTSS), and posttraumatic growth (PTG). **Results.** 19.1% of the sample scored above the cutoff for depression, 24.8% for anxiety, and 36.3% for PTSS. Besides, 41.7% showed PTG. A total of 41% of the variance in depression can be explained by experiential avoidance, expressive suppression (ER), satisfaction with the work done, the belief that the work has not returned to the way it was before the pandemic, the perception of their own work being recognized by others, and the degree to which the work during the pandemic has been perceived as stressful. The 39% of the variance in anxiety can be explained by experiential avoidance, resilience, the belief that the work has not returned to the way it was before, the degree to which the work has been perceived as stressful, and the amount of contact with people who have experienced social/economic difficulties. The 33% of the variance in PTSD can be explained by experiential avoidance, resilience, expressive suppression (ER), whether the job was perceived as stressful and recognized by others, the amount of contact with deceased patients and with people who have experienced social/economic hardship, and the fear generated by COVID-19. In all three models, experiential avoidance is the variable with the greatest weight. As for PTG, the 14% of the variance can be explained by cognitive reappraisal (ER), experiential avoidance, relatedness with nature, resilience, whether the work has been more difficult than usual and

satisfaction with the work done, the amount of contact with deceased patients, and the fear generated by COVID-19. **Conclusion.** As a result of the long period of work during the pandemic, healthcare workers show elevated levels of psychological impact. Yet, almost half of the sample also showed PTG, which is a positive outcome deriving from the COVID-19 pandemic. The results suggest that imparting healthcare workers with coping strategies that are incompatible with experiential avoidance may lead to an enhancement of their mental health. Additionally, improving working conditions is fundamental for reducing the mental health impact of health care workers.

*Keywords:* COVID-19, Healthcare worker, Psychological impact, Post-traumatic growth, Experiential avoidance

## Resumen

**Introducción.** Tras dos años de pandemia de COVID-19, los trabajadores sanitarios están agotados y muestran signos de un importante impacto psicológico. Nuestro objetivo es evaluar las consecuencias psicológicas tanto adversas y positivas de trabajar como profesional sanitario durante la pandemia y explorar su asociación con variables personales y profesionales.

**Método.** Los participantes eran profesionales sanitarios que trabajaban en España (N = 915) y fueron reclutados a través del método de bola de nieve en noviembre y diciembre de 2021. Se evaluaron diversas variables relacionadas con el trabajo, el contacto con la COVID-19, la resiliencia, la regulación emocional (RE), la evitación experiencial, la conexión con la naturaleza, la depresión, la ansiedad, los síntomas de trastorno de estrés postraumático (TEPT) y el crecimiento postraumático (CPT). **Resultados.** El 19,1% de la muestra puntuó por encima del punto de corte para la depresión, el 24,8% para la ansiedad y el 36,3% para el TEPT. Además, el 41,7% mostró CPT. El 41% de la varianza en la depresión puede explicarse por la evitación experiencial, la supresión expresiva (RE), la satisfacción con el trabajo realizado, la

creencia de que el trabajo no ha vuelto a ser como antes de la pandemia, la percepción de que su propio trabajo es reconocido por los demás, y el grado en que el trabajo durante la pandemia ha sido percibido como estresante. El 39% de la varianza en la ansiedad puede explicarse por la evitación experiencial, la resiliencia, la creencia de que el trabajo no ha vuelto a ser como antes, el grado en que el trabajo ha sido percibido como estresante y la cantidad de contacto con personas que han experimentado dificultades sociales/económicas. El 33% de la varianza del TEPT puede explicarse por la evitación experiencial, la resiliencia, la supresión expresiva (RE), el hecho de que el trabajo haya sido percibido como estresante y reconocido por otros, la cantidad de contacto con pacientes fallecidos y con personas que han experimentado dificultades sociales/económicas, y el miedo generado por el COVID-19. En los tres modelos, la evitación experiencial es la variable con mayor peso. En cuanto al CPT, el 14% de la varianza se explica por la revalorización cognitiva (RE), la evitación experiencial, la relación con la naturaleza, la resiliencia, si el trabajo ha sido más difícil de lo habitual y la satisfacción con el trabajo realizado, la cantidad de contacto con pacientes fallecidos y el miedo generado por el COVID-19. **Conclusión.** Como resultado del largo periodo de trabajo durante la pandemia, los trabajadores sanitarios muestran elevados niveles de impacto psicológico. Sin embargo, casi la mitad de la muestra también mostró PTG, que es un resultado positivo derivado de la pandemia de COVID-19. Los resultados sugieren que dotar a los trabajadores sanitarios de estrategias de afrontamiento que sean incompatibles con la evitación de la experiencia puede conducir a una mejora de su salud mental. Además, la mejora de las condiciones de trabajo es fundamental para reducir el impacto en la salud mental de los trabajadores sanitarios.

*Palabras clave:* COVID-19, Trabajador sanitario, Impacto psicológico, Crecimiento postraumático, Evitación experiencial

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## Introduction

### **The psychological impact of the COVID-19 pandemic in Spain**

The world's population is currently living in a pandemic situation caused by the SARS-CoV-2 virus, which gives rise to the disease known as COVID-19. The virus began to spread in China in December 2019, and in March 2020, it acquired the category of pandemic (World Health Organization, 2020).

This situation has caused a high psychological impact on the population worldwide, in fact several meta-analysis have found high rates of symptoms of depression, anxiety, psychological distress, post-traumatic stress disorder, and stress in the general population throughout this pandemic in many countries. It was also found that females, people with COVID-19 infection and young adults are the groups that show the most significant impact (Arora et al., 2022; Dragioti et al., 2021; Xiong et al., 2020; Wu et al., 2021).

The first cases of COVID-19 were detected in Spain at the end of February 2020, becoming one of the most affected countries in different moments of the pandemic, such as the first wave in March-May 2020 and the second wave in September-October 2020 (Ministerio de Sanidad, 2020). Since then, we have experienced numerous waves of this disease in the country, being the sixth the last one at the time of the sample collection of our study (November 2021). We have also gone through different variants of the virus, the last one that came to Spain is the Omicron variant at the start of December 2021 (Ministerio de Sanidad, 2022).

Rodríguez-Rey, Garrido-Hernansaiz, & Collado (2020) assessed the impact of the pandemic in the Spanish population during the first stages of the outbreak, finding that 36% of the participants scored moderate to severe in posttraumatic stress symptoms, 41% reported depressive symptoms, and the 25% showed mild to severe levels of anxiety. These levels are similar to the ones found in other countries (Arora et al., 2022; Dragioti et al., 2021; Xiong et



al., 2020; Wu et al., 2021). Moreover, Planchuelo-Gómez et al. (2020) evaluated the temporal evolution of the impact of the COVID-19 disease crisis on mental health in the Spanish population during the COVID-19 lockdown (first survey in March-April 2020, second in April-May 2020). The results they obtained showed a temporal increase of stress, depression, and anxiety scores in the course of the lockdown. Factors like age, physical activity, and consumption of information about COVID-19 appear to have a significant impact on the evolution of psychological manifestations. Besides, Rodríguez-Rey, Garrido-Hernansaiz, & Collado (2020) also found that the more hours of information consumption about COVID-19, the greater mental health impact. In addition, their sample also reported to feel that COVID-19 had considerably impacted their routine and were very worried about the economic consequences of the pandemic.

Although the studies conducted soon after the pandemic was declared show well the psychological state of people in relation to the COVID-19 pandemic, it is also important to study the long-term psychological consequences of the pandemic (Jonhs et al., 2022; Wu et al., 2021). An example of how the psychological impact of the COVID-19 pandemic could evolved over time is shown in the meta-analysis of Robinson et al. (2022), who examined changes in mental health among the same group of participants in three different times (before pandemic, March-April 2020, May-July 2020). Results showed an increase in mental health symptoms soon after the outbreak of the COVID-19 pandemic, that some months later decreased and were comparable to pre-pandemic levels. An explanation of the just mentioned results is that this pattern of changes in mental health may represent an acute and normal response to an unexpected and distressing event, like the start of the COVID-19 pandemic, which was subsequently followed by a period of resilience (Palmas et al., 2020). However, following Selye's (1956) theory, when stressful situations are prolonged over time, as in the case of the COVID-19 crisis, the stress reaction can decrease due to fatigue. Hence, in the present study

we are particularly concerned about the prolonged work-related stress that the healthcare professionals are suffering because of the pandemic, and its consequences.

### **The psychological impact of the pandemic in front-line workers**

Healthcare workers are one of the groups most psychologically affected by the pandemic, as they have experienced very difficult situations, such as risk of infection, exposure to traumatic situations, increased workload, scarcity of resources, isolation to protect their loved ones, etc. (Dai et al., 2020; Xiang et al., 2020). For all of these reasons, several meta-analyses have shown medium to high rates of prevalence of depression, anxiety, stress, post-traumatic stress syndrome, psychological distress, burnout and insomnia in this population (Al Maqbali et al., 2021; Batra et al., 2020; Monteiro et al., 2021).

In the case of Spain, Rodríguez-Rey, Garrido-Hernansaiz, & Bueno-Guerra (2020) carried out a study to assess the impact of the COVID-19 on front-line workers of Spain, including healthcare workers, media professionals, grocery workers and protective service workers. The findings revealed that all groups, but protective services workers showed greater levels of psychological impact than the general population, being the healthcare professionals the most affected group. Accordingly, García-Fernández et al. (2020) found that COVID-19 has a higher impact on the mental health of the Spanish healthcare workers than on non-healthcare workers.

Numerous studies that have evaluated mental health in healthcare workers during the pandemic provide alarming data such as that the 46% of the healthcare workers in Spain have depression (Luceño-Moreno et al., 2020). Some metanalysis found medium-high levels of depression and anxiety all over the world, as well as insomnia, irritability, distress and fear, probably linked to extremely high workloads and lack of personal protective equipment (García-Iglesias et al., 2020; da Silva & Barbosa, 2021; Pappa et al., 2020). Symptoms of

posttraumatic stress within this population were also found (Luceño-Moreno et al., 2020; Rodríguez-Rey, Garrido-Hernansaiz, & Bueno-Guerra, 2020). And Mortier et al., (2021) found that 8,4% of healthcare workers referred suicidal ideation during the pandemic.

Nonetheless, despite the negative impact of the pandemic, it is also important to notice that after dealing with potentially traumatic events such as working during the pandemic, some people also report some positive consequences such as post-traumatic growth (PTG). PTG is defined as positive psychological changes experienced after dealing with a traumatic experience, specifically to the positive changes concerning the relationship with others, perception of new possibilities, personal strength, spiritual change and appreciation of life (Tedeschi et al., 2018). Although this has not been studied as much as the adverse psychological consequences, some studies have found a high prevalence of PTG in healthcare workers (Chen et al., 2021; Feingold et al., 2022).

Therefore, given the healthcare professionals increased vulnerability to suffer psychological consequences derived from the pandemic, they are going to be the population group in which we are going to focus on the present study. And as just mentioned, working during the pandemic can produce both adverse and positive psychological effects, so in the present study we will include both.

### **Relevant psychological variables that could predict psychological impact of the COVID-19 pandemic**

Different studies have focused on studying not only the psychological consequences of the pandemic, but also the variables on which this impact depends. Of these variables, because of their relevance, in the present study we are going to focus on resilience, emotion regulation, experiential avoidance and relatedness to nature.

The first variable is resilience, defined as the personal capacity to bounce-back or recover from stressful events (Smith et al., 2008). Lorente et al., (2021) evaluated the effect of stress in the mental health of some Spanish nurses at the beginning of the COVID-19 pandemic, and they found that resilience can play a mediating role in improving their mental health. There are more researchers that have assessed this variable in healthcare workers in the COVID-19 pandemic context, encountering that resilience is a personal predictor of better mental health (Barzilay et al., 2020; Luceño-Moreno et al., 2020). Taking this information into account, in this study we expect that the professionals scoring higher in resilience will show less psychological impact.

As for the associations of resilience with PTG, inconsistent results have been found in the literature: while a direct and positive relationship between these two constructs emerged in some studies (Dong et al., 2017; Gouzman et al., 2015), others found a non-existent relationship (Rodríguez-Rey and Alonso-Tapia, 2019), and others argue that the relationship between these two concepts is inverse (Tedeschi and McNally 2011; Westphal and Bonanno, 2007). In the context of COVID-19, Collazo-Castiñeira (2021) found that resilience has an inverse relationship with PTG, but this relationship was small.

The second variable that is going to be studied is emotion regulation, which is included in our research because there are many studies showing that adequate emotion regulation strategies are associated to greater quality of subjective well-being and of social relationships (Fernández-Berrocal & Extremera, 2008; Gross, Richards, & John, 2006; Leible & Snell, 2004). According to Gross (2001) there are two main strategies of emotion regulation: cognitive reappraisal and expressive suppression. Gross (2001) defined cognitive reappraisal as a form of cognitive change that requires interpreting a possibly emotion-eliciting situation in a way that transforms its emotional impact. Expressive suppression is defined as a sort of response modulation that implicates inhibiting ongoing emotion-expressive behaviour. There

are studies that investigated these variables among healthcare workers in the COVID-19 pandemic context, exposing inverse relationships between emotion regulation ability, anxiety, and depression (Lenzo et al., 2021; Wang et al., 2021). Jiang et al., (2020) found that the more expressive suppression and the less cognitive reappraisal, the greater the posttraumatic stress symptoms. Moreover, Fino et al., (2021) measured the relationship of this variable with PTG in healthcare workers during the pandemic, and their results showed an association between a higher tendency to positively reappraise events with higher levels of PTG.

The third variable we are interested in is the construct referred as experiential avoidance. It alludes to the phenomenon that takes place when an individual is reluctant to stay in contact with certain personal experience such as emotions, memories, or thoughts, and do something to modify the frequency or the form of these experiences, even if it generates behavioural damage (Hayes et al., 1996). A longitudinal study found a relationship between mental health symptoms and experiential avoidance throughout the COVID-19 pandemic in a Spanish sample, where all measures increased over time (Hernández-López et al., 2021). Another study found that experiential avoidance was the strongest predictor of stress, anxiety, depression, negative emotions, and loneliness when it came to dealing with the COVID-19 pandemic (Ferreira et al., 2021). On the other hand, Green (2011) conducted a study to evaluate if experiential avoidance acts as possible mediator of growth and distress in a sample with trauma histories. She found that experiential avoidance was negatively related to PTG, concluding that contact with private events subsequent to trauma could promote growth.

The fourth variable is relatedness with nature. Some academics have found that we are evolutionarily predisposed to profit from the contact with nature (Kellert & Wilson, 1993). Some meta-analysis have studied this variable showing results such as that immersing oneself in natural environments can be effective in reducing mental health symptoms, particularly stress and anxiety, it is also associated with an increment in positive affect (Kotera et al., 2022;

McMahan & Estes, 2015; Yao et al., 2021). Few studies have been done in the context of COVID, and those that have been conducted support that outdoor play and nature-based activities improved well-being and mental health (Jackson et al., 2021). Also, as nature interactions dropped during the lockdown, this resulted in a decrease in personal and social well-being (Colleony et al., 2022). Therefore, in this study we want to explore this variable as a potential protective variable in healthcare professionals, in whom this has not been studied.

### **Relevant sociodemographic and work-related variables that could predict psychological impact of the COVID-19 pandemic**

In addition to the variables mentioned in the previous section, we would like to establish the relationship between the mental health of the workers and some sociodemographic, and work-related variables, all in the COVID-19 pandemic context.

First, the literature showing that women have been much more psychologically affected by working during the pandemic than men is very abundant, mainly for depression and anxiety (Fang et al., 2021; Ike et al., 2021; Pappa et al., 2020; Rodríguez-Rey, Garrido-Hernansaiz, & Bueno-Guerra, 2020; Spoorthy, 2020). Furthermore, people who were not married or that haven't got children showed greater suicidal ideation and greater levels of anxiety and depression (Mortier et al., 2021; Rodríguez-Rey, Garrido-Hernansaiz, & Collado, 2020).

Regarding work-related variables in healthcare workers, the literature that reveals that nurses show poorer mental health outcomes compared with medical doctors is very ample (Fang et al., 2021; Ike et al., 2021; Kunz et al., 2021). Regarding the years of experience as healthcare professionals, it has been shown that the more years of experience, the less the psychological impact of the pandemic (García-Fernández et al., 2020; Spoorthy, 2020). Additionally, Pan et al., (2021) found that professionals with more experience working with more severely ill patients scored higher in PTG. Moreover, it seems that the professionals

working in units directly engaged with COVID-19 patients, especially when their condition is very severe (such as in the Intensive Care Unit) showed higher psychological impact (Lasalvia et al., 2021), in particular, research shows that stress and anxiety are the most affected variables by increased contact with COVID-19 patients (Danet, 2021; Matsumoto et al., 2021). Other studies found that witnessing the death of a patient due to COVID-19 was a risk factor for developing post-traumatic stress disorder (PTSD) (Mosheva et al., 2021; Rodríguez-Rey, Garrido-Hernansaiz, & Bueno-Guerra, 2020). Another very interesting variable is whether workers had to change their work unit due to COVID-19, Mortier et al., (2021) found that those who had to work in a unit different from the one where they usually worked showed more suicidal thoughts and behaviours. Lastly for work-related variables, it has been found that higher work recognition by the people in the workplace and family during the COVID-19 crisis was related to lower psychological impact, in particular lower PTSD symptoms (Rodríguez-Rey, Garrido-Hernansaiz, & Bueno-Guerra, 2020).

Besides, other variables that seems to influence mental health symptoms is receiving psychological attention and the amount of fear to the COVID-19 disease. Romero et al., (2021) found that the people who required psychological therapy and did not receive it, scored higher on stress. And the metanalysis conducted by Şimşir et al., (2020) showed that fear of COVID-19 was related to distress, anxiety, traumatic stress, and depression.

## **Objectives**

This research aims to achieve the following objectives: Firstly, to assess the negative impact of the COVID-19 pandemic on the mental health of healthcare personnel in terms of depression, anxiety and post-traumatic stress. Secondly, to assess the positive impact of the pandemic in terms of PTG. And thirdly, to know the psychological, demographic and work-related variables that are related to both negative and positive impact.

The present study differs from others that followed similar objectives in terms of the time of collection of the sample, since in ours the participants have been living in the pandemic for almost two years. As it has been mentioned before, there are studies that comment on this need for research at stages of the pandemic other than the beginning of it (Johns et al., 2022; Wu et al., 2021).

## **Materials and methods**

### **Participants**

Inclusion criteria to participate in this study were working as a healthcare professional during the COVID-19 crisis at the time of the data collection period (November 2021), living in Spain, and being at least 18 years old. These requirements were stated in the informed consent that was presented prior to the access to the questionnaire.

A total of 915 healthcare professionals filled the questionnaires. The participants age range was between 21 and 67 years old ( $M = 44.42$ ;  $SD = 11.16$ ), most of them were women (77.8%), married or cohabiting with a partner (69.2%) and had at least one child (60%). Almost all the participants worked during the first wave of the COVID-19 (93%), and most of them are nurses (39.7%) or physicians (36.8%). For further information about the participants see Table 2.

### **Instruments**

*Demographic information.* Participants facilitated their gender, age, marital status, and number of children.

*Work-related information.* Participants provided information regarding whether they were working as a healthcare professional during the first wave of the COVID-19 crisis, their position (e.g., nurse, physician, nursing assistant), years of experience, and the unit where they usually work (e.g., primary care, Intensive Unit Care, hospital emergencies). They also



provided information about the population group they work with (adults, children, or both) and whether they had to change their work unit because of the pandemic.

*Contact with the COVID-19 in the working environment.* Participants indicated the degree to which they have had contact with: (1) People who have experienced social or economic difficulties as a result of COVID-19, (2) Patients with COVID-19, (3) Critical patients with COVID-19, (4) Patients who have died of COVID-19, and (5) Relatives of very critical or deceased COVID-19 patients. They were asked to use a scale ranging from 1 (I've had no contact, or I've had some isolated contact) to 5 (I've had daily contact).

*Experience of the pandemic in the working environment.* Respondents answered questions about the following: (1) The extent to which they think their work has been more difficult than usual during the COVID-19 pandemic, (2) The extent to which they think their work has returned to how it was before, (3) How stressful they consider their work being during the pandemic, (4) The extent to which they felt that their work has been recognized during the pandemic, (5) The extent to which they feel satisfied with the work they have done during the pandemic, and (6) If they have received psychological treatment at any point since the COVID-19 pandemic started.

*COVID-19 information.* Participants provided information about whether they had been infected with COVID-19 and the symptoms they got. They were also asked about their fear of COVID-19 at the present time (how scary is the COVID-19 for you right now?), using a scale ranging from 1 (very little or no fear) to 5 (it makes me feel very afraid).

*Brief Resilience Scale (BRS; Smith et al., 2008).* It is a 6-item self-report scale that measures resilience defined as the personal capacity to recover from stressful events (Smith et al., 2008). The response format encompasses a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). It is a one-factor scale, where a higher score indicates greater resilience.

This study uses the Spanish version validated by Rodríguez-Rey et al., (2016), which showed good internal consistency in the original study ( $\alpha = 0.83$ ) and in the current study ( $\alpha = 0.83$ ).

*Emotion Regulation Questionnaire* (ERQ; Gross and John, 2003). The ERQ is a two-factor self-report scale comprising 10 items, which are rated on a scale from 1 (strongly disagree) to 7 (strongly agree). It evaluates two typical emotion regulation strategies cognitive reappraisal and expressive suppression. In the present study we used the Spanish adaptation of Cabello et al., (2013), which obtained acceptable internal consistency for the two subscales ( $\alpha = 0.75$  for suppression;  $\alpha = 0.79$  for reappraisal). Good internal consistency was also obtained in the current study ( $\alpha = 0.82$  for suppression;  $\alpha = 0.80$  for reappraisal).

*The Acceptance and Action Questionnaire* (AAQ-II; Bond et al., 2011). The AAQ-II is a one-factor instrument to evaluate experiential avoidance. It is the second version of the original AAQ of Hayes et al., (2004) and comprised 7 items which are answered by using a 7-point Likert scale (1=never true; 7=always true). Higher scores mean greater levels of psychological inflexibility. In this study we used the Spanish translation by Ruiz et al. (2013). The internal consistency of its scores was adequate in the Spanish validation study (between  $\alpha = 0.75$  and  $\alpha = 0.93$ ) and is excellent in the current study ( $\alpha = 0.92$ ).

*Nature relatedness scale* (NRS; Larson et al., 2018). It is a shorter version of the original NRS developed by Nisbet et al. (2009). This version has two subscales, each formed by three items: The first three represents the NR-Experience (physical familiarity and comfort with the natural world); and the last three items represents the NR-Self (personal connection to and internalized identification with nature). However, an exploratory factor analysis was carried out, which resulted in a single factor, therefore we are going to consider the NRS as one-factor instrument. The 6 Likert-type items were rated on a scale from 1 (strongly disagree) to 5 (strongly agree). For this study, the English version of Larson et al., (2018) scale was back translated. It obtained good internal consistency ( $\alpha = 0.88$ ).

*The 4-item Patient health questionnaire-4* (PHQ-4; Kroenke et al., 2009). It is a 4-item depression and anxiety screening scale. It is composed of the first two items of the PHQ-8, known as the PHQ-2 (Kroenke et al., 2003), as well as the first two items of the GAD-7, known as the GAD-2 (Kroenke et al., 2007). The response format involves a 4-point Likert scale ranging from 0 (not at all) to 3 (nearly every day). Separating by subscales, a score of 3 is taken as a cut-off point to suspect a possible major depressive disorder or a possible anxiety disorder. Cano-Vindel et al., (2018) found good internal consistency in a Spanish population (PHQ-4:  $\alpha = 0.83$ ; PHQ-2:  $\alpha = 0.86$ ; and GAD-2:  $\alpha = 0.76$ ). Furthermore, in this study a 5<sup>th</sup> item was included to evaluate suicidal ideation to those participants who marked 1 or more in either of the two items of the depression subscale. This item comes out of the PHQ-9 (Kroenke et al., 2001), here is used the Spanish validated version of the suicidal ideation item of Muñoz-Navarro et al., (2017). The internal consistency of the scores was good for all the subscales ( $\alpha = 0.89$  for PHQ-4;  $\alpha = 0.87$  for PHQ-2;  $\alpha = 0.85$  for GAD-2;  $\alpha = 0.83$  for the complete scale including the item measuring suicidal ideation).

*Primary Care PTSD Screen for DSM-5* (PC-PTSD-5; Prins et al., 2016). It is a 5-item screening test for PTSD, with a yes/no response format. This version of the PTSD-5 is specific to evaluate people that works in primary care settings. Total score is the sum of the “YES” answers of the 5 items. The authors found that the optimally sensitive cutoff score was 3 to detect possibly PTSD. Given that this questionnaire is not available in Spanish language, the back translation process from English to Spanish was first done. In the current sample, the internal consistency was acceptable ( $\alpha = 0.78$ ).

*Posttraumatic Growth Inventory-Short Form* (PTGI-SF; Cann et al., 2010; Tedeschi and Calhoun, 1996). The PTGI-SF is a 10-item self-report scale derived from the 21-item original version of Tedeschi and Calhoun (1996). The answer layout is a Likert scale format ranging from 0 (no change) to 5 (very big). Garrido-Hernansaiz et al., (2021) validated this

scale in the Spanish population during the COVID-19 pandemic, finding that an 8-item and 4 subscales version had better psychometric properties than the original PTGI-SF of 10 items. The 4 subscales are: I, Appreciation of life and new opportunities (items 2 and 3); II, Relating to Others (items 5 and 10), III, Personal Strength (items 7 and 9); and IV, Spiritual Change (items 4 and 8). In this study, Item 8 (I have a stronger religious faith) showed a very low mean and high values for skewness and kurtosis, which may be related with the fact that only 27% of the population in Spain consider themselves religious. Consequently in the present study we used the 8-item version of Garrido, changing the item 8 for a new one that could measure spirituality in a no-religious manner (I see more clearly the meaning of life). This scale does not have cut-off points, but according to some previous studies (Collazo-Castiñeira, 2021; Rodríguez-Rey and Alonso-Tapia, 2017; Tedeschi and Calhoun 1996). in the present study we calculated the percentage of participants who showed, at least, posttraumatic growth to a medium degree (total mean score of 3 or above). The internal consistency of the scale's scores was excellent ( $\alpha = 0.90$ ).

## **Procedure**

This study was approved by the ethic committee of the Universidad Pontificia de Comillas (see Annex I). Data were collected online, through a Lime Survey questionnaire (see Annex II). The data collection period was between the 4<sup>th</sup> of November 2021 and the 22<sup>nd</sup> of December 2021. To recruit the sample of health professionals, the questionnaire was distributed by email and social networks (Twitter, Instagram, Facebook, WhatsApp, and Telegram), following a snowball approach. All participants provided informed consent prior accessing the questionnaire (Annex III).

## Data analyses

Since the sample is sufficiently large ( $N = 915$ ), parametric tests could be used without interference from the sample distribution. The statistical analyses were performed using SPSS Statistics 26.0. for Windows.

First, descriptive statistics for the sociodemographic and work-related variables were calculated. The next step was to conduct a descriptive analysis of the outcome variables (anxiety, depression, PTSD, PTG), including the percentage of subjects whose mean score on these variables was above the respective cut-off points.

Next, different statistical tests were performed to study the degree to which the variables evaluated were related to the levels of psychological impact, with the intention of establishing potential predictive variables. When the relationship between the outcome variables and dichotomous variables (e.g. gender) was studied, Student *t* Tests for independent samples were performed, the results were then adjusted for homogeneity of variances according to Levene's test. When variables had multiple categories, one-factor ANOVAs were performed, using *post-hoc* analysis to explore significant differences between categories, where Tukey was used when variances were homogeneous and Games-Howell when they were not. Effect sizes were evaluated with Hedges' *g* for Student's *t* tests and  $\eta^2$  for ANOVAs.

To explore the relationship between continuous or ordinal variables and psychological impact, bivariate correlation analyses were conducted. In the case of ordinal variables, Spearman's  $\rho$  correlations were obtained, while in the case of scale variables, Pearson's *r* was calculated.

The last step of the statistical analysis consisted of performing a multiple linear regression model for each of the dependent variables in this study. For this purpose, the variables which were most strongly related (those with at least a moderate effect size) to

depression, anxiety, PTSD and PTG were included in the preliminary analysis. From these preliminary models, we selected for the final models the variables for which there was a significant linear relationship. In addition to determining which variables to select to obtain the best model adjustment, the assumptions of linearity, independence, homoscedasticity, normality and non-multicollinearity were taken into account.

## Results

### **Adverse and positive psychological consequences of working as a healthcare professional during the pandemic**

As it can be seen in Table 1, 19.1% of the sample scored above the cut-off for depression, 24.8% for anxiety, and 36.3% for PTSD. Besides, 41.7% of the sample showed at least moderate levels of PTG.

**Table 1.** *Descriptive data of psychological impact variables (N=915)*

	M (SD)	Above cut-off N (%)
Depression	1.69 (1.60)	175 (19.1)
Anxiety	2.02 (1.58)	227 (24.8)
PTSD	1.90 (1.73)	332 (36.3)
PTG	19.70 (10.19)	382 (41.7)

Furthermore, the 70.4% of the sample scored 1 or more on one of the two depression items, and of these, the 2% (N = 18) indicated that more than half of the days or almost every day they had suicidal ideation.

### **Association of psychological impact levels and sociodemographic variables**

Table 2 shows the descriptive data of the sociodemographic variables, as well as the association of them with depression, anxiety, PTSD and PTG.

With regards to the relationship between the sociodemographic variables assessed and the negative psychological impact, gender differences were found, showing women higher levels in all the variables assessed, with small effect sizes. As for the differences found in marital status, professionals who are single showed higher levels of depression than those who are married/cohabiting, and also showed more anxiety than those who are married/cohabiting and separated/divorced. On the other hand, single people showed higher PTG than people who is married/cohabiting. The effect sizes are small-negligible.

In addition, differences were found according to whether participants have children or not, where those who have no children showed significantly higher levels of depression, anxiety and PTSD than those who have children. In terms of PTG, people with no children showed greater growth than those who have children. All the differences found have a small effect size. Finally, the correlations conducted to explore associations with age showed a significant inverse relationship between age and depression, anxiety, PTSD and PTG. Consistently, the ANOVA made for age groups showed many significant differences in the pairwise comparison for all the variables, where the younger the participant, the greater the psychological impact and the PTG.

### **Association of psychological impact levels and work-related variables**

The data concerning the work-related information, as well as the relationship of this data with the psychological impact variables, are shown in Table 3.

In terms of profession, nurses, nursing assistants and technicians showed the highest levels of depression and PTSD. Data showed mean differences in anxiety in relation to profession, but post hoc test shows no significant differences in the pairwise comparison. For PTG, nurses and nursing assistants showed higher levels than physicians.

With respect to the differences found depending on the work unit of the participants, people working in hospital emergencies or in primary care showed the highest scores in depression and anxiety. The highest scores of PTSD are found in the people working in hospital emergencies, intensive care unit and in a home for the elderly. Regarding PTG, no statistically significant differences were found. The effect sizes for both variables, profession and work unit, are small.

Concerning differences among the participants who had to change their work unit due to the COVID-19, we found that those who did have to change their unit showed significantly higher levels of depression and PTSD than those who did not. However, the effect sizes are negligible.

No statistically significant differences were found for any of the psychological impact variables when participants were compared according to whether they worked during the first wave of the COVID-19 or not, nor according to the population they worked with, adults or children.

As for years of experience as a health professional, a significant inverse association was found between number of years and all the variables assessed.



**Table 2.** Association of sociodemographic variables and psychological impact levels (N=915)

Variables	N (%)	Depression				Anxiety				PTSD				PTG			
		M (SD)	t/ F*	p	g/ $\eta^{2*}$	M (SD)	t/ F*	p	g/ $\eta^{2*}$	M (SD)	t/ F*	p	g/ $\eta^{2*}$	M (SD)	t/ F*	p	g/ $\eta^{2*}$
<b>Gender**</b>																	
Female	712 (77.8)	1.78 (1.64)	-2.92	.004	.24	2.16 (1.60)	-4.86	.000	.40	1.98 (1.74)	-	.006	.23	20.31 (9.99)	-3.79	.000	.31
Male	195 (21.3)	1.40 (1.42)				1.54 (1.43)				1.59 (1.69)				17.22 (10.45)			
I would rather not say	4 (0.44)	1.25 (.96)				1.75 (1.26)				2.75 (1.71)				30.75 (8.06)			
Other	4 (0.44)	1.75 (1.26)				1.25 (.96)				2.25 (1.26)				20 (13.59)			
<b>Marital status**</b>																	
Married/cohabiting with a partner	633 (69.2)	1.58 (1.53) <sup>a</sup>	6.13	.002	.01	1.96 (1.53) <sup>a</sup>	5.73 <sup>1</sup>	.003	.01	1.84 (1.72)	2.93	.054		19.18 (9.96) <sup>a</sup>	4.01	.018	.01
Single	193 (21.1)	2.04 (1.72) <sup>b</sup>				2.33 (1.66) <sup>b</sup>				2.17 (1.78)				21.54 (10.38) <sup>b</sup>			
Separated/divorced	83 (9.1)	1.75 (1.66) <sup>ab</sup>				1.72 (1.56) <sup>a</sup>				1.76 (1.65)				19.64 (11.03) <sup>ab</sup>			
Widow(er)	6 (0.7)	1.67 (2.66)				3.33 (2.73)				1.67 (2.25)				15.50 (10.65)			
<b>Children</b>																	

No	366 (40)	1.93 (1.69)	3.70	.000	.30	2.31 (1.65)	4.52 <sup>1</sup>	.000	.31	2.13 (1.74)	3.22	.001	.22	21.18 (9.99)	3.63	.000	.24
Yes	549 (60)	1.54 (1.56)				1.83 (1.51)				1.75 (1.72)				18.71 (10.21)			
<b>Age groups</b>																	
20-29	113 (12.3)	2.19 (1.69) <sup>a</sup>	5.38 <sup>1</sup>	.000	.02	2.62 (1.63) <sup>a</sup>	8.07 <sup>1</sup>	.000	.03	2.51 (1.80) <sup>a</sup>	8.73	.000	.04	22.32 (9.32) <sup>a</sup>	6.57 <sup>1</sup>	.000	.03
30-39	192 (21)	1.59 (1.34) <sup>bcd</sup>				2.13 (1.42) <sup>abc</sup>				2.10 (1.71) <sup>ab</sup>				20.87 (10.04) <sup>ab</sup>			
40-49	289 (31.6)	1.80 (1.67) <sup>abc</sup>				2.02 (1.55) <sup>bc</sup>				1.96 (1.78) <sup>bc</sup>				20.17 (9.52) <sup>ab</sup>			
50-59	223 (24.4)	1.59 (1.75) <sup>bcd</sup>				1.87 (1.75) <sup>bcd</sup>				1.56 (1.65) <sup>bcd</sup>				18.19 (10.66) <sup>bc</sup>			
60-69	98 (10.7)	1.26 (1.19) <sup>bcd</sup>				1.46 (1.29) <sup>cd</sup>				1.40 (1.50) <sup>ed</sup>				16.42 (11.10) <sup>c</sup>			
		M (SD)	<b>Depression</b>			<b>Anxiety</b>				<b>PTSD</b>				<b>PTG</b>			
			<i>r</i> Pearson	<i>p</i>		<i>r</i> Pearson	<i>p</i>	<i>r</i> Pearson	<i>p</i>	<i>r</i> Pearson	<i>p</i>	<i>r</i> Pearson	<i>p</i>				
<b>Age</b>	44.42 (11.16)																

\*Differences in mean level between categories of dichotomous variables were assessed via t-test and Hedges'  $g$  effect size statistic was obtained (interpretation: negligible < .20 < small < .50 < medium < .80 < large). For multiple-category variables, one-way ANOVAs were used, and categories with a different superscript letter show a significant difference between them in the psychological impact variable mean. In these cases, the effect size was assessed via  $\eta^2$  (interpretation: negligible < .01 < small < .06 < medium < .14 < large).

\*\*For these variables' comparisons, the categories with a  $N < 20$  were not included.

<sup>1</sup>Homocedasticity could not be assumed for these variables, thus t-test results adjusted for non-homogeneous variances were used. In the case of ANOVAs, post hoc Games-Howell tests were used.

**Table 3.** Association of working-related variables and psychological impact levels (N=915)

Variables	N (%)	Depression				Anxiety				PTSD				PTG			
		M (SD)	t/ F*	p	g/ $\eta^{2*}$	M (SD)	t/ F*	p	g/ $\eta^{2*}$	M (SD)	t/ F*	p	g/ $\eta^{2*}$	M (SD)	t/ F*	p	g/ $\eta^{2*}$
<b>Worked during the first wave</b>																	
Yes	852 (93.1)	1.70 (1.60)	.30	.761	2.03 (1.58)	.28	.781		1.91 (1.74)	.66	.511		19.56 (10.18)	-1.48	.140		
No	63 (6.9)	1.63 (1.53)			1.97 (1.64)				1.76 (1.73)				21.52 (10.16)				
On leave	29 (3.2)																
Part of the risk population	10 (1.09)																
Still a student	9 (0.98)																
Unemployed	5 (0.55)																
Teleworking	4 (0.44)																
Other	6 (0.66)																
<b>Profession**</b>																	
Nurse	363 (39.7)	1.74 (1.62) <sup>a</sup>	3.59	.003	.02	2.16 (1.64)	2.40	.036	.01	2.09 (1.78) <sup>a</sup>	4.18 <sup>l</sup>	.001	.02	20.20 (9.88) <sup>a</sup>	4.45	.001	.03
Physician	337 (36.8)	1.54 (1.58) <sup>ab</sup>				1.86 (1.57)				1.65 (1.71) <sup>bc</sup>			17.97 (10.14) <sup>b</sup>				
Nursing Assistant	86 (9.4)	2.06 (1.42) <sup>a</sup>				2.02 (1.27)				2.09 (1.61) <sup>ab</sup>			22.51 (10.99) <sup>a</sup>				
Technicians (radio. lab. emergency)	28 (3.1)	1.79 (1.57) <sup>ab</sup>				2.00 (1.33)				2.32 (1.70) <sup>ab</sup>			23.25 (9.21) <sup>ab</sup>				

Physiotherapist	26	1.27			1.69				1.65				20.69				
	(2.8)	(1.04) <sup>ab</sup>			(1.54)				1.44) <sup>abc</sup>				(9.62) <sup>ab</sup>				
Social Worker or Psychologist	25	.80			1.36				1.04				17.56				
	(2.7)	(1.12) <sup>b</sup>			(1.19)				(1.43) <sup>c</sup>				(10.55) <sup>ab</sup>				
Orderly	18	2.22			2.61				2.56				23.89				
	(2)	(1.56)			(1.75)				(1.89)				(9.01)				
Manager or Administration	8	3.00			3.25				2.38				22.63				
	(0.9)	(2.56)			(1.75)				(1.51)				(12.59)				
Pharmacist or Pharmacist technician	8	2.75			2.38				1.88				20.00				
	(0.9)	(2.12)			(1.20)				(1.64)				(8.77)				
Other	16	(1.7)															
<b>Variables</b>	<b>N (%)</b>	<b>Depression</b>				<b>Anxiety</b>				<b>PTSD</b>				<b>PTG</b>			
		M	t/	p	g/	M	t/	p	g/	M	t/	p	g/	M	t/	p	g/
		(SD)	F*		$\eta^{2*}$	(SD)	F*		$\eta^{2*}$	(SD)	F*		$\eta^{2*}$	(SD)	F*		$\eta^{2*}$
<b>Work unit**</b>																	
Hospital ward	209	1.69	2.38	.011	.03	2.03	2.36	.012	.03	2.01	4.25 <sup>1</sup>	.000	.04	20.64	1.64	.101	
	(22.8)	(1.52) <sup>ab</sup>				(1.59) <sup>ab</sup>				(1.74) <sup>a</sup>				(10.59)			
Primary Care	184	1.90				2.17				1.90				18.10			
	(20.1)	(1.60) <sup>a</sup>				(1.61) <sup>a</sup>				(1.68) <sup>a</sup>				(10.12)			
Specialised outpatient services	113	1.52				1.95				1.66				19.81			
	(12.3)	(1.48) <sup>ab</sup>				(1.46) <sup>ab</sup>				(1.72) <sup>a</sup>				(9.52)			
Hospital emergencies	101	2.04				2.30				2.40				20.48			
	(11)	(1.73) <sup>a</sup>				(1.59) <sup>a</sup>				(1.72) <sup>a</sup>				(9.88)			
Intensive Care Unit	79	1.65				2.13				2.23				20.77			
	(8.6)	(1.51) <sup>ab</sup>				(1.67) <sup>ab</sup>				(1.87) <sup>a</sup>				(9.45)			

Occupational health	59	1.07			1.32				.09				17.46				
	(6.4)	(1.54) <sup>b</sup>			(1.48) <sup>b</sup>				(1.28) <sup>b</sup>				(10.66)				
Home for the elderly	30	1.77			2.07				2.50				21.70				
	(3.3)	(1.52) <sup>ab</sup>			(1.39) <sup>ab</sup>				(1.80) <sup>a</sup>				(10.58)				
Out-of-hospital emergencies	28	1.46			1.54				1.82				16.71				
	(3.1)	(1.73) <sup>ab</sup>			(1.53) <sup>ab</sup>				(1.83) <sup>ab</sup>				(11.59)				
Surgery	24	1.63			1.88				1.75				21.13				
	(2.6)	(1.86) <sup>ab</sup>			(1.65) <sup>ab</sup>				(1.80) <sup>ab</sup>				(9.26)				
Laboratory or Pharmacy	22	2.18			2.41				1.95				19.68				
	(2.4)	(1.59) <sup>ab</sup>			(1.62) <sup>ab</sup>				(1.79) <sup>ab</sup>				(10.84)				
Radiology	17	1.12			1.47				1.71				20.65				
	(1.9)	(1.50)			(.94)				(1.65)				(10.36)				
Mental health	9	1.22			1.67				1.11				21.67				
	(1)	(.97)			(1.87)				(1.36)				(11.25)				
Daycare centre	7	.86			1.57				.86				19.14				
	(.8)	(.90)			(1.27)				(1.36)				(10.34)				
Other	33 (3.6)																
Variables	N (%)	Depression				Anxiety				PTSD				PTG			
		M (SD)	t/ F*	p	g/ $\eta^{2*}$	M (SD)	t/ F*	p	g/ $\eta^{2*}$	M (SD)	t/ F*	p	g/ $\eta^{2*}$	M (SD)	t/ F*	p	g/ $\eta^{2*}$
Population group of work																	
Adult population	605	1.63	1.60	.202	2.00	.83	.436		1.82	2.52 <sup>1</sup>	.081		19.84	.21	.812		
	(66.1)	(1.52)			(1.57)				(1.69)				(10.22)				
Children (pediatrics)	51	1.80			2.29				1.86				19.80				
	(5.6)	(1.73)			(1.79)				(1.744)				(10.30)				

Both	259 (28.3)	1.83 (1.74)			2.03 (1.58)			2.10 (1.83)			19.35 (10.12)				
<b>Change of work unit due to the COVID-19</b>															
No	679 (74.2)	1.62 (1.56)	-2.48	.013	.19	1.99 (1.58)	-.95	.344	1.83 (1.71)	-2.07	.039	.16	19.51 (10.42)	-1.01 <sup>1</sup>	.312
Yes	236 (25.8)	1.92 (1.68)				2.11 (1.59)			2.10 (1.80)				20.25 (9.49)		
COVID-19 hospitalization	123 (13.4)														
COVID-19 Intensive Care Unit	35 (3.8)														
COVID-19 emergencies	23 (2.5)														
Unit other than the usual non-COVID	39 (4.3)														
Other	16 (1.8)														
			<b>Depression</b>		<b>Anxiety</b>		<b>PTSD</b>		<b>PTG</b>						
	M (SD)	<i>r</i>	Pearson	<i>p</i>	<i>r</i>	Pearson	<i>p</i>	<i>r</i>	Pearson	<i>p</i>	<i>r</i>	Pearson	<i>p</i>		
<b>Years of experience as a healthcare worker</b>	18.87 (10.45)	-.098		.003	-.134		.000	-.156		.000	-.158		.000		

\*Differences in mean level between categories of dichotomous variables were assessed via t-test and Hedges'  $g$  effect size statistic was obtained (interpretation: negligible < .20 < small < .50 < medium < .80 < large). For multiple-category variables, one-way ANOVAs were used, and

categories with a different superscript letter show a significant difference between them in the psychological impact variable mean. In these cases, the effect size was assessed via  $\eta^2$  (interpretation: negligible < .01 < small < .06 < medium < .14 < large).

\*\*For these variables' comparisons, the categories with a N < 20 were not included.

<sup>1</sup>Homocedasticity could not be assumed for these variables, thus t-test results adjusted for non-homogeneous variances were used. In the case of ANOVAs, post hoc Games-Howell tests were used.

## Association of level of contact with COVID-19 and levels of psychological impact

The amount of contact healthcare professionals have had with COVID-19 at work is shown in Table 4, along with its relationship to psychological impact. All the means were higher than 2.5 out of 5, where the highest score was being in contact with patients with COVID-19 ( $M = 3.84$ ).

Contact in the working environment with people who have experienced social/economic difficulties as a result of COVID-19 is the only type of contact that is directly correlated with depression, and the one showing the highest correlation with anxiety. With respect to associations with PTSD and PTG, all the types of contact with the COVID-19 in the working environment are directly correlated to both variables, being correlations stronger for PTSD than for PTG. Specifically, contact with patients who have died of COVID-19 is the most associated variable with PTSD.

**Table 4.** Spearman's correlation between the degree of contact with COVID-19 in the work environment (scored from 1 to 5) and psychological impact ( $N=915$ )

Contact in the working environment	M (SD)	Depression	Anxiety	PTSD	PTG
With people who've experienced social/economic difficulties as a result of COVID-19	3.16 (1.52)	.104**	.134**	.196**	.094**
With patients with COVID-19	3.84 (1.45)	.041	.064	.187**	.078**
With critical patients with COVID-19	2.94 (1.67)	.034	.067*	.166**	.117**
With patients who have died of COVID-19	2.53 (1.55)	.036	.072*	.205**	.138**
With relatives of very critical or deceased COVID-19 patients	2.64 (1.47)	.018	.052	.129**	.075*

\*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$



## Experience of the pandemic and its relationship to psychological impact

Table 5 shows the mean and standard deviation of the answers given by the participants to a series of questions about the experience of the pandemic in the work environment (perception of stress, recognition, etc.), as well as the correlation coefficient with depression, anxiety, PTSD and PTG. Almost all the sample think that their work in the pandemic has been more stressful and difficult than usual, many think their work has not returned to how it was before and neither they feel that their work has been recognized. Lastly, most are satisfied with the work they have done during the COVID-19 pandemic.

Thinking their work has been more difficult and stressful than usual is directly associated with depression, anxiety and PTSD. While thinking their work has returned to how it was before, feeling that it has been recognized and being satisfied with the work they have done are inversely associated with depression, anxiety and PTSD. As for associations with PTG, all the questions except thinking their work has returned to how it was before are directly associated.

**Table 5.** Spearman's correlation between the experience of the pandemic in the work environment (scored from 1 to 5) and psychological impact (N=915)

The extent to which they...	M (SD)	Depression	Anxiety	PTSD	PTG
Think their work has been more difficult than usual	4.35 (.92)	.128**	.167**	.260**	.186**
Think their work has returned to how it was before	2.60 (1.29)	-.211**	-.194**	-.173**	-.008
Scored how stressful was their work	4.26 (.98)	.246**	.294**	.380**	.190**
Feel that their work has been recognized by bosses, colleagues, patients and family members	2.45 (1.36)	-.252**	-.172**	-.173**	.070*
Are satisfied with the work they have done during the pandemic	4.04 (1.05)	-.172**	-.098**	-.099**	.174**

\*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$

Table 6 shows the differences in psychological impact between participants who received therapy since the COVID-19 pandemic started and those who did not. The 15.8% of the sample received psychological treatment, of those, the 3.7% were in psychological treatment before the pandemic. The 55% did not receive it, and the 29.2% have not received it but would have liked to.

Participants who answered that they have not received psychological attention scored statistically lower in depression, anxiety and PTSD than participants who had received psychological attention. The effect size is large for anxiety and PTSD, and medium for depression. Participants who answered that they have not received psychological attention, but they would have liked to, scored statistically higher in PTG than those who answered just no, the effect size is small.

#### **COVID-19 infection and fear of COVID and its relationship to psychological impact**

The 27.2% of the sample have been infected by COVID-19, the 62.8% have not, and the 10.1% do not know at the time the survey of this study was filled.

No statistically significant differences were obtained in depression, anxiety or PTG between those participants who have been infected by COVID-19 and those who have not, nor according to the symptoms they had (see Table 7). Differences in PTSD were significant, however, the *post hoc* test revealed no significant differences in the pairwise comparison, and the effect size obtained is small.

Moreover, the sample mean for fear of COVID-19 is 3.16 over 5. And there is a significant and positive relationship between how scary the COVID-19 is for the healthcare workers at the time of the sample collection and depression, anxiety, PTSD and PTG (see Table 7).

**Table 6.** Association of having received psychological attention at any time since the beginning of the pandemic and psychological impact levels (N=915).

Received psychological treatment	N (%)	Depression				Anxiety				PTSD				PTG			
		M (SD)	F*	p	$\eta^{2*}$	M (SD)	F*	p	$\eta^{2*}$	M (SD)	F*	p	$\eta^{2*}$	M (SD)	F*	p	$\eta^{2*}$
Yes	111 (12.1)	2.37 (1.68) <sup>a</sup>	38.49 <sup>1</sup>	.000	.11	2.90 (1.62) <sup>a</sup>	50.83 <sup>1</sup>	.000	.14	2.86 (1.74) <sup>a</sup>	56.78 <sup>1</sup>	.000	.16	20.64 (9.09) <sup>ab</sup>	7.95 <sup>1</sup>	.000	.03
Yes, and I received it before	34 (3.7)	2.35 (1.57) <sup>a</sup>				2.97 (1.53) <sup>a</sup>				2.53 (1.76) <sup>a</sup>				21.59 (10.89) <sup>ab</sup>			
No	503 (55)	1.21 (1.33) <sup>b</sup>				1.49 (1.32) <sup>b</sup>				1.28 (1.48) <sup>b</sup>				18.26 (10.67) <sup>a</sup>			
No, but I would have liked	267 (29.2)	2.24 (1.73) <sup>a</sup>				2.54 (1.65) <sup>a</sup>				2.59 (1.71) <sup>a</sup>				21.78 (9.16) <sup>b</sup>			

\*Differences in mean level between multiple-category variables was assessed via one-way ANOVAs, categories with a different superscript letter show a significant difference between them in the psychological impact variable mean. In these cases, the effect size was assessed via  $\eta^2$  (interpretation: negligible < .01 < small < .06 < medium < .14 < large).

<sup>1</sup>Homocedasticity could not be assumed for these variables, thus post hoc Games-Howell tests were used.

**Table 7.** Association of having been infected with COVID-19 and psychological impact levels. And Spearman's correlation between how scary the COVID-19 is for the healthcare workers at the present time (scored from 1 to 5) and psychological impact (N=915)

Having been infected with COVID-19	N (%)	Depression				Anxiety				PTSD				PTG			
		M (SD)	F*	p	$\eta^{2*}$	M (SD)	F*	p	$\eta^{2*}$	M (SD)	F*	p	$\eta^{2*}$	M (SD)	F*	p	$\eta^{2*}$
Yes, asymptomatic	39 (4.3)	1.54 (1.12)	.81	.518	2.00 (.92)	.78 <sup>1</sup>	.540		2.41 (1.83)	2.78	.026	.01	22.44 (9.73)	1.79	.128		
Yes, with mild symptoms	117 (12.8)	1.61 (1.59)			2.00 (1.52)				1.63 (1.64)				19.20 (10.35)				
Yes, with major symptoms	81 (8.9)	1.86 (1.53)			2.02 (1.52)				2.28 (1.88)				20.31 (11.03)				
Yes, and I was hospitalized**	11 (1.2)	1.09 (1.58)			1.36 (1.75)				2.18 (1.89)				23.09 (10.90)				
No	575 (62.8)	1.68 (1.64)			1.99 (1.60)				1.85 (1.70)				19.79 (10.02)				
I don't know	92 (10.1)	1.90 (1.60)			2.30 (1.78)				2.00 (1.80)				17.65 (10.21)				
<b>Fear to COVID-19</b>		<b>M (SD)</b> 3.16 (1.52)	<b>Depression</b> .155**		<b>Anxiety</b> .185**				<b>PTSD</b> .267**				<b>PTG</b> .147**				

\*Differences in mean level between multiple-category variables was assessed via one-way ANOVAs, categories with a different superscript letter show a significant difference between them in the psychological impact variable mean. In these cases, the effect size was assessed via  $\eta^2$  (interpretation: negligible < .01 < small < .06 < medium < .14 < large).

\*\*Given the small number of people who responded "yes, and I was hospitalized" (N=11), this category have not been included in the comparison.

<sup>1</sup>Homocedasticity could not be assumed for these variables, thus post hoc Games-Howell tests were used.

For the Spearman correlation: \*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$

**Association between psychological impact, psychological variables (resilience, emotion regulation, experiential avoidance) and relation to nature**

Depression, anxiety and PTSD scores showed significant and positive relationships with experiential avoidance and with the ER strategy of expressive suppression. Depression was also negatively correlated with connection to nature.

On the other hand, PTG showed a positive correlation with nature relatedness, the ER strategy cognitive reappraisal and experiential avoidance.

Lastly, all four psychological variables showed significant and negative associations with resilience (see Table 8).

**Table 8.** *Pearson's r correlation between novel variables and psychological impact variables (N=915)*

	Depression	Anxiety	PTSD	PTG
Resilience	-.376**	-.418**	-.307**	-.110**
Cognitive reappraisal (ER)	-.061	-.064	.009	.162**
Expressive suppression (ER)	.272**	.196**	.204**	.053
Experiential avoidance	.613**	.597**	.455**	.150**
Nature relatedness	-.100**	-.063	-.008	.134**

\*\* p < 0.01

**Regression analyses for the prediction of depression, anxiety, PTSD and PTG**

As can be inferred from Table 9, 41.4% of the variance for depression, 39.4% for anxiety, 32.8% for PTSD and 14.2% for PTG score can be explained by the predictive variables

according to the linear models considered. Among the four models, the PTG model is the one with the weakest adjustment.

In the three regression models of adverse psychological impact, it is noticed that the experiential avoidance variable is the strongest variable for prediction with a substantial difference.

**Table 9.** Multiple linear regression models for the dependent variables (depression, anxiety, PTSD and PTG)

<b>Depression</b>				
	$R^2$	$p$	$Beta$	$p$
<b>Model</b>	.414	.000		
<b>Variables included</b>	Experiential avoidance		.524	.000
	Work has returned to how it was before		-.077	.004
	Work recognized by others		-.079	.003
	Stressful work		.097	.000
	Expressive suppression (ER)		.095	.000
	Satisfied with the work done		-.063	.017
<b>Anxiety</b>				
	$R^2$	$p$	$Beta$	$p$
<b>Model</b>	.394	.000		
<b>Variables included</b>	Experiential avoidance		.490	.000
	Stressful work		.109	.000
	Resilience		-.124	.000
	Work has returned to how it was before		-.065	.016
	Contact with people who've experienced social/economic difficulties		.061	.023
<b>PTSD</b>				
	$R^2$	$p$	$Beta$	$p$
<b>Model</b>	.328	.000		
<b>Variables included</b>	Experiential avoidance		.294	.000
	Stressful work		.180	.000

Contact with deceased patients	.114	.000
Fear of COVID-19	.128	.000
Contact with people who've experienced social/economic difficulties	.092	.001
Work recognized by others	-.077	.006
Expressive suppression (ER)	.080	.006
Resilience	-.077	.020
<b>PTG</b>		
	<i>R</i> <sup>2</sup>	<i>p</i>
<b>Model</b>	.142	.000
<b>Variables included</b>		
Cognitive reappraisal (ER)	.150	.000
Work has been more difficult than usual	.125	.000
Experiential avoidance	.107	.004
Satisfied with the work done	.141	.000
Nature relatedness	.129	.000
Fear of COVID-19	.096	.003
Contact with deceased patients	.095	.003
Resilience	-.081	.031

## Discussion

### Adverse and positive psychological consequences

The first objective of this study was to assess the negative impact of the COVID-19 pandemic on the mental health of healthcare workers after two years of its beginning. Our results showed that the 19.1% of the sample scored above the cutoff for depression and 24.8% for anxiety, this values show a more favourable picture than data from healthcare workers at the outbreak of the pandemic, where both depression and anxiety had a prevalence of about the 31-35% (Batra et al., 2020). Regarding PTSD, our results showed that the 36.3% scored above the cutoff. In this case, this area of mental health has gotten worse, since the same metanalysis of Batra et al. (2020) found a pooled prevalence of post-traumatic stress syndrome of the

11.4%. This variance in the data between the onset of the pandemic and the most recent time could be explained in a number of ways. For example, Rhebergen et al. (2011) conducted a longitudinal study to observe the long-term evolution of depression and anxiety, finding that 60.7% of subjects were free of these diagnoses after a few years. Hence, it could be suggested that the trajectories of depression and anxiety are favourable, although it should not be underestimated that these disorders continue to have a high prevalence among Spanish healthcare professionals. It is also a fact that the situation was not the same in November-December as it was at the beginning of the pandemic for professionals (COVID was more unknown then, the system was more saturated, there were no treatment protocols, no protective equipment, no vaccines), in other words, the situation has improved and this may also be reflected in the decrease in these levels. Nevertheless, in the case of PTSD, research shows that a percentage of the population living through a traumatic experience develops delayed PTSD (Smid et al., 2009; Utzon-Frank et al., 2014). Also, it is important not to forget that 18 people have had suicidal ideation, which may seem a very small percentage amongst the sample, but clinically we are talking about a very serious problem.

The second objective of the present study was to appraise the positive impact of the pandemic in terms of PTG. Our results revealed that the 41.7% of the healthcare workers showed PTG, this data is similar to the data found in April 2020, where the 39.3% of a sample of nurses experienced PTG (Chen et al., 2021). In order to observe how the mental health status of healthcare workers continues to evolve over time, it would be interesting to remeasure these four scales of psychological consequences when the COVID-19 pandemic is completely neutralized.

### **Association of psychological impact with personal and professional variables**

The third objective of the present study was to know the psychological, demographic and work-related variables that are related to both negative and positive impact of working as



a healthcare professional during the COVID-19 pandemic. Our results show without any doubt that the strongest predictor of negative psychological impact is experiential avoidance. The relationship between mental health and experiential avoidance is direct, the more the healthcare workers have tried not to stay in contact with their discomfort, the greater the impact. This result agrees with the data found in previous literature (Ferreira et al., 2021; Hernández-López et al., 2021), reinforcing Hayes' (1999) theory: the behavioural pattern of avoidance is apparently effective in the short term, since it manages to temporarily reduce an experience that generates discomfort, but if it becomes a chronic pattern, it becomes a limitation in the person's life, which is apparently occurring among healthcare workers. In contrast, based on previous literature (Green, 2011), we expected to find experiential avoidance to be inversely correlated with PTG, however, our results have shown that these two variables are directly related. There is very limited literature exploring the association between these two variables, and none of them have found the same result as the present study. Therefore, this should be explored further.

Following with the psychological variables, the second stronger predictor of negative psychological impact is resilience. As in previous studies (Barzilay et al., 2020; Lorente et al., 2021; Luceño-Moreno et al., 2020), we found that the greater the ability of healthcare workers to recover after stressful events (such as the COVID-19 pandemic), the lesser the psychological impact experienced by them. Regarding the relationship between resilience and PTG, different possibilities were found in the literature as to how these could be related. Based on our results, this study supports the direct relationship between resilience and PTG, therefore, healthcare workers who are resilient have developed more positive changes after facing the COVID-19 pandemic.

Continuing with the psychological variables, we found some interesting results on ER: the expressive suppression strategy is positively related to negative impact, while the cognitive

reappraisal strategy is positively related to PTG. Thus, expressive suppression seems a poorly adaptive strategy in the long term (Gross and John, 2003), acting similarly to experiential avoidance, so it is reasonable to assume that the greater the use of this ER strategy, the greater the impact. On the other hand, cognitive reappraisal is a strategy that implies a change in the perception of an event (Lazarus & Alfert, 1964), this form of regulation is in line with the PTG, where people experience positive changes in certain areas of their lives, including the perception of new possibilities.

As for relatedness with nature, this variable was the least studied in the context of COVID-19. Our results have shown an inverse relationship with depression, thus being in contact with nature is a protective factor for suffering from depressive symptoms. Nevertheless, looking at previous literature, we expected to find that it was a protective factor for anxiety and PTSD as well (Kotera et al., 2022; McMahan & Estes, 2015; Yao et al., 2021), but our analysis showed no relationship. Perhaps the explanation lies in the fact that one of the most effective methods to counteract depression is behavioural activation (e.g., going for a walk outdoors), but the first-choice treatment for anxiety does not include this (Becerra Gálvez et al., 2017). For PTG we found that the greater the nature relatedness, the higher the PTG score. This result can be explained on the light of the study by Howell and Passmore (2013), who discovered a connection between affiliation with nature and personal growth, commitment and meaning, which are aspects involved in the PTG.

Moving on to the experience of the pandemic in the workplace, perceiving their job as highly stressful job and the belief that their job is still not back to pre-pandemic normality have shown to be important risk factors for experiencing increased symptoms of poor mental health. These data highlight the major impact that working conditions have on well-being (Teoh et al., 2021). In the context of the pandemic, the working conditions for health care workers have been characterized by excessively high workloads, something that explains our results.

Moreover, in this study we have replicated Rodríguez-Rey, Garrido-Hernansaiz, & Bueno-Guerra (2020) results, finding that feeling that one's work has been recognized is a protective factor for psychological wellness, as well as being satisfied with the work done. In addition, we found that one of the greatest predictors of PTG is feeling that their work has been more difficult than it was before the pandemic. This makes sense considering that greater difficulty may have provided a challenge, thus increasing the opportunity for growth.

Concerning contact with COVID-19 at work, we found that it was strongly associated with PTSD scores, while depression and anxiety have not shown as much of a correlation. In particular, we have found that having been in contact with patients who have died from COVID-19 is one of the major risk factors for developing PTSD, something that had already been found in previous studies (Mosheva et al., 2021; Rodríguez-Rey, Garrido-Hernansaiz, & Bueno-Guerra, 2020). This is closely related to the work unit of the healthcare workers, since the highest scores for depression, anxiety and PTSD are found in units such as the emergencies or the ICU, the units that have greater contact with more serious and shocking situations. And it also explains that the professions that involve more direct and close contact with patients (nurses, and nursing assistants) are those that show the greatest discomfort and, in turn, the greatest PTG. Furthermore, contact with people who have experienced social/economic difficulties as a result of COVID-19 is the only type of contact that is correlated with all the measures of psychological impact. This concern about the economic consequences of the pandemic was already explored in the study by Rodríguez-Rey, Garrido-Hernansaiz, & Collado (2020) who found that what most concerned the Spanish population was the possibility of suffering an economic crisis deriving from the pandemic. With regard to contact with COVID-19 and PTG, we found significant relationships with all types of contact.

It was also found that the more years working as a healthcare professional, the lower the psychological impact and the lower the PTG. As has already been shown (García-

Fernández et al., 2020; Spoorthy, 2020), more experienced healthcare personnel would have more resources available in advance to overcome the difficulties encountered as a consequence of the pandemic. As for having worked in the first wave of the pandemic or not, we found no difference. Possibly enough time has passed that, if there were emotions such as guilt for not having worked in that wave, they have already disappeared, or that having worked afterwards, they have experienced the same impact as those who worked from the beginning. Also, contrary to Mortier et al., (2021)'s findings, no or minimal effect size differences were found between those healthcare workers who had to change their work unit as a result of the pandemic and those who did not. It seems that regardless of whether or not they have changed, in general the work has been more difficult and stressful than it was before the pandemic.

Moreover, we found that those who present a greater psychological impact are those who are receiving therapy, this data make sense considering that it is frequent that we only ask for psychological help when we are in remarkably high levels of discomfort. Furthermore, we have discovered that those who show the greatest PTG are those who have not received psychological treatment but would have liked to. Not having accessed professional help even though they would have liked it means that they have had to find ways to cope on their own, again finding an opportune scenario for developing PTG. It would be worthwhile to carry out more studies that associate receiving therapy or not with PTG, with the aim of discovering their relationship in greater depth.

As for what was found in relation to the fear that COVID-19 generates in the sample, we observed a medium-high average of fear, so it could be said that in general healthcare workers are afraid of the virus. It is correlated with the four measures of psychological consequences, with a greater impact on PTSD. The more frightening COVID-19 is, the more likely one is to view the virus as potentially fatal, which explains its elevated association with

PTSD. It would be interesting to remeasure the fear generated by COVID-19 after some time, to see if the evolution of the pandemic modifies the fear that people have of it.

Concerning the demographic variables, as in previous studies (Fang et al., 2021; Ike et al., 2021; Rodríguez-Rey, Garrido-Hernansaiz, & Collado, 2020), we found that being male, married or living with a partner, having children and being older are protective factors for the development of a psychological disorder. Accordingly, we found that the highest PTG scores are found among women, single, childless and youth, this means that those variables that are related to greater impact, are at the same time associated to greater growth.

### **Limitations**

The present study is not without some limitations. First, the online recruitment of the sample followed a snowball technique, which may have influence data collection in such a way that the sample may not fairly represent the characteristics and distribution of the population. Second, this study have a large sample of women, while only 21.3% of the participants were men. It is frequently found in various studies that participation is significantly higher in women than in men (Korkeila et al., 2001), however, it should be taken into account that there is a higher percentage of women than men in the health sector. Third, a factor difficult to manipulate is the rapidly changing situation of the COVID-19 pandemic, so as the questionnaire was open for a little more than a month and a half, during this period there might exit differences between participants who answered at the beginning or at the end. Due to these reasons, the findings of the present study should only be generalized with prudence. Finally, since this is a cross-sectional study, that is to say, all the variables are collected at the same time, this allows us to speak of associations between variables, but not of cause-effect relationships.

## **Clinical implications**

Having highlighted the main findings of this study, the need to counteract the effects that the COVID-19 pandemic is having on the mental health of the healthcare workers is evident. The present study has revealed some pathways for intervention: First, special attention should be paid to healthcare professionals who are in closer contact with patients, as they are the most vulnerable professionals, and particularly if they are young women. Second, healthcare professionals should have easy access to a resource for psychological care (Shapiro & McDonald, 2020; Rodríguez-Rey, Garrido-Hernansaiz, & Bueno-Guerra, 2020). In the light of the data, a possible therapeutic approach would be the Acceptance and Commitment Therapy, since one of its most important objectives is to interrupt the experiential avoidance pattern, that is, to teach the person to create a rich and meaningful life by accepting the pain that inevitably comes with it (Hayes, 1999). In addition, it would be convenient to include some elements such as the development of the resilience capacity, adaptive ER strategies and encouraging greater contact with nature. Given that access to psychological treatment is currently quite restricted and given that many people are reluctant to ask for help, brief courses aimed at promoting psychological resources and self-care should be offered in healthcare centres that include the keys we have just given. Third, we encourage the human resources departments of healthcare institutions to take into account the strong impact that the tough working conditions of healthcare workers are having, trying to find ways to reduce work stress and to return working conditions to the pre-pandemic times as quickly as possible.

## **Conclusion**

As a result of working during the COVID-19 pandemic for two years, healthcare professionals show high levels of psychological impact. However, almost half of the sample also showed PTG, which is a positive outcome derived from the COVID-19 crisis. Our results suggest that teaching healthcare workers regulation strategies incompatible with experiential

avoidance may contribute to improving their mental health. In addition, an improvement in working conditions is crucial to reduce the impact on the mental health of healthcare workers. We have also found the need to conduct longitudinal studies, in purpose of re-evaluating the mental health of healthcare personnel and compare the results.

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## Annex I

Madrid, 20 de marzo de 2020

Dictamen del proyecto presentado el 19 de marzo de 2020, por Nereida Bueno Guerra y Rocío Rodríguez Rey, del Departamento de Psicología, titulado “Trabajar en tiempos de COVID-19: impacto psicológico en diferentes profesiones durante la pandemia”, por vía extraordinaria con autorización del vicerrector

*El proyecto presenta adecuadamente la relevancia de la investigación, sus objetivos, sus riesgos y beneficios, su metodología, los criterios de inclusión y exclusión, el procedimiento de recogida de datos, el consentimiento informado y su compromiso de confidencialidad y secreto junto con el cumplimiento de la legislación de protección de datos y los principios de la Declaración de Helsinki.*

*El proyecto, por lo tanto, cumple con los requisitos de una investigación de estas características y cuenta con la aprobación, vía extraordinaria por la situación de Estado de Alarma decretado por el Gobierno, del Comité de Ética de la Universidad, por medio de documento mandado por correo electrónico.*

Presidente del Comité de Ética

Javier de la Torre

## Annex II

### Datos demográficos

1. Género: Hombre/ Mujer/ No estoy seguro/ Prefiero no decirlo/ Otro: \_\_\_\_\_
2. Edad: \_\_\_\_\_
3. ¿Cuál de las siguientes situaciones describe mejor tu situación actual?
  - a) Soltero/a
  - b) Casado/a o conviviendo con mi pareja
  - c) Separado/a o divorciado/a
  - d) Viudo/a
4. ¿Tienes hijos?
 

SI	NO
----	----
5. Si tienes hijos. ¿Cuántos?: \_\_\_\_\_

### Datos laborales

6. ¿Trabajaste como profesional sanitario durante la primera ola de la crisis de la COVID-19? (Marzo-Mayo de 2020)
  - a) Sí
  - b) No, me encontraba de baja
  - c) No, era población de riesgo
  - d) No, por otro motivo ¿Cuál? \_\_\_\_\_
7. ¿Cuál es tu profesión? (Médico/a, Enfermero/a, Auxiliar de enfermería, Celador/a, Fisioterapeuta, Trabajador/a social, psicólogo/a, Otro ¿Cuál? \_\_\_\_\_).
8. ¿Cuántos años de experiencia tienes como personal sanitario? \_\_\_\_\_
9. ¿En qué área o unidad trabajas? (Si trabajas en varias, señala a la que le dediques más tiempo semanalmente).
  - a. SAMUR
  - b. Urgencias hospitalarias
  - c. Planta de hospitalización
  - d. Cuidados intensivos
  - e. Consultas externas de especialidad
  - f. Atención primaria
  - g. Residencia de mayores
  - h. Otro ¿Cuál? \_\_\_\_\_
10. Si procede: señala a qué especialidad te dedicas (ej. ginecología, traumatología, medicina interna, medicina de familia...). \_\_\_\_\_
11. ¿Con qué grupos de población trabajas? Población adulta \_\_\_\_ / Niños (trabajo en pediatría) \_\_\_\_ / Ambos \_\_\_\_\_
12. ¿Tuviste que cambiar de unidad de trabajo a raíz de la pandemia de COVID-19?
 

SI	NO
----	----
13. Si responde Sí a la anterior. Durante el tiempo que tuviste que cambiar de unidad, ¿en qué servicio trabajaste?
  - a) Urgencias de pacientes COVID
  - b) Hospitalización de pacientes COVID

c) UCI de pacientes COVID

d) Otro: \_\_\_\_\_

14. ¿En qué centro u hospital trabajas? \_\_\_\_\_

#### Contacto con COVID-19 en el entorno laboral

Durante tu trabajo a lo largo de la pandemia...

1	2	3	4	5
No he tenido contacto, o he tenido algún contacto aislado	He tenido contacto una vez al mes o menos	He tenido contacto una vez a la semana o menos	He tenido contacto más de una vez a la semana	He tenido contacto diariamente

15. ¿cuánto contacto has tenido con personas que han experimentado dificultades sociales o económicas a consecuencia de la COVID-19?

16. ¿cuánto contacto has tenido con pacientes con COVID-19?

17. ¿cuánto contacto has tenido con pacientes graves con COVID-19?

18. ¿cuánto contacto has tenido con pacientes que han fallecido de COVID-19?

19. ¿cuánto contacto has tenido con familiares de pacientes COVID-19 muy graves o que han fallecido?

#### Vivencia de la pandemia en el entorno laboral

20. ¿En qué grado consideras que tu trabajo ha sido más difícil de lo habitual durante la pandemia? (1, ha sido igual que antes, 5 ha sido mucho más difícil)

21. En el momento actual, ¿en qué grado crees que tu trabajo ha vuelto a la normalidad de antes de la pandemia? (1, no ha vuelto a la normalidad, 5 ha vuelto a la normalidad en gran medida)

22. ¿En qué grado tu trabajo durante la pandemia te ha resultado estresante? (1, no me ha resultado estresante, 5 me ha resultado muy estresante)

23. ¿En qué grado has sentido que tu trabajo se ha reconocido durante la pandemia por parte de jefes/as, compañeros/as, pacientes y familiares?) (1, no se ha reconocido lo suficiente, 5 se ha reconocido mucho)

24. ¿En qué grado estás satisfecho/a con el trabajo que has realizado durante la pandemia? (1, no estoy satisfecho, 5 estoy muy satisfecho)

25. ¿Has recibido atención psicológica en algún momento desde el comienzo de la pandemia?

Sí	Sí, y ya la recibía antes de la pandemia	No	No, pero me hubiera gustado
----	--	----	-----------------------------

#### COVID-19

26. ¿Has pasado la COVID-19?



Sí, asintomático	Sí, con síntomas leves	Sí, con síntomas importantes, aunque sin hospitalización	Sí, y estuve hospitalizado	No	No lo sé
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27. ¿Cuánto miedo te genera la COVID-19 en este momento? (1, muy poco o ningún miedo, 5 me genera mucho miedo)

**Variables predictoras:**

### **RESILIENCIA. *Brief Resilience Scale***

Queremos conocer cuánto te cuesta, en general, recuperarte de las dificultades que te ocurren en tu vida. Por favor, responde a las siguientes preguntas.

Totalmente en desacuerdo	Bastante en desacuerdo	Indiferente	Bastante de acuerdo	Totalmente de acuerdo
1	2	3	4	5

28. Tiendo a recuperarme rápidamente después de haberlo pasado mal
29. Lo paso mal cuando tengo que enfrentarme a situaciones estresantes
30. No tardo mucho en recuperarme después de una situación estresante
31. Es difícil para mí recuperarme cuando me ocurre algo malo
32. Aunque pase por situaciones difíciles, normalmente no lo paso demasiado mal
33. Suelo tardar mucho tiempo en recuperarme de los contratiempos que me ocurren en mi vida

### **REGULACIÓN EMOCIONAL. *Emotion Regulation Questionnaire ERQ; Cabello, Salguero,***

*Fernández-Berrocal & Gross, 2013; versión original de Gross y John, 2003)*

A continuación, nos gustaría que contestases a unas preguntas sobre tu vida emocional, en concreto, sobre cómo controlas sus emociones. Estamos interesados en dos aspectos. El primero es tu experiencia emocional o lo que sientes internamente. El segundo es tu expresión emocional o cómo muestras tus emociones a través de las palabras, los gestos y los comportamientos. Aunque algunas de las cuestiones pueden parecer similares a otras, éstas difieren de forma importante. Por favor, utiliza la siguiente escala de respuesta para cada ítem.

1 Totalment e en desacuerdo	2 En desacuerd o	3 Ligerament e en desacuerdo	4 Ni acuerdo ni en desacuerd o	5 Ligerament e de acuerdo	6 De acuerd o	7 Totalment e de acuerdo
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34. Cuando quiero incrementar mis emociones positivas (p.ej. alegría, diversión), cambio el tema sobre el que estoy pensando.
35. Guardo mis emociones para mí mismo/a.
36. Cuando quiero reducir mis emociones negativas (p.ej. tristeza, enfado), cambio el tema sobre el que estoy pensando.
37. Cuando estoy sintiendo emociones positivas, tengo cuidado de no expresarlas.
38. Cuando me enfrento a una situación estresante, intento pensar en ella de un modo que me ayude a mantener la calma.
39. Controlo mis emociones no expresándolas.
40. Cuando quiero incrementar mis emociones positivas, cambio mi manera de pensar sobre la situación.
41. Controlo mis emociones cambiando mi forma de pensar sobre la situación en la que me encuentro.
42. Cuando estoy sintiendo emociones negativas, me aseguro de no expresarlas.
43. Cuando quiero reducir mis emociones negativas, cambio mi manera de pensar sobre la situación.

### **EVITACIÓN EXPERIENCIAL E INFLEXIBILIDAD PSICOLÓGICA. Cuestionario de aceptación y acción (AAQII)**

Debajo encontrarás una lista de afirmaciones. Por favor, puntúa en qué grado cada afirmación ES VERDAD PARA TI. Usa la siguiente escala para hacer tu elección:

1 Nunca es verdad	2 Muy raramente es verdad	3 Raramente es verdad	4 A veces es verdad	5 Frecuentemente es verdad	6 Casi siempre es verdad	7 Siempre es verdad
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44. Mis experiencias y recuerdos dolorosos hacen que me sea difícil vivir la vida que querría
45. Tengo miedo de mis sentimientos
46. Me preocupa no ser capaz de controlar mis preocupaciones y sentimientos
47. Mis recuerdos dolorosos me impiden llevar una vida plena
48. Mis emociones interfieren en cómo me gustaría que fuera mi vida
49. Parece que la mayoría de la gente lleva su vida mejor que yo
50. Mis preocupaciones interfieren en el camino de lo que quiero conseguir

### **OUTDOOR RECREATION *Connectedness to Nature Scale (CNS)***

Por favor responde a cada una de estas preguntas en términos de la forma en que te sientes. No hay respuestas correctas o incorrectas. Usando la siguiente escala, simplemente declara tan honesta y francamente como puedas lo que estás experimentando actualmente.

1 Totalmente en desacuerdo	2 En desacuerdo	3	4 De acuerdo	5 Totalmente de acuerdo
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		Ni de acuerdo ni en desacuerdo		
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51. Me siento conectado con la naturaleza y los seres vivos.
52. Mi relación con la naturaleza es una parte importante de quién soy
53. Pienso sobre cómo mis acciones afectan al medio ambiente
54. Disfruto cuando paso tiempo en la naturaleza
55. Mis lugares favoritos son espacios naturales
56. Siempre que puedo, paso tiempo al aire libre

### Variables de salud psicológica

#### DEPRESIÓN Y ANSIEDAD. CUESTIONARIO BREVE DE SALUD DEL PACIENTE – CRIBADO DEPRESIÓN y ANSIEDAD (PHQ-4)

En los últimos 14 días, ¿con qué frecuencia te han supuesto una molestia los siguientes problemas?

0 = Nunca	1 = Varios días	2 = Más de la mitad de los días	3 = Casi cada día
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57. Poco interés o placer en hacer cosas
58. Se ha sentido decaído(a), deprimido(a) o sin esperanzas
59. Sentirse nervioso/a, angustiado/a o muy tenso/a
60. Ser incapaz de dejar de preocuparse o de controlar la preocupación
61. Pensamientos de que estaría mejor muerto(a) o de lastimarme de alguna manera (SOLO si 1 o + en 48 y 49)

#### ESTRÉS POSTRAUMÁTICO - PC-PTSD-5

Por favor responde a las siguientes preguntas pensando en la pandemia de COVID.

SI	NO
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En el último mes ...

62. ¿Has tenido pesadillas sobre lo ocurrido o pensado acerca de ello cuando no querías hacerlo?
63. ¿Has intentado, conscientemente, no pensar en lo ocurrido o hecho esfuerzos para evitar situaciones que te recordaran?
64. ¿Has permanecido constantemente en guardia, vigilante o te has sobresaltado fácilmente?
65. ¿Te has sentido como embotado/a o desconectado/a de otras personas, actividades o de tu entorno?
66. ¿Te has sentido culpable o incapaz de dejar de culparte a ti mismo/a o a otros/as por lo ocurrido o por los problemas que lo ocurrido haya podido provocar?

### CRECIMIENTO POSTRAUMÁTICO - *Posttraumatic Growth Inventory (PTGI-SF)*

A veces las crisis personales suponen cambios importantes en la propia vida. Por favor, indica para cada una de las cuestiones señaladas más abajo si el cambio descrito se ha producido en tu vida **como consecuencia de la pandemia de COVID-19**. No hay respuestas correctas ni incorrectas. Para responder a cada cuestión debes utilizar la siguiente escala:

<b>0</b>	Sin cambio
<b>1</b>	Muy pequeño
<b>2</b>	Pequeño
<b>3</b>	Medio
<b>4</b>	Grande
<b>5</b>	Muy grande

67. He cambiado mis prioridades sobre lo que es importante en la vida.
68. Aprecio más el valor de mi propia vida
69. Creo que puedo hacer cosas mejores con mi vida
70. Tengo una mejor comprensión de algunas cuestiones espirituales
71. Tengo una mayor sensación de cercanía hacia los demás
72. He establecido un nuevo rumbo en mi vida
73. Ahora sé mejor que puedo enfrentarme a los problemas
74. Tengo una fe religiosa más fuerte
75. Descubrí que era más fuerte de lo que en realidad pensaba
76. Aprendí mucho sobre lo extraordinaria que llega a ser la gente
77. Veo con más claridad el sentido de la vida

## Annex III

# Estudio resiliencia en personal sanitario de primera línea durante la pandemia de COVID-19



Nos gustaría invitarte a participar en esta investigación desarrollada por un equipo de investigadores de la Universidad Pontificia Comillas de Madrid, la Universidad de Zaragoza y el Centro Universitario Cardenal Cisneros. El estudio tiene el objetivo de estudiar el impacto psicológico de la crisis de la COVID-19 en el personal sanitario, y saber cómo os sentís en el momento actual para así poder entender mejor la situación y poder ayudar a tomar medidas adecuadas. La participación es completamente voluntaria y consiste en rellenar vía online una serie de cuestiones, lo que te llevará alrededor de 10 minutos. Puedes abandonar el estudio en cualquier momento que lo desees y no hay ningún tipo de consecuencia derivada de ello. **Es muy importante contar con tu experiencia, por lo que te animamos a que cumplimentes el cuestionario en su totalidad.** Muchísimas gracias por tu participación.

Todo el proceso de la investigación se realizará garantizando el anonimato de los participantes, y la voluntariedad de la participación. Los datos serán tratados de acuerdo con el Real Decreto-ley 5/2018, de 27 de julio, de medidas urgentes para la adaptación del Derecho español a la normativa de la Unión Europea en materia de protección de datos. Para participar, es requisito residir en España, tener al menos 18 años y haber sido profesional sanitario durante la crisis de la COVID-19.

Si necesita cualquier tipo de aclaración, puede contactar con las siguientes investigadoras de este estudio: Rocío Rodríguez Rey: [rocio.r.rey@comillas.edu](mailto:rocio.r.rey@comillas.edu); Raquel Caro Carretero: [rcaro@comillas.edu](mailto:rcaro@comillas.edu)

Marcar "Siguiente" implica que declaras:

1. Que he leído y entendido toda la información en relación a la participación en el citado proyecto.
2. He tenido la oportunidad de preguntar sobre dicha información.
3. Se me ha asegurado que los datos son completamente anónimos y que se mantendrá la confidencialidad.
4. El consentimiento lo otorgo de manera voluntaria y soy consciente que soy libre de retirarme del estudio en cualquier momento del mismo sin tener que dar explicación alguna.
5. Que soy mayor de 18 años y resido en España.

Siguiente