




ORIGINAL ARTICLE

Burnout, resilience and psychological flexibility in frontline nurses during the acute phase of the COVID-19 pandemic (2020) in Madrid, Spain

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Abstract

Background: In April 2020, Spain was the country with the highest number of patients infected by COVID-19 in Europe. The pressure on health care providers has had a direct impact on nurses and their mental health.

Aim: The aim of this study is to demonstrate the causal relationship between resilience, acceptance, experiential avoidance, psychological inflexibility and burnout syndrome, all of which are measured with validated questionnaires.

Methods: This was designed as a transversal correlational study with nurses who worked during the acute phase of the pandemic in public hospitals in the Community of Madrid with patients diagnosed with COVID-19 in COVID-19 medical hospitalization units, emergency services and intensive care units. Google Forms was used to obtain an informed consent sheet, socio-demographic variables and the following questionnaires: 10 CD-Risk, Connor-Davidson Risk Resilience Scale, Acceptance and Action Questionnaire-II and the Maslach Burnout Inventory.

Results: The final sample included 375 nurses with a high number of consecutive days of direct exposure to an infected patient and a very high number of consecutive days without rest; almost 18% suffered from COVID-19. The nurses presented medium levels of resilience, medium levels of experiential avoidance and medium levels as measured for emotional exhaustion, personal accomplishment and depersonalization. We also found a predictive correlation between all the dimensions of the burnout questionnaire in relation to the data obtained from the resilience questionnaire.

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Conclusions: There is a direct and predictive relationship between the resilience that nurses had during the acute phase of the pandemic and their capacity for acceptance, experiential avoidance, psychological inflexibility and burnout syndrome.

Implications for Nursing Management: The scores show the necessity to implement preventive measures to avoid fatal psychological consequences for nurses.

KEYWORDS

burnout, quality of work environment, stress

1 | BACKGROUND

Coronaviruses (CoV) are a huge family of known viruses whose infection is associated with severe respiratory diseases in humans and infected animals. A novel coronavirus was identified as the cause of an ordinary form of pneumonia of unknown cause, common cold or flu in Wuhan, the most populated city (11 million inhabitants) in the central region of China at the end of December 2019 and was firstly named '2019-nCoV'. There was a striking resemblance of SARS-CoV-2 (Wu et al., 2020) (Cucinotta & Vanelli, 2020) with SARS-CoV and MERS-CoV identified in 2003 and 2012, respectively (Paules et al., 2020). On 11 March 2020, the WHO Director General Dr Tedros Adhanom announced WHO's highest level of alarm (Cucinotta & Vanelli, 2020).

In April 2020, Spain had the highest number of patients infected by COVID-19 in Europe, 30% of whom required hospitalization and 4% of these were admitted to an intensive care unit (Plaza-Ramos et al., 2020). From 3 January 2020 to 22 March 2021, there were 3,206,116 confirmed cases of COVID-19 with 72,793 deaths, reported to WHO (WHO, 2021).

The ICN data set in 2020 estimated that around 1.6 million health care workers have been infected in 34 countries (Setiawati et al., 2021). The percentage of professionals affected is different from country to another. A report conducted by the Centers for Disease Control and Prevention dated 2 June 2020 reported 69,761 cases and 368 deaths in the United States among health professionals (Kang et al., 2020; Mubarak et al., 2021).

Organizationally, COVID-19 pandemic has also meant the greatest health crisis of all time in Spain, revealing a lack of expertise in the pandemic management, limited human and material resources, a significant shortage of intensive or acute care beds and distance or ignorance of symptoms, diagnosis and treatment of the disease (ISCIII, 2021).

During that time, nurses were mainly working in a hostile environmental with long and gruelling shifts. Their procedures were subject to quick organizational changes with no tests and inadequate individual protective equipment to protect them from COVID-19. A high proportion of non-specialized teams in their last year of the bachelor's degree in nursing were recruited because of the reduction in the workforce, and they were put in positions to address end-of-life decisions and everchanging situations, replacing the patients' families in providing emotional support (Setiawati et al., 2021).

Such circumstances generated a huge emotional and psychological impact manifested by anxiety, job stress, helplessness and fear of being infected. There was an imbalance between their own desires and safety and the needs of patients or even their own families (Luceño-Moreno et al., 2020). Nurses felt uncertainty and had difficulty managing the workload. They suffered from energy loss, low self-esteem and often had little interest in patients due to their mental and emotional fatigue for lengthy periods of time, and this resulted in burnout syndrome (El-Hage et al., 2020) (Restauri & Sheridan, 2020).

In order to protect the psychological well-being of frontline nurses and minimize the impact of burnout or traumatic events, interventions promoting resilience and psychological flexibility were developed. Psychological flexibility represents a key element of Acceptance and Commitment Therapy (Hossain & Clatty, 2021) (Hou et al., 2020) (Barello et al., 2020). It is often offered to people whose emotional balance can handle situations according to their own strong values and goals, which have led to the growth and strengthening of the organization even when unwanted feelings and memories appear (Hossain & Clatty, 2021).

Resilience relates to an individual's capacity to adapt and quickly overcome adversities or stressors with minimal psychological impact, maintain social support and not sink into pessimism (Ren et al., 2018).

Consequently, there have been no studies that report burnout and two coping strategies together: resilience and experiential avoidance and acceptance or psychological flexibility developed to overcome this traumatic experience in frontline nurses during the COVID-19 pandemic in Spain.

Knowledge of identification of stressors and coping strategies are essential for strengthening the mental health of frontline nurses during the crisis. This is also required to minimize the impact of turnover, lower achievement, absenteeism and high costs (El-Hage et al., 2020) and could generate an empowered health care system performance for future pandemics (Restauri & Sheridan, 2020). We cannot ignore that poor mental health of nurses can result from accidents, medical errors, damage to patient safety or a poor standard of care (Alahdab et al., 2020).

For all these reasons, we hypothesize that there is a direct and predictive relationship between the resilience that nurses had during the acute phase of COVID-19 pandemic (2020) and their ability for acceptance, experiential avoidance, psychological inflexibility and burnout syndrome. Therefore, the main objective is to demonstrate this causal relationship between resilience, acceptance, experiential

avoidance, psychological inflexibility and burnout syndrome, all of which are measured with validated questionnaires.

2 | MATERIALS AND METHODS

2.1 | Design and sample

This study used a transversal correlational approach. The nurses from public and university hospitals in Madrid (Spain) were informed of the nature and aim of the study, and their participation was voluntary. Data were obtained through this link: <https://docs.google.com/forms/d/e/1FAIpQLSdr9x9FkaQoiwLEt-TaixKqg-sBIOSq-s8UnWysCLOI8oIIIA/viewform?vc=0&c=0&w=1&flr=0> from 1 June to 30 September, 2020.

Google Forms was used to obtain an informed consent sheet and sociodemographic variables including age, sex, smoking status, marital status, weight, height and body mass index (BMI). Work environment variables included the number of years worked, the number of consecutive workdays without pay, days of exposure to COVID-19 and COVID-19 patients (Wollesen et al., 2019).

The inclusion criteria were (a) women aged 18 years or older, (b) adequate understanding of Spanish at an oral and written level and (c) nurses who had worked in the acute phase of the pandemic in public hospitals in the Community of Madrid with patients diagnosed with COVID-19, in COVID-19 medical hospitalization units, emergency services and intensive care units. The exclusion criterion was inadequate completion of the questionnaires.

2.2 | Sample size

The sample size was calculated with software from Unidad de Epidemiología Clínica y Bioestadística, Complejo Hospitalario Universitario de A Coruña, and Universidade A Coruña (www.fisterra.com). The calculations were based on the total nurses working in Spain on 1 July 2021, which amounted to 255,473 nurses, and a total of 50,955 of them are from Madrid-Spain (<https://www.ine.es/jaxi/Datos.htm?path=/t15/p416/a2016/10/&file=s08004.px>). It was determined that with an α level of .05, with a confidence interval of 95%, based on a desired power of 80% with a β level of 20%, and a precision of 6% for a proportion of 50%, at least 267 nurses must be recruited. Assuming a loss of 10%, a minimum of 296 participants had to be included in the study.

2.3 | Survey setting/tools

2.3.1 | 10 CD-Risk, Connor–Davidson Risk Resilience Scale (CD-RISC)

Resilience was evaluated using the short version of the CD-RISC in the Spanish adaptation of Notario-Pacheco et al. (2011). It consists of

10 items (those items numbered 1, 4, 6, 7, 8, 11, 14, 16, 17, 19) of the original scale elaborated by Connor and Davidson (2003). With the use of this scale, participants were asked to answer to what extent they agreed with each of the sentences presented to them (For example, item 1: 'I am able to adapt to changes'.) The form of response is a 5-point Likert-type scale from 0 (*totally disagree*) to 4 (*totally agree*). It evaluates resilience from five spheres: personal competence, self-demand and tenacity; confidence in one's intuition and tolerance for adversity; positive acceptance of change and establishment of safe relationships; control and spiritual influences. The final score is the sum of all the responses obtained on each item (range 0–40), and the highest scores show us the highest level of resilience. The reliability of Spanish adaptation 10-item CD-RISC: Cronbach's $\alpha = .85$, and the weights in factor analysis were within the range of .48–.76 (Notario-Pacheco et al., 2011).

2.3.2 | Acceptance and Action Questionnaire-II, AAQ-II

AAQ-II evaluates the concept of acceptance, experiential avoidance and psychological inflexibility. This questionnaire assesses the extent to which people, in the face of their private events, associated with psychological distress, manage to accept them and keep their goals and values present, directing their actions towards them. This test has an internal consistency of $\alpha = .74$ and was adapted from English to Spanish. It consists of 10 items that are evaluated using a 7-point Likert scale and where items 1, 6 and 10 are inverse. Therefore, the range varies from 10 to 70. High scores indicate less acceptance, that is, greater experiential avoidance (Barajas, 2015; Valencia, 2019).

2.3.3 | Maslach Burnout Inventory

This questionnaire assesses the syndrome of emotional exhaustion, depersonalization and lack of personal fulfilment at work that can develop as a consequence of continued exposure to work stressors (Wollesen et al., 2019).

To measure the degree of professional burnout, the Spanish version of the MBI was used. This questionnaire consists of 22 items. The participants responded according to the frequency of experience of the feelings expressed: never (0), a few times a year or less (1), once a month or less (2), a few times a month (3), once a week (4), a few times a week (5), every day (6). The sum of the scores determines three dimensions of professional burnout: emotional exhaustion (9 items), depersonalization (5 items) and personal accomplishment (8 items). The score is inverse in items 1, 4, 5 and 6. To interpret the scores obtained on the three scales, we used the following cut-off points: For emotional exhaustion, the values are between 15 and 24 (<15 low, 15–24 medium and >24 high), for depersonalization between 4 and 9 (<4 low, 4–9 medium and >9 high) and for personal accomplishment between 33 and 39 (<33 high, 33–39 medium and >39 low).

Burnout was measured using the version validated in Spanish (Seisdedos, 1997) and has been used in previous studies (Yuguero, Forné, et al., 2017; Yuguero, Ramon Marsal, et al., 2017; Yuguero Torres et al., 2015) showing a Cronbach's alpha coefficient for the emotional exhaustion scale of .92, for depersonalization .83 and for personal fulfilment .82.

2.4 | Ethical aspects

The study was approved by the Ethics Committee of the Universidad Rey Juan Carlos (Registration number: 0906202014120). All participants signed informed consent forms prior to completing the questionnaire through this link: <https://docs.google.com/forms/d/e/1FAIpQLSdR9x9FkaQoiwLEt-TaixKgg-sBIOSq-s8UnWySCL0I8oIIIA/viewform?vc=0&c=0&w=1&flr=0>.

2.5 | Data analysis

All variables were examined for normality of the distribution using the Kolmogorov–Smirnov test, and the data were considered normally distributed if $p > .05$. Independent student's *t* tests were performed to determine if there were statistically significant differences when a normal distribution is shown. Measurements that were not normally distributed were analysed using the nonparametric Mann–Whitney *U* test. For the statistical analysis, the SPSS 20.0 package for Windows was used.

For the cross-sectional analytical study, an analysis of quantitative variables was carried out using means and deviations, with respect to categorical variables, counts and percentages. Pearson's correlation was performed in order to measure the strength of association between two quantitative variables, and linear regression analysis was used to determine the predictive value of significant Pearson correlations. A *p* value of $<.05$ was considered statistically significant (SPSS for Windows, version 20.0; SPSS Inc., Chicago, IL).

3 | RESULTS

3.1 | Participants

The final representative sample included 375 nurses who completed the questionnaires correctly.

3.2 | Descriptive data

Nurse demographic characteristics and professional and questionnaire variables of the sample are shown in Table 1, which presents the descriptive data of the sample and the study questionnaire variables. Regarding the professional variables in which the overload of consecutive days of direct care for COVID-19 patients, consecutive days without rest with COVID-19 patients and years of experience as a nurse are explored among other aspects. This sample is composed of married and unmarried nurses with sufficient years of nursing

TABLE 1 Nurses' information and professional and questionnaire variables of the sample $N = 375$

Variables	<i>n</i> (%)	Mean \pm SD	Range (min–max)
Sex (male/female)	375 (38/337)		
Age (years)		34.62 \pm 10.31	21–64
Height (cm)		165.37 \pm 7.01	150–190
Weight (kg)		63.96 \pm 14.44	51–170
BMI		23.3 \pm 4.82	16.8–60.9
Marital status (unmarried/married)	259 (69.1%)/116 (30.9%)		
Smoker (no/yes)	279 (74.4%)/96 (25.6%)		
Have you been a COVID-19 patient? (no/yes)	310 (82.7%)/65 (17.3%)		
Years of professional experience		23.10 \pm 16.26	1–25
Number of days with direct exposure to patients with COVID-19		90.48 \pm 16.67	1–100
Number of consecutive days of work without rest		9.41 \pm 11.68	1–18
10 CD-RISC Total Score		28.75 \pm 5.50	6–40
AAQ-II YUC Total Score		30.31 \pm 9.93	11–60
Maslach scale: Emotional Exhaustion Score		23.85 \pm 10.27	3–48
Maslach scale: Personal Accomplishment Score		39.08 \pm 6.39	18–48
Maslach scale: Depersonalization Score		7.66 \pm 5.79	0–30

Abbreviations: 10 CS-RISC, 10-item Connor–Davidson Resilience Scale; AAQ-II YUC, Acceptance and Action Questionnaire-II; BMI, body mass index; max, maximum; min, minimum; SD, standard deviation.

TABLE 2 Pearson correlation coefficients between all variables

	Age	Body mass index	Years of professional experience	Number of days with direct exposure to patients with COVID-19	Number of consecutive days of work without rest	10 CD-RISC Total Score	AAQ-II YUC Total Score	Maslach scale: Emotional Exhaustion	Maslach scale: Personal Accomplishment	Maslach scale: Depersonalization
Age	1									
Body mass index	.212**	1								
Years of professional experience	.111*	.014	1							
Number of days with direct exposure to patients with COVID-19	-.054	-.031	-.005	1						
Number of consecutive days of work without rest	-.058	-.054	-.001	.073	1					
10 CD-RISC Total Score	.066	-.083	-.047	.067	.052	1				
AAQ-II YUC Total Score	-.004	.054	-.041	.094	.085	-.433**	1			
Maslach scale: Emotional Exhaustion	-.007	-.017	-.025	.028	.006	-.332**	.406**	1		
Maslach scale: Personal Accomplishment	.100	-.009	.027	-.018	-.035	.484**	-.402**	-.391**	1	
Maslach scale: Depersonalization	-.168**	-.019	-.040	.163**	.053	-.200**	.409**	.463**	-.423**	1

Abbreviations: 10 CS-RISC, 10-item Connor-Davidson Resilience Scale; AAQ-II YUC, Acceptance and Action Questionnaire-II.

**Bilateral correlation significant *p* value .01.

*Bilateral correlation significant *p* value .05.

experience to meet the criteria. They had a high number of consecutive days of direct exposure to an infected patient and also a very high number of consecutive days without rest; almost 18% suffered from COVID-19.

Regarding the analysis of the means obtained in the different questionnaires, we found that the nurses in the sample presented medium levels of resilience, measured with 10 CD-RISC; likewise, medium levels of experiential avoidance were obtained in the AAQ-II YUC questionnaire. Analysing the three dimensions of the burnout questionnaire, we have found that the sample presents medium levels for emotional exhaustion, personal accomplishment and depersonalization.

3.3 | Correlation and regression analysis

We used P-Pearson and linear regression analyses to evaluate the relationship between all variables. Table 2 shows the correlation statistical analysis. In this table, we found positive significant correlations between the personal accomplishment dimension score and the 10 CD-RISC total score (.484, $p < .01$), Maslach scale: depersonalization dimension score and number of days with direct exposure to patients with COVID-19 (.166, $p < .01$) and BMI and age, but this significant correlation is not relevant for the research objective. In addition, we found negative significant correlations between the depersonalization dimension score and age (−.1668, $p < .01$), depersonalization dimension score and the 10 CD-RISC total score (−.200, $p < .01$), emotional exhaustion dimension score and the 10 CD-RISC total score (−.332, $p < .01$) and AAQ-II YUC total score and 10 CD-RISC total score (−.433, $p < .01$).

After determining the significant correlations (positive and negative), a linear logistic regression analysis was performed to determine if their value was predictive.

In Table 3 are shown the linear regression analyses to evaluate the relationship between the following two variables. depersonalization score and age; depersonalization score and the number of days with direct exposure to patients with COVID-19; relationship between the depersonalization score and the 10 CD-RISC total score;

AAQ-II YUC total score and the 10 CD-RISC total score; emotional exhaustion score and the 10 CD-RISC total score; 10 CD-RISC total score and personal accomplishment total score; depersonalization score and the AAQ-II YUC; personal accomplishment score and the AAQ-II YUC and the last emotional exhaustion score and the AAQ-II YUC, and all of these relationship showing a statistically significant negative or positive correlation ($p < .01$). The significant association suggests that a linear regression model is optimal for predicting the relationship of those two variables mentioned above.

4 | DISCUSSION

The data obtained in the study showed that the sample of nurses, mainly women, middle-aged, single and non-smokers, with a more than acceptable professional experience showed medium levels of resilience, experiential avoidance and burnout. Regarding the correlations on the variables analysed, predictive correlations (positive and negative) are shown in all the dimensions of the burnout questionnaire in relation to the data obtained from the resilience questionnaire. Significant and predictive correlations also have been obtained with respect of the experiential avoidance questionnaire in relation to the resilience questionnaire. The age and days of direct exposure to COVID-19 also showed significant and predictive correlations with respect to the depersonalization dimension of the burnout questionnaire. Finally, the three dimensions of the burnout questionnaire also obtained positive and predictive correlation with the AAQ-II YUC scores.

These results are in the same line with many other studies. Lai et al. (2020) documented the psychological damages suffered in Wuhan as symptoms of depression, anxiety, insomnia and distress. Likewise, in Germany, Zerbini et al. (2020) detected high burnout scores on the tests administered to nurses who worked with COVID-19 infected patients, scores higher than our sample.

In a study on Italian nurses, a country similar to Spain in its prevalence and severity of COVID-19 cases in the first wave, 'high emotional burnout, work-related pressure ...', similar to our results (Barello et al., 2020), was found.

TABLE 3 Linear regression between two variables

Linear regression between two variables	R^2 (p) equation	Linear regression between two variables	R^2 (p) equation
10 CD-RISC Total Score/AAQ-II YUC Total Score	$R^2 = .18$ ($p < .01$) $Y = -0.77 + 52.68$	AAQ-II YUC Total Score/Maslach scale: Depersonalization	$R^2 = .16$ ($p < .01$) $Y = 0.69X + 24.98$
AAQ-II YUC Total Score/Maslach scale: Emotional Exhaustion/	$R^2 = .163$ ($p < .01$) $Y = -0.38X + 21.02$	10 CD-RISC Total Score/Maslach scale: Depersonalization	$R^2 = .03$ ($p < .01$) $Y = -0.21X + 13.70$
Maslach scale: Emotional Exhaustion/10 CD-RISC Total Score	$R^2 = .11$ ($p < .01$) $Y = -0.62X + 41.68$	Maslach scale: Personal Accomplishment/AAQ-II YUC Total Score	$R^2 = .15$ ($p < .01$) $Y = -0.61X + 54.21$
Maslach scale: Personal Accomplishment/10 CD-RISC Total Score	$R^2 = .23$ ($p < .01$) $Y = -0.56X + 22.87$	Maslach scale: Depersonalization/number of days with direct exposure to patients with COVID-19	$R^2 = .02$ ($p < .01$) $Y = 0.01X + 6.54$
Maslach scale: Depersonalization/age	$R^2 = .02$ ($p < .01$) $Y = -0.09X + 10.91$		

Regarding resilience joined with burnout, Roberts et al.'s study Roberts et al. (2021) aimed to assess frontline nurses' burnout level and the influencing factors, which included knowledge about COVID-19, workplace environment and demographics during the first wave of the COVID-19 pandemic in the public hospitals. It also aimed to evaluate the coping strategies developed to overcome this traumatic experience: resilience, experience avoidance, acceptance or psychological flexibility and the relationship between each variable to the burnout level (Roberts et al., 2021). In our study, experiential avoidance had an important influence on the levels of resilience. In addition, our nurses were at medium to low levels of resilience, which, together with experiential avoidance, can predispose them to negative consequences.

This study has limitations, and the results should be considered in light of these. First, the sample was not randomized, and the results are related to the first wave. Currently, the nurses' score for variables such as resilience, burnout, depression and anxiety may be different due to the fatigue from the past 2 years working in poor conditions, so a comparative study should be performed.

5 | CONCLUSION

After analysing the data, we concluded there is a direct and predictive relationship between the resilience that nurses had during the acute phase of the COVID-19 pandemic (2020) and their capacity for acceptance, experiential avoidance, psychological inflexibility and syndrome of burnout.

6 | IMPLICATIONS FOR NURSING MANAGEMENT

The implications for nursing management are that the scores show the necessity to implement preventive measures to avoid fatal psychological consequences for nurses. For this reason, nursing managers must take this evidence into account in order to implement early detection measures and subsequently implement prevention and/or treatment programmes for affected nurses.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

ETHICAL CONSIDERATIONS

The study was approved by the Ethics Committee of the Universidad Rey Juan Carlos (Registration number: 0906202014120).

AUTHOR CONTRIBUTIONS

Marta Losa-Iglesias performed the conceptualization, methodology, software, data curation and writing—original draft preparation. Raquel Jiménez-Fernándeau performed the data curation, visualisation and investigation. Bibiana Trevissón-Redondo, Inmaculada Corral-Liria and Daniel Lopez-Lopez performed the validation and writing—reviewing and editing. Ricardo Becerro-de-Bengoa-Vallejo helped in the writing—reviewing and editing.

DATA AVAILABILITY STATEMENT

Authors do not wish to share the data.

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