

Predictors of burnout in female nurses during the COVID-19 pandemic

Lourdes Luceño-Moreno PhD, Lecturer  |

Beatriz Talavera-Velasco PhD, Assistant Professor  | Jesús Martín-García PhD, Lecturer 

Department of Social and Work Psychology and Individual Differences, Faculty of Psychology, Complutense University of Madrid, Madrid, Spain

Correspondence

Beatriz Talavera, Department of Social and Work Psychology and Individual Differences, Faculty of Psychology, Complutense University of Madrid, Campus de Somosaguas, s/n. Pozuelo de Alarcón. Postal code: 28223, Madrid, Spain.

Email: beatriztalavera@ucm.es

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Abstract

Aim: The aim of this study was to evaluate the predictors of burnout in female nurses during the first wave of the COVID-19 pandemic. It also sought to evaluate the relationship between each of the variables studied (anxiety, depression, sociodemographic and COVID-19 variables) and the dimensions of the burnout.

Background: One of the groups of health care workers worst affected by the COVID-19 crisis has been women working as nursing staff, due to the high percentage they account for at a global level and their direct contact with infected patients.

Design: This was a cross-sectional, quantitative study.

Methods: Four hundred forty-four Spanish female nurses from hospital and primary health care centres took part in the study. The data were obtained in 2020 by means of an online survey.

Results: Symptoms of depression are a common predictor variable to all the dimensions of burnout, whereas symptoms of anxiety predict emotional exhaustion and depersonalization. Age and years of experience in the job predict depersonalization, whereas the probability of contracting the infection is a predictor variable of emotional exhaustion and personal accomplishment.

Conclusion: Predictor variables should be considered in the creation of prevention and intervention plans to reduce the levels of burnout in female nurses.

KEYWORDS

anxiety, burnout, COVID-19, depression, nurses, pandemic

Summary statement

What is already known about this topic?

- During the COVID-19 pandemic, nurses have been exposed to high levels of burnout. Research has shown that nurses experience high levels of anxiety and depression in pandemics, in comparison with other job positions in the health care sector.

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- Being a woman and having certain previous psychological conditions (symptoms of anxiety and depression) are predictors of emotional exhaustion and depersonalization.

What this paper adds?

- This research focuses on female nurses, and makes an important contribution given the lack of studies that assess these variables from a gender perspective.
- Symptoms of depression have been identified as a common predictor variable of the three dimensions of burnout in female nurses during the pandemic, but anxiety only predicts emotional exhaustion and depersonalization, not personal accomplishment.
- Age and years of experience in the job predict depersonalization, whereas the probability of contracting the infection is a predictor of emotional exhaustion and personal accomplishment.

The implications of this paper for practice:

- The probability of contracting the infection, years of experience as a nurse and age are variables related to higher levels of burnout in female nurses.
- Absence of depression symptoms is associated with low levels of the three dimensions of burnout, whereas anxiety only predicts depersonalization and personal accomplishment: the implications of this should be considered in developing preventive programmes for burnout.

1 | INTRODUCTION

The crisis caused by the COVID-19 pandemic has underscored the work of health care personnel, who have had to adapt to new working procedures with a higher risk of becoming infected (Chen et al., 2020). One of the challenges they have had to face has been to perform their work without the necessary personal protective equipment, in light of the shortage of face masks and special protection to care for COVID-19 patients (Lotfinejad et al., 2020). This situation has exacerbated the development of burnout of these workers (Burdorf et al., 2020), specially, in the case of female nurses (Chen et al., 2021).

Burnout is a syndrome characterized by high levels of emotional exhaustion, depersonalization and low personal accomplishment, caused by the subject's constant emotional involvement when faced with the multiple demands of their work (Maslach & Leiter, 2008). During the COVID-19 pandemic, various studies have identified different predictors of burnout in health care personnel. These include research with health care personnel in the United Kingdom, Poland and Singapore that identified symptoms of anxiety and depression as predictors of burnout (Denning et al., 2021). Similar results were identified in a study with 539 health care professionals, of which 90% were women and more than half were nurses. The predictors of burnout identified in this research were younger age, working in direct contact with COVID-19 patients and presenting almost four times the probability of suffering from depression (Ferry et al., 2021). Similarly, Giusti et al. (2020) identified the fear of becoming infected, being a

woman, the job of being a nurse and having certain previous psychological conditions (symptoms of anxiety and depression) as predictors of emotional exhaustion and depersonalization.

Different studies have evidenced the relationship between nursing staff and high levels of burnout (Van Zyl & Noonan, 2018; Vitale et al., 2020); some research has even found that nursing staff show higher levels of burnout than doctors and nursing assistants (Çelmeçe & Menekay, 2020). Furthermore, Liu and Zhang (2020) concluded that the burnout rate in nurses has risen since the start of the COVID-19 pandemic, associating this rate with higher levels of anxiety and depression. This research shows that those nurses with symptoms of anxiety and fewer years of work experience showed higher levels of burnout. Other previous studies on such epidemics as SARS and Ebola also detected high levels of anxiety and depression in nursing staff (Lehmann et al., 2015; Liu et al., 2012).

The fear of infection and concern over endangering family members was pinpointed as another source of emotional exhaustion, along with being female, age and family situation. Specifically, being younger or a mother with small children are factors associated with emotional exhaustion in women, along with having less work experience and the perception of a lack of skills to care for COVID-19 patients (Sriharan et al., 2021). Other factors related to burnout in nurses are the work-shift, marital status or educational level. Employees with week-end shifts or nonfixed day shifts reported higher levels of emotional exhaustion than individuals who work with fixed day shifts (Jamal, 2004). Also, single nurses have experienced higher levels of

emotional exhaustion and depersonalization than married nurses (Aydin-Sayilan et al., 2021). Meanwhile, health care workers with higher educational levels have presented higher levels of burnout (Duarte et al., 2020).

Women are among the main people affected within the group of health care personnel. For more than a decade, female nurses have accounted for 75% of all health care workers at a global level (World Health Organization, 2008) and have a greater probability than men of suffering from emotional exhaustion and symptoms of depression (Guille et al., 2017). It has been shown that female nurses develop higher levels of stress than other health care personnel when dealing with patients affected by COVID-19 (Lai et al., 2020). Furthermore, female nurses who cared for COVID-19 patients have reported worse mental health during the pandemic and have shown higher levels of emotional exhaustion (Chen et al., 2021; Luceño-Moreno et al., 2020).

Considering the high percentage of women who work as nurses in the health system, and the main predictors of burnout among this group of workers during the pandemic, the main aim of this study was to evaluate the predictors of burnout among female nurses during the first wave of the COVID-19 pandemic. It also evaluated the relationship between each of the variables (demographic, job-related, COVID-19, anxiety and depression) and the components of burnout (emotional exhaustion, depersonalization and personal accomplishment).

2 | METHOD

2.1 | Design

This was cross-sectional and quantitative research. The sampling was non-random convenience sampling.

2.2 | Participants

The G*Power 3.1.97 program was used to determine the sample size. The type of power analysis used was compute required sample size-given α , power, and effect size. A sample size of 230 was obtained. This number was surpassed, as 444 female nurses were evaluated. The average age was 40.45 years old. In Table 1, the demographic and job-related variables are presented.

2.3 | Data collection

The data were obtained in 2020 by means of an online survey carried out with Google Forms that included all the following items:

Demographic variables, those related to the job position and information on COVID-19: information was gathered on age, education, marital status, domestic living arrangements, length of time in the job position, availability of protective equipment and the probability of infection, among others (see Tables 1 and 2).

2.3.1 | Anxiety and depression

The Hospital Anxiety & Depression Scale (HADS) was used (Zigmond & Snaith, 1983)—in its Spanish adaptation (Terol et al., 2007). This consists of 14 items and the sub-scales of Anxiety and Depression, containing seven items each. This was filled in using the Likert scale of 0 to 3. High scores indicate a higher prevalence of symptoms of anxiety and depression. This tool presents adequate psychometric properties, thus confirming the validity of two factors with an internal consistency of 0.71 and 0.77 on anxiety and depression scales, respectively (Terol et al., 2007).

Burnout: The Spanish adaptation of the Maslach Burnout Inventory-MBI-HSS (Maslach et al., 1996; Seisdedos, 1997) was employed. Burnout is defined as high levels of emotional exhaustion and depersonalization and low levels of personal accomplishment. This is made up of 22 items responded to on a Likert scale of 0 (*never*) to 6 (*every day*). Its adaptation to Spanish has shown appropriate psychometric characteristics through a three factor solution and internal consistency of 0.90, 0.79 and 0.71 for emotional exhaustion, depersonalization and personal accomplishment scales, respectively (Seisdedos, 1997).

Researchers contacted both the coordinators and trade unions of health centres to inform them of this study. All the nurses must be in contact with COVID-19 patients. In the questionnaire, this variable was an inclusion criterion to participate in this study. After reading the information about its anonymous nature and the confidential treatment of the data, the female nurses evaluated provided their informed consent before filling in the items, which took approximately 10 min.

2.4 | Ethical considerations

The current study was reported using the consolidated criteria for APA Journal Article Reporting Standards (JARS). The approval of the Deontological Committee of the Complutense University of Madrid (ref. Pr_2019_038; 01/04/2020) was obtained before beginning the study.

2.5 | Data analysis

The analysis was completed using the statistical package SPSS 26. A descriptive analysis was carried out using direct scores (frequencies, average, standard deviation) of anxiety, depression and burnout scores. Linear regression equations were performed to evaluate the relationship between each of the variables (demographic, job-related, COVID-19, anxiety and depression) independently, using the burnout scales (emotional exhaustion, depersonalization and personal accomplishment), using the value of R^2 and the standardized β coefficient. The aim was to predict the different factors of burnout based on different variables (demographic, job-related, COVID-19, anxiety and depression). Furthermore, linear regression equations were used

TABLE 1 Association between sociodemographic and job-related variables, and the scales of burnout: Emotional exhaustion, depersonalization and personal accomplishment (n = 444)

Variable	Descriptive n (%)	Emotional exhaustion			Depersonalization			Personal accomplishment		
		R ²	B (β)	95% CI	R ²	B (β)	95% CI	R ²	B (β)	95% CI
Age M (SD)	40.45 (10.39)	0.00	-0.07 (-0.06)	-0.17, 0.04	0.03***	-0.10 (-0.17)***	-0.15, -0.04	0.00	0.02 (0.04)	-0.03, 0.08
Autonomous region of work		0.00	-	-	0.00	-	-	0.01	-	-
Region of Madrid	363 (81.80%)		-	-		-	-		-	-
Others	81 (18.20%)		-0.52 (-0.02)	-3.37, 2.34		0.27 (0.02)	-1.18, 1.73		1.33 (0.08)	-0.15, 2.81
Studies completed		0.02**			0.00			0.00		
Postgraduate (master's degree) or doctorate	85 (19.10%)		3.91 (0.13)**	1.13, 6.69		0.29 (0.02)	-0.11, 1.73		-0.48 (-0.03)	-1.94, 0.97
Bachelor's degree	359 (80.90%)		-	-		-	-		-	-
Marital status		0.01			0.02**			0.00		
Married	206 (46.40%)		-	-						
Separated or divorced	142 (32%)		-0.11 (-0.00)	-2.64, 2.42		1.33 (0.10)*	0.04, 2.61		0.58 (0.48)	-0.74, 1.89
Single	96 (21.60%)		2.24 (0.08)	-0.62, 5.11		2.28 (0.16)**	0.83, 3.74		-0.68 (-0.05)	-2.17, 0.81
Family responsibilities										
Yes	257 (57.90%)	0.00	-0.54 (-0.02)	-2.77, 1.69	0.01*	-1.47 (-0.12)*	-2.60, -0.33	0.00	0.31 (0.02)	-0.85, 1.47
No										
No. of children in their care M (SD)	.97 (.98)	0.00	-0.36 (-0.03)	-1.49, 0.76	0.01*	-0.75 (-0.12)*	-1.32, -0.17	0.00	0.38 (0.06)	-0.21, 0.96
No. of people who they live with M (SD)	2.89 (1.25)	0.01	-0.77 (-0.08)	-1.65, 0.11	0.01	-0.40 (-0.08)	-0.84, 0.05	0.00	0.25 (0.05)	-0.21, 0.70
Type of centre										
Hospital	354 (79.70%)	0.00	-	-	0.00			0.00		
Primary care	90 (20.30%)		1.34 (0.05)	-1.40, 4.08		0.38 (0.03)	-1.02, 1.78		0.44 (0.03)	-0.98, 1.87
Shift										
Fixed	161 (36.30%)	0.01	1.50 (0.06)	-0.92, 3.92		0.26 (0.02)	-0.98, 1.50	0.01	-0.80 (-0.06)	-2.05, 0.46
Rotating	213 (48%)		-	-	0.00		-		-	-
12 or 24 h	70 (15.80%)		-1.36 (-0.04)	-4.55, 1.84		-0.73 (-0.04)	-2.37, 0.90		1.30 (0.08)	-0.35, 2.96
Type of contract										
Permanent	221 (49.80%)	0.00			0.00			0.00		
Temporary	223 (50.20%)		-0.99 (-0.04)	-3.19, 1.22		0.29 (0.02)	-0.84, 1.42		-0.19 (-0.02)	-1.34, 0.96
No. of years in job position M (SD)	8.44 (8.23)	0.00	0.06 (0.04)	-0.07, 0.20	0.00	-0.01 (-0.01)	-0.08, 0.06	0.00	0.03 (0.04)	-0.04, 0.10
Years as health care worker M (SD)	17.32 (10.31)	0.00	-0.07 (-0.06)	-0.18, 0.04	0.02**	-0.08 (-0.13)**	-0.13, -0.02	0.00	0.01 (0.02)	-0.05, 0.06
No. of hours worked per week M (SD)	38.22 (14.89)	0.00	-0.02 (-0.02)	-0.09, 0.06	0.00	-0.03 (-0.07)	-0.06, 0.01	0.00	0.02 (0.05)	-0.02, 0.06
No. of times on call a month M (SD)	4.61 (17.62)	0.01*	0.07 (0.11)*	0.01, 0.13	0.00	0.02 (0.07)	-0.01, 0.06	0.00	-0.02 (-0.07)	-0.06, 0.01

Notes: R², coefficient of determination; 95% CI, 95% confidence interval; β , standardized regression coefficient; M, mean; SD, standard deviation. Significant values are presented in bold. *p < 0.05. **p < 0.01. ***p < 0.001.

TABLE 2 Association between COVID-19 variables, anxiety and depression scales with factor of burnout: Emotional exhaustion, depersonalization and personal accomplishment (n = 444)

COVID-19 variables	Descriptive n (%)	Emotional exhaustion			Depersonalization			Personal accomplishment		
		R ²	B (β)	95% CI	R ²	B (β)	95% CI	R ²	B (β)	95% CI
Q1										
Yes	40 (9%)	0.00			0.00			0.00		
No	404 (91%)		0.03 (0.00)	-3.82, 3.89		0.34 (0.02)	-1.62, 2.31		-0.04 (-0.00)	2.04, 1.96
Q2										
Yes	122 (27.50%)	0.00	0.28 (0.01)	-2.19, 2.75	0.00	0.24 (0.64)	-1.03, 1.50	0.00	-0.93 (-0.07)	-2.21, 0.35
No	322 (72.50%)									
Q3										
Yes	375 (84.50%)	0.00	-2.33 (-0.07)	-5.37, 0.70	0.01	-1.24 (-0.07)	-2.79, 0.32	0.01*	2.07 (0.12)*	0.49, 3.64
No	69 (15.50%)									
Q4										
Yes	142 (32%)	0.01	1.88 (0.07)	-0.48, 4.24	0.00	-0.12 (-0.01)	-1.33, 1.09	0.00	-0.33 (-0.02)	-1.56, 0.89
No	302 (68%)									
Q5										
Very concerned	239 (53.80%)	0.02**			0.01			0.01*		
Somewhat concerned/unconcerned	205 (46.10%)		-3.32 (-0.14)**	-5.51, -1.13		-0.54 (-0.04)	-1.67, 0.58		-1.48 (-0.12)*	-2.63, -0.34
Q6										
Highly likely	307 (69.10%)	0.02**			0.00			0.01*		
Somewhat likely or unlikely	137 (30.90%)		-3.80 (-0.15)**	-6.16, -1.44		-0.66 (-0.05)	-1.88, 0.56		-1.28 (-0.10)*	-2.52, -0.04
Anxiety	10.40 (4)	0.28**	1.56 (0.53)**	1.32, 1.79	0.16***	0.60 (0.40)**	0.47, 0.73	0.02**	-0.23 (-0.15)**	-0.38, -0.09
Depression	7.20 (3.93)	0.23***	1.45 (0.48)**	1.21, 1.70	0.12***	0.52 (0.34)**	0.39, 0.66	0.07***	-0.42 (-0.27)**	-0.56, -0.28

Notes: Q1: Have you had to move house for fear of infecting your family members? Q2: Have you been in isolation due to the potential spread of COVID-19? Q3: Do you have personal protective equipment available to avoid contagion? Q4: Are any of the people you live with a high risk group? Q5: What level is your concern about someone you live with becoming infected? Q6: What is the chance of you becoming infected by COVID-19? R², coefficient of determination; 95% CI, 95% confidence interval; β , standardized regression coefficient. Significant values are presented in bold.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

to evaluate which variables (demographic, job-related, COVID-19, anxiety and depression) together predicted burnout in female nurses. Dummy variables were used to that end. The model was estimated with least squares, using the forward extraction method.

3 | RESULTS

The demographic details of the 444 participant nurses are set out in Table 1.

3.1 | Sociodemographic variables relating to job position and burnout

Older nurses showed lower scores in depersonalization. Holding a master's or doctoral degree and the number of on-call shifts a month were positively and significantly associated with emotional exhaustion. Being separated, divorced or single correlated to higher scores in depersonalization. The depersonalization variable was negatively and significantly associated with having family responsibilities, the number of children in their care and their number of years as a health care worker.

3.2 | Data regarding COVID-19 questions, anxiety and depression and their association with burnout

Being somewhat or not at all concerned that someone with whom you live might become infected was associated with lower levels of emotional exhaustion. Furthermore, thinking that it is unlikely or impossible that you can become infected by COVID-19 was related to lower scores in emotional exhaustion.

Having personal protective equipment available to avoid contagion was associated with higher levels of personal accomplishment. Being somewhat or totally unconcerned that someone you live with becomes infected was negatively and significantly associated with personal accomplishment, in the same way as believing that it is unlikely or impossible you will become infected by COVID-19. Nurses who conveyed more anxiety and depression symptoms had higher emotional exhaustion and depersonalization scores, and lower scores in personal accomplishment.

3.3 | Regression models for burnout (emotional exhaustion, depersonalization and personal accomplishment)

As seen in Table 3, the model predicting emotional exhaustion was significant, explaining 35% of the variance ($F(6,435) = 39.080$, $p < 0.001$). It was also significant for depersonalization, explaining 20.4% of the variance ($F(5,436) = 22.385$, $p < 0.001$). In relation to the model predicting personal accomplishment, this was significant, explaining 12% of the variance ($F(4,437) = 14.855$, $p < 0.001$). The only common variable to the three models was depression.

The variables associated positively with emotional exhaustion were anxiety, depression, the probability of depression (highly likely), level of education (master's or doctoral studies). Furthermore, the variables associated with lower emotional exhaustion scores were number of people lived with and working shifts of 12 or 24 h.

The variables associated with higher scores in depersonalization were anxiety, depression, number of years in the job and marital status (single), whereas older nurses exhibited lower depersonalization scores.

Finally, personal accomplishment was associated positively and significantly with the following variables: high likelihood of becoming

TABLE 3 Regression models for emotional exhaustion, depersonalization and personal accomplishment

Variable	Emotional exhaustion		Depersonalization		Personal accomplishment	
	B (β)	95% CI	B (β)	95% CI	B (β)	95% CI
Anxiety (HADS)	1.07 (0.36)***	0.76, 1.38	0.46 (0.31)***	0.29, 0.64		
Depression (HADS)	0.72 (0.24)***	0.40, 1.04	0.19 (0.12)*	0.01, 0.37	-0.47 (-0.30)***	-0.61, -0.33
No. of people you live with	-0.98 (-0.10)**	-1.70, -0.26				
Likelihood of infection (highly likely)	2.41 (0.09)*	0.45, 4.37			1.18 (0.09)*	0.01, 2.35
Concern regarding infecting people you live with (very concerned)					2.04 (0.17)***	0.93, 3.14
Level of education (master's degree or doctorate)	2.90 (0.10)*	0.60, 5.20				
Shift (12 or 24 h)	-3.10 (-0.09)*	-5.56, -0.62			2.23 (0.13)**	0.74, 3.71
No. of years in job position			0.19 (0.12)*	0.01, 0.37		
Age			-0.11 (-0.19)**	-0.12, -0.02		
Marital status (single)			1.44 (0.10)*	0.16, 2.71		

Notes: R^2 , coefficient of determination; 95% CI, 95% confidence interval; β , standardized regression coefficient. Significant values are presented in bold. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

infected, concern over infecting someone they lived with (very concerned) and working shifts of 12 to 24 h. On the other hand, nurses who had lower scores in personal accomplishment obtained higher depression scores (Table 4).

4 | DISCUSSION

This research sought to analyse the predictors of burnout in female nurses during the first wave of the COVID-19 pandemic. In addition, it evaluated the relationship between each of the variables (demographic, job-related, COVID-19 questions, anxiety and depression) and the components of burnout (emotional exhaustion, depersonalization and personal accomplishment).

The variables that predicted emotional exhaustion in female nurses were the higher prevalence of anxiety and depression symptoms, thinking that infection by COVID-19 is highly likely, having an education level of a master's or doctoral degree and working shifts of 12 or 24 h. A possible explanation regarding the level of education is that those female nurses with higher education take on more duties at work that involve responsibility. These responsibilities, along with the perception of the additional burden of work in stressful situations, have been identified as predictors of emotional exhaustion and even of the other components of burnout in nursing staff (Bruyneel et al., 2021). It is also noteworthy that the fact of living with other people is associated with less emotional exhaustion in this study. One possible reason is that the emotional support provided by the family and/or people participants lived with may be a factor to counteract emotional exhaustion, along with the other dimensions of burnout, as indicated in some other studies (Bellanti et al., 2021).

Regarding the type of shift, other studies have demonstrated an association between the type of shift and emotional exhaustion. For example, it is known that the morning shift is associated with lower levels of emotional exhaustion and depersonalization (Lang et al., 2010). In the COVID-19 pandemic, shift workers of the health care sector have reported higher levels of emotional exhaustion (Fiabane et al., 2021). Specifically, nurses that work in night or rotating shifts have had higher levels of burnout (Wan et al., 2022). Furthermore, those female nurses who do the most on-call duty per month,

or who are concerned that family members they live with may become infected, show more signs of emotional exhaustion. The association between concern over infecting family members during the COVID-19 pandemic and emotional exhaustion has been observed in other studies (Bashkin et al., 2021), although this has been more closely associated with undergoing traumatic situations, above all in female nurses (Chen et al., 2020; Kisely et al., 2020).

The predictor variables of depersonalization in female nurses were suffering anxiety, depression, many years in the job position and being single. Older nurses became less depersonalized. As regards age, other authors have shown the association between younger age and lower levels of personal accomplishment in female nurses (Zhang et al., 2020), which is not the case with the depersonalization variable, which shows more varied results.

Lastly, female nurses who feel more professionally accomplished are less likely to have symptoms of depression; similarly, those who feel it is highly likely they will become infected by COVID-19, those who are very concerned over infecting people they live with and those who work shifts of 12 or 24 h. One possible explanation why female nurses who feel more professionally accomplished are more concerned over infecting or over becoming infected may lie in the awareness they show over taking measures to avoid becoming infected with the disease while continuing to perform their work duties. Some previous research has indicated that those female nurses with higher levels of burnout have been more reluctant to work voluntarily during the pandemic (Murat et al., 2021). Other authors indicated the nursing profession as a context in which it is considered that it is right to offer quality care to patients despite the circumstances (Smith & Godfrey, 2002).

In this study, anxiety was conceived as a predictor variable of emotional exhaustion and depersonalization. This result coincides with another study that identified anxiety caused by the COVID-19 pandemic as a factor that contributed to the specific manifestation of emotional exhaustion and depersonalization (Mokros et al., 2021). In addition, the symptoms of depression was a predictor variable of all the dimensions of burnout. The manifestation of symptoms of depression has been identified as a predictor variable of burnout, particularly of emotional exhaustion (Tourigny et al., 2010). Other authors have also suggested that interventions aimed at reducing the symptoms of

TABLE 4 Correlation matrix ($n = 444$)

	1	2	3	4	5
1. Emotional exhaustion	1				
2. Depersonalization	0.57***	1			
3. Personal accomplishment	-0.23***	-0.21***	1		
4. Anxiety	0.53***	0.40***	-0.15**	1	
5. Depression	0.48***	0.34***	-0.27***	0.56***	1
M (SD)	28.02 (11.81)	6.73 (6.03)	39.61 (6.14)	10.40 (4)	7.20 (3.93)
α	0.83	0.70	0.77	0.85	0.84

Notes: α , Cronbach's alpha index; M, mean; SD, standard deviation.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

depression in young and single female nurses can lead to benefits in relieving burnout (Kim et al., 2021).

Some of the noteworthy conclusions of this study are the following: anxiety only predicts two of the three dimensions of burnout. In addition, of the anxiety and depression symptoms evaluated, age and years of experience in the job only predict depersonalization, whereas the probability of contracting the infection is a predictor of emotional exhaustion and personal accomplishment. It is important, above all, to highlight the importance of the absence of symptoms of depression as a predictor variable of all the factors of burnout. In addition, it is important to highlight the COVID-19 questions. Various studies have shown that nurses have had to work with fear of becoming infected (González-Gil et al., 2021) or fear of infecting others, and with the negative impact this has had on their families (Norman et al., 2021). Also, nurses have been exposed to critical situations without adequate protective equipment (Galehdar et al., 2020).

4.1 | Study limitations

The limitations of this study include the use of online questionnaires. For example, those female nurses without a suitable device or inexperienced in handling technology were unable to fill in the questionnaire. Another limitation of this study was the fact that the data collected corresponded to a discrete moment in time. As indicated by other researchers, future work should be aimed at seeing how the disease caused by COVID-19 may affect women in the decisions they take in their working environment (Sriharan et al., 2021). It would be interesting to investigate how anxiety is related to perceived risk of infection. In addition, it will be necessary to carry out longitudinal studies that analyse the impact of working conditions on the development of burnout in the future, since the numbers of patients infected and the deaths have varied according to the restrictions adopted by governments and the progress in the vaccination process.

5 | CONCLUSION

The presentation of symptoms of depression is a common predictor to all the dimensions of burnout in female nurses. On the other hand, symptoms of anxiety predict emotional exhaustion and depersonalization. Age and years of experience in the job predict depersonalization, whereas the probability of contracting the infection is the predictor variable of emotional exhaustion and personal accomplishment.

The conclusions of this work highlight variables that should be considered in developing strategies to prevent burnout, in developing prevention programmes adapted to the needs of female nurses. It might be useful to consider including specific practices to reduce depression symptoms, combined with online positive psychological interventions that enhance positive emotions, cognitions and behaviours, with the aim of decreasing burnout (Luo et al., 2019). In future studies, it might be beneficial to examine the possible influence of the

anxiety symptoms in the development of the burnout syndrome. In addition, other possible studies could examine the relationship between implementing interventions on depression and the reduction of burnout symptoms.

The results of this study show that the absence of depressive symptoms is related to lower levels of burnout. An interesting matter would be to determine whether the interventions aimed at reducing depressive symptoms can reduce burnout levels as well in these workers. This would lead to a better understanding of the burnout construct and its differentiation from depression. Furthermore, future studies could compare the results this investigation has provided with those obtained in other groups of women that occupy different positions in the health care sector.

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AUTHORSHIP STATEMENT

All authors designed the study. LL and JM collected the data. LL and JM analysed the data. BT and LL prepared the manuscript. All authors approved the final version for submission.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ETHICS STATEMENT

This study was approved by the Ethic Committee of the Faculty of Psychology of the Complutense University of Madrid (Reference number: Pr_2019_038).

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Lourdes Luceño-Moreno  <https://orcid.org/0000-0002-1541-4383>

Beatriz Talavera-Velasco  <https://orcid.org/0000-0003-4662-1999>

Jesús Martín-García  <https://orcid.org/0000-0001-8182-9897>

REFERENCES

- Aydin-Sayilan, A., Kulakaç, N., & Uzun, S. (2021). Burnout levels and sleep quality of COVID-19 heroes. *Perspectives in Psychiatric Care*, 57(3), 1231–1236. <https://doi.org/10.1111/ppc.12678>
- Bashkin, O., Davidovitch, N., Asna, N., Schwartz, D., & Dopelt, K. (2021). The organizational atmosphere in Israeli hospital during COVID-19: Concerns, perceptions, and burnout. *International Journal of Environmental Research and Public Health*, 18(11), 1–9. <https://doi.org/10.3390/ijerph18115544>
- Bellanti, F., Lo Buglio, A., Capuano, E., Dobrakowski, M., Kasperczyk, A., Kasperczyk, S., Ventriglio, A., & Vendemiale, G. (2021). Factors related to nurses' burnout during the first wave of Coronavirus Disease-19 in a university hospital in Italy. *International Journal of Environmental Research and Public Health*, 18(10), 1–14. <https://doi.org/10.3390/ijerph18105051>

- Bruyneel, A., Smith, P., Tack, J., & Pirson, M. (2021). Prevalence of burnout risk and factors associated with burnout risk among ICU nurses during the COVID-19 outbreak in French speaking Belgium. *Intensive and Critical Care Nursing*, 65, 1–7. <https://doi.org/10.1016/j.iccn.2021.103059>
- Burdorf, A., Porru, F., & Rugulies, R. (2020). The COVID-19 (coronavirus) pandemic: Consequences for occupational health. *Scandinavian Journal of Work and Environment Health*, 46(3), 229–230. <https://doi.org/10.5271/sjweh.3893>
- Çelmeçe, N., & Menekay, M. (2020). The effect of stress, anxiety and burnout levels of healthcare professionals caring for COVID-19 patients on their quality of life. *Frontiers in Psychology*, 11, 1–7. <https://doi.org/10.3389/fpsyg.2020.597624>
- Chen, Q., Liang, M., Li, Y., Guo, J., Fei, D., Wang, L., He, L., Sheng, C., Cai, Y., Li, X., Wang, J., & Zhang, Z. (2020). Mental health care for medical staff in China during the COVID-19 outbreak. *Lancet Psychiatry*, 7(4), 15–16. [https://doi.org/10.1016/s2215-0366\(20\)30078-x](https://doi.org/10.1016/s2215-0366(20)30078-x)
- Chen, R., Sun, C., Chen, J. J., Jen, H. J., Kang, X. L., Kao, C. C., & Chou, K. R. (2021). A large-scale survey on trauma, burnout, and posttraumatic growth among nurses during the COVID-19 pandemic. *International Journal of Mental Health Nursing*, 30(1), 102–116. <https://doi.org/10.1111/inm.12796>
- Denning, M., Goh, E. T., Tan, B., Kanneganti, A., Almonte, M., Scott, A., Martin, G., Clarke, J., Sounderajah, V., Markar, S., Przybyłowicz, J., Chan, Y. H., Sia, C. H., Chua, Y. X., Sim, K., Lim, L., Tan, L., Tan, M., Sharma, V., ... Kinross, J. (2021). Determinants of burnout and other aspects of psychological well-being in healthcare workers during the COVID-19 pandemic: A multinational cross-sectional study. *PLoS ONE*, 16(4), 1–18. <https://doi.org/10.1371/journal.pone.0238666>
- Duarte, I., Teixeira, A., Castro, L., Marina, S., Ribeiro, C., Jácome, C., Martins, V., Ribeiro-Vaz, I., Pinheiro, H. C., Silva, A. R., Ricou, M., Sousa, B., Alves, C., Oliveira, A., Silva, P., Nunes, R., & Serrão, C. (2020). Burnout among Portuguese healthcare workers during the COVID-19 pandemic. *BMC Public Health*, 20(1), 1–10. <https://doi.org/10.1186/s12889-020-09980-z>
- Ferry, A. V., Wereski, R., Strachan, F. E., & Mills, N. L. (2021). Predictors of UK healthcare worker burnout during the COVID-19 pandemic. *QJM: Monthly Journal of the Association of Physicians*, 114(6), 374–380. <https://doi.org/10.1093/qjmed/hcab065>
- Fiabane, E., Gabanelli, P., La Rovere, M. T., Tremoli, E., Pistorini, C., & Gorini, A. (2021). Psychological and work-related factors associated with emotional exhaustion among healthcare professionals during the COVID-19 outbreak in Italian hospitals. *Nursing & Health Sciences*, 23(3), 670–675. <https://doi.org/10.1111/nhs.12871>
- Galehdar, N., Kamran, A., Toulabi, T., & Heydari, H. (2020). Exploring nurses' experiences of psychological distress during care of patients with COVID-19: A qualitative study. *BMC Psychiatry*, 20(1), 1–9. <https://doi.org/10.1186/s12888-020-02898-1>
- Giusti, E. M., Pedrolì, E., D'Aniello, G. E., Stramba Badiale, C., Pietrabissa, G., Manna, C., Stramba Badiale, M., Riva, G., Castelnuovo, G., & Molinari, E. (2020). The psychological impact of the COVID-19 outbreak on health professionals: A cross-sectional study. *Frontiers in Psychology*, 11, 1–9. <https://doi.org/10.3389/fpsyg.2020.01684>
- González-Gil, M. T., González-Blázquez, C., Parro-Moreno, A. I., Pedraz-Marcos, A., Palmar-Santos, A., Otero-García, L., Navarta-Sánchez, M. V., Alcolea-Cosín, M. T., Argüello-López, M. T., Canalejas-Pérez, C., Carrillo-Camacho, M. E., Casillas-Santana, M. L., Díaz-Martínez, M. L., García-González, A., García-Perea, E., Martínez-Marcos, M., Martínez-Martín, M. L., Palazuelos-Puerta, M., Sellán-Soto, C., & Oter-Quintana, C. (2021). Nurses' perceptions and demands regarding COVID-19 care delivery in critical care units and hospital emergency services. *Intensive & Critical Care Nursing*, 62, 1–9. <https://doi.org/10.1016/j.iccn.2020.102966>
- Guille, C., Frank, E., Zhao, Z., Kalmbach, D. A., Nietert, P. J., Mata, D. A., & Sen, S. (2017). Work-family conflict and the sex difference in depression among training physicians. *JAMA Internal Medicine*, 177(12), 1766–1772. <https://doi.org/10.1001/jamainternmed.2017.5138>
- Jamal, M. (2004). Burnout, stress and health of employees on non-standard work schedules: A study of Canadian workers. *Stress and Health*, 20, 113–119. <https://doi.org/10.1002/smi.1012>
- Kim, O., Kim, S. Y., Kim, S. S., Dan, H., Kim, B., Kim, M., & Pang, Y. (2021). Depressive symptom trajectories and their relation to body mass index in women of child-bearing age: The Korea Nurses' Health Study. *Journal of Affective Disorders*, 292, 114–120. <https://doi.org/10.1016/j.jad.2021.05.036>
- Kisely, S., Warren, N., McMahon, L., Dalais, C., Henry, I., & Siskind, D. (2020). Occurrence, prevention, and management of the psychological effects of emerging virus outbreaks on healthcare workers: Rapid review and meta-analysis. *BMJ (Clinical Research Ed.)*, 369, 1–11. <https://doi.org/10.1136/bmj.m1642>
- Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., Wu, J., Du, H., Chen, T., Li, R., Tan, H., Kang, L., Yao, L., Huang, M., Wang, H., Wang, G., Liu, Z., & Hu, S. (2020). Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Network Open*, 3(3), 1–12. <https://doi.org/10.1001/jamanetworkopen.2020.3976>
- Lang, G. M., Pfister, E. A., & Siemens, M. J. (2010). Nursing burnout: Cross-sectional study at a large army hospital. *Military Medicine*, 175(6), 435–441. <https://doi.org/10.7205/MILMED-D-09-00284>
- Lehmann, M., Bruenahl, C. A., Löwe, B., Addo, M. M., Schmiedel, S., Lohse, A. W., & Schramm, C. (2015). Ebola and psychological stress of health care professionals. *Emerging Infectious Diseases*, 21(5), 913–914. <https://doi.org/10.3201/eid2105.141988>
- Liu, G., & Zhang, H. (2020). A study on burnout in nurses in the period of COVID-19. *Psychology and Behavioral Sciences*, 9(3), 31–36. <https://doi.org/10.11648/j.pbs.20200903.12>
- Liu, X., Kakade, M., Fuller, C. J., Fan, B., Fang, Y., Kong, J., Guan, Z., & Wu, P. (2012). Depression after exposure to stressful events: Lessons learned from the severe acute respiratory syndrome epidemic. *Comprehensive Psychiatry*, 53(1), 15–23. <https://doi.org/10.1016/j.comppsy.2011.02.003>
- Lotfinejad, N., Peters, A., & Pittet, D. (2020). Hand hygiene and the novel coronavirus pandemic: The role of healthcare workers. *Journal of Hospital Infection*, 105(4), 776–777. <https://doi.org/10.1016/j.jhin.2020.03.017>
- Luceno-Moreno, L., Talavera-Velasco, B., García-Albuérne, Y., & Martín-García, J. (2020). Symptoms of posttraumatic stress, anxiety, depression, levels of resilience and burnout in Spanish health personnel during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, 17(15), 1–25. <https://doi.org/10.3390/ijerph17155514>
- Luo, Y. H., Li, H., Plummer, V., Cross, W. M., Lam, L., Guo, Y. F., Yin, Y. Z., & Zhang, J. P. (2019). An evaluation of a positive psychological intervention to reduce burnout among nurses. *Archives of Psychiatric Nursing*, 33(6), 186–191. <https://doi.org/10.1016/j.apnu.2019.08.004>
- Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach burnout inventory manual* (3rd ed.). Consulting Psychologists Press.
- Maslach, C., & Leiter, M. P. (2008). Early predictors of job burnout and engagement. *The Journal of Applied Psychology*, 93(3), 498–512. <https://doi.org/10.1037/0021-9010.93.3.498>
- Mokros, Ł., Januszczak, J., Baka, Ł., Sienkiewicz-Jaroszczyk, H., & Świtaj, P. (2021). Coronavirus anxiety as a predictor of burnout, depressive symptoms and insomnia among professionally active nurses: A preliminary report. *Advances in Psychiatry and Neurology*, 30(2), 96–103. <https://doi.org/10.5114/ppn.2021.108473>
- Murat, M., Köse, S., & Savaşer, S. (2021). Determination of stress, depression, and burnout levels of front-line nurses during the COVID-19

- pandemic. *International Journal of Mental Health Nursing*, 30(2), 533–543. <https://doi.org/10.1111/inm.12818>
- Norman, S. B., Feingold, J. H., Kaye-Kauderer, H., Kaplan, C. A., Hurtado, A., Kachadourian, L., Feder, A., Murrough, J. W., Charney, D., Southwick, S. M., Ripp, J., Peccoralo, L., & Pietrzak, R. H. (2021). Moral distress in frontline healthcare workers in the initial epicenter of the COVID-19 pandemic in the United States: Relationship to PTSD symptoms, burnout, and psychosocial functioning. *Depression and Anxiety*, 38(10), 1007–1017. <https://doi.org/10.1002/da.23205>
- Seisdedos, N. (1997). *MBI human services*. TEA.
- Smith, K. V., & Godfrey, N. S. (2002). Being a good nurse and doing the right thing: A qualitative study. *Nursing Ethics*, 9(3), 301–312. <https://doi.org/10.1191/0969733002ne512oa>
- Sriharan, A., Ratnapalan, S., Tricco, A. C., & Lupea, D. (2021). Women in healthcare experiencing occupational stress and burnout during COVID-19: A rapid review. *BMJ Open*, 11, 1–12. <https://doi.org/10.1136/bmjopen-2021-048861>
- Terol, M. C., López-Roig, S., Rodríguez-Marín, J., Martín-Aragón, M., Pastor, M. A., & Reig, M. T. (2007). Psychometric properties of the Hospital Anxiety and Depression Scale (HAD) in the Spanish population. *Ansiedad Y Estrés*, 13(2–3), 163–176.
- Tourigny, L., Baba, V. V., & Wang, X. Y. (2010). Burnout and depression among nurses in Japan and China: The moderating effects of job satisfaction and absence. *International Journal of Human Resource Management*, 21(15), 2741–2761. <https://doi.org/10.1080/09585192.2010.528656>
- Van Zyl, A. B., & Noonan, I. (2018). The Trojan War inside nursing: An exploration of compassion, emotional labour, coping and reflection. *British Journal of Nursing*, 27(20), 1192–1196. <https://doi.org/10.12968/bjon.2018.27.20.1192>
- Vitale, E., Cesano, E., & Germini, F. (2020). Correlations of burnout and healthcare safety perceptions among Italian nurses. *Acta Biomed*, 91(4), 1–9. <https://doi.org/10.23750/abm.v91i4.9008>
- Wan, Z., Lian, M., Ma, H., Cai, Z., & Xianyu, Y. (2022). Factors associated with burnout among Chinese nurses during COVID-19 epidemic: A cross-sectional study. *BMC Nursing*, 21(1), 1–8. <https://doi.org/10.1186/s12912-022-00831-3>
- World Health Organization. (2008). Gender and health workforce statistics. https://www.who.int/hrh/statistics/spotlight_2.pdf. Accessed: 15 March 2021.
- Zhang, Y., Wang, C., Pan, W., Zheng, J., Gao, J., Huang, X., Cai, S., Zhai, Y., Latour, J. M., & Zhu, C. (2020). Stress, burnout, and coping strategies of frontline nurses during the COVID-19 epidemic in Wuhan and Shanghai, China. *Frontiers in Psychiatry*, 11, 1–9. <https://doi.org/10.3389/fpsy.2020.565520>
- Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, 67(6), 361–370. <https://doi.org/10.1111/j.1600-0447.1983.tb09716.x>

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