



Professional quality of life and fear of COVID-19 among Spanish nurses: A longitudinal repeated cross-sectional study

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Abstract

Aim and Objectives: To evaluate changes in compassion fatigue (CF), burnout (BO), compassion satisfaction (CS) and fear of COVID-19 among Spanish nurses by comparing two assessment points: before and after the COVID-19 vaccination campaign.

Background: The COVID-19 pandemic has produced a great impact in healthcare worker's professional quality of life, especially among nurses. CF, BO and fear of COVID-19 decisively affect the care provided by nurses and put them at risk for mental health problems, so longitudinal studies are essential.

Design: A repeated cross-sectional design was carried out with a time-lapse of 12 months.

Methods: A total of 439 registered nurses in December 2020 and 410 in December 2021 participated in this study through an online survey. Data were collected using the Professional Quality of Life Questionnaire and the Fear of COVID-19 Scale. Occupational and sociodemographic variables were also analysed. This article adheres to the STROBE guidelines for the reporting of observational studies.

Results: The fear of COVID-19 has not been reduced among nurses. The levels of BO remain stable and continue to be high in half of the professionals. CF has been reduced with a small effect size ($d = 0.30$), while CS has also decreased ($d = 0.30$). Positive correlations were found in both assessment points between fear of COVID-19 and BO ($r = .44, p \leq .001; r = .41, p \leq .001$) and also between fear of COVID and CF ($r = .57, p \leq .001; r = .50, p \leq .001$). Negative correlations between fear and CS were also found ($r = -.16, p = .001; r = -.22, p \leq .001$).

Relevance to Clinical Practice: Programmes to reduce fear of COVID-19, BO and CF are needed to improve mental health and to prevent psychological distress among nurses, as well as to increase CS and preserve the productivity and quality of nursing care.

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Patient or Public Contribution: The nurses collaborated by participating in the present study anonymously and disinterestedly.

KEYWORDS

burnout, compassion fatigue, compassion satisfaction, COVID-19, fear, longitudinal studies, nurses

1 | INTRODUCTION

Nurses worldwide have faced the health crisis produced by the COVID-19 pandemic. It implies assuming a high personal cost in terms of psychological distress, burnout, compassion fatigue and other variables related to psychological health issues (Chen et al., 2020; Ruiz-Fernández, Pérez-García, et al., 2020; Ruiz-Fernández, Ramos-Pichardo, et al., 2020; Xiang et al., 2020). These issues, including fear, are the leading obstacle to health care performance because they influence thoughts, motivations, aspirations and behaviour (Yousaf et al., 2021). However, the psychological effects of the pandemic are dynamic, and they could change according to new circumstances and contexts, as for example the availability of COVID-19 vaccines and the reducing restrictions on social contact that began to take place throughout the year 2021.

2 | BACKGROUND

In the context of the healthcare profession, one of the costs of caring for others is compassion fatigue (CF; Powell, 2020). This concept results from the contact with the patient's emotions and feelings, and the subsequent desire of the professionals to relieve their suffering (Ruiz-Fernández, Pérez-García, et al., 2020; Ruiz-Fernández, Ramos-Pichardo, et al., 2020). Besides, nurses present moderate to high levels of burnout (BO; De la Fuente-Solana et al., 2019; López-López et al., 2019), a very common syndrome closely related to CF and other variables such as work overload or work-related stress. Emotional exhaustion, depersonalisation and lack of personal fulfilment at work characterise BO (Rodrigues et al., 2018). BO is a measurable condition that leads to lower-quality care and increased errors (Alharbi et al., 2020). Unfortunately, the COVID-19 pandemic has come to aggravate the BO among nurses (Galanis et al., 2021), which is one of the main problems of healthcare professionals that affects between 40% and 75% of them (Powell, 2020).

However, helping others has also a positive consequence which is known as compassion satisfaction (CS). This construct operates as a protective factor among healthcare professionals, especially when they feel that their work has social value (Roney & Acri, 2018). Stamm (2005) included BO, CF and CS within a broader concept, professional quality of life (ProQoL), understood as the quality one feels in relation to their work as a helper. These three constructs, BO, CF and CS are very important in the nursing profession because

What does this paper contribute to the wider global clinical community?

- Nurses did not reduce their fear despite the protective effect of vaccines against COVID-19.
- High levels of burnout remain stable in a high proportion of professionals a year after the hardest weeks of the health crisis.
- Programmes with empirical support, such as those based in cognitive-behavioural interventions, are needed to improve mental health of nurses and the quality of care they provide during the ongoing pandemic.

of their implications on nurses' mental health and on the quality of care they provide.

During the COVID-19 pandemic, high levels of CF and BO have been found among healthcare professionals, especially in those working in COVID-19 units and emergency departments (Dosil et al., 2020; Ruiz-Fernández, Pérez-García, et al., 2020; Ruiz-Fernández, Ramos-Pichardo, et al., 2020). Both BO and CF have been associated with psychological distress (Alharbi et al., 2020; Himmelfarb & Baptiste, 2020), which put healthcare professionals at risk of mental health problems (Fernández, Pérez-García, et al., 2020; Ruiz-Fernández, Ramos-Pichardo, et al., 2020). In fact, since the beginning of the COVID-19 pandemic, many studies have found significant levels of depression and anxiety among these professionals (Chen et al., 2020; Lai et al., 2020; Pappa et al., 2020). In this context, being a woman predicts a greater psychological distress during the current pandemic (Lai et al., 2020; Pappa et al., 2020), as well as being young (Du et al., 2020; Romero-Blanco et al., 2020). All these reasons lead to consider nurses as a vulnerable group to the psychological impact of the COVID-19 pandemic (García-Fernández et al., 2020; Rodríguez-Rey et al., 2020). In this scenario, some authors pointed out the need to improve ProQoL or implementing strategies to prevent BO and CF (Fernández, Pérez-García, et al., 2020; Ruiz-Fernández, Ramos-Pichardo, et al., 2020).

The three dimensions of the ProQoL present dynamic interactions. Thus, the pleasant feeling that caregivers derive from providing care (CS) improves the quality of clinical care for patients, which in turn increases nurses' job satisfaction and reduces BO (Tehrineshat et al., 2020). Another recent study (González-Pando et al., 2022) found a moderated negative correlation between CS

and BO, concluding that high scores in CS reduce the risk of CF and BO among nurses during the COVID-19 pandemic. These interactive effects make longitudinal studies especially interesting to evaluate changes over time.

However, the most important psychological consequence of a pandemic is fear, and in the current pandemic, according to Ahorsu et al. (2020), fear is directly associated with COVID-19 morbidity and mortality rate. A study conducted in the United States about the most frequent causes of death (Ahmad & Anderson, 2021) showed an increase in mortality of 17.7% in 2020 compared to the previous year, placing COVID-19 as the third cause of death, with 345,323 deaths only in that country. Already in October 2020 the International Council of Nurses (ICN, 2020) reported that 1500 nurses have died from COVID-19 in 44 countries. In May 2021 the World Health Organization (WHO, 2021a, 2021b) estimated that between 80,000 and 1,80,000 healthcare professionals had died from COVID-19, while the total number of deaths worldwide ups to 6 million people.

In this context, it is not surprising that the COVID-19 pandemic has produced fear around the world. Fear is a basic emotion associated with distinctive nonverbal expression, distinctive neural and physiological components, distinctive subjective experience and distinctive regulatory and motivational properties (Ekman & Cordaro, 2011). Fear is caused by particular patterns of threat-related stimuli, and in turn causes particular patterns of adaptive behaviours to avoid or cope with that threat (Adolph, 2013). Fear could be useful because it encourages risk-avoiding and adaptive behaviours that promote individual safety (LeDoux, 2012). However, fear may prevent individuals from responding to the COVID-19 pandemic in a rational manner (Ahorsu et al., 2020). Thus, fear of COVID-19 is considered as a major influencing factor in terms of the health care performance of nursing staff (Labrague & De Los Santos, 2021). In fact, fear of COVID-19 is one of the main drivers of increasing stress among nurses (Bakioglu et al., 2021), and for some authors (Abbas et al., 2021) it is the fundamental force for the creation of stress in healthcare professionals. Finally, it is important to consider that fear of COVID-19 is strongly associated with many psychological problems including anxiety depression or psychological distress (Alimoradi et al., 2022; Harper et al., 2021; Saravanan et al., 2020; Voitsidis et al., 2021).

The great morbidity and mortality produced by the COVID-19 pandemic around the world have forced research on vaccines in a way never before experienced (Picazo, 2021). The COVID-19 vaccines were available in record time, and many countries deployed COVID-19 vaccines to fight against the pandemic throughout the year 2021. According to the vaccine strategy of the European Commission (2021), healthcare workers were one of the first groups to receive it. With vaccination progressing, the restrictions were lifted and the population could recover essential aspects of daily life very important for psychological well-being such as social contact, even face-to-face interactions without facial masks. All these changes that occurred in 2021 make it particularly relevant to assess the possible variation of ProQoL and fear of COVID-19 among

nurses over time, especially considering the possible impact of vaccination and the reduction of the COVID-19 mortality rate. However, to the best of our knowledge, this point remains unexplored.

The main aim of this study was therefore to analyse changes in BO, CF, CS and fear of COVID-19 among Spanish nurses by comparing the levels of these variables before and after vaccination carried out throughout 2021. The secondary aim was to analyse the correlations between fear of COVID-19 and the three dimensions of ProQoL.

In relation to both objectives, the following research questions are posed. First, have there been changes in the quality of professional life and fear of COVID-19 and nurses in relation to the availability of COVID-19 vaccines? Second, is there a relationship between fear and quality of professional life in terms of BO, CF and CS?

3 | METHODS

3.1 | Research design, study participants and setting

A repeated cross-sectional design was carried out with a time-lapse of 12 months. Evaluations were conducted through an online survey with a sample of 439 registered nurses at the first data collection (2–24 December 2020) and 410 in the second evaluation point (1–29 December 2021). The initial assessment was carried out during the remission period of the second pandemic wave in Spain, and immediately after the hardest moments of the health crisis in the Principality of Asturias (Spain). During the weeks preceding this first assessment, this autonomous community had recorded the highest incidence of cases, the highest mortality rate due to COVID-19, and the greatest healthcare pressure to date. The second evaluation was conducted 12 months later, when the de-escalation of restrictive measures and the vaccination had already taken place. According to the Ministry of Health (2021) in December 2021 the 89.4% of the Spanish population over 12 years had received the full vaccination, a percentage that reached 92.8% in the Principality of Asturias. The sample was recruited through non-probabilistic sampling. A minimum required sample size of 355 was calculated for both points in time with an-error margin of 5% and a 95% confidence interval. This size was calculated based on the population size of nurses working in the public health service of the Principality of Asturias in the year 2020 and 2021 which was 4550. Given that the minimum representative sample is exceeded at both points in time, it is considered adequate. Professionals were recruited by sending requests for participation to those belonging to the database of the Professional Nursing College of the Principality of Asturias. This institution published information on its website about the study and a link to the questionnaire. All participants voluntarily answered the questionnaire during the period in which it was active on the website (2–24 December 2020 and 1–29 December 2021). Inclusion criteria were: being over 18 years, working as a nurse in the public health service of the Principality

of Asturias, and working from the beginning of the COVID-19 pandemic (March 2020). Professionals working in services where there was no direct contact with patients, and those who had been without work (temporary disability) due to illness (mental or physical) for a period over 6 months from March 2020 to December 2021 were excluded.

3.2 | Instruments

A survey was developed to collect information about some variables of interest such as age, sex, marital status (single, married or in civil partnership, and separated or widow/er), number of children at home, work setting (primary care, ICU, emergency departments, regular hospital care, specific COVID-19 unit and others), professional experience in years and type of shift (fixed or rotating). Participants were asked whether they had been diagnosed with COVID-19, and if positive, the severity of illness (asymptomatic or mild symptoms, moderate symptoms or severe). Those who had been diagnosed were also asked if they had experienced persistent symptoms that required medical attention. Finally, in the second data collection nurses were asked if they had completed the full vaccination against COVID-19.

ProQoL was assessed by using the ProQoL scale (Stamm, 2005) in its Spanish version (Morante-Benadero et al., 2006). This self-report scale consists of 30 items rated on a 6-point Likert-type scale (ranging from 0 = "never" to 5 = "always"). This instrument is divided into three subscales of 10 items each: CF, CS and BO. Higher scores in each dimension indicate higher levels of CF, CS and BO respectively, and scores can be categorised as low, medium and high in each of them: CF (≤ 8 , low; 9–17, medium; and ≥ 17 , high), CS (≤ 33 , low; 34–41, medium; and ≥ 42 , high) and BO (≤ 18 , low; 19–26, medium; and ≥ 27 high). The Spanish version of ProQoL presents a Cronbach's alpha of .78 for CF, .77 for CS and .54 for BO (Galiana et al., 2017). In our first sample in 2020, we obtained an alpha of .86 for CF, .88 for CS and .57 for BO, respectively. In our second sample in 2021, we obtained an alpha of .84 for CF, .89 for CS and .65 for BO, respectively.

Fear of COVID-19 was assessed by using the Fear of COVID-19 Scale (Ahorsu et al., 2020) which was translated and validated in the Spanish context by Martínez-Lorca et al. (2020). This is the most used psychometric scale worldwide to assess fear-related aspects of COVID-19. The Fear of COVID-19 is a unidimensional scale which consists of 7-item rated on a 5-point Likert-type scale (ranging from 1 = "strongly disagree" to 5 = "strongly agree"). Scores may range from 7 to 35, where higher scores indicate higher levels of fear for COVID-19. The Spanish version of the Fear of COVID-19 Scale presents robust psychometric properties, with a Cronbach's α of .86. We obtain an alpha of .89 in our first sample in 2020 and an alpha of .88 in our second sample in 2021. Permission to use the authors' scales for all the tools used in this study was obtained.

3.3 | Data collection procedures

The data were collected electronically during the two periods described above, with a time-lapse of 12 months between them. Participants were informed about the objectives, the assurance of anonymity and confidentiality of the data, and the voluntary nature of this study. No rewards or any kind of incentives were offered for participation. In order to assess the clarity, comprehension and accessibility of the tool, before starting the dissemination of the questionnaire, it was piloted on 1 December 2020, in 40 professionals. Nurses were encouraged to complete the questionnaire outside of their work hours to avoid interfering with clinical activities. The estimated completion time was 15 min for the complete questionnaire.

3.4 | Ethical considerations

This study was approved by the Ethics Committee on Clinical Research of the Principality of Asturias obtaining the corresponding authorizations (Nos. 563/2020 and 569/2021). The ethical principles enshrined in the Declaration of Helsinki were observed at all times. Professionals were informed of the goal of this research and its voluntary and anonymous nature. All participants provided informed consent prior to accessing the questionnaires. The confidentiality of the data and the anonymity of the patients were preserved in compliance with the Spanish Organic Law 3/2018 of 5 December on Personal Data Protection and Guarantee of Digital Rights.

We have adhered to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines (see, Data S1), throughout the research process (Vandenbroucke et al., 2007).

3.5 | Data analysis

The statistical analysis was performed with the SPSS program v.24.0. We described the descriptive data of sociodemographic, employment and health-related variables of both samples using frequencies and percentages. To achieve the main objective of the study which is to analyse changes in BO, CF, CS and fear of COVID-19 among Spanish nurses by comparing the levels of these variables before and after vaccination carried out throughout 2021, we used the Student's *t*-test of differences of means for independent samples. In addition, differences in fear of COVID-19 depending on the gender and the frontline and non-frontline condition were carried out by using the Student's *t*-test of differences of means for independent samples. The effect size was calculated by using Cohen's *d*. On the other hand, in order to identify whether there were differences in fear of COVID-19 depending on the form of cohabitation (married, divorced, in a cohabiting relationship, in a non-cohabiting relationship, single and widowed) 2 one-factor ANOVAs were conducted with the level of fear of COVID-19 in 2020 and 2021. To

find out whether the level of fear of COVID-19 was different depending on the number of children at the two evaluation points, 2 one-factor ANOVAs were carried out with four levels: not having children, having one, two and more than two. To find out if there were differences in the fear of COVID-19 depending on professional experience, two ANOVAs were performed at each of the two evaluation moments with six levels (less than 5 years, 6–10, 11–15, 16–20, 21–25 and more than 25 years). Finally, to find out if there was any relationship between fear of COVID-19 and age, Pearson's correlation was calculated. To carry out the second objective of finding out the relationship between fear of COVID-19 and BO, CF and CS in the first and second assessment points, a Pearson correlation was carried out. We descriptively analyse BO, CS and CF into three levels of severity (low/medium/high) according to their corresponding cut-off points. Percentages and total frequencies were calculated based on gender and high/low exposure to COVID-19 patients in the two assessments.

4 | RESULTS

The sample sociodemographic characteristics in 2020 and 2021 are shown in Table 1. The percentages are practically the same in all the variables.

Regarding the COVID-19 infection among nurses, the percentage of professionals who had been diagnosed increased from 9.1% in December 2020 to 21% in December 2021. According to the results of the second evaluation, 66.3% of participants overcame the illness asymptotically or with mild symptoms, while 32.6% of them suffered moderate symptoms. Only one nurse (0.01%) had severe symptoms that required hospitalisation. A 31.4% of participants who had been diagnosed experienced long post-COVID symptoms

or persistent symptoms such as dyspnoea, cough, fatigue or musculoskeletal algias that required medical care.

The vaccination rate of the sample was very high and rose the 99.5%. However, our results show that the fear of COVID-19 has not been reduced among nurses. In fact, fear has increased with a statistically significant difference, $t(847) = -3.06, p = .002$, between the first ($M = 16.23, SD = 6.10$) and the second assessment ($M = 17.49, SD = 5.80$) points of this study with a small effect size ($d = 0.27$). Surprisingly, fear of COVID-19 was slightly higher despite vaccines were available and the vaccination process of population was developed making possible the de-escalation of restrictive measures previously introduced.

Fear continues to be higher in women than in men with a small effect size in both cases after vaccination and no differences were found in fear between frontline and non-frontline professionals neither in the first nor in the second assessment points (see Table 2).

No statistically significant differences in fear of COVID-19 were observed based on the type of cohabitation (married, divorced, in a cohabiting relationship, in a non-cohabiting relationship, single and widowed) nor in the first assessment ($F_{(5,433)} = .94, p = .455$) nor the second one ($F_{(5,403)} = 1.74, p = .455$). On the other hand, the number of children at home (none, one, two and more than two) was not statistically significant in the first assessment ($F_{(3,406)} = .62, p = .602$). In the case of age, no significant correlations were obtained either in the first assessment ($r = .02, p = .715$) or in the second ($r = -.07, p = .170$). Regarding the role of professional experience (less than 5 years, 6–10, 11–15, 16–20, 21–25 and more than 25 years), in the first evaluation no differences were observed in terms of fear ($F_{(5,433)} = 1.06, p = .384$) nor in the second one ($F_{(5,404)} = 1.79, p = .113$).

Regarding ProQoL, no statistically significant reductions were observed in BO. The levels of BO continue to be high among nurses,

TABLE 1 Sociodemographic characteristics of the 2020 and 2021 samples

	Sex (% women)	Age	Married (%)	Hospital care (%)	Primary care (%)	Part-time workers (%)
2020	87.2	41.53	44.9	68.5	15	5.5
2021	87.8	41.44	46.8	75.6	13.7	4.4

TABLE 2 Results of the independent samples *t*-test to compare the means of the fear of COVID-19 variable between 2020 and 2021 in both men and women and in frontline and non-frontline nurses

		<i>n</i>	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>T</i>	<i>p</i>	<i>d</i>
2020	Women - Men	383–56	16.54 (6.18)	14.14 (5.11)	3.18	.002	0.46
2021		360–50	17.74 (5.75)	15.68 (5.89)	2.36	.019	0.36
2020	Non-frontline - Frontline	278–161	16.16 (5.95)	16.37 (6.37)	0.749	.731	
2021		239–171	17.28 (5.67)	17.77 (5.98)	–0.84	.402	

Note: The sample was 439 in the first assessment (2020) and 410 in the second assessment (2021).

Abbreviations: *p*, *p*-value of the test of difference of means; *T*, value of the *T* statistic; *d*, effect size according to Cohen's "d".

and the percentage of those professionals with high levels of BO remain stable affecting almost 50% of the sample in December 2021. Finally, both CS and CF have experienced a statistically significant reduction. The exact percentages and frequencies at the three levels of BO, CS and CF in the years 2020 and 2021 can be seen in Table 3. On the other hand, the independent samples T-test mean for BO, CF and CS are shown in Table 4.

Finally, we found a positive correlation between fear of COVID-19 and BO in the first assessment ($r = .44, p \leq .001$) and in the second one ($r = .41, p \leq .001$); a positive correlation between fear of COVID and CF in the first assessment ($r = .57, p \leq .001$) and in the second one ($r = .50, p \leq .001$) and a negative correlation between fear and CS ($r = -.16, p = .001$) and also in the second one ($r = -.22, p \leq .001$).

TABLE 4 Results for independent samples t-test for comparison the means for the variables burnout, compassion fatigue and compassion satisfaction between 2020 and 2021

	2020	2021	<i>T</i>	<i>p</i>	<i>d</i>
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)			
BO	25.90 (7.33)	25.88 (6.75)	0.03	.973	
CS	37.85 (8.01)	34.84 (8.39)	5.36	.001	0.37
CF	20.76 (9.77)	18.10 (7.76)	4.41	.001	0.30

Note: The sample was 439 in the first assessment (2020) and 410 in the second assessment (2021).

Abbreviations: *p*, *p*-value of the test of difference of means; *T*, value of the *T* statistic; *d*, effect size according to Cohen's "d".

TABLE 3 Frequencies and percentages of nurses grouped in three levels of burnout, compassion fatigue and compassion satisfaction based on gender and level of exposure to COVID-19 patients

	Women <i>n</i> (%)	Men <i>n</i> (%)	Total <i>n</i> (%)	High exposure (frontline) <i>n</i> (%)	Low exposure (non-frontline) <i>n</i> (%)
2020					
BO					
Low (≤ 18)	14.9% (<i>n</i> = 57)	26.8% (<i>n</i> = 15)	16.4% (<i>n</i> = 72)	12.4% (<i>n</i> = 20)	18.7% (<i>n</i> = 52)
Medium (19–26)	32.1% (<i>n</i> = 123)	39.3% (<i>n</i> = 22)	33.0% (<i>n</i> = 145)	25.5% (<i>n</i> = 41)	37.4% (<i>n</i> = 104)
High (≥ 27)	53.0% (<i>n</i> = 203)	33.9% (<i>n</i> = 19)	50.6% (<i>n</i> = 222)	62.1% (<i>n</i> = 100)	43.9% (<i>n</i> = 122)
CF					
Low (≤ 8)	11.5% (<i>n</i> = 44)	25.0% (<i>n</i> = 14)	13.2% (<i>n</i> = 58)	9.3% (<i>n</i> = 15)	15.5% (<i>n</i> = 43)
Medium (9–17)	26.4% (<i>n</i> = 101)	32.1% (<i>n</i> = 18)	27.1% (<i>n</i> = 119)	20.5% (<i>n</i> = 33)	30.9% (<i>n</i> = 86)
High (≥ 18)	62.1% (<i>n</i> = 238)	42.9% (<i>n</i> = 24)	59.7% (<i>n</i> = 262)	70.2% (<i>n</i> = 113)	53.6% (<i>n</i> = 149)
CS					
Low (≤ 33)	26.1% (<i>n</i> = 100)	23.2% (<i>n</i> = 13)	25.7% (<i>n</i> = 113)	25.5% (<i>n</i> = 41)	25.9% (<i>n</i> = 72)
Medium (34–41)	36.8% (<i>n</i> = 141)	39.3% (<i>n</i> = 22)	37.1% (<i>n</i> = 163)	32.9% (<i>n</i> = 53)	39.6% (<i>n</i> = 110)
High (≥ 42)	37.1% (<i>n</i> = 142)	37.5% (<i>n</i> = 21)	37.1% (<i>n</i> = 163)	41.6% (<i>n</i> = 67)	34.5% (<i>n</i> = 96)
2021					
BO					
Low (≤ 18)	15.6% (<i>n</i> = 56)	28% (<i>n</i> = 14)	17.1% (<i>n</i> = 70)	12.9% (<i>n</i> = 22)	20.1% (<i>n</i> = 48)
Medium (19–26)	35.8% (<i>n</i> = 129)	40% (<i>n</i> = 20)	36.3% (<i>n</i> = 149)	36.8% (<i>n</i> = 63)	36.0% (<i>n</i> = 86)
High (≥ 27)	48.6% (<i>n</i> = 175)	32% (<i>n</i> = 16)	46.6% (<i>n</i> = 191)	50.3% (<i>n</i> = 86)	43.9% (<i>n</i> = 105)
CF					
Low (≤ 8)	9.7% (<i>n</i> = 35)	20% (<i>n</i> = 10)	11% (<i>n</i> = 45)	9.4% (<i>n</i> = 16)	12.1% (<i>n</i> = 29)
Medium (9–17)	38.3% (<i>n</i> = 138)	46% (<i>n</i> = 23)	39.3% (<i>n</i> = 161)	38% (<i>n</i> = 65)	40.2% (<i>n</i> = 96)
High (≥ 18)	51.9% (<i>n</i> = 187)	34% (<i>n</i> = 17)	49.8% (<i>n</i> = 204)	52.6% (<i>n</i> = 90)	47.7% (<i>n</i> = 114)
CS					
Low (≤ 33)	35.6% (<i>n</i> = 128)	32% (<i>n</i> = 16)	35.1% (<i>n</i> = 144)	40.4% (<i>n</i> = 69)	31.4% (<i>n</i> = 75)
Medium (34–41)	43.1% (<i>n</i> = 155)	48% (<i>n</i> = 24)	43.7% (<i>n</i> = 179)	43.3% (<i>n</i> = 74)	43.9% (<i>n</i> = 105)
High (≥ 42)	21.4% (<i>n</i> = 77)	20% (<i>n</i> = 10)	21.2% (<i>n</i> = 87)	16.4% (<i>n</i> = 28)	24.7% (<i>n</i> = 59)

Abbreviations: BO, burnout; CF, compassion fatigue; CS, compassion satisfaction.

5 | DISCUSSION

This study offers the opportunity to evaluate the effects of time on fear emotions and ProQoL among Spanish nurses during the COVID-19 pandemic as well as to examine the correlations between the three dimensions of ProQoL and fear of COVID-19. In both cases, the available evidence is scarce or non-existent.

Two relevant events to consider occurred throughout the year 2021. First, the vaccination against COVID-19, which in the geographical context of this research was full in over 90% of the population over 12 years in December 2021 (Ministry of Health, 2021). Second, the de-escalation of restrictive measures previously introduced to fight with the pandemic, which implies the recovery of social contact and other important changes related to psychological well-being.

The non-reduction of fear among nurses despite the protective effects of vaccines against the COVID-19 illness was an unexpected finding of this study because fear is directly associated with COVID-19 morbidity and mortality rate (Ahorsu et al., 2020). Thus, the improvement of these rates due to vaccination should have led to a reduction in the levels of fear among professionals, but this has not occurred. Moreover, in coherency with the process of extinction of the fear response, we expected that the continuous exposure to feared stimuli related to COVID-19 would lead to a reduction of fear. Previous studies conducted in different countries during the hardest months of the COVID-19 pandemic found higher levels of fear among nurses and nursing students. Using the Fear of COVID-19 Scale, Abid et al. (2021) obtained a mean score of 23.92 among hospital nurses in Pakistan, while other studies among Jordanian healthcare professionals a 69% of nurses obtained a mean score of 23.64 (Alnazly et al., 2021). Alici and Copur (2022) and other researchers (De Los Santos et al., 2022) found mean scores of 18.95 and 20.34 respectively among nursing students. We must consider that these studies were conducted during the early stages of the pandemic in 2020, when the mortality rates were higher, and both the lack of evidence-based information and personal equipment were important threats. It is important to note that fear was higher in nursing students than in other university students (Lo Moro et al., 2022; Mahmood et al., 2022; Martínez-Lorca et al., 2020), and this must be understood in terms of a higher exposition to environments with a much higher risk of COVID-19 infection for them. In the same sense, fear of COVID-19 was significantly lower in general population than among healthcare professionals. According to Alimoradi et al. (2022), the pooled estimated mean of 71 studies using the Fear of COVID-19 Scale, most of them conducted on general population, was 13.11, which indicates low levels of fear. The differences in mean scores of the multiple studies available could be explained attending some variables as the period of data collection (early stages of the pandemic implied a more threatening context), the mean age of the sample (high ages imply a high risk of death), the gender distribution of the sample (high levels of fear have been found among women), or the different epidemiology of the geographical areas where the studies were conducted (with higher or lower mortality from

COVID-19), among others. Nikopoulou et al. (2022) have proposed a score of 16.5 or higher when using the Fear of COVID-19 Scale as the cut-off point for extreme fear, which showed significant predictive power for anxiety, health anxiety and posttraumatic stress symptomatology. According to these authors, the cut-off point of 16.5 may facilitate discrimination of adults with extreme COVID-19-related fear from those displaying a normal fear reaction. Our results show that the fear of COVID-19 was higher in 2021. Specifically, the percentage of nurses with this score or higher has increased from 41% in December 2020 to 50.3% in December 2021. This means that the proportion of nurses that may be more vulnerable to psychological issues has increased in a period of 12 months, because a strong association between fear of COVID-19 and depression, anxiety and stress have been found among healthcare professionals, an effect than appears to be higher among them than in general population (Alimoradi et al., 2022).

Regarding ProQoL, a worrying finding was that high levels of burnout remain stable in a high proportion of professionals a year after the hardest weeks of the health crisis in Asturias (north of Spain). This is serious because BO negatively affects the quality of care and puts healthcare professionals at risk of mental health problems. A weakening of the CS could be behind this high level of BO, as well as the reduction in CF among nurses.

An original aspect of this work was to study the correlations between fear and the three dimensions of ProQoL. The results were interesting. On one hand, we found a positive correlation between BO and fear, and also a positive correlation between CF and fear in both assessment points. On the other hand, we found a negative correlation between fear and compassion satisfaction. Thus, fear is an important variable to consider in terms of ProQoL, which justifies the importance of introducing programmes to reduce fear among nurses. In fact, the strong relationship between fear of COVID-19 and anxiety, stress or depression among nurses and other health care workers (Alimoradi et al., 2022; Harper et al., 2021) amply justifies the implementation of preventive programmes to preserve their mental health and professional performance.

With all this, it is necessary to implement interventions that help prevent these problems in nurses. In this line, two courses of action can be mentioned to try to reduce the fear of COVID-19 (which has increased in the year 2021 according to our results) and, consequently, the CF and BO of the staff.

First, interventions should be aimed at empowering nurses, in the sense of equipping them with psychological strategies and personal skills to help them cope with these difficult situations. The psychological effects of the pandemic have been devastating (Luo et al., 2021; Simonetti et al., 2021; Yousaf et al., 2021) and especially in relation to fear due to COVID-19 (Alimoradi et al., 2022; Baysal et al., 2022). Moreover, they have increased 1 year after the onset of the pandemic, as shown by other longitudinal studies conducted in Spain (Ausín et al., 2022). Therefore, programmes that foster psychological capital (Mubarak et al., 2021), such as those that foster compassion skills (Kim & Lee, 2020), psychological development support (Ünver & Yeniğün, 2021), as well as programmes that foster

communication, teamwork and meditation (Aryankhesal et al., 2019; De Sio et al., 2020) should be targeted. This will produce an improvement in nurses' psychological capital to cope with complex situations.

Secondly, interventions should be directed at strengthening the public system. This perspective should be broadened, where institutions take responsibility by facilitating the process for nurses (Baysal et al., 2022; Crawford et al., 2014), providing the necessary resources to protect them, providing sufficient staffing and promoting psychological care for nurses. In addition, this would help improve the healthcare response, which could also indirectly reduce staff fear (Rodríguez-Hidalgo et al., 2020).

The strength of this work is represented by the large sample size of nurses. However, only 85 of them participated both in the first and in the second evaluation. It implies that this is a quasi-longitudinal study. The difficulty in maintaining a good sample size and collecting data longitudinally may be overcome by using a repeated cross-sectional design. According to Steel (2008), in this design there may be even zero overlap in the samples between periods and yet valid inferences of change in population values can be made based on repeated cross-sections. Additionally, the effect of organisational moderators can be examined if the same organisations are in the sample. Overlap in the cross-sectional samples is beneficial because it reduces variance of the parameter estimates; however, high overlap between samples is not necessary for valid inferences about changes in population trends over time. Moreover, this design has the added benefit of avoiding the issue of biased estimates arising from participant attrition. Nevertheless, it is important to point out some limitations of this study. First, we must consider that the non-probabilistic sampling used could limit the generalisability of our results. Second, the voluntary nature of this study and the context of the crisis may have introduced a response bias if the non-participants were too stressed to respond. In addition, assessment by using online questionnaires can discourage potential respondents in the age group over 60, as older people are often less familiar with new technologies. For all these reasons, our results should be evaluated with caution.

The need to assess changes in the psychological impact of the pandemic among nurses in terms of fear, BO or CF and other relevant variables continues in the current moment, as well as the need to implement interventions to reduce it.

In a worrying context of nursing shortage, it must be emphasised the call for governments and health organisations made by the ICN (2021) in order to take urgent actions to protect the physical and mental health of health workers and to support, strengthen and empower the nursing workforce, which is the backbone of health systems. In this sense, the institutional efforts should be focused on the retention of the nursing workforce, the short- and long-term psychological support, and the access to counselling services or other evidence-based interventions to build resilience across teams. Even many of these psychosocial or psychotherapeutic interventions could be lead and implemented by nurses specialists in mental health. Finally, the WHO (2021a) and WHO (2021b) global

strategies should be also considered to empower nurses, because the COVID-19 pandemic has reinforced the need for skilled nurses, which implies investments in their education, job and leadership.

6 | CONCLUSIONS

Despite vaccines and the improvement in COVID-19 morbidity and mortality rate, fear has not decreased and in fact it has increased among nurses. A significant number of professionals continue to suffer high intense of fear. The levels of BO remain stable and continue to be high in half of the professionals. CF has been reduced but also the CS. The positive correlation between Fear of COVID-19 and BO and between fear and CF on one hand and the negative correlation between fear and CS, on the other hand, are relevant to consider the importance of implementing interventions to reduce fear among nurses. We also need to address the problem of the BO among nurses in the context of a pandemic that it is not over yet.

7 | RELEVANCE TO CLINICAL PRACTICE

This study highlights the relevance of introducing programmes to reduce fear of COVID-19 among nurses considering that this has not been reduced in a period of 12 months. Fear increases psychological distress and negatively affects nursing performance. Fear presents a positive correlation with BO and CF and a negative correlation with CS. So, reducing the fear of COVID-19 among professionals can help them to overcome emotional distress and increase their psychological well-being and productivity. Programmes with empirical support, such as those based in cognitive-behavioural interventions, are needed to improve the mental health of nurses and the quality of care they provide during the ongoing pandemic. In the same sense, it is necessary to help nurses to reduce the risk of developing CF and BO.

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CONFLICT OF INTEREST STATEMENT

The authors declare that they have no conflicts of interest.

DATA AVAILABILITY STATEMENT

The datasets generated and analysed during the current study are available from the corresponding author on reasonable request.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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