

Aggression and burnout in nurses during COVID-19: A cross-sectional study

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Abstract

Workplace violence against nurses, an ever-present problem in the healthcare workplace, has been increasing with COVID-19 and affects occupational health. This study analyzed the consequences of COVID-19 on violence against nurses, identifying its association with burnout, emphasizing the importance of work-related variables. A total of 1013 actively employed nurses in Spain with a mean age of 34.71 years filled out a computer-assisted web interviewing survey. Aggression as a consequence of their work was reported by 73.44% of the nurses. Those most affected were in primary care, and verbal aggression by patients and their families was the most frequent. Nurses who were attacked scored significantly higher in emotional exhaustion and depersonalization. Furthermore, 83.22% said that COVID-19 was an important factor in the increase in violence toward healthcare workers. Analysis showed that a perceived secure environment was a mediator between the belief that COVID-19 was an influential factor in the increase of violence and the depersonalization dimension of burnout. Increasing perceived security in the work environment among nurses can be effective in promoting well-being, work performance, and commitment to the profession.

KEYWORDS

burnout, COVID-19, occupational health, Spain, violence, workplace violence

Key points

- About 50% of nurses reported having been victims of workplace aggression in the past few months. More than 80% also agreed there was an increase in violence against nurses since the COVID-19 pandemic began.
- The perception that there is an increase in violence since the pandemic increased the levels of burnout among nurses.
- Whether nurses feel safe and unafraid to do their job has an indirect effect on the appearance of emotional exhaustion and depersonalization derived from violence in the workplace.

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1 | INTRODUCTION

The healthcare setting is a challenging work context because of its wide range of risks. However, the main risk to healthcare workers is workplace violence (Liu, Gan, et al., 2019; Liu, Zheng, et al., 2019; Somani et al., 2021). The worldwide rate of violence against healthcare professionals is four times higher than any other tertiary occupation. And among them, nurses have the highest prevalence of suffering aggression in the workplace (Nelson et al., 2021).

According to the International Labor Organization (2019), workplace violence refers to unacceptable behaviors and practices or threats thereof, whether a single or repeated occurrences, that aim at, result in, or are likely to result in physical, psychological, or other harm. Based on this definition, violence may have different forms and agents, but what is clear is that it generates a general negative impact on the health and well-being of nurses, as well as on job satisfaction and performance (Ferri et al., 2020; Molero et al., 2018; Pérez-Fuentes et al., 2021; Safdar et al., 2021). In view of the above, the objective of this study was to analyze violence against nurses and the impact of COVID-19 on violent events, with attention to nurses' job characteristics.

2 | BACKGROUND

Violence against nurses is so common that it has been accepted by them as just another job risk (Al-Qadi, 2020). In fact, nurses say that violent events occur very frequently, and that preventive or reactive measures for their protection and support are insufficient. This normalization of violence makes counting aggressions against nurses one of the essential problems in studying violence, since they are often not formally communicated (Morphet et al., 2018; Rodrigues et al., 2021). In addition to this is the variability with which violent episodes occur in specific areas of work (Karatuna et al., 2020; Perkins et al., 2020), especially the emergency room (Alsharari et al., 2021; Babiarczyk et al., 2020). There may even be inconsistencies depending on years of experience and causal agent. A recent review also mentioned that vertical violence among the nurses themselves (by higher ranking coworkers) is the most frequent in cultures where there is strong social inequality, while horizontal harassment seems to be the same or more prevalent in lower power distance cultures (Karatuna et al., 2020). Aggressors from outside are usually patients' family members and friends (Ferri et al., 2020). Among nurses' characteristics, job tenure and age show an inverse relationship with risk of violence (Karatuna et al., 2020). Another associated factor is gender. Women report having experienced more episodes of physical and verbal workplace violence, more derived injuries, and more frequent help from a coworker during such episodes (Ferri et al., 2020).

In Spain, the review by Serrano-Vicente et al. (2019) mentioned that verbal aggression, followed by threats, were the most frequent types of violence against nurses. However, by work area, physical aggression appeared mainly in specialized care, while verbal was most prevalent in primary care. Patients were found to be the main

aggressors, followed by relatives and friends. The profile of professionals attacked could not be clearly defined, although it was found that most of them did not lodge a complaint and considered it unnecessary to do so. This could be because Spanish nurses do not attribute as much importance to such acts as healthcare workers in other countries (Babiarczyk et al., 2020).

The pandemic, which has strongly impacted nurses' adjustment and well-being, must be added to the above (Aggar et al., 2021; Fiabane et al., 2021). Several studies have found that COVID-19 has generated an increase in workplace violence against nurses (Byon et al., 2021; Chirico et al., 2022). This statement is supported by data from the Consejo General de Enfermería [General Nursing Council of Spain] (2021), which show an increase in violence against nurses since the beginning of the pandemic. Some reasons for this increase in aggression could be that relatives and friends are distressed by uncertain results of treatment, cessation of visits to patients, or increased fear in the general population of contagion from direct contact with affected patients (Jacobó-Galicia et al., 2021; Labrague et al., 2021; Romano et al., 2021). Intervention directed at promoting more secure workplace environments has been shown to be effective in reducing violent incidents (Sharifi et al., 2020). Some interventions concentrate on educating nurses in the importance of reporting aggression and knowing how to protect themselves from it (Buterkos et al., 2020; Ferron et al., 2022). Social support has also been identified as an important factor for coping with such situations (Molero et al., 2021; Pérez-Fuentes et al., 2021). Other authors mention the organizational climate as a cornerstone of either the prevention or instigation of violence against nurses (Blanco et al., 2019). According to data from the nurses themselves, prevention of workplace violence starts with improving their communication skills, organizational changes, and more security at health centers, and educational campaigns that increase social recognition of the profession (Ferri et al., 2020).

Acts of violence cause significant harm to nurses' mental health, as in the form of burnout (Lever et al., 2019). Both the organizational and individual effects of burnout on health systems are severe. Among them are high rates of absenteeism, turnover, and suicide among healthcare professionals (Chirico & Leiter, 2022). In turn, burnout stemming from violence against nurses is directly related to negative health results (Havaei et al., 2020; Martos et al., 2021). It is therefore not surprising that burnout is a variable of special interest in the healthcare environment (Barragán et al., 2020; Chirico, Afolabi, et al., 2021). According to Al-Qadi (2020), most nurses have normalized violence, as if it were just another part of their work, something uncontrollable. This feeling of insecurity and inability to avoid exposure to acts of violence during their workday could promote the sensation of exhaustion.

With respect to perceived security in the workplace, it should be stressed that violence increases burnout not only directly, but also through the fear that new episodes of aggression could appear. Thus, nurses with high levels of fear of future workplace violence show more emotional exhaustion and cynicism, and less personal accomplishment than others who are less afraid (Fu et al., 2021).

Furthermore, not only the nurses who have been exposed directly to workplace violence, but also those who have witnessed or heard talk about it, are fearful of future aggression (Pacheco et al., 2022). In this sense, episodes of violence arising from the COVID-19 pandemic have increased both the amount of violence against nurses and its perceived threat, which in turn is related to an increase in burnout (especially, the emotional exhaustion factor; Barelo et al., 2020).

Karatuna et al. (2020) showed that even though there are some similarities in reports of violence by nurses around the world, cultural factors are important in understanding the problem. Greater knowledge of the problem allows the design and implementation of appropriate measures for its prevention. Therefore, this study analyzed violence in the Spanish nursing environment, focusing on personal, job, and situational characteristics, such as the pandemic. The more specific objective was to analyze the consequences of COVID-19 on aggression toward Spanish nurses, and identify its association with burnout, emphasizing the importance of the specialization, years of experience, and frequency and type of aggression as related variables.

Based on these objectives, the following hypotheses are proposed:

Hypothesis 1. *Aggression is more frequent in specialized care (nurses who work in specialized centers and hospitals, with outpatients or admissions) and against nurses with fewer years of professional practice, than nurses in primary care (those who provide basic care in healthcare centers and local clinics) and have more years of experience.*

Hypothesis 2. *Nurses who have experienced aggression score significantly higher in the Emotional Exhaustion and Depersonalization dimensions of the Maslach Burnout Inventory (MBI) than those who have not been victims of aggression.*

Hypothesis 3. *Perceived secure environment is a mediator in the relationship between beliefs about increased violence toward healthcare personnel due to COVID-19 and the Depersonalization dimension of the MBI.*

3 | METHOD

3.1 | Design and participants

The study had a descriptive, cross-sectional research design directed at Spanish nurses, following the STROBE Statement guidelines for reporting cross-sectional studies (Vandenbroucke et al., 2007). Data collection began on September 7, 2020, during the first days of work and school after the first summer under restrictive measures, and ended September 28, 2020. Ethical approval for the study and participant informed consent were received before beginning data collection. A computer-assisted web interviewing survey was used for data collection, as access to healthcare institutions was restricted at the

time of implementation. Scientific societies and nursing associations helped spread the survey and snowball sampling was used. The questionnaire took an estimated 15 min. Participants were asked to answer honestly and were ensured the anonymity of their answers. Control questions were inserted to detect random or incongruent answers.

Participants in the study were licensed nurses who met the following inclusion criteria: (i) being actively employed at the time of the survey and also during the previous 6 months; and (ii) being nurses in care services in direct contact with patients and their families. In 2020, according to the National Institute of Statistics, there were 325 018 licensed Spanish nurses. Calculation of the sample size with a 99% confidence level and 5% margin of error resulted in $N = 665$ as the minimum sample required for representativeness. Our original sample was 1165 Spanish nurses. After filtering for answers to control questions, 152 cases detected with incongruent or random answers were discarded and eliminated from the database. Thus, the final study sample size was $N = 1013$.

The study was approved by the University of Almería Bioethics Committee (Ref: UALBIO2020/032). Participation was voluntary, and the survey form began by providing relevant information on the study and its purpose. The participants gave their informed consent by marking a box designated for the purpose, which then allowed them access to the questionnaire. They were also ensured anonymity in compliance with Organic Law 3/2018 of December 5th on Protection of Personal Information and Guarantee of Digital Rights of Spain. Participants were informed that they could stop answering and leave the study at any time without penalization of any kind.

3.2 | Measures

An ad hoc questionnaire was used for sociodemographic and professional data. In addition, several questions were taken from the survey used by Travetto et al. (2015), which asked the participants to indicate whether they had undergone aggression as a consequence of their care work. If the answer was affirmative, questions were asked about the frequency, type, and perceived workplace security. Participants were also specifically asked their opinion of the influence of COVID-19 on the presence of violence.

The MBI (Maslach & Jackson, 1981) was used for evaluation of burnout. This instrument uses a 5-point Likert scale (from “never” to “daily”) for responses to 22 items that are grouped into three scales: Emotional Exhaustion, Depersonalization, and Personal Accomplishment. The Emotional Exhaustion scale measures responders’ feelings of being tired and overwhelmed by job demands. The Depersonalization scale assesses their attitudes of distancing and absence of emotional involvement with patients attended in their professional practice. The Personal Accomplishment scale evaluates their feelings of competence and achievement in work. Reliability, estimated using the McDonald’s omega coefficient, was $\omega = 0.88$ for the complete questionnaire, $\omega = 0.91$ on Emotional Exhaustion, $\omega = 0.64$ for the Depersonalization scale, and $\omega = 0.79$ on Personal Accomplishment.

3.3 | Data analysis

SPSS version 24.0 for Windows (IBM Corp. Released, 2016) was used for data processing and analysis. Following the recommendations of Ventura-León and Caycho (2017), the McDonald (1999) omega coefficient was estimated to determine the reliability of the evaluation instruments used.

First, a descriptive analysis of frequencies was done to explore the distribution of the sample of nurses by their answers to the items related to having been the object of aggression as a consequence of their care work. Data for the subsample of nurses who had experienced aggression were also presented by the frequency of episodes in the last 6 months and also the type of aggression and actors involved.

In addition, a comparison of means was done to determine differences in the dimensions of burnout between nurses who had been victims of aggression and those who had not. The Welch (1947) *t*-test, which is appropriate for testing the difference between the means of two groups when group variances or sizes are unequal, was applied (Derrick et al., 2016). The effect size was determined with Cohen (1988), with ranges indicating a small (<0.50), medium (0.50–0.80), and large (≥ 0.80) effect.

After that, a multivariate analysis of variance (MANOVA) was performed to find any between-group differences (by professional experience and area of work) with respect to the burnout dimensions. To estimate the effect size, in this case the partial eta squared (η_p^2) was applied, considering values of <0.01 as irrelevant, 0.01 as small, 0.06 as medium, and over 0.14 as large. To determine which profiles were significantly different, the Bonferroni post hoc comparison was applied.

Lastly, a mediation analysis was done in which a belief that the COVID-19 pandemic has influenced the increase in violence against healthcare workers was the predictor, perceived workplace security was the mediator, and the burnout dimensions were the result variables. JASP version 0.11.1 (JASP Team, 2019), based on lavaan software (Rosseel, 2012), was used. This mediation analysis admits both continuous and ordinal endogenous variables (in our case, the mediator is an ordinal variable and the result variables are continuous) and binary and continuous exogenous variables (in this case, the predictor is a binary variable). All variables were standardized prior to estimation. The bias-corrected percentile bootstrap confidence intervals were calculated to test the indirect effects, as suggested by Biesanz et al. (2010). The maximum likelihood estimation method was applied to fit the model and estimate its parameters. Missing values were handled using the full information maximum likelihood method, which automatically calculates estimates using all available information, assuming random missing patterns. In addition, the proportion of variance explained (R^2) for each of the endogenous variables in the mediation model was calculated. Finally, the model estimated by mediation analysis is shown graphically in a path plot. The following index was used to evaluate overall model fit: chi-square/degrees of freedom ratio (χ^2/df), where <3 is considered optimum (Iacobucci, 2010; Kline, 2005) and <5 is acceptable (Bentler, 1989).

However, taking into account the sample size of this study ($N = 1013$), it is recommended to use alternative adjustment measures with samples with more than 400 cases (Kenny, 2020), such as the following: comparative fit index (CFI) and goodness of fit index (GFI); >0.95 optimum fit, and >0.90 acceptable fit, and root mean square error of approximation (RMSEA); <0.06 optimum, and <0.08 or very close, acceptable; Hu & Bentler, 1999).

4 | RESULTS

The mean participant age was 34.71 (SD = 9.35) years and 88.05% ($n = 892$) were women. Marital status was 56.66% ($n = 574$) married or with a stable partner, followed by singles who made up 38.89% ($n = 394$) of the sample.

As to their professional characteristics, 67.62% ($n = 685$) worked in specialized care, followed by 19.94% ($n = 202$) in primary care, and the rest were in social healthcare services (5.82%, $n = 59$) and other unspecified healthcare areas (6.61%, $n = 67$). Finally, by years of experience in professional practice, the distribution was as follows: 28.03% ($n = 284$) had from 1 to 5 years of experience, 21.22% ($n = 215$) 6 to 10 years, 27.34% ($n = 277$) 11 to 20 years, and 16.78% ($n = 170$) had work experience of 21 years or more. A minority had <1 year experience (6.61%, $n = 67$).

4.1 | Violence against nurses

Of the participants, 83.22% ($n = 843$) agreed that COVID-19 was a determining factor in the increase in violence against healthcare personnel in recent months. In general, participant perception of their workplace as a secure environment was mostly in the answer categories “somewhat” (35.14%, $n = 356$) and “quite” (34.25%, $n = 238$), followed by “not very safe” with 23.49% ($n = 238$). When asked whether they had suffered aggression as a consequence of their care work, 73.44% ($n = 744$) answered affirmatively.

The distribution of the participants by their characteristics is shown in Figure 1. The highest percentage of aggression was against nurses in primary care, followed closely by specialized care. However, in all cases (primary care, specialized care, social health care, and others), the percentage of affirmative answers to the question on aggression was over 50%.

The figure also shows the distribution of answers, by years of experience in professional practice, to the question about having experienced aggression or not as a consequence of their care work. The highest percentage of affirmative answers was by nurses with the most experience. In fact, there is an upward trend with increasing number of years of professional practice. Furthermore, between-group differences by care unit were observed ($F = 2.54$, $p < 0.05$), where nurses in primary care had the most average years of experience.

Moreover, when the 744 nurses who said they had been victims of aggression during their professional practice were asked to recall

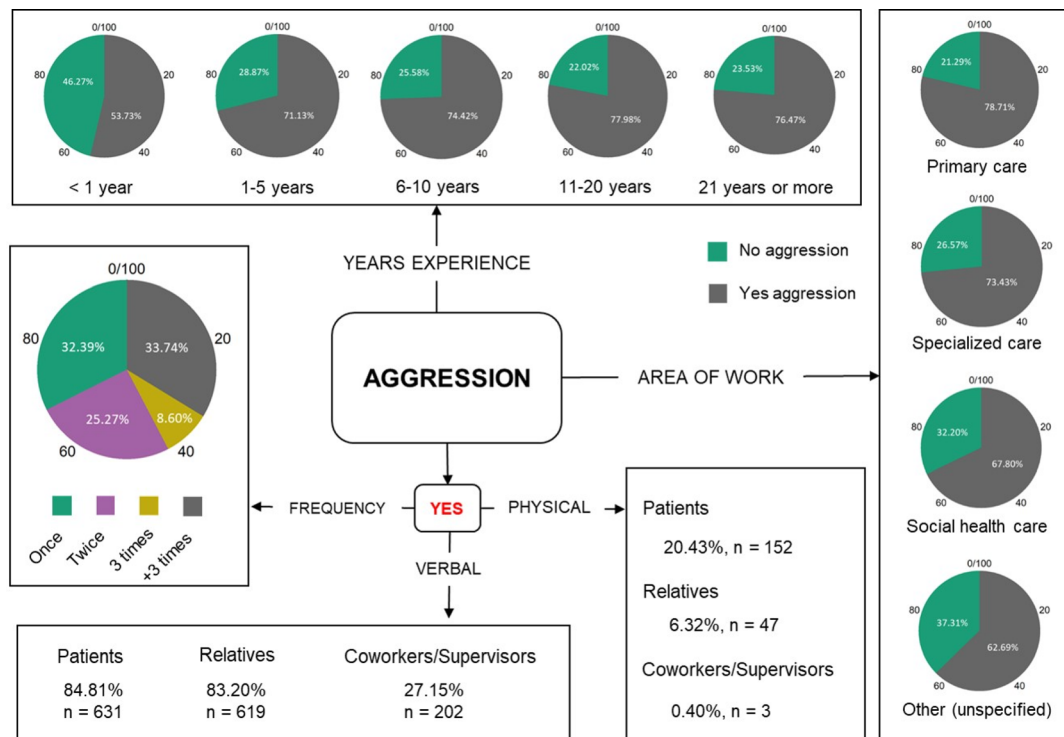


FIGURE 1 Results of frequency analyses from a survey on aggression against nurses. Percentages for Yes and No responses for the previous 6 months to the central question (“Have you ever been the object of aggression as a consequence of your care work?”) are shown in graphs in the top row (broken down by length of work experience) and the right column (by area of work assignment). Sources of physical and verbal aggression, and the numbers of incidents experienced, are shown in boxes to the bottom and left

the previous 6 months, 33.74% said they had suffered aggression more than three times.

Finally, verbal aggression by patients and their relatives was the most frequent, while physical aggression was more often by patients.

4.2 | Violence and burnout in nursing

First, statistically significant differences were found in two of the burnout dimensions (Emotional Exhaustion and Depersonalization) in the comparison of average scores between those who had experienced aggression and those who had not, with the former scoring higher. No significant differences were observed in Personal Accomplishment (Table 1).

The MANOVA indicated that there were significant between-group differences by number of years' experience in the profession (Table 2) in the burnout components, Wilk's $\Lambda = 0.958$, $F_{(4, 1008)} = 3.62$, $p < 0.001$, $\eta_p^2 = 0.14$. Equivalence between covariance matrices was examined with the Box's M test ($M_{Box} = 28.79$, $F = 1.18$, $p = 0.238$). Univariate analyses for each dependent variable revealed between-group differences in Emotional Exhaustion, $F_{(4, 1008)} = 3.19$, $p < 0.05$, $\eta_p^2 = 0.01$, and Depersonalization, $F_{(4, 1008)} = 4.60$, $p < 0.01$, $\eta_p^2 = 0.018$.

Post hoc comparisons highlighted the differences in Emotional Exhaustion between nurses based on years of experience, with nurses having less than 1 year of experience showing significantly lower mean scores versus groups defined by 6 years or more as follows: 6–

10 years, $t = -3.29$, $p_{bonf} < 0.05$; 11–20 years, $t = -3.26$, $p_{bonf} < 0.05$; and 21 years or over, $t = -3.13$, $p_{bonf} < 0.05$.

Differences in Depersonalization were found in nurses who had 21 years or more of experience, with the mean scores significantly lower than nurses who had 1–5 years of experience, $t = 3.75$, $p_{bonf} < 0.01$, and those with 6–10 years, $t = 3.65$, $p_{bonf} < 0.01$.

Multivariate analysis could not be done by care unit, because when equivalence between covariance matrices was examined with Box's M test ($M_{Box} = 31.64$, $F = 1.75$, $p = 0.024$), the hypothesis of equivalence of variance-covariance matrices was rejected ($\text{sig.} = 0.000 < 0.05$). Univariate analyses for each dependent variable revealed the existence of between-group distances only in the Emotional Exhaustion dimension, $F_{(3, 1009)} = 6.96$, $p < 0.001$, $\eta_p^2 = 0.02$, where the primary care group had significantly higher mean scores than nurses in specialized care, $t = 4.33$, $p_{bonf} < 0.001$, and nurses in other unspecified areas, $t = 2.79$, $p_{bonf} < 0.05$.

4.3 | Beliefs about the influence of COVID-19 on violence against healthcare workers and burnout: Mediation of perceived secure environments

As mentioned above, over 80% of the sample shared the idea that the COVID-19 pandemic influenced the increase in violence against healthcare workers. Based on these data, we examined whether perceived secure environment would be a mediator in the relationship

TABLE 1 Comparison of dimensions of burnout between nurses based on reports (Yes/No) of experiencing aggression (independent samples t-test)

| Burnout | Aggression (No) | | | Aggression (Yes) | | | t | p | Mean difference | SE difference | 95% CI | | Cohen's d |
|-------------------------|-----------------|-------|-------|------------------|-------|-------|-------|--------|-----------------|---------------|--------|-------|-----------|
| | N | M | SD | N | M | SD | | | | | Lower | Upper | |
| Emotional Exhaustion | 269 | 25.63 | 12.22 | 744 | 31.24 | 12.03 | -6.47 | <0.001 | -5.60 | 0.86 | -7.30 | -3.90 | -0.46 |
| Depersonalization | 269 | 7.94 | 5.61 | 744 | 10.15 | 6.08 | -5.40 | <0.001 | -2.21 | 0.40 | -3.01 | -1.40 | -0.37 |
| Personal Accomplishment | 269 | 37.39 | 6.26 | 744 | 37.63 | 6.27 | -0.53 | 0.594 | -0.23 | 0.44 | -1.11 | 0.63 | -0.03 |

Note: Welch's t-test.

between the belief that COVID-19 is a factor influencing the increase in violence and the dimensions of burnout.

As shown in Table 3, perception of threat showed a direct effect only on Emotional Exhaustion. However, as indirect effects, a perceived secure environment was a mediator in the relationship between belief that COVID-19 has influenced the increase in violence against healthcare workers and the Emotional Exhaustion and Depersonalization dimensions of burnout. Figure 2 shows the path plot of the model estimated by mediation analysis, with the standardized regression coefficients and R^2 values. The model showed adequate fit, as shown by the indices found: $\chi^2(4) = 27.03$, $\chi^2/df = 6.75$, $p < 0.001$, CFI = 0.96, GFI = 0.98, RMSEA = 0.07 (90% confidence interval = 0.050, 0.103).

5 | DISCUSSION




This study analyzed violence in the nursing workplace in Spain: its relationship with sociodemographic, job, and contextual factors (such as the pandemic), and its involvement in burnout. The first hypothesis posed was that there is a greater prevalence of violent episodes against workers with fewer years of service and those working in specialized units, such as the emergency room. However, our data did not support this hypothesis. In the first place, we found that nurses in primary care said they were victims of more violent episodes. The international literature has shown emergencies to be a sector particularly affected, in countries such as Turkey, Slovenia, Czech Republic, Poland, Chile, and Saudi Arabia (Alsharari et al., 2021; Babiarczyk et al., 2020; Jiménez et al., 2019). This discrepancy between previous studies and our results may be due to the above-mentioned normalization of violence in the healthcare context (Al-Qadi, 2020). Furthermore, it is also true that primary care workers are subjected to severe incidents of violence such as threats and verbal abuse (Expósito-Álvarez et al., 2021; Serrano-Vicente et al., 2019). In addition to all of the above, at the start of the pandemic, primary care received and diagnosed 90% of the COVID-19 cases in Spain. Therefore, the pressure for care assumed by these professionals (Coll et al., 2021) could have contributed notably to that increase. In this regard, a communication issued by the Official Spanish Medical Association Collegiate Medical Organization of Spain (2020) claimed the forgotten role of primary care as the area of containment of the virus, which cared for the most infected patients, with the most fear, distress, and uncertainty for patients and relatives. These findings coincide with a Brazilian study, which showed that professionals in primary care were more vulnerable to violence at the beginning of COVID-19 because they were in the front line (Lotta et al., 2022). It is therefore not surprising that nurses working in this area felt exposed to growing aggression, motivated by the tension of uncertainty and start of collapse. In the second place, concerning the prevalence of aggression by years of experience, our results showed that it is those with the most tenure who had experienced more episodes. The literature has shown that it is the youngest nurses who experience the most violence (Karatuna et al., 2020). However, and within the COVID-19 context,


TABLE 2 Descriptive statistics on nurses' burnout, by years in the profession and work unit

| | | Years of experience in the profession | | | | | Care unit | | | |
|--------------------------------|-------|---------------------------------------|-------|-------|-------|-------|-----------|-------|-------|--------|
| | | <1 | 1-5 | 6-10 | 11-20 | ≥21 | PC | SC | SH | Others |
| Emotional Exhaustion | | | | | | | | | | |
| M | 27.85 | 29.41 | 30.51 | 30.30 | 30.40 | 33.04 | | 28.80 | 31.35 | 28.22 |
| SD | | 11.74 | 11.50 | 12.50 | 12.85 | 12.49 | 12.20 | 12.28 | 12.95 | 10.99 |
| F | | 3.19 | | | | | 6.96 | | | |
| p | | 0.013 | | | | | 0.001 | | | |
| η_p^2 | | 0.013 | | | | | 0.020 | | | |
| Depersonalization | | | | | | | | | | |
| M | 8.82 | 10.17 | 10.24 | 9.56 | 7.98 | 10.03 | | 9.54 | 9.01 | 8.86 |
| SD | | 5.25 | 6.23 | 5.93 | 6.09 | 5.80 | 6.17 | 6.04 | 6.29 | 5.39 |
| F | | 4.60 | | | | | 0.87 | | | |
| p | | 0.001 | | | | | 0.456 | | | |
| η_p^2 | | 0.018 | | | | | 0.003 | | | |
| Personal Accomplishment | | | | | | | | | | |
| M | 37.98 | 37.57 | 37.55 | 36.97 | 38.37 | 37.96 | | 37.46 | 38.27 | 36.80 |
| SD | | 6.22 | 6.22 | 5.53 | 6.41 | 6.95 | 6.32 | 6.34 | 5.17 | 6.26 |
| F | | 1.38 | | | | | 0.89 | | | |
| p | | 0.237 | | | | | 0.441 | | | |
| η_p^2 | | 0.005 | | | | | 0.003 | | | |

Abbreviations: CI, confidence interval; PC, primary care; SC, specialized care; SH, social health care.

TABLE 3 Direct, indirect, and total effects of the belief that the COVID-19 pandemic influenced an increase in violence against healthcare workers on the perception of a secure environment and burnout

| | | | | | | 95% CI | |
|--|----------------|----------|------------|---------|--------|--------|-------|
| Direct effects | | Estimate | Std. error | z-value | p | Lower | Upper |
|  ↑ VIOLENCE | → MBI_EE | 0.239 | 0.080 | 2.978 | 0.003 | 0.060 | 0.401 |
| | → MBI_DE | -0.025 | 0.083 | -0.308 | 0.758 | -0.191 | 0.127 |
| | → MBI_PA | -0.004 | 0.084 | -0.042 | 0.967 | -0.148 | 0.152 |
| | | | | | | 95% CI | |
| Indirect effects | | Estimate | Std. error | z-value | p | Lower | Upper |
|  ↑ VIOLENCE | → PSE → MBI_EE | 0.083 | 0.026 | 3.181 | 0.001 | 0.036 | 0.135 |
| | → PSE → MBI_DE | 0.058 | 0.019 | 3.003 | 0.003 | 0.027 | 0.100 |
| | → PSE → MBI_PA | -0.015 | 0.010 | -1.504 | 0.133 | -0.045 | 0.002 |
| | | | | | | 95% CI | |
| Total effects | | Estimate | Std. error | z-value | p | Lower | Upper |
|  ↑ VIOLENCE | → MBI_EE | 0.321 | 0.083 | 3.852 | <0.001 | 0.141 | 0.486 |
| | → MBI_DE | 0.033 | 0.084 | 0.387 | 0.699 | -0.144 | 0.184 |
| | → MBI_PA | -0.018 | 0.084 | -0.219 | 0.827 | -0.161 | 0.131 |

Note:  ↑ VIOLENCE, believes that COVID-19 has influenced the increase in violence against healthcare workers, Delta method standard errors, bias-corrected percentile bootstrap confidence intervals.

Abbreviations: CI, confidence interval; MBI_DE, Maslach Burnout Inventory (MBI) Depersonalization scale; MBI_EE, MBI Emotional Exhaustion scale; MBI_PA, MBI Personal Accomplishmentscale; PSE, perceived secure environment.

the professionals most affected were the most veteran. On this point, it should be mentioned that, in agreement with Serrano-Vicente et al. (2019) and Serrano et al. (2020), nurses in the primary care unit in

Spain had the highest mean age and tenure, which is certainly linked to the highest prevalence of aggression against nurses with more years of service, as it coincides with the area most affected.

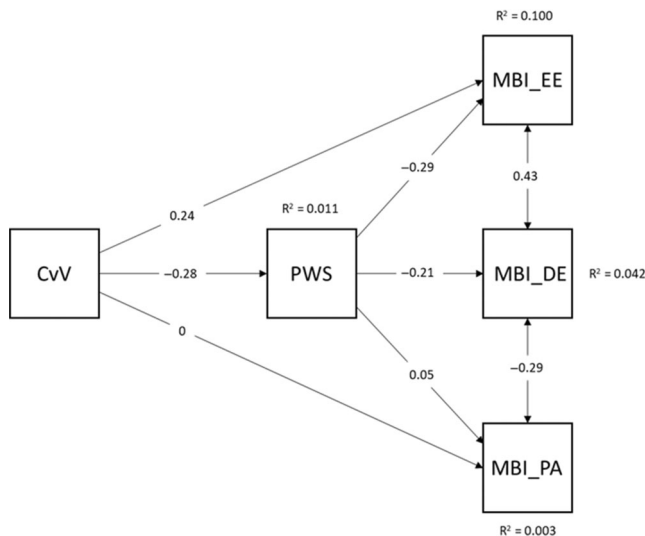


FIGURE 2 Path plot of the mediation model. CvV, perception of COVID-19's influence on the violence; MBI_EE, Maslach Burnout Inventory (MBI) Emotional Exhaustion scale; MBI_DE, MBI Depersonalization scale; MBI_PA, MBI Personal Accomplishment scale; PWS, perceived workplace security. Standardized coefficients and R^2 values are shown

The aggressors in most cases of physical and verbal violence were patients, followed by relatives. This agrees with what was found in the review of Spanish studies by Serrano-Vicente et al. (2019), and differs from international studies which indicate that relatives are the most common perpetrators (Babiarczyk et al., 2020). Karatuna et al. (2020) emphasized the importance of considering the context in the study of workplace violence in nursing. In addition, due to COVID restrictions, most of the patients at healthcare centers were alone.

It was also found that nurses who had experienced aggression scored significantly higher in the Depersonalization and Emotional Exhaustion dimensions of the MBI. These data confirm our second hypothesis and support what was found in the literature by showing aggression against nurses to be a factor related to burnout (Al-Qadi, 2020; Havaei et al., 2020; Lever et al., 2019) in professionals around the world, such as in China (Liu, Gan, et al., 2019; Liu, Zheng, et al., 2019), Chile (Jiménez et al., 2019), Italy (Aguglia et al., 2020), and Germany (Anja et al., 2022). Thus, the psychological well-being of nurses who had been the object of aggression would be diminished, generating feelings of emotional exhaustion and depersonalization (Al-Qadi, 2020).

Violence in healthcare against nurses is linked to the presence of burnout, and directly affects feelings of individual security, well-being, and job performance (Blanco et al., 2019). In this regard, in agreement with our third hypothesis, we found that perceived job security mediated the relationship between beliefs about the increase in violence against nurses because of COVID-19 and the emotional exhaustion and depersonalization dimensions of burnout. Consejo General de Enfermería [General Nursing Council of Spain], 2021 data show an increase in violence against nurses in Spain since the beginning of the pandemic. Specifically, eight of every ten nurses who participated in

this study indicated that violence during their care work had increased with COVID-19. As mentioned by Fu et al. (2021) in a study on nurses in China, fear of the occurrence of violent attacks leads to depersonalization and emotional exhaustion in nurses. In other words, the more nurses fear being attacked, the more reticent they become to participate and get involved in their work, due to their fear of aggression. But when nurses perceive their workplace to be secure, depersonalization diminishes. Specifically, as long as the perception that the increase in violence because of the pandemic does not make them feel personally exposed to greater danger, then workplace detachment mechanisms such as depersonalization do not come into play.

5.1 | Limitations

Finally, some limitations should be mentioned. In the first place, the variability of the participants in terms of their sociodemographic and job characteristics did not allow a clear profile to be drawn of the nurses attacked the most. Although we could establish factors more highly associated with violent attacks, a clear pattern of nurses who experience more aggression could not be defined. This is a point worth exploring in future studies. Moreover, the cross-sectional design makes it impossible to determine causal relationships among the variables. Mediation analysis is very popular as a potential alternative to causal inference methods. In this study, the preliminary requirements for its performance were evaluated (Agler & De Boeck, 2017). However, erroneous interpretation of the findings of these models could lead to distorted conclusions if compared with longitudinal studies (O'Laughlin et al., 2018). They should therefore be interpreted with caution.

6 | CONCLUSIONS

As indicated by the nurses who participated in this study, violence against nurses has increased since the beginning of the COVID-19 pandemic, especially against primary care nurses. This is because primary care centers have been extremely saturated in Spain due to the agglomeration of COVID-19 patients along with all other pathologies. This has been stressful for patients and their families, leading to increasingly violent attitudes and behavior.

Beyond the direct physical consequences of violence against nurses, the psychological implications involve an increase in burnout. And not only the violence itself, but also perceptions of its presence in the workplace, can contribute to burnout. The results of this study showed that an increase in depersonalization, due to the perceived increase in violence against nurses because of COVID-19, is mediated by workplace security. Thus, workers who feel secure at work would show less depersonalization, even though the number of aggressive events has increased since the pandemic. This in turn is related to better performance of their duties and better psychological well-being.

7 | RELEVANCE FOR CLINICAL PRACTICE

This study has direct implications for nurses' well-being, their job performance, and their engagement with the profession. As discussed above, violence against nurses is increasing, and therefore, it is indispensable to improve security in the healthcare workplace. Insecurity in the workplace affects workers' performance (Sora et al., 2021), while the perception of a safe workplace reduces the effects of the increase in violence. Proactive prevention campaigns that educate the population—promoting the idea that nurses perform an indispensable labor of care and service, and therefore must be respected—along with institutional action directed at their protection as especially vulnerable, could be effective measures for increasing job security and improving thereby nurses' personal well-being. Thus, an integral approach to promoting well-being and safety in the workplace through the collaboration of healthcare providers and stakeholders in public health is in the general interest. Mandatory health surveillance and voluntary programs for increasing individual psychological skills should be promoted during and after the COVID-19 pandemic (Chirico, 2021; Chirico & Ferrari, 2021; Chirico, Sacco, & Ferrari, 2021).

AUTHOR CONTRIBUTIONS

María del Carmen Pérez-Fuentes and María del Mar Molero Jurado contributed to the concept, design, analysis, and interpretation of the data. África Martos Martínez contributed to the technical details and manuscript preparation. María del Carmen Pérez-Fuentes, María del Mar Molero Jurado, and África Martos Martínez wrote the manuscript. José Jesús Gázquez Linares contributed to critically revising the manuscript for important intellectual content, and for final approval of the version to be published.

DATA AVAILABILITY STATEMENT

Data available on request from the authors.

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