

Prevalence of **Burnout Syndrome** in Emergency Nurses: A Meta-Analysis

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OBJECTIVE To determine the prevalence of burnout (based on the Maslach Burnout Inventory on the 3 dimensions of high Emotional Exhaustion, high Depersonalization, and low Personal Accomplishment) among emergency nurses.

METHOD A search of the terms “emergency AND nurs* AND burnout” was conducted using the following databases: CINAHL, Cochrane, CUIDEN, IBECs, LILACS, PubMed, ProQuest, PsycINFO, SciELO, and Scopus.

RESULTS Thirteen studies were included for the Maslach Burnout Inventory subscales of Emotional Exhaustion and Depersonalization and 11 studies for the subscale of low Personal Accomplishment. The total sample of nurses was 1566. The estimated prevalence of each subscale was 31% (95% CI, 20-44) for Emotional Exhaustion, 36% (95% CI, 23-51) for Depersonalization, and 29% (95% CI, 15-44) for low Personal Accomplishment.

CONCLUSIONS The prevalence of burnout syndrome in emergency nurses is high; about 30% of the sample was affected with at least 1 of the 3 Maslach Burnout Inventory subscales. Working conditions and personal factors should be taken into account when assessing burnout risk profiles of emergency nurses. (*Critical Care Nurse*. 2017;37[5]:e1-e9)

Burnout syndrome is one of the most important occupational health problems in various professions that involve working with other people.¹ Among susceptible occupations, health care professionals have been identified as the group most likely to experience burnout. Burnout has been studied extensively,¹ with Freudenberg² initiating the study of this syndrome in social services professionals. Nevertheless, Maslach and Jackson’s³ definition of a 3-dimensional psychological syndrome—in which an individual who provides human services has Emotional Exhaustion, Depersonalization in client attention, and feelings of low Personal Accomplishment—is currently the most accepted and widespread definition. The Maslach Burnout Inventory (MBI) categorizes the intensity of burnout into a low, medium, or high level for each dimension or subscale. Burnout scores are higher when Emotional Exhaustion and Depersonalization subscale scores are higher and Personal Accomplishment scores are lower.³

In health care, nurses have one of the highest rates of burnout.⁴ This syndrome influences different aspects of nursing health care. A professional with burnout may present with physical weakness, insomnia, hostility, irritability, and depression.⁵ Patients of the individual with burnout are also affected because of a decrease in the quality of nursing care.^{6,7} Finally, health institutions face burnout-related problems such as increased absenteeism, job rotation, and reduced work performance.^{8,9} Through educational interventions, mediation, or interventions focused on affected individuals, treatment of burnout among nurses has been studied, although results have been limited.¹⁰⁻¹²

In the last decade, numerous burnout risk factors have been studied among nursing professionals, such as work experience,¹³ job satisfaction,¹⁴ personality, and sociodemographic factors.⁴ Another important risk factor that has been assessed in recent studies^{15,16} is the hos-

specific units such as oncology,¹⁸ critical care,¹⁹ and emergency departments (EDs).^{15,16}

On a daily basis, nurses working in the ED deal with unexpected situations and patients who may be at risk of death because of their pathologies.²⁰ This indirect exposure to trauma may generate secondary traumatic stress in emergency nurses.²⁰ In addition, EDs have been identified as one of the medical specialty units where attacks and assaults by patients on health care professionals are most frequent.²¹ These factors suggest that among nursing professionals, emergency nurses have an increased risk of experiencing burnout. Reviews about burnout among emergency nurses indicate a high prevalence of the syndrome¹⁵; however, burnout prevalence rates vary considerably among included studies. For example, reported Emotional Exhaustion prevalence rates range from 9.5%²² to 67%.²³ In previous research,¹⁵ prevalence rates of and risk factors for burnout were identified in emergency nurses; however, a meta-analysis of these prevalence rates was not done. A meta-analytic study could provide an estimate of the prevalence of burnout among emergency nurses, as has been already done, for example, in oncology professionals.²⁴

The aim of this study was to determine the prevalence of burnout syndrome in emergency nurses, using the MBI manual, which established higher rates of burnout when Emotional Exhaustion and Depersonalization subscale scores are higher and Personal Accomplishment scores are lower.³ The question that guided the meta-analysis was, What are the prevalence rates of high Emotional Exhaustion, high Depersonalization, and low Personal Accomplishment in emergency nurses?

Methods

We conducted a meta-analytic study following the 2015 recommendations of Preferred Reporting Items for Systematic Reviews and Meta-Analysis Protocols.²⁵

Search Strategy

The search was conducted in June 2016. To find the largest number of documents, the search did not include a limitation or result filter. The search terms were “emergency AND nurs* AND burnout” in English and “urgencias AND enfermería AND burnout” in Spanish. We consulted the following scientific databases: CINAHL, Cochrane, CUIDEN, IBECs, LILACS, PubMed, ProQuest Platform (ProQuest Health & Medical Complete),

Among nursing professionals, emergency nurses have an increased risk of experiencing burnout.

work. Each specialty cares for patients with certain diseases and morbidities, so the daily work of nursing can vary substantially depending on the specific unit. The importance of determining how the specialty influences the development of burnout has been reflected in descriptive studies comparing burnout among different specialties, such as internal medicine, palliative care, and hematology,¹⁷ or in systematic reviews about burnout in

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PsycINFO, SciELO, and Scopus. ProQuest Dissertation & Thesis and Google Scholar were used to find gray literature (ie, published and unpublished research material that is not available commercially; eg, conference papers/conference proceedings and theses).

Selection Criteria

We included research reports published in English, Spanish, and Portuguese, with original empirical data on burnout prevalence rates. We used the MBI for burnout assessment for emergency nurses.³ We excluded studies without sufficient statistical information for performing meta-analysis calculations and studies with data from other professions or multiple units but without independent information for emergency nurses.

We included only studies that used the MBI, because it is an instrument with good psychometric properties²⁶ and one of the most widely used by researchers studying burnout syndrome.²⁷ Including literature that used the MBI for assessing burnout facilitated data interpretation; although studies may have used different versions of the test, the results are based on similar cutoff values. The MBI use facilitated the integration and interpretation of the results of the studies because including results from other burnout questionnaires (with different cutoff values of burnout, or even different subscales) would not allow for an integrated reliability analysis.

Study Selection

Two members of the research team independently conducted the search and selection process; a third member was consulted in cases of disagreement. The selection process consisted of 4 phases. First the researchers made a selection after reading the title and abstract. They did a second screening after reading the full text of the selected studies. The researchers then assessed the studies using a checklist to ascertain the quality of the studies as well as the absence of methodological bias. Finally, the researchers conducted an inverse search (searching the included studies' reference lists) and a forward search (looking for studies that cite the included studies). An inverse search was also carried out in systematic reviews located during the search and related to the topic.

Quality Assessment

To assess the methodological quality of the studies, we used Ciapponi's²⁸ critical reading checklist, which

included the items specifically related to the internal validity of the study. We used this checklist because it is specific for quantitative observational studies, as were all the included studies. No study was excluded because of methodological bias.

Data Collection

We included the following data from each study in the meta-analysis:

- Authors,
- Year of publication,
- Country where the study was performed,
- Type of MBI (MBI-Human Services Survey vs MBI-General Services),
- Study temporality (cross-sectional vs longitudinal),
- Type of sampling (intentional vs random),
- Mixed sample (yes vs no),
- Total sample of emergency nurses,
- Total sample of emergency nurses with high Emotional Exhaustion,
- Total sample of emergency nurses with high Depersonalization, and
- Total sample of emergency nurses with low Personal Accomplishment.

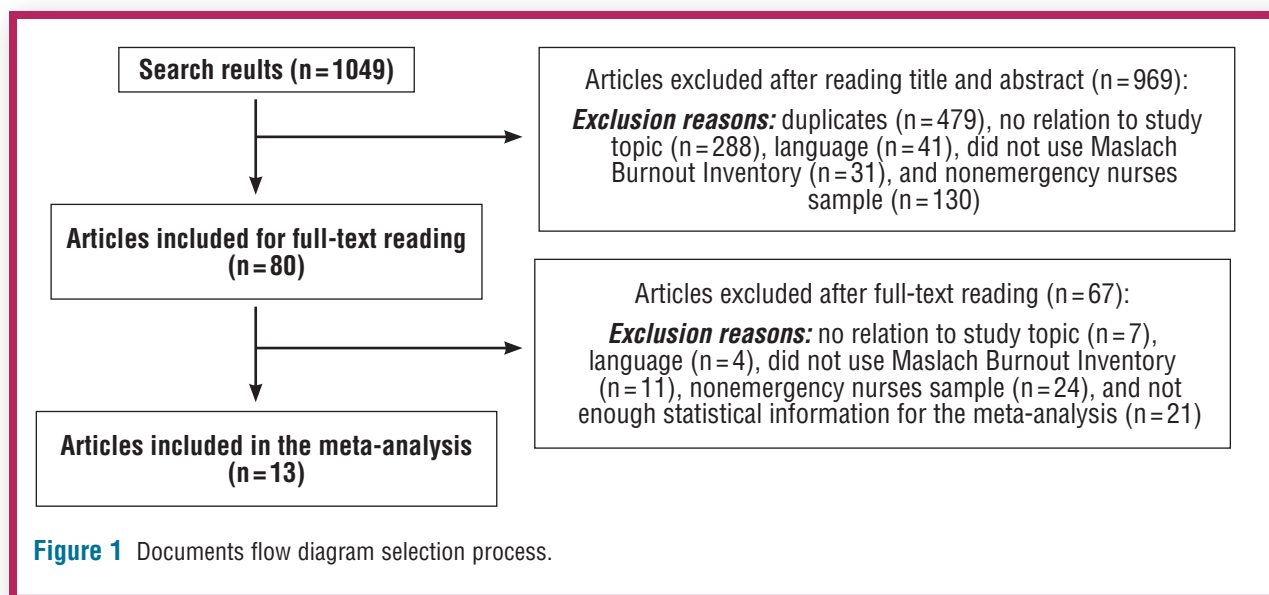
The sample number or percentage with low or high values in each burnout subscale was gleaned from the studies' results. Low, medium, and high values were determined by the MBI cutoff points of each study.

Data coding was conducted independently by 2 members of the team, and then the mean degree of agreement was assessed. For categorical variables, Cohen κ coefficient was calculated, yielding a mean value of 0.91 (minimum = 0.86; maximum = 1). The intraclass correlation coefficient was used for continuous variables; the mean value was 0.93 (minimum = 0.88; maximum = 1).

Data Analysis

We used StatsDirect software²⁹ and its meta-analysis package for statistical analysis.

Calculation of Prevalence Rates and Confidence Intervals. Three independent meta-analyses (1 for each burnout subscale) were performed. A random-effects model meta-analysis—including the total sample and the sample with high Emotional Exhaustion, high Depersonalization, and low Personal Accomplishment—was chosen to calculate mean prevalence rates



and 95% CI of each subscale because the number of included studies was higher than 10.^{30,31}

Heterogeneity Analysis. We used the Cochran Q test and the I^2 index to assess the degree of homogeneity.

Sensitivity Analysis. A sensitivity analysis, removing 1 study from the analysis at a time, was done to ensure that none of the studies included in the meta-analysis produced significant variations in the mean prevalence rates obtained.

Evaluation of Publication Bias. We used Egger linear regression for assessment of publication bias.

Results

We initially selected 1049 studies for evaluation. After reading the title and abstract of each article and excluding duplicates and studies not related to the study topic, without emergency nurses, not fitting publication language criteria, or not using the MBI, we included 80 documents for full-text reading. The documents were reduced to a final sample of 13 studies for Emotional Exhaustion and Depersonalization subscales and to 11 studies for Personal Accomplishment after applying inclusion and exclusion criteria. The selection process is detailed in Figure 1.

All selected studies were cross-sectional with convenience sampling. Eleven (84.6%) studies used the Human Services Survey version of the MBI and 2 (15.4%) used the General Services version. Nine (69.2%) studies were done in Europe (Spain or Brazil), 3 (23.1%) were done in the United Kingdom or the United States, and 1 (7.7%)

in Australia. The characteristics of each study are detailed in the Table.

Sensitivity analyses showed no statistically significant changes in the prevalence values for any of the 3 subscales when any of the studies were omitted from the analysis. The value of Egger statistic to assess publication bias was 6.0 with $P = .01$ for Emotional Exhaustion, 4.6 with $P = .4$ for Depersonalization, and 4.5 with $P = .3$ for Personal Accomplishment, showing no publication bias.

The prevalence rate of high Emotional Exhaustion estimated by the meta-analysis was 31% (95% CI, 20-44). The estimation of high Emotional Exhaustion of each study, and the overall meta-analytic estimation, is shown in the forest plot in Figure 2. Heterogeneity analysis showed a 286.6 Cochran Q value with $P < .001$ and an I^2 index of 95.8% (95% CI, 94.6-96.6), indicating high heterogeneity.

The estimated prevalence of high Depersonalization was 36% (95% CI, 23-51). The forest plot in Figure 3 shows the meta-analytic estimation of high Depersonalization and the estimation of high Depersonalization of each study. The value of Cochran Q of the heterogeneity analysis is 363.4 with $P < .001$; the I^2 index was 96.7% (95% CI, 95.9-97.3), representing high heterogeneity.

The estimated prevalence for the third burnout subscale, low Personal Accomplishment, was 29% (95% CI, 15-44) (Figure 4). The Cochran Q value was 295.2 with $P < .001$, and a high heterogeneity was found with an I^2 index value of 96.6% (95% CI, 95.7-97.3).

Table Characteristics of included studies (n=13)

Study	Version of MBI	Sample size	% of high EE	% of high D	% of low PA
Casa Tacar et al, ³² 2012, Spain	HSS	21	29	52	33
Escribà-Agüir et al, ³³ 2006, Spain	HSS	273	19	34	46
Eagar, ³⁴ 2003, Australia	GS	173	6	8	-
Fernandes et al, ³⁵ 2012, Brazil	HSS	17	12	88	5
Franca et al, ³⁶ 2012, Brazil	HSS	38	89	100	97
Gillespie and Melby, ³⁷ 2003, England	HSS	20	20	0	0
Keller and Verdes, ³⁸ 1990, United States	HSS	532	9	10	10
O'Mahony, ³⁹ 2011, Ireland	HSS	64	67	58	-
Ríos Ríquez et al, ⁴⁰ 2008, Spain	HSS	55	31	29	41
Ríos Ríquez et al, ⁴¹ 2011, Spain	HSS	56	55	36	41
Ríos Ríquez et al, ⁴² 2012, Spain	GS	128	22	23	10
Fagoaga et al, ⁴³ 2000, Spain	HSS	79	30	24	24
Dantas et al, ⁴⁴ 2014, Brazil	HSS	110	31	29	23

Abbreviations: D, depersonalization; EE, emotional exhaustion; GS, general services; HSS, human services survey; MBI, Maslach Burnout Inventory; PA, personal accomplishment.

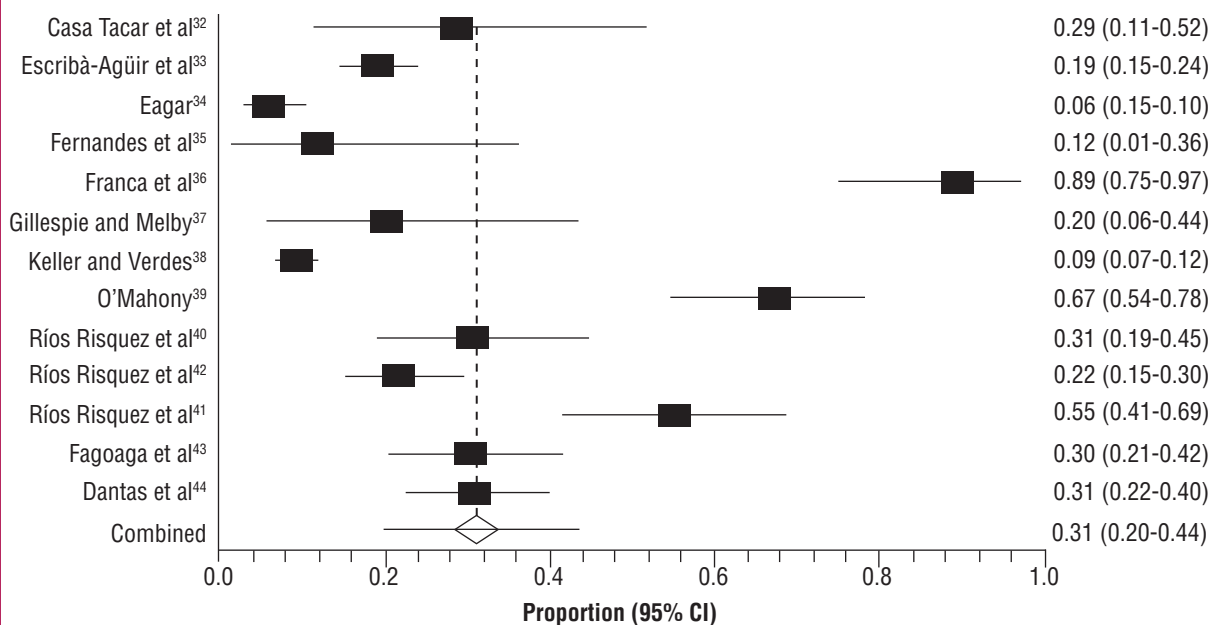
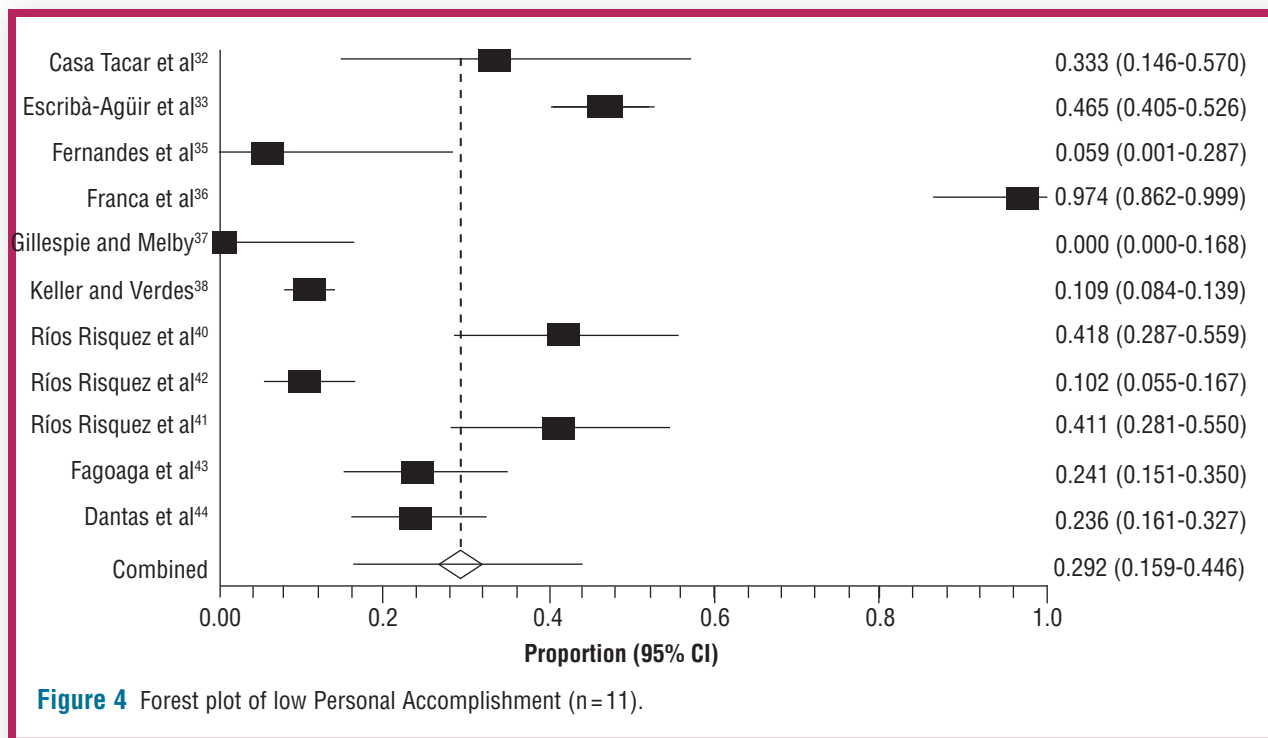
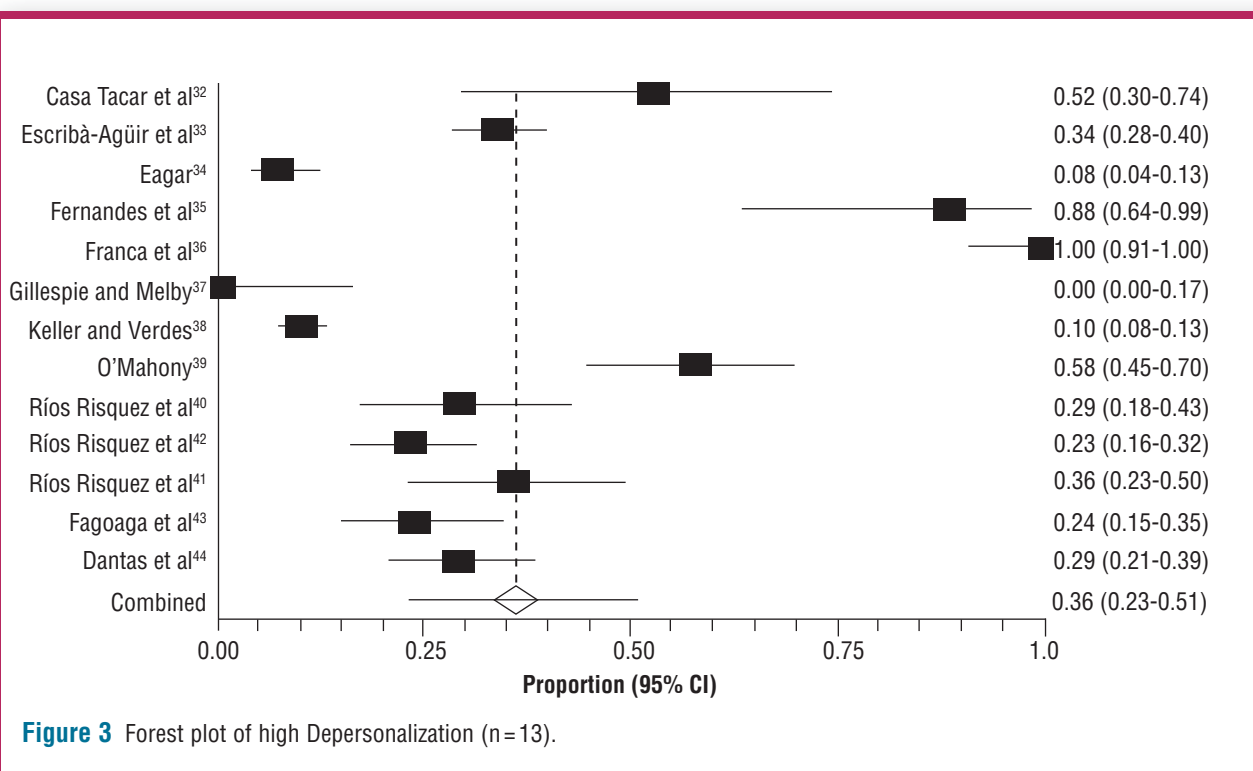


Figure 2 Forest plot of high Emotional Exhaustion (n=13).

Discussion

Burnout syndrome is common among emergency nurses, but studies report that nurses in a wide variety of specialties are affected by this syndrome.^{15,16} To the best of our knowledge, a meta-analysis that focuses on burnout

prevalence in emergency nurses had never been published. In our meta-analysis of 13 studies involving emergency nurses, the prevalence of each of the 3 subscales of burnout according to the MBI ranged as follows: high Emotional Exhaustion, between 20% and 44%;



high Depersonalization, between 23% and 51%; and low Personal Accomplishment, between 15% and 44%. These results are in line with studies of intensive care nurses conducted in other countries such as the United States.^{45,46} Although the workloads in EDs and intensive care units

differ (intensive care requires a greater use of technologies and devices, with a low nurse-to-patient ratio, whereas emergency care entails a higher workload in a less controlled environment), both units are likely to predispose their professionals to develop burnout. However, some

US studies of intensive care nurses found higher levels of burnout than we found in emergency nurses: Emotional Exhaustion symptoms were reported in 61% to 67% of intensive care nurses, Depersonalization symptoms in 44% to 49%, and low Personal Accomplishment in 50% to 62% of nurses in intensive care units.^{45,46}

The findings of our meta-analysis indicate that nurses working in EDs experience anxiety and stress, which in turn produce high Emotional Exhaustion scores. Unsatisfactory work conditions with insufficient time to develop caring activities⁴⁷ and an excessive workload may contribute to the high Emotional Exhaustion scores.⁴⁸ High Emotional Exhaustion can be further aggravated by the lack of experience in the case of younger nurses,⁴⁹ the hostility of patients who may physically and verbally assault the staff,^{22,50} and a lack of assertiveness by the staff.⁵¹ Similarly, at the personal and family level, a lack of social support⁴⁸ and having an unemployed spouse⁴⁷ seem to increase the prevalence of high Emotional Exhaustion in emergency nurses.

Working conditions also contribute to the development of high Depersonalization scores among emergency nurses. Hostility toward workers,^{22,50} excessive working hours,⁴⁸ contract conditions, or lack of assertiveness⁵¹ are just a few examples. On a personal level, the Depersonalization subscale adversely affects individuals in the same way as Emotional Exhaustion.⁴⁷ Low Personal Accomplishment can be aggravated by lack of assertiveness⁵¹ and again by personal factors,⁴⁷ probably as a result of Emotional Exhaustion and Depersonalization.

Burnout has been linked to increased absenteeism, the abandonment of jobs, a reduction in health care quality, an increase in errors, and a reduced level of patient safety⁵²⁻⁵⁴; thus, identifying and treating professionals with burnout are important. In addition, the presence of high burnout prevalence rates has been associated with poor quality of nursing care, increased number of patient falls, medication errors, and increased incidence of infections⁵⁵—factors that adversely affect patient care. Thus, future research should evaluate the results of preventive programs on the occurrence of burnout syndrome in emergency nurses⁵⁶ or treatment results if burnout syndrome develops.

Carrying out meta-analyses would be valuable to ascertain the most important risk factors associated with burnout in emergency nurses, as has been done for nursing staff in general.⁵⁷ Creating a suitable work environment

is essential²¹ to minimize the impact of multiple risk factors that increase the development of burnout.^{3,58} To achieve this goal, an improvement in labor agreements, a decrease in harassment, and an increase in incentives are needed.⁵⁹ Similar meta-analyses should be developed for other medical specialties to determine in what units the prevalence of burnout is high.

Limitations

This study has some limitations. First, the number of studies with sufficient statistical information to perform the meta-analysis was low, because of the necessary homogenization of the tool used to assess burnout or the need to include only studies that had sufficient quantitative data to perform the analyses. Secondly, all the included studies were cross-sectional. Although adequate for prevalence assessment, this design provides less information about, for example, the number of nurses who leave the profession because of burnout. Professional attrition can be assessed more precisely with longitudinal studies, which will be necessary for future research about burnout in emergency nurses, because longitudinal studies could also identify how burnout can influence the development of other mental pathologies and, even, their economic impact on the institution.^{60,61} Finally, although the psychometric cutoff points established for the different versions of the MBI or its adaptations^{62,63} are similar in theory, we recommend caution in interpreting the results.

Conclusion

Burnout prevalence in emergency nurses is high and affects about one-third of the sample in each of the 3 burnout subscales—Depersonalization is the most affected subscale, followed by Emotional Exhaustion and Personal Accomplishment. These findings indicate that greater efforts may be needed to improve the mental health of emergency nurses and to prevent further complications. In addition to corrective interventions in the work environment, which has an important influence on burnout, interventions for professionals whose sociodemographic and psychological characteristics make them more vulnerable to burnout will also be necessary. Better workplace conditions and environment, together with the formation of professional groups in which nurses can express their emotions and feelings, may decrease the occurrence of burnout in these professionals. **CCN**

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