



Prevalence, levels and related factors of burnout in nurse managers: A multi-centre cross-sectional study

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Abstract

Aims: The aims of this study are to analyse the prevalence and levels of burnout syndrome in nurse managers and to evaluate the relationship between burnout and related sociodemographic, occupational and psychological factors.

Background: Burnout syndrome, defined as an emotional response to chronic stress, is a major problem among nurse managers.

Methods: The study was conducted using a cross-sectional survey design and data collected by the Maslach Burnout Inventory, the revised NEO Five Factor Inventory and the Educational-Clinical Questionnaire for Anxiety and Depression. The sample population consisted of 86 nurse managers from different hospitals from the Public Health Service of Andalusia, Spain.

Results: A total of 22.4% of the participants presented high levels of emotional exhaustion, 21% experienced depersonalisation and 57.6% had little sense of personal accomplishment. Working long shifts was related to burnout. Emotional exhaustion and depersonalization were predicted by depression, while personal accomplishment was predicted by conscientiousness, agreeableness and openness.

Conclusions: A total of 34.1% of the participants presented high levels of burnout, manifested by feelings of low personal accomplishment. Psychological and occupational factors play an important role in the development of this syndrome.

Implications for Nursing Management: Nurse managers should seek to detect burnout among staff and colleagues matching the risk profile for this condition and promote interventions to prevent it.

KEYWORDS

burnout, nursing management, occupational health, predictors, prevalence

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1 | BACKGROUND

Consolidating earlier studies, the concept of burnout syndrome was firmly established by Maslach and Jackson (1981). They defined it as an emotional response to work, characterized by the following dimensions: emotional exhaustion (EE), or the feeling of inability to provide a service to others; depersonalisation (D), reflected as animosity or cynical behaviour towards others; and low feelings of personal accomplishment (PA), evidenced by decreased self-confidence, intolerance to frustration and impaired job performance.

Burnout is becoming increasingly prevalent among workers in many professional fields, but especially those exposed to chronic environmental stressors. One of the areas most affected is that of healthcare, within which nurses are considered the most vulnerable group (Molina-Praena et al., 2018). In this profession, daily work relies on teamwork and direct care for patients, a responsibility that generates close bonds and emotional involvement (de Oliveira et al., 2019).

The consequences of the high prevalence of burnout in nurses are directly reflected in the health institution where they are employed: increased absenteeism, abandonment of the profession, an impoverished working environment and worsened personal relations (Adriaenssens et al., 2017). These outcomes all impact directly on the quality of care and hence on the users of health services (de la Fuente-Solana et al., 2021). Personal repercussions suffered by nurses and nurse managers include physical and mental fatigue, difficulty in concentrating, poor organization of work, an increased number of errors, lack of energy, somatic symptoms, insomnia, anxiety and frustration (Velando-Soriano et al., 2020).

Within the public healthcare system, a vital role is played by the nurses responsible for the administration of its resources. The new approaches in this matter are framed in the democratic public ethics values, in which a governance model is proposed that responds to the uniqueness of the system and the organizational goals set for health care and public health. In this model, an essential element is the role of management positions and intermediate positions as key agents in achieving the goals of the organization, in the processes of transparency and accountability, in achieving health results and in the sustainability of the system (Royal Collegue of Nursing, 2018).

The tasks performed by nurse managers have evolved over time but are always based on the scientific evidence available and prioritize the patients' interests (Heeb & Haberey-Knuessi, 2014). Their aim is to facilitate the provision of high-quality care that is both effective and efficient and to maintain continuity between the different levels of care (Warshawsky, 2018). In addition to care management (Phillips et al., 2018), these nurses also provide a vital link between policymakers and the human and material resources employed (Furukawa & Kashiwagi, 2021). To successfully perform these tasks, nurse managers must identify and resolve problems arising in clinical care and organize the activities and priorities of the nurses they are responsible for (Cañadas-De la Fuente et al., 2016).

Plus, long workdays, nurse managers are constantly exposed to major stressors such as time pressure, demanding obligations, high

levels of and the need to consider ethical dilemmas responsibility (Bjerregård Madsen et al., 2016). Moreover, they must sometimes mediate in conflicts within the work environment and respond to significant work overload, which can impair the work-life balance (Warshawsky, 2018) and increase job dissatisfaction (Ogbolu et al., 2018). If these persist, it can lead to the appearance of burnout (Gómez-Urquiza et al., 2017). Among their professional obligations, managers must employ a leadership style fostering staff motivation, safety, respectful communication, teamwork and the acquisition of knowledge and skills (Silva et al., 2017). As well as being role models for the nursing staff, in relations with patients and co-workers (Furukawa & Kashiwagi, 2021), nurse managers must help their staff prevent and/or manage the appearance of symptoms of the 'occupational phenomenon' of burnout (Cao & Naruse, 2019).

In this study of the above problems to occupational health, our aim is to (a) study the prevalence and levels of burnout suffered by nurses who perform health administration and management; (b) analyse the relationship between burnout syndrome and sociodemographic, work-related and personality characteristics and (c) describe the phases of burnout following the model proposed by Golembiewski (1–8).

2 | METHODS

2.1 | Study design

This multicentre cross-sectional study was carried out from August to October 2021 in hospitals and primary health care districts within the Public Health Service of Andalusia (SAS) in southern Spain.

2.2 | Sample

The sample consisted of 86 SAS nurse managers. Convenience sampling was performed among professionals, selected from 13 hospitals and 18 primary health care districts.

2.3 | Data collection

After informing the centres, the authors contacted the nurses working in the administration and management of health services to inform them about the study and the estimated time needed to complete the survey (40–45 min). Those who gave verbal consent to participate in the study were then given a battery of questionnaires to be completed. In every case, participation was voluntary, individual and anonymous. The questionnaires were administered in person only.

Approximately a sample of 1,064 people are working in the Public Health System of Andalusia as an intermediate position and dedicated to the administration and management of personnel, as well as their coordination within the Clinical Management Units. From them, we

have achieved to get the participation in our study a total of 122 nurse managers. One-hundred questionnaires were returned, of which 86 had been fully completed (response rate: 70%).

2.4 | Outcome measures

The questionnaires included the following questions regarding sociodemographic characteristics: age, sex, marital status and number of children. The work-related variables included the type of work shift (fixed or rotating. In our country, almost all nursing managers have fixed morning shifts but some of them can have rotating and on-call shifts), on-call obligations and seniority (both as a nurse manager and in the nursing profession). The following questionnaires were distributed.

The first questionnaire was the Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1981), Spanish version, validated by Seisdedos (1997). This instrument is a self-administered questionnaire consisting of 22 items, scored on a 7-point Likert scale and involving of three subscales corresponding to the respective dimensions of burnout: emotional exhaustion (EE) (nine items), depersonalisation (D) (five items) and personal accomplishment (PA) (eight items). A high level of burnout is defined according to the following scores for each dimension: $EE > 24$, $D > 9$ and $PA < 33$. This version of the MBI has a Cronbach's alpha reliability coefficient of 0.89 for EE, 0.68 for D and 0.83 for PA. A meta-analysis has verified that these reliability data can be generalized (Aguayo et al., 2011).

The revised NEO Five Factor Inventory (NEO-FFI) (Costa & McCrae, 1992) was used, which characterizes the 'big five' personality traits: *neuroticism*, or emotional instability; *extraversion*, or the openness to interpersonal relationships; *responsibility*, or the ability to regulate and control impulses, the possession and application of a sense of duty and the ability to achieve the personal objectives proposed; *agreeableness*, or respect and tolerance towards others, and *openness*, or the disposition to seek out and enjoy new personal experiences. The version of the NEO-FFI used in our study, validated for a Spanish-speaking population, consists of 60 items, 12 for each dimension, scored on a 5-point Likert scale (Costa & McCrae, 2002). It presents the following Cronbach's alpha reliability coefficients: 0.76 for neuroticism, 0.79 for extraversion, 0.82 for responsibility, 0.73 for agreeableness and 0.70 for openness.

The Educational-Clinical questionnaire (CECAD) (Lozano et al., 2007) was used to evaluate emotional disorders such as anxiety and depression, which consists of 45 items, of which 19 pertain to anxiety and 26 to depression. It is scored on a 5-point Likert scale, from 1 to 5. The Cronbach's alpha coefficient of reliability is 0.88 for anxiety and 0.92 for depression.

Finally, the participants were characterized according to the eight-phase model proposed by Golembiewski and Munzenrider (1988). This model classifies burnout as high or low, according to the score obtained for each dimension of the MBI

questionnaire. Subjects are then further classified into different phases, according to the evolution of the burnout syndrome presented. Phases 1 and 2 correspond to a low level of burnout; phases 3–5 are moderate and phases 6–8 are high.

2.5 | Ethical considerations

This study was approved by the local Research Ethics Committee (1961-N-21) and always complied with the ethical guidelines of the Declaration of Helsinki (2013).

2.6 | Statistical analysis

Descriptive statistical analysis of the numerical variables was performed to obtain the means, standard deviations and maximum and minimum values of the data collected. For the categorical variables, percentages and frequencies were calculated.

Student's *t* test was used to compare the numerical variables for EE, D and low PA, as a function of the independent variables. Pearson's correlation coefficient was used to estimate the linear relationships between the quantitative variables. Finally, a multiple linear regression was applied for each dimension of the MBI questionnaire. All analyses were performed using SPSS 25.0 statistical software (IBM, Armonk, NY, USA).

3 | RESULTS

3.1 | Demographic profile

The study sample was composed of 86 nurses specialized in hospital administration and management. A total of 58.1% were female, 82.6% were married or in a relationship and 88.4% had children. A total of 80.2% of the nurses worked a fixed morning shift and 48.8% worked on-call duties (Table 1). The mean age of the nurses was 46.65 years. The mean duration of their current position was 128.24 ± 114.41 months, and in the profession, it was 281.67 ± 90.192 months (Table 2). The mean scores for the three MBI dimensions, for the five personality dimensions and for the CECAD dimensions, are shown in Table 2.

3.2 | Levels and estimated prevalence of burnout

The levels of burnout were determined according to the cut-off points proposed by Ortega-Campos et al. (2019) in their Spanish-language adaptation of the MBI questionnaire, categorizing the score obtained as low, medium or high for each dimension (Table 3). The results obtained showed that for EE, 22.4% of the participating nurses presented a high level, 21% presented a high level of D and a 57.6% presented a low level of PA.

TABLE 1 Descriptive data for the categorical study variables

Variable	% (n)	Variable	% (n)
Sex		Marital status	
Male	41.9 (46)	Single	11.6 (10)
Female	58.1 (50)	Married/in a relationship	82.6 (71)
Work shift		Divorced	1.2 (1)
Rotating	17.4 (15)	Separated	4.7 (4)
Fixed-morning	80.2 (69)	Widowed	0
Fixed-afternoon/evening	2.3 (2)	Children	
Fixed-night	0	None	11.6 (10)
On-call		One	18.6 (16)
Yes	48.8 (42)	Two	53.5 (46)
No	48.8 (42)	Three or more	16.3 (14)

TABLE 2 Descriptive data for the numerical study variables

Variable	Mean (SD)	Min-max	Q1-Q2-Q3
Age, years (n = 86)	46.65 (7.16)	32-63	41.75-45.50-51.25
Seniority: Workplace (n = 86)	128.24 (114.41)	1-432	48.00-84.00-195.00
Seniority: Profession (n = 86)	281.67 (90.192)	72-504	216.00-276.00-348.00
NEO-FFI			
Neuroticism (n = 86)	26.08 (6.045)	12-41	
Extraversion (n = 85)	44.71 (6.665)	31-58	
Openness (n = 86)	38.86 (6.349)	21-52	
Agreeableness (n = 83)	47.04 (4.738)	35-58	
Conscientiousness (n = 84)	48.76 (5.091)	37-59	
CECAD			
Anxiety (n = 85)	32.93 (9.675)	19-66	
Depression (n = 85)	44.07 (12.946)	26-92	
MBI			
EE (n = 85)	16.94 (11.225)	0-46	
D (n = 86)	5.64 (5.22)	0-25	
PA (n = 85)	39.80 (6.914)	11-48	

Abbreviations: CECAD, Educational-Clinical Questionnaire on Anxiety and Depression; MBI, Maslach Burnout Inventory; NEO-FFI, Revised NEO Five Factor Inventory; Q1, first quartile; Q2, second quartile (median); Q3, third quartile; SD, standard deviation; Seniority, presented in months.

TABLE 3 Categorization of levels of burnout by domain

Burnout level	EE % (n)	D % (n)	PA % (n)
Low	47.1 (40)	43 (37)	57.6 (49)
Medium	30.6 (26)	36 (31)	28.2 (24)
High	22.4 (19)	21 (18)	14.1 (12)

Abbreviations: D, depersonalisation; EE, emotional exhaustion; PA, personal accomplishment.

3.3 | Phases of burnout syndrome

The Golembiewski model (Golembiewski & Munzenrider, 1988) was used to classify the participants into phases according to the level of

burnout presented. A total of 34.1% of the nurses who participated in our study had high levels of burnout (Table 4).

3.4 | Correlations between burnout and sociodemographic and occupational factors

The mean values of the MBI dimensions were compared according to the following sociodemographic and labour variables: gender, marital status, work shift and on-call duties. Significant differences were found between the last of these variables and the PA dimension: PA₍₆₈₎ ($t = 2.21$; $p = 0.031$ $d = 3.331$). In other words, the nurse managers who performed on-call duties tended to have higher levels of PA.

TABLE 4 Prevalence of burnout according to the phases of the Golembiewski model

Phase	I	II	III	IV	V	VI	VII	VIII
EE	L	L	L	L	H	H	H	H
D	L	H	L	H	L	H	L	H
PA	L	L	H	H	L	L	H	H
<i>n</i>	10	5	18	13	10	10	12	7
(%)	11.8	5.9	21.2	15.3	11.8	11.8	14.1	8.2

Abbreviations: D, depersonalisation; EE, emotional exhaustion; H, high; L, low; PA, personal accomplishment.

3.5 | Correlations between burnout and psychological factors: Explanatory models

A linear correlation was calculated between the MBI dimensions and the psychological variables, analysed using the NEO-FFI subscales and the CECAD scores for anxiety and depression. All the variables presented statistically significant correlations with the MBI dimensions of burnout except *Openness* in the NEO-FFI scale, which was significantly correlated with *PA* (0.231**) but not with *EE* or *D* (Table 5).

Multiple linear regression models were estimated for each dimension of the MBI questionnaire (Table 6). For *EE*, the variables *Depression* ($B = 0.023$, $p = 0.002$) and *Neuroticism* ($B = 0.040$, $p = 0.011$) were statistically significant predictors. The model presented a goodness of fit of $r^2 = 0.376$, with $p = 0.11$. For *D*, the variable *Depression* ($B = 0.020$, $p = 0.003$) is again a predictor of the model. A total of 10.1% of the variance of this dimension was explained by the model ($r^2 = 0.101$). For *PA*, *Responsibility* ($B = -0.038$, $p = 0.024$), *Openness* ($B = -0.027$, $p = 0.025$) and *Agreeableness* ($B = -0.032$, $p = 0.058$) are predictors, with *Responsibility* and *Openness* both significant at 5%. These predictors explain 20.19% of the variability of this dimension of burnout, $p = 0.058$.

4 | DISCUSSION

Among the managers who participated in this study, 22.4% presented high *EE* and 21%, high *D*. These values are in line with those reported by de la Fuente-Solana et al. (2017, 2021) in comparable studies, of nurses working in paediatric services and in oncology services. In contrast, our findings differed with respect to the prevalence of professionals with low levels of *PA*, which was considerably higher in our study (57.6%) than in previous research (de la Fuente-Solana et al., 2021). This discrepancy could be explained by the type of work performed by nurse managers, since in addition to helping the nurses perform patient care (Cao & Naruse, 2019), they must manage the department's resources, resolve labour disputes, create a healthy work environment (Ceravolo & Raines, 2019), ensure patient safety and mediate with superiors and other managers (de Carvalho et al., 2018). Other studies of nurse managers have also reported conflicting results, with a lower prevalence of high levels of *EE* and *D* and a lower

TABLE 5 Correlation coefficients between psychological variables and burnout

Psychological variables	EE	D	PA
NEO-FFI			
Neuroticism	0.566*	0.368*	-0.325*
Extraversion	-0.311*	-0.381*	0.484*
Conscientiousness	-0.389*	-0.264**	0.424*
Agreeableness	-0.283*	-0.371*	0.376*
Openness	-0.078	0.025	0.231**
CECAD			
Depression	0.645*	0.495*	-0.507*
Anxiety	0.611*	0.420*	-0.392*

Abbreviations: CECAD, Educational-Clinical Questionnaire on Anxiety and Depression; D, depersonalisation; EE, emotional exhaustion; NEO-FFI, Revised NEO Five Factor Inventory; PA, personal accomplishment. * $p < 0.05$. ** $p < 0.01$.

level of *PA* (Heeb & Haberey-Knuessi, 2014). On the other hand, some researchers have obtained results closer to our own. Membrive-Jiménez et al. (2020) reported that 29% of the subjects in their study presented a high degree of *EE*. This considerable diversity in research findings might be due to differences in health system organization between countries and in the resources allocated to management. Such imbalances may lead to the nurse managers concerned perceiving a lack of professional development, a deficiency that could impact on their emotional health. Thus, Gębocka (2017) commented that professional dehumanization may be experienced in areas where fewer resources are allocated to health system management.

To address the second of our study goals, we analysed the influence of the independent variables on each dimension of the MBI questionnaire. For the sociodemographic variables, no significant differences were obtained with the MBI dimensions, a finding that contrasts with previous analyses (Heeb & Haberey-Knuessi, 2014; Karsavuran & Kaya, 2017).

Among the labour variables, the only statistically significant correlation observed was that of a positive association between *PA* and the "on-call" variable. However, our findings in this respect do not support the conclusions obtained in previous investigations, according to which *PA* is lower and *D* higher among respondents who work significant hours of overtime (Heeb & Haberey-Knuessi, 2014) and work regular full-time shifts (Membrive-Jiménez et al., 2020). The latter results may be since on-call duties, when they are well organized and structured on a rotating basis, allow nurse managers to exercise greater control of their staff and of the work environment, to establish relationships with professionals working in other areas (Knupp et al., 2018) and to obtain greater financial rewards. In short, this responsibility may foster empowerment in the workplace, promote leadership and provide greater job satisfaction, attitudes all of which have a direct impact on *PA* (Adriaenssens et al., 2017).

As regards the psychological variables studied, we found that *EE* was positively correlated with neuroticism (Ang et al., 2016) and with the CECAD variables of depression and anxiety (Favrod et al., 2018), but negatively correlated with the personality variables of extraversion, responsibility and agreeableness, as also indicated in previous

TABLE 6 Multiple linear regression

	B	Std. error	t	p	95%CI	
					Inf	Sup
EE						
Depression	0.023	0.007	3.279	0.002	0.009	0.037
Neuroticism	0.040	0.015	2.614	0.011	0.009	0.070
$R^2 = 0.376; F_{1,75} = 6.836; p = 0.11$						
D						
Depression	0.020	0.006	3.123	0.003	0.007	0.033
$R^2 = 0.101; F_{1,77} = 9.752; p = 0.003$						
PA						
Conscientiousness	-0.038	0.017	-2.312	0.024	0.071	0.005
Openness	-0.027	0.012	-2.288	0.025	0.050	0.003
Agreeableness	-0.032	0.017	-1.928	0.058	0.065	0.001
$R^2 = 0.2019; F_{1,74} = 3.719; p = 0.058$						

Abbreviations: B, estimated parameter; D, depersonalisation; EE, emotional exhaustion; PA, personal accomplishment; t, Student's t test value.

work (de la Fuente-Solana et al., 2021). Moreover, these variables seem to protect against stress chronification (Grigorescu et al., 2018). According to various studies, the stress and neuroticism often associated with the nursing profession (Gómez-Urquiza et al., 2017; Ortega-Campos et al., 2019) can strengthen nurse managers' ideas of quitting and diminish their self-confidence (Hewko et al., 2015). Similarly, possible problems of communication and socialization and/or the need to uphold a certain social reputation with their subordinates (Karsavuran & Kaya, 2017) can mediate the appearance of EE in nurse managers, sometimes provoking anxiety and depression (Favrod et al., 2018; Ramirez-Baena et al., 2019).

Among our participants, the *D* dimension was associated with higher levels of neuroticism, depression and anxiety (de la Fuente-Solana et al., 2020). This dimension of burnout is a consequence of the nurse manager's attempt to adapt to the stressful situation and to alleviate the tension experienced in the workplace (Ramirez-Baena et al., 2019), although it can sometimes be perceived by others as a lack of leadership (Guo et al., 2018) and authority (Adriaenssens et al., 2017).

In contrast to the above, *D* was inversely related to extraversion, responsibility and agreeableness (Cañadas-De la Fuente et al., 2016). This observation underlines the importance of closely observing the mental health of managerial staff and helping prevent *D*, in such a way as to promote self-efficacy and active engagement (Heeb & Haberey-Knuessi, 2014), while recognizing the value of their work as intellectual stimulation. Other studies have suggested that the wish to leave the profession and/or a rejection of the management role (Adriaenssens et al., 2017) may also underlie the presence of high levels of *D* among nurse managers (Hewko et al., 2015).

Another finding in the present study is that *PA* is negatively affected by the presence of high levels of neuroticism, depression and anxiety (Geuens et al., 2015). This contrasts with the positive personality traits of extraversion, openness, responsibility and agreeableness,

which provide emotional stability and protect against reduced *PA* (de la Fuente-Solana et al., 2020). On occasion, however, nurse managers may feel they are subjected to excessive responsibility and a heavy workload, reducing their motivation and *PA* (Khan et al., 2018).

Linear regression showed the psychological variables depression, responsibility and openness are significant predictors of *D* and *PA* (Ortega-Campos et al., 2019), that depression and neuroticism are significant predictors of EE and that agreeableness is a significant predictor of *PA*.

Finally, 34.1% of the nurse managers consulted were in phases VI–VIII of the Golembiewski model (Golembiewski & Munzenrider, 1988), corresponding to the highest levels of burnout. This result is in line with the earlier findings of Gómez-Urquiza et al. (2017) and Ramirez-Baena et al. (2019). In view of this high value, we suggest that measures to limit/prevent burnout should be established, accessible to all nurses, managers or otherwise, to promote satisfaction in the workplace and enhance social support among co-workers (Adriaenssens et al., 2017). In addition, hospitals should introduce programmes of physical activity and complementary therapies, such as mindfulness, to improve workers' physical and emotional well-being, to reduce stress and to optimize coping strategies, resilience and self-efficacy (Burton et al., 2017).

5 | LIMITATIONS

Due to the cross-sectional design of this study, causal relationships could not be established. A larger sample size would have enabled us to obtain a better fit for the statistical regression models. Also, the number of children, instead of the number of school-aged or dependent children was asked. The high percentage of males in the sample should be also considered. Finally, we acknowledge the existence of psychological variables other than those analysed in this

study which are closely related to burnout syndrome, such as resilience, stress tolerance, engagement and coping mechanisms. These variables could usefully be considered in future research, preferably with a longitudinal design and incorporating the measurement of biomarkers.

6 | CONCLUSIONS

A total of 34.1% of nurse managers working in the Andalusian Public Health Service present significant levels of burnout. Among the dimensions of this syndrome, that of low PA is the most apparent. The variables on-call duty, responsibility and openness are all associated with greater PA, while the psychological variables of depression and neuroticism most predispose these workers to suffer burnout.

7 | IMPLICATIONS FOR NURSING MANAGEMENT

The results obtained in this study highlight the importance of detecting nurse managers who match the risk profile for burnout syndrome in order to address the problem effectively. The inadequate management of healthcare resources, together with the job dissatisfaction and chronic stress that many managers experience, degrades the work environment for nurses and managers. It is important to implement burnout prevention programmes to enable nurse managers to detect symptoms at an early stage.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

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

FUNDING INFORMATION

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ETHICAL CONSIDERATIONS

This study was approved by the local Research Ethics Committee (1961-N-21) and always complied with the ethical guidelines of the Declaration of Helsinki (2013).

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