Peer-reviewed version available at Int. J. Environ. Res. Public Health 2018, 15, 1116; doi:10.3390/ijerph15061116

Article

Study on Burnout Risk and Protection Factors in Certified Nursing Aides

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Abstract: 1) Background: Studies have shown that there is a higher risk of burnout among employees in the healthcare sector. Therefore, this study focused on "Certified Nursing Aides" (CNAs) who have shown a high prevalence of burnout, and are therefore considered an especially vulnerable group. The objective of this study was to identify the relationships between some organizational, personal and sociodemographic factors and burnout; 2) Methods: The final study sample was made up of 278 working CNAs with a mean age of 40.88 (SD=9.41). To compile the data, an ad hoc questionnaire was used to collect sociodemographic information, and to collect professional and employment information, the Brief Emotional Intelligence Inventory for Adults, the Brief Questionnaire on Perceived Social Support, and The General Self-Efficacy Scale.; 3) Results: The results show that the Burnout Syndrome is significantly related negatively to all the emotional intelligence factors, self-efficacy and perceived social support. The risk of burnout is higher in younger persons and in permanently employed professionals. General self-efficacy and stress management act as protective factors against the likelihood of burnout.; and 4) Conclusions: This study suggests that organizations should urge coaching and transformational leadership training programs to promote the wellbeing and organizational commitment of workers.

Keywords: Burnout; risks; protective factors; nursing.

1. Introduction

Burnout has been widely studied in the academic and professional fields. The World Health Organization (WHO) considers it an occupational disease which can affect workers in many occupational sectors [1], and it is prevalent in 13% to 27% of the active population [2]. The literature reviewed shows that employees in the healthcare sector are at higher risk of this syndrome [3]. Therefore, this study focused on "Certified Nursing Aides" (CNAs), who have shown a 26% to 50% prevalence of burnout, and are therefore considered an especially vulnerable group [4].

In general, the burnout syndrome is characterized by (1) gradual physical and mental exhaustion of the individual, (2) feelings of cynicism/detachment and negative attitudes toward the job, and (3) a decrease in professional efficacy resulting from the work context [5]. The literature also emphasizes both its organizational (job performance, absenteeism) and health consequences to workers. Burnout has been related to various psychological problems (depression, anxiety, mood disorders), and also physical problems (musculoskeletal, cardiovascular, Type 2 Diabetes, sleep disorders, headache and respiratory and gastrointestinal infections) [6].

Empirical research on burnout has a crucial reference milestone in the studies by Christine Maslach [7,8]. Thus the most widely used evaluation instrument in empirical research is the Maslach Burnout Inventory (MBI) [9], taking the various adaptations and new evaluation models, such as the Cuestionario Breve de Burnout [Brief Burnout Questionnaire] (BBQ) [10,11] as a reference.

At the beginning of the 21st century, a new theoretical model was developed which has since become a reference in burnout research, the Job Demands-Resources Model, JD-R [12]. This model provides a view improving understanding of the phenomenon and enabling predictions to be made on wellbeing and performance in the job [13]. This model identifies work demands and resources as possible antecedents of burnout, in which the two categories trigger different processes, one deterioration of employee health and the other motivational [12, 13]. The model has also identified personal resources of the workers as relevant, because they are positively related with engagement and performance while time buffering the negative impact of job demands [12].

Special attention has been given healthcare professionals in empirical research on burnout. Most of studies have used occupational samples in the scope of healthcare [14, 15, 16]. However, only a few of the studies have been concerned with the work context in which the nursing aides perform their work [17, 4, 18]. Thus empirical studies have been directed at identifying the antecedents which have a close relationship with burnout, emphasizing heavy workloads [17], time in the job, work shifts [4], employment situation, repeated exposure to traumatic events [19], role conflict and ambiguity, as well as perceived social support [21], permanent contracts and longer time [22, 23], strategies for coping [24, 25], and job autonomy [4].

Personality traits or characteristics which buffer the negative effect of job demands and act as protection factors against job stress have also been identified [17]. In this sense, the literature underlines the importance of Emotional Intelligence (EI), understood as skills for understanding, perceiving and adaptive management of one's own emotions and those of others, and their relationship with engagement and job performance [26]. It has also been demonstrated that except for "Neuroticism", the other four wide personality traits correlate positively with EI and with engagement [27]. Similarly, the importance of workers' perceived self-efficacy with regard to their ability to control their surroundings has been conceived in the literature as a burnout protection factor and predictor of engagement [14, 28]. Empirical studies also have included sociodemographic variables as possible predictors of burnout, emphasizing age [19], sex [17] and marital status of workers [4].

Our main objective was to identify the relationships between some organizational, personal and sociodemographic factors and burnout in a sample of Spanish CNAs. In spite of the innumerable studies published in this area, one of the strengths of this one resides in the interest for the wellbeing of CNAs in hospital contexts, which has been infrequently undertaken in the literature. It thus provides better comprehension of the phenomenon which could lead to the design of future preventive intervention.

2. Materials and Methods

Participants

The original sample was 374 Certified Nursing Aides (CNAs), of whom those actively employed at the time data were collected were selected. The final study sample was made up of 278 participants, of whom 71.6% (n=199) were temporary and 28.4% had permanent contracts.

The mean age of the participants was 40.88 years (SD=9.41), ranging from 21 to 60. Of the total sample, 92.1% (n=256) were women and 7.9% (n=22) men, with mean ages of 41.18 (SD=9.45) and 37.45

(SD=8.42), respectively. Their marital status was 25.5% (n=71) single, 60.4% (n=168) married, el 13.7% (n=38) divorced or separated, and 0.4% (n=1) widowed.

Instruments

An ad hoc questionnaire was drafted to collect the sociodemographic data (age, sex and marital status) and for information on profession and employment situation: years of experience, employment situation (permanent or temporary), work shifts (rotating, 23 or more hours, nights only, and morning/afternoon), number of users attended to in a workday.

Brief Burnout Survey (CBB) [11]. This consists of 21 items rated on a five-point Likert-type scale which evaluate antecedents, elements and consequences of the syndrome. Its purpose is to acquire a global assessment of burnout, and its antecedents and consequences, coinciding with the three blocks into which the questionnaire is organized.

Brief Inventory of Emotional Intelligence for Adults (EQ-i-20M) [29], an adaptation of the Emotional Intelligence Inventory: Young Version (EQ-i-YV) [30], validated and scaled by the authors for an adult Spanish population. It consists of 20 items with four answer choices on a Likert type scale. It is structured in five factors: Intrapersonal, Interpersonal, Stress management, Adaptability and Mood.

The Brief Questionnaire on Perceived Social Support (CASPE) [31] was developed to study the effect of social support on health, quality of life and general satisfaction. It consists of nine items (eight of them with a four-point Likert type response and another with a yes/no answer). The CASPE evaluates quantitative and qualitative aspects of family, friend and partner relationships. It is possible to score from 9 to 35 points, the higher the score, the more perceived social support. The authors found Cronbach's alpha reliability of .65 for the scale in a geriatric population. In this study, the alpha was .81.

General Self-Efficacy Scale [32]. It consists of 10 items in a four-point Likert-type response format which evaluate a person's perception of own personal competence in managing different stressful situations effectively. [33] analyzed the reliability of the scale, finding a Cronbach's alpha coefficient of .87. In this study, the alpha for the internal consistency of the scale was .93.

Procedure

Before collecting the data, the participants were guaranteed compliance with the standards of information confidentiality and ethics in data processing. The questionnaires were administered on a Web platform where the participants could fill them out online. To control random answers or incongruences, a series of control questions were included for their detection, and such cases were then discarded from the study sample. The study was approved by the Bioethics Committee of the University of Almeria (Spain).

Data analysis

First, correlation analyses were done to explore the relationships between the quantitative variables and Student's t and analyses of variance were done for the categorical variables.

Then a binary logistic regression was done using the Enter method. To do this, the dependent variable (burnout) was dichotomized taking into consideration the authors' proposal for diagnosis of Burnout, with a cutoff point at 25 points. Thus, a person who scored over 25 points was considered affected by the syndrome [11]. The predictor variables used were sex, employment situation (permanent or temporary), number of users attended to during a workday, emotional intelligence (intrapersonal, interpersonal, stress management, adaptability and mood), general self-efficacy and perceived social support. Originally, variables such as age, years of work experience and type of shift worked

(rotating, 24 hours, nights only, morning/afternoon) were also included. In this case, dummy variables were created because it was a polytomous categorical variable. These two variables, along with the above were proposed as possible predictors of burnout in a logistic regression using the forward Wald method, which excluded them from the model. Finally, a nonlinear predictive CHAID (Chi-square Automatic Interaction Detector) regression and classification tree was constructed. All analyses were done using SPSS ver. 23.0 statistical software for Windows.

3. Results

3.1. Burnout, sociodemographic variables and job characteristics

First, a correlation analysis was used to check the relationships between the burnout scores and the continuous quantitative variables. A negative correlation was observed between burnout and age (r= -.24; p<.001). On the other hand, no correlations with burnout were found for either the number of users attended to during the workday (r= .10; p=.07) or years of work experience (r= -.05; p=.35).

Another of the variables related to the work context originally considered, was the type of work shift (rotating, 24 hours, nights only, morning/afternoon), but when the ANOVA was applied, there were no statistically significant differences in the groups (F= .85; p= .46). On the contrary, for employment situation, it was observed that the group of professionals with a permanent contract (M= 21.38; SD= 6.31) showed a significantly higher mean score in burnout (t= -3.30; p<.01), than those with a temporary contract (M= 18.87; SD= 5.45).

Finally, no statistically significant differences in burnout scores (t= -1.48; p=.13) were found between men (M= 17.82; SD= 4.07) and women (M= 19.73; SD= 5.91).

3.2. Burnout relationships with emotional intelligence, self-efficacy and perceived social support variables

As shown in Table 1, the Burnout Syndrome score is significantly related negatively with all the emotional intelligence factors (Intrapersonal: r= -.26; p<.001; Interpersonal: r= -.29; p<.001; Adaptability: r= -.34; p<.001; Mood: r= -.41; p<.001; Stress management: r= -.32; p<.001) (Table 1).

Table 1. Correlations between burnout and emotional intelligence, self-efficacy and social support variables

	EQ-i-20M					**GSE**	**CASPE**
CBB	Intrapersonal	Interpersonal	Stress management	Adaptability	Mood	Self-efficacy	Social support
Burnout	-.26**	-.29**	-.32**	-.34**	-.41**	-.37**	-.20*

* The correlation is significant at .01; ** The correlation is significant at .001.

In addition, both self-efficacy (r= -.37; p<.001) and perceived social support (r= -.20; p<.01) had significant negative correlations with burnout.

3.3. Logistic regression model

For the logistic regression analysis with the burnout syndrome as the dependent variable, it was previously dichotomized into two categories, participants affected by the syndrome, representing 16.2% (n= 45) and those not affected, 83.8% (n= 233).

The predictor variables entered in the equation were sex, employment situation, users attended to, self-efficacy, perceived social support, and finally, the five emotional intelligence factors: intrapersonal, interpersonal, stress management, adaptability and mood. Table 2 shows these variables, the regression coefficients, the standard error of estimation, the Wald statistic, with degrees of freedom and associated probability, the coefficient of partial correlation and the cross-product ratio.

The odds ratio or cross-product ratio found for each variable shows that:

a) The risk of burnout is higher in younger professionals and those with a permanent employment situation.

b) The level of general perceived self-efficacy acts as a protection factor insofar as the likelihood of having burnout. Thus subjects with higher mean scores in this construct, have a lower risk of developing the syndrome.

c) Of the emotional intelligence elements, stress management is the factor significantly involved in the logistic equation, implying a protective effect.

Table 2. Results derived from the logistic regression for probability of burnout

Variables	β	S.E.	Wald	df	Sig.	Exp(β)	CI 95%
Age	-.064	.023	7.692	1	.006	.938	.897-.981
Employment situation (Permanent)	1.137	.404	7.899	1	.005	3.116	1.411-6.885
Users attended to	.001	.004	.027	1	.870	1.001	.992-1.009
General self-efficacy	-.123	.056	4.838	1	.028	.884	.792-.987
Perceived social support	.038	.071	.286	1	.593	1.038	.904-1.192
Intrapersonal	-.132	.081	2.669	1	.102	.876	.748-1.027
Interpersonal	-.036	.138	.066	1	.797	.965	.736-1.265
Stress management	-.275	.110	6.259	1	.012	.759	.612-.942
Adaptability	.280	.171	2.666	1	.103	1.323	.945-1.851
Mood	-.215	.130	2.746	1	.097	.807	.626-1.040
Constant	2.672	1.798	2.210	1	.137	14.474	

The overall model fit (χ^2= 69.64; df= 10; p<.001) was confirmed by the Hosmer-Lemeshow test (χ^2= 7.77; gl= 8; p= .45). Moreover, the Nagelkerke R^2 showed that 38.1% of the variance in the response variable was explained by the logistic regression model. Similarly, in the case classification table, the

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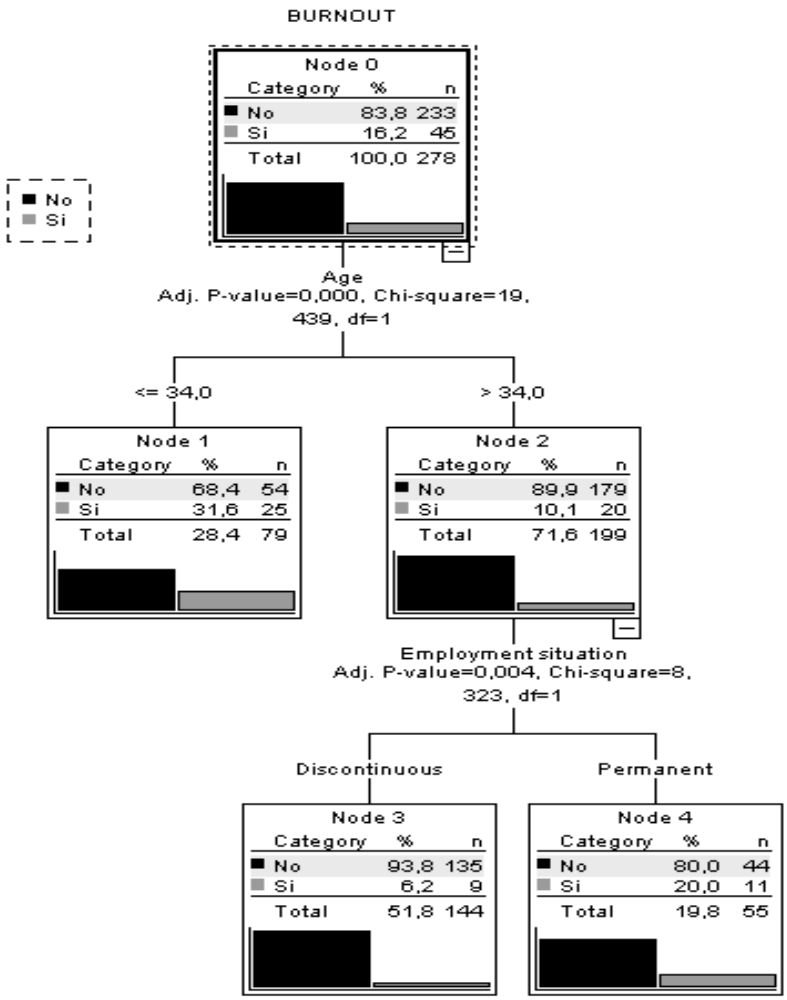
likelihood of the logistic function being right is 86.1%, with a false positive rate of .03 and false negatives of .33 (Table 2).

As observed in the decision tree (Figure 1), age is the best predictor of burnout. Participants under 34 years old had the highest risk of burnout (31.6%). The lowest risk of burnout (93.8%) was found for over 34 years and with discontinuous work. Finally, the goodness of fit of model functioning may be observed in its correct classification of 83.8% of the participants.

Figure 1. Regression and classification tree burnout



4. Discussion

Burnout in employees in the healthcare sector has awakened considerable scientific interest since its study began [7, 8]. However, the volume of empirical studies on the group of "*Certified Nursing Aides*" (CNAs) is smaller than for other workers in the healthcare area [17]. This difference may be due to a lack of academic attention or the consideration that the job conditions and duties of CNAs are less demanding than in other professionals and employees, and therefore, less vulnerable to development of this syndrome.

In this study, the prevalence of burnout in CNAs was lower than in empirical studies found in the review of the literature [4]. This may have been a consequence of the differences in job contexts where CNAs perform their duties, as there are many more studies on homecare than in hospital contexts [18].

The data in our study show that "*Emotional Intelligence*" is especially important in occupational fields which require strong social interaction, acting as an important protection factor for burnout, and related significantly and positively to job performance, job motivation and client satisfaction. In fact, it has been demonstrated that persons with high emotional instability are more prone to show burnout symptoms [27]. Workers with inefficient coping strategies for job stress and a feeling of little control of the situation also are more likely to feel ineffective in their work, and therefore, have a higher risk of burnout [14].

These results confirm the Job Demands-Resources Model (Bakker et al. 2014), understanding that employee personal resources such as *Emotional Intelligence* and perceived *Self-Efficacy* buffer the negative impact of job demands and are antecedents of *Engagement* and Job Performance (Bakker and Demerouti 2017). Perceived *Social Support* would also be a job resource of special relevance in preventing the development of negative attitudes acting as a buffer between job demands and burnout, as would *Feedback* and *Coaching* by the supervisor [6].

The results of sample characteristics are congruent with previous studies, observing that employees with permanent contracts show higher levels of emotional exhaustion than those with a temporary contract [23]. On the contrary, the data do not confirm that Work Shifts, Overwork or Time in the job had any significant relationship with CNA burnout scores. However, previous studies have shown that employees with permanent contracts and longer time in the job usually show burnout symptoms, which may be due to routine and monotony [23].

Data acquired on the sociodemographic variables confirmed previous studies. There was an inverse relationship between age and burnout, suggesting that younger people have less work experience, and therefore, fewer strategies for coping with job stress in the healthcare setting [24, 25]. Nevertheless, unlike other studies which have described women as having a higher risk of developing burnout [19], no significant differences were found between men and women [2,4].

The results of this study have important practical implications. As perceived social support was considered a protection factor, as were employee emotional intelligence and perceived self-efficacy, organizations should promote training programs in coaching and transformational leadership to promote the wellbeing and organizational commitment of the workers.

However, our results must be taken with precaution due to the following limitations: First, the data were acquired from online questionnaires filled out by the employees and could show biases. Second, as the sample used is very specific, the results may not be generalized to the whole healthcare environment. Third, the study design did not allow it to be determined whether burnout scores remained constant over time.

In spite of these limitations, future studies may advance in this line of research. The set of variables used in this study should be widened to include aspects related to demands (e.g., the role of ambiguity, stressful events, role conflict, etc.) and resources (e.g., leadership, autonomy, etc.) as well

as engagement and performance to complete the Job Demands-Resources Model and provide better understanding of burnout.

Author Contributions: MMMJ, and MMPF contributed to the conception and design of the review. JJGL, MMSM and AMM applied the search strategy. All authors applied the selection criteria. All authors completed assessment of risk of bias. All authors analyzed the data and interpreted data. MMMJ and MMPF wrote this manuscript. MMSM, JJGL and AMM edited this manuscript. MMPF is responsible for the overall project.

Funding: This research received no external funding.

Acknowledgments: The present study has the collaboration of the Excma. Diputación Provincial de Almería. Part of this work has been developed thanks to the financing of the 2018 Own Research Plan of the University of Almería, for the help for the hiring of research personnel in predoctoral training, granted to África Martos Martínez; and thanks to the financing of University Teaching Training in Deficit Areas, Gerty Cori Aid, for the help for the hiring of research staff in predoctoral training, granted by María del Mar Simón Márquez.

Conflicts of Interest: The authors declare no conflict of interest.

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