

*Artículo de Investigación Científica o Tecnológica*

## Burnout in healthcare workers. A comparison between physicians, nurses, administrative positions and technicians

Burnout en trabajadores de la salud. Una comparación entre médicos, enfermeras, cargos administrativos y técnicos

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### Abstract

**Introduction:** Healthcare workers (HCW) report higher levels of anxiety, depression, burnout, compared to the general population. The severe global health crisis caused by the coronavirus SARS-CoV-2 brought even more burden to HCW.

**Objective:** To assess burnout as a whole and in its different domains among HCW in a medical center

**Methods:** We performed a cross-sectional study examining the association between demographic characteristics, healthcare position and feeling burned out. Data was collected through an anonymous online survey. We utilized the Maslach Survey for Medical Personnel in Spanish. Descriptive analyses summarized age, gender, job role, number of jobs, time in the organization and working in a COVID-19 exposed area. Ji2 tests were used to analyze association between variables and burnout. A multivariate logistic regression analysis was used to identify independent predictors of any of the burnout domains: emotional exhaustion (EE), depersonalization (DP) and/or personal accomplishment (PA).

**Results:** 185/852 subjects answered the survey (21.7%); 79 subjects reported EE (42.7%), 61 (32.9%) DP and 31 (16.7%) PA; 98 (52.4%) had at least one component of high burnout for the dimensions analyzed. Logistics regression shows that female gender (OR= 2.21; 95% CI: 1.12-4.39), administrative positions (OR= 18.61; 95% CI: 4.28-80.93), physicians (OR= 13.27; 95% CI 3.55-49.86), and nurses (OR= 6.55; 95% CI: 1.58-27.14) were strongly associated with the presence of any burnout domain.

**Conclusions:** The overall burnout prevalence was in range with international studies. Female workers, administrative positions, physicians and nurses were identified as independent predictors of burnout.

**Key words:** Pandemic, Burnout, Health Workers, emotional exhaustion, depersonalization, personal accomplishment, physicians, nurses

### Resumen

**Introducción:** Los trabajadores de la salud (TS) informan niveles más altos de ansiedad, depresión y agotamiento, en comparación con la población general. La grave crisis sanitaria mundial provocada por el coronavirus SARS-CoV-2 supuso una carga aún mayor para los trabajadores sanitarios.

**Objetivo:** Evaluar el burnout en su conjunto y en sus diferentes dominios entre los TS en un centro médico

**Métodos:** Realizamos un estudio transversal donde se examinó la asociación entre las características demográficas, el puesto de atención médica y la sensación de agotamiento. Los datos se recopilaron a través de una encuesta anónima en línea. Utilizamos la Encuesta en español Maslach para Personal Médico. Los análisis resumieron la edad, el género, el rol laboral, la cantidad de trabajos, el tiempo en la organización y el trabajo en un área expuesta a COVID-19. Se utilizaron pruebas de Ji2 para analizar la asociación entre las variables y el burnout. Se utilizó un análisis de regresión logística multivariante para identificar predictores independientes de cualquiera de los dominios del burnout: agotamiento emocional (AE), despersonalización (DP) y/o realización personal (RP).

**Resultados:** Respondieron la encuesta 185/852 sujetos (21,7%); 79 sujetos reportaron AE (42,7%), 61 (32,9%) DP y 31 (16,7%) RP; 98 (52,4%) tenían al menos un componente de burnout alto para las dimensiones analizadas. La regresión logística mostró que el género femenino (OR= 2,21; IC 95%: 1,12-4,39), cargos administrativos (OR= 18,61; IC 95%: 4,28-80,93), médicos (OR= 13,27; IC 95% 3,55-49,86), y enfermeros (OR= 6,55; IC 95%: 1,58-27,14) se asociaron fuertemente con la presencia de algún dominio de burnout.

**Conclusion:** La prevalencia del agotamiento estuvo en el rango de los estudios internacionales. Trabajadoras, cargos administrativos, médicos y enfermeras fueron identificados como predictores independientes de burnout.

**Palabras clave:** Pandemia, burnout, trabajadores salud. agotamiento emocional, despersonalización, realización personal, medico, enfermeras

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## INTRODUCCIÓN

By nature of their work, healthcare workers (HCW) report higher levels of anxiety, depression, burnout, and twice the rate of suicide compared to the general population. <sup>1</sup> Due the higher risk of exposure to infectious diseases, extended work hours and being involved in making difficult decisions, it is widely described how frontline and essential workers face even higher levels of stress, burnout, depression, and post-traumatic stress disorder (PTSD) during outbreaks and global health crisis. <sup>2-4</sup>

The severe respiratory syndrome caused by the novel coronavirus (SARS CoV 2) and its following pandemic is probably the greatest global health crisis the world has faced since the H1N1 influenza Pandemic occurred in the early twenty centuries. This health crisis has caused world-wide pressure on health systems and healthcare workers attempting to treat millions of individuals ill with COVID-19, in addition to their regular duties. Facing shortages of equipment, work in overwhelmed hospitals and even having to decide who received care and who did not lead to healthcare workers to increased psychological distress. <sup>5,6</sup>

Accordingly, several studies have found increased levels of mental health problems amongst healthcare workers during the COVID-19 pandemic. A study conducted among medical staff in an infectious disease hospital in China showed a high incidence of anxiety (23.04%) and stress disorders (27.39%). <sup>7</sup> In Italy it has been reported the psychological pressure faced by healthcare frontline workers has resulted in suffering from anxiety and depression as well. <sup>8</sup> Around the globe, regardless of the baseline setting, healthcare workers have experienced mental health and psychosocial Problems during the pandemic months. When comparing non-medical workers with medical workers, Zhang et al described higher prevalence of depression, anxiety, insomnia among others in health workers. <sup>9</sup> Systematic reviews highlight some of the symptoms health workers experienced during the pandemic months: 37.8% psychological distress (95% CI=28.4–48.2%), 34.4% burnout (95% CI=19.3–53.5%), 29.0% anxiety features (95% CI=14.2–50.3%), 26.3% depressive symptoms (95% CI=12.5–47.1%), 20.7% post-traumatic stress disorder features (95% CI=13.2–31%). <sup>10</sup>

When including gender in the analysis, papers shows that even when the fatality rate has been twice higher for men than for women, the Covid-19 pandemic has showed higher incidence of mental health problems in women, both as frontline workers and at home with an increased workload due to lockdown and quarantine measures. <sup>11</sup> Specifically, young professionals, nurses and females reported psychological burden in Wuhan at the beginning of the pandemic. <sup>12</sup>

### Burnout

Job burnout is defined is a special type of work-related stress — a state of physical or emotional exhaustion that also involves a sense of reduced accomplishment and loss of personal identity. <sup>13</sup>

### Argentina

Anxiety and depression are the most common mental health

diagnoses among the general population in Argentina, with 9.4% having anxiety and 5.7% scoring positive for depression during a 12-month period. <sup>14</sup> During the pandemic, Argentinian health workers were assessed about the most prevalent mental health problems; 54% reported symptoms related to depression, and 9.1% reported it as severe. Notably, of those individuals assessed, 93% of the health workers expressed they did not have any mental health diagnosis prior to pandemic. <sup>15</sup>

### Medicus

Medicus is a private health insurance company in Argentina. It has 200.000 affiliate members and has been part of the Argentinean private insurance market for over 49 years. Although it is a countrywide company, most of the members live in the Buenos Aires Metropolitan Area .

The objective was to assessed burnout as a whole and in its different domains among HCW in this medical center.

## MATERIALS AND METHODS

We performed a cross- sectional study examining the association between demographic characteristics and healthcare position and feeling burned out among HCW. The data was collected through an anonymous online survey. We utilized the Maslach Survey for Medical Personnel in Spanish (<https://www.mindgarden.com/315-mbi-human-services-survey-medical-personnel>).

The hospital consists of 852 employees, including physicians, nurses, administrative positions and technician personnel, who were invited to participate in the study. All participants provided consent by ticking the “yes” box to indicate their willing-ness to participate in the on-line survey. Voluntary participation and data confidentiality were emphasized.

### Exposure variables

- Age groups: the sample was divided into younger and older than 41 years old (median)
- Sex: Female, Male.
- Job role: Administrative position, Health Technician, Nurses, Physicians.
- Time in the organization: Less than 5 years, more than 5 years.
- Number or jobs: 2 or less, 3 or more (HCW in Argentina usually have more than 1 job).
- Exposed to COVID area of work: Yes, No.

### Outcome variables

The three components or domains of the Maslach survey for burnout for medical personnel.

- Emotional Exhaustion (EE): measures feelings of being emotionally overextended and exhausted by one's work (9items).
- Depersonalization (DP): measures an unfeeling and impersonal response toward patients (5 items).
- Personal Accomplishment (PA): measures feelings of competence and successful achievement in one's work (8 items).

For dimensions EE and DP, higher scores meant more intense burnout, while for dimension PA, lower scores meant more intense burn. Scores of 19-26 or  $\geq 27$  on EE, 6-9 or  $\geq 10$  on PD, and 34-39 or  $\leq 33$  on PA were indicative of moderate or high burnout for the respective dimensions.

### Data analysis

Data were obtained from Google sheets and analyzed using IBM SPSS® Statistics version 20.0. Scores of  $\geq 27$  on EE,  $\geq 10$  on PD, and  $\leq 33$  on PA were used to define burnout domains. Descriptive analyses summarized age, gender, job role, number of jobs, time in the organization and working in a COVID-19 exposed area. Ji2 tests were used to analyze the association between these variables and burnout (EE, DP and/or PA). Variables with p value  $< 0.20$  were selected to perform a multivariate logistic regression analysis (backward selection strategy) to identify independent predictors of any of the burnout domains (EE, DP and/or PA). Odds ratios, 95% confidence intervals (CI) and p-values are presented for each independent predictive factor included in the final analysis.

## RESULTS

In November 2020, 185/852 subjects answered the survey (21.7%). Of the 185 responders, 82 (44.3%) were physicians, 44 (23.8%) nurses, 34 (18.4%) had administrative positions and 25 (13.5%)

were technicians. Female patients were 113 (61.7%; 2 patients refused to answer their gender), 82 were younger than 41 years old (48.2%; 15 patients refused to mention their age), 59 reported working in 3 or more jobs (31.6%), 116 (62%) had more than 5 years working in Centro Medicus and 119 (64.3%) worked in a COVID-19 exposed area. Table 1 shows the descriptive analysis for the independent variables and the 3 burnout outcome domains. 79 subjects reported EE (42.7%), 61 (32.9%) DP and 31 (16.7%) PA; 98 (52.4%) had at least one component of high burnout for the dimensions analyzed (EE, DP or PA).

In the univariate analysis (Table 1), we observed that age under 41 years old was significantly associated with DP (42% vs 27%;  $p = 0.035$ ) and female gender with EE (48% vs 33%;  $p = 0.047$ ). We also observed a significant association of burnout regarding to the job role; administrative, physician, and nurse staff showed more EE and DP than technicians (for EE: 56%, 55%, 30% and 8% respectively,  $p < 0.001$ ; for DP: 47%, 42% and 8% respectively,  $p < 0.001$ ). We didn't observe a significant association between time in the organization, number of jobs or working in a COVID-19 exposed area with EE, DP or PA. When we analyzed the association of these independent variables with the presence of at least one burnout variable (EE, DP or PA), only job role showed a significant association ( $p < 0.001$ ). Younger age, female gender and having  $\geq 3$  jobs had a borderline statistical significance.

**Table 1.** Differences in burnout domains among/between sociodemographic and hospital job characteristics.

Variables	Burnout: EE		Burnout: DP		Burnout: PA		Burnout: EE, DP or PA	
	n (%)	p	n (%)	p	n (%)	p	n (%)	p
Age $\geq 41$ years old								
No	41 (50.0)	0.234	35 (42.7)	0.035	16 (19.5)	0.412	51 (62.2)	0.058
Yes	36 (40.9)		24 (27.3)		13 (14.8)		42 (47.7)	
Gender								
Female	54 (47.8)	0.047	39 (34.5)	0.403	15 (13.3)	0.473	64 (56.6)	0.070
Male	23 (32.9)		20 (28.6)		12 (17.1)		30 (42.9)	
Job role								
Technician	2 (8.0)	$< 0.001$	2 (8.0)	0.001	1 (4.0)	0.089	3 (12.0)	$< 0.001$
Administrative	19 (55.9)		16 (47.1)		8 (23.5)		24 (70.6)	
Nurse	13 (29.5)		9 (20.5)		4 (9.1)		18 (40.9)	
Physician	45 (54.9)		34 (41.5)		16 (19.5)		51 (62.2)	
Time in the organization (year)								
$< 5$	27 (39.1)	0.449	19 (27.5)	0.225	12 (17.4)	0.621	33 (47.8)	0.393
$\geq 5$	52 (44.8)		42 (36.2)		17 (14.7)		63 (54.3)	
Number of jobs								
$< 2$	49 (38.3)	0.106	38 (29.7)	0.208	18 (14.1)	0.173	61 (47.7)	0.055
$\geq 3$	30 (50.8)		23 (39.0)		13 (22.0)		37 (62.7)	
COVID-19 exposition								
No	28 (42.4)	0.955	16 (24.2)	0.06	10 (15.2)	0.884	30 (45.5)	0.192
Yes	51 (42.9)		45 (37.8)		19 (16.0)		66 (55.5)	

EE: Emotional Exhaustion; DP: Depersonalization; PA: Personal Accomplishment

**Table 2.** Logistic regression analysis of predictors burnout (EE, DP or PA)\*

	Coefficient	p value	OR (CI 95%)
Female gender	0.79	0.022	2.21 (1.12-4.39)
Job role			
Technicians	Reference	Reference	
Administratives	2.92	<0.001	18.61 (4.28-80.93)
Nurses	1.87	0.010	6.55 (1.58-27.14)
Physicians	2.58	<0.001	13.27 (3.55-49.86)

EE: Emotional Exhaustion; DP: Depersonalization; PA: Personal Accomplishment

\* Age  $\geq$  41 years old. number of jobs and COVID-19 exposition were considered in the model and excluded due to the absence of statistical significance.

Hosmer Lemeshow p = 0.91

Table 2 shows the logistic regression analysis of the independent predictive factors for burnout (any domain: EE, DP or PA). Female workers, administrative positions, physicians and nurses were strongly associated with the presence burnout.

## DISCUSSION

The overall burnout prevalence of 52% was in range with international studies that showed overall prevalence between 32% to over 50%.<sup>16</sup> Regional data from Brazil shows a prevalence of 13.4%.<sup>17</sup> The divergence in some lower published prevalence could be linked to the fact that Medicus collected their data later during the first pandemic peak, in November 2020, when several months of stressing work and overtime had passed, whereas most of the existing literature collected the data in the early months of the pandemic.

When looking at specific roles, all four analyzed roles had higher global burnout or EE than published evidence. Worldwide systematic reviews showed a prevalence of 10.5% of burnout in nurses in Latin America,<sup>18</sup> while our study exhibited a prevalence of almost 41% in this subgroup. We need to highlight those administrative tasks workers had a global prevalence of burnout of over 70% and a prevalence of EE of 56%. International publication showed over 27% for emotional exhaustion in an Italian study in a tertiary hospital.<sup>19</sup> As expressed previously, this could be linked to the timeline when data was collected. It could also be linked to the tasks administrative workers did in each setting. The overall burnout of 62% for physicians and of 12% for technicians was higher in our study than other studies; Matsuo et al. found a global prevalence of 11% in physicians and 8% in Technicians in Japan.<sup>20</sup>

Lasalvia *et al.*<sup>19</sup>, also checked for working experience measured in years. For those with less than 6 years the prevalence for the EE domain was close to 35% increasing when considering more years. For that specific domain and for a less than 5 years in the organization we obtained a similar prevalence of 39% also increasing when considering over 5 years.

In line with international literature, both our descriptive and logistic analysis show female health workers experienced more emotional exhaustion as when analyzing the domains and score higher for burnout as a whole.<sup>21,22</sup> This could be related to the

fact that historically female are usually the main responsible of household chores, including childcare. This statement seems to be especially true during pandemic months and could have impacted in women's wellbeing.<sup>23</sup>

Similarly, literature shows younger health workers show a significant higher ratio of burnout.<sup>24</sup> This could be related to the fact that younger people tend to suffer more from psychological stress. Also, younger health workers, specifically nurses and physicians are usually in their residency training years were they usually have baseline overload of tasks in their programs.<sup>25</sup>

## Limitations

This proposal explores the prevalence of burnout in a group of health workers in only one point in time, and after several months of high levels of psychological distress. The COVID 19 pandemic exposed health workers to different levels of pressure and consequent exhaustion during the months. It would have been important to assess burnout at the beginning, after several months of high incidence of cases and once vaccination was massively available.

We would also like to highlight that our study analyzes burnout as a consequence of the exposure to psychosocial risk factors (pandemic), focusing on what happens to people and omitting possible sources of stress.

## CONCLUSION

We observed a high prevalence of burnout, mainly in female workers, administrative positions, physicians and nurses. Monitoring burnout throughout the course of the pandemic is mandatory.

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