

ORIGINAL

Burnout syndrome: A descriptive study in pediatric resident physicians in Spain

Matheus Zeferino Feltrin¹, Arístides Rivas García^{1,2}, Estíbaliz López Herce Arteta¹,
Alejandro Domarco Manrique¹, Jorge Lorente Romero^{1,2}, María Concepción Míguez Navarro^{1,2}

¹Hospital Materno Infantil Gregorio Marañón. ²Instituto de Investigación Sanitaria Gregorio Marañón (IISGM). Madrid

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Corresponding author:

Dr. Matheus Zeferino Feltrin.
Pediatria. H. Materno Infantil Gregorio
Marañón. C/ O'Donnell, 48, 28009 Madrid.
E-mail: matheuszeferino@gmail.com

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Abstract

Introduction: Burnout is a syndrome resulting from chronic work-related stress with a prevalence in physicians of 30 to 69%. Certain characteristics of the medical residents may make them more vulnerable to this syndrome. The aim of this study was to describe the prevalence of burnout among pediatric residents in Spanish hospitals and to identify burnout-related risk factors.

Material and methods: A multicenter, cross-sectional survey study was conducted between October 2018 and January 2019. The presence of burnout was assessed using the Maslach Burnout Inventory questionnaire. The survey was distributed among residents in pediatrics at Spanish hospitals through e-mail lists and social networks of resident's groups associated with the Spanish Association of Pediatrics and the Spanish Society of Pediatric Emergencies.

Results: 397 surveys from 68 hospitals were analyzed. Burnout was identified in 59.9% (95% CI, 56.3-66.6%) of the residents. In the multivariate analysis, a significantly lower risk of burnout was observed in those who attended more courses or congresses per year (OR, 0.82; 95% CI, 0.73-0.91 for each course attended), in residents who had children ($p=0.041$; OR, 0.35; 95% CI, 0.13-0.95), and in those who had an emergency department attending during their duty ($p=0.03$; OR, 0.61; 95% CI, 0.39-0.95). A higher risk was found in third year compared to fourth-year residents ($p=0.002$; OR, 2.71; 95% CI, 1.44-5.07), and when the resident/attending ratio increased ($p=0.037$; OR, 1.27; 95% CI, 1.02-1.59 per resident in charge).

Conclusions: In our study sample, the prevalence of burnout was high. Attendance to courses and the presence of qualitatively and quantitatively adequate supervision in the emergency department may contribute to the prevention of professional burnout in this group of physicians.

SÍNDROME DE DESGASTE PROFESIONAL. ESTUDIO DESCRIPTIVO EN RESIDENTES DE PEDIATRÍA EN ESPAÑA

Resumen

Introducción: El síndrome de desgaste profesional (burnout) es una situación de estrés crónico derivada del estrés laboral que tiene una prevalencia en médicos del 30% a 69%. Algunas características del Médico Interno Residente (MIR) podrían hacerle más vulnerable a dicho síndrome. El objetivo de este trabajo es describir la prevalencia de burnout en los MIR de Pediatría de hospitales españoles y factores de riesgo relacionados con la presencia del mismo.

Material y métodos: Estudio de encuestas transversales multicéntrico realizado entre octubre-2018 y enero-2019. La presencia de burnout se evaluó a través del cuestionario *Maslach Burnout Inventory*. Se distribuyó a MIR de Pediatría de hospitales españoles a través de listas de distribución de correo electrónico y redes sociales de grupos MIR vinculados a la Asociación Española de Pediatría y la Sociedad Española de Urgencias Pediátricas.

Resultados: Se analizaron 397 encuestas de 68 hospitales. Se identificó burnout en el 59,9% (IC95%: 56,3-66,6%) de los MIR. En el análisis multivariable se encontró un riesgo de burnout significativamente menor en aquellos que asistían a más cursos o congresos al año (OR: 0,82; IC95%: 0,73-0,91 por cada curso), en los MIR con hijos ($p=0,041$. OR: 0,35; IC95%: 0,13-0,95) y en los que contaban con Adjunto de Urgencias durante las guardias ($p=0,03$. OR: 0,61; IC95%: 0,39-0,95). Se encontró mayor riesgo en los MIR-3 cuando comparados con MIR-4 ($p=0,002$. OR: 2,71; IC95%: 1,44-5,07) y al aumentar la relación MIR/adjunto supervisor ($p=0,037$. OR: 1,27; IC95%: 1,02-1,59 por cada MIR a cargo).

Conclusiones: La prevalencia de burnout en la muestra estudiada es elevada. Estimular la asistencia a cursos junto a la presencia de una supervisión cuali y cuantitativamente adecuada en Urgencias, podrían contribuir a prevenir el desgaste profesional en este grupo de facultativos.

INTRODUCTION

Occupational burnout syndrome, first described in 1969 by H.B. Bradley, consists of the development of occupational stress to a state of chronic stress⁽¹⁾. Subsequently, Maslach and Jackson laid the foundations for the study of this syndrome through the measurement tool termed the Maslach Burnout Inventory⁽²⁾. According to these authors, burnout includes 3 dimensions: emotional exhaustion (loss of emotional resources to cope with work); depersonalization (with feelings of rejection towards patients who are blamed for their situation, and bureaucratizing patient-physician relationships); and finally, the feeling of reduced personal accomplishments at work (irritability, low productivity, and a tendency to negatively evaluate work activity)⁽²⁾.

Numerous emotional, behavioral, social, psychosomatic, and family factors have been associated with burnout, leading to loss of efficiency and job dissatisfaction and, as a consequence, a distant doctor-patient relationship, increased absenteeism and even the wish to change Jobs⁽³⁾.

Recently, the prevalence of burnout among healthcare providers has been found to be high, especially in the emergency department⁽⁴⁾.

In addition, among the healthcare providers in the emergency department, the medical resident, still in training and with a shorter time in practice, may lack the emotional tools to cope with the physical and psychological demands of their work, and may be more susceptible to suffer from this syndrome⁽⁵⁾.

As currently the rate of burnout among pediatric residents in Spain is unknown, the main aim of this study was to determine the prevalence of burnout syndrome in this group of physicians working in pediatric emergency departments. The secondary objective was to identify burnout-related risk factors.

MATERIAL AND METHODS

A descriptive, cross-sectional, multicenter survey study was conducted among residents in the specialty of pediatrics and related areas between October 2018 and January 2019.

Sample selection

All medical residents who completed the survey and were on duty between 17 and 24 hours in the Pediatric Emergency Departments of Spanish hospitals were included.

Medical residents with a specialty other than pediatrics, who were on duty for less than 17 hours in a Pediatric Emergency Department, who had not been on duty for at least 3 months during the last year, who were doing an external rotation outside Spain, as well as those temporarily disabled to work were excluded.

Surveys were sent through e-mail lists and social networks of resident's groups associated with the Spanish Association of Pediatrics (AEP) and Spanish Society of Pediatric Emergencies (SEUP). Since the distribution was not strictly controlled, to calculate the response rate, the survey was considered as received by all residents belonging to hospitals where at least one resident completed the questionnaire. It was considered as not received by the residents from Hospitals where none of the residents responded.

Variables and outcome measurements

The surveys were disseminated in "Google Form" format and were requested to be completed voluntarily, individually, and anonymously. There was no payment of any kind for participation. The questionnaire was divided into two parts: the first consisting of sociodemographic and occupational data, and the second of the Maslach Burnout Inventory questionnaire for medical personnel in its Spanish version.

The Maslach Burnout Inventory comprises 22 items that explore the three dimensions of burnout (emotional exhaus-

tion, depersonalization, and reduced personal accomplishment) (Annex 1). Each item consists of a statement and the respondent is asked to choose from among six response options indicating the frequency at which the statement occurs best fitting his or her situation. Each option is assigned a score from 0 to 6 on the Likert scale and the total score is calculated by adding the scores for each item⁽²⁾.

Burnout was defined when a responder had moderate or high scores on the subscales of Emotional Fatigue (≥ 19) and Depersonalization (≥ 6) combined with moderate or low scores on Personal Accomplishment (≤ 39)⁽⁶⁾ (Table 1).

High burnout was defined when a responder had high scores on the subscales of Emotional Fatigue (≥ 27) and Depersonalization (≥ 10) combined with low scores on Personal Accomplishment (≤ 33)⁽⁶⁾.

Statistical analysis

Data analysis was performed using the SPSS statistical package version 20.0 for Windows. Qualitative variables were expressed as absolute frequencies and percentages and quantitative variables as means and standard deviation (SD) or median and interquartile range (IQR), according to the symmetry of the data distribution. In the univariate analysis, to establish the association between burnout and qualitative variables the Chi-square test was used, for the association between burnout and quantitative variables the Student's t test or Mann-Whitney U test were employed. The strength of the associations was determined using odds ratios and their 95% confidence intervals (95% CI). For multivariate analysis, a backward stepwise logistic regression model was developed, starting with the variables that showed a trend towards significance in the univariate analysis ($p < 0.10$). The significance level was set at $p < 0.05$.

RESULTS

A total of 398 surveys were responded, one of which was excluded because it was from a resident practicing outside Spanish territory. Therefore, 397 questionnaires were analyzed from 68 hospitals distributed throughout Spain, including all the Autonomous Communities except Navarra.

The estimated response rate was 28.3% (understood as received by a total of 1,404 residents).

Sample characteristics

Overall, 319 respondents were female (80.4%) with a mean age of 28.0 years (SD, 2.7 years); 288 (72.5%) were

TABLE 1. Maslach Burnout Inventory. Subscales and classification according to score.

Emotional exhaustion	Depersonalization	Personal accomplishment	MBI scale
≤ 18	≤ 5	≥ 40	Low
19-26	6-9	34-39	Moderate
≥ 27	≥ 10	≤ 33	High

married or had a stable partner and 22 (5.5%) had children; 83 (20.9%) were first-year, 101 (25.4%) second year, 93 (23.4%) third year, and 120 (30.2%) fourth year residents. Of the respondents, 323 belonged to third-level hospitals (81.4%), had a median of 6 shifts per month (IQR: 5-6), of which 5 were in the emergency department (IQR: 3-5), and were supervised with a ratio of 1.5 residents to each attending (IQR: 1-2) during their emergency department duties. 222 residents (55.9%) acknowledged that no emergency room attendings with specific training were available during their shifts.

Presence of burnout

Burnout was identified in 238 residents (59.9%; 95%CI: 55.1-64.8%) and was classified as high in 94 (23.7%; 95%CI: 19.5-27.9%).

The subscale that was most affected was Personal Accomplishment (84.1%; CI95%: 80.5-87.7%) followed by Depersonalization (80.4%; CI95%: 76.4- 84.3%) and Emotional Fatigue (72.0%; CI95%: 67.6-76.5%) (Table 2), with 372 responders (93.7%) showing alterations in at least one of these subscales.

No differences were found according to the Autonomous Community to which the residents belonged ($p = 0.370$).

Table 3 shows the associations between burnout and different sociodemographic and occupational factors of the residents. The strengths of these associations in univariate and multivariate analysis is shown in Table 4.

Having children (OR: 0.36; 95%CI: 0.13-0.95), the availability of attendings specialized in emergency medicine on duty (OR: 0.62; 95%CI: 0.40-0.97), and participation in training courses (OR: 0.82; 95%CI: 0.74-0.92; for each course) seemed to be independent protective factors of burnout syndrome. While third year versus fourth-year residency (OR: 2.69; 95%CI: 1.44-5.04) and the increase in the ratio of residents to supervising attending during emergency department duty (OR: 1.27; 95%CI: 1.02-1.59; for each additional resident supervised by an attending) were independently related to a greater presence of burnout.

TABLE 2. Subscales and degree of burnout syndrome.

	Low level N (%)	Moderate level N (%)	High level N (%)	Mean score (SD)
Emotional exhaustion	111 (28,0)	112 (28,2)	174 (43,8)	25,0 (10,0)
Depersonalization	78 (19,6)	94 (23,7)	225 (56,7)	11,1 (5,9)
Personal accomplishment	194 (48,9)	140 (35,3)	63 (15,9)	33,2 (6,5)

The values are expressed in absolute numbers and percentages. With a grey background the levels on each subscale defined in the burnout syndrome.

TABLE 3. Association between sociodemographic and occupational factors and burnout syndrome.

		With burnout		Total sample	p value
		N	%	N	
Sex	Male	44	56.4	78	0.477
	Female	194	60.8	319	
Personal relationships	Married	22	53.7	41	0.509
	Stable relationship	151	61.1	247	
	Single	65	60.2	108	
	Divorced/separated	0	0	1	
Children	Yes	9	40.9	22	0.061
	No	229	61.1	375	
Living with other people	Alone	38	61.3	62	0.882
	Partner	104	58.8	177	
	Parents	35	56.5	62	
	Other relatives	5	71.4	7	
	Flat mates	56	62.9	89	
Living in the same city as parents	Yes	96	61.5	156	0.603
	No	142	58.9	241	
Has a group of friends	Yes	210	59.0	356	0.250
	No	28	68.3	41	
Means of transport to go to work	Yes	181	60.1	301	0.895
	No	57	59.4	96	
Have you ever seen a mental health professional due to academic or work pressure prior to your residency?	Yes	22	68.8	32	0.289
	No	216	59.2	365	
Year of residency	1 st	50	60.2	83	0.021
	2 nd	56	55.4	101	
	3 rd	68	73.1	93	
	4 th	64	53.3	120	
Hospital level of care	Third level	198	61.3	323	0.251
	Second level	40	54.1	74	
Do you consider there is a high workload in your emergency department?	Yes	207	61.8	335	0.082
	No	31	50.0	62	
Are there attendings with specific emergency medicine training during duty hours?	Yes	94	53.7	175	0.024
	No	144	64.9	222	
Is there a good work environment in your center?	Yes	210	59.5	353	0.597
	No	28	63.6	44	
Do you consider your level of responsibility appropriate for your residency year?	Yes	179	57.0	314	0.014
	No	59	72.0	82	
Is research training adequate at your center?	Yes	58	53.2	109	0.092
	No	180	62.5	288	
Does your center encourage participation in scientific publications?	Yes	64	51.2	125	0.016
	No	174	64.0	272	
Do you receive adequate payment?	Yes	63	55.3	114	0.226
	No	175	61.8	283	
Number of training courses attended in the last year*		2	1-4	3(2-5) ^a	0.001
Age (years)**		27.8	2.4	28.0 (2.9) ^a	0.474
Number of duties/month*		5	5-6	6 (5-6) ^a	0.244
Number of duties/month at the Emergency department* resident/attending ratio**		5	3-5	5 (3-5) ^a	0.893
		1.8	1.2	1.5 (0.8) ^a	0.004

Data are expressed as absolute values (N) and percentages (%). *Data are expressed as median and interquartile range. **Data are expressed as mean and standard deviation. ^aValues corresponding to the group without burnout.

TABLE 4. Strength of the associations between sociodemographic and occupational variables and burnout syndrome. Uni- and multivariate analysis.

	Univariate analysis				Multivariate analysis			
	OR	95% CI		p valor	OR	95% CI		p value
Children (yes)	0.44	0.18	1.06	0.061	0.36	0.133	0.952	0.040
Year of Residence								
1 st	1.33	0.75	2.34	0.330	1.19	0.64	2.19	0.587
2 nd	1.09	0.64	1.85	0.754	1.15	0.65	2.03	0.635
3 rd	2.38	1.33	4.26	0.004	2.69	1.44	5.04	0.002
4 th	**	**	**	**	**	**	**	**
High patient load (yes)	1.62	0.94	2.79	0.082	1.54	0.84	2.82	0.160
Availability of attendings specialized in emergency medicine (no)	1.59	1.06	2.39	0.024	0.62	0.40	0.97	0.035
Adequate responsibility (no)	1.47	1.09	1.97	0.014	1.33	0.97	1.83	0.078
Adequate training in research (no)	1.47	0.94	2.29	0.092	1.12	0.62	2.02	0.711
Participation in publications (no)	1.69	1.10	2.60	0.016	1.39	0.86	2.25	0.183
Number of training courses ^a	0.84	0.76	0.93	0.001	0.82	0.74	0.92	0.001
Resident/attending ratio	1.33	1.07	1.64	0.004	1.27	1.02	1.59	0.037

OR: odds ratio. 95% CI: 95% confidence interval. **Reference category, the values for the remaining years of residence are expressed relative to the 4th year. ^aRisk referred for each training course taken.

DISCUSSION

Although this is not the first study to address professional burnout among Spanish pediatricians, it does appear to be the first multicenter study focused on pediatric residents that is representative of the entire national territory.

The resident physician, a specialist in training, has different characteristics that make them more prone to or increase the risk of developing burnout compared to healthcare providers who have completed their training, as has previously been suggested⁽⁵⁾. Assessing the incidence of burnout syndrome is relevant as it affects both the healthcare provider, who experience dissatisfaction with their work which may lead to the wish to change jobs^(3,7), and patients, since a clear association with the quality of medical care has been observed⁽⁸⁻¹⁰⁾.

The high prevalence of burnout observed among pediatric residents in Spain (close to 60%) is worrisome. Similar to other series in our setting⁽³⁾, Personal Accomplishment was the subscale most commonly affected, suggesting this may be an endemic problem that prevents a large number of Spanish physicians of any category from accomplishing their job expectations.

This result is in the mid-range when compared to those obtained among US physicians and residents, in whom a range from 21% to 74% was found^(4,8,11-13), although this comparison does not seem entirely appropriate, since the social and healthcare provider context in the US is very different from that of Spain. On the other hand, our results are similar to those reported in a study conducted among Spanish healthcare providers working in pediatrics⁽⁶⁾. Nevertheless, it is important to emphasize that the latter study was carried out in a sample with characteristics that were different from ours, including both attending physicians and residents, as

well as pediatric nurses and assistants from a single center.

In our country, the prevalence of the burnout syndrome has been evaluated in different areas of pediatrics showing great variability. Healthcare providers working in primary care showed higher burnout rates than those working in pediatric intensive care units, with values ranging from 24% to 31% in the former and from 3 to 18% in the latter^(3,14). However, as in the study described above, these were not multicenter studies and did not include pediatric residents or emergency medicine physicians.

The prevalence of burnout during the medical residency described in the literature ranges from 27% to 75%, varying according to the medical specialty and the scales and criteria used⁽¹⁵⁻¹⁷⁾. Focusing on our country, Fonseca *et al.* studied resident physicians of different specialties and found a prevalence of burnout of 69%, which is higher than that in our study⁽¹⁷⁾. However, this was a single-center study, which did not include pediatric residents and in which a modification of the Maslach questionnaire was used to measure burnout, leaving out the subscale of personal accomplishment.

Current results regarding factors that may be related to the development of the syndromes are contradictory. Several studies identified gender differences, with a higher rate of burnout in women^(18,19). Nevertheless, these results were not confirmed by our study or others conducted in samples with characteristics that were more similar to ours⁽¹⁷⁾.

Although no differences were found in terms of personal relationships, a negative correlation was observed between having children and burnout, showing that residents who had children presented with burnout less frequently than those without offspring. This finding was previously described by Chacón⁽²⁰⁾ and may indicate that for the resident the family is a stress-relieving distraction from work and facilitates time to relax. It is important to point out that the majority of the

sample consisted of women and that motherhood would be associated with a long period of pregnancy leave. Nevertheless, the decision to have children during the residency may also be an indicator of the individual's ability to manage the boundaries between work and personal life.

Although in our study most of the residents surveyed practiced at a tertiary-care hospital, no differences were found between their level of burnout and that of residents working at hospitals at other levels of care. On the other hand, some studies have shown that residents working at tertiary-care hospitals have lower burnout rates, which could be related to the fact that in this type of centers a greater academic and teaching activity takes place, which may reduce the feeling of workload as part of the working hours is dedicated to teaching and the satisfaction that this entails⁽²¹⁾.

In line with this finding, the other factor that was shown to be associated with a lower risk of burnout was attendance to courses and congresses. This factor has not been analyzed in previous studies and may be explained, in addition to the above, by the fact that it allows residents to acquire "evidence" that supports their clinical practice, to experience first-time stressful situations without putting patients at risk (simulations), and to exchange information about activities of their center with residents from other hospitals.

Many of the last-year residents do their training in the pediatric subspecialty of their interest, with less rotations in other areas. In addition, as the resident progresses and has spent a longer time at the institution, despite the increased responsibilities they are better able to adapt to the work environment with a greater sense of belonging and confidence. This may explain the higher rate of burnout in third-year residents compared to fourth-year residents, in line with the data described above⁽²²⁾.

One of the variables analyzed was the presence of an attending physician specialized in pediatric emergency medicine during duties and the number of resident physicians per attending. Our results show that the presence of a pediatric emergency medicine attending physician and a lower resident-to-attending ratio may be associated with a lower risk of burnout. We have not found any previous studies analyzing this variable; however, the association seems logical. Emergency department duty is an important and ongoing component of the pediatric residency program and may be especially challenging to the physician in training, largely due the unpredictable nature of the work in the emergency department. Emergency care includes a wide variety of pathologies, with a broad range of severity, often with important and irreversible consequences and requiring a rapid response from the physician. In addition, the seasonal nature of pediatric diseases and the overcrowding of the healthcare system are especially notable in the emergency department and demand organizational skills familiar to the emergency physician. The data obtained in our analysis indicate that the activities and feelings of the resident on duty may affect all other areas of their work and point to a possible area of action to prevent burnout. This emphasizes the need to discuss the recognition of the subspecialty of pediatric emergency medicine. Pediatric emergency medicine has intrinsic characteristics making it a specific training area within pediatrics⁽²³⁾, and the availability of attendings trained in emergency med-

icine supervising the resident physician would provide the latter with greater peace of mind and confidence in providing care in the emergency department and beyond.

There are several limitations to our study. Firstly, we obtained a lower estimated response rate than that reported in other publications^(6,9,13). This difference may be due to the fact that in some of these studies, non-responders were followed up via email and incentives were offered to motivate response, which was not the case in our study. On the other hand, as there is no accessible and updated registry of Spanish pediatric residents, we opted for nationwide distribution of the surveys through social networks; therefore, measuring the real extent of the surveys was difficult and the response rate was calculated based on a worst-case scenario. Furthermore, there may have been a selection bias as residents who were aware of the possibility of having a burnout may have been more interested in participating in the study than those who were comfortable in their work situation, increasing the proportion of participants affected by the syndrome. In addition, the period of data collection included the winter and therefore coincided with the period of overcrowding in pediatric care. This may have led to an overestimation of the results, although they do not seem to differ from those reported in previous studies. Although taken into account in prior studies, in our series substance abuse and stressful events prior to completing the survey were not evaluated⁽²⁴⁾.

Despite these limitations, our study provides new insights into burnout during the pediatric residence training. Our results highlight the importance of developing tools to identify residents at risk and point to possible directions for future research in order to develop intervention mechanisms to correct this trend and improve the training of pediatric residents resulting in better medical care for children.

In conclusion, our study confirms the high rate of burnout among Spanish pediatric residents. Strategies aimed at alleviating this syndrome should be developed, including facilitation of attendance to courses and congresses and reducing the resident-to-attending ratio on duty.

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ANNEX I. Maslach Burnout Inventory questionnaire.

Response options: never / a few times a year or less / once a month or less / a few times a month / once a week / a few times a week / every day

1. I feel emotionally exhausted by my work
2. When I finish my working day, I have a sense of inner emptiness
3. When I get up in the morning and I have to face another working day, I feel tired
4. I feel I can easily understand the patients
5. I feel I am treating some patients as if they were impersonal objects
6. I feel that working all day with people makes me tired
7. I feel that I deal very effectively with my patients' problems
8. I feel like my work is wearing me out
9. I feel that I influence other people positively through my work
10. I feel I have become more callous to people
11. I am afraid that my work makes me emotionally harder
12. I feel full of energy in my work
13. I feel frustrated at work
14. I think I work too much.
15. I feel I don't really care what happens to some patients
16. I feel that working in direct contact with people tires me out.
17. I feel like I can easily create a pleasant atmosphere for my patients
18. I feel appreciated after having worked closely with my patients
19. I believe I achieve a lot of valuable things in this job
20. I feel like I'm at the end of my rope
21. I feel that in my work, emotional problems are dealt with in an adequate manner
22. I feel like patients blame me for some of their problems.