

Professional burnout syndrome in specialist surgeons: Prevalence and risk factors

Síndrome de desgaste profesional (burnout) en médicos cirujanos especialistas: prevalencia y factores de riesgo

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Abstract

Background: Medical surgeons specialists are exposed to risk factors, the most frequent being those of the psychosocial type, where burnout syndrome is included due to the type of exposure and diversification of their activities as a member of the health team and the legal and socio-labor repercussions. **Objective:** The objective of the study was to determine the prevalence and risk factors of burnout in medical surgeons. **Methods:** An observational, descriptive and cross-sectional study in 296 specialists. The data were processed descriptively and inferentially with the support of the SPSS 15.0 and Epi Info V6.1 program. **Results:** There was a response in 92.5% of the interviewees and the burnout was found in 40.2%. Significant differences were detected in age under 40 years, not having a stable partner, and < 15 years with your partner, being a medical oncologist, having <10 years of professional seniority and in the workplace. **Conclusions:** Burnout is frequent (40.2%), as risk factors are, being: woman; under 40 years old; not having a stable partner, under 15 years with her and not working this, without children; surgical medical oncologist; < 10 years of professional seniority and job position, night shift; definitive hiring; and not having another job and more than 4 h in it. The involvement of the subscales behaves like the syndrome. There was a negative correlation with burnout between emotional exhaustion and depersonalization, and positive with lack of personal fulfillment at work.

Keywords: Medical surgeons specialists. Burnout. Emotional exhaustion. Depersonalization. Lack of personal fulfillment.

Resumen

Antecedentes: Los médicos cirujanos especialistas están expuestos a factores de riesgo, siendo los más frecuentes los de tipo psicosocial, incluyendo el síndrome de desgaste profesional (burnout) por el tipo de exposición y la diversificación de sus actividades como miembros del equipo de salud, y las repercusiones jurídicas y sociolaborales. **Objetivo:** Determinar la prevalencia y los factores de riesgo del burnout en médicos cirujanos especialistas. **Método:** Estudio observacional, descriptivo y transversal, en 296 especialistas. Los datos se procesaron descriptivamente y de manera inferencial con apoyo de los programas SPSS 15.0 y Epi-infoV6.1. **Resultados:** Hubo respuesta en el 92.5% de los entrevistados y el burnout se encontró en el 40.2%. Se detectaron diferencias significativas en edad menor de 40 años, no tener pareja estable o menos de 15 años con pareja, ser médico oncólogo quirúrgico, y tener menos de 10 años de antigüedad profesional o en puesto de trabajo.

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Conclusiones: El burnout es frecuente (40.2%) y como factores de riesgo están ser mujer, ser menor de 40 años, no tener pareja estable o menos de 15 años con pareja y que esta no trabaje, no tener hijos, ser médico oncólogo quirúrgico, tener menos de 10 años de antigüedad profesional o en puesto de trabajo, trabajar en turno nocturno, tener contratación definitiva, no tener otro trabajo y trabajar más de 4 horas en él. La afectación de las subescalas se comporta como el síndrome. Hubo correlación negativa con el burnout entre agotamiento emocional y despersonalización, y positiva con falta de realización personal en el trabajo.

Palabras clave: Médicos cirujanos especialistas. Burnout. Agotamiento emocional. Despersonalización. Falta de realización personal.

Introduction

The surgical area combines clinical medical treatment with an interventional approach, where the patient receives perioperative assistance, with pre-operative preparation activities, intraoperative management, and post-operative care. The operating room is an area where surgical personnel have difficulties for carrying out their work, given the complexity of the tasks that are performed. Biosafety and prevention of the occupational hazards it is exposed to become a problem for the health-care team that performs its tasks in the operating room, in addition to being in contact with diseases such as human immunodeficiency, tuberculosis, and hepatitis virus infection, among others, as well as with neurotoxic, mutagenic, carcinogenic, and anesthetic substances, and also to noise, ionizing and non-ionizing radiation, and artificial lighting, along with prolonged working hours, confined spaces, certain body postures, and prolonged time in the standing position.

The surgical team may become stressed by the behavior of other members, as well as by unexpected reactions, the patient may present during surgery or by the instruments used during the procedure. Constant disappointment and internal conflicts create a complicated environment that generates stressful situations that can upset the group.

Surgical-medical personnel are exposed to risk factors, with the most common being those of psychosocial nature due to diversification of their work activities taking care of outpatients, hospitalized patients, consultations with the emergency department and surgical interventions they perform, as well as being in charge of the undergraduate and postgraduate intern medical staff, in addition to administrative processes inherent to the medical procedures that are carried out in the hospital, and advisory activities related to their respective specialty, without forgetting the professional ethical responsibility, and possible medical-legal conflicts

they are exposed to with the practice of their profession.

Psychosocial risks are a relevant phenomenon and have quickly achieved considerable notoriety within the labor context: this phenomenon is called professional burnout syndrome (PBS), which was clinically described by Freudenberg in 1974¹ as “a state of fatigue or frustration that is caused by dedication to a cause, way of life or relationship that does not produce the expected reinforcement.” In 1977, the American Association of Psychologists described it in personnel working in human services, health and education professionals under difficult conditions in contact with users. In 1981, Maslach et al.² described burnout from a three-dimensional perspective: emotional exhaustion (EE), manifested by progressive loss of energy, tiredness, and fatigue; depersonalization (DP), identified by a negative shift in attitudes and responses toward others, with irritability; and reduced feelings of work-related personal accomplishment (PA), with negative responses towards oneself and work. In 1982, they defined burnout as an “inadequate response to a chronic emotional stress whose traits are EE, DP, and a feeling of inadequacy for the tasks to be performed,” and they developed the Maslach Burnout Inventory-Human Services Survey (MBI-HSS) aimed at health professionals, validated in Mexican professionals by Grajales in 2001.³

PBS in specialist surgeons is considered a professional risk because of the nature of their work. In European, American, and Asian countries, the reported prevalence figures range from 2.7%⁴ to 86.5%⁵; in Hispanic America, its frequency is 14.5%; in South America, it ranges from 2.7% to 86.5%; in Europe, it is from 7.0% to 45.0%; in Central America, it is 12.0%; and in Mexico, it ranges from 33.1% to 42.8% (Table 1).

The knowledge that has been obtained has laid the foundation for interventions aimed at addressing chronic professional stress, both individually, by groups or institutionally.

Table 1. Prevalence of professional burnout syndrome among specialist surgeons according to various authors

Study	Results
Cotrino and Panez (2019) ⁴	2.7% in Huánuco, Peru
Visser et al. (2003) ⁶	7.0% in the Netherlands
Ordenes (2004) ¹³	9.0% in Santiago, Chile
Girón and Lozano (2013) ¹⁴	12.0% in San Salvador, El Salvador
Grau et al. (2009) ¹⁶	14.5% in Hispanic America
Escriba et al. (2008) ¹⁵	22.4% in Spain
Lugo (2019) ²⁰	24.4% in Guaira, Venezuela
Ferrel et al. (2010) ¹⁷	28.0% in Santa Marta, Colombia
Goehring et al. (2005) ⁸	28.8% in Switzerland
Esquivel et al. (2007) ¹¹	33.1% in Distrito Federal, Mexico
Miraval (2017) ¹⁸	36.7% in Lima, Peru
Castañeda and García de Alba (2019)*	40.2% in Guadalajara, Mexico
Gutiérrez et al. (2008) ¹⁰	42.8% in Pereira, Colombia
Borbolla and Domínguez (2007) ¹²	42.8% in Tabasco, Mexico
Pejuskovic et al. (2011) ⁹	45.0% in Belgrade, Serbia
Zumárraga et al. (2008) ⁷	48.2% in Quito, Ecuador
Castillo and Rosas (2019) ⁵	86.5% in Guayaquil, Ecuador

*Present study results.

Our purpose is to contribute specific elements to the study of PBS (prevalence, values by subscales, and determination of risk factors) in specialist surgeons from three regional Social Security hospitals, in Guadalajara (Jal.), Mexico.

Methods

Cross-sectional, descriptive, observational study in 296 specialists (59 women and 237 men) to determine risk and protection factors against PBS with regard to sociodemographic and occupational variables. The study population were all specialist surgeons who were staff members of three regional hospitals and met the following requirements: more than 1 year of seniority, being active, and willing to answer the evaluation tools. Physicians who were grant holders, residents, managers, and other health workers were excluded. Incorrectly completed surveys were eliminated. Included

personnel were explained the reasons and objectives of the study, and their informed consent was obtained. Due to its cross-sectional nature, our study does not properly distinguish causes from effects.

Instruments

- Questionnaire for the registration of sociodemographic variables (gender, age, stable partner or not, and time with stable partner, whether the partner works and number of children) and occupational variables (work area, professional seniority and seniority in current job position, shift, type of contract, other job, and hours dedicated to it).
- MBI-HSS version translated and validated for Mexico, with a reliability of 0.57-0.80, which contains the following subscales: EE (nine items), DP (five items), and PA (eight items). The item values are added to evaluate the levels of PBS the worker has. As cutoff points, low, moderate, and high levels were categorized: for EE, ≤ 18 , 19-26, and ≥ 27 ; and for DP, ≤ 5 , 6-9, and ≥ 10 . In contrast, PA operates in the opposite direction to the above items, with respective values being ≤ 33 , 34-39, and ≥ 40 ; the low score would indicate low accomplishment, the intermediate would show moderate accomplishment, and the high score would indicate a sense of accomplishment. The presence of PBS was determined by intermediate or high level of deterioration on one of the subscales.

Descriptive statistical analysis was carried out by obtaining absolute figures, percentages, average, and standard deviation. Pearson's correlation was used for association. For inferential analysis, the Chi-square test was applied (with or without Yates' correction). Odds ratios (OR), with a 95% confidence interval (CI), were calculated using SPSS 15.0 and Epi Info V 6.1 statistical packages, with $p \leq 0.05$ being considered statistically significant.

Results

Of the 320 surveys that were distributed, 296 met the study criteria and were correctly completed; the remaining 24 were eliminated for not meeting the established standards. A response rate of 92.5% was obtained.

In the sociodemographic profile, the impact of burnout on the female gender stands out, with 44.0 versus

36% in males ($p < 0.05$), with a mean age of 45.0 ± 7.0 years. The age group under 40 years predominated with 61.0% ($p < 0.05$). Absence of a stable partner was referred by 51.0% ($p < 0.05$); average time with a stable partner was 15.4 ± 6.0 years; 55.0% ($p < 0.05$) had < 15 years with a stable partner; in 37.0%, the partner did not work, and 48.0% ($p < 0.05$) referred not having children.

In the employment profile, the specialty of surgical oncology stood out with 75.0% ($p < 0.05$). Professional seniority had an average of 15.4 ± 6.3 years and seniority in current job position, 10.2 ± 7.3 years. The group with < 10 years of current job seniority was 58.0% ($p < 0.05$), and the group with < 10 years of seniority in current job position stood out with 51.0%; 67.0% referred working on the night shift; 40.0% had a permanent contract ($p < 0.05$); 46.0% did not have another job; and 35.0% worked more than 4 h on another job ($p < 0.05$).

PBS was detected in 119 (40.2%) participants, out of whom 59 (49.5%) had one subscale affected, 31 (26.0%) two, and 29 (24.5%) three.

Regarding the hospital where they exercise their professional practice, the frequency of PBS predominated in 46 (38.6%) at regional hospital C followed by B with 44 (36.9%) and A with 34 (24.5%).

Subsequently, two groups were characterized: one affected and one unaffected. Immediately, an association was made with each one of the sociodemographic and employment variables. As observed in table 2, being a woman, having a partner who is unemployed, not having children, having a permanent contract, and working more than 4 h on another job were associated as risk variables with the presence of PBS. On the other hand, being younger than 40 years of age ($OR = 3.20$; 95% CI, 1.81-5.68), having < 15 years with a stable partner ($OR = 4.04$; 95% CI, 2.08-7.89), the surgical oncology specialty, having < 10 years of professional seniority ($OR = 2.61$; 95% CI, 1.43-4.76) and of seniority in current job position ($OR = 2.83$; 95% CI, 1.68-4.79), and working the night shift were associated as risk variables with the presence of PBS and behave as risk factors.

Protective factors against PBS are not having a stable partner ($OR = 0.53$; 95% CI, 0.31-0.90) and not having another job ($OR = 0.58$; 95% CI, 0.36-0.96).

Risk variables associated with the presence of PBS with regard to EE were being a woman, not having a stable partner, having an unemployed partner, not having children, having a permanent contract, and working < 4 h. Furthermore, being younger than

Table 2. Sociodemographic and employment variables relationship with the presence or absence of professional burnout syndrome among specialist surgeons from three regional hospitals in the city of Guadalajara (Jal.), Mexico, in 2019 (n = 296)

Analyzed variables	PBS, n (%)		p
	Yes	No	
	119 (40.2)	177 (59.8)	
Sociodemographic profile			
Gender			
Males	93 (39.0)	144 (61.0)	0.49
Females	26 (44.0)	33 (56.0)	
Age group			
< 40 years	47 (61.0)	30 (39.0)	0.00001*
> 40 years	72 (33.0)	147 (67.0)	
Marital status			
With stable partner	70 (36.0)	129 (64.0)	0.01*
No stable partner	49 (51.0)	48 (49.0)	
Time with stable partner			
< 15 years	40 (55.0)	32 (45.0)	0.00000*
> 15 years	30 (23.0)	97 (77.0)	
Partner works			
Yes	45 (34.0)	88 (66.0)	0.57
No	25 (37.0)	41 (63.0)	
Children			
Yes	74 (36.0)	127 (64.0)	0.08
No	45 (48.0)	50 (52.0)	
Employment profile			
Professional area			
Trauma and orthopedics	29 (61.0)	18 (39.0)	0.00002*
Obstetrics-gynecology	29 (54.0)	24 (46.0)	
General surgery	20 (32.0)	41 (68.0)	
Ophthalmology	12 (46.0)	14 (54.0)	
Otolaryngology	10 (30.0)	23 (70.0)	
Maxillofacial	2 (25.0)	6 (75.0)	
Anesthesiology	13 (20.0)	49 (80.0)	
Neurosurgery	1 (50.0)	1 (50.0)	
Surgical oncology	3 (75.0)	1 (25.0)	
Professional seniority			
< 10 years	38 (58.0)	27 (42.0)	0.00006*
> 10 years	81 (36.0)	150 (64.0)	
Seniority in current job position			
< 10 years	85 (51.0)	83 (49.0)	0.000002*
> 10 years	34 (27.0)	94 (73.0)	
Work shift		9	
Morning	69 (42.0)	6 (58.0)	0.000003*
Afternoon	18 (22.0)	63 (78.0)	
Night	19 (67.0)	9 (33.0)	
Weekends and holidays	13 (59.0)	9 (41.0)	
Contract type			
Permanent	117 (40.0)	171 (60.0)	0.37
Temporary	2 (25.0)	6 (75.0)	

(continues)

Table 2. Sociodemographic and employment variables relationship with the presence or absence of professional burnout syndrome among specialist surgeons from three regional hospitals in the city of Guadalajara (Jal.), Mexico, in 2019 (n=296) (Continued)

Analyzed variables	PBS, n (%)		p
	Yes	No	
Another job			
Yes	52 (34.0)	101 (66.0)	0.02*
No	67 (46.0)	76 (54.0)	
Working hours on another job			
< 4 h	9 (30.0)	21 (70.0)	0.60
> 4 h	43 (35.0)	80 (65.0)	

PBS: professional burnout syndrome.

*Statistically significant (statistical significance $P \leq 0.05$).

Source: direct survey, 2019.

40 years of age (OR = 3.86; 95% CI, 2.14-6.97), having < 15 years with a stable partner (OR = 3.61; 95% CI, 1.77-7.39), the surgical oncology specialty and having < 10 years of professional seniority (OR = 2.74; 95% CI, 1.49-5.07), and in current job position (OR = 3.41; 95% CI, 1.86-6.28) were associated as risk variables with the presence of PBS and behave as risk factors.

In the presence of EE, not having another job behaves as a protective factor against PBS (OR = 0.59; 95% CI, 0.34-0.99).

Being a woman, not having children, having < 10 years in current job position, working on the night shift, having a temporary contract, not having other job, and working < 4 h were associated as risk variables with the presence of PBS with regard to DP. On the other hand, being younger than 40 years of age (OR = 4.24; 95% CI, 2.18-8.25), having < 15 years with a stable partner (OR = 3.19; 95% CI, 1.35-7.66), the obstetrics-gynecology specialty, and having < 10 years of professional seniority (OR = 3.18; 95% CI, 1.61-6.29) were associated as risk variables with the presence of PBS and behave as risk factors.

Not having a stable partner behaves as a protective factor against PBS in the presence of DP (OR = 0.54; 95% CI, 0.28-0.99).

Being younger than 40 years of age, not having a stable partner, having a partner who works, the neurosurgery specialty, having < 10 years of professional seniority and in current job position, working the night shift, having a permanent contract, not having another job, and working more than 4 h in another job were associated as risk variables with the presence of PBS with regard to PA. In addition, being male (OR = 3.20;

95% CI, 1.24-8.71) and having < 15 years with a stable partner (OR = 2.37; 95% CI, 1.14-4.95) were associated as risk variables with the presence of PBS and behave as risk factors.

Not having children is a protective factor against PBS in the presence of PA (OR = 0.22; 95% CI, 0.12-0.41).

A correlation was made with PBS on the three subscales, which showed an inversely proportional association of EE (-0.678; $p = 0.0001$) and DP (-0.468; $p = 0.0001$), and directly proportional association of PA (0.641; $p = 0.0001$).

Mean values in the EE (14.8), DP (5.1), and PA (39.1) subscales showed low levels in the EE and DP subscales, and high level in PA.

Discussion

PBS grows in complexity as identification and evaluation of possible causes, determinants, and adjacent processes deepen. Our study of all specialist surgeons from three hospitals in Guadalajara (Jal.), Mexico, provides elements to verify the importance and magnitude of PBS in health personnel, and its associated risk and protective factors.

Restrictions of the study include its cross-sectional design and the fact that the data collection instrument, by being structured, decreases the responses of the study subjects to the employed options. Other restrictions include memory bias and individual concern that the provided information would be negatively used. The first aspect was solved using validated questionnaires, and the second was tried to be avoided using concrete and objective questions, ensuring informants' anonymity.

Our study achieved 92.5% of response, which guarantees a representative size of specialist surgeons in these hospitals and reflects a high frequency with regard to other studies reported in the literature⁶⁻¹², but lower than in others¹³.

The female gender had a higher prevalence in our study, consistent with the reviewed medical literature^{5,9,14,15}, but this did not concur with observations reported by other authors, who find a predominance of the male gender^{1,6-8,10-12,16-20}. Gutierrez et al.¹⁰ in 2009 and Ordenes¹³ in 2004 found no significant differences.

As for age, the highest number of cases occurred in the group younger than 40 years of age and was significantly associated, which was consistent with the investigations by Castillo and Rosas⁵ in 2019, Girón

and Lozano¹⁴ in 2013 and Lugo²⁰ in 2019, but not with those of other authors^{3,6,12,16-19}, who reported a predominance of subjects older than 40 years. Ordenes¹⁰ found no significant differences.

The fact that not having a stable partner was most often shown in our study, which was consistent with observations made by Gutierrez et al.¹⁰ in 2006, Esquivel et al.¹¹ in 2007 and Lugo²⁰ in 2019; in most authors, having a stable partner prevailed^{4-7,9,14,16,10}. Ordenes¹⁰ did not find significant differences.

In our research, having < 15 years with a stable partner stood out and was significantly associated and, in addition, the fact that the partner worked also stood out. These variables were not reported in the examined articles.

Having no children stood out in our study, but this variable was not reported in the reviewed works. However, for Esquivel et al.¹¹ in 2007 and Grau et al.¹⁶ in 2009, having children stood out, and for them, it had a protective effect.

The specialist surgeons who prevailed in the professional area in our study were surgical oncology specialists (75.0%), and this fact was significantly associated, which was consistent with the work by Escriba et al.¹⁵ in 2008. For other authors, the anesthesiology^{6,18,19}, general surgery^{7,13,17,18}, obstetrics-gynecology¹⁴, and trauma and orthopedics¹⁶ specialties stood out.

Having a professional seniority of < 10 years stood out in our research and was significantly associated, which is consistent with Cotrina and Panez³ in 2019 and does not agree with other authors^{7,10,12,15-17}. Ordenes¹³ found no significant differences.

Seniority in current job position was < 10 years old and showed statistical significance; this variable was not reported in the reviewed studies.

With regard to the work shift, the night shift stood out and was significantly associated, which was consistent with the study by Esquivel et al.¹¹ in 2007.

The permanent contract type predominated our study and coincides with the research by Cotrina and Panez³ in 2019.

Not having another job stood out in our research and was significantly associated and acts as a protective factor. Our finding does not agree with that of Zumárraga et al.⁷ in 2008 who highlighted the fact of having one.

Working more than 4 h prevailed in this research, but was not reported by other authors.

To contextualize our study, an extensive review was made on the prevalence of PBS in specialist surgeons

(Table 1), which places us above most reviewed investigations^{3,6,7,11,14-18,20} and shows the wide variability in the frequency of the syndrome, a situation that, in turn, brings to light the complex nature of its components. However, we are also below of what other authors reported^{5,7,9,10,12}.

A trait of consistent risk for PBS, EE, DP, and PA together is noted: being younger than 40 years of age, not having a stable partner, having < 15 years with a partner, not having children, having < 10 years of professional seniority and in current job, working the night shift and not having another job; for PBS, EE, and PA, permanent contract; for PBS and EE, being a woman, having an unemployed partner and the surgical oncology specialty; and for PBS and PA, working on another job for more than 4 h. This profile suggests that, possibly, the structural sociability where the specialist develops participates in the determination of certain risks.

EE and PA subscales mean values are within low normal parameters, and the PA score is within high level.

Establishment of a negative correlation with the presence of PBS between the EE and PA subscales, and positive with the PA subscale, is consistent with Salanova et al.²¹ findings in 2000. This result has also been confirmed by structural equation models (Schaufeli et al.²² in 2002 and Manzano in 2002²³). EE is confirmed to be the most reliable subscale of the syndrome. Lee and Ashforth in 1996²⁴ and Schaufeli and Enzmann in 1998²⁵ mention that the two central dimensions of the syndrome are EE and PF.

Conclusions

PBS is common (40.2%) among specialist surgeons. Its main risk factors are being a woman, being younger than 40 years of age, not having a stable partner, having < 15 years with a partner, having an unemployed partner, not having children, the surgical oncology specialty, having < 10 years of professional seniority and in current job position, working the night shift, having permanent contract, not having another other job, and working more than 4 h on another job. Impact on the EE and PA subscales behaves like the syndrome. Mean levels of the subscales are generally low. There is a negative correlation between EE and PA, and positive of PA with the presence of PBS. This drives us to consider the need for preventive or intervention measures of individual, social, or organizational nature to be established to reduce the prevalence that was found.

Conflicts of interest

The authors declare that there are no conflicts of interest related to this investigation.

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Ethical disclosures

Protection of human and animal subjects. The authors declare that the procedures that were followed adhered to the ethical standards of the responsible committee for experimentation on human beings, and were in agreement with the World Medical Association and the Declaration of Helsinki.

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. The authors have obtained informed consent from the patients and/or subjects referred to in the article. This document is in the possession of the corresponding author.

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