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Prevalence of burnout syndrome in physicians of the Mexican Association of General Surgery

Prevalencia del síndrome de burnout *en médicos de la Asociación Mexicana de Cirugía General*

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Palabras clave:
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ABSTRACT

Introduction: the burnout syndrome represents a psychosocial phenomenon with important repercussions for health professionals. **Objective:** this study aimed to estimate the prevalence of burnout among physicians who are members of the Mexican Association of General Surgery and explore some factors associated with its development. **Material and methods:** a digital survey was applied to physicians associated with the Mexican Association of General Surgery, collecting sociodemographic variables related to current professional activity, predisposing or attenuating factors of this syndrome, and the Maslach Burnout Inventory. The prevalence of burnout syndrome and the dimensional profiles of the syndrome present in the respondents were estimated. Additionally, the collected variables were contrasted between associates with burnout syndrome and those without the diagnosis. **Results:** a total of 1,398 associates answered the survey. The estimated prevalence of burnout was 49.3%. The most frequent dimensional profiles were low personal accomplishment in isolation (32.2%), followed by high levels of emotional fatigue, high levels of depersonalization, and low levels of personal accomplishment (24%). In the bivariate analysis, the female sex ($p < 0.001$) and younger age groups ($p < 0.001$) presented a higher proportion of respondents with a diagnosis of burnout. The variables related to a higher prevalence of burnout syndrome were the younger age group, lower academic degree, and less time invested in exercise, family, and hobbies. **Conclusion:** the prevalence of burnout is high in the sample studied. Strategies to prevent and mitigate the effects of this disorder should be considered in the activities of the Mexican Association of General Surgery directed to its associates.

RESUMEN

Introducción: *el síndrome de* burnout *representa un fenómeno psicosocial con importante repercusión en los profesionales de la salud.* ***Objetivo:*** *el objetivo de este trabajo fue estimar la prevalencia de* burnout *entre los médicos miembros de la Asociación Mexicana de Cirugía General, así como explorar algunos factores asociados al desarrollo de éste.* ***Material y métodos:*** *se aplicó una encuesta digital a los médicos asociados a la Asociación Mexicana de Cirugía General, recolectando variables sociodemográficas, relacionadas a la actividad profesional actual, factores predisponentes o atenuantes de este síndrome y el Inventario de* Burnout *de Maslach. La prevalencia del síndrome de* burnout*, así como los perfiles dimensionales del síndrome presentes en los encuestados fueron estimados. Adicionalmente las variables recolectadas fueron contrastadas entre el grupo de asociados con síndrome de* burnout *y aquellos sin el diagnóstico.* ***Resultados:*** *un total de 1,398 asociados contestaron la encuesta. La prevalencia estimada de* burnout *fue de 49.3%. Los perfiles dimensionales más frecuentes fueron: baja realización personal aislada (32.2%), seguido de la combinación de altos niveles de fatiga emocional, altos niveles de despersonalización y bajos niveles de realización personal (24%). En el análisis bivariado el sexo femenino ($p < 0.001$) y los grupos etarios más jóvenes ($p < 0.001$) presentaron mayor proporción de encuestados con diagnóstico de* burnout*. Las variables relacionadas con mayor prevalencia de síndrome de* burnout*, fueron: grupo etario más joven, menor grado académico, menos tiempo invertido en ejercicio, familia y pasatiempos.* ***Conclusión:*** *la prevalencia de* burnout *es alta en la muestra estudiada. Estrategias para prevenir y mitigar los efectos de este trastorno, deben ser consideradas en las actividades de la Asociación Mexicana de Cirugía General, dirigidas a sus asociados.*

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INTRODUCTION

The term burnout was coined in 1970 by the American psychologist Herbert Freudenberg to describe the impact of stress, ambition, and high expectations in caring professions.[1] Despite being a recognized entity, there is no single definition for burnout, so different tools have been developed for its diagnosis and measurement, the most widely used being the questionnaire developed by Maslach. Maslach's published work defines burnout as the combination of emotional exhaustion, depersonalization, and low personal fulfillment related to professional practice.[2] After its recognition, due to its growing prevalence and impact on those who suffer from it and on the outcomes of the care activities performed by these individuals, in 2000, it was recognized by the World Health Organization as an occupational hazard.[3]

One of the groups most affected by burnout is the medical profession. This results from multiple factors, including overwork, late gratification during training and practice, work-life imbalance, and the challenges associated with patient management. When this condition affects medical personnel, it has been shown to directly impact patient care, associated with a higher incidence of medical errors, lower patient satisfaction, and longer patient recovery times.[4]

The overall prevalence reported in the literature is variable, around 50%, like what has been reported in Mexican physicians. According to a study published in 2008 on medical residents, the prevalence of burnout was 40% of those surveyed, and the main risk factors identified were working shifts longer than 12 hours, coexistence of depressive disorder, being in the first or second year of residency, male gender and as marital status, being single.[5] Other risk factors identified in national and international literature include the year of training and the work environment, highlighting that burnout is more frequent in those trained in public hospitals.[6]

In the most recent literature reports, it is observed that the medical specialties with the highest prevalence of burnout are emergency medicine (60%), critical medicine (51%), rheumatology (50%), infectious diseases (49%), and urology (49%). It was also observed that the gender most frequently affected is female and that the mechanisms most frequently used by physicians to deal with this disorder are exercise (45%), isolation (45%), shared conversation with family and/or friends (41%), sleep (41%) and alcohol consumption (24%).[4,7,8]

This study aimed to determine the prevalence of burnout syndrome in physicians associated with the Mexican Association of General Surgery (AMCG) and identify factors associated with this disorder within this cohort.

MATERIAL AND METHODS

During May and September 2021, physicians associated with the Mexican Association of General Surgery (AMCG) were invited to answer anonymously in an electronic survey based on the SurveyMonkey online platform. The invitation was made seven times during this period, using the database of AMCG associates as a non-probabilistic recruitment strategy by convenience. The first mission of the survey was to collect demographic variables (sex, age group, type of professional activity performed, academic degree, institution of affiliation, time spent in professional activities, time spent in physical activity, recreational activities, and family life, as well as smoking history). In addition, the associates were invited to answer the 22 items of the Maslach burnout inventory that make up the evaluation of the three domains that make up the syndrome: emotional fatigue, depersonalization, and poor personal fulfillment. A burnout diagnosis was defined as a respondent who independently or concomitantly presented high levels of emotional fatigue (> 27 points), high levels of depersonalization (> 10 points), and/or low levels of personal accomplishment (< 33 points).

For the descriptive analysis of data, frequencies, and percentages were used to express nominal and dichotomous variables. For dimensional variables, mean and standard deviation or median and

interquartile range were used depending on the statistical distribution of the variable. For inferential analysis, Fisher's χ^2 or exact test was used to contrast nominal or dichotomous variables; Student's t-test (one-way ANOVA) or Mann-Whitney U test (Kruskal-Wallis) was used to contrast dimensional variables, depending on the statistical distribution of the variables and the number of groups to be compared. For correlation analysis, Pearson's r was calculated for variables with normal distribution and Spearman's rho for variables with nonparametric distribution. For the multivariate analysis of data to identify factors associated with burnout, binary logistic regression was used, taking the presence of the syndrome as the outcome variable. Any p-value < 0.05 or 5% (type I error or alpha error) was considered statistically significant for two-tailed hypothesis tests.

Statistical analysis was performed with IBM SPSS© software Version 26 (IBM Corp, Armonk, NY), and graphs were produced with Apple's Numbers software©.

RESULTS

From May to November 2021, 1,398 associates answered the survey; 76.02% (1,059) of the respondents were male, 23.76% (331) were female, and 0.22% (8) preferred not to answer. The distribution by age group was as follows: 354 (25.39%) belonged to the 30-40 age group, 334 (23.96%) to the 50-60 age group, 253 (18.15%) to the 40-50 age group, 271 (19.44%) to the 60-70 age group, 132 (9.47%) to the 20-30 age group and finally 50 (3.59%) belonged to the over 70 age group.

The proportion of respondents who perform one or more health care, academic, or research activities as part of their professional practice is shown in *Figure 1*. Of the total number of respondents, 1,204 (73.46%) worked in a medical service, 113 (8.11%) were retired physicians, 45 (3.23%) were fourth-year students in general surgery residency, 34 (2.44%) were third-year students, 39 (2.8%) were second-year students, and 39 (2.8%) are second-year students.11%) are retired physicians, 45 (3.23%) fourth-year general surgery residency students, 34 (2.44%) third-year students, 39 (2.8%) second-year students, 31 (2.22%) first-year students, and 7 (0.36%) undergraduate students. The distribution of the associates about the health system to which they are affiliated as workers is shown in *Figure 2*.

Of the total, 943 (67.65%) engaged in physical activity, and only 143 (10.26%) smoked. A total of 374 (26.8%) respondents presented scores compatible with high levels of emotional fatigue, 293 (21%) presented high levels of depersonalization, and 555 (39.8%) had low levels of personal accomplishment. The estimated prevalence of burnout syndrome in respondents was 687 out of 1,393 who completed the Maslach Burnout Inventory, representing a prevalence of 49.3%. The most frequently identified profiles were low levels of personal accomplishment (32.2%) and emotional fatigue, depersonalization, and low levels of personal accomplishment together (24%). The complete distribution of respondents with burnout syndrome, about the profile of the three dimensions affected, is shown in *Figure 3*. Through correlation analysis, we identified a moderate negative correlation between emotional fatigue scores and age group (Spearman rho -0.450, $p < 0.01$), academic grade (rho Spearman -0.294, $p < 0.01$), time spent with family (rho Spearman -0.346, $p < 0.01$) and time spent in hobbies (rho Spearman -0.205, $p < 0.01$). Likewise,

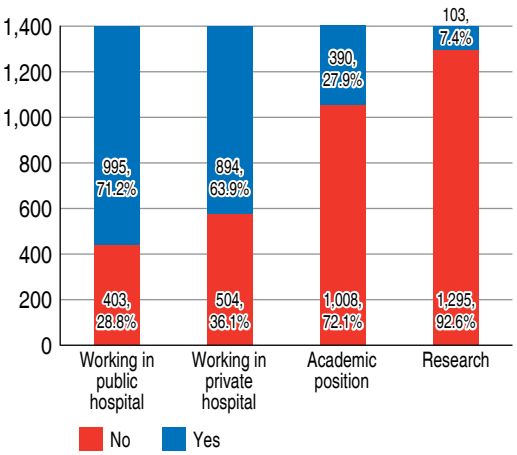

Figure 1: Proportion of respondents who perform care, academic, or research activities professionally.

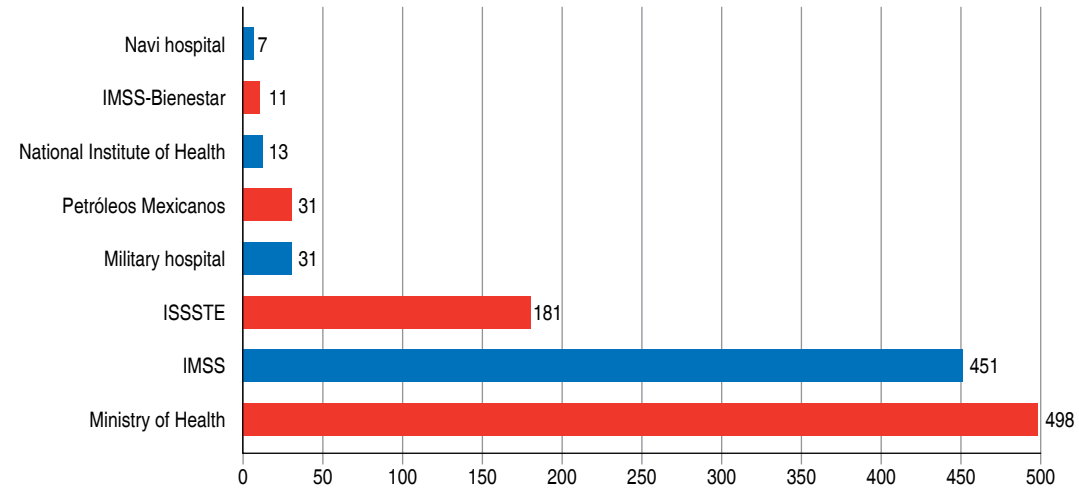

Figure 2:

Distribution of respondents according to the hospital of assignment.

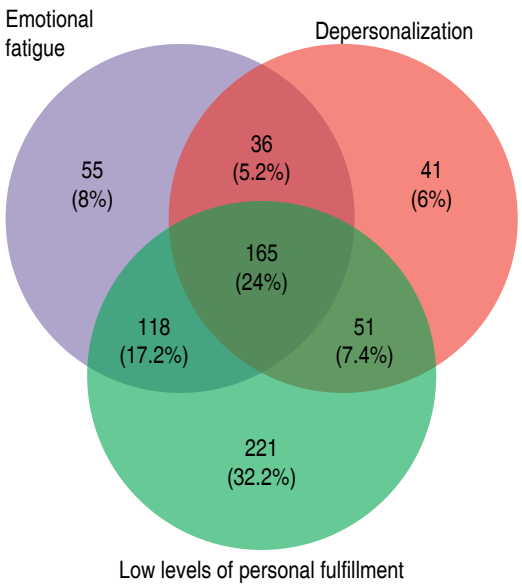

Figure 3: Proportion of associates diagnosed with burnout according to their psychological profile.

there is a slight negative correlation between time spent exercising (Spearman rho -0.170, $p < 0.01$) and a moderate positive correlation with time spent at work (Spearman rho 0.277, $p < 0.01$). The depersonalization score had a moderate negative correlation with age group (Spearman rho -0.425, $p < 0.01$), academic grade (Spearman rho -0.295, $p < 0.01$), time spent with family (Spearman rho -0.293, $p < 0.01$) and time spent on hobbies (rho Spearman -0.223, $p < 0.01$), as well as a slight negative correlation with time spent exercising (rho Spearman -0.147, $p < 0.01$) and a moderate positive correlation with time spent at work (rho Spearman 0.280, $p < 0.01$).

Finally, a similar behavior but in the opposite direction was identified for the personal fulfillment score, identifying a moderate positive correlation with age group (Spearman rho 0.382, $p < 0.01$), academic grade (Spearman rho 0.248, $p < 0.01$), time invested in family (Spearman rho 0.240, $p < 0.01$), time spent on hobbies (Spearman rho 0.223, $p < 0.01$); as well as a slight positive correlation with time spent exercising (Spearman rho 0.131, $p < 0.01$) and a slight negative correlation with time spent at work (Spearman rho -0.152, $p < 0.01$).

During bivariate analysis, female sex was associated with a higher risk of burnout syndrome (OR 2; $p < 0.0001$; χ^2), as were younger associates ($p < 0.0001$; χ^2). In the multivariate analysis, the age group (younger age, higher risk) and academic grade (lower grade, higher risk) were statistically significant risk factors for the development of the syndrome. On the other hand, family time, time spent on hobbies, and exercise time were statistically significant protective factors, at the expense of the fact that the more time spent on these activities, the lower the proportion of individuals with diagnosis of burnout. *Table 1*

shows the rest of the variables associated with the development of burnout syndrome because of the bivariate and multivariate analysis.

DISCUSSION

The burnout syndrome results from the combination of emotional exhaustion, depersonalization, and poor personal fulfillment related to professional practice.[2] It is well recognized that surgeons or surgeons in training are constantly subjected to high levels of stress, resulting in mental health problems, substance abuse, poor functionality, and, in extreme cases, suicidal ideation or suicide. Likewise, the association of burnout syndrome with impaired decision-making capacity, as well as hostile or inadequate attitudes towards patients, medical errors, and poor working relationships, has been recognized. All of the above leads to problems in the quality of care of health systems and a negative impact on the management of patients without forgetting or minimizing the personal and/or family part of the physician himself/herself.[9]

In different series reported in the literature, the burnout rate in groups of surgeons has been up to 40%, close to that found in our study, with a total group rate of 49.3%.[9] This difference could be explained by the workload between specialties and subspecialties and the fact that our cohort included responses from specialists in training. The latter is a particular group with different levels of demand. It is also important to note that the COVID-19 pandemic occurred during this study, which could have affected our results.

In a survey of 601 surgeons in England, Houdtman, et al. found that emotional fatigue was present in up to 56.9% of the surgeons surveyed, depersonalization in 48.5%, and low levels of personal fulfillment in 14.3%.[10] This contrasts with the findings of our group, in whom the prevalence of fatigue and depersonalization was significantly lower than those reported in this study.

In contrast, the low levels of personal fulfillment are almost three times higher than those published by the same authors. Although not analyzed in detail in our population, the following factors could contribute to this phenomenon: the work environment, poor or no benefits and recognition, and low salaries.

In our study, women represented only 23.7% of the associates surveyed. Although it is not possible to know if this percentage represents an accurate sample of the number of female surgeons training or working in the different health systems in our country, it undoubtedly opens an area of opportunity to better understand the situation of female surgeons in Mexico, as well as to encourage their incorporation into the academic activities of the AMCG. Having said that, and consistent with other studies, female sex was associated with a higher risk of presenting burnout syndrome during the bivariate analysis. Multiple series have reported a burnout prevalence of 30% in women. This association has been little explored; in a study of 14 women working as basic practitioners, they reported that the lack of control in their work life and gender differences in the work environment were important factors associated with burnout.[11] Likewise, in a survey of three surgical societies in the United States, with a response rate of 63% of female surgeons, it was identified that satisfaction concerning the work-life balance was lower than in men. In addition, other variables considered important were the stress associated with making decisions related to motherhood, the feeling of little emotional support in the personal environment, and poor personal fulfillment.[12]

Speaking specifically of burnout, the factors found in our study were female gender, being in the first years of residency, less time invested in physical activity, and less free time devoted to family and/or hobbies. Interestingly, in a review by Shaikh CF and colleagues[13] the main factor associated with burnout was having a lower academic degree. Although the mission of this study was initially to measure the prevalence and understand or identify factors related to burnout in a population specific to the AMCG, these findings open opportunities to investigate and better understand the predisposing factors to the occurrence of this entity in the population of physicians in training.

In an evaluation of 7,409 surgical residents determining the prevalence *of* burnout, physical

Table 1: Comparative analysis between associates with and without a diagnosis of burnout and variables associated with the development of such diagnosis.

	Bivariate analysis			Multivariate analysis
	No burnout N = 706 (50.7%)	Burnout N = 687 (49.3%)	p	p
Academic degree*			*< 0.0001*	*< 0.0001*
Undergraduate	2 (0.3)	3 (0.4)		
Intern	1 (0.1)	1 (0.1)		
Social service	0 (0)	0 (0)		
First-year resident	2 (0.3)	29 (4.2)		
Second-year resident	5 (0.7)	34 (5)		
Third-year resident	3 (0.4)	31 (4.5)		
Fourth-year resident	3 (0.4)	42 (6.1)		
Attending Physician	555 (78.8)	467 (68.2)		
Retired	76 (10.8)	34 (5.0)		
Another	57 (8.1)	44 (6.4)		
Tabaquismo*			*0.004*	0.317
Yes	56 (7.9)	87 (12.7)		
No	649 (92.1)	597 (87.3)		
Working time, (mean ± SD)	56.57 ± 19.4	65.33 ± 22.2	*< 0.0001*	0.053
Exercise time (minutes per week)*			*0.001*	*0.048*
Less than 100	95 (17.7)	118 (27.6)		
Between 100 and 150	124 (23.1)	94 (22.0)		
Between 150 and 200	123 (22.9)	98 (23.0)		
More than 200	195 (36.3)	117 (27.4)		
Family time (hours per day)*			*< 0.0001*	*< 0.0001*
Less than 2	141 (20.0)	304 (44.4)		
2 to 4	278 (39.5)	223 (32.6)		
4 to 6	165 (23.4)	96 (14.0)		
6 to 8	62 (8.8)	34 (5.0)		
More than 8	58 (8.2)	28 (4.1)		
Time spent on hobbies (hours per day)*			*< 0.0001*	*< 0.0001*
Less than 2	153 (21.7)	270 (39.4)		
2 to 4	236 (33.5)	231 (33.7)		
4 to 6	134 (19.0)	98 (14.3)		
6 to 8	93 (13.2)	50 (7.3)		
More than 8	88 (12.5)	36 (5.3)		

* Data expressed by frequency and percentage [n (%)].

and mental mistreatment during residency was objectively documented as a predisposing factor.[14] This mistreatment was documented in 66.7% of the respondents.

All the predisposing factors already mentioned have an important relationship with the development of burnout syndrome and the consequences that this may entail,

since associated with it, high rates of depression have been reported among many other mental health problems, suicidal ideation of up to 4.5% of the residents, and about 0.02% as suicide rate in that population.[15]

Among the tools that can help mitigate the effects of this syndrome, we identified that time spent in exercise, family, and recreational activities or hobbies was associated with a lower prevalence of burnout in our cohort. These findings are consistent with what has been documented by other authors in other countries.[16-18] More practically, these "protective" factors are well-established strategies to prevent and mitigate the effects of burnout. Strategies to highlight the importance of these activities and involve surgeons should be a goal of residency training centers, healthcare organizations, and related academic associations.

Our study has some limitations. First, the study period coincides with the COVID-19 pandemic, which is outside the usual professional scenario of surgeons or any health professional and could overestimate the prevalence of this syndrome. Second, the work environments in which the physicians surveyed in our study work are heterogeneous, so the factors influencing burnout could be different in the subgroups of the cohort of associates of the AMCG. Due to this heterogeneity in the work environment, we considered the assessment of the Maslach Burnout Inventory based on absolute cut-off points for each of the dimensions of this disorder and not the use of percentile measures as implemented by some authors. Third, the recruitment method could bias the results because participation was voluntary, which does not allow us to know the conditions of those who preferred not to participate in the survey. Finally, this is a cross-sectional study, so the survey results show a single point in time, with the biases that this implies.

The authors of this paper hope that this study will serve the AMCG as a basis for implementing new strategies and designing protocols to identify, prevent, and mitigate the effects of this syndrome in our country's physicians and physicians and surgeons in training.

CONCLUSIONS

Our study showed a high prevalence of burnout syndrome in almost half of the participants (49.3%). The main predisposing factors were younger age, lower academic level, and female sex. Some protective factors recognized in the literature coincide with those reported in our study, such as physical activity and time spent with family and hobbies. Our study results open opportunities for implementing strategies to carry out early interventions to avoid or mitigate the effects of this syndrome on physicians.

Studies are needed to analyze other populations not associated with the AMCG to understand better the prevalence *of* burnout syndrome in surgeons in our country.

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