

Original article

Factors associated with burnout syndrome in Colombian dental specialists



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ARTICLE INFO

Article history:

Received 8 October 2019

Accepted 28 December 2020

Available online 21 November 2022

Keywords:

Professional burnout

Occupational dentistry

Dentists

Occupational stress

ABSTRACT

Objective: To establish the factors associated with burnout syndrome in dental specialists working in the city of Bucaramanga and its metropolitan area.

Methods: A cross-sectional study was conducted in which the validated version of the Maslach Burnout Inventory-Human Services Survey (MBI-HSS) questionnaire was applied to 117 dental specialists. The variables analysed were the scores obtained in the three dimensions of the instrument - sociodemographic and job-related characteristics, professional environment, and habits. Spearman's correlation coefficient and the Mann Whitney or Kruskal-Wallis U test were used in the bivariate analysis, and a logistic regression was performed in the multivariate analysis. A value of $p < 0.05$ was considered statistically significant. Each participant accepted their inclusion in the study after the Informed Consent process was done.

Results: The average age was 44.0 ± 7.8 years, and 57.3% were women. It was observed that 3.4%, 4.3% and 4.3% of respondents scored highly in emotional exhaustion, depersonalisation and lack of personal achievement, respectively. Cigarette smoking presented a direct association with the dimensions of depersonalisation ($p = 0.031$) and lack of personal achievement ($p = 0.025$). On the other hand, having completed the postgraduate degree 10 years or more ago showed a negative association in these two dimensions ($p = 0.049$ and $p = 0.045$, respectively).

Conclusions: The results suggest that burnout syndrome is not a frequent problem in dental specialists who work in Bucaramanga and its metropolitan area. However, it is important to keep in mind that a relationship was observed between the syndrome and smoking, and the years after graduating in the specialty.

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DOI of original article: <https://doi.org/10.1016/j.rcp.2020.12.011>.

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Factores asociados con el agotamiento psicológico en odontólogos especialistas colombianos

R E S U M E N

Palabras clave:

Agotamiento psicológico
Odontólogos
Especialización
Ansiedad

Objetivo: Determinar los factores asociados con el agotamiento psicológico (AP) en odontólogos especialistas que laboraban en la ciudad de Bucaramanga y su área metropolitana.

Métodos: Se realizó un estudio observacional analítico de corte transversal en el que se aplicó la versión validada del cuestionario *Maslach Burnout Inventory-Human Services Survey* (MBI-HSS) a 117 especialistas del área de odontología. Se analizaron los puntajes obtenidos en las 3 dimensiones del instrumento, las características sociodemográficas, los aspectos del entorno laboral y profesional y los hábitos. En el análisis bivariado, se utilizó el coeficiente de correlación de Spearman, la prueba de la U de Mann Whitney o Kruskal-Wallis y en el análisis multivariado, se realizó una regresión logística. Un valor de $p < 0,05$ se consideró estadísticamente significativo. Cada participante aceptó su inclusión en el estudio tras el proceso de consentimiento informado.

Resultados: El promedio de edad fue $44,0 \pm 7,8$ años y el 57,3% eran mujeres. El 3,4, el 4,3 y el 4,3% de los participantes tenían altos grados de agotamiento emocional, despersonalización y falta de realización personal respectivamente. El consumo de cigarrillo presentó una asociación directa con las dimensiones despersonalización ($p = 0,031$) y falta de realización personal ($p = 0,025$). De otra parte, tener 10 años o más de egresado del posgrado evidenció una asociación inversa en estas 2 dimensiones ($p = 0,049$ y $p = 0,045$ respectivamente).

Conclusiones: Los resultados indican que el AP no es un problema frecuente en los odontólogos especialistas que laboran en Bucaramanga y su área metropolitana; sin embargo, es importante tener en cuenta que se observó relación del AP con el hábito de fumar y los años de egresado de la especialidad.

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Introduction

The term burnout, or burnout syndrome, was introduced in the 1970s by Freudenberger in reference to what happened when staff had high expectations of themselves that they were unable to meet.¹ He observed that his colleagues had symptoms of fatigue, insomnia, headache, irritability, lack of self-confidence, drug abuse, negative attitude, boredom, lack of motivation at work and a constant loss of energy to the point of exhaustion, leading him to define this as the set of physical, psychological and social symptoms resulting from excessive demands on energy or resources.¹⁻³

Maslach et al. suggested that burnout comprises 3 dimensions: emotional exhaustion (EE), which indicates that it is impossible to participate or remain motivated at work due to a lack of energy; depersonalisation (DP), which refers to negative feelings and behaviours towards others due to blaming others for your own problems; and lack of personal accomplishment (PA), which generates feelings of discontent and dissatisfaction at work.^{4,5}

Burnout syndrome is a growing problem as it affects more and more people every day, including healthcare professionals.⁶⁻⁸ It has even been observed that dentists are the most vulnerable.⁹ It may have its origins during the educational process, which generates a high level of anxiety, fatigue, stress, vertigo, insomnia, tachycardia, irritability and gastrointestinal symptoms, among other things.¹⁰⁻¹³

The isolated nature of the dentist's job, problems with difficult patients, equipment malfunction issues, economic demands and pressure to meet goals are factors that increase their susceptibility to mental health disorders, which may affect the professional's quality of life, lead to family breakdown, alcohol use and suicide, or produce somatisation, ranging from functional disorders to cardiovascular diseases and cerebrovascular accidents, insomnia, hypertension and muscle and joint problems.¹⁴⁻¹⁶

In addition, certain characteristics have been associated with the onset of the condition, such as being male, single, around 30 years of age and combining studies with clinical practice and other jobs. Females with constant family and professional pressures are also susceptible to disease onset.¹²

Level of education has also been found to potentially have some influence. One study conducted in India compared postgraduate dental students with undergraduate dental students. Greater "emotional exhaustion" was observed among postgraduate students, which may be explained by occupational stress among professionals taking postgraduate courses.¹⁷ Nevertheless, it has been reported that professionals with a master's degree and PhD or with teaching positions have higher personal accomplishment perception scores, which is interpreted as low burnout.¹⁸

Different studies have shown a prevalence of burnout among dentists ranging between 11% and 26%, due primarily to working under pressure, financial concerns and coping with difficult patients.^{3,19,20}

In Colombia, a prevalence of burnout has been observed among teachers linked to a Dentistry programme of 16.4% for EE, 12.1% for DP and 12.1% for lack of PA.²¹ Nevertheless, there are no data regarding the prevalence of and factors associated with burnout among dental specialists if we consider that, today, professional practice at public and private health institutions conditions the professional to working long hours, seeing more patients per day and spending a limited amount of time with each patient. Likewise, the increase in the number of graduates and the limited number of jobs mean that professionals choose to work privately or, otherwise, remain unemployed.²² These situations may increase professional stress and generate burnout, which could lead to depression and have serious consequences on their physical and emotional health.

As a result, it is deemed important to identify professionals who are at risk and provide the different associations and trade unions for each specialty with relevant information to devise and implement strategies of healthy ways to manage stress. The objective of this paper is to determine factors associated with burnout in dental specialists working in the city of Bucaramanga and its metropolitan area.

Methods

An analytical, observational, cross-sectional study was conducted in dental specialists working in Bucaramanga and its metropolitan area during 2015. Bucaramanga is a city situated in the north-east of Colombia and its metropolitan area encompasses 3 further municipalities (Girón, Piedecuesta and Floridablanca).

The study population included 213 dental specialists registered in the Special Registry of Health Service Providers of the Colombian Ministry of Social Protection and in the 2015 *Publicar* Phone Book. The distribution of these specialists was as follows: a) maxillofacial surgery, 11; b) endodontics, 33; c) paediatric dentistry, 14; d) orthodontics, 85; e) periodontics, 22; and f) oral rehabilitation, 48. Specialists who had graduated from their postgraduate degree within the last year were not considered.

In order to calculate the sample size, a prevalence of burnout of 16%,²¹ a confidence interval of 95% and a population of 213 specialists was taken into consideration. This gave a sample size of 106 specialists. With a non-response estimate of 25%, the sample size was increased to 133 specialists distributed proportionally: a) maxillofacial surgery, 7; b) endodontics, 21; c) paediatric dentistry, 9; d) orthodontics, 53; e) periodontics, 14; and f) oral rehabilitation, 30.

Participants were selected at random, using the Excel random numbers function, from the list of names registered for each specialty. Variables related to the Spanish version of the *Burnout Inventory-Human Services Survey* (MBI-HSS) created by Maslach et al.,⁴ sociodemographic variables (age, gender, socioeconomic status, marital status, number of children), profession and work environment-related variables (specialty, years since graduation from postgraduate degree, number of places where they work, type of contract, number of patients seen per day, greatest commute time to place of work, satisfac-

tion with salary) and habits (cigarette consumption, physical activity) were analysed.

Instrument

An instrument with 2 sections was developed. The first section included questions relating to sociodemographic data, working conditions and habits. The second section included the MBI-HSS taken from the Colombian version validated in 2004 at Universidad de Antioquia and described by Tejada and Gómez in 2012.²³

This survey comprises 22 items or questions across three dimensions: EE - 9 items; DP - 5 items; and PA - 8 items. Responses are scored on a 7-point Likert scale with scores ranging from 0 to 6: (0) never; (1) a few times a year or less; (2) once a month or less; (3) a few times a month; (4) once a week; (5) a few times a week; and (6) every day. The items included in the EE and DP dimensions are worded negatively, while the PA items are worded positively.^{4,23}

Burnout is classified into degrees: high, moderate or low, as indicated by the occupational subgroup of "medicine" provided in the *Maslach Burnout Inventory Manual*⁴:

- High: high scores in 2 dimensions (EE \geq 27 and DP \geq 10) and low PA scores (\leq 33).
- Moderate: moderate scores in all 3 dimensions (19 \geq EE \leq 26, 6 \geq DP \leq 9 and 34 \geq PA \leq 39).
- Low: low scores in 2 dimensions (EE \leq 18 and DP \leq 5) and high PA scores (\geq 40).

Therefore, burnout is suspected if high scores are obtained for the EE and DP dimensions with low scores for the PA dimension.⁴

Procedure

The investigating team included an interviewer who was responsible for going to each of the dental clinics to administer the survey. The survey was completed by the participant with no influence from anyone else. The interviewer only gave the participant instructions and stayed close by in case there were any questions. It took approximately 15 min to complete the survey. It is important to mention that, in accordance with the instrument authors, the words burnout or burnout syndrome were not used in the survey since this could have swayed individuals as to how they were expected to answer.⁴ As a result, the instrument was presented as "Attitudes towards work in dental specialists in the city of Bucaramanga and its metropolitan area".

Information was entered in duplicate into databases created in Excel, which were validated using the Epidata 3.1 software. Typos were corrected and, once scrubbed, the database was exported to the STATA I/C 12.0 statistical package for analysis.

When processing the information, the variables age (<45 or \geq 45 years), time since graduation (<10 or \geq 10 years), socioeconomic status (moderate if strata 3, 4 or 5; high if stratum 6), commute time to farthest place of work (<30 or \geq 30 min), years in the profession (<9 or \geq 9 years) were categorised.

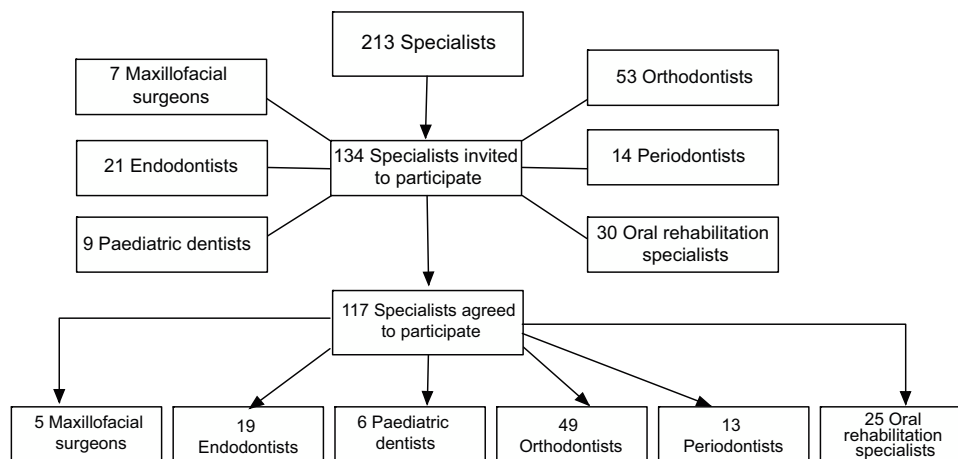


Fig. 1 – Flowchart showing the inclusion of dental specialists to make up the study sample.

Statistical analysis

Frequencies and ratios were calculated for qualitative variables and measures of central tendency and dispersion were calculated for quantitative variables in the univariate analysis. Scores were obtained for each dimension by adding the response values. Maslach et al. recommend not recoding positive responses because results are expressed for dimensions.⁴ The reliability of each dimension was also estimated by assessing internal consistency using Cronbach's alpha coefficient. Values between 0.70 and 0.79 were considered satisfactory; values between 0.80 and 0.89 good; and values ≥ 0.90 excellent.²⁴

In the bivariate analysis, the mean \pm standard deviation of each dimension was obtained to compare it with that proposed in the *Maslach Burnout Inventory Manual*⁴:

- EE: 22.19 ± 9.53 .
- DP: 7.12 ± 5.22 .
- PA: 36.53 ± 7.34 .

It is important to note that the sum of the scores of each dimension did not follow a normal distribution.

Spearman's correlation coefficient was estimated from the quantitative variables (age, number of children, time since graduation and years in the profession, number of places of work and number of patients seen each day).

In the multivariate analysis, a logistic regression model was used to calculate the beta coefficients for each dimension by categorising the scores according to recommendations of the *Maslach Burnout Inventory Manual*:

- EE: <19 (low) and ≥ 19 (high).
- DP: <6 (low) and ≥ 6 (high).
- PA: >39 (low) and ≤ 39 (high).

Those variables with a p-value ≤ 0.20 in the bivariate analysis were recorded as explanatory variables.²⁵ Pseudo- R^2 was obtained, which indicated the percentage of the variance in the dependent variable explained by the independent variables recorded in the model. Finally, goodness of fit was

assessed using the Hosmer-Lemeshow test.²⁶ A p-value of <0.05 was considered statistically significant.

Ethical considerations

This research was classified as a risk-free investigation according to Resolution 8430 of 1993, Article 11, since no intervention was performed on study participants.²⁷ The objective of the research was explained and an informed consent form was provided, which was signed by those wishing to take part in the study. Principles of autonomy, non-maleficence, beneficence and justice were respected. This paper was approved by the Research Advisory Committee and the Ethics Committee of the Faculty of Dentistry of Universidad Santo Tomás.

Results

A total of 134 specialists were invited to participate and 117 surveys were completed because 14 did not respond, 2 did not have time and 1 was out of the country. The non-response rate was 12.7% of those individuals invited to participate (Fig. 1).

The mean age of the participants was 44.0 ± 7.8 years. The 67 women (57.3%) had a mean age of 42.1 ± 8.0 years while the 50 men (42.7%) had a mean age of 46.6 ± 7.0 years. The sociodemographic characteristics of the study population are shown in Table 1. It is important to note that 81 people (69.2%) were married and 94 (80.3%) had children, 6 (5.1%) smoked and the main socioeconomic status was stratum 6 with 57 specialists (48.7%).

The mean time since graduation from a postgraduate degree was 10.0 ± 7.2 years and the mean time working as a specialist was 9.8 ± 7.0 years. The average number of places of work was 3 and 88.0% of participants mentioned that they saw 21 patients or fewer per day. The longest commute time to the place of work was 0–30 min for 90 participants (76.9%). The average number of children was 1.5 ± 1.0 (range, 0–4).

On analysing sociodemographic data according to each specialty, a statistically significant difference was found in the type of practice (private, public or both, $p = 0.023$) and the num-

Table 1 – Sociodemographic characteristics of the study sample.

Variables	n (%)
Gender	
Female	67 (57.2)
Marital status	
Married	81 (69.2)
Smoker	
No	111 (94.9)
Physical activity	
Yes	81 (69.2)
Socioeconomic stratum	
6	57 (48.7)
Has children	
Yes	94 (80.3)
Type of practice	
Independent	60 (51.2)
Type of contract	
Service provision	45 (38.4)
Commute time	
0–30 min	90 (76.9)
Satisfied with salary	
Yes	83 (70.9)
Salary	
>5 CLMMW	83 (70.9)

CLMMW: Current legal minimum monthly wage in Colombia, which in 2015 was 644,350 Colombian pesos without travel expenses.

ber (3–4, 4–5 or >5) of current legal minimum monthly wages (CLMMW) received ($p = 0.022$).

With regards to internal consistency, it was found that DP and PA had $\alpha = 0.50$ and $\alpha = 0.53$, respectively. The coefficient was higher for the EE dimension ($\alpha = 0.74$).

Characterisation of scores according to each dimension of the MBI-HSS

On evaluating the sum of the scores for each of the dimensions with quantitative variables, it was found that age had an inverse relationship to the EE dimension, which was statistically significant ($\rho = -0.229$; $p = 0.013$). Number of children, years since graduation from a postgraduate degree and years working in the specialty, number of places of work and number of patients seen each day showed no statistically significant differences.

With regards to the DP dimension, age was also observed to have an inverse relationship with a statistically significant difference ($\rho = -0.326$; $p < 0.001$). An inverse relationship with a statistically significant difference was also found for the number of years since graduation from a postgraduate degree ($\rho = -0.230$; $p = 0.013$) and the number of years in the profession ($\rho = -0.218$; $p = 0.019$), and a direct, statistically significant relationship was found with the number of places of work ($\rho = 0.288$; $p = 0.002$). No relationship was observed with the number of patients seen each day.

There was also no relationship found between the sum of the scores for the PA dimension and the variables mentioned.

Table 2 shows the median [interquartile range] of the scores obtained in each of the 3 dimensions of the MBI-HSS according to the participants' sociodemographic characteristics and dental specialties. A statistically significant difference was observed between the EE dimension, the longest commute time ($p = 0.0189$) and satisfaction with salary ($p = 0.0483$). A statistically significant difference was also observed between the DP dimension and smoking ($p = 0.0223$) and socioeconomic status ($p = 0.0122$).

Table 3 shows the mean \pm standard deviation and median [interquartile range] of the total scores and their distribution according to burnout degrees. It was found that 4 participants (3.4%) had a high degree of burnout for the EE dimension; of these, 1 (25.0%) was an endodontist, 1 (25.0%) was an oral rehabilitation specialist and 2 (50.0%) were orthodontists. With regards to the DP dimension, 5 participants (4.3%) had scores ≥ 10 : 2 periodontists (40.0%) and 3 orthodontists (60.0%). Regarding the PA dimension, 5 participants (4.3%) had a high degree of burnout: 1 periodontist (20.0%), 1 endodontist (20.0%) and 3 orthodontists (60.0%) (Table 4).

It is important to note that 3 specialists (2 orthodontists and 1 periodontist) included in the high burnout category had scores affecting more than one dimension.

Multivariate model

The adjusted model included all the variables with $p \leq 0.20$ in the bivariate analysis for any of the 3 dimensions, except for gender, which was included regardless of this criterion. The number of years in the profession was also not included since the values had a direct and statistically significant relationship to the years since graduation from a postgraduate degree ($\rho = 0.985$; $p < 0.0001$).

The 3 proposed models fit the data well, since $p = 0.711$ for the EE dimension, $p = 0.1452$ for the DP dimension and $p = 0.4575$ for the PA dimension. A direct relationship between the variable Smoking and the DP dimension ($\beta = 2.42$; 95% confidence interval [95% CI], 0.22–4.62; $p = 0.031$) and the lack of PA dimension ($\beta = 2.28$; 95% CI, 0.29–4.27; $p = 0.025$) was found. However, the variable Years since graduation showed an inverse relationship to the DP dimension ($\beta = -1.29$; 95% CI, -2.58 to -0.01; $p = 0.049$) and the lack of PA dimension ($\beta = -1.33$; 95% CI, -2.63 to -0.03; $p = 0.045$). Very low *pseudo-R*² values were also obtained for each of the dimensions (EE, 0.066; DP, 0.189 and PA, 0.136) (Table 5).

Discussion

Burnout has become a problem for healthcare professionals and affects health-related quality of life by generating physical and emotional consequences. It is therefore essential to identify risk factors that may trigger it.^{12,28}

This study found a high degree of burnout prevalence of 3.4% in the EE dimension, 4.3% in the DP dimension and 4.3% in the lack of PA dimension, with no statistically significant differences between the dental specialties studied. The multivariate analysis showed that smoking is positively related to

Table 2 – Scores for each dimension according to the variables analysed.

Variable	EE	p	DP	p	PA	p
Gender		0.4366 ^a		0.9018 ^a		0.1381 ^a
Female	11 [7–16]		1 [0–3]		44 [41–47]	
Male	10 [6–15]		1 [0–3]		46 [41–48]	
Marital status		0.5870 ^b		0.5307 ^b		0.6000 ^b
Single	10 [6–14]		1.5 [0–6]		44 [38–47]	
Married	11 [7–16]		1 [0–3]		46 [42–48]	
Divorced	12 [2–17]		0 [0–2]		44 [42–47]	
Separated	11 [8–11]		0 [0–2]		46 [46–48]	
Cohabiting	6 [3–10]		0 [0–4]		45.5 [41–48]	
Smoker		0.7013 ^a		0.0223 ^a		0.1655 ^a
Yes	9 [9–17]		6.5 [1–12]		39.5 [34–47]	
No	11 [6–16]		0 [0–2]		46 [41–48]	
Physical activity		0.4853 ^a		0.8923 ^a		0.5269 ^a
Yes	10 [6–15]		1 [0–3]		46 [41–48]	
No	10.5 [6.5–16.5]		1 [0–3]		45.5 [41–47.5]	
Socioeconomic stratum		0.1441 ^a		0.0122 ^a		0.8921 ^a
Moderate [3, 4 and 5]	11.5 [7.5–17]		1 [0–6]		46 [41–48]	
High [6]	10 [6–14]		0 [0–2]		45 [42–48]	
Type of practice		0.3309 ^b		0.6857 ^b		0.9016 ^b
Independent	9 [5–16]		0 [0–2.5]		45 [41–48]	
Employed	10.5 [9–12]		0.5 [0–1]		44 [42–46]	
Both	11 [7–16]		1 [0–4]		46 [41–48]	
Longest commute time		0.0189 ^a		0.4080 ^a		0.3716 ^a
<30 min	9 [6–15]		0.5 [0–2]		46 [41–48]	
≥30 min	14 [10–17]		1 [0–5]		45 [41–47]	
Satisfaction with salary		0.0483 ^a		0.0785 ^a		0.6214 ^a
Yes	10 [6–14]		0 [0–2]		46 [41–48]	
No	13.5 [7–21]		1.5 [0–5]		45.5 [41–48]	
Salary		0.6827 ^a		0.7955		0.9635 ^a
<5 CLMMW	10 [6–14]		1 [0–2]		46 [42–48]	
≥5 CLMMW	11 [6–17]		1 [0–4]		45 [41–48]	
Specialties		0.6070 ^b		0.2646 ^b		0.4298 ^b
Maxillofacial surgery	10 [8–10]		2 [2–5]		47 [41–47]	
Endodontics	11 [7–16]		0 [0–2]		44 [42–48]	
Paediatric dentistry	8.5 [6–14]		0 [0–0]		43.5 [40–47]	
Orthodontics	9 [4–15]		1 [0–3]		46 [41–48]	
Periodontics	9 [7–14]		2 [0–3]		42 [41–46]	
Oral rehabilitation	11 [9–17]		0 [0–4]		47 [42–48]	

CLMMW: Current legal minimum monthly wage in Colombia, which in 2015 was 644,350 Colombian pesos without travel expenses; DP: depersonalisation; EE: emotional exhaustion; PA: personal accomplishment.

Values are expressed as the median [interquartile range].

^a Mann-Whitney U test.

^b Kruskal-Wallis test.

Table 3 – Distribution of participants' scores according to the degrees of burnout proposed by Maslach et al.⁴.

Dimension	Burnout scores		Degree of burnout*		
			Low	Moderate	High
EE	11.5 ± 7.4	10 [6–16]	98 (83.8)	15 (12.8)	4 (3.4)
DP	2.3 ± 3.6	1 [0–3]	95 (81.2)	17 (14.5)	5 (4.3)
PA	43.8 ± 4.6	46 [41–48]	97 (82.9)	15 (12.8)	5 (4.3)

DP: depersonalisation; EE: emotional exhaustion; PA: personal accomplishment.

Values are expressed as n (%), mean ± standard deviation or median [interquartile range].

* High: EE ≥ 27, DP ≥ 10 and PA ≤ 33; moderate: 19 ≥ EE ≤ 26, 6 ≥ DP ≤ 9 and 34 ≥ PA ≤ 39; low: EE ≤ 18, DP ≤ 5 and PA ≥ 40.

the dimensions DP ($p = 0.031$) and lack of PA ($p = 0.025$). In addition, having graduated from the specialty 10 or more years ago was negatively correlated to the aforementioned dimensions ($p = 0.049$ and $p = 0.045$, respectively).

Jin et al. evaluated 444 Korean dentists, 262 of whom had completed postgraduate studies. They found higher percentages in the high burnout category than were reported in this study for all dimensions (EE, 41.2%; DP, 55.9%; lack of PA,

Table 4 – Distribution of score frequencies in each dimension according to dental specialty*.

Dimension	Endodontics	Orthodontics	Periodontics	Oral rehabilitation	Paediatric dentistry	Surgery	p
EE							
Low	15 (15.3)	41 (41.8)	11 (11.2)	20 (20.4)	6 (6.1)	5 (5.1)	0.337
Moderate	3 (20.0)	6 (40.0)	2 (13.3)	4 (26.6)	—	—	0.092
High	1 (25.0)	2 (50.0)	—	1 (25.0)	—	—	1.000
DP							
Low	17 (17.8)	38 (40.0)	11 (11.5)	19 (20)	6 (6.3)	4 (4.2)	0.238
Moderate	2 (11.7)	8 (47.0)	—	6 (35.2)	—	1 (5.9)	0.650
High	—	3 (60.0)	2 (40.0)	—	—	—	0.281
PA							
Low	17 (17.5)	40 (41.2)	10 (10.3)	21 (21.6)	5 (5.1)	4 (4.1)	0.051
Moderate	1 (6.7)	6 (40.0)	2 (13.3)	4 (26.7)	1 (6.7)	1 (6.7)	0.128
High	1 (20.0)	3 (60.0)	1 (20.0)	—	—	—	0.100

DP: depersonalisation; EE: emotional exhaustion; PA: personal accomplishment.

Values are expressed as n (%).

* Fisher's exact test.

Table 5 – Characteristics associated with the three dimensions of the MBI-HSS (adjusted values).

Variable	EE		DP		PA	
	β	p (95% CI)	β	p (95% CI)	β	p (95% CI)
Age						
<45 years	1	—	1	—	1	—
≥45 years	-1.14	0.072 (-2.39 to 0.10)	-0.04	0.944 (-1.27 to 1.18)	-0.96	0.136 (-2.23 to 0.30)
Gender						
Female	1	—	1	—	1	—
Male	0.67	0.229 (-0.42 to 1.75)	-0.19	0.742 (-1.33 to 0.95)	-0.54	0.375 (-1.72 to 0.65)
Smoker						
No	1	—	1	—	1	—
Yes	0.40	0.736 (-1.94 to 2.75)	2.42	0.031 (0.22–4.62)	2.28	0.025 (0.29–4.27)
Socioeconomic stratum						
Moderate (3, 4 and 5)	1	—	1	—	1	—
High (6)	-0.22	0.710 (-1.40 to 0.95)	-0.66	0.294 (-1.89 to 0.57)	0.69	0.255 (-0.50 to 1.88)
Years since graduation						
<10	1	—	1	—	1	—
≥10	-0.51	0.392 (-1.68 to 0.66)	-1.29	0.049 (-2.58 to -0.01)	-1.33	0.045 (-2.63 to -0.03)
Places of work						
1–2	1	—	1	—	1	—
≥3	-0.40	0.469 (-1.50 to 0.69)	0.99	0.097 (-0.18 to 2.16)	-0.04	0.939 (-1.15 to 1.06)
Pseudo-R ²	0.0661		0.1891		0.1355	
Goodness of fit	0.5238		0.0135		0.4989	
Hosmer-Lemeshow test	0.7110		0.1452		0.4575	

DP: depersonalisation; EE: emotional exhaustion; PA: personal accomplishment; 95% CI: 95% confidence interval.

41.4%).²⁹ Factors such as male gender, younger age, not having a job and low level of education (dentist versus PhD) were related. Pandis et al. concluded that “stressors” among general dentists and dental specialists are evidently different and therefore the level of education clearly plays a role.³⁰

It is important to highlight that the prevalence of burnout may vary enormously from one country to another, and even within a single country, depending on the healthcare system in which the dentist is working and the company's organisational climate.²² Therefore, findings in different settings and methods used to evaluate the presence of the syndrome may not be comparable.³¹

Although this study found a higher percentage of orthodontists in the high burnout category than other specialties, no statistically significant difference was observed. However, Alemany et al. showed a higher percentage of oral surgeons in the high burnout category compared to orthodontists.¹⁹ In this regard, it has been reported that orthodontists are more flexible in terms of time management and deal with few emergencies.³ Therefore, the results of this study may be due to high levels of competition if we consider that, at the time of the study, orthodontists accounted for the largest group of specialists in the city.

Aparicio et al. showed that individuals over the age of 40 years were less prone to burnout.²¹ This finding is consistent with the results of this paper, i.e. the inverse relationship between age and the dimensions EE and DP in the bivariate analysis. However, this was not observed on adjusting for the other variables. Despite this, and according to several studies reporting this finding,^{12,21,29} it is worth mentioning that older dentists have a more solid financial situation, a consolidated practice and a successful private practice.

Divaris et al. mention good financial support and belonging to a high socioeconomic strata as factors associated with lower stress levels in dental students.³² This study showed a statistically significant difference in the DP dimension according to socioeconomic status, but this difference was not observed in the adjusted analysis.

The inverse relationship between having graduated 10 or more years ago from the specialty and the dimensions DP and lack of PA may suggest that individuals with more professional experience handle their negative feelings and behaviours towards others better and are happy with their job. Castillo Ávila et al.³³ found a statistically significant difference ($p = 0.021$) on comparing the number of years in the job with the EE dimension in 112 doctors, concluding that those doctors with more experience were less susceptible to burnout.

Singh et al. conducted a systematic review of factors contributing to burnout in dentistry. Factors associated with a higher prevalence of burnout were: younger age, male gender, students on placements, long working hours and professional qualification level.¹²

With regards to smoking, a statistically significant association was observed between smoking and the dimensions DP and lack of PA. This was also reported by Fernandes et al., who found a statistically significant difference between smoking (smoker, passive smoker, former smoker and non-smoker) and the 3 dimensions of the *Maslach Burnout Inventory* in nursing professionals working in an intensive care unit of a university hospital. These authors suggest that smoking may be used as a means of escape.³⁴

Smoking may help smokers to cope with negative affectivity since nicotine has a major impact on stressful situations, which explains its greater addictive potential for those subjected to high levels of anxiety, stress or depression.³⁵ López et al. also found a relationship between smoking and the dimensions EE ($p = 0.007$) and DP ($p < 0.001$) but their study was conducted with priests and not with healthcare staff.³⁶

It is also important to highlight that the *pseudo-R*² values observed indicate that the independent variables included to evaluate the 3 dimensions of the survey had little capacity to explain the variability of each dimension. Jin et al. reported $R^2 < 0.20$ (EE, 0.12; DP, 0.14; PA, 0.11).²⁹ However, this coefficient might not be comparable because the authors performed a multiple linear regression analysis.

Some of the limitations of this study are the fact that this was a cross-sectional study evaluating participants at a specific time. In addition, some professionals reported that there were some very personal questions that they may not have answered very objectively. It is also important to clarify that the time frame may lead to confusion between the categories “never”, “a few times a year or less” and “once a month or less”. It is also not certain that all dental specialists were registered

in the Registry of Health Service Providers of the Colombian Ministry of Social Protection.

Nevertheless, the findings of this study are important if we consider that this population has not been evaluated much before and several research studies report that dentists are healthcare professionals at a high risk of burnout, as already mentioned. Although average low scores were observed for each of the dimensions, it is important to note that smoking and having graduated 10 or more years ago from the specialty are two factors associated with DP and lack of PA.

These data could be used to guide strategies targeting burnout prevention, since self-identification of early symptoms would allow healthcare professionals to implement healthy lifestyles to counteract the negative effects of burnout.

It is suggested that a psychiatry specialist be consulted for future studies to confirm suspected burnout if scores identify this as a possibility. It would also be preferential to understand how to cope with burnout in order to develop programmes for the affected population.

Conflicts of interest

The authors declare that they have no conflicts of interest.

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