BJOS
Brazilian Journal of Oral Sciences

Original Article

Volume 22
2023
e233737

Students' perception of instructors and burnout levels in chilean dental students

Ricardo Cartes-Velásquez[1,*], Javiera Cárdenas Retamal[2], Valeria Campos[2]

Aim: The educational environment affects dental students' well-being and academic achievement, with unclear impact from clinical instructors on burnout levels. This study is aimed to determine the impact of students' perception about their clinical instructors in its burnout levels in a sample of Chilean dental students. **Methods:** A cross-sectional study was conducted among fourth and fifth-year dental students at the University of Concepción (Chile), collecting data on various variables including demographics, effective teaching hours, instructor treatment, knowledge delivery, student appreciation, and burnout assessed using Maslach's Burnout Inventory (MBI). Data were gathered through a self-administered survey and analyzed using STATA 10/SE software ($p<0.05$). **Results:** One-hundred and seventy students participated, high levels of emotional exhaustion (51.76%), depersonalization (56.47%), and personal accomplishment (60.59%) were found. Female students ($p=0.0008$), those who perceive inadequate treatment from instructors towards patients ($p=0.0496$), and those who rate the instructor as obstructionist ($p=0.0208$) reported higher levels of emotional exhaustion. 5th year students ($p=0.0142$), students who perceive indifferent treatment from instructors towards students ($p=0.0002$), and those who rate the instructor as obstructionist ($p=0.0026$) exhibited higher levels of depersonalization. 4th year students ($p=0.0475$) and those who perceive indifferent treatment from instructors towards students ($p=0.0221$) showed lower levels of personal accomplishment. There was a correlation between depersonalization and effective teaching hours (rho=-0.2166, $p=0.0046$). **Conclusion:** Students' perception about their clinical instructors as indifferent towards the students, obstructionist in the teaching process, with inadequate treatment towards the patients, and less effective teaching hours is associated with higher students' burnout levels.

Keywords: Students, dental. Burnout, psychological. Health education, dental.

[1] School of Medicine, University of Concepción, Concepción, Chile.

[2] School of Dentistry, University of Concepción, Concepción, Chile.

Corresponding author:
Ricardo Cartes-Velásquez.
University of Concepción, School of Medicine.
Barrio Universitario, Concepción.
Phone: +56412204362
Email: cartesvelasquez@gmail.com

Editor: Dr. Altair A. Del Bel Cury

Received: April 18, 2023
Accepted: September 20, 2023

Introduction

Burnout, characterized by physical and mental exhaustion, arises from chronic interpersonal stressors at work and includes emotional exhaustion, depersonalization, and reduced personal accomplishment[1]. It is associated with depression, suicidality, and negative outcomes such as decreased patient satisfaction, increased medical errors, and higher costs. Both organizational and individual factors contribute to burnout, including resource-workload imbalances and resilience practices[2]. Among dentists, burnout prevalence is considerable, with emotional exhaustion being prominent at 13%[3,4]. Subscale breakdown shows high levels of emotional exhaustion in 25%, depersonalization in 18%, and low personal accomplishment in 32%[4]. Prevalence varies geographically, with higher rates in Europe and lower rates in the Americas, and longitudinal studies report higher burnout than cross-sectional surveys, with a decreasing trend over time[3].

Dental student burnout varies widely, ranging from 7% to 70.4%, with emotional exhaustion being the most prevalent subscale at 10% to 66.2%. Stressors for dental students include study years, clinical components, and demanding academic courses, emphasizing the need for early identification and interventions to prevent negative consequences[5]. Factors associated with burnout include younger age, male gender, student status, high job strain/working hours, enrollment in clinical degree programs, and specific personality types[6]. Depression is significantly associated with all burnout subscales, while suicidal ideation specifically relates to the lack of personal accomplishment[7].

As expected, educational environment is associated with academic achievement, quality of life, resilience, positive attitudes, mindfulness, preparedness for practice, less psychological distress, and greater peer support[8]. While negative perceptions of the learning environment are associated with increase the odds of stress, depression, and anxiety among dental students[9]. However, evidence regarding the impact of students' perceptions of their clinical instructors on burnout levels is lacking, despite this association between the learning environment and the psychological well-being of students.

The aim of this paper is to determine the impact of students' perception about their clinical instructors in its burnout levels in a sample of Chilean dental students.

Materials and Methods

Study design, settings, and participants

This research utilized a cross-sectional study design to examine burnout among dental students and its relationship with their perception of clinical instructors. The study was conducted during the first semester of 2019 at the University of Concepción, focusing on fourth and fifth-year dental students who were beginning their clinical courses during these academic years. The University of Concepción, located in Concepción, Chile, is a reputable institution known for its longstanding academic excellence.

All enrolled students who were undertaking clinical courses, regardless of any previous course failures, were included in the study. However, exchange students were excluded due to their exposure to different risk factors and potential language and cultural barriers that could affect the validity of the instrument used. In total, the eligible population consisted of 194 students, and as the entire population was included, there was no need for sample size calculation. The participation of students in the study was voluntary, and they provided their informed consent prior to their involvement.

Variables and data collection

The data collection for this study included the following variables: sex (female/male), age (in years), course (4^{th}, 5^{th}), effective teaching hours (in hours), instructor treatment towards patients (adequate, inadequate), instructor treatment towards students (indifferent, empathic), knowledge delivery (verbal only, practical only, both), student's appreciation of the instructor in the teaching process (facilitator, neutral, obstructionist), and burnout measured using Maslach's Burnout Inventory (MBI).

The MBI, which has been previously validated In Chile[10], was utilized for assessing burnout. It captures the three main aspects of the syndrome: emotional fatigue, depersonalization, and personal fulfillment. The emotional exhaustion subscale consists of seven questions and evaluates the experience of feeling emotionally drained due to work demands, with a maximum score of 42 points. Similarly, the depersonalization subscale comprises seven questions and assesses the extent to which individuals exhibit attitudes of coldness and detachment, with a maximum value of 42 points. Finally, the lack of personal fulfillment subscale includes eight items that assess feelings of self-efficacy and personal satisfaction at work, with a maximum score of 48 points.

The data collection process involved two researchers who gathered sociodemographic information and administered the survey instrument through a self-administered survey format. The researchers approached the students in the classroom setting, either during theory or clinical activities, within the first two months of the second semester. To ensure inclusivity, each course was visited twice to account for any absences during the initial visit. Participation in the study did not entail any form of monetary or academic compensation and was completely voluntary.

Statistical analysis

The collected data were tabulated using Microsoft Excel (Microsoft Corp., USA) and subsequently analyzed using STATA 10/SE (Stata Corp., USA). Descriptive statistics were employed to summarize the quantitative variables. For normally distributed variables, the mean and standard deviation were calculated, while for non-normally distributed variables, the median and interquartile range were utilized. Categorical variables were analyzed by calculating the frequency and percentage distributions. The normality of the MBI-SS and its subscales was assessed using the Shapiro-Wilk test, confirming their non-normal distribution. Statistical differences among categorical variables were evaluated using the Mann-Whitney and Kruskal-Wallis tests.

Correlations between variables were examined using the Spearman correlation coefficient. Statistical significance was set at $p < 0.05$.

Ethics

This study was ethically conducted based on the Helsinki Declaration and obtained ethical approval from the Bioethics Committee of the School of Dentistry at the University of Concepción (C.E.C. N°016/18).

Results

One-hundred and seventy dental students answered the survey, the characteristics of the sample is shown in Table 1. One-hundred and four (61.2%) students pertain to 4th year, and sixty-six (38.8%) to 5th year.

Table 1. Characterization of the sample

Variable	4th year	5th year	General
Sex			
Female, n (%)	73 (70.19)	39 (59.09)	112 (65.88)
Male, n (%)	31 (29.81)	27 (40.91)	58 (34.12)
Age, years (SD)	22.70 (2.19)	23.83 (2.58)	23.14 (2.41)
Effective teaching hours (SD)	1.98 (0.54)	1.93 (0.39)	1.96 (0.49)
Instructor treatment to patient			
Adequate, n (%)	100 (96.15)	63 (95.45)	163 (95.88)
Inadequate, n (%)	4 (3.85)	3 (4.55)	7 (4.12)
Instructor treatment to student			
Indifferent, n (%)	32 (30.77)	27 (40.91)	59 (34.71)
Empathic, n (%)	79 (69.23)	39 (59.09)	111 (65.29)
Knowledge delivery			
Verbal only, n (%)	38 (36.54)	31 (46.97)	69 (40.59)
Practical only, n (%)	9 (8.65)	7 (10.61)	16 (9.41)
Both, n (%)	57 (54.81)	28 (42.42)	85 (50)
Instructor appreciation			
Facilitator, n (%)	81 (77.88)	41 (62.12)	122 (71.76)
Neutral, n (%)	13 (12.50)	15 (22.73)	28 (16.47)
Obstructionist, n (%)	10 (9.62)	10 (15.15)	20 (11.76)

SD: standard deviation.

The distribution of scores for each subscale is as follows: for emotional exhaustion, 16.47% have low scores, 31.76% have moderate scores, and 51.76% have high scores; for depersonalization, 18.82% have low scores, 24.71% have moderate scores, and

56.47% have high scores; and for personal accomplishment, 7.65% have low scores, 31.76% have moderate scores, and 60.59% have high scores.

Table 2 presents the scores of the MBI subscales based on sex, course, and students' perceptions of their clinical instructors. The analysis revealed that female students, those who perceive inadequate treatment from instructors towards patients, and those who rate the instructor as obstructionist reported higher levels of emotional exhaustion. Additionally, 5th year students, students who perceive indifferent treatment from instructors towards students, and those who rate the instructor as obstructionist exhibited higher levels of depersonalization. Furthermore, 4th year students and those who perceive indifferent treatment from instructors towards students showed lower levels of personal accomplishment.

A statistically significant correlation was only found for depersonalization and effective teaching hours (*rho = -0.2166, p = 0.0046*).

Table 2. MBI subscales' scores by categorical socioeducational variables

Variable	EE score (IQR)	DP score (IQR)	PA score (IQR)
Course	*p = 0.8930*	*p = 0.0142*	*p = 0.0475*
4th	27 (22-32)	10 (6-16)	33 (28-36)
5th	25 (21-33)	13.5 (7-20)	30.5 (24-35)
Sex	*p = 0.0008*	*p = 0.5714*	*p = 0.1793*
Female	28 (23-34)	10.5 (6-19)	31 (25.5-36)
Male	24 (15-29)	12 (6-17)	33 (29-36)
Instructor treatment to patient	*p = 0.0496*	*p = 0.0697*	*p = 0.2280*
Adequate, n (%)	27 (21-32)	11 (6-18)	32 (27-36)
Inadequate, n (%)	29 (28-40)	20 (11-24)	28 (23-33)
Instructor treatment to student	*p = 0.0504*	*p = 0.0002*	*p = 0.0221*
Indifferent, n (%)	29 (23-34)	15 (9-22)	30 (25-35)
Empathic, n (%)	26 (20-31)	9 (6-17)	33 (28-36)
Knowledge delivery	*p = 0.4719*	*p = 0.1681*	*p = 0.6693*
Verbal only, n (%)	28 (22-34)	12 (8-18)	33 (25-36)
Practical only, n (%)	24.5 (17-30.5)	14 (6.5-19)	31.5.5 (27-35)
Both, n (%)	27 (22-31)	9 (6-18)	31 (28-36)
Instructor appreciation	*p = 0.0208*	*p = 0.0026*	*p = 0.1520*
Facilitator, n (%)	25 (20-31)	9 (6-17)	32.5 (28-36)
Neutral, n (%)	29 (24-33.5)	13.5 (9.5-21)	29.5 (26.5-35)
Obstructionist, n (%)	31.5 (24-34.5)	16.5 (10.5-22.5)	30 (22.5-35.5)

SD: standard deviation. IQR: interquartile range. EE: emotional exhaustion. DP: depersonalization. PA: personal accomplishment. MBI: Maslach's Burnout Inventory.

Discussion

The study found high levels of emotional exhaustion and depersonalization among dental students, influenced by gender, perceptions of inadequate treatment, indifference, and instructor ratings. 4th-year students and those perceiving indifference reported lower personal accomplishment. A negative correlation was observed between depersonalization and effective teaching hours.

Burnout represents a significant concern within the realm of dental education, prompting extensive research endeavors to identify risk factors and explore interventions aimed at mitigating its impact[11]. The academic environment significantly influences the well-being of dental students, who often face considerable stressors throughout their education[8,9]. Moreover, a positive perception of the learning environment has been found to correlate with increased academic achievement, as students who perceive their learning experiences favorably are more likely to excel academically. Conversely, when students perceive problems in the atmosphere and social life, it is associated with lower achievement and a higher likelihood of academic failure[12]. Research has shown that stress symptoms are prevalent in this student population. Factors such as class size, leisure time, assessment procedures, relationships with peers and faculty, ethical climate, and access to extracurricular opportunities all contribute to students' experiences. It is important for institutions to implement targeted strategies and support services to help students effectively manage stress and promote their overall well-being[13]. Despite the well-established link between the learning environment and students' psychological well-being, there remains a dearth of research investigating the influence of students' perceptions of their clinical instructors on burnout levels.

The findings of this study align with the limited existing evidence in this domain[12,14-17], underscoring the pivotal role that students' perceptions of their instructors play in shaping the psychological well-being of aspiring dentists. Previous investigations have demonstrated that a supportive learning environment and positive teacher-student interactions have a beneficial impact on the teaching of undergraduate dental students, particularly during the crucial transition from pre-clinical to clinical education[14]. The establishment of a comprehensive care teaching clinic environment, where students engage in collaborative group work, has been found to enhance stress coping mechanisms and yield improved student experiences; conversely, negative teacher behaviors can significantly impair student well-being, emphasizing the importance of positive and supportive teacher supervision in addressing challenges related to perfectionism and stress[15]. Additionally, the presence of collegiality between teachers and students and the development of effective communication skills with patients emerge as critical factors in alleviating stress levels among dental students[16]. Moreover, students' perceptions of their clinical learning environment identified three key themes: feedback processes, assessments and grading, and tutor interactions. Their feedback highlighted areas of dissatisfaction, including the need for improved feedback practices, consistency in grading, and consideration of different teaching styles. These findings emphasize the importance of enhancing student-teacher relationships in the clinical learning environment to create an optimal teaching and learning environment and improve student outcomes[17]. The

presence of faculty caring behavior plays a pivotal role in providing support to dental hygiene students throughout their rigorous dental and allied dental curricula. Recognizing and cultivating effective caring behaviors among faculty members holds great significance in mitigating student worry and fostering an environment conducive to learning[18].

The available evidence underscores the importance of improving the student-instructor relationship in dental education[14-18], particularly in relation to clinical feedback. The presence of incongruity between dental students and instructors regarding the quality of clinical feedback provided highlights the need for improved communication and understanding between the two parties. Promoting effective communication channels between instructors and learners is crucial to enhance the level of understanding and clarity of the feedback given by clinical instructors[19].

One approach to alleviate this situation is to cultivate a caring educational environment, particularly during the demanding clinical years of dental training. This aligns with research in other healthcare professions, such as nursing, where faculty members play a crucial role in students' intent to graduate by fostering confidence, compassion, and competence in a supportive learning environment. Faculty members who demonstrate caring behaviors, including respect, empathy, and effective communication, contribute significantly to students' perception of the learning environment, sense of belonging, and motivation to pursue their studies. Therefore, the nurturing and supportive capacity of faculty caring positively influences students' academic success and retention[20].

This study is subject to several noteworthy limitations that warrant acknowledgment. Firstly, the sample size utilized was relatively modest, originating exclusively from a single dental school. As such, caution must be exercised when generalizing the findings to other dental institutions. Moreover, the assessment of students' perceptions regarding their clinical instructors was predicated on a restricted set of closed-ended questions, which may have neglected a more comprehensive exploration of their experiences and viewpoints. Furthermore, the study primarily focused on students' subjective perceptions, neglecting a direct evaluation of the objective behaviors exhibited by the clinical instructors. To address these limitations, future research endeavors should strive to encompass larger, multicenter samples, employing comprehensive assessment methodologies that encompass both qualitative and quantitative approaches. By adopting such an inclusive approach, a more nuanced understanding of the intricate interplay between students' and instructors' perceptions and behaviors can be attained. Additionally, it is imperative that forthcoming investigations consider implementing environment and community-based interventions that extend beyond mere burnout prevention, and instead, prioritize the cultivation of holistic well-being throughout the entire dental community.

In conclusion, students' perception about their clinical instructors as indifferent towards the students, obstructionist in the teaching process, with inadequate treatment towards the patients, and less effective teaching hours is associated with higher students' burnout levels.

Data availability

Datasets related to this article will be available upon request to the corresponding author.

Acknowledgments

None.

Declaration of interest

None.

Author Contribution

RCV, JCR and VC designed the study. JCR and VC completed the data collection and RCV performed the statistical analysis. RCV and VC wrote the first draft of the article. All authors read and approved the final manuscript and actively participated in the discussion of the manuscript's findings.

References

1. Rodrigues H, Cobucci R, Oliveira A, Cabral JV, Medeiros L, Gurgel K, et al. Burnout syndrome among medical residents: a systematic review and meta-analysis. PLoS One. 2018 Nov;13(11):e0206840. doi: 10.1371/journal.pone.0206840.
2. Grow HM, McPhillips HA, Batra M. Understanding physician burnout. Curr Probl Pediatr Adolesc Health Care. 2019 Nov;49(11):100656. doi: 10.1016/j.cppeds.2019.100656.
3. Long H, Li Q, Zhong X, Yang L, Liu Y, Pu J, et al. The prevalence of professional burnout among dentists: a systematic review and meta-analysis. Psychol Health Med. 2023 Jul-Dec;28(7):1767-82. doi: 10.1080/13548506.2023.2208364.
4. Moro JDS, Soares JP, Massignan C, Oliveira LB, Ribeiro DM, Cardoso M, et al. Burnout syndrome among dentists: a systematic review and meta-analysis. J Evid Based Dent Pract. 2022 Sep;22(3):101724. doi: 10.1016/j.jebdp.2022.101724.
5. MacAulay R, Morash J, Kenwell LS, Haslam SK. Burnout in oral health students: a scoping review. J Dent Educ. 2023 Apr;87(4):471-96. doi: 10.1002/jdd.13143.
6. Singh P, Aulak DS, Mangat SS, Aulak MS. Systematic review: factors contributing to burnout in dentistry. Occup Med (Lond). 2016 Jan;66(1):27-31. doi: 10.1093/occmed/kqv119.
7. Deeb GR, Braun S, Carrico C, Kinser P, Laskin D, Golob Deeb J. Burnout, depression and suicidal ideation in dental and dental hygiene students. Eur J Dent Educ. 2018 Feb;22(1):e70-4. doi: 10.1111/eje.12259.
8. Chan CYW, Sum MY, Tan GMY, Tor PC, Sim K. Adoption and correlates of the Dundee Ready Educational Environment Measure (DREEM) in the evaluation of undergraduate learning environments - a systematic review. Med Teach. 2018 Dec;40(12):1240-47. doi: 10.1080/0142159X.2018.1426842.
9. Stormon N, Sexton C, Ford PJ, Eley DS. Understanding the well-being of dentistry students. Eur J Dent Educ. 2022 Feb;26(1):1-10. doi: 10.1111/eje.12666.
10. Pérez C, Parra P, Fasce E, Ortiz L, Bastías N, Bustamante C. [Factorial structure and reliability of the maslach burnout inventory in chilean universities]. Rev Argent Clínica Psicológica. 2012;21(3):255-63.

11. Pérez Díaz F, Cartes-Velásquez R. [Stress and burnout among dentistry students: a worrying situation in professional training]. Edumecentro. 2015 Jun;7(2):179-90.

12. Al-Ansari AA, El Tantawi MM. Predicting academic performance of dental students using perception of educational environment. J Dent Educ. 2015 Mar;79(3):337-44.

13. Divaris K, Barlow PJ, Chendea SA, Cheong WS, Dounis A, Dragan IF, et al. The academic environment: the students' perspective. Eur J Dent Educ Off J Assoc Dent Educ Eur. 2008 Feb;12 Suppl 1:120–30. doi: 10.1111/j.1600-0579.2007.00494.x.

14. Frese C, Wolff D, Saure D, Staehle HJ, Schulte A. Psychosocial impact, perceived stress and learning effect in undergraduate dental students during transition from pre-clinical to clinical education. Eur J Dent Educ. 2018 Aug;22(3):e555-63. doi: 10.1111/eje.12352.

15. Moore R. Psychosocial student functioning in comprehensive dental clinic education: a qualitative study. Eur J Dent Educ. 2018 Aug;22(3):e479-87. doi: 10.1111/eje.12329.

16. Roudsari MS, Namdari M, Mortazavi H, Malek-Mohammadi M, Tohidi S. Psychosocial impacts, perceived stress, and learning effects during the transition from preclinical to clinical dental education: validation and translation of a questionnaire. Dent Res J (Isfahan). 2022 Mar 21;19:26.

17. Ebbeling S, Adam L, Meldrum A, Rich A, McLean A, Aitken W. Oral health and dental students' perceptions of their clinical learning environment: a focus group study. J Dent Educ. 2018 Oct;82(10):1036-42. doi: 10.21815/JDE.018.102.

18. Gillespie K, Boyd LD, Perry KR, Vineyard J. Faculty caring behavior and effect on dental hygiene students' worry or anxiety. J Dent Educ. 2023 Feb;87(2):148-57. doi: 10.1002/jdd.13115.

19. Javed MQ, Ahmed A, Habib SR. Undergraduate dental students' and instructors' perceptions about the quality of clinical feedback. J Ayub Med Coll Abbottabad. 2021 Jan-Mar;33(1):82-8.

20. Henderson D, Sewell KA, Wei H. The impacts of faculty caring on nursing students' intent to graduate: A systematic literature review. Int J Nurs Sci. 2019 Dec 23;7(1):105-11. doi: 10.1016/j.ijnss.2019.12.009.