

UPDATE

Perception of the educational environment after the curricular change in the Dental school at the University of Antofagasta in Chile

Percepción del ambiente educacional después del cambio curricular en la carrera de odontología de la Universidad de Antofagasta en Chile

Percepção do ambiente educacional após a mudança curricular na carreira de odontologia na Universidade de Antofagasta no Chile

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Abstract

Introduction: In 2019, a change was implemented in the curriculum of the Dental school at the University of Antofagasta in Chile. The objective of this study was to analyze the perception of the educational environment in first-year students who studied the new curriculum in the Dental school at the University of Antofagasta, in 2019.

Methods: Quantitative, observational, descriptive, cross-sectional study, implemented at the end of the first year of implementation of the new curriculum in the Dental school at the University of Antofagasta in 2019. The validated DREEM questionnaire was applied in Spanish, to determine the perception of the educational environment of these students. For statistical analysis, STATA 14.0[®] was used.

Results: 53 students completed the questionnaire (79.1%). The average score of the complete DREEM questionnaire was 129.56 (SD 18.94), which indicates a more positive than negative educational environment. No statistically significant differences were found by sex, both in the complete questionnaire and in its subscales. »»»

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Five questions were found with scores that indicate areas perceived as problematic by students, which are related to the role of the teacher (teaching with too much emphasis on details and perception of teachers as authoritarian) and stress management in students (perception that the stress of studying is greater than their enjoyment, that they are too tired to enjoy their studies and do not know or believe that there are no support systems at the university for students who suffer from stress).

Conclusion: The educational environment of the first year with the new curriculum in the Dental school at the University of Antofagasta is perceived, for the most part, as more positive than negative. Specific areas for improvement in this curricular transition were identified, which are related to the role of the teacher and the management of stress in students.

Keywords: dental education, perception, social environment, dental students.

Resumen

Introducción: En el año 2019, se implementó un cambio en la malla curricular de la carrera de odontología en la Universidad de Antofagasta en Chile. El objetivo de este estudio fue analizar la percepción del ambiente educacional en estudiantes de primer año que cursaron la nueva malla curricular de la carrera de odontología de la Universidad de Antofagasta, en 2019.

Métodos: Estudio cuantitativo, observacional, descriptivo, transversal, implementado al finalizar el primer año de implementación de la nueva malla curricular de la carrera de odontología de la Universidad de Antofagasta en 2019. Se aplicó el cuestionario DREEM validado en español, para determinar la percepción del ambiente educacional de estos estudiantes. Para el análisis estadístico, se utilizó STATA 14.0 °.

Resultados: 53 estudiantes completaron el cuestionario (79,1%). El puntaje promedio del cuestionario DREEM completo fue 129,56 (DS 18,94), lo cual indica un ambiente educacional más positivo que negativo. No se encontró diferencias estadísticamente significativas por sexo, tanto en el cuestiona-

Resumo

Introdução: Em 2019, foi implementada uma mudança no currículo da carreira de odontologia da Universidade de Antofagasta no Chile. O objetivo deste estudo foi analisar a percepção do ambiente educacional em alunos do primeiro ano que cursaram o novo currículo da carreira de odontologia na Universidade de Antofagasta, em 2019.

Métodos: Estudo quantitativo, observacional, descritivo, transversal, implementado no final do primeiro ano de implementação do novo currículo da carreira de odontologia na Universidade de Antofagasta em 2019. O questionário DREEM validado foi aplicado em espanhol, para determinar a percepção do ambiente educacional desses alunos. Para análise estatística, foi utilizado o STATA 14.0 °.

Resultados: 53 alunos responderam ao questionário (79,1%). A pontuação média do questionário DREEM completo foi de 129,56 (DP 18,94), o que indica um ambiente educacional mais positivo do que negativo. Não foram encontradas diferenças estatisticamente significativas por sexo, tanto no questionário completo quanto em suas subescalas. Foram encontradas cinco questões com pontuações

rio completo, como en las subescalas de este. Se encontraron preguntas con puntajes que indican áreas percibidas como problemáticas por los estudiantes, las cuales se relacionan al rol del docente (enseñanza con demasiado énfasis en los detalles y percepción de los docentes como autoritarios) y al manejo del estrés en los estudiantes (percepción de que el estrés por los estudios es mayor al disfrute de los mismos, que están muy cansados para disfrutar los estudios y desconocen o creen que no existen sistemas de apoyo en la universidad para los estudiantes que sufren estrés).

Conclusión: El ambiente educacional del primer año con la nueva malla curricular de la carrera de odontología de la Universidad de Antofagasta es percibido, en su mayoría, como más positivo que negativo. Se identificaron áreas específicas para mejorar en esta transición curricular, las cuales se relacionan al rol del docente y al manejo del estrés en los estudiantes.

Palabras clave: Educación en odontología; Percepción, Ambiente social, estudiantes de odontología.

que indicam áreas percebidas como problemáticas pelos alunos, que estão relacionadas ao papel do professor (ensino com muita ênfase nos detalhes e percepção dos professores como autoritários) e gestão do estresse nos alunos (percepção de que o estresse do estudar é maior do que o prazer, que estão cansados demais para aproveitar os estudos e não sabem ou acreditam que não existem sistemas de apoio na universidade para estudantes que sofrem de estresse).

Conclusão: O ambiente educacional do primeiro ano com o novo currículo da carreira de odontologia da Universidade de Antofagasta é percebido, em sua maioria, como mais positivo do que negativo. Foram identificadas áreas específicas de melhoria nesta transição curricular, que estão relacionadas com o papel do professor e a gestão do stress nos alunos.

Palavras-chave: Educação em odontologia; Percepção, ambiente social, estudantes de odontologia.

Introduction

In 2019, the Dental school at the University of Antofagasta began to implement a reform to change the curriculum and the teaching-learning model towards one focused on learning outcomes and having competencies. This change in the teaching-learning paradigm in higher education has helped us acknowledge the importance of the educational environment and the will and need to assess, monitor and improve it. The educational environment or climate has been defined as “everything that is happening in the classroom, department, faculty or university” and “this environment can vary from one course to another within a curriculum, or even from one class to another.”⁽¹⁾ The educational

climate has been shown to impact student satisfaction with their studies, their perception of well-being, their aspirations, and their academic achievement.^(1,2) It is also a construct that is influenced by the student’s experience in the teaching-learning process, the feedback they receive, the physical environment, and the social support they have.⁽²⁾

In 1997, the Dundee Ready Education Environment Measure (DREEM) questionnaire was developed to evaluate the educational environment in medical and health degrees.⁽²⁻⁴⁾ Since then, it has been used for diagnostic purposes and to compare different groups or the variation of the educational environment over time.^(2,4) This questionnaire has proven to be

valid and reliable in measuring the perception of the educational environment, allowing us to identify the strengths and weaknesses in the teaching-learning process.⁽¹⁾

The educational environment in the Dental school at the University of Antofagasta had not been assessed up to the time of this study. In addition, 2019 marked the implementation of the curriculum reform. Therefore, the purpose of this study was to analyze the perception of the educational environment in first-year students taking the new curriculum in the Dental school at the University of Antofagasta in 2019. This study is critical because it allows us to identify positive aspects and problem areas in the educational environment. This analysis can enrich the learning experience of dentistry students at the University of Antofagasta by making the necessary changes to continuously improve the quality of their education.

Materials and methods

This study is part of the research project “Perception of the educational environment by students of the Department of Dentistry of the University of Antofagasta,” which has been certified by the Ethics Committee of the University of Antofagasta and authorized by the Director of the Department of Dentistry of said institution. The population studied included students finishing their first year of Dentistry School at the University of Antofagasta in 2019. We were interested in exploring this group because a new curriculum was implemented in 2019.

The total number of students (n=67) was considered, excluding those who refused to participate and/or were under 18. The participants signed an informed consent and completed the validated Spanish version of the DREEM questionnaire.⁽¹⁾ Information on age and sex was collected. The measurement took approximately 30 minutes and was conducted in the

classroom, ensuring a quiet environment and with the presence of a research team member.

The DREEM questionnaire⁽¹⁾ includes 50 questions and 5 alternative answers: (strongly disagree, disagree, unsure, agree, strongly agree). The scores range from 0 to 4, except for questions 11, 12, 19, 20, 21, 23, 41, 42, and 46, where the score is inverted. In addition, the questions are grouped into five domains or subscales. Table 1 shows the subscales of the questionnaire and the interpretation scores of the global questionnaire and its subscales.

The data collected were analyzed with STATA 14 statistical software®. A descriptive analysis was conducted on the variables studied and the questions of the DREEM questionnaire. These were summarized through percentages, averages, and standard deviation (SD). The average score of the global questionnaire and each of its subscales were analyzed. We examined the differences according to sex, using the T-Student test with a p-value < 0.05.

Results

Of 67 students, 53 agreed to participate and completed the questionnaire fully, with a 79.1% participation rate. The sample included 33 women (62.26%) and 20 men (37.74%), aged 18.69 (SD 0.95) on average.

Table 2 shows the average score for the complete DREEM questionnaire and its subscales, with no statistically significant differences in the average scores obtained according to sex. The mean score of the complete DREEM questionnaire was 129.56 (SD 18.94), indicating a more positive than negative educational environment. Regarding the mean scores per subscale, student perception of learning (31.11 SD 5.91), student academic self-perception (21.07 SD 5.10), and student perception of the learning environment (30.09 SD 5.22) are interpreted with a rather positive perception. In the “Perception of teachers” subscale, the

Table 1: Interpretation of the DREEM questionnaire

	Score	Interpretation
Complete DREEM questionnaire score	0–50	Very poor educational environment
	51–100	Environment with many problems
	101–150	More positive than negative environment
	151–200	Excellent educational environment
Perception of learning subscale score	0–12	Very deficient
	13–24	Negative perception
	25–36	More positive perception
	37–48	Very good opinion on teaching
Perception of teachers subscale score	0–11	Very deficient
	12–22	Need training
	23–33	Moving in the right direction
	34–44	Model teachers
Academic self-perception subscale score	0–8	Feeling of total failure
	9–16	Many negative aspects
	17–24	Rather positive perception
	25–32	Trust
Perceptions of environment	0–12	Terrible atmosphere
	13–24	Many things need to change
	25–36	Rather positive perception
	37–48	A good overall feeling
Social self-perception subscale score	0–7	Terrible
	8–14	Not a pleasant place
	15–21	Not bad
	22–18	Very good social perception
Average score for each question	³ 3.00	Satisfactory score, positive educational environment
	2.00–3.00	Aspects of the educational environment that need improvement (neither strengths nor weaknesses)
	< 2.00	Problem areas, weaknesses of the educational environment

average score obtained (30.98 SD 5.48) is interpreted as moving in the right direction. In comparison, the average in the “social self-perception” subscale (16.30 SD 3.96) is inter-

preted as “not bad.” However, it is an average close to the lower category, i.e., very close to the interpretation that the educational environment is “not a pleasant place.”

Table 2: Average score of the complete DREEM questionnaire and subscales, according to sex

	Maximum score	Total average (SD) (n=53)	Mean (SD) women (n=33)	Mean (SD) men (n=20)	p
Complete DREEM questionnaire	200	129.56 (18.94)	126.81 (3.48)	134.1 (3.69)	0.1774
Perception of learning subscale score	48	31.11 (5.91)	30.33 (1.06)	32.4 (1.21)	0.2209
Perception of teachers subscale score	44	30.98 (5.48)	31.06 (1.02)	30.85 (1.08)	0.8937
Academic self-perception subscale score	42	21.07 (5.10)	20.39 (0.91)	21.7 (1.11)	0.4938
Perceptions of environment subscale score	48	30.09 (5.22)	29.12 (0.99)	31.7 (0.88)	0.0813
Social self-perception subscale score	28	16.30 (3.96)	15.6 (0.66)	17.45 (0.9)	0.1016

Table 3 shows the descriptive analysis by question, showing the frequency of responses and the average score for each question. According to the interpretation given in Table 1, eleven of them (questions 1, 4, 5, 15, 16, 17, 26, 30, 34, 44, and 48) showed average scores above three, indicating areas of a positive educational environment, i.e., strengths in the teaching-learning process in the group studied. These strengths focus on the fact that most students feel encouraged to participate in class, the teaching is well-focused, and that it helps them develop their competencies. Moreover, they believe teachers know their subjects, give clear examples, and are well prepared for the lessons. Students feel they are being prepared for the profession and have learned a lot about empathy. Finally, most students feel socially

comfortable in class, have good friends, and feel that the physical environment where they study is pleasant.

Additionally, questions 12, 21, 36, 45, and 46 showed average scores below 2, indicating problem areas, where students consider that teaching focuses too much on learning details and perceive teachers as authoritarian. Furthermore, at least half the students believe that the stress of studying is greater than the enjoyment of their studies, report not knowing or thinking that there are no support systems in place at the university for students who suffer from stress, and say that they are too tired to enjoy their studies.

Figure 1 shows the distribution of scores according to the interpretation of the questionnaire in Table 1.

Table 3: Frequency of response per question and average score per question

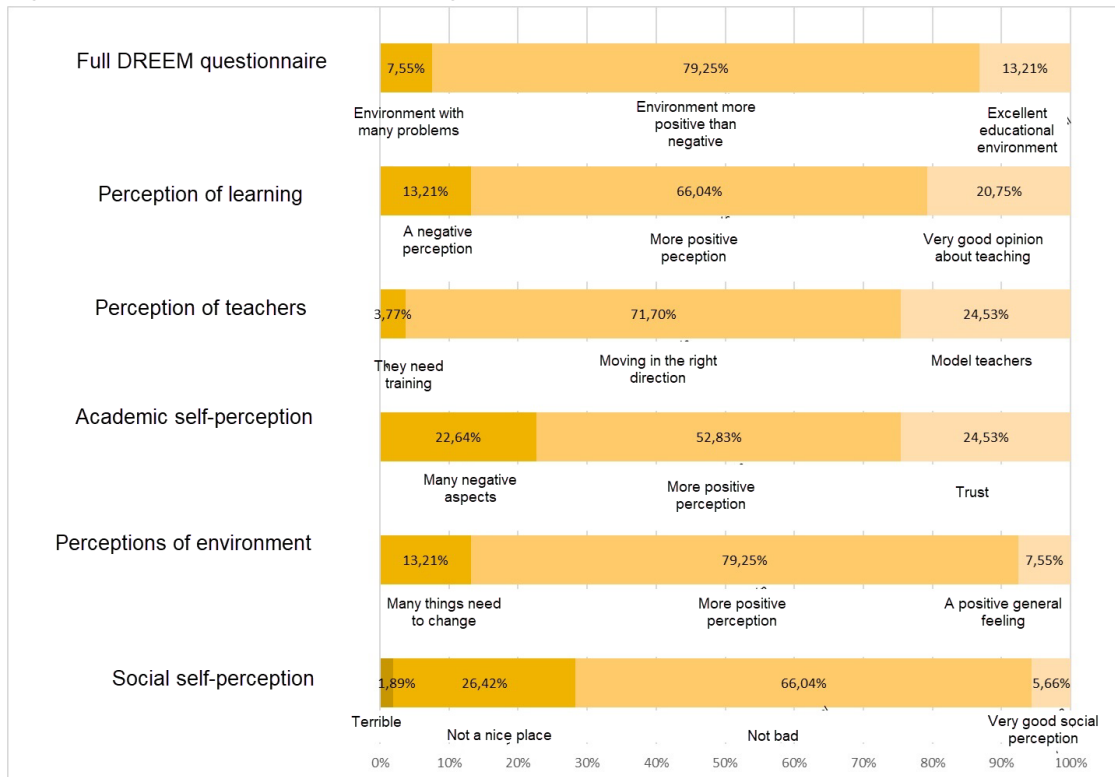
	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	Average Score (SD)
Perception of learning subscale						
1. I am encouraged to participate in class.	1.89%	5.66%	18.87%	33.96%	39.62%	3.03 (0.99)
2. The teaching is sufficiently concerned with developing my confidence.	0%	9.43%	37.74%	32.08%	20.75%	2.64 (0.92)
3. Teaching stimulates me to learn actively.	0%	1.89%	26.42%	45.28%	26.42%	2.96 (0.78)
4. Teaching is well-focused.	0%	1.89%	18.87%	45.28%	33.96%	3.11 (0.77)
5. Teaching helps me develop my skills.	0%	0%	20.75%	52.83%	26.42%	3.05 (0.69)
6. I am clear about the learning objectives of my courses.	1.89%	11.32%	18.87%	43.40%	24.53%	2.77 (1.01)
7. Teaching is often stimulating.	0%	3.77%	28.30%	52.83%	15.09%	2.79 (0.74)
8. Teaching time is well spent.	1.89%	20.75%	35.85%	24.53%	16.98%	2.33 (1.05)
9. Teaching is student-centered.	0%	7.55%	24.53%	41.51%	26.42%	2.86 (0.89)
10. Long-term rather than short-term learning is emphasized.	3.77%	15.09%	33.96%	24.53%	22.64%	2.47 (1.11)
11. Teaching is too teacher-centered.*	7.55%	20.75%	43.40%	26.42%	1.89%	2.05 (0.92)
12. Teaching places too much emphasis on learning details*	0%	5.66%	16.98%	49.06%	28.30%	1 (0.83)
Teacher perception subscale						
13. Teachers are good at giving feedback to students.	0%	11.32%	37.74%	30.19%	20.75%	2.60 (0.94)
14. Teachers have good communication skills with patients.	0%	5.66%	24.53%	35.85%	33.96%	2.98 (0.90)
15. Teachers are familiar with the subjects they teach.	0%	1.89%	1.89%	30.19%	66.04%	3.60 (0.63)
16. Teachers give clear examples.	0%	3.77%	11.32%	49.06%	35.85%	3.16 (0.77)
17. Teachers are well prepared for their lessons.	0%	0%	13.21%	39.62%	47.17%	3.33 (0.70)
18. Teachers provide constructive criticism.	0%	11.32%	13.21%	45.28%	30.19%	2.94 (0.94)
19. Teachers ridicule their students.*	30.19%	26.42%	30.19%	9.43%	3.77%	2.69 (1.11)
20. Teachers get annoyed and upset in class.*	24.53%	37.74%	24.53%	13.21%	0%	2.73 (0.98)
21. Teachers are authoritarian.*	9.43%	13.21%	32.08%	35.85%	9.43%	1.77 (1.10)
22. Teachers are patient with patients.	0%	1.89%	35.85%	26.42%	35.85%	2.96 (0.89)
23. Students irritate teachers.*	11.32%	22.64%	41.51%	20.75%	3.77%	2.16 (1.01)
Academic self-perception subscale						
24. I can memorize everything I need to remember.	1.89%	13.21%	37.74%	35.85%	11.32%	2.41 (0.92)
25. Much of what I must learn is important to my degree.	0%	20.75%	22.64%	37.74%	18.87%	2.54 (1.02)

26. I feel I am being prepared for my profession.	0%	5.66%	13.21%	45.28%	35.85%	3.11 (0.84)
27. What we learned last year was a good foundation for this year's work.	15.09%	13.21%	30.19%	22.64%	18.87%	2.16 (1.31)
28. The school helps me develop my problem-solving skills.	1.89%	7.55%	41.51%	32.08%	16.98%	2.54 (0.93)
29. I am confident that I will pass this year.	1.89%	7.55%	28.30%	28.30%	33.96%	2.84 (1.04)
30. I have learned a lot about empathy in my profession.	1.89%	3.77%	20.75%	37.74%	33.85%	3.01 (0.95)
31. The study methods I had before still work for me.	13.21%	16.98%	13.21%	28.30%	28.30%	2.41 (1.40)
Perceptions of environment subscale						
32. The atmosphere is relaxed during theoretical lessons.	0%	11.32%	28.30%	50.94%	9.43%	2.58 (0.81)
33. I feel I can ask as many questions as I want.	3.77%	11.32%	30.19%	30.19%	24.53%	2.60 (1.09)
34. I feel socially comfortable in class.	3.77%	3.77%	16.98%	35.85%	39.62%	3.03 (1.03)
35. I have opportunities to develop my interpersonal skills.	1.89%	7.55%	28.30%	43.40%	18.87%	2.69 (0.93)
36. The enjoyment of my studies outweighs the stress they create.	33.96%	18.87%	24.53%	20.75%	1.89%	1.37 (1.21)
37. The environment in the dental department motivates me to learn.	0%	5.66%	28.30%	41.51%	24.53%	2.84 (0.86)
38. I can concentrate well.	1.89%	3.77%	28.30%	43.40%	22.64%	2.81 (0.89)
39. The atmosphere is relaxed in the clinical fields.	0%	5.66%	39.62%	35.85%	18.87%	2.67 (0.84)
40. Dentistry department schedules are well programmed.	0%	7.55%	52.83%	30.19%	9.43%	2.41 (0.77)
41. My experience in the Dentistry department has been discouraging.*	20.75%	39.62%	28.30%	11.32%	0%	2.69 (0.93)
42. Cheating is a problem in the Dentistry department*	15.09%	13.21%	37.74%	13.21%	15.09%	1.90 (1.28)
43. The atmosphere is relaxed during seminars, classes, and tutorials.	5.66%	15.09%	26.42%	35.85%	16.98%	2.43 (1.11)
Social self-perception subscale						
44. I have good friends in the Dentistry department.	0%	5.66%	11.32%	47.17%	35.85%	3.13 (0.83)
45. There is a good support system for students suffering from stress.	13.21%	37.74%	37.74%	7.55%	3.77%	1.50 (0.95)
46. I am too tired to enjoy the courses.*	0%	13.21%	33.96%	30.19%	22.64%	1.37 (0.98)
47. I rarely get bored in the courses.	3.77%	26.42%	32.08%	32.08%	5.66%	2.09 (0.98)
48. The physical environment of the dental department is pleasant.	0%	9.43%	16.98%	35.85%	37.74%	3.01 (0.97)
49. My social life is good.	3.77%	11.32%	16.98%	32.08%	35.85%	2.84 (1.15)
50. I rarely feel alone.	11.32%	20.75%	20.75%	18.87%	28.30%	2.32 (1.38)

In bold, average scores below 2.

In italics, average scores above 3.

Figure 1: Distribution of scores according to DREEM questionnaire interpretation



Discussion

This study aimed to analyze the perception of the educational environment in first-year students studying the new curriculum in the Dental school of the University of Antofagasta, in 2019, to identify strengths and weaknesses of the educational environment and to improve the quality of education. This study had a high response rate, as 79.1% of the students agreed to participate. Therefore, the results are representative of the reality experienced by these students.

The differences found in the perception of the educational environment according to sex were not significant, as reported in other dentistry degrees worldwide.⁽⁵⁻⁷⁾ Nonetheless, other studies have identified significant differences according to sex, where a better perception of the

educational environment has been observed in men⁽⁸⁾ and women,⁽⁹⁾ depending on the study. The mean score of the complete DREEM questionnaire was 129.56 (SD 18.94), indicating a more positive than negative educational environment. Only 7.55% consider that the educational environment has many problems, while 13.21% believe it is excellent. This is similar to what was observed in Chile in the Dental school of the Arturo Prat University⁽¹⁰⁾ and the Pontifical Catholic University of Chile⁽¹¹⁾ in the north and center of the country (average complete DREEM score of 131.78 and 131.61, respectively). Both degrees have a competency-based curriculum. However, these studies include students from every year of the degree, not just first year students. This is important since national⁽¹⁰⁻¹³⁾ and international studies^(4,8,14,15) show that the educational environment in dental schools declines as students advance from

basic courses to preclinical courses until reaching clinical courses. Therefore, it is necessary to monitor the educational environment over time when implementing the new curriculum, especially in the transition from preclinical to clinical courses.

On the other hand, the average score of the complete DREEM questionnaire obtained is higher than that found in the Chilean Dental school at Concepción University⁽¹²⁾ and San Sebastián University⁽¹³⁾ in the south and center of the country (average complete DREEM scores of 114, 52 and 117.8 respectively). In both cases, the authors assessed students from all the courses of the undergraduate dental program. Still, in the case of Concepción University, the study was conducted when the undergraduate dental program had a traditional curriculum. San Sebastián University is a private university with a competency-based curriculum. In this regard, there is evidence in the literature that dentistry degrees with traditional curricula, where teaching is perceived as teacher-centered with an emphasis on factual learning, tend to have lower scores in the DREEM questionnaire than degrees that have innovative competency-based curricula, with student-centered teaching and learning models (4,16). All of the above may indicate the need to continue improving practices for student-centered learning in the Dental school at the University of Antofagasta. In fact, studies in Dental schools in Spain have shown that the most affected area in the curricular transition from a traditional to a competency-based curriculum is the perception of learning subscale, where the DREEM questionnaire has helped to monitor the development of improvement strategies in the teaching-learning process.^(15,17)

In the perception of learning subscale, students consider that they are encouraged to participate actively in classes, that the teaching is well-focused, and that it helps them to develop their competencies (questions 1, 4, and 5). It stands out that almost 68% consider that teaching is

student-centered, and 71% that teaching encourages them to learn actively (questions 9 and 3). In this subscale, question 12 was identified as a problem area, where over 77% of the students consider that teaching places too much emphasis on learning details. In the perception of teachers subscale, the strengths mentioned were that teachers know their subjects, give clear examples, and are well prepared for their classes (questions 15, 16, and 17). It stands out that 75% consider that their teachers give constructive criticism (question 18), and question 21 is identified as a problem area, where 45% perceive teachers as authoritarian, and 32% are unsure.

The analysis of the questions of these subscales reflects a good perception of the students regarding implementing a student-centered and competency-based teaching and learning model, identifying priority areas for improvement related to the role of the teacher. The excessive emphasis on factual learning and the perception of teachers as authoritarian and/or less tolerant of errors must be addressed in this curricular transition since these are characteristics of a traditional teaching model and do not address the theories of adult learning or the curricular approach of the new dental school's curriculum at the University of Antofagasta. They do not contribute to the students' involvement in their education or to creating a safe learning space.

⁽⁴⁾ The results obtained by Universidad San Sebastián in Chile ⁽¹³⁾, under a student-centered educational model, are similar to those found in this study. They also identified that their teachers were considered authoritarian. The authors emphasize the importance of developing soft skills in academics, such as patience, tolerance, and communication, as well as the need for teacher training along with evaluation and/or classroom observation mechanisms to monitor and provide feedback on teaching performance and implement improvement plans to ensure the quality of the teaching-learning process.

Regarding the academic self-perception subscale, students consider that they are being prepared for the profession and that they have learned a lot about empathy in the profession (questions 26 and 30). In this subscale, there were no average scores lower than 2 in any of the questions, which indicates that students feel capable of facing their academic challenges and confident in the training received in view of their future professional performance.

Regarding the perception of the learning environment and students' social self-perception subscales, the strengths mentioned were that students feel socially comfortable in class, have good friends in their place of study, and consider the physical environment of their school pleasant (questions 34, 44, and 48). Notably, 66% believe that the environment at their school motivates them to learn, and they can concentrate well (questions 37 and 38). In addition, almost 68% consider their social life good (question 49). Stress is identified as a problem area in question 36, as over 50% of the students believe that the stress caused by studying is greater than the enjoyment of their studies. In this sense, question 45 aims to determine if students know any institutional response to the problem with support systems. Almost 38% of the students say they do not know, while 50% state that there are no support systems for students who suffer from stress. Finally, question 46 shows that over half the students are too tired to enjoy their courses.

High stress levels throughout the academic training of undergraduate dentistry students have been widely reported in the literature. In fact, a meta-analysis⁽¹⁸⁾ demonstrated the presence of moderate levels of stress in almost all dental students in the studies analyzed. The authors state that the most frequent source of stress is academic factors related to academic overload in preclinical students, difficulties with patients, and problems related to clinical students' learning procedures. Therefore, this is a specific area to improve and is associated with

the socialization of support systems for stress management in our university since students do not know the resources available. Additionally, it is necessary to emphasize self-care, providing students with solid tools for stress management throughout their degree, which will be helpful in their careers. The results of our study are similar to those of other Chilean universities.⁽¹⁰⁻¹³⁾ They emphasize the importance of establishing student support systems as essential in the perception of the learning environment and stress perceived by the student. Palomer et al.⁽¹¹⁾ also suggest evaluating the need to implement curricular changes to reduce stress levels in students and promote an appropriate educational environment. These changes might include early contact of students with patients in the first years of their training and changes in the evaluation modality in clinical courses, changing from numerical goals to pass the course to a system of comprehensive patient-centered care, which would also promote student learning and result in better patient quality of care.

The literature supports the need to establish these support systems by implementing strategies and interventions to develop resilience and stress management tools among dental students. Alzhem et al.⁽¹⁹⁾ conducted a systematic literature review and said most stress management programs for dental students positively affect them. These results were consistent despite the high variability of the programs implemented, both in terms of format (modality and the number of sessions) and in the techniques or methods used, which could include aspects such as meditation, stress reduction through mindfulness, cognitive-behavioral management, relaxation techniques, and education to improve stress management by providing information and discussing the problem.

Conclusion

The analysis conducted in this study is essential to the curricular transition process in the

Dental school at the University of Antofagasta. The strengths of implementing the competency-based educational model have been identified in the first generation of students taking the new curriculum. Most of them perceive the educational environment as more positive than negative. Along similar lines, areas for improvement were identified regarding the role of the teacher, which should focus on student learn-

ing by providing a safe learning environment. It also reinforces the need to create stress-reduction mechanisms in terms of support and development of strategies for stress management. This analysis is vital because it is the basis for comparing and monitoring the progress of changes to improve the weaknesses identified, with the ultimate goal of improving the quality of education.

References

1. Tomás I, Casares-De-Cal MA, Aneiros A, Abad M, Ceballos L, Gómez-Moreno G, Hidalgo JJ, Llena C, López-Jornet P, Machuca MC, Monticelli F, Palés J. Psychometric validation of the Spanish version of the Dundee Ready Education Environment Measure applied to dental students. *Eur J Dent Educ.* 2014;18(3):162-9. doi: 10.1111/eje.12073.
2. Miles S, Swift L, Leinster SJ. The Dundee Ready Education Environment Measure (DREEM): a review of its adoption and use. *Med Teach.* 2012;34(9):e620-34. doi: 10.3109/0142159X.2012.668625.
3. Roff S, McAleer S, Harden RM, Al-Qahtani M, Ahmed AU, Deza H, Groenen G, Primparyon P. Development and validation of the Dundee Ready Education Environment Measure (DREEM). *Medical Teacher.* 1997; 19(4):295-299. doi: <https://doi.org/10.3109/01421599709034208>
4. 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; 40(12):1240-1247. doi: 10.1080/0142159X.2018.1426842.
5. Doshi D, Reddy BS, Karunakar P, Deshpande K. Evaluating Student's Perceptions of the Learning Environment in an Indian Dental School. *J Clin Diagn Res.* 2014;8(11):39-42. doi: 10.7860/JCDR/2014/9901.5128.
6. Kossioni AE, Varela R, Ekonomu I, Lyrakos G, Dimoliatis I. Students' perceptions of the educational environment in a Greek Dental School, as measured by DREEM. *Eur J Dent Educ.* 2012;16(1):e73-e78. doi: <https://doi.org/10.1111/j.1600-0579.2011.00678.x>.
7. Ostapczuk MS, Hugger A, de Bruin J, Ritz-Timme S, Rotthoff T. DREEM on, dentists! Students' perceptions of the educational environment in a German dental school as measured by the Dundee Ready Education Environment Measure. *Eur J Dent Educ.* 2012 May;16(2):67-77. doi: 10.1111/j.1600-0579.2011.00720.x.
8. Stormon N, Ford PJ, Eley DS. DREEM-ing of dentistry: Students' perception of the academic learning environment in Australia. *Eur J Dent Educ.* 2019; 23 (1):35-41. doi: <https://doi.org/10.1111/eje.123>.
9. Sabbagh HJ, Bakhaider HA, Abokhashabah HM, Bader MU. Students' perceptions of the educational environment at King Abdulaziz University Faculty of Dentistry (KAUFD): a cross sectional study. *BMC Med Educ.* 2020; 29;20(1):241. doi: 10.1186/s12909-020-02165-7.
10. Tisi-Lanchars JP, Barrios-Piñeiro L, Henriquez-Gutierrez I, Durán-Ojeda G. El ambiente de aprendizaje en una universidad pública del norte de Chile: ¿cómo perciben los estudiantes la formación en odontología? *Revista Facultad de Odontología Universidad de Antioquia.* 2017; 29(1):36-50. doi: <https://doi.org/10.17533/udea.rfo.v29n1a2>.
11. Palomer L, Jana MP, Zuzulich S, Barriga MT, Heusser MI. Medición del clima educativo y factores que influyen en su resultado. Estudio en una carrera de odontología chilena. *FEM.* 2018; 21(2): 87-96. doi: <https://dx.doi.org/10.33588/fem.212.937>.

12. Serrano C. Diagnóstico de clima educacional, carrera de Odontología, Universidad de Concepción. *Rev Educ Cienc Salud*. 2012; 9(1):43-49.
13. Rodríguez-Hoop MP, Gonzalez-Providell S, Molina-Castillo C, Martinez-Rondanelli B, Rebolledo J. Análisis del ambiente educacional en escuela de odontología chilena. *Rev Clin Periodoncia Implanol Rehabil Oral*. 2016; 9(2): 153-162. doi: <http://dx.doi.org/10.1016/j.piro.2016.05.003>.
14. Serrano CM, Lagerweij MD, de Boer IR, Bakker DR, Koopman P, Wesselink PR, Vervoorn JM. Students' learning environment perception and the transition to clinical training in dentistry. *Eur J Dent Educ*. 2021;25(4):829-836. doi: 10.1111/eje.12662.
15. Tomás I, Aneiros A, Casares-de-Cal MA, Quintas V, Prada-López I, Balsa-Castro C, Ceballos L, Gómez-Moreno G, Llena C, López-Jornet P, Machuca MC, Palés J. Comparing student and staff perceptions of the "Educational Climate" in Spanish Dental Schools using the Dundee Ready Education Environment Measure. *Eur J Dent Educ*. 2018;22(1):e131-e141. doi: 10.1111/eje.12270.
16. Samar Al-Saleh, Ebtissam M. Al-Madi, Balqees AlMufleh, Al-Hanoof Al-Degheishem. Educational environment as perceived by dental students at King Saud University. *The Saudi Dental Journal*. 2018, 30(3): 240-249. doi: <https://doi.org/10.1016/j.sdentj.2018.02.003>.
17. Hernández-Crespo AM, Fernández-Riveiro P, Rapado-González O, Aneiros A, Tomás I, Suárez-Cunqueiro MM. Students' Perceptions of Educational Climate in a Spanish School of Dentistry Using the Dundee Ready Education Environment Measure: A Longitudinal Study. *Dent J*. 2020; 8,133. doi: 10.3390/dj8040133.
18. Elani HW, Allison PJ, Kumar RA, Mancini L, Lambrou A, Bedos C. A systematic review of stress in dental students. *J Dent Educ*. 2014;78(2):226-42.
19. Alzahem AM, Van der Molen HT, Alaujan AH, De Boer BJ. Stress management in dental students: a systematic review. *Advances in Medical Education and Practice*. 2014; 5:167-176. doi: 10.2147/AMEP.

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