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Empathy: A challenge for the new generations of dentistry students at the University of Buenos Aires

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ABSTRACT

Empathy is the ability to be aware of and understand the emotions, feelings and ideas of others. Assessing empathy levels among dental students is essential for improving educational strategies and patient outcomes. ***Aim:*** *The aim of this study was to assess the levels of empathy among dental students at the University of Buenos Aires (UBA) and analyze differences based on academic year and gender.* ***Materials and Method:*** *The study involved third- to sixth-year dental students at UBA. Participants provided informed consent and completed a sociodemographic questionnaire: the Jefferson Scale of Empathy – Health Care Provider Student version (JSE-HPS). Data analysis included descriptive statistics, t-tests for gender and academic year differences, and assessment of empathy dimensions.* ***Results:*** *Among 424 participants, the average JSE-HPS score was 108.2 (SD = 15.0), ranging from 36 to 134. The dimension of emotional and compassionate care had a mean of 35.7 (SD = 5.5), perspective taking had a mean of 59.0 (SD = 9.7) and standing in the patient's shoes had a mean of 13.4 (SD = 3.6). Empathy scores increased from the third year (100.9, SD = 22.4) to the fifth year (111.5, SD = 10.0), with a slight drop in the sixth year (110.6, SD = 12). Females (mean 109.0, SD = 15.5) displayed higher empathy than males (mean 104.4, SD = 12.2).* ***Conclusion:*** *The study revealed high levels of empathy among dental students at UBA, with variations by academic year and gender. These findings underscore the importance of incorporating empathy into dental education and suggest the need for curricular adjustments to further enhance empathy-related skills. Future research should explore interventions to sustain and improve empathy levels among dental students and faculty, ultimately benefiting both patients and healthcare providers.*

Keywords: *empathy - dental student - dentist patient relations - Argentina – education - dental*

Empatía: Un desafío para las nuevas generaciones de estudiantes de Odontología en la Universidad de Buenos Aires

RESUMEN

La empatía es un atributo fundamental en las profesiones de la salud, especialmente en odontología, donde la comunicación efectiva y la comprensión de las emociones del paciente inciden directamente en la calidad de la atención. Evaluar los niveles de empatía en estudiantes de odontología es clave para mejorar las estrategias educativas y los resultados clínicos. ***Objetivo:*** *Este estudio tuvo como objetivo evaluar los niveles de empatía entre los estudiantes de odontología de la Universidad de Buenos Aires (UBA) y analizar las diferencias en función del año académico y el género.* ***Materiales y Método:*** *El estudio incluyó a estudiantes de odontología de tercer a sexto año en la UBA. Los participantes completaron la versión para estudiantes de la Escala de Empatía de Jefferson para Proveedores de Salud (JSE-HPS), un cuestionario sociodemográfico y dieron su consentimiento informado. El análisis de datos incluyó estadísticas descriptivas, pruebas t para establecer diferencias según género y año académico, y la evaluación de las dimensiones de la empatía.* ***Resultados:*** *En un total de 424 participantes, el puntaje promedio en la JSE-HPS fue de 108,2 (DE = 15,0), con un rango entre 36 y 134. La dimensión de atención emocional y compasiva presentó un promedio de 35,7 (DE = 5,5), la toma de perspectiva de 59,0 (DE = 9,7) y la capacidad de ponerse en el lugar del paciente de 13,4 (DE = 3,6). Los puntajes de empatía aumentaron del tercer (100,9, DE = 22,4) al quinto año (111,5, DE = 10,0), con una ligera disminución en el sexto año (110,6, DE = 12). Las mujeres (promedio 109,0, DE = 15,5) presentaron mayores niveles de empatía que los hombres (promedio 104,4, DE = 12,2).* ***Conclusión:*** *Los resultados evidenciaron altos niveles de empatía entre los estudiantes de odontología de la UBA, con diferencias según el año académico y el género. Estos hallazgos resaltan la importancia de integrar el desarrollo de la empatía en la formación odontológica y sugieren la necesidad de realizar ajustes curriculares para potenciar estas habilidades. Futuros estudios deberían enfocarse en intervenciones que mantengan y promuevan los niveles de empatía entre estudiantes y docentes, con el objetivo de mejorar la atención tanto a pacientes como a profesionales de la salud.*

Palabras clave: *empatía - estudiantes de odontología - relaciones dentista paciente - educación en odontología*

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INTRODUCTION

All dimensions of healthcare focus on satisfying patient needs , which can be influenced by patient feelings, emotions and perceptions at the time. Identifying these emotional and psychosocial factors is one of the challenges faced by students and professionals in Health Sciences, and can be achieved by developing empathy skills and cognitive attributes that will have positive impact on the professional-patient relationship[1]. Empathy as a structure of moral behavior is crucial in dental students. Well-educated, competent dentists sometimes only fulfill their role as such if they have sufficient empathy with their patients[2]. The American Dental Education Association (ADEA) endorses the inclusion of empathy in dental curricula[3].

This paper will adhere to the integrative theory of Davis, who defined empathy as "the ability to be aware of and understand the emotions, feelings and ideas of others"[4]. It is a set of multidimensional, active, strongly adaptive constructions by one person in response to the experiences of another. It involves adopting roles and individual decentralization (suppressing the usual egocentric posture), which implies that the person needs to make a cognitive effort and simultaneously be emotionally aware of it. The author then proposes the "Organizational Model of Empathy", in which the antecedents, processes and consequences of the construct are explained. Some authors cite empathy as an important attribute for dentists, applicants or students at various Universities, where a reliable, valid test is required to assess empathy in students taking courses related to health sciences[5], and the results are taken into account upon admission to these Universities[6]. Evaluating empathy levels in students is relevant because empathy strengthens the professional-patient relationship, generating greater satisfaction in the patient regarding the service received[7], and a state of mental well-being[8] with less stress and burnout for the professional[9].

Empathy involves cognitive, affective and emotional development. The cognitive domain implies the ability to understand the experience of other people's inner world; the affective domain refers to celebrating or participating in the experience of the other people's feelings; and the emotional domain refers to the subjective responses obtained through affinity with other people[10]. Empathy may be affected by the teaching models in some universities that focus on human biology, long working hours, or the lack of resources in the health system.

Considering the topic of empathy provides knowledge about the current state of students' acquisition of non-technical skills, and enables us to propose and develop new strategies to reinforce their training.

The goals of this study were to learn about the state of empathy of dentistry students at the University of Buenos Aires (UBA), evaluate their empathy levels, and analyze differences in empathy levels according to academic year and gender. We hypothesized that there are higher levels of empathy in students as they succeed in their clinical subjects, and different levels of empathy and prosocial behavior according to gender, as in the study by Díaz-Narváez et al.[11], who concluded that women were not necessarily more empathic than men across the populations studied.

MATERIALS AND METHOD

The protocol of this study was approved by the Ethics Committee of the School of Dentistry of the University of Buenos Aires (CETICA-FOUBA 005/2022).

This study has an analytical, observational, cross-sectional approach. The universe of study comprised third- to sixth-year dentistry students at the University of Buenos Aires (UBA) in 2022, enrolled in the following subjects: Comprehensive Clinic II (3rd year), Epidemiology (4th year), Comprehensive Clinic IV (5th year), and Community Outreach Rotation (6th year). All the students were invited to participate in the study (n= 770).

Participants who did not answer over 5% of the questions were excluded from the sample.

We applied the Jefferson Scale of Empathy – Health Care Provider Student version (JSE-HPS)[12], which consists of 20 Likert-type items on a seven-point scale (1=strongly disagree; 7=strongly agree). All respondents also completed a brief sociodemographic questionnaire (age and gender).

The maximum score is obtained by the direct sum of question points (maximum possible 140, minimum possible 20 points). Higher scores are considered to correlate with a higher degree of empathy[13]. Scores of 20-84 show low empathy, while scores of 85-140 are considered high and reflect a more empathetic behavioral orientation[14]. The questions are grouped

into three dimensions: emotional and compassionate care (dimension 1 - eight items), perspective-taking (dimension 2 - ten questions) and standing in the patient's shoes (dimension 3 - two items). The first dimension, an association of feeling and emotion with empathy and understanding, is considered the core ingredient of empathy and is a relevant aspect of the provider-patient relationship. The second dimension describes the provider's understanding of the patient's concerns. The third dimension indicates an ability to reflect on and comprehend patients' concerns[15].

The JSE has proven to be stable in different groups of physicians, and therefore provides support in the construction validity as well as acceptable reliability. Significant correlation coefficients between JSE-HPS scores and conceptual measures of compassion have confirmed convergent validity. Regarding its discriminant validity, it obtained a lack of significant association with irrelevant conceptual measures such as self-protection[16].

The students were invited to participate and received explanatory information about the research while attending their classes. The design of the form had a heading with informed consent requesting the acceptance to participate in the study voluntarily, ensuring anonymity, protection and confidentiality of data protected by the National Statistics Law No. 17622 and by the Data Protection Law No. 25326. (Argentina), followed by the sociodemographic questionnaire and the measurement instruments via Google Forms.

The data obtained by the questionnaire were analyzed using the Statistical Package for the Social Sciences (SPSS) version 28. To calculate the variables and their dimensions, the averages and sums of the total and the dimensions of the medical empathy scale were calculated with the respective standard deviations.

A descriptive analysis of the Empathy variable was performed, which included the calculation of absolute and percentage frequencies, measures of central tendency and dispersion. The statistical significance level for all tests was set at $p<.05$.

Student's t-test was used to analyze statistically significant differences in the variables of interest (gender and year). The three dimensions of the Jefferson Medical Empathy Scale were analyzed separately, as well as their sum and variability concerning the student's gender and academic year.

RESULTS

Four hundred and twenty-four of the 770 students completed the questionnaire (Table 1). The response rate of women students was slightly higher than that of men; 348 (82.1%) were female, and 76 (17.9%) were male (Table 2).

Table 1. Distribution of students by year

Year	Number of respondents	%	Total number of students
3rd year	101	51.8%	195
4th year	142	67.9%	209
5th year	105	50.7%	207
6th year	76	47.8%	159
Total	**424**	**55.1%**	**770**

Table 2. Sex and age distribution

Gender	n (%)	Mean age ± SD (CI95%: LL - UL)	Range	p value
Female	348 (82.1)	25 ± 4.6 (25.3-26.3)	19 - 62	
Male	76 (17.9)	25 ± 4.1 (24.9-26.8)	21 - 40	0.880
Total	**424 (100.0)**	**25 ± 4.6 (25.4-26.2)**	**19 - 62**	

The average total score for the JSE-HPS was 108.2 (SD = 15.0), with a maximum of 134 and a minimum of 36. The dimensions of the scale were analyzed separately, with the following results: Dimension 1, emotional and compassionate care: mean 35.7 (SD= 5.5), maximum 45, minimum 13; Dimension 2, perspective taking: mean 59.0 (Sd= 9.7), maximum 70, minimum 10; and Dimension 3, ability to put oneself in the other person's place: mean 13.4 (SD = 3.6), maximum 21, minimum 3 (Table 3).

When analyzed according to academic year, scores increase from the third to the fifth year, decreasing slightly in the sixth year. Mean values were 100.9 (SD = 22.4) in the third year, 109.5 (SD = 11.0) in the fourth year, 111.5 (SD = 10.0) in the fifth year, and 110.6 (SD = 12) in the sixth year. In the HSD Tukey analysis, the values for the whole scale and each dimension separately are lowest in the third year.

Regarding the analysis by gender, the means were 109.0 (SD= 15.5) for females, and 104.4 (SD= 12.2) for males, with statistically significant difference between genders (p= 0.016) (Table 4).

Table 3. Scores of the Jefferson Scale of Empathy - Health Care Provider Student version

Dimensions	Year	Mean	SD	CI 95.0% LL	CI 95.0% UL	25%	Median	75%	Min	Max	N	p value ANOVA	p value Kruskal Wallis
Perspective-taking	3rd year	54.5	14.6	51.6	57.4	51.0	60.0	64.0	10.0	69.0	101	<0.001	0.032
	4th year	60.5	7.1	59.3	61.6	57.0	61.5	66.0	36.0	70.0	142		
	5th year	60.5	6.8	59.2	61.8	57.0	62.0	66.0	44.0	70.0	105		
	6th year	60.0	7.1	58.4	61.6	56.0	61.5	65.5	42.0	70.0	76		
	Total	**59.0**	**9.7**	**58.0**	**59.9**	**56.0**	**61.0**	**66.0**	**10.0**	**70.0**	**424**		
Emotional and compassionate care	3rd year	33.7	7.7	32.2	35.2	31.0	36.0	39.0	13.0	45.0	101	<0.001	0.008
	4th year	35.7	4.3	35.0	36.5	33.0	36.0	39.0	23.0	43.0	142		
	5th year	37.0	4.3	36.2	37.8	34.0	37.0	41.0	23.0	44.0	105		
	6th year	36.7	4.7	35.7	37.8	33.0	38.0	40.0	25.0	43.0	76		
	Total	**35.7**	**5.5**	**35.2**	**36.3**	**33.0**	**37.0**	**40.0**	**13.0**	**45.0**	**424**		
Standing in the patient's shoes	3rd year	12.8	3.6	12.1	13.5	10.0	14.0	15.0	4.0	20.0	101	0.065	0.079
	4th year	13.3	3.6	12.7	13.9	11.0	14.0	16.0	3.0	21.0	142		
	5th year	14.0	3.3	13.3	14.6	12.0	14.0	16.0	4.0	21.0	105		
	6th year	13.8	3.6	13.0	14.6	11.0	14.5	16.5	5.0	21.0	76		
	Total	**13.4**	**3.6**	**13.1**	**13.8**	**11.0**	**14.0**	**16.0**	**3.0**	**21.0**	**424**		
Total score	3rd year	100.9	22.4	96.5	105.4	95.0	107.0	118.0	36.0	129.0	101	<0.001	0.011
	4th year	109.5	11.0	107.7	111.3	104.0	110.0	117.0	81.0	134.0	142		
	5th year	111.5	10.0	109.6	113.4	105.0	112.0	118.0	85.0	133.0	105		
	6th year	110.6	12.0	107.8	113.3	105.0	112.0	120.5	79.0	134.0	76		
	Total	**108.2**	**15.0**	**106.7**	**109.6**	**102.0**	**111.0**	**118.0**	**36.0**	**134.0**	**424**		

Table 4. Gender differences in total score of the Jefferson Scale of Empathy – Health Care Provider Student version

		Mean	SD	P value ANOVA	P value Kruskal Wallis
Total score	Female	109.0	15.5	0.016	<0.001
	Male	104.4	12.2		
	Total	**108.2**	**15.0**		

DISCUSSION

This study provides insights into the current state of the acquisition of non-technical skills by dental students, finding that the participants' empathic style is satisfactory. Our results suggest that the dental training curriculum should enable students to acquire bonding skills that help them understand patient emotional condition, in order to ensure that patient experience is as satisfactory as possible. This will enable us to propose new strategies to strengthen professional training. These skills are essential to sustaining an empathic bond to consolidate the professional-patient relationship and, as Howick et al. noted, to reduce medical legal risks[17].

The data collected showed that students in the final year of their studies had lower levels of empathy, which may have been due to the stress of final exams, theses, and the submission of complex papers for the accreditation of subjects, as reported by Hojat et al., who observed a decrease or erosion when the curriculum shifted towards the provision of care after the second or third year of the program[15]. Students' empathic levels may have decreased as a result of time constraints during clinical training or the requirement to fulfil clinical requirements. Even when empathy levels are expected to increase, it is necessary to consider factors related to the educational platform that could generate stress, such as requirements for the accreditation of subjects, the availability of supplies and patients to achieve educational objectives, as shown by other studies that will also be part of this line of research[18]. Although our results showed higher levels of empathy in female students, this finding should be interpreted with caution, since the percentage of male participants was relatively low. This introduces a sampling bias that may limit

the validity of gender comparisons and should be acknowledged as a limitation.

Studying and developing academic interventions to increase and maintain empathy poses a challenge. Other studies, such as those by Rosenzweig et al.[19], have reported a reduction in erosion during clinical practice when teaching activities included more communication with patients and shared decision-making. They used several strategies to improve the empathic levels in dental students, including the use of person-centered educational modules as part of the curriculum. In 2023, the UBA School of Dentistry began implementing relational learning in empathy and prosocial behavior for students who were beginning their clinical practices. The line of research aims in future studies to conduct a longitudinal analysis that will measure whether these new tools have helped improve the levels of these constructs in students as they progress in their studies, and to measure stress levels in participants. In measuring levels of empathy in teachers, Carvajal et al.[20] found that the levels of empathy were higher in teachers than in students, which is relevant to developing strategies for dealing with patients. The academic curriculum should include this kind of knowledge for students and teachers, promoting activities to increase the components of empathy[21].

CONCLUSION

The levels of empathy of our dental students are high, and increase as they advance in their studies. Although higher empathy levels were observed in female students, this result should be interpreted cautiously due to the low proportion of male respondents, which may affect the representativeness of gender comparisons. Based on the findings, it would be relevant to review and rethink the curricular contents in terms of these constructs, considering the extensive development of social practices at the School of Dentistry of the University of Buenos Aires.

CONFLICT OF INTERESTS

The authors declare no potential conflicts of interest regarding the research, authorship, and/or publication of this article.

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