

# Empathy Levels of Dental Faculty and Students: A Survey Study at an Academic Dental Institution in Chile

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**Abstract:** A successful health care provider may be described as a clinician capable of establishing a comprehensive diagnosis including identifying related risk factors. However, an equally important quality a clinician should possess is the ability to understand the experiences and feelings of others to allow better communication for better outcomes. It is likely that faculty empathy levels influence students' ability to demonstrate this attribute. The aim of this study was to assess the levels of empathy of dental faculty members relative to dental students at the Universidad San Sebastian in Chile. Using a cross-sectional design of survey-collected data collected with the Jefferson Scale of Empathy, the authors compared the perceptions of the dental faculty involved in teaching fourth- and fifth-year dental students (n=116) to the perceptions of basic and preclinical students (n=346) and clinical students (n=189). The data were collected in 2016-17. The results showed that the mean faculty scores were higher than that of the students in compassionate care (90.1%) and perspective adoption (89.7%); however, for putting oneself in the other's shoes, the faculty had a lower score (57.8%) than the clinical students (58.2%). Future investigations are needed to understand the impact of faculty empathy scores on students and whether pedagogical interventions can increase empathy scores.

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A capable clinician may be described as one who has the proper knowledge of the disease and the ability to establish a comprehensive diagnosis and identify related risk factors. However, equally important for a clinician is the characteristic of empathy. This quality allows one to understand and envision the impact or effects of the condition on the lives of those afflicted. The exchange of information during a clinician-patient encounter is key to promote good interpersonal relationships to make effective treatment decisions.<sup>1</sup> Learning in dentistry incorporates development of appropriate relationships with patients to provide good clinical care. These social interactions involve various factors related to cognition, motivation, and affection.<sup>2</sup> Good communication requires the skill of empathy, with the ability to understand the experiences and feelings of

others—a concept that embraces both affective and cognitive components.<sup>3-7</sup> For health care providers, having high levels of empathy increases their ability to understand the effect patients' experiences have on their illness, and better communication skills will translate into improved treatment outcomes.<sup>8,9</sup> Health professionals who gained good communication skills and empathetic patient relationships have shown improved success in care provision.<sup>10,11</sup>

A ten-hour elective course pairing empathy and communication in the Stony Brook University medical curriculum improved students' communication skills, making possible the teaching of soft or essential skills as part of the academic program.<sup>12</sup> Rule and Bebeau regard empathy as one of the values required by dental professionals to exemplify a sincere concern for and interest in human beings and

a strong desire to relieve the suffering of others.<sup>13</sup> In the U.S., the Commission on Dental Accreditation (CODA) standards require that students be prepared for dental practice in a diverse society, developing core professional attributes such as altruism, social accountability, and empathy.<sup>14</sup> Dental patients have reported that when their oral health providers demonstrate understanding of their dental pain and anxiety through empathy, it has a positive effect on their care and satisfaction.<sup>15</sup> Academic administrators, curriculum designers, and educators should be aware of the importance of empathy in dentistry. Empathy skills help one understand the experiences and feelings of others to allow better communication for better outcomes.<sup>16</sup>

The development of empathy is vital in professional training and assessment strategies. It provides a framework for consistent formative and summative feedback to enable student growth as an effective clinician. Nash noted there are a number of instruments to measure empathy.<sup>17</sup> However, there is no standardized method to identify a level at which one must perform as an optimum empathic oral health provider or educator to teach or model this attribute. Dental faculty members usually undergo continuous calibration and academic development focused on the diagnostic and therapeutic techniques of their discipline, but in our experience, most do not direct attention to the empathy trait. Faculty members should have higher levels of empathy and its components than do their students in order to mentor this skill; however, research is needed on how the empathy of faculty affects the development of empathy in students. Ansary et al. noted that more data are needed to evaluate whether faculty with higher empathetic levels generate higher levels in their students.<sup>18</sup> Data to establish the relationship between instructors' and students' empathic levels would aid in the design of academic activities to promote or maintain empathetic behaviors in patient encounters. Measuring the empathy scores of dental faculty and students is a first step to study how faculty members' empathy affects its development in students. The aim of this study was therefore to assess the levels of empathy of dental faculty members relative to dental students at the Universidad San Sebastian in Chile.

## Methods

The ethical norms of Helsinki (2013) were applied in this study, and the research was approved by

the Ethics Committee of the Faculty of Dentistry, San Sebastian University, Chile (2015-02 for students and 2017-36 for faculty). The study used a cross-sectional design to measure and compare the perceptions of the fourth- and fifth-year dental school faculty to the basic and preclinical students and clinical students of the Universidad San Sebastian in Chile. The educational model of this university promotes experiential learning with strong relationships between students and communities and states that dental graduates will understand others and value diversity, elements that are intrinsic in empathic behavior.<sup>19</sup> Data were collected from a convenience sample of faculty at the Universidad San Sebastian in May 2017 (n=117), corresponding to 76% of the population. The faculty data were compared with data collected in a previous study (2016) of basic and preclinical students and clinical dental students (n=535) at the same university.

For this study, we selected the Jefferson Scale of Empathy (JSE), a validated instrument developed to measure empathy in the education of health professionals and patient care delivery.<sup>20</sup> The JSE measures the capacity to communicate empathy with the intention to help. The instrument identifies empathy as a cognitive rather than an emotional attribute that involves an understanding of the patient's pain and suffering. This scale has been used in various languages for measuring empathy and uses a three-factor component model consisting of "compassionate care" (with a maximum possible score of 49 points), "perspective adoption" (with a maximum possible score of 70 points), and "putting oneself in the other's shoes" (with a maximum possible score of 21 points).<sup>21</sup> In our study, a culturally validated Spanish adaptation of the JSE for Medical Students was used for the students,<sup>22</sup> and the JSE for Health Professionals was used for the faculty.<sup>23,24</sup> The survey was conducted with paper forms, offering the participants opportunity to clarify any terms during the data collection and verifying that there were no missing data in the questionnaires.

Normality and homoscedasticity tests were used (Kolmogorov-Smirnov and Levene, respectively) to verify the assumptions were met for parametric data analysis.<sup>25</sup> The internal reliability was calculated using the Cronbach's alpha test, assessing confidence of the data and correlations.<sup>26</sup> Intra-class correlation coefficient complemented the confidence of the Cronbach's alpha test,<sup>27</sup> and Hotteling's T-square distribution was estimated to determine the variability per item.<sup>28</sup> The data were compared among three groups: faculty, basic and preclinical students, and

clinical students. A general linear variance analysis (model III) was applied for study areas and gender. The means of empathy and its components were compared using Tukey's multiple comparison test. We processed the data using the statistical program SPSS 23.0 (IBM Corp., Armonk, NY, USA), with a level of significance of  $\alpha \leq 0.05$ .

## Results

The response rate of the sample of faculty members from various specialties was 88.6% (n=116). The Kolmogorov-Smirnov and Levene tests were not significant ( $p > 0.05$ ) for faculty, so the data were distributed in a normal manner and with equal variances. The values of Cronbach's alpha were satisfactory (without standardizing=0.682, standardized=0.756), so internal reliability was assumed. The value of the total Cronbach's alpha fluctuated between 0.647 and 0.727, and we inferred that the test maintained acceptable reliability. The intra-class correlation was 0.682 ( $F=3.15$ ;  $p=0.005$ ; IC 0.592, 0.760) and ratified the observed reliability. The Hotelling T test was 861.9 ( $F=116.6$ ;  $p=0.005$ ), showing that not all questions contributed equally to empathy and denoting variability in the empathic response. Mean score, standard deviation, and sample size for

empathy and each of the three components for the students are shown in Table 1. Among the students, the clinical group had the highest overall score in empathy, compassionate care, and putting oneself in the other's shoes; however, the component "perspective adoption" showed higher levels in basic and preclinical students.

When we compared the faculty data to that of the students, we found the faculty scored even higher in general empathy and compassionate care. The faculty scores and analysis for empathy, compassionate care (90.1%), perspective adoption (89.7%), and putting oneself in the other's shoes (57.8%) are shown in Table 1. The scores for those three components of the basic and preclinical students were 76.6%, 85.9%, and 56.0%, while the clinical students scored 87.0%, 85.9%, and 58.2%, respectively. Gender analysis showed a slightly higher value for the women in empathy, compassionate care, and putting oneself in the other's shoes, but not in perspective adoption (Table 2). Compassionate care and perspective adoption were significant with satisfactory values of eta-squared and potential. Regarding putting oneself in the other's shoes, none of the factors was significant. The means of the three groups were as follows from lowest to highest: basic and preclinical students, clinical students, and faculty.

**Table 1. Participants' scores on Jefferson scale of empathy: mean and standard deviation for overall scale and its components**

Group	Gender	n	Overall (Empathy)		Compassionate Care		Perspective Adoption		Putting Oneself in Other's Shoes				
			Mean	SD	Mean	SD	Mean	SD	Mean	SD			
Basic and preclinical students	Female	221	110.59	14.460	37.90	8.305	60.88	7.541	11.81	3.602			
	Male	125	107.49	14.235	36.99	7.592	58.79	7.562	11.70	3.225			
	Total	346	109.47	14.436	37.57	8.056	60.13	7.604	11.77	3.466			
	Percentage										78.2%	76.6%	85.9%
Clinical students	Female	128	115.84	12.119	42.91	5.333	60.30	6.915	12.62	3.646			
	Male	61	113.08	11.827	42.05	5.374	59.67	6.457	11.36	3.536			
	Total	189	114.95	12.063	42.63	5.347	60.10	6.760	12.22	3.650			
	Percentage										82.1%	87.0%	85.9%
Faculty members	Female	62	119.85	9.120	44.56	4.601	62.71	5.110	12.58	3.366			
	Male	54	118.20	9.083	43.72	4.784	62.87	5.013	11.61	2.871			
	Total	116	119.09	9.101	44.17	4.685	62.78	5.044	12.13	3.169			
	Percentage										85.0%	90.1%	89.7%
Total	Female	411	113.62	13.507	40.47	7.545	60.98	7.058	12.18	3.595			
	Male	240	111.32	13.331	39.79	7.150	59.93	6.954	11.60	3.222			
	Total	651	112.77	13.478	40.22	7.404	60.59	7.032	11.96	3.471			
	Percentage										80.6%	82.0%	86.6%

Note: Maximum possible points for each measure are as follows: empathy 140; compassionate care 49; perspective adoption 70; putting oneself in the other's shoes 21.

**Table 2. Faculty results: ANOVA application, F value, eta-square, potential, and R<sup>2</sup> of test (used and corrected)**

Measure	F	p	Eta-Square	Potential
Empathy				
Area (A)	28.11	0.001	0.08	1
Gender (G)	4.73	0.03	0.007	0.584
A*G	0.134	0.875	0.001	0.71
Compassionate care				
Area (A)	54.23	0.001	0.144	1
Gender (G)	2.05	0.153	0.003	0.298
A*G	0.001	0.999	0.001	0.05
Perspective adoption				
Area (A)	8.17	0.005	0.025	0.96
Gender (G)	1.89	0.169	0.003	0.28
A*G	1.35	0.261	0.004	0.291
Putting oneself in the other's shoes				
Area (A)	0.522	0.592	0.002	0.136
Gender (G)	6.39	0.012	0.01	0.714
A*G	1.76	0.173	0.005	0.369

p=probability of committing type I error; \*=symbol of interaction between factors A and G

For compassionate care, two groups were formed with statistical differences. The students in the clinical area and the faculty had no significant mean differences ( $p>0.05$ ) on compassionate care and nonsignificant differences ( $p>0.05$ ) with the basic and preclinical students, who had the lowest value on that component. Perspective adoption generated

two groupings: the two groups of students scored the same and the faculty ( $p>0.05$ ) (Table 3). Since this scale does not have specific norm values, the score distribution was used to generate subcategories created by the means, considering that the higher values represented more empathic individuals. For the last component, putting oneself in the other's shoes, low

**Table 3. Comparison of means of empathy and its components for three areas**

Measure/Group	N	Subsets		
		1	2	3
Empathy				
Basic and preclinical students	346	109.47		
Clinical students	189		114.95	
Faculty members	116			119.09
Intragroup significance		1		
Compassionate care				
Basic and preclinical students	346	37.57		
Clinical students	189		42.63	
Faculty members	116		44.17	
Intragroup significance		1	0.086	
Perspective adoption				
Basic and preclinical students	346	60.13		
Clinical students	189	60.1		
Faculty members	116		62.78	
Intragroup significance		0.999	1	
Putting oneself in the other's shoes				
Basic and preclinical students	346	11.77		
Clinical students	189	12.14		
Faculty members	116	12.22		
Intragroup significance		0.439		

Note: Subsets 1, 2, and 3 are categories created by the means, with three subsets for empathy, two each for compassionate care and perspective adoption, and one for putting oneself in the other's shoes.

values were found in all three groups ( $p>0.05$ ), and the clinical students scored higher than the faculty. The JSE instrument's maximum point score for empathy showed the data from the basic and preclinical students were the lowest while the faculty reached higher levels (Figure 1).

## Discussion

Ferreira-Valente et al. found trends in students' empathic levels throughout academic programs in the health sciences that were different from the results of our study.<sup>29</sup> Three identifiable patterns have been reported: an initial increase with subsequent erosion or decline, a significant increase, and no significant change.<sup>30-33</sup> Hojat et al. found a decline or erosion when the curriculum was shifting toward care provision, which occurred after the second or third year of the program.<sup>34</sup> Understanding the empathy level changes of dental students is a challenge due to multiple confounding variables. The timing of the

decline may be related to time constraints during clinical training or meeting clinical requirements that influence students' focus and affect levels. Other factors that have been found to play an important role in creating variability in empathy are culture, religion, family structure or dynamics, and hidden curricula.<sup>35</sup> Developing academic interventions to increase and maintain this attribute is challenging due to the complexity of this characteristic.<sup>36,37</sup>

Several strategies have been used to improve empathic levels in dental students, including the use of person-centered educational modules as part of the curriculum. Rosenzweig et al. reported on this approach, with a reduction in the erosion during clinical practice when the didactic activities included more communication with patients and shared decision making.<sup>38</sup> Since one of the roles of the faculty is to facilitate the learning process during an academic program, having higher levels of empathy is a desirable characteristic of this group, which then can demonstrate what each component looks like in clinical practice. Even though it is not clear why

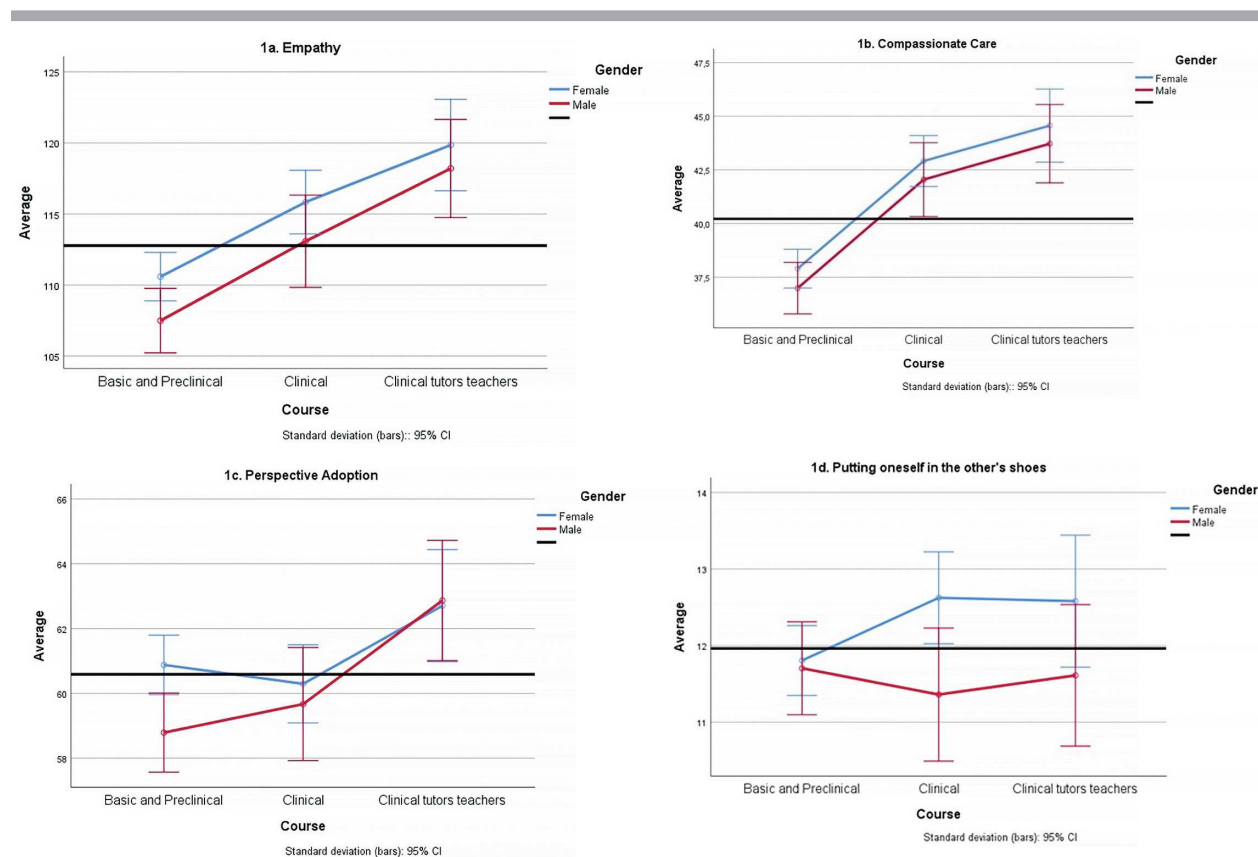


Figure 1. Values of average in three areas studied for empathy, its components, and gender: empathy (panel 1a); compassionate care (panel 1b); perspective adoption (panel 1c); putting oneself in the other's shoes (panel 1d)



the faculty in our study had higher levels and there is not an agreement on how consistently health care practitioners express empathy, Howick et al. noted that enhancing its expression might improve patient health and reduce medico-legal risk.<sup>39</sup> The academic interventions should include the faculty as well as students, promoting activities that will foster an increase of the components of empathy, such as involving patients in the decision making for their dental care.<sup>40</sup>

Our study found that the faculty scored higher levels of empathy than the students. The component with the highest difference was compassionate care, which other studies have found allowed the faculty an enhanced opportunity for modeling empathy.<sup>41,42</sup> Some researchers have postulated that the compassionate care component of empathy is difficult to modify; their rationale is that this component is formed during the entire human ontogenic period and is based on the dynamic interaction of emotions and morality.<sup>43,44</sup> The ability of students to consolidate high levels of compassion and react with empathy in the presence of patients' suffering requires further investigation. Empathy could influence clinical performance, either with a better understanding or by affecting the ability to provide optimal care by emotionally involved decision making. With compassion, a health care provider will have the sensitivity to understand another person's suffering and the willingness to promote the well-being of that person.<sup>45</sup>

The component "putting oneself in the other's shoes" addresses the importance of understanding others and considering their perspective or reality. An optimal value has not been established to measure if the low levels by both faculty and students in our study mean they actually lacked this characteristic. The fact that the faculty scored higher levels on this characteristic component suggests that they had what Di Cesare et al. described as a better understanding of the internal state of others by observing their actions or listening to their voice.<sup>46</sup> Health professionals' nonverbal communication is essential for seriously ill patients' experience by promoting their well-being in the form of positive thoughts and emotions.<sup>47</sup> Pedagogical interventions to develop this component as a patient care skill can be useful since patients have been found to rate a provider's quality of care higher when he or she demonstrates seeing the person beyond the disease.<sup>48</sup>

The "perspective adoption" component has been considered the cognitive dimension of empathy as the ability to understand how another person sees the world and to feel the need to understand diversity

and inclusion.<sup>49</sup> Academic administrators and curriculum designers should identify both theoretical and practical application strategies to include equity principles that promote inclusiveness in the training process, especially when considering the need to have a global vision in health care. Adams et al. found that students had to understand the importance of true partnership and capacity-building, aligned with collaborations and alliances, in order to promote healthier populations.<sup>50</sup>

Studies have found that men and women have the same potential to develop empathy, though their neural pathways and the way of socially externalizing their empathy may be different so their expression of empathy might differ.<sup>51-53</sup> In our study, gender did not lead to significant differences although the women students did score higher. According to previous studies, there is no consistent pattern to conclude that one gender is more empathic than the other even if there are patterns favoring one group over the other.<sup>54-56</sup>

The main limitation of the study is that the data from faculty and students were collected at different time points, with the first done in 2017 and the second in 2016. However, there was no change in the curriculum or faculty composition during this period. In future studies, the data collection should be performed at the same time. Also, since the study took place at only one dental school, its results may not be generalizable to students in other programs. Another limitation is that neither the sociodemographic data nor specialty status of the subjects was considered, elements that may play a role in the demonstration of the empathic attributes and should be included in future research. A final limitation is our inability to derive specific pedagogical interventions based on the collected data. Understanding the JSE components' levels for both the faculty and students is a starting point to develop an academic plan to include empathy as part of the essential skills in a dental program. An intervention has to consider that there are multiple variables, such as faculty empathic levels, that may affect change. A pedagogical intervention should take into consideration that empathic levels are influenced by learned and automatic responses that are mediated by experiences and neuronal networks developed through the life of individuals. Researchers have suggested that learning should be in a social environment to produce significant and sustainable empathic behavior<sup>57-60</sup> and be included in early stages of the curriculum to prepare students to manage patients with different needs and perspectives.<sup>61</sup> It is reasonable to consider that a pedagogical

design for promoting empathy requires faculty with the appropriate set of skills and the ability to promote social interactive teaching-learning methods; however, more research is needed to determine the impact faculty members have on students' empathic behavior and the role of pedagogical interventions on patient outcomes.

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## Conclusion

The results of our study showed that although the faculty participants had higher scores than the students in general empathy and compassionate care, their level of perspective taking was similar to that of the basic and preclinical students. The clinical students had higher levels than the basic and preclinical students in all other categories, indicating improvement as they gained more knowledge and interacted with patients in the clinical environment. Future investigations are needed to understand the impact of faculty empathy on students and whether pedagogical interventions can increase empathy scores. This knowledge will be useful to improve and optimize outcomes for all dental professionals and their patients.

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## Disclosure

The authors do not have any financial, economic, or professional interests that may have influenced the design, execution, or presentation of this research.

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