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ORIGINAL RESEARCH

Variability of empathy among dental students. Implications not yet understood in Latin America

Variabilidad empática en estudiantes de odontología. Consecuencias aún no entendidas en América Latina

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Abstract

Introduction: Empathy is a quality that allows dentists to build an intersubjective relationship with their patients, which, among other benefits, contributes to the effectiveness of the treatment.
Objective: To determine whether there is variability in empathy levels between two populations of dental students and to describe theoretically the general implications of this variability for intervention strategies.
Materials and methods: Exploratory cross-sectional study. The study population consisted of 1st-5th year dental students from the Universidad Santiago de Cali, Colombia (n=610; N=647) and the Universidad San Sebastián, Chile (n=535; N=800). In both groups, empathy was measured using the Jefferson Scale of Empathy (S-Version) Scale. Descriptive statistics (mean and standard deviation) were used for data analysis. Internal consistency of data was estimated using Cronbach's alpha and the intraclass correlation coefficient. A factorial analysis of variance was performed, and three factors were studied: University (U), Course (C), and Sex (S). The statistical significance level used was $\alpha<0.05$ and $\beta\leq0.20$.
Results: Differences in empathy level and in some of its three dimensions were observed between students from both universities and among courses (1st-5th year). No differences were found between sexes.
Conclusions: There is variability in empathy levels among dental students from both universities. Thus, the implementation of specific empathy intervention strategies in each dental medicine program offered in Latin America is required to increase empathy levels in this population.

Resumen

Introducción. La empatía es un atributo que permite a los odontólogos establecer una relación intersubjetiva con sus pacientes, lo que contribuye a un tratamiento exitoso, entre otros beneficios.
Objetivo. Determinar si hay variabilidad en los niveles de empatía entre dos poblaciones de estudiantes de odontología y describir teóricamente las implicaciones generales de esta variabilidad en estrategias de intervención.
Materiales y métodos. Estudio exploratorio transversal. La población de estudio consistió de estudiantes de odontología de 1er a 5to año de la Universidad Santiago de Cali, Colombia (n=610; N=647) y la Universidad San Sebastián, Chile (n=535; N=800). En ambos grupos, la empatía se midió con la Escala de Empatía Médica de Jefferson (Versión S). Para el análisis de los datos se utilizó estadística descriptiva (media y desviación estándar). La consistencia interna de los datos se estimó mediante el coeficiente alfa de Cronbach y el coeficiente de correlación intraclase. Se realizó un análisis de varianza factorial: tres factores estudiados: Universidad (U), Curso (C) y Sexo (S). El nivel de significancia estadística utilizado fue de $\alpha<0.05$ y $\beta\leq0.20$.
Resultados. Se observaron diferencias en el nivel de empatía y algunas de sus tres dimensiones entre los estudiantes de ambas universidades y entre los cursos (1er-5to año). No se observaron diferencias entre sexos.
Conclusiones. Existe variabilidad en los niveles de empatía entre los estudiantes de ambas universidades. Para aumentar los niveles de empatía en esta población en Latinoamérica se requiere implementar estrategias específicas de intervención empática en cada programa de odontología ofrecido en la región.

Introduction

Empathy is an attribute that allows dentists and their patients to have a positive inter-subjective relationship,[1,2] hence contributing to increased satisfaction and reduced stress levels in patients. It also helps to improve adherence to treatment and create a generally supportive environment for care, among other benefits.[3-7]

The process of empathy development is complex[8-12] because it encompasses both ontogenetic and evolutionary variables.[13,14] However, the former are currently more significant, and society in general, and universities in particular, must take advantage of all opportunities for its development and positive consolidation.[15-22]

It has been established that neuronal development "ends" around the age of 25; however, brain plasticity may be an important factor that prolongs the capacity to acquire empathy over time.[10] As a consequence, universities should undertake the training of this skill in their undergraduate and graduate students (particularly in the medical sciences).

One of the most widely used instruments to assess empathy levels in dental students is the Jefferson Medical Empathy Scale S version (EEMJ-S),[2,5,9,10-12,14-16] which measures the levels of empathy (E) and its three dimensions —compassionate care (CC), perspective taking (PT), and walking in the patient's shoes (WPS)— and has been well characterized in several studies.[1-22]

A good diagnosis of empathy is based on an understanding of the distribution of observed levels of empathy (and its dimensions), as well as the factors impacting this distribution. One of such factors is potential variability among students in dental schools or faculties within a country or between different countries. Thus, the specificity of a given distribution of empathy in a student population may be associated with the need of adopting methodologies, approaches, and strategies that are equally specific to the state of empathy in particular.

In this context, the objective of this study is to determine whether there is variability in empathy levels between two populations of dental students and to describe theoretically the general implications of this variability for intervention strategies.

Materials and methods

Study type and population

Exploratory cross-sectional study conducted among first- to fifth-year dental students from the universities Santiago de Cali (USC, Cali, Colombia) and San Sebastián (USS, Santiago, Chile).

The total population of dental students enrolled in USC in 2017 was 647 (N), of which 610 (n) (94.28% of the study population) were administered the culturally adapted scale. According to their year of training, students were distributed as follows: 57 in the first-year, 147 in the second-year, 95 in the third-year, 181 in the fourth-year, and 130 in the fifth-year. The distribution by sex was: 340 women and 270 men.

On the other hand, in the USS (comparison group), the sample consisted of 535 students out of a total of 800 (N) enrolled in 2016 (66.88% of the study population). The distribution according to the academic year they were studying was: 109 in the first-year, 118 in the second-year, 119 in the third-year, 86 in the fourth-year, and 103 in the fifth-year. The distribution by sex was: 349 women and 186 men.

Students who did not agree to respond voluntarily to the instrument, did not sign the informed consent form, and were absent on the day the scale was administered were excluded from sample selection.

Data collection and processing, statistical analysis, and the instrument used to measure empathy levels (EEMJ-S) were the same in both groups. It should be noted that the results obtained from the Chilean students have been published in detail and are easily accessible.[1,2,9,16,17]

Instrument

The EEMJ-S is a self-administered instrument that was adapted for dental students in Colombia and Chile based on the criteria of Lopez-Pérez *et al.*[1] and Díaz-Narváez *et al.*,[17] respectively. This scale was subjected to a review by judges prior to its administration, so its cultural validity was verified by five ad hoc academics.

The results of the study on psychometrics and invariance of the EEMJ-S three-dimensional latent model for the Caribbean and Central America, including Colombia, were recently published by Díaz *et al.*,[9] while the results from Chile were recently submitted for publication by Díaz-Narváez (Personal Communication). The presence of the three-dimensional model and its invariance across populations and sexes was demonstrated in those research works, allowing us to compare the populations studied in this work.

Procedures

A neutral operator administered the scale in person, ensuring that students could complete the instrument in a quiet and orderly environment, clarifying doubts about how to respond properly, verifying that the questionnaires were handed over with all questions answered, and ensuring that the informed consent form attached to the instrument was signed. It is important to note that the scale was not administered to all students at the same time, but during different sessions based on their year of training.

Data was collected at USC in September and October 2017, and at USS in September and October 2016.

Before being administered, the culturally adapted instrument was tested on 30 dental students from other universities in order to ensure that the participants understood the questions. The characteristics of this application have already been explained in other works.

Statistical analysis

Primary data were tested for normality (Kolmogorov–Smirnov test) and homoscedasticity (Levene). Means and standard deviations were also estimated for analysis. A factorial analysis of variance (three-factor ANOVA, Model II) was performed on the three factors studied: University (U), Course (C), and Sex (S). Data reliability was calculated using Cronbach's alpha coefficient and intraclass correlation coefficient.

Data were described by means of simple arithmetic graphs. Eta-squared effect size ($\eta 2$) and test power (PP=1-β) were estimated to determine the degree of statistical differences and the probability of type II error, respectively. Calculations were performed using the SPSS 25.0 software. The significance level used was $\alpha<0.05$ and $\beta\leq0.20$.

Ethical considerations

The study took into account the ethical principles for medical research involving human subjects established by the Declaration of Helsinki[23] and the provisions on health research of Resolution 8430 of 1993 of the Colombian Ministry of Health.[24] The research was

approved by the Ethics Committee of the Faculty of Dentistry of the Universidad San Sebastián, in accordance with resolutions 2015-02 of January 28, 2015, and 2020-83 of January 20, 2020 (extension of the first resolution).

Results

Tests for normality and homoscedasticity were not significant (p>0.05). Cronbach's alpha estimated for the instrument administered to USC students was satisfactory (untyped: 0.675 and typed: 0.727), so it is possible to infer that the empathy data measured in the participants have internal consistency. Total Cronbach's alpha, if one item (question) was removed, was estimated with replacement items for the next calculation and fluctuated between 0.675 and 0.727. Intraclass correlation coefficient was 0.719 (95%CI: 0.685-0.750; F=3.56; p=0.0001), which confirms the good reliability of the instrument. Reliability results obtained in the comparison group were similar to those found in the present study.[17]

Table 1 presents the means (total and combined by factor) and the standard deviations for empathy and their dimensions at each of the levels of the factors evaluated, as well as the respective interactions of the two populations studied. This same table details partial and total sample sizes for the U, C and S factors, including their interactions (*).

Table 1. Results of the mean and standard deviation estimation for empathy and its dimensions by university, course, and sex.

University	Course	Sex	n	E		CC		PT		WPS	
				M	SD	M	SD	M	SD	M	SD
Universidad Santiago de Cali (Cali, Colombia)	1st year	Women	29	105.55	13.241	37.83	7.122	56.72	8.585	11.00	3.854
		Men	28	100.36	15.798	33.75	9.935	55.36	9.117	11.25	3.146
		Total	57	103.00	14.658	35.82	8.785	56.05	8.798	11.12	3.495
	2nd year	Women	86	99.65	14.978	34.84	8.112	53.88	9.320	10.93	3.467
		Men	61	98.72	13.632	33.39	8.564	54.69	8.009	10.64	3.742
		Total	147	99.27	14.394	34.24	8.304	54.22	8.780	10.81	3.574
	3rd year	Women	41	101.9	12.041	35.20	7.580	56.37	7.509	10.34	3.554
		Men	54	99.85	12.045	33.78	7.057	55.59	6.391	10.48	3.874
		Total	95	100.74	12.022	34.39	7.282	55.93	6.868	10.42	3.720
	4th year	Women	102	103.05	15.606	35.86	8.787	55.92	9.407	11.26	3.212
		Men	79	99.14	14.704	32.89	10.272	55.63	7.623	10.62	4.321
		Total	181	101.34	15.301	34.56	9.552	55.80	8.652	10.98	3.739
	5th year	Women	82	103.01	11.893	35.78	7.192	56.12	6.859	11.11	3.475
		Men	48	101.60	11.146	33.96	8.420	56.56	6.614	11.08	3.712
		Total	130	102.49	11.599	35.11	7.687	56.28	6.747	11.10	3.550
	Total	Women	340	102.26	14.043	35.67	7.965	55.58	8.553	11.01	3.430
		Men	270	99.75	13.434	33.46	8.901	55.55	7.453	10.74	3.868
		Total	610	101.15	13.822	34.69	8.457	55.56	8.078	10.89	3.630

Table 1. Results of the mean and standard deviation estimation for empathy and its dimensions by university, course, and sex. (continued)

University	Course	Sex	n	E		CC		PT		WPS	
				M	SD	M	SD	M	SD	M	SD
Universidad San Sebastián (Santiago, Chile)	1st year	Women	68	106.54	17.194	35.72	8.564	58.15	9.629	12.68	3.470
		Men	41	108.39	13.285	37.41	6.837	58.85	7.866	12.12	3.257
		Total	109	107.24	15.798	36.36	7.968	58.41	8.975	12.47	3.387
	2nd year	Women	74	109.18	12.095	36.69	7.732	61.57	5.715	10.92	3.572
		Men	44	104.45	15.137	33.89	8.165	58.84	7.474	11.73	3.201
		Total	118	107.42	13.444	35.64	7.978	60.55	6.531	11.22	3.447
	3rd year	Women	79	115.39	12.624	40.91	7.804	62.59	6.344	11.89	3.591
		Men	40	109.90	13.908	39.98	6.451	58.68	7.532	11.25	3.240
		Total	119	113.55	13.269	40.60	7.363	61.28	6.987	11.67	3.477
	4th year	Women	56	117.34	10.057	43.80	4.232	60.38	6.516	13.16	3.383
		Men	30	110.80	12.861	40.93	6.275	58.97	6.713	10.90	3.177
		Total	86	115.06	11.476	42.80	5.188	59.88	6.581	12.37	3.468
	5th year	Women	72	114.67	13.460	42.22	5.991	60.24	7.255	12.21	3.809
		Men	31	115.29	10.470	43.13	4.153	60.35	6.232	11.81	3.851
		Total	103	114.85	12.587	42.50	5.498	60.27	6.933	12.09	3.807
	Total	Women	349	112.51	13.863	39.74	7.736	60.67	7.313	12.11	3.635
		Men	186	109.32	13.716	38.65	7.326	59.08	7.213	11.59	3.325
		Total	535	111.40	13.883	39.36	7.607	60.12	7.311	11.93	3.535
Total	1st year	Women	97	106.25	16.052	36.35	8.180	57.72	9.308	12.18	3.652
		Men	69	105.13	14.789	35.93	8.365	57.43	8.509	11.77	3.218
		Total	166	105.78	15.503	36.17	8.235	57.60	8.959	12.01	3.474
	2nd year	Women	160	104.06	14.484	35.69	7.968	57.44	8.729	10.92	3.505
		Men	105	101.12	14.493	33.60	8.363	56.43	8.021	11.10	3.551
		Total	265	102.89	14.531	34.86	8.175	57.04	8.455	10.99	3.517
	3rd year	Women	120	110.78	13.945	38.96	8.164	60.47	7.358	11.36	3.639
		Men	94	104.13	13.738	36.41	7.438	56.90	7.030	10.81	3.620
		Total	214	107.86	14.213	37.84	7.937	58.90	7.414	11.12	3.632
	4th year	Women	158	108.11	15.464	38.68	8.394	57.50	8.739	11.94	3.387
		Men	109	102.35	15.097	35.10	9.991	56.55	7.504	10.70	4.027
		Total	267	105.76	15.548	37.22	9.231	57.11	8.255	11.43	3.705
	5th year	Women	154	108.46	13.892	38.79	7.378	58.05	7.319	11.62	3.664
		Men	79	106.97	12.738	37.56	8.346	58.05	6.691	11.37	3.759
		Total	233	107.96	13.503	38.37	7.724	58.05	7.098	11.54	3.691
	Total	Women	689	107.45	14.856	37.73	8.104	58.16	8.342	11.56	3.575
		Men	456	103.66	14.331	35.58	8.671	56.99	7.551	11.09	3.676
		Total	1145	105.94	14.760	36.87	8.397	57.69	8.053	11.38	3.622

E: empathy; CC: compassionate care; PT: perspective taking; WPS: walking in the patient's shoes; M: mean; SD: standard deviation.
Source: Own elaboration.

Table 2 presents the results of the comparison of the means for empathy and its three dimensions among the U, C and S factors, as well as the estimation of the effect size and power of the test. Only the U, C and S factors and the U*C interaction were highly significant (p<0.01), which means that E values are different between universities, between courses in each university, and between sexes. The presence of interaction shows that there are also differences between equivalent courses of both universities (Figure 1a and 1b). Effect size values were medium and low in U and U*C, respectively, and low for C and S. The probability of committing a type II error was very low in all three factors and in the interaction.

A situation comparable to that of E occurred in the CC dimension: the same factors and interactions were highly significant in both (p<0.005): U, C, S, and U*C. In addition, effect

size for U was considered medium, but low in the other factors that were significant; therefore, there are significant differences between the mean scores of the two groups studied for this dimension, although the differences in the other factors (C and S) and in the U*C interaction were small (Figures 1c and 1d). The probability of committing a type II error in these comparisons was low or null.

Finally, in the PT and WPS dimensions, the only factor that was highly significant was U (p<0.005), with medium effect size values for PT (Figure 1e and 1f) and low for WPS (Figures 1g and 1h).

Table 2. Results of the comparison of the means of Empathy and its dimensions between the factors University, Course and Sex, and estimation of the effect size and power of the test.

Sources of variation	Empathy				Compassionate care				Perspective taking				Walking in the patient's shoes			
	F	*p*	ή2	PP	*F*	*p*	ή2	PP	*F*	*p*	ή2	PP	*F*	*p*	ή2	PP
U	1395	0.0001	0.104	1.0	91.21	0.0005	0.075	1.0	72.31	0.0001	0.06	1.0	18.97	0.005	0.017	0.992
C	5.92	0.005	0.021	0.99	10.31	0.001	0.035	1.0	0.99	0.438	0.003	0.302	1.65	0.159	0.006	0.511
S	10.25	0.001	0.009	0.892	10.06	0.002	0.009	0.887	2.93	0.087	0.003	0.402	2.51	0.113	0.002	0.354
U*C	3.30	0.01	0.12	0.842	10.27	0.001	0.035	1.0	1.30	0.269	0.005	0.409	0.334	0.848	0.001	0.191
U*S	0.008	0.927	0.005	0.051	2.42	0.120	0.002	0.343	1.52	0.219	0.001	0.233	1.175	0.279	0.001	0.191
C*S	0.952	0.433	0.003	0.304	0.98	0.528	0.003	0.257	0.786	0.535	0.003	0.254	1.797	0.127	0.006	0.551
U*C*S	1.26	0.282	0.004	0.399	1.43	0.224	0.005	0.446	0.988	0.413	0.004	0.315	1.14	0.336	0.004	0.361

U: university; C: course; S: sex; ή2: effect size coefficient (eta-squared); PP: power of the test or type II error (1-β).
Note: The asterisk (*) represents the interaction between factors; p<0.05 was considered significant, p<0.01 was considered very significant, and p<0.005 was considered highly significant.
Source: Own elaboration.

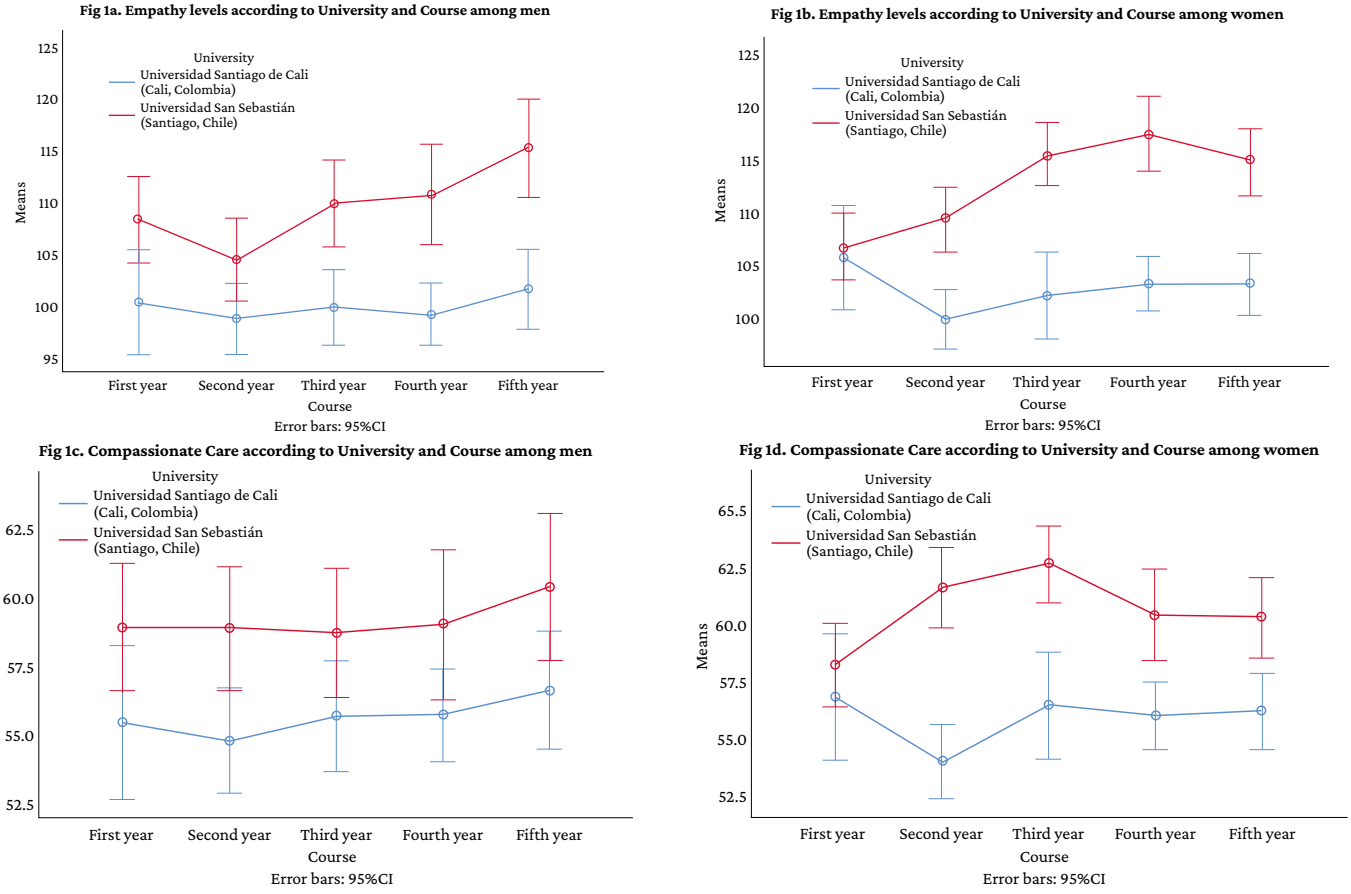
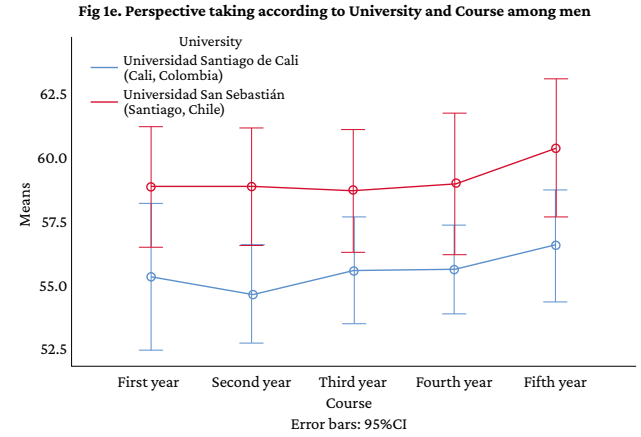
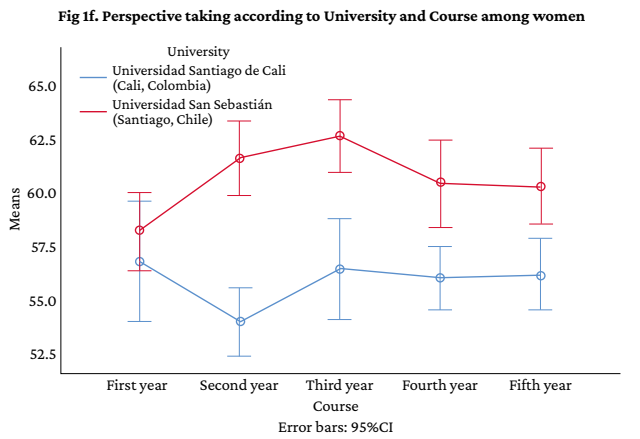
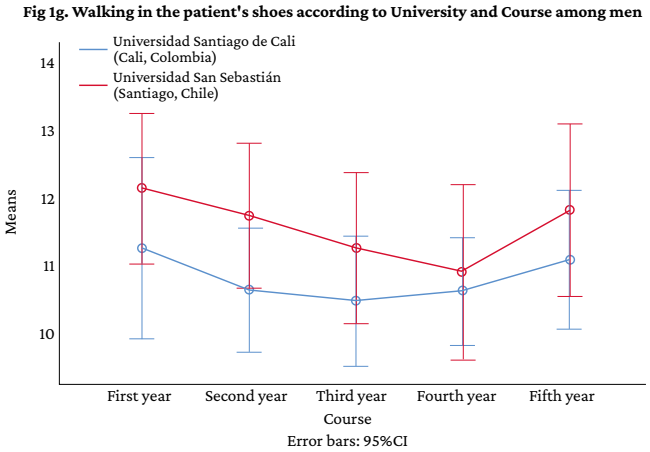


Figure 1. Results of the estimation of means and standard deviations plotted by University and Course.
Source: Own elaboration.







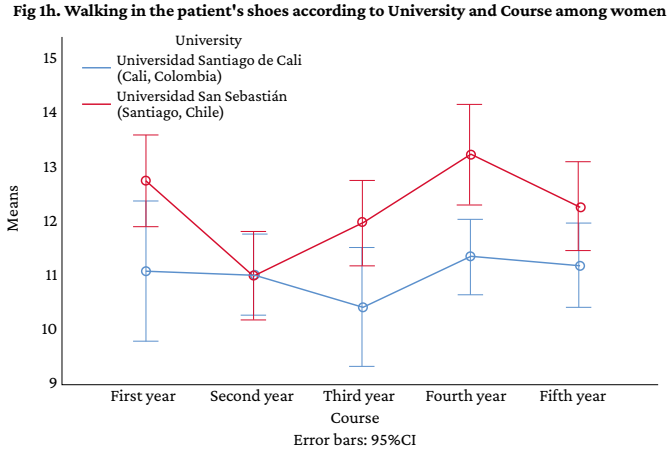


Figure 1. Results of the estimation of means and standard deviations plotted by University and Course. (continued)
Source: Own elaboration.

Discussion

It is important to stress that empathy is the result of the active synthesis of its components, including cognitive (PT and WPS) and emotional (CC) aspects.[12,14,16] As a consequence, if any (manifestation) of these dimensions is "depressed" for any reason, it not only causes a decrease in the values of the global empathy measure, but it also leads the empathy "system" to enter into what could be called a state of "imbalance" and prevents its expression as a whole.

The aforementioned situation limits, to varying degrees, empathic attitudes; therefore, the observed score is always an external reflection of the "development of empathy" of a student or student population, although it does not explain much of the actual state of empathy. For example, if someone gets the highest score in CC (49 points), the highest in PT (70 points), and only 3 points in WPS (maximum of 21), where the EEMJ-S has a maximum total of 140 points, this person's scores would sum up to 122 and could be classified as having high levels of empathy. However, it is clear that such a person has an extremely depressed WPS dimension, and as a result, they may be compassionate for what another person is suffering while also avoiding empathy contagion by avoiding obnubilation, but they have a severely diminished capacity to understand and comprehend what the other person is feeling and thinking.

On the other hand, if empathy is considered an open system, then it is possible to infer that it is subject to the pressure of both external and internal factors (derived from neurophysiological functioning) that influence its shaping and consolidation process.[12,13,16]

This influence need not be the same everywhere, nor do the same factors affect the ontogenetic development of an individual student or a student population everywhere.

On the basis of the above, the concept of empathy expression variability takes on a theoretical basis and that should be explained. One way of doing this could be to understand or study the internal and external factors that influence empathy and how they can modulate its expression in a positive or negative way;[2,6,7,9-19] such understanding could indirectly lead to a causal explanation (at best) or observation of a certain degree of dependency or association of empathy with a given factor or factors.

Actually, if the present study takes into consideration differences that simultaneously mark significant statistical differences, acceptable values (medium and low) of the effect size[24-26] and high levels of statistical power of the test as consistent differences (variability) between the factors studied in both universities,[24] variability would be present only in the U, C and U*C factors in E and in the CC dimension. In the other dimensions, differences were found only in factor U. These findings constitute empirical evidence confirming the results of variability that have been systematically found by other authors in dental students[1,2,17,27-30] and other health sciences specialties in Latin America.[10-12,15,16,19] In relation to the differences found in factor C, it was observed that the variability is also evident in relation to the process of "evolution" of empathy levels throughout the courses, which is called "decline in empathy."[31]

This process is associated with the phenomenon called "erosion of empathy,"[32] which consists of the decrease in the levels of empathy among students as they move into more advanced courses. This has been attributed to several possible causes,[33] including the existing curriculum, excessive academic load, bully professors, academic harassment, the students' family situation, or their personality type, among many others.[1,2,11,12,14,16,17,29-32,34] However, the presence of a generalized decline in empathy has been called into question in various research conducted both in Latin America,[1,2,12,16,17,19,27,30,34,35] and other regions of the world.[36-38]

It is necessary to clarify that the existence of this process is not denied, but what is questioned is its absoluteness; in other words, decline is believed to be another manifestation of the trends towards change in levels of empathy and its dimensions throughout the courses.[34] As shown in Figure 1 (Figures 1a-1h), trends in the change of empathy levels in both groups were variable: there was a steady increase in empathy levels in some cases, a specific decrease in others, and the classic decline model proposed by Hojat *et al.*[31] and by Hojat *et al.*[32] in another. Thus, it is possible to say that the fact that the statistically significant differences between the sexes in E levels and its three dimensions have near-zero effect size values implies that these differences are small.

These results may be considered as a manifestation of variability. Indeed, a study comparing levels of empathy and its dimensions in 18 dental schools of Latin American universities found both differences (in some cases favorable to men and in others to women) and similarities among them.[39] Therefore, the absence of sex differences can be considered as a form of variability. The possible causes of these results have been described in other papers,[1,2,16,17,19,22,27-30,34,35,39] but there is still controversy about the possible explanations that give rise to the characteristics of variability between men and women, since the results cast doubt on whether empathy levels depend strictly on a stereotypical approach to gender. As a matter of fact, the construction of gender identity is a complex process involving biological, social, cultural and psychological factors,[40] and the development of empathy is not alien to the influence of these factors.[2,11-17,21,34,35,40-47]

If universities have the comprehensive training of their students as their social mission, then they also have the obligation to foster the development of empathy in them and to

consider the possibility that empathetic behavior varies within each country or across Latin American countries, as evidenced by some studies conducted in other regions.[15,48]

As empathy is the product of many factors that influence the training of a particular student or population of university students,[2,11,12,14-16] the materialization of the concern for professional training in universities must begin with the articulation of strategy empathy development. This training should begin with a rigorous diagnosis of empathy that, in general, starts with an understanding of the characteristics of empathy level (and its dimensions) distribution in students and the evaluation of the factors that could theoretically explain the observed positive or negative distribution.

A second step could be to obtain a new diagnosis of empathy that also involves new factors "suspected" of impacting empathy and its dimensions, based on the results of the initial diagnosis. Then, an intervention could be done to help students develop empathy, to an adaptive level, to stimulate positive factors while attenuating or eliminating negative factors, and finally to determine whether the intervention had the desired effect.[10,19,20]

The complexity of empathy would mean, theoretically, that a successful intervention is not a short-term achievement, nor is it the result of a single intervention, but rather of a series of interventions.[2-4,9-17,19-21] characterized by the application of extension (during undergraduate training) and in-depth interventions, which may prove the need to revise the curriculum and use active teaching-learning strategies.

As a result, the methods to be employed to improve empathy and its dimensions depend strictly on the concrete and precise diagnosis of empathy in a student population, since not every method will increase the reduced dimensions identified during the diagnostic phase. On the other hand, there is no single discipline that can devise the type of intervention and properly choose the methods (or create them, if necessary) resulting from a specific diagnosis.

Thus, the empathetic strategy requires the application of an interdisciplinary and complex approach that would involve the use of different methods to achieve a specific strategic orientation derived from the empathy level found in a given student population (diagnosis of empathy). Consequently, the application of methods designed to raise empathy without considering the prior performance of a diagnosis of empathy and an intervention strategy that is not in line with such diagnosis will, in theory, fail. Moreover, if such "interventions" are short-term, they will also be a reason for failure. The characteristics of the empathy attribute and the theoretical-conceptual characteristics of the empathy construct[13-15,41-48] make it necessary to carry out in-depth and extended interventions over time, so the effectiveness of such an intervention can only be verified when the students are already exercising their profession.

Conclusions

The results obtained in the present study, based on the administration of the EEMJ-S, show that there is variability in the levels of empathy and its dimensions between the two groups studied. Differences between sexes were also evident, but these are not significant because they had very low effect size values. However, the lack of differences can be considered as a manifestation of variability if this study is placed in the context of Latin America.

The responsibility of raising the levels of empathy (and its dimensions) requires some steps logically derived from the theoretical-conceptual apparatus of the empathy construct, which consists, in general, in obtaining an accurate diagnosis of empathy; carrying out an intervention or successive interventions perfectly adapted to the characteristics of the diagnosis or subsequent diagnoses; and the implementation of approaches that help guide strategies and choose appropriate methods for this purpose.

It should be noted that the conclusions described have limitations that derive from the differences between sample sizes in both populations, which determine that the estimation of parameters is affected, specifically in USS students. As a result, comparison results may have a certain degree of sampling error; however, these same results show consistent trends.

Conflicts of interest

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