Research Article

iMedPub Journals
www.imedpub.com

Health Science Journal
ISSN 1791-809X

2022
Vol.16 No.S6:919

DOI: 10.36648/1791-809X.16.S6.919

Empathy in the Doctor-Patient Relationship in Medical Students at a University in Cali

Diana M. Gonzalez-Santos[1*], Hussey M. Paredes-Olave[2], Maria del P. Espinosa-Bejarano[3], Mauricio Pérez-Florez[4], Lisa F. Gil-Palacio[5]

1 Médica residente de Medicina Familiar, Pontificia Universidad Javeriana, Cali, Colombia

2 Médica residente de Medicina Familiar, Pontificia Universidad Javeriana, Cali, Colombia

3 Médica residente de Medicina Familiar, Pontificia Universidad Javeriana, Cali, Colombia

4 Docente investigador, Pontificia Universidad Javeriana Cali, Cali, Colombia

5 Médica Psiquiatra. Universidad del Valle, Cali, Colombia

***Corresponding author:**
Diana M. Gonzalez-Santos

dg6628042@gmail.com

Médica residente de Medicina Familiar. Pontificia Universidad Javeriana, Cali, Colombia

Citation: Gonzalez-Santos DM, Paredes-Olave HM, Espinosa-Bejarano MP, Pérez-Florez MP, Gil-Palacio LF (2022) Empathy in the Doctor-Patient Relationship in Medical Students at a University in Cali. Health Sci J. Vol. 16 No. S6: 919.

Abstract

Background: Empathy has been described as a multidimensional concept that involves a cognitive and an emotional component. The cognitive domain involves the ability to understand other people's experiences and feelings, and the affective domain involves emotionally bonding with their experiences and feelings.

Methodology: An observational and cross-sectional study was carried out in medical students from a private university, in the city of Cali, Colombia.

Results: Empathy levels remained similar between students from both the first and last years. Also, the values of empathy tend to decrease if the student practices less than 150 minutes of exercise a week and increase if the student has some type of scholarship.

Conclusion: Empathy should be considered as a fundamental aspect in the training of medical students since it has a positive impact on the doctor-patient relationship, on pharmacological and non-pharmacological therapeutic adherence, and on treatment results, being an essential ingredient for the Obtaining satisfactory results in the health-disease process.

Keywords: Empathy; Students; University students

Received: 03-Mar-2022, Manuscript No. Iphsj-22-12572; **Editor assigned:** 05-Mar-2022, Preqc No. P-12572 (PQ); **Reviewed:** 19-Mar-2022, QC No. Q-12572; **Revised:** 24-Mar-2022, Manuscript No. Iphsj-22-12572 (R); **Published:** 31-Mar-2022, DOI: 1791-809X-16.S6-919

Introduction

Training as a doctor not only implies learning technical and scientific concepts, but also dealing with emotional aspects of one's own and those that arouse the relationship and bond with the patient **[1, 2].** According to the bio psychosocial model proposed by Engels in 1977, empathy in health personnel seeks to understand and respond to the suffering of patients, being a fundamental element in the relationship **[3]**. Still, there is a paucity of research on physician empathy despite its mediating role in physician-patient relationships and clinical outcomes **[4]**.

Empathy comes from the Greek empathieia, meaning “affection” or the ability to feel and understand other people's feelings as if they were one's own **[5]**. In a publication of the journal of the American Association of Medical Colleges, empathy is defined as “a conscious and energetic mental effort to clarify the expression of the patient's experience, it involves connecting feelings and meanings that are associated with a patient's experience, while at the same time identifying and isolating one's own reactions to that patient and their experience” **[6]**. Empathy has been described as a multidimensional concept that involves a cognitive and an emotional component **[4, 7]**. The cognitive domain involves the ability to understand other people's experiences and feelings, and the affective domain involves emotionally bonding with their experiences and feelings.

The empathy of health professionals has been measured using different scales such as the Jefferson Medical Empathy Scale and the Interpersonal Reactivity Index, which are based on intrapersonal experience to assess the different dimensions of empathy **[4, 8]**.

In 2002, Dr. Mohammadreza Hojat at Thomas Jefferson University and in 2007, Dr. Daniel Chen at Boston University conducted several studies on medical students to assess empathy in the doctor-patient relationship using of scales, finding that during the first medical year the empathy scores were higher, however, they

declined as the career progressed; likewise, they identified that women obtained higher scores in relation to men **[9, 10]**.

For 2011, the empathy in the doctor-patient relationship and the results in the medical treatment in diabetic patients were analysed, it was concluded that the patients of doctors with higher levels of empathy presented better control in their levels of glycosylated hemoglobin (56%) in compared with those whose treating physicians had low empathy scores (40%, $p < 0.001$) **[11]**. On the other hand, the empathic relationship in the doctor-patient relationship has been associated with a better preparation of the clinical history, greater patient satisfaction, and greater adherence to medical recommendations, better clinical results and a lower risk of dissatisfaction with care **[7]**.

Regarding the relationship between the levels of empathy in medical students and their level of training, the results are contradictory. On the one hand, some studies confirm that the empathic capacity decreases as the semesters progress, thus affecting the doctor-patient relationship. **[12-14]**, while another study found that empathy tends to improve as training progresses. In Colombia, the University of Boyacá and the Universidad del Norte de Barranquilla evaluated empathy in medical students who showed less empathic orientation as the semesters progressed, and providing additional data regarding the influence of sex, the origin of the student and their perception of student overload in said results **[15-17]** as well as the influence that teachers exert on students based on their own empathic expression **[15]**. Medical schools have the challenge that their graduates are empathic, compassionate and provide humanized care; the educational process should encourage the recognition of emotions and the implications of the empathic medical act **[18]**.

Motivated by the relevance of empathy in the doctor-patient relationship, the need to know its levels in medical students at a private university in Cali, and the interest in expanding current knowledge of possible factors associated with the results of levels obtained, the objective of this study was to determine the level of empathy and its associated factors in medical students at a private university in Cali in 2020. We hope that the knowledge generated from the results obtained motivates actions in the scientific community, educational institutions and government entities, for the development of strategies during the training of doctors to strengthen empathy in health professionals.

Methodology

Type of study

An observational and cross-sectional study was carried out in medical students from a private university, in the city of Cali, Colombia.

Study design and population

The study was approved by the Ethics Committee of the Pontificia Universidad Javeriana Cali. The population consisted of students from the fifth to the twelfth semester enrolled in July 2020. The University in which the study was applied is private; It has an 11-year-old medicine program that serves students from all socioeconomic strata, most of whom come from Cali; It has scholarships for students from indigenous and Afro-descendant communities, from the "ser pilo pays" program; and encourages students with low socioeconomic status, those who stand out academically and international mobility.

Inclusion and exclusion criteria

All students over 18 years of age with enrolment in July 2020 (which was verified through the control sheet provided by the academic direction of the faculty), from the fifth to the twelfth semester and with the desire to participate in the study were included. Study by signing the informed consent. And those students who were doing internships, exchanges and trainees from another university were excluded.

Instrument

The measurement instrument was the Jefferson Medical Empathy Scale (EEMJ) Student S version, translated into Spanish **[4, 19]** and validated, in Mexican medical students, with good internal consistency; it has a Cronbach's alpha coefficient of 0.90. It consists of 20 Likert-type questions of 7 points each, with 1 = strongly disagree and 7 = strongly agree. The maximum score of the scale was obtained by the sum of the questions (maximum 140 points is considered more empathetic, minimum 20 points) where it was considered that a higher score is correlated with a higher degree of empathy. The EEMJ defines empathy according to three factors: 1) perspective taking, 2) compassionate care, and 3) ability to "put yourself in the patient's shoes" **[4, 19]**.

A pilot test was carried out with students from the Pontificia Universidad Javeriana, to verify the understanding of the questions of the Jefferson Empathy Scale.

Variables and data collection

The level of empathy was considered as a dependent variable, it is a continuous quantitative variable. As independent variables, gender, age, social stratum, religion, place of birth, marital status, type of family were taken into account; taken from the structural classification; such as family homes (nuclear, large, families without a nucleus) and non-nuclear (one-person, non-family without a nucleus) **[20]** and the performance of physical activities, leisure activities and volunteering, among others,

To collect the information, a web questionnaire was designed in Google Forms, which had restrictions and was mandatory to ensure the complete completion of the survey. The survey was sent to 483 medical students through whatsapp messages and email. Participation was voluntary and anonymous, without financial remuneration. The survey was active between October 21, 2020 and March 8, 2021. Informed consent was obtained electronically using a check box before responding to the form.

Statistic analysis

The data was exported to the SPSS version 26.0 program for information analysis. Each of the variables was taken, their behavior was observed, looking for extreme values, missing values and it was rectified that the values obtained corresponded to what was expected.

First, the normal distribution of the response variable "empathy score" and the scores of each domain were explored using the Kolmogorov-Smirnov test. The assumption of normality was rejected, so these variables were summarized with median and interquartile range, although the mean and standard deviation (SD) were also reported.

To explore the factors associated with empathy; a bivariate analysis was performed that consisted of comparing the empathy scores according to the factors under study using the non-parametric Mann-Whitney U test (two groups) and Kruskal-Wallis (plus of two groups). Spearman's Correlation Coefficient (Rs) was used to explore the relationship between empathy scores and age.

A multivariate analysis was performed using a multiple linear regression model where the response variable was the "empathy score" and the independent variables were Sociodemographic and family factors. The regression analysis was conducted in two phases. In the first phase, the response variable was correlated with each of the independent variables using a simple linear regression model, where the variables that showed a significance of less than 0.20 were considered for the following phase two. In phase two, a multiple linear regression model was used with all the relevant variables from phase one. The backward selection method and the Likelihood Ratio Test were used to compare the models. In these analyses, the results were considered statistically significant if $p < 0.05$.

In the final model, the assumptions of normal errors with zero mean, constant variance, absence of multicollinearity and no autocorrelation were validated.

Results

The virtual survey was sent to 483 medical students enrolled in July 2020 from the fifth to the twelfth semester. Of the total number of students, the response rate was 29.8% (143); being women with greater participation (62.9%). **Table 1** shows the main demographic characteristics. The ages of the students who answered the survey ranged between 19 and 34 years. 53.1% were born in Cali and more than 80% belonged to the upper-middle class. Regarding the extracurricular artistic activities carried out by the students, it was found that 37.3% have a predilection for reading, 13.6% for music (singing or playing an instrument), followed by writing, cinema and paint with 12.3%, 11.4% and 9.2% respectively. Regarding the performance of physical activities, the results differed from each other in terms of duration and type of exercise. 65% of the students do physical activity lasting more than 150 minutes a week; regarding the type of exercise, 83.6% had a preference for going to the gym, as well as 26.5% for functional exercise, 18.4% for walking, 16.3% for jogging and 15.3% for cycling. Regarding volunteering, more than 50% of the students stated that they had participated at some point in their lives, but 16.1% did so less than a year ago and 34.3% between 1 and 5 years. Another aspect that was evaluated was whether the students had a preference for any medical specialty, finding that both clinical and surgical specializations had a similar preference (50.4% vs. 46.8%), among the different specialties, it was found that there were favouritism for internal

Table 1. Sociodemographic, academic, and behavioural characteristics of medical students at a private university in Cali, Colombia (N=143).

Variables	Total n (%)
Género	
Mujer	90 (62.9)
Hombre	52 (37.1)
Edad (media y desviación estándar (años)	22.3 (DE)
Departamento de origen	
Valle del Cauca	101 (71,1)
Otros Departamentos	38 (26.6)
Otra nacionalidad	4 (2.8)
Estado civil	
Soltero	138 (96.5)
Compañero permanente*	5 (3.5)
Religión	
Creyente	109 (76.2)
No creyente	34 (23.8)
Sector educativo (Bachillerato Cursado)	
Público	18 (12.6)
Privado	125 (87.4)
Estrato	
4, 5 y 6	121 (84,6)
1,2 y 3	22 (15.4)
Año académico	
3 año	39 (27.3)
4 año	44 (30.8)
5 año	38 (26.6)
6 año	22 (15.4)
Actividad artística**	
Si	105 (73.4)
No	38 (26.6)
Actividad física***	
<150 minutos	50 (35)
>150 minutos	93 (65)
Voluntariado	
Si	98 (68.5)
< 5 años	72 (73.5)
> 5 años	26 (26.5)
Tipo de especialización preferida	
Si	111 (77.6)
Clínicas	56 (50.4)
Quirúrgicas	52 (46.8)
Otras	3 (2.7)
Tipo de Familia	
Familiares	115 (80.4)
No Familiares	28 (19.6)
Tipología de Familia	
Nuclear	88 (76.5)
Amplio	17 (14.5)
Familiares sin núcleo	10 (8.7)
Unipersonales	21 (75)
No familiares sin núcleo	7 (25)
Apoyo Financiero (becados)	
Si	21 (14.7)
No	122 (85.3)

medicine, paediatrics, orthopaedics/traumatology, and plastic surgery. Regarding the constitution of the students' home, they were mainly part of the family type; being the nuclear, made up of father and/or mother with or without children, the most predominant; followed by non-family households, where the single-person household (made up of a single person) was the most frequent. 14.7% of the students had different financial support for the payment of their tuition, such as the program: "being a pilo pays" and other special scholarships available to the university.

Table 2 shows the analyses regarding the Jefferson Medical Empathy Scale. The average empathy score of the medical students surveyed was 85.02 (SD=6.39), with 68 being the minimum value and 103 points the maximum value. In the different components that the scale evaluates on empathy; an average of 58.41 (SD=4.89) was evidenced for perspective taking, compassionate care of 17.34 (SD=5.7) and skills of putting oneself in the place, an average of 4.48 (SD=2.2) was obtained (**Table 1**).

In exploring the factors associated with the level of empathy (**Table 3**), a trend of higher scores on the empathy scale was found in students from public sector schools (p value = 0.175), also for social strata 1 to 3. (p value = 0.159), scholarship students (p value = 0.017), in those who performed physical activity for more than 150 min (p value = 0.061), and academic year 11-12 (p value = 0.140). No statistically significant association was found between empathy and department of origin, marital status, beliefs, performing recreational activities, preferences in the desire for a medical specialty and participation in some volunteering (p value > 0.20) (**Table 2 and 3**).

The multivariate analysis (Table 4) showed that the average

Table 2. Empathy levels of medical students at a private university in Cali, Colombia (N=143).

Dominios	Media	Mediana	DE*	Cuartiles			Rango	Puntaje Mínimo-máximo
				Q1	Q2	Q3		
Empatía Total	85,02	84	6,39	81,0	84,0	89,0	35	68-103
Toma de Perspectiva	58,41	59	4,89	56,0	59,0	62,0	27	43-70
Cuidado compasivo	17,34	16	5,7	13,0	16,0	21,0	29	8,-37
Habilidad de ponerse en el lugar del otro	4,48	4	2,22	3,0	4,0	6,0	9	02-Nov
***Desviación estándar**	-	-		-	-	-	-	-

Table 3. Comparison of the total empathy score according to Sociodemographic characteristics of the students (N=143).

Variable	N	Mediana (RI)	Valor P*
Departamento de origen			
			0,212**
Valle del cauca	101	84 (81 ; 87,5)	
Nariño	14	84,5 (82,2 ; 90)	
Cauca	7	81 (77 ; 81)	
Cundinamarca	5	86 (82 ; 93)	
Tolima	2	83 (76 ; 0)	
Otra nacionalidad	4	91 (81,7 ; 98,7)	
Otro (San Andrés, Santander, Vaupés, Risaralda, Caldas/Antioquia)	10	85,5 (82,7 ; 90,2)	
Zona del área de nacimiento			
			0,191
Rural	134	84 (81 ; 88,2)	
Urbana	9	89 (81,5 ; 94,5)	
Edad			
			0,675
Coeficiente de Correlación de Spearman		Rs = -0,036	
Género			
			0,533
Mujer	90	84 (80 ; 90)	
Hombre	53	85 (81,5 ; 88)	
Estado civil			
			0,261
Casado/Unión libre/Compañero permanente	5	86 (81,5 ; 100,5)	
Soltero	138	84 (81 ; 89)	
Sector educativo (Bachillerato)			

Variable	N	Mediana (RI)	Valor P*
			0,175
Público	18	85 (81,7 ; 94)	
Privado	125	84 (81 ; 89)	
Estrato			
			0,159
1 a 3	22	85,5 (82,5 ; 90,2)	
4 a 6	121	84 (81 ; 89)	
Tipología de familia			
			0,546
Familiares	115	84 (81 ; 89)	
No Familiares	28	83 (81 ; 88,2)	
Religión			
			0,626
Cristianos y católicos	109	84 (81 ; 90)	
Ateos/sin religión	34	84 (81 ; 86,2)	
Año académico			
			0,421**
5-6	39	83 (81 ; 90)	
7-8	22	83 (81 ; 86)	
9-10	38	84 (80 ; 86)	
11-12	44	86 (81 ; 91)	
Año académico			
			0,1397
5-10	99	83 (81 ; 87)	
11-12	44	86 (81 ; 91)	
Becado			
			0,017
No becado	122	83 (81 ; 88)	
Algún tipo de beca -Ser pilo	21	87 (83 ; 92,5)	
Actividad física			
			0,061
Más de 150 minutos	93	85 (81,5 ; 89)	
Menos 150 minutos	50	82 (79 ; 89,2)	
Tipo de actividad física: Gimnasio			
			0,580
No	91	84 (81 ; 89)	
Si	52	84,5 (82 ; 89)	
Tipo de actividad física: Ciclismo			
			0,404
No	129	84 (81 ; 89)	
Si	14	86 (81,5 ; 89,2)	
Tipo de actividad física: Natación			
			0,074
No	140	84 (81 ; 88,7)	
Si	3	89 (89 ; 0)	
Tipo de actividad física: Ejercicio funcional			
			0,801
No	107	84 (81 ; 89)	
Si	36	84,5 (81 ; 88,5)	

Variable	N	Mediana (RI)	Valor P*
Tipo de actividad física: Trotar			
			0,183
No	111	85 (81 ; 90)	
Si	32	82,5 (80 ; 87,2)	
Tipo de actividad física: Caminar			
			0,941
No	113	84 (81 ; 89,5)	
Si	30	85 (80,7 ; 88,2)	
Tipo de actividad física: Yoga			
			0,062
No	130	84,5 (81 ; 90)	
Si	13	81 (79,5 ; 84,5)	
Tipo de actividad física: Otra			
			0,022
No	127	83 (81 ; 89)	
Si	16	86 (85 ; 90,7)	
Tipo de actividad física: cantidad			
			0,173
Ninguna	47	82 (79 ; 90)	
Una o más	96	85 (81 ; 88,5)	
Actividad lúdica			
			0,444
No	105	84 (81 ; 89)	
Si	38	85 (81 ; 90)	
Tipo de actividad lúdica: Teatro			
			0,531
No	142	84 (81 ; 89)	
Si	1	81 (81 ; 81)	
Tipo de actividad lúdica: Lectura			
			0,254
No	58	85 (81 ; 90)	
Si	85	83 (81 ; 89)	
Tipo de actividad lúdica: Baile			
			0,477
No	114	84 (81 ; 88)	
Si	29	84 (81,5 ; 90,5)	
Tipo de actividad lúdica: Canto o instrumento			
			0,636
No	112	83,5 (81 ; 89,7)	
Si	31	85 (81 ; 89)	
Tipo de actividad lúdica: Pintura			
			0,871
No	122	84 (81 ; 89,2)	
Si	21	84 (81 ; 89)	
Tipo de actividad lúdica: Cine			
			0,320
No	117	85 (81 ; 90)	
Si	26	82,5 (80 ; 89)	
Tipo de actividad lúdica: Escritura			
			0,996
No	115	84 (81 ; 89)	
Si	28	84,5 (81,2 ; 89)	

Variable	N	Mediana (RI)	Valor P*
Tipo de actividad lúdica: Otro			
			0,521
No	135	84 (81 ; 89)	
Si	7	84 (82 ; 93)	
Tipo de actividad lúdica: cantidad			
			0,397
Ninguna	39	85 (81 ; 90)	
Una o más	104	83,5 (81 ; 89)	
Tiempo de la actividad lúdica			
			0,263
Una vez por semana/ más de una vez por semana	82	85 (81 ; 90)	
Menos de una vez por semana	61	83 (80,5 ; 87,5)	
Actividad lúdica por plataforma virtual			
			0,579
No	137	84 (81 ; 89)	
Si	6	85 (81,5 ; 91,5)	
Voluntariado			
			0,749
Si	98	84 (81 ; 89)	
No	45	83 (81 ; 88,5)	
Hace cuanto tiempo hicieron el voluntariado (N=98)			
			0,652
Menos de 5 años	72	84 (81 ; 89,7)	
Más de 5 años	26	84,5 (80 ; 87)	
Duración del voluntariado			
			0,389
Menos de 1 mes	43	85 (81 ; 89)	
De 1 a 12 meses	43	83 (80 ; 88)	
Desea realizar especialización			
			0,525
Si	111	84 (81 ; 89)	
No	32	84 (78 ; 90)	
Tipo de especialización (N=111)			
			0,389**
Clínica	56	83 (81 ; 89)	
Quirúrgica	52	85 (81 ; 88,5)	
Salud Pública	3	86 (82 ; 0)	

Table 4. Multivariate analysis (multiple linear regression) on the factors related to the global empathy score (N=143).

Variables	Coeficiente estimado	Error estándar	t	Valor p	IC95%
Empatía global					
Intercepto	85,03	0,67	127,56	<0,001	83,71 ; 86,35
Algún tipo de beca	4,38	1,47	2,97	0,003	1,47 ; 7,30
Actividad física: menos 150 minutos a la semana	-1,87	1,09	-1,71	0,090	-4,03 ; 0,30

empathy score that does not depend on the independent variables was 85.03 points (intercept). When adjusted for the other variables in the model, it is identified that the score increases by an average of 4.38 points when the student has some type of scholarship (p value = 0.003); on the contrary, it decreases on average 1.87 points when the student practices less than 150 minutes of physical activity per week (p value = 0.090) (**Table 4**).

Discussion

Motivated by the relevance of empathy in the doctor-patient relationship, the need to know its levels in medical students at a private university in Cali, and the interest in expanding current knowledge of possible factors associated with the results of levels obtained, we found that the levels of empathy remained similar between the students of both the first and last years. Also, the values of empathy tend to decrease if the student practices less than 150 minutes of exercise a week and increase if the student has some type of scholarship. It was shown that the results in the minimum and maximum empathy scores are comparable with the scores of other national **[16, 17]** and even international **[7, 9, 21, 22]** studies.

The results of the present study did not show significant differences in the levels of empathy among the medical students of the different academic years evaluated. These findings are not consistent with that reported by Hojat et al in their different studies **[7, 9, 21]**, nor with the results of other countries such as the United States **[7, 21, 23]**, Belgium **[24]**, Turkey **[25]**, Mexico **[26]** or India **[22, 27]** in which a phenomenon of empathy decline has been seen in the doctor-patient relationship with the increase in the years of training. However, it does correlate with a study conducted in Brazil, in which they observed that empathy levels remained stable over time **[28]**. This allows us to analyse that these differences in trends are not a generalized fact. It would be important to include in future studies a determination of the levels of empathy in students in their first years of training, where they study subjects related to society and community heal.

Analysing the differences between men and women, there were better reports of empathy among women, but this result was not statistically significant, which is consistent with what has been described in other studies **[12]**. Age is a variable that influences levels of empathy; in the study by Remón et al. carried out in Peru, those students with an age range between 26 and 30 years obtained a higher empathy score **[29]**; however, in our study no relationship was found between age and empathy score.

In the reviewed literature, no studies were found that explored the levels of empathy in relation to the family typology, however, no statistically significant difference was found in the empathic relationship of the students and the type of family to which they belong according to the results. of this study; More studies related to this factor are needed, since according to the concept and social construct of the family, from these first relationships, shared experiences are lived, necessary to promote humanism in the individual who develops empathy **[30].**

The influence of the practice of volunteering activities has been seen in the results of the levels of empathy of the students **[31]**, which could be explained by the affinity for the development of this type of activities in more empathic individuals, or because said work promotes the improvement of empathy levels. The results obtained with the present study did not show statistical significance in this aspect.

Among the results obtained, we were able to show a positive correlation between the empathy score and the history of having studied in a public school, being a novel finding since in the review of the literature we did not find any reference to this variable, it would be important for future studies. The possible determination of the aspects related to this result. It was found that there was a statistical significance between the empathy scores and the fact that the students were benefiting from some type of scholarship for their university studies, this could be related to the perceptions that the students have of making an effort to take care of something that is important to them. , and within that is their relationship with patients.

Empathy should be considered as a fundamental aspect in the training of medical students since it has a positive impact on the doctor-patient relationship, on pharmacological and non-pharmacological therapeutic adherence, and on treatment results, being an essential ingredient for the Obtaining satisfactory results in the health-disease process. According to a recent study carried out at the Universidad del Norte, it is necessary to evaluate and improve the contents of the curriculum as well as the teaching processes in medicine programs in order to have an impact on the empathic capacity of students.

Similarly, strategies could be generated to implement from secondary education, with continuity during university life, for the promotion of activities that facilitate the development and strengthening of student empathy. The present study suggests that the practice of physical activity for more than 150 minutes per week contributes to the increase in the levels of empathy of the students, adding an additional benefit to the exercise apart from the many already known.

Study Limitations

During the conduct of the study several limitations were presented, one of these was the change in the information collection route, which went from being face-to-face to being done through email and Whatsapp due to the public health problem experienced since March. 2020 (Covid-19 Pandemic), this may have had an impact on the power of the investigation. At the level of student participation, both the pandemic and the recognition that the application of surveys electronically has a lower response rate compared to the direct interview. In addition, the moment of the pandemic meant that everything was taken to virtualization, which could have saturated the student emails and not identify the survey as a priority. However, different efforts were made to contact them, such as sending the survey once a week by email and Whatsapp, while it was active, as well as sending it by rotation groups so that it was the student himself who shared the survey with his classmates. It is possible that the change caused by the pandemic in some practice scenarios that went from face-to-face to virtual has influenced the results of the empathic capacity of the students, due to the limitation that this generates in the doctor-patient interaction. As a strength of the study, we found that the Jefferson Medical Empathy Scale has been translated and validated into Spanish, which facilitated its use during the study without having to translate the original survey; Another strength was that the University of Jefferson allowed us to use the scale for its application in the present study, in addition to providing us with a user guide and the algorithm to make an interpretation of the information.

Conclusions

The empathy score was determined in students from a private university in the city of Cali, Colombia, it was found that scholarship students obtained better scores compared to those who do not have this stimulus. On the other hand, the results obtained indicate that doing less than 150 minutes of physical exercise per week decreases the result by 1.87 points compared to students who do, regardless of the type of physical activity they practice.

References

1 Cañas-Fernández JL (2010) From dehumanization to rehumanization (The challenge of being a person again). Pensam and Cult 13:67-79.

2 Díaz Amado E (2017) (Ed.) La humanización de la salud: Conceptos, críticas y perspectivas. Editorial Pontificia Universidad Javeriana 418.

3 Borrell-Carrió F, Suchman A L, Epstein R M (2004) the bio psychosocial model 25 years later: principles, practice, and scientific inquiry Ann Emerg Med 2:576-82.

4 Hojat M (2012) Empatía en el cuidado del paciente: antecedentes, desarrollo, medición y resultados. 1st ed. México: El Manual Moderno 212.

5 Dohrenwend AM (2018) Defining Empathy to Better Teach, Measure, and Understand its Impact. J Assoc Am Med Coll, 93:1754-1756.

6 Hojat M Ph D, Gonnella JS, Nasca TJ, Mangione S, Vergare M (2002) Physician Empathy: Definition, Components, Measurement, and Relationship to Gender and Specialty. Am J Psychiatry 159:1563-1569.

7 Davis MH (1983) Measuring Individual Differences in Empathy: Evidence for a Multidimensional Approach. J Pers Soc Psychol 44:113-26.

8 Hojat M, Mangione S, Nasca TJ, Rattner S, Erdmann JB et al. (2004) An empirical study of decline in empathy in medical school. Med Educ 38:934-941.

9 Chen D, Lew R, Hershman W, Orlander J A (2007) Cross-sectional Measurement of Medical Student Empathy. J Gen Intern Med 1434-1438.

10 Hojat M, Louis DZ, Markham FW, Wender R, Rabinowitz C (2011) Physicians' empathy and clinical outcomes for diabetic patients. Acad Med 86:359-364.

11 Chen DCR, Kirshenbaum DS, Yan J, Kirshenbaum E, Aseltine RH (2012) Characterizing changes in student empathy throughout medical school. Med Teach 34:305-311.

12 Neumann M, Edelhäuser F, Tauschel D (2011) Empathy Decline and Its Reasons: A Systematic Review of Studies with Medical. Academic medicine 86:21-23.

13 Díez-Goñi N, Rodríguez-Díez MC (2017) ¿Por qué es importante la enseñanza de la empatía en el Grado de Medicina? Rev Clin Esp 217:332-335.

14 García-Martínez I, García-Barrera A (2014) Evaluación de la orientación empática en estudiantes de medicina de la Universidad de Boyacá. Empathic assessment guidance in medical students of the University of Boyacá. Rev Investig Salud Univ Boyacá 1:177-192.

15 Palacio L M A, Caro S E, Coronado A M E, Narváez V P D (2013) Evaluación de la orientación empática en estudiantes de medicina de la Universidad del Norte. Barranquilla (Colombia). Salud Uninorte 29: 22-33.

16 Madera-Anaya M, Tirado-amador L (2016) Factores relacionados con la empatía en estudiantes de Enfermería de la Universidad de Cartagena. Enfermería Clínica 26:282-289.

17 Moreto G (2014) Reflexiones sobre la enseñanza de la empatía y la educación médica. Atención Fam 21:94-97.

18 Alcorta-garza A, González-guerrero JF, Tavitas-herrera SE, Rodríguez-Lara FJ, Hojat M (2005) Validación de la escala de empatía médica de Jefferson en estudiantes de medicina mexicanos. Salud Ment 28:570-63.

19 Ullmann H, Maldonado Valera C, Rico MN La (2014) evolución de las estructuras familiares en América Latina, 1990-2010. Los retos de la pobreza, la vulnerabilidad y el cuidado.

20 Hojat M, Vergare MJ, Maxwell K, Brainard G, Herrine SK et al. (2009) the devil is in the third year: A longitudinal study of erosion of empathy in medical school. Acad Med 84:1182-1191.

21 Chatterjee A, Ravikumar R, Singh S, Chauhan PS, Goel M (2017) Clinical empathy in medical students in India measured using the Jefferson Scale of Empathy Student Version. J Educ Eval Heal Prof 14.

22 Hojat M, Bianco JA, Mann D, Massello D, Calabrese LH (2014) Overlap between empathy, teamwork and integrative approach to patient care. Med Teach 37:755-758.

23 Triffaux JM S, Tisseron JC (2019) Decline of empathy among medical students: Dehumanization or useful coping process? Encephale 45:3-8.

24 Fusun Artiran Igde MKS (2017) Changes in empathy during Medical Education: An example from Turkey. Pak J Med Sci 33:1177-1181.

25 Parra G de J, Cámara RM (2017) Nivel de empatía médica factores asociados en estudiantes de medicina. Investig en Educ médica 6:221-227.

26 Col L, Shashikumar R, Cdt M, Chaudhary R, Col L et al. (2014) Cross sectional assessment of empathy among undergraduates from a medical college. Med J armed forces India 70:179-185.

27 Costa P, Magalhaes E, Costa MJ (2013) a latent growth model suggests that empathy of medical students does not decline over time. Adv Heal Sci Educ Theory Pract 18:509-522.

28 Remón-Torres MA, Remón-Torres MM, Tataje LM (2013) Características del nivel de empatía hacia el paciente en internos de medicina de dos hospitales nacionales. Rev Méd Panacea 3:2-5.

29 Montgomery L, Loue S, Stange K C (2017) linking the heart and the head: Humanism and Professionalism in Medical Education and Practice. Family medicine 49:378-383.

30 Esquerda M, Yuguero O, Vi J, Pifarré J (2018) La empatía médica, ¿nace o se hace? Evolución de la empatía en estudiantes de medicina. Atención Primaria 48:8-14.

31 Alonso-Palacio LM, Ríos-García AL, Cervantes M, Arcila-Calderón C, Alonso-Cabrera (2020) Empathy among medical students at Universidad del Norte, Colombia. Comparison of two groups (2012 and 2015). Revista de la Facultad de Medicina 68:229-236.