





Medical students' and teachers' attitude: physician or patient-centered?

Atitude de estudantes e professores de medicina: centrada no médico ou no paciente?

Noely Soares Veloso Moura¹  noely.veloso@yahoo.com.br
Jefferson Oliveira Silva¹  jeffersonsilvamed@gmail.com
João Felício Rodrigues Neto¹  joaofelicio@yahoo.com
Antônio Prates Caldeira¹  antonio.caldeira@unimontes.br

ABSTRACT

Introduction: Patient-centered care has been associated with positive results in medical practice.

Objective: The aim of this study was to evaluate the attitudes of students and teachers from a Brazilian medical school regarding the physician-patient relationship and verify associated factors.

Methods: This was an analytical cross-sectional study carried out in a public university, using the PPOS "Patient-Practitioner Orientation Scale" as well as a sociodemographic questionnaire. The subjects were regularly enrolled students attending the second semester of 2015 and their teachers. Mann-Whitney and Kruskal-Wallis tests were used to examine the effect of sociodemographic variables and the interaction with the scores found for students and teachers.

Results: A total of 212 students were surveyed, corresponding to 57.1% of the enrolled students in the medical course. The value of the total PPOS score found for the students was 4.35 (± 0.5 SD), and the mean total score of PPOS among female students (4.43) was significantly higher than that in males (4.23) ($p < 0.001$), indicating more patient-centered attitudes in that group. Regarding medical teachers, 77 (56%) participated. The total score of PPOS was 4.52 (± 0.5 SD), with a more patient-centered attitude among teachers in comparison to students (4.35) ($p = 0.001$). However, there is a clear need for progress in both groups.

Conclusion: The analysis of the students' and teachers' attitudes about the physician-patient relationship disclosed an unknown scenario, with more patient-centered attitudes verified among teachers despite the need for improvements by both. Further research is needed to evaluate not only the attitude but the behavior of these subjects.

Keywords: Patient-Centered Care; Physician-Patient Relations; Medical Education.

RESUMO

Introdução: O cuidado centrado no paciente tem sido associado a resultados positivos.

Objetivo: o objetivo deste estudo foi avaliar atitudes de estudantes e professores de uma faculdade de medicina brasileira quanto à relação médico-paciente e verificar fatores associados. **Métodos:** Trata-se de um estudo transversal analítico realizado em uma universidade pública, utilizando a PPOS - "Patient-Practitioner Orientation Scale" e um questionário sociodemográfico. Os sujeitos eram estudantes do curso de medicina e professores da instituição em questão no segundo semestre de 2015. Os testes de Mann-Whitney e Kruskal-Wallis foram utilizados para examinar o efeito das variáveis sociodemográficas e a interação com os escores encontrados para estudantes e professores.

Resultados: Foram pesquisados 212 estudantes, correspondendo a 57,1% dos acadêmicos matriculados no curso de medicina. O valor do escore total da PPOS encontrado para os estudantes foi de 4,35 ($\pm 0,5$ DP), e o escore total médio da PPOS entre estudantes do sexo feminino (4,43) foi significativamente maior do que o masculino (4,23) ($p < 0,001$), indicando mais atitudes centradas no paciente naquele grupo. No que se refere aos professores de medicina, 77 (56%) participaram. O escore total do PPOS foi de 4,52 ($\pm 0,5$ DP), com atitude mais focada no paciente entre os professores do que entre estudantes (4,35) ($p = 0,001$), mas há uma clara necessidade de progresso para ambos os grupos.

Conclusão: A análise das atitudes de estudantes e professores sobre a relação médico-paciente permitiu desvendar um cenário desconhecido com atitudes mais centradas no paciente observadas entre os professores, apesar da necessidade de melhorias em ambos os grupos. Mais pesquisas são necessárias para avaliar não apenas a atitude, mas o comportamento desses sujeitos.

Palavras-chave: Cuidado Centrado no Paciente; Relações Médico-Paciente; Educação Médica.

¹ Universidade Estadual de Montes Claros, Montes Claros, Minas Gerais, Brazil.

Chief Editor: Rosiane Viana Zuza Diniz.
Associate Editor: Roberto Zonato Esteves.

Received on 12/14/20; Accepted on 08/23/21.

Evaluated by double blind review process.

INTRODUCTION

Since its conception, patient-centered medicine has progressively gained great importance and, as supported by some authors such as Tsimtsiou et al.¹, it should be at the core of medical education. Patient-centered care is anchored in the consideration of the patient as an individual and prioritizes their expectations, participation, and autonomy, in line with medical professionalism. This type of care has a positive impact on the outcomes, and on the patients' as well as the professionals' satisfaction². It has also been observed that it can reduce symptom severity, use of health resources and costs of care³.

Emphasizing medical professionalism and incorporating patient-centered care into the practice of our medical schools thus becomes a challenge for all participants in the medical education process. The application of an instrument that evaluates the students' and teachers' attitudes regarding the physician-patient relationship (whether more doctor-centered or more patient-centered) was an initiative that was unprecedented nationally and internationally, as well as constituted a parameter to further comparative studies. It may also subsidize other studies that seek to directly influence the health care provided by future doctors and their teachers. In other words, it means improving the general population health care and the results of Medicine itself. In this study, we aimed to evaluate attitudes of students and teachers from a Brazilian medical school regarding the physician-patient relationship and verify associated factors.

MATERIALS AND METHODS

This is a descriptive, cross-sectional, non-probabilistic study. The subjects of this research were medical students from the State University of Montes Claros - Unimontes, attending the second semester of undergraduate medical school in 2015, as well as the medical teachers of that institution, who were effectively working there during the same period. All the medical students and teachers who were present in the classroom and department meetings were approached when the data collection instrument was applied, and the exclusion criteria comprised the refusal to participate. The Unimontes Medical Course in Montes Claros was created in 1969 and adopted the Problem-Based Learning (PBL) method in 2002 and is the only public university in the vast region of Northern Minas Gerais⁴. Undergraduate students from all semesters were eligible because we aimed to compare whether the contact with practice would make any difference, even in an observational cross-sectional approach. We also intended to perform future longitudinal comparisons.

The data collection instrument consisted of a sociodemographic questionnaire with variables such as age,

gender, undergraduate period, entering university through affirmative action programs⁵, socioeconomic level⁶, specialty intended after graduation, parental level of schooling, as well as participation in scientific initiation and in extracurricular work activities. We also sought information about the teachers with an adapted questionnaire (Appendices A and B). The Patient-Practitioner Orientation Scale (PPOS)^{7,8} was used to assess students' and teachers' attitudes regarding the physician-patient relationship (Annex A). We used a Portuguese validated version⁹ (Annex B) to evaluate what individuals think about the roles as physicians, patients, and their relationship. We have maintained the name of the questionnaire in English because it is more widespread in the literature. The scale consists of 18 items related to the doctor-patient relationship, nine of which are related to sharing and nine related to caring, with each item being rated from 1 (strongly agree) to 6 (strongly disagree) points on the Likert scale. Sharing-related items (considered as characteristic of "sharing") reflect how respondents believe the patient wishes to receive information and should participate in the decision-making process, while caring-related items (considered as a subscale to "caring") reflect how much it is believed that the expectations, feelings, and circumstances of the patient's life interfere with the treatment process^{8,10,11}. The PPOS scale was used after official permission from the authors.

The sample size was calculated considering the total number of students regularly enrolled in the school ($n=376$), 50% prevalence for centered-patient attitudes (as a conservative prevalence to offer the largest sample number), 5% as an acceptable margin of error, and a 95% confidence level. A convenience, but unintentional random sampling method was used.

The sociodemographic questionnaire and the translated PPOS scale were filled out by the medical students and the institution's medical school teachers at the end of the second semester of 2015 after reading, agreeing, and signing the free and informed consent form (Appendix C). The questionnaire was applied at the beginning of the classes and during departmental meetings. The information collected was entered into a database developed in the SPSS program. Frequencies and percentages for descriptive analysis and the Mann Whitney and Kruskal Wallis tests for comparison of mean scores¹² were used, since data did not have a normal distribution, according to the Kolmogorov-Smirnov test. Cutoff points were used for the interpretation of values found in the PPOS scale, defining physician-centered attitude for values below 4.57, moderately patient-centered for values between 4.57 and 5.00 and patient-centered attitude for values above 5.00^{10,11}.

This study was approved by the Research Ethics Committee da Universidade Estadual de Montes Claros (Unimontes) under Opinion number 1293,661.

RESULTS

In this study, 212 students attending the undergraduate medical school (57.1%) participated by answering the data collection instrument, of which 60.4% were females. Regarding the teachers, 77 participated, corresponding to 56% of the total. Unimontes medical students and teachers who participated in this study are characterized in Table 1.

The means (\pm SD) of PPOS scores observed among students were: 4.35 (\pm 0.5) for the general score; 4.19 (\pm 0.7) for subscore sharing and 4.53 (\pm 0.5) for the subscore caring. The means (\pm SD) of PPOS scores observed among teachers were: 4.52 (\pm 0.5) for the general score; 4.29 (\pm 0.6) for the subscore sharing and 4.75 (\pm 0.6) for the subscore caring. The mean scores for the general PPOS, sharing and caring subscores for students and teachers and its association with sociodemographic variables are shown in Table 2.

Table 1. Sociodemographic characteristics of Unimontes medical students and teachers.

Students	n	%
<i>Gender</i>		
Male	84	39.6
Female	128	60.4
<i>Age (years)</i>		
< 20	65	30.8
20 to 25	121	57.3
Older than 25	25	11.8
<i>Entered university through affirmative action programs</i>		
Yes	83	39.2
No	129	60.8
<i>Father or mother are physicians</i>		
Yes	13	6.1
No	199	93.9
<i>Participation in extracurricular work</i>		
Yes	115	54.2
No	97	45.8
<i>Participation in scientific initiation activities</i>		
Yes	76	35.8
No	136	64.2
<i>Socioeconomic level</i>		
A	49	23.2
B1	34	16.1
B2	55	26.1
C1	47	22.3
C2	23	10.9
D-E	3	1.4

Continue...

Both the value of the general score and the subscores caring and sharing values were higher among the female students with statistical significance. Regarding the specialty required after the end of the course, there was also a statistically significant difference i.e., students who conveyed a desire to follow surgical specialties had less patient-centered attitudes. Specifically for this analysis, we considered the following as "surgical specialties": general surgery, plastic surgery, orthopedics, urology, neurosurgery, otorhinolaryngology, ophthalmology, mastology, and obstetrics. There was no statistically significant difference for the other factors.

Regarding the results among teachers, there was no statistically significant difference in the correlation between the scores and the observed values, except for the subscore sharing in the analysis of the variable "Basic specialty". Differently from the students, no statistically significant difference was observed

Table 1. (Continuation) Sociodemographic characteristics of Unimontes medical students and teachers.

Teachers	n	%
<i>Gender</i>		
Male	32	41.6
Female	45	58.4
<i>Age (years)</i>		
Up to 40	18	23.7
41 to 50	29	38.2
Older than 50	29	38.2
<i>Father or mother are physicians</i>		
Yes	6	7.9
No	70	92.1
<i>Time since graduation (years)</i>		
Up to 10	10	13.0
More than 10	67	87.0
<i>Time working as a teacher (years)</i>		
Up to 10	28	36.8
From 11 to 25	35	46.1
More than 25	13	17.1
<i>Scientific initiation mentorship</i>		
Yes	30	39.0
No	47	61.0
<i>Professor of Medicine at another university</i>		
Yes	43	55.8
No	34	44.2
<i>Socioeconomic level (Brazil Criterion)</i>		
A	61	79.2
B	16	20.8

Source: the author.

among the teachers regarding gender and surgical specialties. After this finding, a new grouping of teachers was performed, as did Ribeiro¹³ and these were allocated between teachers who practiced basic specialties (internal medicine, pediatrics and family and community medicine) and teachers who had other specialties. Thus, there was a statistically significant difference in the subscore sharing, as mentioned above.

In the analysis of the PPOS scores, a comparison was also made regarding the means of the general scores and the care and sharing subscores between students and teachers. It is important

to highlight that for the general and caring scores there was a statistically significant difference, as shown in Table 3.

A comparison was also made between teachers and students but now using the subdivision "students from the first to the eighth semester" and "students from the internship period" (corresponding from the eighth to the twelfth semesters). It was observed that the statistical difference remained significant, except for the subscore sharing, in both groups. The values of students' scores from these different semesters were also compared to each other (Table 3).

Table 2. Mean scores for total PPOS scores, sharing and caring subscores for the students' and teachers' samples, and association with sociodemographic variables.

General Mean (SD)		Students		
		General Score 4.35 (± 0.5)	Sharing 4.19 (± 0.7)	Caring 4.53 (± 0.6)
Gender	Male			
	Female	4.43	4.30	4.59
	Value of p^*	<0.01	<0.01	0.01
Age (years)	< 20	4.38	4.18	4.59
	20 to 25	4.30	4.14	4.57
	Older than 25	4.44	4.35	4.61
	Value of p^*	0.63	0.33	0.44
Socioeconomic Level	A	4.40	4.23	4.58
	B1	4.25	4.04	4.45
	B2	4.29	4.11	4.52
	C1	4.43	4.31	4.54
	C2	4.43	4.24	4.46
	Value of p^{**}	0.40	0.23	0.94
Scientific initiation activities	Yes	4.36	4.21	4.52
	No	4.33	4.17	4.52
	Value of p^*	0.82	0.87	0.58
Father or mother who are physicians	Yes	4.48	4.51	4.46
	No	4.33	4.16	4.52
	Value of p^*	0.65	0.83	0.38
Extracurricular work	Yes	4.37	4.19	4.55
	No	4.31	4.17	4.49
	Value of p^*	0.18	0.31	0.68
Intended specialty	Surgical	4.08	3.88	4.28
	Others	4.43	4.28	4.60
	Value of p^*	<0.01	<0.01	<0.01
Entered university through affirmative action programs	Yes	4.33	4.20	4.50
	No	4.35	4.17	4.54
	Value of p^*	0.54	0.34	0.59

Continue..

Table 2. (Continuation) Mean scores for total PPOS scores, sharing and caring subscores for the students' and teachers' samples, and association with sociodemographic variables.

General Mean (SD)		Teachers		
		General Score 4.52 (±0.5)	Sharing 4.29 (±0.6)	Caring 4.75 (±0.6)
<i>Gender</i>	Male			
	Female	4.59	4.30	4.87
	Value of p^*	0.34	0.89	0.08
<i>Age (years)</i>	Up to 40	4.56	4.36	4.72
	41 to 50	4.41	4.15	4.64
	Older than 50	4.58	4.34	4.84
	Value of p^{**}	0.56	0.36	0.79
<i>Father or mother who are physicians</i>	Yes	4.39	3.75	4.94
	No	4.53	4.32	4.74
	Value of p^*	0.44	0.06	0.45
<i>Scientific initiation mentorship</i>	Yes	4.38	4.18	4.59
	No	4.60	4.33	4.86
	Value of p^*	0.15	0.3	0.08
<i>Medical teacher at another university</i>	Yes	4.58	4.38	4.80
	No	4.43	4.13	4.71
	Value of p^*	0.25	0.23	0.27
<i>Surgical specialty</i>	Surgical	4.33	3.98	4.68
	Other	4.56	4.34	4.78
	Value of p^*	0.07	0.07	0.17
<i>Basic specialty</i>	Basic attention	4.60	4.49	4.70
	Other	4.45	4.12	4.80
	Value of p^*	0.18	0.04	0.97
<i>Time since graduation (years)</i>	Up to 10	4.63	4.36	4.91
	More than 10	4.50	4.26	4.74
	Value of p^*	0.52	0.83	0.19
<i>Time working as a teacher (years)</i>	Up to 10	4.60	4.32	4.86
	From 11 to 25	4.51	4.33	4.73
	More than 25	4.38	4.10	4.63
	Value of p^{**}	0.56	0.62	0.36
<i>Socioeconomic level (Brazil Criterion)</i>	A	4.51	4.26	4.75
	B1	4.55	4.30	4.79
	Value of p^{**}	0.76	0.81	0.66

* Mann Whitney Test.

** Kruskal Wallis Test.

Source: the author.

DISCUSSION

In this study, the mean (\pm SD) of the total PPOS score among the students was higher than that seen by Haidet et al¹⁴ for students of Hispanic, Asian and African origin altogether, although they were lower than that found for North Americans. It was also lower than that found in other medical schools in the state of Minas Gerais with a structured curriculum, respectively, with a traditional methodology and in another one using Problem-Based Learning¹⁵.

As in other literature investigations¹³⁻¹⁸, there was a statistically significant difference regarding gender, with more patient-centered attitudes among female students. The explanations for these findings may be complex and related to cultural factors, since in many cultures the role of care is predominantly female. Contrary to Ribeiro¹³, who found an increase in the scores at the end of the course, no variation of the general PPOS score was found between the undergraduate school semesters and, in this study, the students' attitude from the first to the eighth semesters were similar to that of the internship period (ninth to twelfth semesters). This finding also differs from that found in American and Greek students, in whom a PPOS score reduction was observed from the beginning to the end of the course^{1,14}.

Among the teachers, there was a statistically significant difference regarding the exercise of basic specialties and teachers from the areas of General Practice, Pediatrics and Family Medicine showed the highest scores in the subscore sharing, which may indicate that they give more autonomy to their patients and possibly can influence students in this regard. Regarding the analysis by gender, and different from that found for students, it was observed that there was no difference between the scores. This fact can occur because the physician's own preference in carrying out teaching actions may already indicate a differentiated profile regarding attitudes and behaviors.

When comparing the students' attitude with that of the teachers, a statistically significant difference was observed in the overall score. The teachers in this study were more patient-centered than the students themselves. This comparison can elicit important reflections, since considering Krupat's¹⁰ reference value of 4.57, both have not achieved an attitude that showed to be at least moderately patient-centered. An interesting fact is that the students from the first to the eighth semesters, that is, students who were not in the internship period, showed the scores with a greater difference in relation to the teachers ($p = 0.09$). When we compare the teachers' sharing score with those of internship students ($p = 0.43$), there is no statistically significant difference, which may indicate a greater proximity of attitudes. This finding is

Table 3. Comparison of total scores, subscore sharing and subscore caring between students and Unimontes medical course teachers, as well as comparison of two groups of medical students.

	General Score	Sharing subscore	Caring subscore
Students	4.35 (\pm 0.5)	4.19 (\pm 0.8)	4.53 (\pm 0.6)
Teachers	4.52 (\pm 0.6)	4.29 (\pm 0.7)	4.75 (\pm 0.6)
Value of p	<0.01*	0.11	<0.01*
Teachers	4.52 (\pm 0.6)	4.29 (\pm 0.7)	4.75 (\pm 0.6)
Internship students	4.32 (\pm 0.5)	4.20 (\pm 0.6)	4.45 (\pm 0.5)
Value of p	0.03*	0.43	<0.01*
Teachers	4.52 (\pm 0.6)	4.29 (\pm 0.7)	4.75 (\pm 0.6)
Students from the 1 st to the 8 th semesters	4.35 (\pm 0.6)	4.18 (\pm 0.8)	4.54 (\pm 0.6)
Value of p	<0.01*	0.09	<0.01*
Students from the 1 st to 8 th semesters	4.35 (\pm 0.6)	4.18 (\pm 0.8)	4.54 (\pm 0.6)
Internship students	4.32 (\pm 0.5)	4.20 (\pm 0.6)	4.45 (\pm 0.5)
Value of p	0.87	0.45	0.33

*Statistically significant difference when compared with the first semester.

(Mann Whitney Test).

Source: the author.

somewhat expected, since the greater contact of students with patients in the various internship periods may put them in situations in which aspects of treatment and conduct may be negotiated, not just imposed. However, since the overall PPOS score and the caring score are lower among students and as for both teachers and students, their values correspond to more physician-centered attitudes, it is necessary to reflect on what could be hindering the patient-centered medicine teaching during the course and what can be done to reverse the current situation, including improvement of the teacher's attitude. A question to be asked is whether students do not absorb examples of a practice that is essentially biomedical and disease-oriented in many other undergraduate settings, despite curricular changes towards problem-based learning with an emphasis on outpatient practice in Primary Health Care and active teaching-learning methods. Thus, Ribeiro¹⁹ emphasizes that students' interest is often greater towards the "interesting case" than towards the sick individual. Moreover, the curriculum itself is still predominantly focused on the disease, and little is discussed during undergraduate school about the importance of the medical consultation itself and about an adequate communication with the patients. According to the author¹⁹ "in order to achieve a change from the purely biomedical model to the patient-centered model"

medical schools should incorporate knowledge of human sciences into their curricula, and medical semiology should prioritize patient care rather than the disease¹⁹. It is also worth mentioning that the majority of medical professors does not receive pedagogical training and intuitively learns how to teach by absorbing examples of former educators, considered to be “good teachers”²⁰. Pedagogical interventions approaching the patient-centered practice for them could be included in the list of actions to be developed.

A study conducted in Sweden found that the “good teacher” should be a model for the student, demonstrating the importance of clinical practice for the validation of what they intend to teach²¹. Thus, the teacher’s example, their behaviors and attitudes greatly influence the students’ attitude. This entails the need for a change in the attitude of our teachers, since their attitude is not yet moderately person-centered.

CONCLUSION

This study has limitations since like the other studies using PPOS in Brazil^{13,15}, it was carried out through a cross-sectional approach and by convenience sampling, that is, a non-probabilistic method. As only about 50% of the questionnaires were answered by the teachers, this can be pointed out as an important limitation. A longitudinal study would be necessary to evaluate the evolution of students’ attitude during the medical course and of the teachers during the period of practice. The analysis of the students’ and teachers’ attitudes of the medical course at Unimontes regarding the doctor-patient relationship allowed uncovering an unknown local scenario and also broadened global horizons of investigation, since in the international literature to date, the attitude of the teacher of Medicine in this regard had never been studied.

It is necessary to carry out new studies to evaluate not only the attitude, but also the behavior of these subjects. Qualitative approaches would also be crucial for this topic. More importantly, it is necessary to implement structural and / or curricular changes that can positively impact the attitude of both medical students and teachers regarding the one who should be at the center of the process: the patient.

AUTHORS’ CONTRIBUTION

Noely Soares Veloso Moura: conception or design of the study/research, data collection, analysis and/or interpretation of data, final review with critical and intellectual participation in the manuscript. Jefferson Oliveira Silva: data collection, analysis and/or interpretation of data, final review with critical and intellectual participation in the manuscript. João Felício Rodrigues Neto and Antônio Prates Caldeira: conception or design of the study/research, analysis and/or interpretation of

data, final review with critical and intellectual participation in the manuscript.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

SOURCES OF FUNDING

The authors declare no sources of funding.

REFERENCES

1. Tsimsiou Z, Kerasidou O, Efstathiou N, Papaharitou S, Hatzimouratidis K, Hatzichristou D. Medical students’ attitudes towards patient-centered care: a longitudinal survey. *Med Educ.* 2007;41:146-53.
2. Stewart M1, Brown JB, Donner A, McWhinney IR, Oates J, Weston WW, et al. The impact of patient-centered care on outcomes. *J FamPrac.* 2000;49(9):796-804.
3. Little P, Everitt H, Williamson I, Warner G, Moore M, Gould C, et al. Observational study of effect of patient centredness and positive approach on outcomes of general practice consultations. *BMJ.* 2001;323(7318):908-11.
4. Machado MMBC, Batista SHSS. Interdisciplinarity in construction of the contents of medical curriculum. *Rev Bras Educ Med.* 2012;36(4):456-62.
5. Brazil. Law No. 12,711 of August 29, 2012. Information for admission into federal universities and federal institutions of technical secondary education and provides other measures. Official Journal of the Union. Brasília: National Press, year 149, nº 169, section 1, p. 1, 30 Aug. 2012.
6. Brazilian Association of Research Companies. Brazil’s economic evaluation criterion 2013. São Paulo: ABEP; 2013.
7. Krupat E, Putnam SM, Yeager C. The fit between physicians and patients: can it be measured? *J General Intern Med.* 1996;11(Suppl.):134.
8. Krupat E, Hiam CM, Fleming MZ, Freeman P. Patient-centeredness and its correlates among first-year medical students. *Int. J. Psychiatry.* 1999;29(3):347-56.
9. Pereira CM, Amaral CF, Ribeiro MM, Paro HB, Pinto RM, Reis LE, et al. Cross-cultural validation of the Patient-Practitioner Orientation Scale (PPOS). *Patient Educ Couns.* 2013;91(1):37-43.
10. Krupat E, Rosenkranz SL, Yeager CM, Barnard K, Putnam SM, Inui TS. The practice orientations of physicians and patients: the effect of physician-patient congruence on satisfaction. *Patient EducCounsel.* 2000;39(1):49-59.
11. Krupat E, Bell RA, Kravitz RL, Thom D, Azari R. When physicians and patients think alike: patient-centered beliefs and their impact on satisfaction and trust. *J FamPract.* 2001;50(12):1057-62.
12. Siegel S, Castellan Jr NJ. Non-parametric statistics for behavioral sciences (2nd ed.). Porto Alegre: Artmed, 2006.
13. Ribeiro MMF. A evaluation of the attitude of the medical student of the Federal University of Minas Gerais regarding the doctor-patient relationship during the medical course. 2006. Thesis [Doctorate in Clinical Medicine] - Federal University of Minas Gerais.
14. Haidet P, Dains JE, Paterniti DA, Hechet L, Chang T, Tseng E, et al. Medical students attitudes towards the physician-patient relationship. *Med Educ.* 2002;36(6):568-74.
15. Peixoto JM, Ribeiro MMF, Amaral CFS. Attitude of the medical student regarding the doctor-patient relationship x pedagogical model. *Rev Bras Educ Med.* 2011;35(2):229-36.
16. Monchy C, Richardson R, Brown RA, Harden RM. Measuring attitudes of physicians: the physician-patient (DP) rating. *Med Educ.* 1988;22:231-9.
17. Lingiardi V, Maffei C, Monchy C. Evaluating sex as a variable in physician-patient relationship of the Italian medical student sample. *Med Educ* 1993;27:188.

18. Hojat M, Gonnella JS, Mangione S, Nasca TJ, Velosky JJ, Erdmann JB, et al. Empathy in medical students related to academic performance, clinical competence and gender. *Med Educ*. 2001;36:522-7.
19. Ribeiro MMF, Amaral CFS. Patient-centered medicine and medical teaching: the importance of caring for the person and medical power. *Rev Bras Educ Med*. 2008;32(1):90-7.
20. Coast NMSC. Pedagogical training of medical teachers. *Rev Latino-Am Enferm*. 2010;18(1):102-8.
21. Stenfors-Hayes T, Hult H, Dahlgren LO. What does it mean to be a good teacher and clinical supervisor in medical education? *Adv Health SciEduc Theory Pract*. 2011;16(2):197-210.



This is an Open Access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.