

Empathy in Medical Students as Related to Gender, Year of Medical School and Specialty Interest

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Abstract

The existence of empathy in the physician-patient clinical relationship enables a positive impact on interactions and is an essential aspect of care quality associated with patient satisfaction and adherence to treatment. The purpose of this research is to determine the students' empathy level over the course and their different specialty interests. This cross-sectional study involved a sample of 208 undergraduate medical students who responded to the Jefferson Scale of Physician Empathy – Student Portuguese Version (JSPE-spv). The results show that female students outscore men on the empathy level which increases throughout the six year course. The people-oriented specialty group also showed higher scores.

Keywords: JSPE-spv, relationships, specialties.

Introduction

Empathy is an important factor of interpersonal relationships and improves understanding and communication between individuals. It has a positive impact on physician-patient relationship and their interactions. It is an essential aspect in quality of care, patient satisfaction and adherence to treatment, and may even contribute to an improvement in clinical outcomes (Pollak *et al.*, 2007).

According to Chen *et al.*, (2007) this concept consists of physician's ability to recognize and cognitively understand the patients' perspectives and experiences and the ability to convey such understanding back to the patient. In literature, some studies show the empathy average scores decline during university medical education (Chen *et al.*, 2007; Hojat *et al.*, 2009). However, more recent studies have provided different results; Magalhães *et al.* (2011) concluded that senior year students have a higher score of empathy than a freshman. Cross-sectional studies in Japan and Korean found the highest values measures of empathy in senior students (Kataoka *et al.*, 2009; Roh *et al.*, 2010).

In all the analysed studies, women's empathy levels outscore those of men (Kataoka *et al.*, 2009, Roh *et al.*, 2010; Quince *et al.*, 2011; Magalhães *et al.*, 2011).

Several studies found significantly different JSPE scores among physicians in different specialties (Hojat *et al.*, 2009; Chen, 2007). Hojat *et al.*, (2005) divides the specialties into four groups: a) *procedure-oriented specialties* (e.g. radiology, pathology); b) *technology-oriented specialties* (e.g. ophthalmology, neurosurgery, orthopedic surgery); c) *non-primary care specialties* (e.g. cardiology, gastroenterology, psychiatry); d) *people-oriented specialties* (e.g. family medicine, general internal medicine, general pediatrics).

By using a sample of medical students of the Beira Interior University's School of Health Sciences, this study intends to observe the students' empathy level on the first, third and sixth years. It also intends to ascertain the different empathy levels according to their different specialty interests.

Methodology

Participants

Medical students of the first, third and sixth years were voluntarily involved. The students were assured about the confidentiality of their answers.

Means

The measurement of empathy in medical students was based on the Jefferson Scale of

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Physician Empathy – Student Portuguese Version (JSPE-spv) which includes 20 items in a 7 point Likert-type scale (1 – strongly disagree, 7 – strongly agree).

The translation and adaptation of JSPE-spv was proposed in a Portuguese work by Magalhães *et al*, (2010). There were 10 questions where responses were scored accordingly, from 1 (strongly agree) to 7 (strongly disagree).

Procedures and Statistical Analysis

An anonymous and confidential web survey was used to collect data. To analyze the relation between empathy levels and specialty interests, the survey included one item asking the students about the specialty they would like to pursue in the future. The data was then submitted to a varied and descriptive statistical analysis according to the statistical package SPSS – version 19.

First it consisted in calculating the JSPE-spv total score, the average standard deviation and the internal consistency of the scale (Cronbach's alpha coefficient).

Then the t-test was applied to analyse empathy levels of men and women from the first, third and sixth years. The ANOVA Test was used to identify the general averages of different specialty groups.

Finally a t-test and Anova were used to identify the total scores of the different groups (gender and specialties, gender and year in medical school, specialties and year in medical school). The averages allowed identification of the specialty and year where women and men obtained the highest scores, as well as the students' favoured specialty on the first, third and the sixth years.

Results

In the final sample of 208 students, there were 148 females (71,2%) and 60 males (28,8%), with an average age of 21,38 years (SD=2.77). Of the respondents, 75 were in the first year, 64 in the third year and 67 in the sixth year.

When comparing genders, (Table 1) women scored significantly higher on empathy than men ($t(206) = 4,348, p=0,000$). The average score among the student groups showed an increase across the years of study, with an average empathy score of 112.85 in the first year, 113.74 in the third year and to 116.78 in the sixth. The Anova test however, showed no statistically relevant differences ($F_{(2)} = 2,505, p=0,084$). No relevant differences were found among students with different specialty interests. Considering the average empathy level, students who indicated interest in people-oriented specialties reached higher scores than those who had other preferences. However, this was not statistically significant.

Table 1: Average scores and group differences

Groups	N	A	SD	p
Gender				
1. Female	148	116,41	10,47	<0,001(a)
2. Male	60	109,45	10,42	
Year in Medical School				
1. 1 st year	75	112,85	10,46	NS(b)
2. 3 rd year	66	113,74	11,57	
3. 6 th year	67	116,78	10,43	
Specialty Interest				
1. Procedure Oriented	10	113,20	10,8	NS(c)
2. Technology Oriented	37	114,54	9,77	
3. Non-Primary Care	84	113,81	11,40	
4. People Oriented	58	115,66	11,30	
5. No Response	19			

N= number of students; A= average; SD= standard deviation; NS= Non-significant

(a) $t_{(206)} = 4,348, p=0,000$

(c) $F_{(46)} = 0,655, p=0,952$

(b) $F_{(2)} = 2,505, p=0,084$

The t-test and Anova Test were used to observe the relation between gender and specialty, gender and year in medical school and specialties. The results (Table 2) only highlighted relevant differences between gender, technology-oriented and non-primary-

care specialties. By looking at average results one may see that women have higher scores in technology-oriented specialties and men in procedure-oriented specialties. Students in later stages of training revealed higher scores than the first year students.

Table 2: Comparative analysis of groups

Groups	N	A	SD		
Gender*Specialties					
Women*procedure oriented	6	112,83	9,93	$t_{(8)} = -0,124$	NS
Men*procedure oriented	4	113,75	13,60		
Women*technology oriented	21	118,19	7,20	$t_{(35)} = 2,849$	p=0,007
Men* technology oriented	16	109,75	10,81		
Women*non-primary care	59	116,17	11,33	$t_{(82)} = 3,057$	p=0,003
Men* non-primary care	25	108,24	9,66		
Women*people oriented	50	116,30	10,73	$t_{(56)} = 1,088$	NS
Men* people oriented	8	111,63	14,55		
Gender* Year in Medical School					
Women*1 st year	50	115,04	9,86	$t_{(73)} = 2,662$	p=0,010
Men*1 st year	25	108,48	10,44		
Women*3 rd year	46	116,07	10,76	$t_{(64)} = 2,580$	p=0,012
Men*3 rd year	20	108,40	11,84		
Women*6 th year	52	118,02	10,74	$t_{(65)} = 1,849$	NS
Men*6 th year	15	112,47	8,20		
Specialties* Year in Medical School					
Procedure oriented*1 st year	2	110,50	4,95	$F_{(2)} = 0,072$	NS
Procedure oriented*3 rd year	3	114,67	17,9		
Procedure oriented*6 th year	5	113,40	9,53		
Technology oriented*1 st year	15	112,87	9,26	$F_{(2)} = 0,420$	NS
Technology oriented*3 rd year	12	115,00	13,25		
Technology oriented*6 th year	10	116,50	4,95		
Non-primary care*1 st year	26	110,96	11,31	$F_{(2)} = 2,104$	NS
Non-primary care*3 rd year	28	113,04	12,37		
Non-primary care*6 th year	30	117,00	10,04		
People oriented*1 st year	22	114,27	11,27	$F_{(2)} = 0,738$	NS
People oriented*3 rd year	16	114,44	8,54		
People oriented*6 th year	20	118,15	13,24		

(a) $p < 0,05$; NS = Non-significant

No significant difference was found between the year in medical school and specialty groups: procedure, technology and people-oriented. This study revealed no statistically significant effect on specialties and course year. The third year students reach higher scores in technology-oriented specialties but the best score of first and sixth year students lies in people-oriented specialties.

Discussion and conclusions

The higher scores obtained by women are similar to other studies' results (Hojat *et al.*, 2002; Magalhães *et al.*, 2011) explained by the evolution of parental investment and maternal instinct. Females are therefore expected to develop a stronger sense of caring for offspring than men, which may highlight their ability to understand and

communicate. The higher empathy levels among women could be based on a greater perception of emotions and their ability to be more open to emotional signals than men.

Similarly to the study by Hojat *et al*, 2002, 2005, the results report higher empathy scores among students who were interested in people-oriented specialties (e.g. internal medicine, family medicine, pediatrics) rather than other specialties, although in the present study, it was not statistically significant. Hojat *et al*, (2005) state that the choice of people-oriented specialties could be a reflection of students' personality and interpersonal orientation developed prior to medical school, or it could be a training result during medical education.

The choosing of the specialty may also be influenced by political issues of resource allocation and the regional needs of basic clinic care.

The present study shows that the Jefferson scale, when applied in different countries, is useful to observe the empathy scores among students but shows different global averages and some variations between countries.

Further research is needed to determine whether the participants actually revealed their feelings towards empathy or rather sought to show their desire to be helpful in order to fit into the profession. It is also essential to develop a longitudinal study to follow the first year students throughout their training in order to see if the teaching and learning process changes their perception of empathy.

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