



Is the Empathy Level of Medical Students at KAU Changeable along their Study Years? What is behind this Change?

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Abstract

Although empathy is considered one of the essential attributes of professionalism for medical students, the empathy level of the Saudi medical students was not assessed till now while it was assessed worldwide. This study aimed to determine the level of empathy among medical students in different study years at Faculty of Medicine (FOM), King Abdulaziz University (KAU), Jeddah, and to explore in depth the factors that affect it. This comparative cross sectional study used a translated Arabic version of the Jefferson Scale of Physician Empathy-student version (JSPE-SV). It was distributed to all medical students in different study years at KAU during the academic year 2014-2015 and the response rate was 58.3 %. Data were collected and analyzed using the statistical package of Social sciences (SPSS) version 22. The mean empathy score was 106.55 ± 19.16 and it was higher, but nonsignificant, in females than males. It increases along with the study year and its level among the 6th year students was significantly higher ($p=0.004$) than that of the 2nd year. Intact marital status of parents ($p=0.012$), satisfactory relationship with mother and father ($p=0.009$, $p=0.012$), having a patient in the family ($p=0.002$) were significantly associated with higher empathy level. Student's empathy level was relatively low but it was increasing throughout the study years denoting the positive impact of the medical curriculum. More highlights on the patients physician relationship all through the medical curriculum is needed to emphasize and promote empathy of the student.

Keywords: Empathy, study year, medical, curriculum, students

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Introduction

There are many goals of medicine but the most important goal is to treat the patients and relieve their suffering in the context of a patient -physician relationship [1]. Empathy is one of the important attributes of professionalism for medical students and it plays a major role in enhancing the physician–patient relationship [2]. Empathy is defined as "a cognitive rather than an emotional attribute that involves an understanding rather than feeling of experiences, concerns and perspectives of the patient, combined with a capacity to communicate this understanding" [3]. It helps the physician to know more about their patients which consider an important therapeutic factor in the treatment by making accurate diagnoses and helps to provides better treatment compliance and outcomes resulting at the end to improve the satisfaction level of clinicians [1,3].

Most medical schools in Saudi Arabia follow a traditional curriculum for bachelor degree as a general physician, with 6 years program for different specialties. Medical study is always included 2 years of basic sciences study that is called phase I followed by 3 years of clinical study called phase II then 1 year of internship. Patient encounter usually starts in phase II.

The Jefferson Scale of Empathy (JSE) was developed at the Center for Research in Medical Education and Health Care at Jefferson Medical College, to measure the level of empathy among physicians and other health professionals [3]. The hypothesis that empathy declines as students' progress through medical school has previously investigated in many Asian countries like Japan [4], South Korea [5], China [6], Iran [7], Bangladesh [8] and India [9], some Arabic countries as Kuwait [10], as well as other countries like UK [11], USA [12], Brazil [13] and German [14] by using the student version of Jefferson Scale of Physician Empathy (JSPE). To our knowledge, the empathy with patients among the Saudi medical students has not been studied till now. Therefore, this study aimed to determine the level of empathy among medical students in different study years in the Faculty of Medicine (FOM) at King Abdulaziz University (KAU) and to explore in depth the factors that affect it.

Subjects and Method

This is a comparative cross-sectional study was approved by the biomedical research ethics committee at the FOM-KAU. It was conducted on all the medical students (2nd, 3rd, 4th, 5th

and 6th years) at KAU during the academic year 2014-2015. A total of 1110 (724 female out of 956, 386 male out of 948) have filled the questionnaire with a response rate 58.3%.

The student version of Jefferson Scale of Physician Empathy (JSPE-S) was used in this study. In order to ensure understanding of the statements by the students and to increase its validity, the questionnaire was translated from English to Arabic then back to English by two bilingual translators to assure the accuracy of translation. In order to increase the face validity of the questionnaire, a pilot study was conducted among 23 students. The result of pilot study was not included in the study results. In order to ensure content validity two senior faculty members revise the content of questionnaire. The reliability of the questionnaire was calculated by using Alpha Cronbach and it equals 0.86.

This study is considered the first one to use the Arabic version of the JSPE. The JSPE validated in many previous studies [3,7,9] and it was adopted after permission. The questionnaire is self-administered and it is composed of two sections: the first one included the demographic data. The second section is designed to quantify the level of empathy according to the student version of (JSPE-S). It includes 10 Negative and 10 positive worded items. The participants were asked to rate each item on a 7-point Likert scale ranging from (1= strongly disagree) to (7= strongly agree) for positive items and for negative items, the scoring is reversed as (1= strongly agree) and (7= strongly disagree). The JSPE-S total score ranges from 20 to 140, generally higher scores on this scale indicate higher level of empathy and vice versa.

The association between empathy level and preferred specialty was analyzed by grouping the choices of subjects into two groups; people oriented group of specialties (Internal medicine, Family medicine, Pediatrics, Neurology, Rehabilitation medicine, Psychiatry, Emergency medicine, Obstetrics and gynecology, Ophthalmology & Dermatology) and technologically oriented group of specialties (Pathology, Surgery and surgical subspecialties, Radiology, Radiation Oncology, Anesthesiology, Preventive and Social Medicine, Otorhinolaryngology) as done by other researches [2,9].

The data were analyzed using the Statistical Package of Social Science (SPSS) software; version 22. One way Anova f test was used to compare between three groups followed by least

significant difference test. Student t test was used to compare between each two groups. Significance was assigned as $p < 0.05$.

Results

The total percentage of male and female students participated in this study was 34.8 % and 65.2% female students respectively and the participation of students from each year was seen in Figure 1.

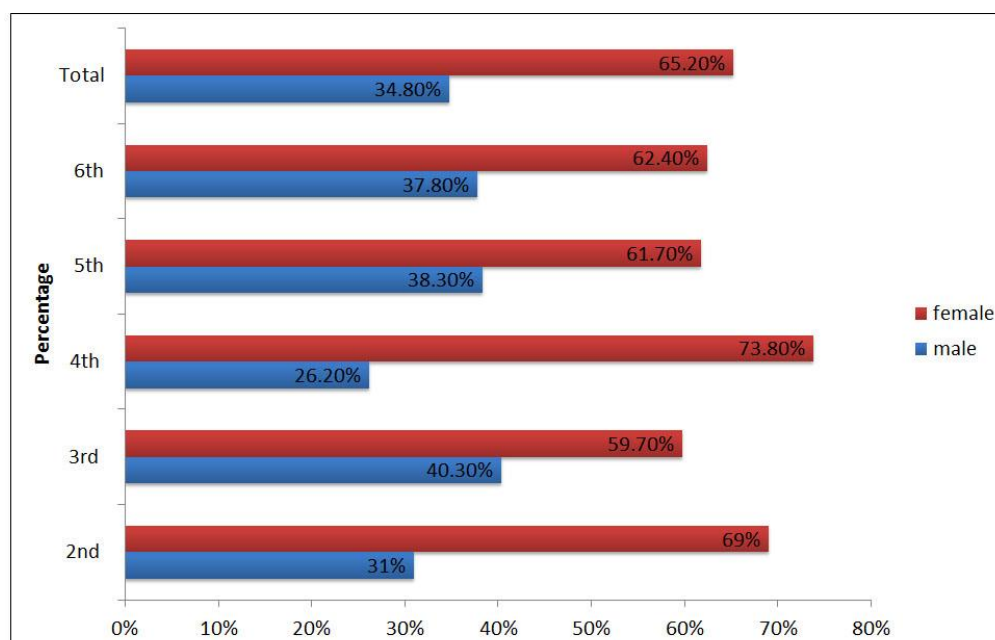


Figure (1): Gender distribution of the participants

Figure 1. Gender distribution of the participants.

The results showed that the mean empathy score among the medical students was (106.55 ± 19.16). The empathy level was increasing along with the year of study with the 2nd-year students scored the lowest and the 6th-year students scored the highest. The comparison between the individual years showed that the empathy level among 5th and 6th year students was significantly higher ($p = 0.045$, $p = 0.004$ respectively) than those of the 2nd year (Table 1).

When looking at the differences in JSPE-SV scores by the gender, it was observed that although the empathy level among the females was higher than the males (111.61 ± 17.71 and 109.71 ± 16.71), this increase was statistically nonsignificant ($t = 1.53$, $p = 0.102$). A significant

difference between male and female empathy level was observed only in both second and fifth year students ($p=0.002$, 0.041 respectively) (Table 2).

Table 1. Empathy level among the students in different study years

Year	Mean $\pm$ SD	95% Confidence Interval for Mean Upper lower	Test of significance (p value)
2 nd n=200	103.35 $\pm$ 21.04	(106.55-100.15)	F test=2.18 P=0.068
3 rd n=221	105.83 $\pm$ 19.74	(108.52-103.15)	
4 th n=225	106.75 $\pm$ 20.08	(109.56-103.93)	
5 th n=230	107.11 $\pm$ 16.84	(109.35-104.87)	
6 th n=234	108.99 $\pm$ 18.18	(111.43-106.55)	
Total n=1110	106.55 $\pm$ 19.16	(107.7-105.37)	

Data was presented as Mean $\pm$ Standard deviation (SD). One way annova f test was used to comapre between three groups followed by least significant difference test. Significance was considered at $p<0.05$.

The 2nd versus 5th year $p=0.049$

2nd versus 6th year $p=0.004$

Table 2. Effect of gender on empathy level among the students from different years

Year	Male Mean $\pm$ SD	Female Mean $\pm$ SD	Test of significance (p value)
2 nd Male (n=62) Female (n=138)	99.01 $\pm$ 22.20	105.86 $\pm$ 20.02	0.041
3 rd Male (n=89) Female (n=132)	104.52 $\pm$ 21.07	106.80 $\pm$ 18.73	0.411
4 th Male (n=59) Female (n=166)	102.79 $\pm$ 23.09	108.43 $\pm$ 18.50	0.071
5 th Male(n=88) Female (n=146)	100.77 $\pm$ 18.50	111.34 $\pm$ 14.20	0.002
6 th Male(n=88) Female (n=146)	108.98 $\pm$ 18.40	109.00 $\pm$ 18.10	0.996

Data was presented as Mean $\pm$ Standard deviation (SD). Student t test was used to compare between each two groups. Significance was considered at $p<0.05$.

The preferred specialty of the participants was shown in (Figure 2). The effect of preferred specialty on empathy level among the students from different year was not statistically significant ($p=0.331$). The empathy level was tabulated in descending order and showed that the students who planned to specialize in preventive and social medicine and otorhinolaryngology had the highest level of empathy with patient (Table 3).

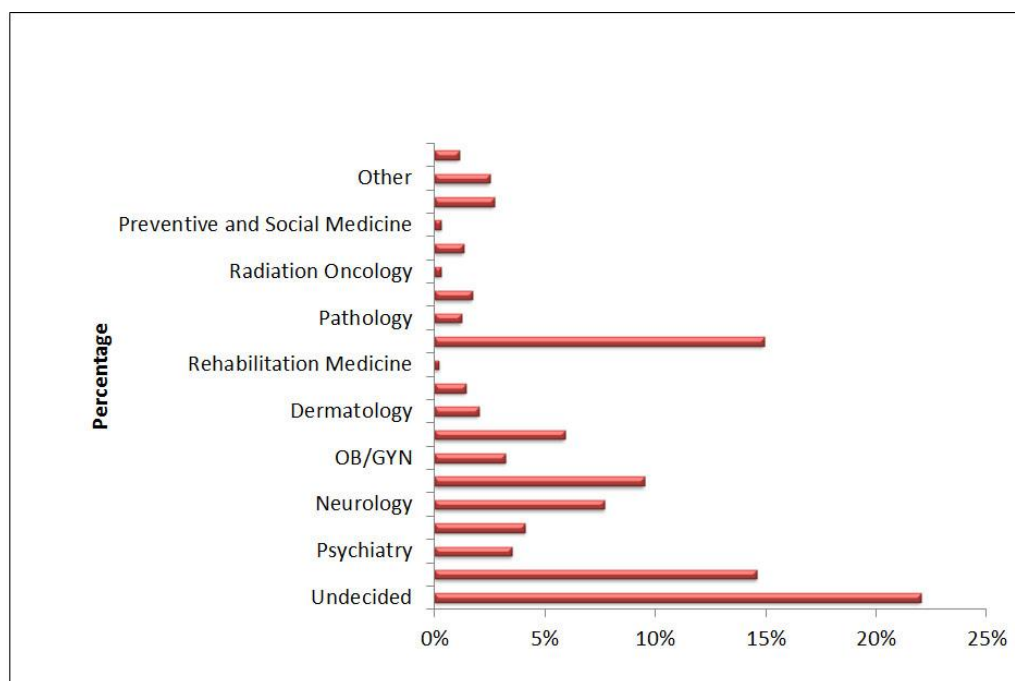


Figure (2): Preferred specialty of the participants

Figure 2. Preferred specialty of the participants

Factors proposed to affect the empathy level among the students were explored in Table 4. It was observed that marital status of parents, satisfaction with the relationship with the parents and having a patient in the family have significant effect on the students' empathy level. Students whose parents are divorced have significantly higher ($p=0.012$) level of empathy compared to those whose parents are married. Students who were satisfied with their relationship with their mothers and fathers have significantly higher ($p=0.009$ and $p=0.012$ respectively) empathy level compared with who were not satisfied. Experience of dealing with a patient in the family has also significant effect ($p=0.002$) on the students' empathy level. Also a higher number of students considered that addressing the issues related to empathy with patients in the medical curriculum was inappropriate, this number was

statistically nonsignificant compared to those considered these issues are appropriately addressed Table 4. None of the mothers' and fathers' educational level has significant effect on the students' empathy level (Table 4).

Table 3. Empathy level of students grouped by their future preferred specialty

	Mean $\pm$ SD	95% Confidence Interval for Mean		Test of significance (p value)
		Upper	lower	
Preventive and Social Medicine	120.66 $\pm$ 22.47	64.8242	176.5091	F test =1.115 P value=0.331
Otorhinolaryngology	114.28 $\pm$ 14.81	108.5412	120.0302	
Dermatology	112.00 $\pm$ 19.05	102.8170	121.1830	
Pediatrics	110.81 $\pm$ 21.93	106.4193	115.2133	
Psychiatry	108.75 $\pm$ 20.95	101.3287	116.1864	
Emergency	108.46 $\pm$ 19.42	97.7083	119.2250	
Surgery & Surgical subspecialties	107.79 $\pm$ 18.81	104.7861	110.7956	
Radiation Oncology	106.00 $\pm$ 22.06	51.1799	160.8201	
Family & Community	105.95 $\pm$ 17.96	100.3550	111.5497	
Other	105.69 $\pm$ 19.47	97.8263	113.5583	
General internal medicine	105.51 $\pm$ 18.94	102.4706	108.5625	
Rehabilitation Medicine	105.50 $\pm$ 24.74	-116.8586	327.8586	
Ophthalmology	105.36 $\pm$ 17.17	100.9630	109.7583	
Anesthesiology	105.35 $\pm$ 15.94	96.1535	114.5608	
Neurology	104.71 $\pm$ 23.73	99.3274	110.1012	
Undecided	104.44 $\pm$ 18.33	102.0126	106.8743	
Radiology	104.42 $\pm$ 16.59	96.4213	112.4208	
OB/GYN	103.10 $\pm$ 14.48	97.6912	108.5088	
Pathology	100.80 $\pm$ 17.84	88.0309	113.5691	
Total	106.51 $\pm$ 19.20	105.3284	107.7064	

Data was presented as Mean $\pm$ Standard deviation (SD). One way Anova f test was used to compare between groups followed by least significant difference test. Significance was considered at $p < 0.05$.

Table 4. Factors affecting the level of students' empathy

	Mean $\pm$ SD	Test of significance (p value)
Marital status of parents:		P=0.211
1. Married n=974	106.47 $\pm$ 19.47	P1=0.012*
2. Divorced n=65	110.42 $\pm$ 15.01	P2=0.89
3. One/both died n=66	104.53 $\pm$ 18.00	P3=0.002**
Mother's educational level :		
1. High school or less n=397	107.46 $\pm$ 19.29	0.299
2. University and above n=708	106.16 $\pm$ 18.94	
Father's educational level :		
1. High school or less n=299	106.71 $\pm$ 19.49	0.864
2. University and above n=804	106.48 $\pm$ 19.07	
Relationship with the mother:		P=0.148
1. Satisfied n=962	106.91 $\pm$ 18.88	P1= 0.86
2. Neutral n=123	105.33 $\pm$ 20.54	P2= 0.009
3. Unsatisfied n=20	98.66 $\pm$ 21.98	P3= 0.012
Relationship with the Father:		P=0.156
1. Satisfied n=860	106.96 $\pm$ 18.97	P1= 0.91
2. Neutral n=207	105.65 $\pm$ 19.56	P2= 0.012*
3. Unsatisfied n=33	100.56 $\pm$ 21.30	P3= 0.023*
Curriculum appropriately addresses the issues related to empathy with the patients		0.308
1. No	107.03 $\pm$ 19.89	
2. Yes	105.55 $\pm$ 17.73	
Experience of dealing with a patient in the family		
1. No	103.66 $\pm$ 19.18	0.002
2. Yes	109.48 $\pm$ 19.17	

Data was presented as Mean $\pm$ Standard deviation (SD). One way Anova f test was used to compare between three groups followed by least significant difference test. Student t test was used to compare between each two groups. Significance was considered at $p < 0.05$.

P value of the f test

P1= option 1 versus option 2

P2= option 1 versus option 3

P3= option 2 versus option 3

Discussion

Assessment of students' attitudes towards physicians' empathy is essential in medical education and in practice because empathy is vital in physician-patient communication relationship [14]. It was previously hypothesized that physician empathy may decline with

clinical training [13]. This study was conducted with the aim to test this hypothesis in Faculty of medicine, King Abdulaziz University for the first time. The mean empathy score among the medical students in KAU was 106.55 and this level seems to be relatively lower than what was reported in some Western countries such as the USA, mean score was 115, [15,13] and German, mean score was 110.52 [14]. However, the mean score of empathy level of our KAU medical students was near to that of the Asian medical students such as in Iran, mean score was 105.1 [7], in Kuwait, mean score was 104.6 [10], Japan, mean score was 104.3 [4], and Korea, mean score was 104 [5]. Cultural and social issues could be behind these variations between western and eastern countries.

In our study, the overall empathy level was higher among the female student than the male students and this difference was of statistical significant in both 2nd and 5th year and this is consistent with other studies done in USA, Japan, Korea, China, Kuwait and Bangladesh [4, 6, 8, 10 and 13]. It seems that second year female student were affected by choice of medical profession but, fifth year female students were affected by studying obstetrics and gynecology problem related to their gender.

The level of empathy was increasing along with the year of the study. The junior medical students, at KAU, in early clinical study may feel exhausted and overload with study burden and they are not exposure or deal with patients in the hospital. As they progress in their study, they develop their study skills and exposure to different type of patients and their empathy level with them also grow. In accordance to our study, medical students in China, Korean, Kuwait and Bangladeshi [5,6,8,10] having increased level of empathy in clinical year than in basic years. This was in disagreement with what was reported about American and Iranian medical students who having increase level of empathy in basics year comparing to the clinical years. They explained this by the fact that these students were put through a course to implementing ethics and communication skills training in the curriculum in the basic years aiming to improving the doctor-patient relationship in clinical practice [13,16].

No statistically significant differences existed in the empathy level among the students with different preferred specialty and there was observed previously by Hasan et al., [10] among the Kuwait medical students. They also observed that the students who preferred 'people-oriented' specialties such as psychiatry, general internal medicine and family medicine had

slightly higher mean scores compared to those who preferred ‘technology-oriented’ professions such as surgical specialties, radiology and pathology and this was surprisingly different from what noticed in our study. This might be explained by tendency of students who process higher empathy level to avoid dealing with patients and seeing them suffering from the disease.

Our study showed that students’ satisfaction with their relationship with the mother and father was significantly associated with higher empathy scores. A similar finding was observed by Hasan et al., [10] among the Kuwait medical student. This was also supported by the previous study finding reported by Ainsworth [17] who described that the perception of the mother care was significantly correlated with better self-confidence, higher social interaction and better trust in other people as. In line with that Hojat et al. [18] had stated that people who have enjoyed positive relationships with their mothers throughout their childhood are more likely found to display more empathy in social situations. Experience of a patient in the family was significantly associated with high empathy scores and this is expected as empathy is an individual characteristic that is shaped by interpersonal relationships. A considerable number of students participated in this study considered that addressing the issues related to empathy with patients in the medical curriculum was deficient. Winefield and Chur-Hansen [19] emphasized the positive impact of implementing ethics and communication skills training in the curriculum in order to improving the doctor-patient relationship in clinical practice. In KAU the medical curriculum already included such courses but it might to be allotted more time in the curriculum.

One of the strengths of this study was the large sample size (1110 students with a response rate 58.3%) that increased the power of the study. In previous studies done in other countries like USA [13], Japan [4], Korea [5] and Kuwait [10] one of the limitation of their study was the small sample size. This study used an Arabic version of the JSPE-S for the first time and this is considered another strength point. Using the JSPE-S in the mother language of the students increases both the face and content validity of the questionnaire. Using the English version of the JSPE-S was one limitation detected with the most relevant and recent study conduct in this area at one of the Arabic country [10]. One limitation of this study was the inclusion of one medical school from one educational institution, KAU in order to compare the effect of different curricula as well as the educational environment on the students’

empathy level from different institution. The association between students' empathy level, personality characteristics and stress levels was not studied and this could be another limitation which may be considered as areas for further research.

Conclusion

This study assessed for the first time the level of empathy among a sample of Saudi medical students using an Arabic version of an international validate scale. It was found that the students' empathy level was relatively low and it was significantly associated with intact social relationship of the students with their family. Empathy level was increasing throughout the study years denoting the positive impact of the medical curriculum. More highlights on the integration of patients physician relationship all through the medical curriculum is needed to emphasize and promote empathy level of the student.

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