

Does the perception of empathy change in medical students, or does it decline as a whole?

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ABSTRACT

Introduction: Research over the past 20 years has recognized that doctors' capability to empathize with patients is a vital factor of effective health care. Accordingly, teaching and strengthening empathy was included in the undergraduate medical education curricula. There is evidence that empathy varies among the genders during undergraduate medical training and some studies also indicate a change in empathy levels as students advance in medical college.

Objective: To determine whether differences of empathy levels in medical students from pre-clinical and clinical classes are actual or perceptual and whether differences in empathy scores are gender based.

Materials & Methods: A cross-sectional survey was conducted at Rehman Medical College, Peshawar. The students of second year and final year MBBS sessions were included in the study. A total of 139 students took part in the survey; 75 students were from the final year and 64 students from second year. The Student's Version of Jefferson Empathy Scale was used. Data were analyzed using the IBM SPSS version 22. Associations between empathy scores, clinical exposure and gender were studied with t-test, and chi-square test, with $p \leq 0.05$ indicating significance.

Results: There were no significant differences in the overall empathy scores between second year and final year students, or by gender. The perception of empathy in both classes and genders, however, was different. The majority of second year students defined it as "patient-doctor relationship" while final year defined empathy as "just the right concern". Female students had significant difference of opinion from male students in many but not all items in the questionnaire.

Conclusion: The study did not support the contention that empathy levels decline among medical students with academic year of studies, nor that there are gender differences in empathy. However, the perception of empathy differed in several items by gender and year of MBBS study.

Keywords: Empathy; Students, Medical; Perception; Medical Professionalism; Ethics, Clinical.

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INTRODUCTION

Clinical empathy is a significant collective tool in forming the patient-doctor rapport. Being empathetic enough to understand patients' feelings and experiences may be the most important prerequisite for taking a proper history, reaching the correct diagnosis, and thus initiating the appropriate treatment. The proper definition of empathy differs with conceptual differences and ranges from an emotional state to a cognitive trait with varying combinations of both in between. As an emotional state, it has been defined by Colman¹ as "experiencing the emotional state of another"; as a cognitive trait it has been defined by Tariq, Rasheed, and Tavakol² as "the imaginative transposing of oneself into the thinking and acting of another and so structuring the world as he does." Research suggests a neurological basis of empathy as well. Neurologically, it can be explained on the basis of "mirror matching mechanisms" in the brain. A system of neurons that enables this matching allows one to put his self in the "mental shoes of another" as defined by Hojat³. It is important to know if the current system of education in medical colleges promotes the development of empathy or acts like an abrasive force that scrubs it away.

The Society of General Internal Medicine has defined empathy according to Halpern,⁴ as "the act of correctly acknowledging the emotional state of another without experiencing that state oneself". From this definition, empathy can be perceived as an intellectual instead of an emotional state. It is pertinent to mention Sir William Osler's "neutral empathy"⁵ that suggests that doctors can see into and understand patient's inner selves by neutralizing their feelings to the extent that they do not feel the suffering of the patient. Hence doctors will be able to objectively know the patients' emotions. This objectivity is the most significant difference between sympathy and empathy.

To understand the patient and thus to have empathy is the foundation of a successful doctor-patient relationship.⁶ It has been proven that a link exists between empathy and positive treatment outcomes⁵ that further improves patient satisfaction, compliance to treatment, and reduces the risk of malpractice claims and litigation against doctors.

Based upon the literature search that was performed on the topic of empathy in medical students, two hypotheses emerged. The first was that female medical students are more empathetic than male students; the second was that the levels of empathy either change or its perception by students changes as they transit from pre-clinical to clinical years of medical college. The present study was designed to test both of these hypotheses in the setting of a private medical college in Peshawar where empathy was taught as part of the MBBS curriculum.

MATERIALS & METHODS

A quantitative cross-sectional study was conducted at Rehman Medical College, Peshawar. There are about a hundred students in each class of MBBS. The second year and final year students were included in the study to represent basic sciences and clinical sciences respectively.

Second year MBBS students have limited contact with patients. Their contact is limited to occasional guided visits to the hospital with the aim of introducing them to the hospital environment and the functional hierarchy of different units. Final year students, on the contrary, spend most of their college hours in the hospital and are involved in history taking, examination and suggesting suitable treatment plans for a provisional diagnosis. Behavioral sciences are included, however, in both years' curriculum.

Ethical approval for this study was acquired from the Research Ethics Committee and the departments of Medical Education and Medical Research of Rehman Medical College. The aim and objectives of the study were explained to the participants. Anonymity and secrecy were assured. The participants had the choice of not disclosing their identity. They were given consent forms with the questionnaires that explained that the participants had the right not to give information, to ask questions, and to pull out from the study. To return a completed questionnaire would mean that the participant had sufficient information about the study, and he/she participated with choice.⁴

A standardized questionnaire, the Jefferson Scale of Empathy (JSE-S) Student Version was used as the data collection tool. Questionnaires are effective for gathering data about intellectual ideas or notions that are difficult to calculate, such as ideas, attitudes and theories.⁷ Questionnaires can be valuable for collecting evidence about behaviors that are difficult to observe directly (e.g. how student studies at home), assuming the participants are willing to comment on those activities.

Faculty members who had the added responsibility of being the respective year leads were requested to help with the data collection. With their help, the questionnaires were given to the students in small group discussions, who filled them during the class and the questionnaires were returned to lecturers. This was done to prevent data attrition. The lecturers had already been trained on how to guide the students for filling the questionnaires.

Jefferson Scale of Empathy (JSE-S) Student Version was used. It has twenty items and uses a Likert scale. The psychometric properties of the scale have been reported satisfactory by Hojat.⁸ The three important factors (domains) in this questionnaire are: Perspective Taking (PT), Compassionate Care (CC) and Walking in Patients Shoes (PS).⁸ The JSE has ten positively worded and

ten negatively worded items. The negatively worded items are reverse scored.⁹

The data were entered in SPSS version 22. Frequencies and mean scores were calculated; comparative analysis was done using T-test and Chi-square test respectively for mean scores and frequencies. A $p \leq 0.05$ was taken to denote significance.

RESULTS

A total of 139 students participated in the study; 75(54%) students were from the final year and 64(46%) were from the second year. Male students were 74(53.2%) and females 65(46.8%). Out of these 100% of final year and 62.5% of second year students replied positively to having had patient contact ($p < 0.001$). Regarding the definition of empathy, the correct answer of "just the right concern" was given by 50.7% of final year students, and 35.9% of second year students ($p = 0.044$); the gender difference for this item was not significant ($p = 0.149$).

The mean scores of empathy obtained by the second and final year MBBS students are provided in Table 1. None of the three components, nor the overall scores showed any significant differences by MBBS class.

Table 1: Comparison of mean empathy scores by MBBS year (n=139).

#	Empathy Items	MBBS Year (Mean ± SD)		p Value
		Second (n=64)	Final (n=75)	
1.	Perspective Taking (out of 50)	37.94 ± 5.43	36.01 ± 6.69	0.068
2.	Compassionate Care (out of 40)	20.78 ± 5.21	21.69 ± 5.64	0.327
3.	Standing in the patient shoes (out of 10)	6.50 ± 1.65	6.9 ± 1.65	0.267
4.	Overall score (out of 100)	65.22 ± 8.08	63.89 ± 10.02	0.398

Table 2 provides the mean scores for empathy obtained by gender. Though significant differences exist for two empathy components, the overall scores are not significantly different.

Table 2: Comparison of mean empathy scores by gender (n=139).

#	Empathy Items	Gender (Mean ± SD)		p Value
		Males (n=74)	Females (n=65)	
5.	Perspective Taking (out of 50)	35.08 ± 7.42	38.97 ± 3.44	<0.001
6.	Compassionate Care (out of 40)	22.31 ± 6.01	20.09 ± 4.48	0.014
7.	Standing in the patient shoes (out of 10)	6.09 ± 1.91	6.60 ± 1.26	0.065
8.	Overall score (out of 100)	63.49 ± 11.69	65.66 ± 4.79	0.146

DISCUSSION

Various aspects of empathy such as gender-based differences in empathy, correlation of empathy with multiple aspects of a doctor's life, behavior in medical college, choosing specialty, behavior with patients, all have been the focus for researchers around the world. A study from Japan¹⁰ aimed at finding association among empathy, personality and emotional intelligence in medical students and concluded that female students were emotionally more intelligent and empathetic than male students. Another study in India¹¹ also arrived at the result that female students have more empathy than the male students. A study carried out at National Defense University, Malaysia¹² established similar gender-based results and additionally proved that the final year students had higher empathy levels than their juniors. The current study also reveals significant gender differences in empathy perception for two of the empathy components which are consistent with results of studies conducted worldwide and in Pakistan.²

There can be many causes for this phenomenon. These can be extrinsic ones like the role expected by the society from female doctors¹³ and intrinsic including neurological factors. One study¹⁴ suggested the existence of a relation between the right cerebral activation and empathy in females. As the number of women in health profession increases, it is important to study the effect of gender on facets associated with patient care, including empathy.

To study the change in the levels empathy over time, it will be better to do vertical research but due to time constraints, a cross-sectional study was the only option. Research evidence mostly indicates that there is a decline in empathy as students advance academically.^{9,11,16} The present study indicates that although there is no significant decline, the perception and expression of empathy does change, as evidenced by the significant difference ($p=0.044$) between the second and final year students in the definition of empathy.

Yet, it is noteworthy that only about 51% of final year students could give the correct answer. This may be due to many causes,

including the fact that definitions are given in the early part of the course, so many students would likely have forgotten the appropriate definition by the time they reached the final year. Another contributory factor can be the high levels of stress that students experience in the final year of medical college.¹⁵ This stress causes psychological problems like tension, burnout, depression, somatic problems, that may decrease the empathy levels or change its concepts in an attempt to distance them from the patients' misery. Medical colleges around the world are investing many resources into developing curriculum and assessment systems that promote empathy¹⁷ like reflective writing, inter-professional learning (IPL), problem-based learning (PBL), and the assessment of empathy in the Objective Structured Clinical Examinations (OSCEs). As a result, the total score of empathy remains the same but students in various levels of medical college will probably give different answers to the question "How do you define empathy?"

CONCLUSIONS

Teaching empathy in the undergraduate medical curriculum maintains acceptable empathy levels in medical students throughout their medical school years, with no significant decline in empathy by MBBS years or gender.

RECOMMENDATIONS

The findings have important inferences for medical educators. One of them can be to improve the interpersonal abilities of students in the context of patient care by enhancing the empathy course in the medical curriculum. Organizing interpersonal workshops for medical students may further improve the scenario, as well may early empathetic patient exposure.

LIMITATION

It is difficult to say conclusively on the basis of a single cross-sectional study if empathy levels change in students as they advance academically during medical school training. Multiple longitudinal studies are required to obtain a true figure of the empathy scores before and after clinical stages.

REFERENCES

- Colman AM. A dictionary of psychology: Oxford Quick Reference. 4th edition. Published Online: Oxford University Press;2015.
- Tariq N, Rasheed T, Tavakol M. A quantitative study of empathy in Pakistani medical students: a multicentered approach. *J Prim Care Community Health*. 2017;8(4):294-9.
- Hojat M. Empathy in health professions education and patient care. 1st edition. Switzerland: Springer Cham;2016.
- Halpern J. What is clinical empathy? *J Gen Intern Med*. 2003 Aug;18(8):670-4.
- Hegazi I, Hennessy A, Wilson I. Empathy levels in medical students: do they really change over time? (Chapter 8). In: Kondo M (editor). Empathy: An Evidence-based Interdisciplinary Perspective. 2017;pp.147-70.
- Hannan J, Sanchez G, Musser ED, Ward-Petersen M, Azuttillo E, Goldin D, et al. Role of empathy in the perception of medical errors in patient encounters: a preliminary study. *BMC Res Notes*. 2019 Jun 10;12(1):327.
- Artino AR, La Rochelle JS, Dezee KJ, Gehlbach H. Developing questionnaires for educational research: AMEE Guide No. 87. *Med Teach*. 2014 Jun;36(6):463-74. doi:10.3109/0142159X.2014.889814.
- Hojat M, DeSantis J, Shannon SC, Mortensen LH, Speicher MR, Bragan L, et al. The Jefferson Scale of Empathy: a nationwide study of measurement properties, underlying components, latent variable structure, and national norms in medical students. *Adv Health Sci Educ*. 2028;23(5):899-920.
- Igde FA, Sahin MK. Changes in empathy during medical education: an example from Turkey. *Pak J Med Sci*. 2017;33(5):1177.
- Abe K, Niwa M, Fujisaki K, Suzuki Y. Associations between emotional intelligence, empathy and personality in Japanese medical students. *BMC Med Educ*. 2018;18(1):47.
- Chatterjee A, Ravikumar R, Singh S, Chauhan PS, Goel M. Clinical empathy in medical students in India measured using the Jefferson Scale of Empathy-Student Version. *J Edu Eval Health Prof*. 2017 Dec 27;14:33.

12. Haque M, Sa B, Majumder MAA, Islam MZ, Othman NSAB, Lutfi SNNB, et al. Empathy among undergraduate medical students: A cross-sectional study in one Malaysian public medical school. *Ann Afr Med*. 2018 Oct-Dec;17(4):183-8.
 13. Santos MA, Grosseman S, Morelli TC, Giuliano IC, Erdmann TR. Empathy differences by gender and specialty preference in medical students: a study in Brazil. *Int J Med Educ*. 2016 May 21;7:149-53.
 14. Rueckert L, Naybar N. Gender differences in empathy: The role of the right hemisphere. *Brain Cogn*. 2008 Jul;67(2):162-7.
 15. Hill MR, Goicochea S, Merlo L J. In their own words: stressors facing medical students in the millennial generation. *Med Educ Online*. 2018 Dec;23(1): 1530558.
 16. Papageorgiou A, Miles S, Fromage M. Does medical students' empathy change during their 5-year MBBS degree? *Educ Health (Abingdon)*. 2018 Sep-Dec;31(3):142-7.
 17. Batt-Rawden SA, Chisolm MS, Anton B, Flickinger TE. Teaching empathy to medical students: an updated, systematic review. *Acad Med*. 2013 Aug;88(8):1171-7.
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