

## ORIGINAL ARTICLE

## WALKING A MILE IN PATIENTS' MOCCASINS: MEASURING EMPATHY AMONG INDIAN MEDICAL STUDENTS

Ashok K Srivastava<sup>1</sup>, Kritika Tiwari<sup>2</sup>, Shaili Vyas<sup>3</sup>, Deep Shikha<sup>4</sup>, Sunil D Kandpal<sup>1</sup>, Jayanti Semwal<sup>5</sup>**Author's Affiliations:** <sup>1</sup>Professor; <sup>2</sup>Resident; <sup>3</sup>Associate Professor; <sup>4</sup>Assistant Professor; <sup>5</sup>Professor and Head, Dept. of Community Medicine, HIMs, Dehradun, Uttarakhand**Correspondence:** Dr Jayanti Semwal Email: semwal@hotmail.com

## ABSTRACT

**Introduction:** Empathy is the ability to understand others' experiences and emotional states from their perspective. It is considered as a part and parcel of healthy doctor-patient relationship. The assessment of empathy among undergraduate medical students is an important step towards yielding a better fruitage from medical education in the form of empathetic doctors. Objectives of the study were to assess the empathy level and its determinants among undergraduate medical students.

**Methodology:** This study was conducted among 351 undergraduate medical students studying at Dehradun by using the "Jefferson Scale of Physician Empathy-Student Version (JSPE-S)" and analyzed by SPSS-22.

**Results:** The arithmetic mean ( $\pm$ SD) of empathy scores was  $98.89 \pm 12.9$ . Compared with male students, empathy scores were significantly higher in female students ( $p < 0.05$  by Independent sample t test). One way ANOVA followed by Post Hoc test revealed a peculiar finding that empathy is more on initial clinical exposure but decreases as the clinical experience increases. The variation in empathy scores according to the future specialty plans was inconclusive.

**Conclusion:** This study showed a slightly low mean empathy score as compared to similar studies. Gender and clinical experience were found to be associated with empathy. Further studies are recommended to explore other determinants of empathy.

**Keywords:** Empathy, undergraduate, Jefferson Scale of Physician Empathy-Student Version (JSPE-S), clinical experience, future specialty plans

## INTRODUCTION

"I do not ask the wounded person how he feels; I myself become the wounded person." – Walt Whitman

"Empatheia" is a Greek word, meaning affection or passion with a quality of suffering, from which the word "empathy" has been derived.<sup>1</sup> Empathy connotes to the ability of understanding others' experiences and emotional states from their perspective or frame of reference, i.e. the ability to place oneself in another's position. It has two major components: affective or emotional empathy and cognitive empathy.<sup>2</sup> Unlike sympathy which is just a feeling of compassion or concern for another; empathy is the true feeling and understanding of what another person is going through. In the context of doctor-patient relationship, empathy has been defined as "a predominantly cognitive (rather than emotional) attribute that involves an understanding (rather than feeling) of patient's experiences, concerns and perspectives, combined with a capacity to communicate this un-

derstanding with an intention to help by preventing and alleviating pain and suffering.<sup>3</sup>

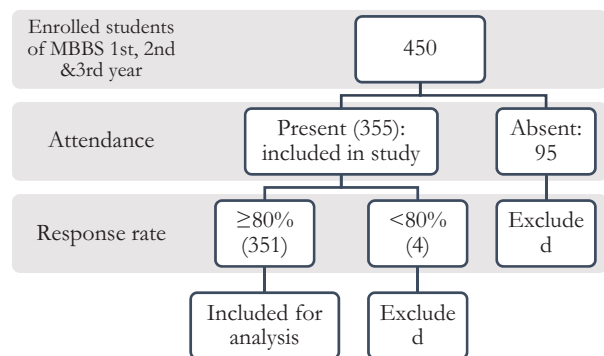
Empathy is considered as an essential component of healthy doctor-patient relationship. This understanding can be conveyed verbally as well as non-verbally through words of comfort, body gestures and positive non-verbal feedback. It, being a desirable quality for clinicians, should be developed during medical education. Hozat had found in his study that medical graduates with higher empathy did better in clinical competence than in academic competence.<sup>4</sup> Other studies have also emphasized that empathy promotes physician-patient satisfaction, treatment compliance, better clinical outcome as well as prevents malpractices.<sup>5</sup> Therefore, measuring empathy in medical students is becoming important. Studies in various countries have shown somewhat discordant results in empathy level in terms of clinical experience, choice of specialty and gender.<sup>6-10</sup>

Medical curriculum in India differs from other countries in that clinical rotation starts from 2nd year and there is no structured course in basic humanities. In

view of the importance of empathy in clinical practice for better patient care and paucity of literature from India, the present study was conducted with the objectives of assessing the empathy level and its determinants among undergraduate medical students.

**METHODOLOGY**

The present study was conducted among the undergraduate medical students (MBBS students of 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> year) studying at Dehradun, India. Permission from research and ethical committee of the institute was taken before starting the study. The English version of Jefferson Scale of Physician Empathy-Student Version (JSPE-S) was used after obtaining permission from the authorities of JSPE-S. It is a 20 item psychometrically validated instrument consisting of 20 statements on a 7 point Likert scale (1=strongly disagree to 7=strongly agree), scores thus ranging from 20 -140. Higher scores represent greater empathy level. Permission for including a maximum of 400 participants was obtained from the authors of JSPE-S. All the students present in the respective classes were included in the study after obtaining their informed consent. Participants were given 15 minutes to complete the questionnaire after providing them the requisite information. The participants were instructed not to write their names. Special unique coding was given to each participant to maintain anonymity and confidentiality. Participants with 80% response rate, i.e., answering at least 16 items out of 20, were considered for data analysis. After excluding the incomplete forms, the final sample size was 351 (Fig. 1).



**Figure 1: Inclusion and exclusion criteria**

Data were analyzed by using SPSS software (version-22). 10 items out of 20 were negatively worded and were reverse coded. Empathy scores were expressed as mean (±SD). Independent samples t-test and ANOVA with post hoc test were used to find out the determinants of empathy. Statistical significance was checked at 5% level of significance.

**RESULTS**

The arithmetic mean (±SD) of empathy scores was 98.89±12.9, the minimum empathy score being 54 and the maximum being 130.

**Table 1: General profile of study subjects**

Variables	No. (%) (N=351)
<b>Gender</b>	
Male	138 (39.3)
Female	213 (60.7)
<b>Age (years)</b>	
<22	335 (95.4)
22-24	16 (4.6)
<b>MBBS year</b>	
1 <sup>st</sup>	87 (24.8)
2 <sup>nd</sup>	138 (39.3)
3 <sup>rd</sup>	126 (35.9)
<b>Area of interest</b>	
Medical	143 (40.7)
Surgical	149 (42.5)
Technical	29 (8.3)
Undecided	30 (8.5)

Table 1 shows that out of total 351 students selected for analysis, 213 (60.7%) were females and 138 (39.3%) were males. Majority of the students were <22 years of age. The representation was maximum from 2<sup>nd</sup> year followed by 3<sup>rd</sup> year and 1<sup>st</sup> year MBBS students. 42.5% of the students wanted to make surgical branches as their area of specialty followed closely by medical branches (40.7%), 8.3% were planning to opt for technical branches and the rest (8.5%) were undecided.

**Table 2: Relation of age and gender with empathy level among undergraduate medical students**

Determinants	Mean empathy score (±SD)	p value
<b>Gender</b>		
Male	96.77 (±11.8)	<b>0.01*</b>
Female	100.26 (±13.5)	
<b>Age (years)</b>		
<22	99.16 (±13.0)	0.07**
22-24	93.26 (±9.5)	

\* Equal variances assumed (Levene’s test p value: 0.09), independent samples t-test

\*\* Equal variances assumed (Levene’s test p value: 0.15), independent samples t-test

Tables 2 and 3 show the association between various factors/determinants and empathy scores among undergraduate medical students. The determinants of empathy studied under the Jefferson Scale of Physician Empathy-Student Version (JSPE-S) were gender, age, area of interest for future specialty and the year of study in MBBS curriculum. Homogeneity of variance was tested by Levene’s test. The mean empathy score was found to be more among females

than males and this difference was statistically significant ( $p=0.005$ ) as tested by independent samples t-test. The mean empathy score was found to be more among younger students but the difference in age was not found to be statistically significant. Those students who wanted to do specialization in medical branches showed the highest mean empathy scores followed by those who were undecided, which was closely followed by surgical branches and the least score was for technical branches, but these differences in mean empathy scores were not found to be statistically significant. Area of interest for future specialty was also re-categorized as people-oriented and technology-oriented, excluding those who were undecided.

**Table 3: Relation of area of interest and MBBS year with empath level among undergraduate medical students**

Determinants	Mean empathy score ( $\pm$ SD)	F statistic	p value
<b>Area of interest</b>			
Medical	99.79 ( $\pm$ 12.7)	0.86	0.46*
Surgical	98.70 ( $\pm$ 13.4)		
Technical	95.63 ( $\pm$ 12.5)		
Undecided	98.89 ( $\pm$ 12.9)		
<b>MBBS year</b>			
1 <sup>st</sup>	99.24 ( $\pm$ 11.8)	3.36	<b>0.04**</b>
2 <sup>nd</sup>	100.72 ( $\pm$ 12.9)		
3 <sup>rd</sup>	96.64 ( $\pm$ 13.6)		

\*Equal variances assumed (Levene's test p value: 0.89), One way ANOVA; \*\*Equal variances assumed (Levene's test p value: 0.89), One way ANOVA

Posthoc: 1<sup>st</sup> yr vs 2<sup>nd</sup> yr mean diff 1.5 p value 0.70; 1<sup>st</sup> yr vs 3<sup>rd</sup> yr mean diff 2.6 p value 0.35; 2<sup>nd</sup> yr vs 3<sup>rd</sup> yr mean diff 4.1 p value 0.04

Although the students with people-oriented branch preference had higher mean empathy score but the difference was not found to be statistically significant. It was found by applying one way ANOVA that the difference between the mean empathy scores of students of different MBBS years was significant but Scheffe post hoc test revealed that the difference was significant only between 2<sup>nd</sup> and 3<sup>rd</sup> year. It can be interpreted with this finding that empathy is more on initial clinical exposure but decreases as the clinical experience increases.

## DISCUSSION

The present study on measuring empathy among 351 undergraduate medical students (138 males, 213 females), conducted by using the Jefferson Scale of Physician Empathy-Student Version (JSPE-S), showed that the mean empathy score was  $98.89 \pm 12.9$  with minimum and maximum scores being 54 and 130 respectively. The mean empathy score was comparable to that calculated in an Indian

study done in Nagpur ( $99.25 \pm 13.81$ )<sup>11</sup> but it was lower as compared to another Indian study conducted at Vijaywada ( $103.29 \pm 13.3$ ).<sup>2</sup> This difference might have arisen as the latter study included interns and post graduate students as well. The range of empathy score in the afore mentioned studies were 63-125 and 47-136 respectively. The mean empathy score in Indian medical students was found to be less as compared to some studies done in foreign countries like Australia ( $109.07 \pm 14.94$ ),<sup>6</sup> South Africa ( $107 \pm 10.9$ )<sup>12</sup> and Brazil ( $119.7 \pm 9.9$ ).<sup>13</sup> This could point towards cross cultural differences in empathy level or difference in medical curriculum. Teaching humanities is not a part of medical curriculum in India. The mean empathy score was found to be quite low ( $61.11 \pm 2.31$ ) in a study performed in Iran.<sup>9</sup> Low empathy levels were also found in some studies done among dental students.<sup>14, 15</sup>

Female students were found to be more empathetic than male students, the mean empathy scores being  $100.26 (\pm 13.5)$  and  $96.77 (\pm 11.8)$  respectively. This finding was supported by many earlier studies.<sup>2, 5, 8, 11, 13, 16-24</sup> Some authors have hypothesized that extrinsic as well as intrinsic factors might be the reason for this. Extrinsic factors include the role of females as care taker while intrinsic factors include the biological and genetic make-up.<sup>8, 12, 13, 21, 25</sup> Correlation between activation of right hemisphere and empathy was found exclusively in females in a study.<sup>26</sup> However, there are some studies where the relation between empathy and gender could not be appreciated.<sup>27-30</sup> Hence, cultural and environmental influences might also be one of the factors determining empathy.

This study revealed that empathy is more on initial clinical exposure but decreases as the clinical experience increases. Some studies have shown that empathy decreases with increasing clinical exposure among MBBS students.<sup>5, 16-18</sup> Mostafa et al interpreted that empathy gradually increased after clinical training in medical college.<sup>7</sup> In a Brazilian study, empathy was found to be high throughout the medical course.<sup>13</sup> No association was found between empathy and years of medical education in a study by Murthy et al.<sup>2</sup> These variations might point towards the differences in the medical curriculum in different countries. This study did not find any conclusive association between future choice of specialty and empathy. Similar results were found in some other studies too<sup>7, 8</sup> but the studies done in Brazil, Pune and Boston university show contradictory findings where students preferring people-oriented branches were more empathetic than those opting for technical branches.<sup>5, 13, 16</sup>

In conclusion, this study showed a slightly low mean empathy score as compared to similar studies. Females were more empathetic than males. Empathy

level was shown to fall with increasing clinical experience. The association between empathy level and choice of future specialty could not be determined conclusively.

It was a small-scale study; the results may not be representative of empathy levels among all Indian medical students. Multi-centric studies among Indian medical students are recommended for assessing the empathy level and its determinants. Longitudinal studies would be more helpful to identify the trend of change in empathy level during the various phases of medical education.

## REFERENCE

- Barrett-Lennard GT. The empathy cycle: refinement of a nuclear concept. *J Couns Psychol*. 1981;28(2):91-100.
- Murthy PS, Madhavi K, Hemantha Kumar Reddy G, Chaudhury S. Empathy in Indian medical students: Influence of gender and level of medical education on empathy scores. *Universal Research Journal of Medical Sciences*. 2014;1(1):17-21.
- Hojat M. *Empathy in patient care: Antecedents, development, measurement, and outcomes*. New York: Springer. 2007.
- Hozat M, Gonnella JS, Mangionet S, et al. Empathy in medical students as related to academic performance, clinical, competence and gender. *Med Educ*. 2002;36:522-7.
- Chen D, Lew R, Hershman W, Orlander J. A Cross-sectional Measurement of Medical Student Empathy. *J Gen Intern Med*. 2007;22(10):1434-8.
- Williams B, Brown T, McKenna L, M.J. B, Palermo C, Nestel D, et al. Empathy levels among health professional students: a cross sectional study at two universities in Australia. *Advances in medical education and practice*. 2014;5:107-13.
- Mostafa A, Hoque R, M. M, Rana MM, Mostafa F. Empathy in Undergraduate Medical Students of Bangladesh: Psychometric Analysis and Differences by Gender, Academic Year, and Specialty Preferences. *ISRN psychiatry*. 2014.
- Magalhães E, Salgueira AP, Costa P, Costa MJ. Empathy in senior year and first year medical students: a cross-sectional study. *BMC Medical Education*. 2011;11:52.
- Khademalhosseini M, Khademalhosseini Z, Mahmoodian F. Comparison of empathy score among medical students in both basic and clinical levels. *J Adv Med Educ Prof*. 2014;2(2):88-91.
- Chen D, Lew R, Hershman W, Orlander J. A cross-sectional measurement of medical student empathy. *Journal of General Internal Medicine*. 2007;22(10):1434-8.
- Kulkarni VM, Pathak S. Assessment of empathy among undergraduate medical students *Journal of Education Technology in Health Sciences*. 2016;3(1):23-7.
- Vallabh K. Psychometrics of the student version of the Jefferson Scale of Physician Empathy (JSPE-S) in final-year medical students in Johannesburg in 2008. *South African Journal of Bioethics and Law*. 2011;4(2):63-8.
- Santos MA, Grosseman S, Morelli TC, Giuliano ICB, Erdmann TR. Empathy differences by gender and specialty preference in medical students: a study in Brazil. *Int J Med Educ*. 2016;7:149-53.
- Prabhu S, Kumar VS, Prasanth SS, Kishore S. Standing in patients' shoes—survey on empathy among dental students in India. *Journal of Education and Ethics in Dentistry*. 2014;4(2):69.
- Babar MG, Omar H, Lim LP, Khan SA, Mitha S, Ahmad SFB, et al. An assessment of dental students' empathy levels in Malaysia. *International Journal of Medical Education*. 2013;4:223-9.
- Shashikumar R, Chaudhary R, Ryali VS, Bhat PS, Srivastava K, Prakash J, et al. Cross sectional assessment of empathy among undergraduates from a medical college. *Medical journal, Armed Forces India*. 2014;70(2):179-85.
- Khademalhosseini M, Khademalhosseini Z, Mahmoodian F. Comparison of empathy score among medical students in both basic and clinical levels. *Journal of Advances in Medical Education & Professionalism*. 2014;2(2):88-91.
- Hojat M, Vergare MJ, Maxwell K, Brainard G, Herrine SK, Isenberg GA, et al. The Devil is in the Third Year: A Longitudinal Study of Erosion of Empathy in Medical School. 2009;84(9):1182-91.
- Costa P, Magalhães E, Costa MJ. A latent growth model suggests that empathy of medical students does not decline over time. *Adv Health Sci Educ Theory Pract*. 2013;18(3):509-22.
- Kataoka HU, Koide N, K. O, Hojat M, Gonnella JS. Measurement of empathy among Japanese medical students: psychometrics and score differences by gender and level of medical education. *Acad Med*. 2009;84(9):1192-7.
- Tavakol S, Dennick R, Tavakol M. Empathy in UK medical students: differences by gender, medical year and specialty interest. *Education for primary care : an official publication of the Association of Course Organisers, National Association of GP Tutors, World Organisation of Family Doctors*. 2011;22(5):297-303.
- Berg K, Majdan JF, Berg D, Veloski J, Hojat M. Medical students' self-reported empathy and simulated patients' assessments of student empathy: an analysis by gender and ethnicity. *Acad Med*. 2011;86(8):984-8.
- Shariat SV, Habibi M. Empathy in Iranian medical students: measurement model of the Jefferson scale of empathy. *Med Teach*. 2013;35(1):e913-8.
- Chen DC, Kirshenbaum DS, Yan J, Kirshenbaum E, Aseltine RH. Characterizing changes in student empathy throughout medical school. *Med Teach*. 2012;34(4):305-11.
- Wen D, Ma X, Li H, Liu Z, Xian B, Liu Y. Empathy in Chinese medical students: psychometric characteristics and differences by gender and year of medical education. *BMC Med Educ*. 2013;13:130.
- Rueckert L, Naybar N. Gender differences in empathy: the role of the right hemisphere. *Brain Cogn*. 2008;67(2):162-7.
- Roh MS, Hahm BJ, Lee DH, Suh DH. Evaluation of empathy among Korean medical students: a cross-sectional study using the Korean Version of the Jefferson Scale of Physician Empathy. *Teach Learn Med*. 2010;22(3):167-71.
- Hong M, Lee WH, Park JH, Yoon TY, Moo nDS, Lee SM, et al. Changes of empathy in medical college and medical school students: 1-year follow up study. *BMC Med Educ*. 2012;12:122.
- Lim BT, Moriarty H, Huthwaite M, Gray L, Pullon S, Gallagher P. How well do medical students rate and communicate clinical empathy? . *Med Teach*. 2013;35(2):e946-51.
- Rahimi-Madiseh M, Tavakol M, Dennick R, Nasiri J. Empathy in Iranian medical students: A preliminary psychometric analysis and differences by gender and year of medical school. *Med Teach*. 2010;32(11):e471-8.