

**Original Article****ASSESSMENT OF EMPATHY SCORES AMONG MEDICAL STUDENTS OF A PRIVATE MEDICAL COLLEGE, LAHORE, PAKISTAN**Seema Hasnain<sup>1</sup>, Ammad Ali<sup>2</sup>, Ayesha Safdar<sup>3</sup>**ABSTRACT:**

**Background:** The most vital component of healthy physician-patient relationships is empathy, which is strongly linked to better patient outcomes. The objective of this study was to determine the empathy score among medical students across the academic years and to find out the association of empathy scores with gender, year of study and specialty chosen by the students.

**Materials and Methods:** A cross-sectional study was conducted among the medical students after having approval from institutional review board on a validated self-reported Jefferson scale of empathy –student version (JSE-S) from August 23 to January 24. Data was collected from the students who were present on the day of data collection by convenience sampling technique. Data was analyzed by SPSS 25 version.

**Results:** Out of 619 students 594 filled the questionnaire. The mean empathy score was  $88.1 \pm 10.31$ . There was no statistically significant relationship of gender with mean score of empathy p Value (0.08) but there was statistical difference of the empathy score with academic years ( $p=0.002$ ). There is statistically significant association of gender with perspective ( $p=0.00$ ) and compassion ( $p=0.024$ ) subscales of JSE-S version. However, there is significant statistical difference of perspective, compassion and walking in patient shoes subscales in relation to academic years ( $p$ -value= $0.001$ ,  $0.001$  and  $0.026$  respectively).

**Conclusion:** The empathy score was low in this study. The empathy score was high in first year and fourth year. No relationship was demonstrated depending on the career preference. Year of medical training and preclinical/ clinical categories has strong and significant relationship with empathy levels.

**KEYWORDS:** Empathy, Medical students, Assessment, Jefferson scale of empathy

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**INTRODUCTION**

The ability to feel other people's emotions, see things from their point of view, and put yourself in their position is known as empathy. In essence, it involves taking on people's perspective and experience their feelings.<sup>1</sup> Health care professionals

universally recognize the necessity of empathy as a vital skill for cultivating interpersonal interactions between patients and doctors. Furthermore, empirical evidence demonstrates that empathy increases both patient and physician satisfaction, enhances patient compliance, improves diagnostic accuracy, and positively influences therapeutic outcomes.<sup>2</sup> Therefore, for medical students to thrive as doctors, it is imperative that they nurture and uphold their clinical empathy competence

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throughout their training. They can develop the skill of empathy via education.<sup>3</sup> Physicians' empathic attitude raise diagnostic accuracy and clinical competence, minimize emotional distress, improve quality of life and increase therapeutic outcome in patients.<sup>4</sup> Medical students must study about empathy because it is a crucial aspect of their profession.<sup>5</sup> Empathy is divided into two categories: affective (emotional) empathy and cognitive empathy. The capacity to comprehend another person's circumstances without making them one's own is cognitive empathy.<sup>6</sup> Development of empathy is a slow and gradual process. The initial steps are active listening, thinking and comprehending followed by communicating the awareness empathically, and ultimately comes the sense that your counterpart has understood you.<sup>7</sup> Medical institutions and professional organizations promote a balance between clinical detachment and over involvement, characterizing empathy as accurately recognizing another person's emotional state without going through that state themselves.<sup>8</sup> Nurturing empathy in medical practice, as the art of history taking and physical examination are necessary for patient's satisfaction and better therapeutic outcome.<sup>9</sup> Many studies have supported empathy-enhancing interventions for undergraduate medical students. These interventions range from experiential learning exercises with simulated patients, focus on communication skills, reflective writing exercises, and role-playing.<sup>10</sup> According to a longitudinal study carried out in Pakistan, targeted empathy-enhancing activities included patient-centered modules in 3<sup>rd</sup> year and stress management workshops for final year students. This study assessed the evolution of empathy consecutively from 2015 to 2019 by use of Jefferson Scale of Empathy. The improvement in empathy scores in the third year students and in internship may have influenced by the patient-centered module, which concentrates on exercises that promote empathy. It might be possible to help medical students to develop empathy by scheduling repeated formal events throughout all of their clinical years.<sup>11</sup> The

medical school system in Pakistan place little emphasis on developing humanistic qualities and primarily concentrate on imparting the knowledge needed practice medicine.<sup>12</sup> The absence of empathy development in Pakistan's medical curriculum, as highlighted by the study conducted in Lahore, raises concerns about the holistic approach to medical education.<sup>13,14</sup> As empathy plays a very important role in health care, the current study evaluated the level of empathy among undergraduate students from first to final year and also determined the relationship of empathy scores with gender, year of study and priority of specialty among them.

## MATERIALS AND METHODS

A cross-sectional study was conducted in a private medical college among the medical students from August 2023 to January 2024. Out of 619 participants across the five years, 594 were included who were present on the day of data collection through convenience sampling. Research was conducted after approval from IRB Fatima Memorial Hospital College of Medicine and Dentistry letter # FMH-25/08/2023-IRB-1295. The exclusion criteria included those students who were absent on the day of data collection. The dependent variable was empathy and independent variables were age, gender, year of study and specialty. The JSE-S version was used to assess the empathy score which is a self-reported standardized validated questionnaire. Written permission was obtained from Jefferson Thomas University before employing this tool for data collection. This questionnaire includes 20 Likert-type items with a seven-point scale ranging from "strongly disagree" to "strongly agree". Items 2, 4, 5, 9, 10, 13, 15, 16, 17 and 20 were positively scored on Likert scale (i.e. Strongly disagree = 1.... Strongly agree = 7) whereas items 1, 3, 6, 7, 8, 11, 12, 14, 18 and 19 were reverse scored (i.e. Strongly agree = 1.... Strongly disagree = 7). The score ranged from 20-140. Higher score indicate more empathy among the students. Specialties were divided into three categories:

technology-oriented, people-oriented, and other specialties. Regarding the likelihood of pursuing each expertise, students indicated their career specialty intentions. After getting permission from the heads of departments 2-3 students of 4<sup>th</sup> MBBS of Batch A went to the lecture halls from Ist to final year and briefed the students about the questionnaire. Then the questionnaire was distributed among the students after taking verbal informed consent from them. Data was entered, cleaned, and analyzed using SPSS 25.0. The negatively worded items were recorded to re-score them in the positive direction. Categorical variables were described using proportions and percentages, whereas continuous variables such as age and scores of Jefferson scale of empathy were described using mean and standard deviation. The ANOVA test was applied to compare the mean empathy score of students for five years, career aspirations and two age groups for statistical significance. To determine the statistical significance of empathy score with gender, an independent sample t-test was applied. For this investigation, a p-value of  $\leq 0.05$  was deemed significant.

## RESULTS

Out of 619 respondents of all medical years, 594 (95.9%) filled the questionnaire. Out of 152 students of second year 150 (98.6%) responded to the questionnaire followed by first year in which out of 149 students 145(97.3%) responded. About 352 (59.3%) students were less than twenty years with mean age of  $21.56 \pm 1.99$  years and 400 (67.3%) were females. The Jefferson score ranges from 86-90 among 149 (25.1%) students followed by 81-85 among 114 (19.2%) medical students whereas mean score was  $88.1 \pm 10.31$  (Table-1). The mean score of JSE-S was almost similar among undergraduates less than 22 years ( $88.24 \pm 10.04$ ) and more than 22 years ( $88.00 \pm 10.72$ ) with no statistical difference ( $p=0.78$ ). The mean score of empathy among the males and females is  $87.10 \pm 11.37$  and  $88.65 \pm 9.7$  respectively

reporting no statistically significant association in relation to gender ( $p=0.08$ ). Statistically significant association of JSE-S mean score in relation to academic years ( $p=0.002$ ) was reported. (Table-2). Whereas the mean score of females in perspective taking, compassionate care and standing in the patient's shoes is greater as compared to males. There is statistically significant association of gender with perspective ( $p=0.00$ ) and compassionate ( $p=0.024$ ) subscales of JES-S version. However, there is significant statistical difference of perspective, compassionate and walking in patient shoes subscales in relation to academic years ( $p$ -value= $0.001$ ,  $0.001$  and  $0.026$  respectively) (Table -3).

**Table 1: Frequency distribution of empathy scores among the medical students**

Score intervals	Frequency	Percent
$\leq 75$	53	8.9%
76-80	59	9.9%
81-85	114	19.2%
86-90	149	25.1%
91-95	99	16.7%
96-100	55	9.3%
101-105	36	6.1%
106-110	17	2.9%
111-115	7	1.2%
116-120	4	0.7%
126-130	1	0.2%
Total	594	100.0%

**Table 2:** Mean Empathy score distribution according to socio-demographic characteristics of the students.

Variables	N (Percentage)	Mean ± SD	t-test & P-value
Age			
Less than 22years	352 (59.2%)	88.24 ± 10.04	t-test 0.279 P - 0.781
More than 22years	242 (40.7)	88.00 ± 10.72	
Gender			
Male	194 (32.6%)	87.11 ± 11.38	t-test 1.711 P - 0.088
Female	400 (67.3%)	88.65 ± 9.73	
Academic year			
1st year	145 (97.3%)	57.599 ± 7.21	ANOVA30.43 P-0.002
2 <sup>nd</sup> year	150 (98.6%)	54.647 ± 8.00	
3 <sup>rd</sup> year	91 (94.7%)	51.80 ± 9.76	
4 <sup>th</sup> year	109 (96.4%)	58.64 ± 7.06	
Final year	99 (90.8%)	50.74 ± 10.95	
Pre-clinical/Clinical			
Preclinical	295 (49.6%)	88.26 ± 9.40	t-test 0.268 P-0.788
Clinical	299 (50.3%)	88.03 ± 11.16	
Career preference			
Patient oriented	299 (50.3%)	88.07 ± 10.65	F=0.050 P-0.951
Technology oriented	239 (40.2%)	88.30 ± 9.88	
Undecided	56(9.42%)	87.91 ± 10.50	

**Table -3: Frequency of mean score JSE-S in relation to its three subscales**

Subscales of JSE	Perspective	Compassionate	Walking in patient shoes
Age of students	Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD
<22 years N=	55.63 $\pm$ 8.23	24.71 $\pm$ 8	7.9 $\pm$ 2.53
>22years	54.46 $\pm$ 9.8	54.46 $\pm$ 7.48	25.7 $\pm$ 7.48
T-test –P-value	1.53, p=0.13	-1.46, p=0.14	-1.9, p=0.06
<b>Gender</b>			
Male (194)	52.98 $\pm$ 10.38	26.13 $\pm$ 7.25	7.99 $\pm$ 2.50
Female (400)	55.99 $\pm$ 8.06	24.60 $\pm$ 7.98	8.07 $\pm$ 2.46
t-test &p-value	-3.85&p=0.00	2.26 &p=0.024	-0.348&p=0.72
<b>Year of medical training</b>			
Ist year	57.56 $\pm$ 7.22	22.59 $\pm$ 6.99	7.79 $\pm$ 2.48
2nd year	54.65 $\pm$ 8.01	26.23 $\pm$ 8.58	7.7 $\pm$ 2.54
3 <sup>rd</sup> year	51.8 $\pm$ 9.77	27.98 $\pm$ 7.81	8.67 $\pm$ 2.23
4 <sup>th</sup> year	58.64 $\pm$ 7.07	23.22 $\pm$ 7.01	8.22 $\pm$ 2.53
5 <sup>th</sup> year	50.75 $\pm$ 10.95	26.51 $\pm$ 6.86	8.14 $\pm$ 2.41
F-ratio &P=value	17.67, p=0.001	10.76&p=0.001	2.77&p-valu=0.026
<b>Preclinical/Clinical</b>			
Preclinical N=	56.08 $\pm$ 7.75	24.44 $\pm$ 8.03	7.75 $\pm$ 2.5
Clinical N=	53.95 $\pm$ 9.96	25.76 $\pm$ 7.47	8.33 $\pm$ 2.4
t-test &p-value	2.91 &p=0.004	-2.07&P=0.039	-2.91& p=0.004
<b>Choice of specialty</b>			
Patient oriented N=	55.42 $\pm$ 8.83	24.55 $\pm$ 7.99	8.1 $\pm$ 2.44
Technology oriented	54.58 $\pm$ 9.02	25.77 $\pm$ 7.47	7.95 $\pm$ 2.5
Undecided N=	54.59 $\pm$ 9.73	25.21 $\pm$ 7.76	8.11 $\pm$ 2.49
<b>Age of students</b>			
F-ratio &p-value	0.655& p=0.520	1.658&p=0.191	0.245&p=0.783
Less than 22 years N=	55.63 $\pm$ 8.23	24.71 $\pm$ 8	7.9 $\pm$ 2.53
More than 22years	54.46 $\pm$ 9.8	54.46 $\pm$ 7.48	25.7 $\pm$ 7.48
T-test –P-value	1.53, p=0.13	-1.46, p=0.14	-1.9, p=0.06
<b>Gender</b>			
Male (194)	52.98 $\pm$ 10.38	26.13 $\pm$ 7.25	7.99 $\pm$ 2.50
Female (400)	55.99 $\pm$ 8.06	24.60 $\pm$ 7.98	8.07 $\pm$ 2.46
t-test &p-value	-3.85&p=0.00	2.26 &p=0.024	-0.348&p=0.72
<b>Year of medical training</b>			
Ist year	57.56 $\pm$ 7.22	22.59 $\pm$ 6.99	7.79 $\pm$ 2.48
2nd year	54.65 $\pm$ 8.01	26.23 $\pm$ 8.58	7.7 $\pm$ 2.54
3 <sup>rd</sup> year	51.8 $\pm$ 9.77	27.98 $\pm$ 7.81	8.67 $\pm$ 2.23
4 <sup>th</sup> year	58.64 $\pm$ 7.07	23.22 $\pm$ 7.01	8.22 $\pm$ 2.53
5 <sup>th</sup> year	50.75 $\pm$ 10.95	26.51 $\pm$ 6.86	8.14 $\pm$ 2.41
F-ratio &P=value	17.67, p=0.001	10.76&p=0.001	2.77&p-valu=0.026
<b>Preclinical/Clinical</b>			
Preclinical N=	56.08 $\pm$ 7.75	24.44 $\pm$ 8.03	7.75 $\pm$ 2.5
Clinical N=	53.95 $\pm$ 9.96	25.76 $\pm$ 7.47	8.33 $\pm$ 2.4
t-test &p-value	2.91 &p=0.004	-2.07&P=0.039	-2.91& p=0.004
<b>Choice of specialty</b>			
Patient oriented N=	55.42 $\pm$ 8.83	24.55 $\pm$ 7.99	8.1 $\pm$ 2.44
Technology oriented	54.58 $\pm$ 9.02	25.77 $\pm$ 7.47	7.95 $\pm$ 2.5
Undecided N=	54.59 $\pm$ 9.73	25.21 $\pm$ 7.76	8.11 $\pm$ 2.49
F-ratio &p-value	0.655& p=0.520	1.658&p=0.191	0.245&p=0.783

## DISCUSSION

This study was conducted among the medical students across the academic years to find out the empathy score as it is a very important skill for cultivating interpersonal interactions between patients and doctors. The current study revealed that mean empathy score among medical students was  $88.18 \pm 10.31$ . However, there is marked variation in empathy scores globally as reported in various studies: India.<sup>15</sup> ( $105.77 \pm 18.5$ ), Bangladesh.<sup>16</sup> ( $110.41$ ), Malaysia.<sup>17</sup> ( $106.2 \pm 13.5$ ), Iran<sup>18</sup> ( $106.42 \pm 14.8$ ), and Spain<sup>19</sup> ( $120 \pm 11.92$ ). On the contrary in, a study of Lahore.<sup>20</sup> the mean over all empathy level was  $90.63 \pm 11.5$  which is comparable to our result. Whereas a study of Sukker. stated the mean empathy score of  $98.11 \pm 12.31$ .<sup>21</sup> The marked variation in empathy score in various countries may be due to differences in cultural factors, customs, ethnicity, spiritual belief, educational system, due to variations on empathy training, varying nature of interactions and work load in different health care systems. The mean empathy level among females was slightly higher ( $88.65 \pm 9.73$ ) as compared to males ( $87.11 \pm 11.38$ ) but there is no statistically significant association of empathy level ( $p=0.088$ ) with gender. An Islamabad study results corroborate with our study reporting no significant statistical association ( $p=0.302$ ). Contrary to this a study of Iran ( $p=0.001$ ), India. ( $p<0.001$ ) and Malaysia ( $p=0.004$ ) depicted significant statistical association between mean empathy score and gender.<sup>15,17,18,22</sup> Non-significant association between empathy scores and gender can be attributed to several factors for example these medical students undergo similar training and socialization process regardless of gender which can lead to similar levels of empathy among male and female students. Also cultural and societal changes due to which younger generations may experience less rigid gender socialization, leading to more similar empathy levels. Individual differences like personality, experiences and education may overshadow gender differences. Understanding

these factors can provide insight into why studies might not find significant differences in empathy in relation to gender. Nevertheless, significant association between empathy and gender can be described as females are often socialized to be more emotionally attuned, enhancing empathy, while males may emphasize independence. Use of expressive communication and brain differences related to emotional processing may contribute to higher empathy in females.

A significant statistical relationship between empathy score and year of academic session was reported in this study ( $p=0.002$ ). Same results were reported by a study conducted in Islamabad ( $p=0.003$ ). The highest empathy score was reported by the 4<sup>th</sup> year medical students followed by first year. The lowest score was reported by the final year students in the current study. Whereas a Kerala study revealed that students of first year had higher empathy score as compared to fourth year with  $p$ -value  $<0.001$ .<sup>15</sup> Studies have identified various factors for this consistent finding. As students progress through their training, the cumulative stress can diminish their ability to empathize with patients. Increased work load and responsibilities limit time for empathetic patient interactions. Desensitization can also occur due to repeated exposure to patient suffering. Another reason can be due to lack of focus on empathy in assessments and feedback reduces its development. A Malaysian study depicted no difference between academic years and empathy score ( $p=0.15$ ).<sup>17</sup> There is no statistical difference between career preference and empathy score as seen in this study ( $p=0.951$ ). The results of Kerala. (0.9), Chatterjee study (0.054) and Turkey (0.5) are congruent with this study.<sup>15,23,24</sup> Contrary to this, Mirani SH et al, reported significant differences in empathy score between those who chose people oriented specialty as their future preference when compared to those who chose technology oriented or remained undecided.<sup>25</sup> There is significant difference of gender with

perspective ( $p=0.00$ ) and compassionate (0.024) subscale but no association with walk in shoes subscale (0.72) in the recent study. An Iranian study reported statistical relationship between three subscales of JSE-S with the gender.<sup>18</sup> Whereas a study conducted in private medical college of Lahore, the mean values of perspective taking, compassionate care and standing in patients shoes was almost similar among males and females and thus showing no statistical significance in JSE subscale.<sup>26</sup>

These results suggest that gender differences exist in specific aspects of empathy with females scoring higher in perspective taking and males scoring higher in compassionate care, while both genders show similar scores in the ability to metaphorically walk in a patient's shoes. The higher compassionate care score for males may be due to variations in how empathy is self-assessed across genders or the fact that compassionate expressions are sometimes viewed differently by male students.

The ANOVA test reveals significant differences in empathy scores across different years of medical school for all three categories which are perspective ( $p<0.001$ ), compassionate ( $p=0.001$ , and patient shoes ( $p=0.02$ ) respectively. This suggests that empathy levels, as measured by these scores, fluctuate throughout medical education, with the most significant variations observed in the perspective and compassionate categories in the present study. On the other hand, Mirani et al. study revealed a downward trend in three subscales in five years of medical school.<sup>21</sup> Long work hours, sleep deprivation, and added obligations that accompany the later years of medical school were blamed for this.

As the number of medical school years increased, so did the compassionate domain of empathy ratings ( $F=8.32$ ,  $p=0.004$ ).<sup>19</sup> A study of Oman has depicted not much difference between the year of medical training and the three subscales of JSE-S.<sup>27</sup> Whereas in another study, perspective taking was higher in third year students, compassionate care scores were

higher among first year students while mean score of walking in patient shoes was higher in final year students. There is significant difference of higher empathy scores among clinical students as in compassionate care ( $p=0.039$ ). The Malaysian study results corroborates to our study in relation to compassionate care but the cognitive empathy scores remain unchanged. According to one theory, affective empathy, which is more of an autonomic and basic process than cognitive empathy, may have developed as a result of the student's clinical encounter with the patients.

## CONCLUSION

Medical students showed a low mean empathy score of  $88.65\pm9.7$ . Empathy scores varied significantly across academic years, but not by gender. However, gender and academic years influenced specific subscales of empathy, such as perspective and compassionate care.

## RECOMMENDATIONS

1. Empathy training should be incorporated in curriculum of the students which should include empathy courses, role playing and narrative medicine to help students connect with patients' experiences
2. Communication skills should be taught to the students e.g.; active listening, validating emotions and showing understanding can greatly improve empathy
3. Interdisciplinary training with nursing, social work, and other healthcare fields allows students to learn empathy by appreciating diverse roles and perspectives within patient care.
4. Address burnout through mental health support, work-life balance and self-care to sustain empathy throughout training.
5. Patient feedback after interactions can offer valuable insight into the student's ability to

communicate and express empathy.

## CONFLICT OF INTEREST

None

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None

## AUTHOR'S CONTRIBUTION

**SH:** Conceptualization

**AA:** Manuscript writing and Data Analysis

**AS:** Data Collection & Review

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