# ASSESSMENT OF EMPATHY AMONG POSTGRADUATE TRAINEES DOCTORS IN PUBLIC TERTIARY CARE HOSPITALS PESHAWAR, PAKISTAN: A CROSS-SECTIONAL STUDY

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## ABSTRACT

***Objectives:*** *This study's objectives were to evaluate a cohort of medical students who had completed four years of undergraduate training and to find parameters related to clinical empathy.*

***Methods and materials:*** *This cross-sectional study was conducted from January 2021 to august 2021 among postgraduate trainees in public tertiary care hospitals in Peshawar, Pakistan. The objective of the study is to measure the level of empathy among post-graduate doctors working in different tertiary care hospitals in Peshawar Pakistan. For measurement of the level of empathy, The Jefferson Scale of Empathy (JSE) was used as a tool. Sociodemographic data and Students' levels of empathy were assessed by using the Jefferson Empathy scale (JES). IBM SPSS 22 was used for data analysis. The (JES) scores on average were calculated. An independent sample t-test and one-way ANOVA, which were significant at a p-value of 0.05, were used to assess the relationship between the mean Jefferson empathy score and socio-demographic characteristics.*

***Results:*** *The P value of the ANOVA test across different years of postgraduate study was significant, but it was less than.001, thus it was not utilized to compare empathy scores between hospitals in KTH, LRH, and HMC. The P value for the ANOVA comparing several hospitals was 0.635, which did not indicate significance. Age and empathy had a Pearson correlation of -.085 (r=-.085). Empathy ratings and monthly income had an r=-.285 association. According to the results of multiple linear regression, a rise in age by one unit would increase empathy scores by 0.437 times.*

***Conclusion:*** *Our research revealed that the level of empathy varied depending on the training year and that after the second year, age ceased to be a factor in predicting empathy.*

***Key words:*** *Empathy, Jefferson scale, Postgraduate trainees.*

## INTRODUCTION

Clinical empathy is the capacity to comprehend a patient's situation, perspective, and feelings, to express that understanding to the patient and to confirm its accuracy, and to act on that understanding in a supportive (therapeutic) manner[1]. Patients' sense of satisfaction is known to rise as a result of clinical empathy, which helps with compliance. Therefore, it has been discovered that compassionate medical professionals have superior clinical judgment and are more adept at being transformative leaders[2]. Clinical empathy has been measured using a variety of scales.

Since a customized version of the Jefferson Scale of Empathy (JSE-S) was created expressly to assess clinical empathy in medical practitioners, choices experienced particularly broad use among medical students. With a Cronbach alpha value of 0.80 and prior use among medical experts worldwide, the JSE-S has strong internal consistency and produces comparable results from various cultural contexts[3] Research on the relationship between clinical empathy and

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the number of years spent in medical school has produced conflicting findings, with some research suggesting a reduction over time, with some claiming a decrease and others reporting an increase in clinical empathy[4]. Furthermore, research has shown that women typically exhibit more empathetic attitudes toward patients than males do[5]. Other factors, like choices of specialty, may also have an impact on how clinical empathy is demonstrated by medical students and, consequently, by doctors[6]. Only one Indian study has ever directly looked at medical students' clinical empathy, and the results lead to a low mean score[7]. Empathy is among the most crucial elements of positive doctor-patient interaction[8] problems with patient-physician communication were the most prevalent complaints stated by patients who sued their doctors, according to two studies by Hickson et al[9]. In light of their discovery that doctors' empathy had a protective impact against depression in cancer patients, Neumann et al. recommended that medical students and practitioners actively investigate and enhance their empathy skills[10]. According to Flickinger et al., there is a statistically significant connection between a patient's adherence to therapy and a doctor's empathy rating[11].Compliant patients were more likely to be treated by compassionate doctors. Clinicians are expected to possess the professional quality of empathy[12]. Therefore, it's crucial to assess medical students' empathy. Higher patient satisfaction and greater patient compliance are the result of students' growing capacity for empathy[13]. It represents a move away from doctor-centered treatment and toward patient-centered care. In Pakistan, medical education focuses mostly on the cognitive area and pays minimal attention to humanistic abilities. According to the study by Imran et al., medical students' emotional intelligence and empathy were not successfully promoted by the current medical school curriculum[14]. These abilities are necessary to become an effective physician. The initiatives that promote empathy should be included in the postgraduate trainee's curriculum.

In order to build good patient connections, postgraduate trainees need empathy. At the current study, the average empathy score among postgraduate trainees in public tertiary care teaching hospitals was calculated, and the significant factors were identified. The measurement of empathy levels among medical postgraduate trainees will serve as a foundation for future research planning. The study's findings will also assist public hospitals in place worthwhile measures. This is the first study of its kind to be carried out among this community an essential component of medical education.

## MATERIALS AND METHODS

A Random sample of 410 inpatients was recruited in public tertiary care hospitals in Peshawar i.e. Hayatabad medical complex Khyber teaching hospital and Lady Reading hospital. Verbal consent was obtained from eligible selected participants.

A questionnaire was used to gather the data, and it included the Jefferson scale for measuring physician empathy as well as demographic data. The JSE is a self-administered questionnaire with 20 questions, half of which are positively and half negatively worded. Participants were asked to respond to each topic using one of the seven possible responses on a Likert scale (1 = strongly disagree, 7 = strongly agree). This scale is reversed (1 = strongly agree, 7 = strongly disagree) for the negative language items. "Perspective taking," "compassionate therapy," and "being in the patient's shoes" are the three factors on this three-factor latent variable scale. The scale was original afterward in 2001 and has afterwards been improved and modified into 3 modifications. The tool has been validated elsewhere since it was formed.[1]

Data were gathered in OPDs and wards at various departments of Peshawar hospitals KTH, LRH, and Hayatabad Medical Complex. The postgraduate trainees were informed at the outset and given an explanation of the study's goal and benefits before any data were collected. The information was then gathered using standardized questionnaires that included the Jefferson Empathy Scale. The open Epi sample size calculator was used to determine the sample size. Using a 50% prevalence, 5% precision level, a 95% confidence interval, and a 10% no respondent rate, the total sample size was 440. Then random sampling method was applied.

For categorical variables, such as gender, medical school, postgraduate year, socioeconomic status, and specialty, descriptive statistics were expressed as frequencies and percentages, while the mean and standard deviations were calculated for continuous variables, such as age, average monthly income, and Jefferson scale score. T-tests were used to compare

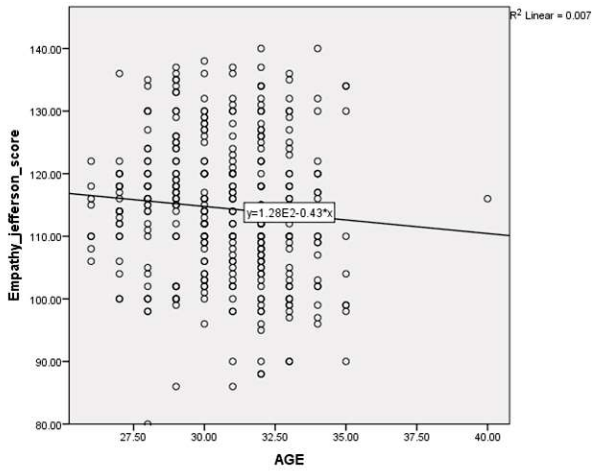


**Fig 1: Association between Empathy Jefferson score and age**

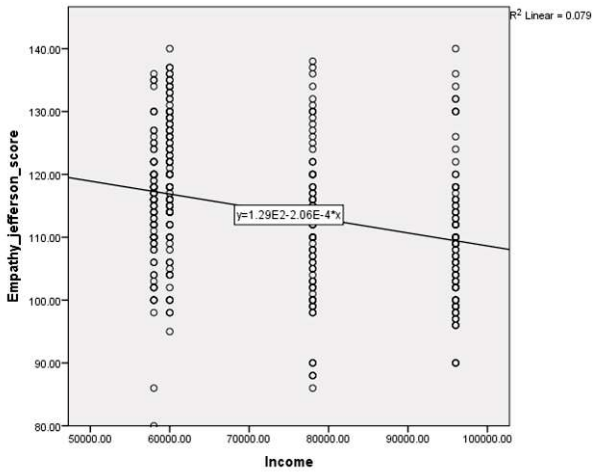


**Fig 2: Association between Monthly Income and Empathy score**

gender, a categorical variable with two categories, and graduation from college, postgraduate years, specialty, and hospitals, independent variables with more than two categories. ANOVA tests were used to compare empathy scores between these independent factors. Empathy scores were correlated with other continuous variables, such as age and income. By adjusting for potential confounders, multivariate linear regression was used to examine the relationship between empathy scores and independent factors such as gender, age, postgraduate year, income, and specialty. For assessing the correlation between the outcome variable, empathy, and the other independent factors, a p-value of 0.05 was deemed significant.

## RESULT

There were approximately 375 trainees including 109(29.1%) from Hayatabad Medical complex, 159(42.4%) from KTH hospital, 107(28.5%) from LRH hospital. Out of 375 (100%) postgraduate trainees of the Hayatabad Medical Complex, Khyber teaching hospital and Lady Reading Hospitals 229 (61.1%) were Males and 146 (38.9%) were females. The mean for age for the total 375 trainees were 30.6987 and the standard deviation was 2.19196. The mean for income of the 375 trainees was 71632.0000 and the standard deviation was 15256.91007. Out of the total participants 40 (10.7%) were of trainees of Medicine and Allied specialty, 40 (10.7%) were of the specialty of cardiology, 40 (10.7%) were from the specialty of skin. While 20 (5.3%) were from the specialty of pulmonology, 21 (5.6%) were from the specialty of pediatrics, 20 (5.3%) were from of surgery and allied, 20 (5.3%) were of the orthopedics specialty. Rest of 25 (6.7%) were of the urology specialty, 14 (3.7%) were of the pediatrics surgery, 18 (4.8%) were of ENT, 10 (2.7%) were Ophthalmology, 12 (3.2%) were of Gynecology, 40 (10.7%) were of Gastroenterology, 29 (7.7%) were of the Psychiatry, 26 (6.9%) were of the anesthesiology specialty. Out of total 375 trainees 105 (28.0%) were of the first year of their training duration, 101 (26.9%) were of the second year, 85 (22.7%) were of the third year and 84 (22.4%) were of the fourth year of their training period.

## DISCUSSION

The purpose of this study was to evaluate Pakistani postgraduate trainee's doctor's levels of patient empathy. There is no scale available in Pakistan to measure medical doctors' empathy. The JSE –HP version was adapted for the Pakistani population in the current study. It was investigated whether JSE-HP version was reliable. This study's Cronbach's alpha coefficient (r = 0.88) was comparable to those published for South African medical students (r = 0.79)[13], Chinese (r = 0.83)[22], Korean (r = 0.84)[16], Japanese (r = 0.80][15], and Chinese (r = 0.83)[15]. This finding suggests that Pakistani postgraduate doctor trainees use the JSE HP version with internal consistency. The three-factor answer from the principal component analysis somewhat matched the pattern from prior investigations. Additionally, this demonstrated the construct validity of the JSE - HP version. The following general sub-headings might be used to discuss the study's findings.

We found that clinical empathy was strongly influenced by gender, with female trainees scoring substantially higher on average than male . By the fifth year, there was no longer any obvious difference between the mean empathy ratings of male and female participants. Over the post-graduation year, this gap tended to close. Despite the fact that similar results have not been reported elsewhere, the cross-sectional design of this study makes it impossible to provide a full explanation of the temporal importance of this discovery. Researchers in Pune found that while mean empathy scores for males fell over the course of the post-graduation year, they did not alter significantly for females.[15]

In a longitudinal research utilizing the same questionnaire, women continually outperformed men, and the difference remained statistically significant even as the mean scores overall decreased. Male and female mean empathy scores changed over time similarly, but the difference remained statistically significant[16]. The sequential structure of clinical empathy in both male and female doctors needs to be investigated further. Female doctors ranked their

**Table 1: Mean and standard deviation for Empathy Jefferson score**

| Empathy_jefferson_score | N | Mean | Std. Deviation |
|---|---|---|---|
| | 375 | 114.4720 | 11.18434 |

**Table 2: Comparing Empathy Jefferson-value score among Genders**

| Empathy_jefferson_score | Sex | N | Mean | Std. Deviation |
|---|---|---|---|---|
| | Male | 229 | 114.1354 | 11.81896 |
| | Female | 146 | 115.0000 | 10.12610 |

**Table 6: Comparing Empathy Scores among different Hospitals of KPK**

| Various Hospitals | N | Mean | Std. Deviation |
|---|---|---|---|
| HMC | 109 | 113.6147 | 9.36889 |
| KTH | 159 | 114.8805 | 12.56949 |
| LRH | 107 | 114.7383 | 10.73992 |
| Total | 375 | 114.4720 | 11.18434 |

**Table 4: Empathy_jefferson_score**

| Sum of Squares | | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 1436.502 | 9 | 159.611 | 1.285 | .244 |
| Within Groups | 45346.954 | 365 | 124.238 | | |
| Total | 46783.456 | 374 | | | |

**Table 5: Comparing the Empathy Scores among different Postgraduate Years of Training**

| Post Graduates years | N | Mean | Std. Deviation | Std. Error |
|---|---|---|---|---|
| 1ST-YEAR | 105 | 114.6667 | 9.37946 | .91534 |
| 2ND-YEAR | 101 | 120.1386 | 10.40195 | 1.03503 |
| 3RD-YEAR | 85 | 112.2000 | 11.68312 | 1.26721 |
| 4TH-YEAR | 84 | 109.7143 | 10.84454 | 1.18324 |
| Total | 375 | 114.4720 | 11.18434 | .57756 |

**Table 3: Comparing the Empathy Jefferson Scores among the different Colleges of Graduation**

| Colleges | N | Mean | Std. Deviation | 95% Confidence Interval for Mean | |
|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound |
| KMC | 86 | 115.6047 | 9.87603 | 113.4872 | 117.7221 |
| AMC | 113 | 116.3009 | 11.12661 | 114.2270 | 118.3748 |
| GMC | 65 | 112.1538 | 12.95332 | 108.9442 | 115.3635 |
| BMC | 35 | 111.7143 | 11.50338 | 107.7627 | 115.6658 |
| KGMC | 15 | 114.1333 | 5.91447 | 110.8580 | 117.4087 |
| SMC | 23 | 114.5652 | 8.16214 | 111.0356 | 118.0948 |
| KIMS | 11 | 112.5455 | 15.30597 | 102.2628 | 122.8281 |
| FMC | 12 | 111.0000 | 13.02445 | 102.7247 | 119.2753 |
| AIMC | 11 | 116.9091 | 12.88763 | 108.2511 | 125.5671 |
| PMC | 4 | 110.0000 | 6.53197 | 99.6062 | 120.3938 |
| Total | 375 | 114.4720 | 11.18434 | 113.3363 | 115.6077 |

capacity for empathy on average higher than male doctors, according to numerous research conducted in Bangladesh, Pune, and other places[17]. When the same questionnaire was used in a longitudinal study, women consistently achieved good results. Although the expectations associated with traditional gender roles have been cited as the most common explanation for this finding, a study by Baez et al. in 2017 found that self-reporting-based tools for measuring empathy may introduce biases that cause the participant to believe traditional gender-based stereotypes. However, Christov-Moore et al. claimed that heightened empathy in females had both social and evolutionary bases in addition to ontogenetic ones in their review of that they were not solely responsible for this[18]. The mean empathy ratings between male and female medical students did not differ, according to a few research. More research is required to comprehend the relationships between sex and gender roles and therapeutic empathy.

In our study, the mean empathy rating increases in first and second years'-graduation and then a plateaued in third and fourth year of post-graduation. Numerous other research have looked at the connection between the length of medical training and empathy test results. Some of these research have demonstrated a rise in clinical empathy as medical years increase, whereas other studies have found no discernible fluctuation in empathy ratings during the years of medical school[19]. In a previous study, internal medicine postgraduate trainees' empathy levels were compared. The results showed that the first year's empathy score was 110.4, the second year's was years, the third year's was 108.1, and the fourth year's was 114.3. The first year's standard deviation was 14.6, the second year's was 9.8, the third year's was 14.1 and the fourth year's was 11.4. Our study's findings were unique in that they showed clinical empathy increased after the first and second year and then decreased in fourth year. Although it is challenging to take any temporal conclusions from this cross-sectional study, a similar finding in another Indian study suggests that additional research should be done to investigate these phenomena and its potential causes.

From our results, ANOVA revealed that there is no discernible difference of mean empathy score among different postgraduate trainees of different hospitals HMC, KTH, and LRH. Among trainees, there was a negative correlation between the mean postgraduate trainee empathy ratings and the post-graduate trainees' ages. Our study's mean empathy score (96.01, standard deviation: 14.56) is lower than the majority of comparable research done in Asia or Western nations, which is a worrying finding. Some claim that doctors in Asia have a tendency to be more paternalistic when dealing with patients. possible reasons. This might partially explain our findings, but more investigation is required to identify the elements behind such poor evaluations. It is crucial to consider this study's methodological constraints before interpreting the results.

## CONCLUSION

From my investigation, I draw the following conclusions: The empathy ratings vary between postgraduate training years, and there is a decline in empathy levels after the second year, or in the third and fourth years of training. I've discovered that age can predict how well postgraduate trainings measure empathy. This finding should be taken into account for upcoming studies on doctors' empathy.

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