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**Original Research Paper**

# Assessment of Empathy among Medical Students at a Medical College in Ahmedabad, India

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**Abstract**

*Introduction:* Empathy is an important core competency to be acquired by medical students that benefits both physician and patient. This study aimed to assess the level of empathy and the role of selected socio-demographic and academic factors affecting level of empathy among study participants.

*Methods:* A cross-sectional study was conducted among medical students enrolled at a medical college in Ahmedabad, Western India. The sample-size was 185 and applying probability-proportional-to-size to sampling-frame, 135 and 50 students were selected from undergraduate and postgraduate courses respectively. Systematic random-sampling selected further participants from different phases. The Jefferson Scale of Empathy-Student version (JSE-S) was utilized with socio-demographic details for personal interview. Three domains, "Perspective Taking", "Compassionate Care", and "Walking in the Patient's Shoes" of empathy were evaluated.

*Results:* The average empathy score of all students was 90.97±11.22. The mean empathy scores of undergraduates in the domains of compassionate care, perspective taking and walking in patients' shoes were 29.32±6.84, 47.50±8.27 and 7.91±2.79 respectively. Mean empathy scores of postgraduates in the domains of compassionate care, perspective taking and walking in patients' shoes were 32.14±6.44, 46.28±7.42 and 7.84±3.08 respectively.

*Conclusion:* Average score of empathy among study participants was in "low" on the category of JSE-S. Variables with statistically significant associations with the mean score of empathy were; type of family, place of residence, year/phase of study, working status of parents and self-perceived effect of workload on empathy.

*Keywords:* Domain, Empathy, Medical students, Postgraduate, Undergraduate

## Introduction

Empathy can be considered as one of the core competencies to be acquired by medical students for bilateral benefits to both parties involved in healthcare management.

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Physicians with adequate empathy are one of the substantial determinants for utmost positive outcome of treatment.

The healthcare professional has to bring empathy to the table when dealing with a patient as it helps them comprehend the emotional and cognitive state of the patient involved. This connection can help healthcare professionals build a therapeutic relationship with the patients, eventually leading to better health outcomes.

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This influence is determined by the words chosen and facial expressions, body language, and vocalization. Emotional and cognitive connection is invaluable in today's healthcare delivery to achieve the best patient-provider relationship. (Meyza *et al*., 2016, Moudatsou *et al*., 2020, Vilella and Reddivari 2023).

Empathy, i.e., the ability to understand the personal experience of the patient without bonding with them, constitutes an important communication skill for a health professional. It has been proven that health professionals with high levels of empathy operate more efficiently as to the fulfilment of their role in eliciting therapeutic change. The empathetic professional comprehends the needs of the health-care users, as the latter feel safe to express the thoughts and problems that concern them. Some of the factors that negatively influence the development of empathy are the high number of patients that professionals have to manage, the lack of adequate time, the focus on therapy within the existing academic culture, but also the lack of education in empathy. Developing empathetic skills should not only be the underlying objective in the teaching process of health and social care undergraduate students, but also the subject of the lifelong and continuous education of professionals (Moudatsou *et al*., 2020).

The Indian sub-continent, being highly populous, has an apparently accepted practice by healthcare professionals, especially working in public health sectors, to manage large numbers of patients in outdoor and indoor facilities within a limited period. Furthermore, an average Indian inhabitant especially representing wide socio-economic-cultural-educational differences are not amply vigilant about rights of the patient. Considering resource-poor settings in terms of manpower, technology, diagnostics and training, the main goal of a healthcare professional is treating disease only and not the patients. The situation prevails to a varying degree in different provinces of country, especially interior, tribal and difficult terrains. This complex matrix is root-cause of insignificance for empathy concepts among mindsets of both caregivers and receivers. In current era of infodemic, there are scattered incidents reported, mainly in urban area of disputes between healthcare providers and recipients ranging from legal proceedings to physical harm or property damage. It may be hypothesized that an appropriate level of empathy besides communication skills can address such issues.

Understanding the significance of empathy in medical education, the National Medical Commission, i.e., the apex regulatory body governing the regulation of medical education in India, , introduced a competency based medical curriculum (CBME) from the year 2019, for undergraduate students where AETCOM, i.e., Attitude, Ethics and Communication are integral part of for the teaching program for Indian Medical Graduate. (UG curriculum guideline, National Medical Commission, India, 2024; (AETCOM guidelines National Medical Commission, India, 2023). Within this curriculum, a few module-based sessions related to empathy and ethics have been introduced, which are learnt by students during undergraduate course teaching.

There are scarce instruments in medical literature to measure empathy. Among them, the Jefferson Scale for Empathy (JSE) developed by Hojat *et al*., 2001 along with the Jefferson scale user guide, 2016 is the most widely used tool. Three factors have been identified in original research using JSE, which include “perspective taking,” “compassionate care,” and “walking in patient’s shoes.” (Jefferson scale user guide, 2016).

The overall review of literature of similar research conducted in India suggested the mean empathy levels are lower than those reported in most similar studies around the world; (Biswas *et al*., 2018 and Ozair *et al*., 2021) therefore, further studies are recommended to analyze and address underlying factors associated with this discrepancy (Chatterjee *et al*., 2017). Various researchers across India, using the JSE-S tool for empathy measurement, report the mean empathy score of between 90 to 100 among

the medical students (Chatterjee *et al*., 2017). The available literature (Vilella *et al*., 2024; Chatterjee *et al*., 2017; Shashikumar *et al*., 2021; Neeraj *et al*., 2022) had paved efforts to enroot the current research to find the determinants of empathy among medical students which included gender, year/phase of study, and future choice of specialty during post-graduation studies.

Considering the endorsement of previous research across the country with lack of similar evidence from the western part of India, the current research was planned at one medical college of Ahmedabad with the broad aim of assessment of empathy and its associated factors among medical students perusing undergraduate and postgraduate courses. The targeted objectives were: to assess the level of empathy and to assess the role of selected socio-demographic and academic factors affecting level of empathy among study participants.

**Methods**

This was a cross sectional study conducted among medical students enrolled at a medical college at Ahmedabad city situated in western India during July - November 2023. The sample size was calculated using the formula: $n=4SD^2/E^2$ (Banerjee, 2016; Neeraj *et al.*, 2022). where SD=14.8, E=margin of error=15% of SD which revealed N=177.77≈180 [calculated minimum sample size]. The sample size taken in this research was 185. The research project was approved vide No. GCSMC/EC/ResearchProject/ Approve/2023/608 by institutional ethical committee.

In the Indian Medical education system, the total duration of study for undergraduate courses is 5.5 years which includes 1$^{st}$, 2$^{nd}$, 3$^{rd}$, 4$^{th}$ year and Internship (total five batches at any given point of time) while for postgraduate courses, the scheduled duration is three years' residency (houseman job) programme. For the selected study site, the annual intake of undergraduate students was 150, which made 750 students available in the sampling-frame, considering students of all phases. In the postgraduate programme, there were different numbers of students perusing in various specialties, the total of which was 230 at the time of planning. Finally, probability proportional to size (PPS) was applied to sampling-frame of 750:230 (undergraduate: postgraduate students) to receive a calculated sample size of 185. Accordingly, 135 and 50 students respectively were selected from undergraduate and postgraduate courses. Applying PPS on the sub-cohort of undergraduate students, 27 students were selected from each of the five batches of the undergraduate programme (27*5=135) considering a uniform annual intake capacity of 150. For the sub-cohort of students perusing in postgraduate programme, there was different intake annually over the last three years and accordingly, 23, 21 and 6 students respectively, were selected from the first, second and third year of the postgraduate programme.

Systematic random sampling was applied for selection of the desired numbers of students from respective batches of undergraduate and postgraduate programme. A list where all students were arranged according their registration number (it was a list in alphabetical order according their first name) was obtained from the administrative office. For each batch, a random number was generated with computer for selection of the first participant and then the sample interval was added to the number to select the next participants. Informed oral consent was obtained with explanation of core aspects of research. If any student did not give consent, he/she was excluded from list and the immediate next student in the list was contacted for inclusion in research. Personal interviews was conducted in the college campus with data collection in JSE-S [Jefferson Scale of Empathy Student version]. (Jefferson scale user guide, 2016).

The JSE-S is a 20-item measure that can be completed in about 10 minutes on a Likert-type scale from 1 (strongly disagree) to 7 (strongly agree). In this scale, ten of the items are phrased positively and scored directly, while the other 10 are phrased negatively. The

range of possible scores is from 20 to 140. The higher the score, the greater the participants have empathic orientation towards patient care. As per the standard reference of user-guide for JSE-S, the score distribution was categorized as Low and High, with different cut-off for specific gender. The cutoff scores for identifying low and high scorers in men were ≤96 and ≥127, respectively; they were ≤102 and ≥129, respectively in women. The students with score-values in between these cutoffs were included in "Moderate" category for analysis. The three components namely "Perspective Taking", "Compassionate Care", and "Walking in the Patient's Shoes" were found consistent with the ingredients of empathy. These underlying factors were found supportive of the pillars of empathic engagement in patient care, namely, seeing with the mind's eye (e.g., Perspective Taking and Walking in the Patient's Shoes) and hearing with the third ear (e.g., Compassionate Care). Based on the findings from their original research, Hojat *et al*, 2001 and suggestions by Jefferson scale user guide, 2016, three-factor model was suggested: where "perspective taking" includes item numbers 2,4,5,9,10,13,15,16,17 and 20; the factor "compassionate care" includes item numbers 1,7,8,11,12,14,18 and 19 while the factor "walking in patient's shoes" includes item numbers 3 and 6.

*Data Analysis*

The data were entered into Microsoft excel and were analyzed with MS excel, JAMOVI 2.4.11. Frequency percentages were used for descriptive statistics. To check the association between gender and level of empathy, chi-square test was applied. For association between three core variables, i.e., Gender, level of empathy and course being perused, the Mantel–Haenszel Chi-square test was applied. For the statistical significant role of various socio-demographic components and self-perception regarding empathy with three cumulative core factors of JSE-S, i.e., perspective taking, compassionate care and walking in patient's shoes were analyzed with independent t test and ANOVA test. (p value <0.05 was considered significant).

**Results**

More than half (101, 54.60%) of all study participants were in the age-group of 20-25 years. Nearly two-thirds of participants (117, 63.24%) were female. Distribution among undergraduate students was identical according to the phase of course they were perusing as described in methodology. Of total, slightly more than one-third (35.68%) had both parents working in professional jobs. Majority of the participants (150, 81.08%) reported self-perception that they had adequate knowledge about empathy. A small portion (17, 9.18%) of studied cohort expressed that there is no need to include empathy in medical education (Table 1).

On analyzing the association between gender of study participants and category of empathy score, it was revealed that there was a statistically significant association between two assessed variables among participants who were perusing undergraduate medical education. (Chi-square test statistic=4.38 with p value=0.036). Amid study-participants studying in postgraduate medical education, the gender did not reveal any statistically significant association with empathy score (Table 2). None of the medical student showed in "High" score category of empathy after cumulative analysis of total 20 items included in JSE-S.

The statistical relationship between gender-wise and course-wise distribution of medical students with empathy score was assessed with Mentel-Haenszel chi-square test. The distribution did not reveal any statistical significance between these categorical variables. (Table 3)

***Table 1: Socio-demographic details and self-perception of empathy among study participants (n=185)***

| Variables | | Class | Frequency (%) |
|---|---|---|---|
| Age (in years) | | <20 | 41 (22.16) |
| | | 20-25 | 101 (54.60) |
| | | ≥25 | 43 (23.24) |
| Gender | | Male | 68 (36.76) |
| | | Female | 117 (63.24) |
| Type of Family | | Joint | 39 (21.08) |
| | | Nuclear | 125 (67.57) |
| | | Three Generation | 21 (11.35) |
| Residence | | Urban | 170 (91.89) |
| | | Rural | 15 (8.11) |
| Year of Study | Undergraduate | 1st year | 27 (14.59) |
| | | 2nd year | 27 (14.59) |
| | | 3rd year | 27 (14.59) |
| | | 4th year | 27 (14.59) |
| | | Internship | 27 (14.59) |
| | Postgraduate | 1st Year | 23 (12.44) |
| | | 2nd Year | 21 (11.36) |
| | | 3rd Year | 6 (3.25) |
| Working parents in professional job | | Father only | 110 (59.46) |
| | | Mother only | 5 (2.70) |
| | | Both | 66 (35.68) |
| | | None | 4 (2.16) |
| Receiving Scholarship from Government | | Yes | 64 (34.59) |
| | | No | 121 (65.41) |
| Self-perception about knowledge on Empathy | | Adequate | 150 (81.08) |
| | | Average | 27 (14.59) |
| | | Short | 8 (4.33) |
| Self-perception that workload affect empathy | | Yes | 105 (56.76) |
| | | No | 80 (43.24) |
| Self-perception that Empathy to be included in Medical education | | Yes | 168 (90.82) |
| | | No | 17 (9.18) |

As described in methodology sub-section, the comprehensive analysis according three domains of empathy according to JSE-S items' sub-distribution was studied. The results were analyzed with independent t test and ANOVA accordingly. It showed that self-perceived need of "empathy to be included in medical education curriculum" was statistically significant variable for domain of Perspective taking. Variables like age of participants, place of residence, receiving scholarship from government and course perusing in medical education were statistically significantly associated with domain of Compassionate care. In context to domain of walking in patients' shoes, the variables viz. type of family, working status of parents and self-perceived effect of workload on empathy were statistically significant factors. (Table 4)

As per pre-defined scoring system, the 20 items' analysis was studied and compared with selected socio-demographic and other variables of study participants for possible statistical significance. The value of mean± SD for empathy score of all students was 90.97±11.22. The mean empathy scores of students perusing undergraduate and post-graduate course study participants was 90.65±11.34 and 91.48±10.98 respectively. The analysis (Table 5) suggested that type of family, place of residence, phase of the course perusing, working status of parents, receiving scholarship from government and self-perception regarding effect of workload on empathy had statistically significant association with average score of JES-S among study participants.

***Table 2: Association between gender of medical students and empathy score distribution***

| Empathy Score | Undergraduate | | χ2 value (p value) | Postgraduate | | χ2 value (p value) |
|---|---|---|---|---|---|---|
| | Male | Female | | Male | Female | |
| Low | 33 | 77 | | 16 | 19 | |
| Moderate | 13 | 12 | 4.38 (0.036) | 6 | 9 | 0.13 (0.709) |
| High | 0 | 0 | | 0 | 0 | |

***Table 3: Association between gender-wise and course-wise distribution of medical students with empathy score (n=185)***

| Empathy | Medical Course Perused | Gender | | Total | Mentel- Haenszel test value (p value) |
|---|---|---|---|---|---|
| | | Male | Female | | |
| Low | Undergraduate | 33 | 77 | 110 | 0.774 (0.379) |
| | Postgraduate | 16 | 19 | 35 | |
| Moderate | Undergraduate | 13 | 12 | 25 | |
| | Postgraduate | 6 | 9 | 15 | |

***Table 4: Association between predefined domains of JSE-S with Socio-demographic variables among study participants (n=185)***

| Variables | Class | Perspective taking | | Compassionate care | | Walking in patients' shoes | |
|---|---|---|---|---|---|---|---|
| | | Mean ± SD | Test statistics (p value) | Mean ± SD | Test statistics (p value) | Mean ±SD | Test statistics (p value) |
| Age (in years) | <20 | 47.37 ±7.52 | 0.72 (0.485) # | 27.15 ±7.36 | 6.95 (0.001) # | 7.83 ±2.61 | 0.012 (0.988) # |
| | 20-25 | 47.63 ±8.53 | | 30.24 ±6.38 | | 7.91 ±2.91 | |
| | ≥25 | 45.88 ±7.39 | | 32.51 ±6.45 | | 7.91 ±3.06 | |
| Gender | Male | 46.60 ±8.56 | 0.72 (0.469) * | 30.24 ±6.37 | 0.23 (0.816) * | 7.37 ±2.99 | 1.91 (0.058) * |
| | Female | 47.50 ±7.76 | | 29.99 ±7.11 | | 8.20 ±2.76 | |
| Type of Family | Joint | 48.56 ±7.39 | 2.82 (0.060) # | 31.54 ±9 | 2.08 (0.128) # | 9.03 ±2.92 | 4.06 (0.019) # |
| | Nuclear | 46.24 ±8.34 | | 30.01 ±6.02 | | 7.62 ±2.73 | |
| | 3Generation | 50.10 ±6.60 | | 27.81 ±6.40 | | 7.38 ±3.17 | |
| Residence | Urban | 47.02 ±8.11 | 0.85 (0.395) * | 29.67 ±6.65 | 2.80 (0.006) * | 7.79 ±2.89 | 1.66 (0.098) * |
| | Rural | 48.87 ±7.33 | | 34.73 ±7.33 | | 9.07 ±2.34 | |
| Working Parents in professional job | Father only | 47.28 ±8.05 | 2.34 (0.075) # | 29.55 ±6.93 | 1.55 (0.202) # | 7.50 ±2.96 | 3.69 (0.013) # |
| | Mother only | 44.80 ±3.35 | | 35.20 ±7.26 | | 9.20 ±2.05 | |
| | Both | 47.76 ±8.12 | | 30.73 ±6.67 | | 8.61 ±2.61 | |
| | None | 37.25 ±5.19 | | 27.50 ±3.32 | | 5.25 ±1.50 | |
| Knowledge on Empathy | Adequate | 47.77 ±7.80 | 2.88 (0.058) # | 30.04 ±6.98 | 0.03 (0.970) # | 7.75 ±2.94 | 1.07 (0.343) # |
| | Average | 45.37 ±7.40 | | 30.37 ±6.03 | | 8.63 ±2.20 | |
| | Short | 41.88±12.31 | | 29.88 ±7.36 | | 8.00 ±3.42 | |
| Receiving Scholarship | Yes | 47.09 ±8.49 | 0.09 (0.928) * | 31.69 ±7.23 | 2.35 (0.020) * | 8.38 ±2.85 | 1.67 (0.095) * |
| | No | 47.21 ±7.85 | | 29.23 ±6.48 | | 7.64 ±2.85 | |
| Workload affect empathy | Yes | 47.85 ±8.03 | 1.31 (0.189) * | 30.54 ±6.89 | 1.05 (0.293) * | 8.28 ±2.81 | 2.11 (0.036) * |
| | No | 46.28 ±8.04 | | 29.48 ±6.74 | | 7.39 ±2.87 | |
| Empathy to be included in Medical curriculum | Yes | 47.56 ±7.95 | 2.10 (0.037) * | 29.84 ±6.87 | 1.51 (0.131) * | 7.87 ±2.88 | 0.34 (0.734) * |
| | No | 43.29 ±8.30 | | 32.47 ±6.15 | | 8.12 ±2.83 | |
| Course perusing | Undergraduate | 47.50 ±8.27 | 0.91 (0.363) * | 29.32 ±6.84 | 2.53 (0.012) * | 7.91 ±2.79 | 0.15 (0.881) * |
| | Postgraduate | 46.28 ±7.42 | | 32.14 ±6.44 | | 7.84 ±3.08 | |

**Independent t-test, # ANOVA test*

***Table 5: Association between JSE-S (20 items) and selected socio-demographic and other variables (n=185)***

| Variables | | Class | Score of 20 items: JSE-S | |
|---|---|---|---|---|
| | | | Mean ± SD | Test statistics (p value) |
| Age (in years) | | <20 | 88.46 ±10.69 | 1.32 (0.268) # |
| | | 20-25 | 91.61 ±11.50 | |
| | | ≥25 | 91.86 ±10.99 | |
| Gender | | Male | 89.99 ±10.12 | 0.91 (0.363) * |
| | | Female | 91.55 ±11.83 | |
| Type of Family | | Joint | 95.15 ±12.76 | 3.74 (0.025) # |
| | | Nuclear | 89.61 ±10.79 | |
| | | 3 Generation | 91.33 ±9.07 | |
| Place of Residence | | Urban | 90.31 ±11.23 | 2.74 (0.007) * |
| | | Rural | 98.47 ±8.31 | |
| Year of Study | Undergraduate | 1st year | 89.56 ±11.34 | 3.42 (0.002) # |
| | | 2nd year | 84.85 ±12.62 | |
| | | 3rd year | 88.22 ±9.42 | |
| | | 4th year | 93.44 ±10.60 | |
| | | Internship | 97.19 ±8.91 | |
| | Postgraduate | 1st Year | 89.70 ±11.80 | |
| | | 2nd Year | 94.43 ±10.48 | |
| | | 3rd Year | 91.00 ±8.83 | |
| Working parents in professional job | | Father only | 90.17 ±11.87 | 3.74 (0.012) # |
| | | Mother only | 94.40 ±12.68 | |
| | | Both | 92.98 ±9.44 | |
| | | None | 75.50 ±4.04 | |
| Self-perception about knowledge on Empathy | | Adequate | 91.51 ±10.42 | 1.76 (0.174) # |
| | | Average | 90.04 ±11.58 | |
| | | Short | 84.13 ±20.95 | |
| Receiving Scholarship from Government | | Yes | 92.94 ±11.42 | 1.74 (0.083) * |
| | | No | 89.93 ±11.03 | |
| Self-perception that workload affect empathy | | Yes | 92.63 ±10.59 | 2.32 (0.021) * |
| | | No | 88.80 ±11.73 | |
| Self-perception that Empathy to be included in Medical education | | Yes | 91.16 ±10.61 | 0.71 (0.476) * |
| | | No | 89.12 ±16.46 | |

**Independent t-test, #ANOVA test*

## Discussion

The current research was aimed to assess empathy in medical students using the JSE-S score and to identify the correlates of empathy scores like various socio-demographic factors such as age, gender, type of family, place of residence, working status of parents, and selected academic parameters like phase of course perusing, self-perceived knowledge on empathy, scholarship they receive, self-perceived effect of workload on empathy and empathy to be included in medical education.

The total number sampled was 185. The mean empathy score of participants ≥25 years of age was 91.86, which is quite similar to the result (91.3) revealed by Neeraj *et al*., (2022) in a similar research conducted in a city of western India. On assessing the impact of gender on mean score of empathy, the present study revealed that female gender had recorded slightly higher empathy scores compared to their counterparts which revealed statistically significant among undergraduate students and the same did not revealed any statistical significance in their postgraduate counterparts. (91.55 in females and 89.99 in male participants).Quince *et al*., 2016, in their multi-centric research conducted at United Kingdom and New Zealand concluded that gender was found to significantly predict empathy scores, with females scoring higher than males. Hvidt *et al*., 2022, in their similar cross sectional research conducted at Denmark concluded that there were no statistically significant differences in empathy between first, third and sixth year medical students, age-groups or parental status. Female students scored higher on JSE-S than male students and sex difference was statistically significant. Chatterjee*et al*., 2017, in their similar research conducted at northern India found mean empathy score of 96.01 with a standard deviation of 14.56 among medical students. The empathy scores decreased from the first to the third semester, plateaued at the fifth semester, and rose again in the seventh semester. In the same research, empathy was found to be significantly associated with the gender of the participant, with females having higher scores while the age of participant, and place of residence were not significantly associated with students' empathy scores.

In present study, it revealed that there is a statistically significant difference between year of study and mean empathy score among study participants. Chen *et al*., 2007, in their study conducted among medical students at Boston University revealed that first year medical student class had the highest empathy scores (118.5), whereas the fourth year class had the lowest empathy scores (106.6). In context to phase/year of course, they concluded that Empathy scores of students in the preclinical years were higher than in the clinical years. Females had higher empathy scores than males while age did not affect empathy scores. Biswas *et al.,* 2018, in their comparable research conducted at Kolkata, India revealed the mean empathy score of 98.5±12.5 among medical students. They also reported that third semester students had higher empathy scores (102.4±12.4) compared to fifth (97.2±12.9) and seventh semester (95.0±10.9) students. The difference between the mean scores of different semesters was statistically significant. Female students were more empathic than male students. Findings are quite consistent with revelations of present research. Shashikumar *et al*., 2014 in their similar research conducted at Pune, India revealed highest empathy at entry level and a significant fall by seventh semester while female students had significantly higher empathy levels than male students

Inclusion of AETCOM training as an integral mandatory component of medical education in India may be the probable reason for comparatively better score among undergraduate students especially of final phase. Similarly, the mean empathy score was lower in first year postgraduate students (89.70) as compared to second and third year residents (94.43 and 91.00 respectively). The possible reason may be lesser exposure to the patients and patients' relatives in initial phase of course as compared to later years. There might be a better scope of being familiarized with importance of empathy while dealing with patients during ward-rounds/OPDs and from observing senior faculty-members.

## Conclusion

The value of mean±SD for empathy score according to JSE-S of all students was 90.97±11.22. The mean empathy scores of students perusing undergraduate and postgraduate course study participants were 90.65±11.34 and 91.48±10.98 respectively. The mean empathy scores of undergraduate study participants in the domains of compassionate care, perspective taking and walking in patients' shoes were 29.32±6.84, 47.50±8.27 and 7.91±2.79 respectively. The mean empathy scores of postgraduate study participants in the domains of compassionate care, perspective taking and walking in patients' shoes were 32.14±6.44, 46.28±7.42 and 7.84±3.08 respectively. Mean score of empathy appears to be higher in the first year of medical education with variable trend in next phases of undergraduate course while mean score of empathy was lower in first year postgraduate students as compared to seniors. Variables which revealed statistically significant association with mean score of empathy were: the type of family, place of residence, year/phase of study, the working status of their parents and self-perceived effect of workload on empathy.

Further details like Data regarding the research, questionnaire and further relevant enquiry can be addressed to corresponding author with appropriate justification for the need.

*Limitations of study*

The Medical school where given research was conducted is exemplary PPP (Public Private Partnership) model medical college established by partnership between Gujarat State Government and Gujarat Cancer Society Trust. The students get admission based on their merit in UG and PG-NEET (Undergraduate and postgraduate National Eligibility Entrance Test) and conducted nationwide and admissions are managed by Admission Committee for Professional Medical Courses controlled by state Government officials. A fee structure is mixed where a few students have to pay fees whereas a few groups of students are getting varying amount of scholarship from state government starting from 50% to 100%. The scholarship is caste based and to prevent any discrimination, the relevant information was not sorted. So, the effect of same on empathy could not be evaluated. The study is conducted in single medical college; the same research at various medical colleges across state/country may be yield more accurate or better results.

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*Conflict of interest*

None

*Data accessibility statement*

The raw data and additional details can be provided upon request for the same to corresponding author with proper justification.

*Authors' contribution*

All authors have contributed equally for conceptualization of topic, review of literature, data collection, data analysis, manuscript writing and approval of final draft.

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