Section: Community Medicine

Original Research Article

EMPATHY AMONG UNDERGRADUATE AND POSTGRADUATE STUDENTS IN A MEDICAL COLLEGE IN SOUTH KERALA

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Received : 12/03/2025
Received in revised form : 25/03/2025
Accepted : 14/04/2025

Keywords:
Empathy, medical students, Jefferson Scale of Physician Empathy, doctor-patient relationship, empathy training.

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DOI: 10.47009/jamp.2025.7.2.171

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2025; 7 (2); 843-849

Abstract

Background: Empathy is a crucial component in medical education and practice, with significant impact on patient outcome and satisfaction and doctor-patient relationships. However, research suggests that empathy levels decline as medical students progress through their training. This study aimed to (i) assess empathy levels among undergraduate and postgraduate medical students in a medical college in the private sector in South Kerala and (ii) identify factors influencing empathy. **Materials and Methods:** A descriptive cross-sectional study was conducted among 519 medical students, comprising of undergraduates, interns and postgraduates, from November 2024 to January 2025. Data collection was carried out using the validated Student Version of the Jefferson Scale of Physician Empathy (JSPE-S), along with demographic information of the participants in the study and their opinion on factors influencing empathy. Statistical analysis was performed using independent t-tests and one-way ANOVA using SPSS software. **Result:** The overall mean JSPE score was 113.56 ± 18.5. Empathy levels were higher among the female students, though not statistically significant. First-year undergraduate students exhibited the highest empathy scores, which appeared to decline progressively during their student period, reaching the lowest levels in interns. Postgraduates demonstrated a declining empathy during the second-year of their course, but showed improvement in the third year. Students who had opted clinical fields for specialization (e.g., Psychiatry, Surgery) scored higher than those with no direct patient interaction in hospital setting. Factors such as curriculum exposure, availability of role models, participation in empathy workshops, personal support systems and overall psychological well-being of the participants significantly influenced empathy levels. **Conclusion:** The findings indicate a decline in empathy during medical training, highlighting the need for structured interventions such as empathy training programs, direct patient-centred teaching methodologies and mentorship initiatives with mentors as good role models to sustain, if not enhance empathy in medical students. Further research is needed to explore long-term strategies for empathy retention and the effect of cross-cultural variations in students coming from diverse backgrounds.

INTRODUCTION

Empathy is a critical component in the practice of medicine, contributing to better patient outcome, enhanced patient satisfaction and improved doctor-patient relationships.[1] Mercer and Reynold's widely accepted definition describes physician empathy as the ability of a physician to "(a) understand the patient's situation, perspective and feelings (b) communicate that understanding and check its accuracy and (c) act on that understanding with the patient in a helpful (therapeutic) way."[2] Hojat et al

at Jefferson Medical College proposed the following definition of empathy in the context of patient care: "Empathy is a predominantly cognitive (rather than emotional) attribute that involves an understanding (rather than feeling) of experiences, concerns and perspectives of the patient, combined with a capacity to communicate this understanding."[3-5]

Empathy also plays an important role in achieving patient-centeredness, which comprises of "qualities of compassion, empathy and responsiveness to the needs, values and expressed preferences of the individual patient.[2] Studies have shown that empathy in medical professionals can lead to improved adherence to treatment plans, reduced malpractice claims and higher satisfaction levels among both patients and healthcare providers.[1]

Research indicates a disconcerting decline in empathy levels during medical training, especially as students progress through their clinical years.[2,3,5] A significant decline in empathy scores were observed at the end of the third year which persisted until graduation.[6-13] This decline has been attributed to various factors, including the stress and workload of medical education, exposure to clinical scenarios and ground realities and the subtle expressions and impressions that seem to apparently emphasise technical skills over empathetic patient care . Gender differences have also been observed, with female medical students typically displaying higher levels of empathy compared to their male counterparts.[3]

Some studies on medical students have revealed, specialty choice as a determinant of self-perceived empathy and indicated that medical students who selected direct patient-care specialties had higher empathy scores than did those who had chosen patient-remote subjects for their specialisation.[2,5] Empathy scores were also significantly associated with ratings of clinical competence. Students with high empathy scores received higher clinical competence ratings.[5] Studies also showed a decline of mood and empathy during internship.[3]

Factors Influencing Empathy: Several factors contribute to the decline in empathy during medical education. The rigorous nature of medical training, with its intense workload, long hours and frequent exposure to suffering and death, can lead to emotional exhaustion and a coping mechanism known as "emotional numbing." This, combined with a curriculum that appear to prioritize technical skills over interpersonal communication in some areas, may cause students to distance themselves emotionally from their patients. Additionally, the hierarchical culture in many medical institutions, where students feel pressurized to conform to a detached, objective demeanour, can further erode empathy.[5]

Empathy can also be influenced by personal experiences, psychological well-being and the social support systems available to the students. The teaching-learning methods and the clinical environment significantly impact empathy levels. Role models and mentors who exhibit high levels of empathy can positively influence medical students. Conversely, negative experiences and high-stress environments can erode empathy.[7,8]

Impact of Empathy: High levels of empathy in healthcare providers have been linked to numerous positive outcomes. Medical students who cultivate empathy are better equipped to perceive patients as whole humans, rather than mere cases, which leads to more personalized and compassionate care.[7,8] Empathetic interactions can lead to better patient adherence to treatment regimens, lower rates of burnout among healthcare providers and improved overall job satisfaction. Patients treated by empathetic doctors often report higher satisfaction with their care, which can contribute to better health outcomes. Moreover, empathy in healthcare is associated with reduced rates of medical errors, as empathetic practitioners are more attuned to their patients' concerns and less likely to overlook important symptoms or issues.[13]

Strategies to Foster Empathy

Interventions to maintain and enhance empathy during medical training are essential. These can include structured practical empathy training programs, reflective practices and the inclusion of humanities in medical curriculum.[6,7] Encouraging patient-centred care and providing opportunities for medical students to engage in meaningful patient interactions can also help sustain empathy.

Changing trends

Sue Roff's study challenges the widely accepted idea that empathy declines among medical students as they progress through their education. While reviewing studies that used the Student version of the JSPE (JSPE-S) for their research in various international institutions, Roff found that empathy scores from these settings were consistently higher than those reported in the earlier Jefferson studies, suggesting that the supposed decline in empathy might not be as universal or significant as was previously thought. Roff argues that the observed decline in empathy might be influenced by specific cultural or institutional factors rather than being a general trend. The study suggested that the decline in empathy among medical students may not be as pronounced or inevitable as earlier research indicated.[10]

Understanding the levels and determinants of empathy among medical students can help in designing targeted interventions to nurture and sustain empathy throughout their training. This study aims to provide insights into the empathy levels among Undergraduate and Postgraduate students in a rural medical college in South Kerala, contributing to the global discourse on medical education and patient care.

MATERIALS AND METHODS

This descriptive cross-sectional study was conducted at a medical college located in a border district of South Kerala, from November 2024 to January 2025.

ISSN (O): 2687-5365; ISSN (P): 2753-6556

Approval for the study was obtained from the Institutional Ethics Committee of the college (Approval No: SMCSIMCH/EC (PHARM) 06/05/22). All the undergraduate students (first to final years), interns and postgraduate students who provided informed consent were included in this study. Students on long-term leave or those who did not consent were excluded. The data were collected through a validated Student version of Jefferson Scale of Physician Empathy (JSPE- S). Demographic details of the students and their perspective on factors influencing empathy were included in the questionnaire. The Jefferson Scale of Physician Empathy (JSPE-S) contained 20 items meant to measure empathy in which the participants responded on a Likert- Scale consisting of 7 points. The total score was calculated by adding the scores obtained for each question incorporating reverse scoring for negative statements. Greater levels of empathy were indicated by higher values in the resultant final score. Scores between 47 and 105 are considered as low empathy level, 106 to 120 as moderate empathy level and 121 to 140 as high empathy level.[14]

The statistical analysis was done using SPSS version 26. Descriptive statistics were done using mean ± standard deviation for continuous variables and frequencies and percentages were used for categorical variables. Difference between groups were analysed using independent t-test or analysis of variance (ANOVA) after testing for normality. A p-value <0.05 was used to assess the significance for all statistical analyses.

RESULTS

Socio-Demographic Profile of Study Participants and Jefferson Scale of Patient Empathy (JSPE)Scores

Five hundred and nineteen students in total participated in this study.

1. Gender

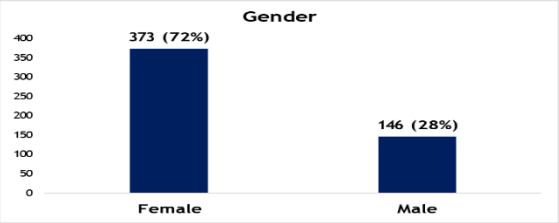

Figure 1: Distribution of medical students according to gender

A total of 146 males (28%) and 373 females (72%) participated in the study. [Figure 1]

2. Year of study

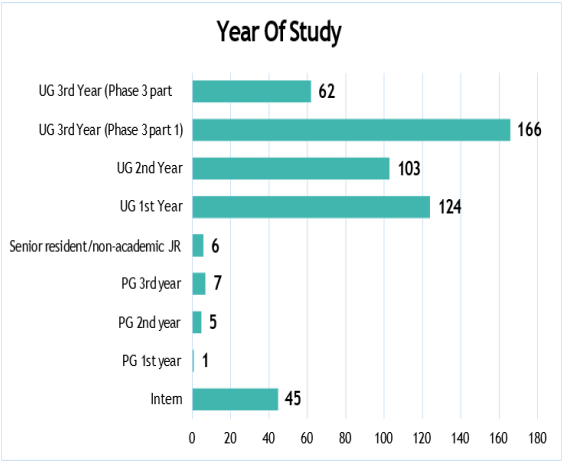

Figure 2: Distribution of medical students according to year of study

Among the undergraduates, the participation was maximum from third year (phase 3 part 1) where 166 students responded and least response was from third year (phase 3 part 2). Among the postgraduates, maximum response was obtained from third year students whereas least response was from first years. [Figure 2]

3. JSPE scores of medical students according to gender

The JSPE score (Mean ± SD) was (112 ± 18.9) for males and (114 ± 18.3) for females.

The average (Mean ± Standard deviation) of overall empathy score was 113.56 ± 18.5.

4. JSPE scores of medical students according to age

The highest number of students who responded (251,48.4%) belonged to the 21-23 age group and the lowest number in the 27-29 age group (4, 0.8%). The JSPE score (Mean ± SD) was highest in the 27-29 age group (123 ± 16.3) and among females (114 ± 18.3). [Table 1]

Table 1: JSPE scores of medical students according to age (n=519).

Age(Years)	Frequency n(%)	JSPE score Mean ± SD	p-value
18-20	166 (32)	116 ± 17.4	0.12
21-23	251 (48.4)	113 ± 16.8	
24-26	83 (16)	111 ± 24.5	
27-29	4 (0.8)	123 ± 16.3	
≥ 30	15 (2.9)	108 ± 18.7	

5. JSPE scores of medical students according to year of study

Table 2: JSPE scores of medical students according to year of study

Year of study	JSPE score Mean ± SD	p-value
UG 1st Year	116.8 ± 19.6	0.12

ISSN (O): 2687-5365; ISSN (P): 2753-6556

UG 2nd Year	114.1 ±17.2	
UG 3rd Year (Phase 3 part 1)	113.2 ±15.5	
UG 3rd Year (Phase 3 part 2)	113.3 ± 18.8	
Intern	107.2 ± 24.5	
PG 1st year	109 ± 20	
PG 2nd year	101.6 ± 27.7	
PG 3rd year	115.2 ±9.6	
Senior resident/non-academic JR	104.8 ± 29.7	

Among the undergraduates, the highest mean JSPE scores were seen among first year students (116.8 ± 19.6), showing gradual decline over second and third years and drop to the lowest levels during internship (107.2 ± 24.5). Among the post graduates, the highest mean JSPE scores were seen among third year students (115.2 ±9.6) and lowest among second year students (101.6 ± 27.7), which was the lowest overall value. [Table 2]

6. JSPE scores of medical students according to the course of study

Table 3. JSPE scores of medical students according to the course of study[n=519]

Course of study	Frequency n (%)	JSPE Scores Mean ± SD	p-value
MBBS	499 (96)	114 ± 18.4	0.29
MD	16 (3)	111 ± 19.9	
MS	4 (1)	100 ± 29.8	

Out of 519 students who responded in total, 499 were MBBS students, 16 were undergoing MD and 4 undergoing MS courses respectively. The mean empathy scores were higher for undergraduate (MBBS) students (114 ± 18.4) and lowest for MS postgraduate students (100 ± 29.8). [Table 3]

7. JSPE scores of medical students according to the specialisation among postgraduates

Table 4: JSPE scores of medical students according to the specialisation among postgraduates[n=519]

Specialization (PG)	Frequency n (%)	Mean ± SD	p-value
Psychiatry	3 (15)	116.4 ± 10.1	0.72
General Medicine	1 (5)	110 ± 5.8	
Dermatology	4 (20)	100.3 ± 31.6	
OBG	3 (15)	114.7 ± 6.6	
General surgery	1 (5)	127 ± 20.9	
Community Medicine	4 (20)	94.7 ± 33.4	
Pathology	4 (20)	117.2 ± 11.5	

The highest mean empathy score was shown by postgraduate students in the surgical specialities (127 ± 20.9) and lowest by community medicine postgraduate students (94.7 ± 33.4). [Table 4]

8. JSPE scores of medical students according to the speciality of choice among undergraduates

Table 5: JSPE scores of medical students according to the speciality of choice among undergraduates[n=519]

Speciality of choice (UG)	Frequency n (%)	JSPE Score Mean ± SD	p-value
Anatomy	2 (0.4)	125.5 ± 3.5	0.023
Anaesthesiology	6 (1.4)	120.2 ± 12.5	
Dermatology	61 (14.7)	108.3 ± 26.2	
Emergency Medicine	15 (3.6)	115.1 ± 11.5	
Forensic Medicine	5 (1.2)	99.2 ± 34.9	
General Medicine	101 (24.4)	113.5 ± 16.9	
General Surgery	82 (19.8)	111. 1 ± 20.2	
Microbiology	1 (0.2)	111 ± 18.9	
Obstetrics and Gynaecology	31 (7.5)	117.6 ± 17.5	
Ophthalmology	7 (1.7)	118.6 ± 17.3	
Orthopaedics	16 (3.8)	119.5 ± 12.8	
Otorhinolaryngology	2 (0.4)	120.5 ± 10.6	
Paediatrics	48 (11.6)	118.9 ± 15.3	
Pathology	5 (1.2)	102.6 ± 17.4	
Physiology	2 (0.4)	74.5 ± 54.5	
Psychiatry	14 (3.4)	120 ± 10.9	
Radiodiagnosis	16 (3.8)	112.8 ± 14.6	

The mean empathy scores were highest for undergraduates who selected Anatomy as their speciality of choice (125.5 ± 3.5) and lowest for those who selected Physiology (74.5 ± 54.5). [Table 5]

ISSN (O): 2687-5365; ISSN (P): 2753-6556

9. JSPE scores of medical students according to socioeconomic status

Table 6. JSPE scores of medical students according to socioeconomic status[n=519]

Socio economic status (Modified BG Prasad scale)	Frequency n (%)	JSPE Score Mean ± SD	p-value
Upper middle class	133 (26)	113 ± 19.5	
Middle class	98 (19)	112 ± 19.2	
Upper class	264 (51)	115 ± 17.7	
Lower middle class	17 (3)	111 ± 21.2	
Lower class	7 (1)	115 ± 13.1	0.66

The mean empathy scores were highest and almost similar among upper class and lower class students whereas the scores were lowest among the students from lower middle class families (111 ± 21.2), categorisation being made as per Modified BG Prasad scale. [Table 6]

10. Factors Influencing Mean Empathy Scores

Table 7: Factors influencing mean empathy scores[n=519]

Factors influencing empathy		Frequency n (%)	JSPE Scores Mean ± SD	p-value
Personal experiences	Yes	112 (21.6)	111 ± 21.3	
	No	407 (78.4)	114 ± 17.6	0.11
Influence of medical curriculum	Yes	283 (54.5)	115 ± 17.8	
	No	236 (45.5)	111 ±19.2	0.02
Frequency of interaction with patients	Daily	230 (44.3)	113 ±19.9	
	Monthly	40 (7.7)	112 ± 15.4	
	Rarely	107 (20.6)	114 ± 19.4	
	Weekly	142 (27.4)	114 ± 16.2	0.88
Influence of role models	Yes	217 (41.8)	115 ± 17.1	
	No	302 (58.2)	112 ± 19.4	0.09
Attended training or workshops on empathy	Yes	330 (63.6)	115 ± 16.4	
	No	189 (36.4)	110 ± 21.4	0.004
Changing of empathy depending on the clinical environment	Yes	292 (56.3)	118 ± 17.2	0.32
	No	227 (43.7)	116 ± 20.1	
Marital status	Married	20 (3.9)	115 ± 10.5	0.76
	Single	499 (96.1)	114 ±18.8	
Personal support system	Yes	497 (95.7)	114 ±18.4	
	No	22 (4.2)	106 ±18.8	0.045
Engagement in activities to manage stress	Yes	395 (76.1)	114 ± 17.5	
	No	124 (23.9)	112 ± 21.5	0.45
Rating of overall psychological well being	Excellent	58 (11.2)	118 ± 19	
	Fair	186 (35.8)	110 ± 18.4	
	Good	239 (46.1)	115 ± 18.1	
	Poor	36 (6.9)	111 ±18.3	0.008

Independent t-test for two groups and one-way ANOVA for more than two groups were done for identifying the factors influencing empathy among the study participants.

Mean empathy scores was higher among those who admitted that there is positive influence of medical curriculum in developing patient empathy, those who are having a personal support system and those who had attended workshops of empathy and this difference showed a statistical significance while tested using independent t-test (p-value<0.05). [Table 7]

DISCUSSION

Empathy plays a crucial role in medical practice by improving patient satisfaction, adherence to treatment plans and reducing malpractice claims. Empathy levels were evaluated according to JSPE scores. Scores between 47 and 105 are considered as low empathy level, 106 to 120 as moderate empathy level and 121 to 140 as high empathy level.[13] In this study, the average (Mean ± Standard deviation) overall empathy score was 113.56 ± 18.5.

Empathy in relation to age and gender: The present study agrees with those previous research findings that empathy declines during medical training, especially in clinical years and internship[2]. Gender differences were observed, with female students displaying higher empathy scores than their male counterparts. In our study, the JSPE score (Mean ± SD) was highest in the 27-29 age group and among females, but with no statistically significant differences. This finding is similar to those observed in a previous study (Kataoka et al., 2009), where they found that female medical students exhibited higher empathy levels than male students, possibly due to stronger socialization towards caregiving roles.[5]

Empathy and year of study: Among the undergraduates, the highest mean JSPE scores were seen among first year students, with gradual decline over second and third years to drop to the lowest

ISSN (O): 2687-5365; ISSN (P): 2753-6556

levels in internship. These findings align with prior studies (Neumann et al., 2011; Hojat et al., 2009) which reported a significant decrease in empathy levels as students progressed in their medical training and it was found that the third year of study seemed to be the critical year where empathy scores started to decrease. These studies attributed the decline to workload stress, emotional exhaustion and the prioritization of technical knowledge over patient interactions.[1,2] Research by Bellini et al. (2002) and Chen et al. (2007) found that mood and empathy declined during clinical exposure and internship, which is consistent with the present study finding that interns had the lowest empathy scores.[4]

Among the post graduates, the highest mean JSPE scores were seen among third year students and lowest among second year students. Specialty choices seemed to influence empathy, with students who selected patient-care fields (e.g., Psychiatry, Surgery) showing higher empathy levels compared to those in specialties not in direct contact with patients in a hospital setting. Factors such as personal experiences, the influence of the medical curriculum, availability and interaction with role models, participation in empathy workshops and personal support systems significantly affected empathy levels. The active participation in a clinical setting with emphasis placed on physical patient care and shouldering of such patients' responsibilities can increase the emotional load of students. In a study conducted by Neumann et al (2011), it was found that the empathy levels decreased when students actively participated in patient care.[2]

Specialty Choice: In the present study, the students evaluated were undergoing PG courses in General medicine, Dermatology, Psychiatry, Community medicine and Paediatrics, and in Surgical specialities that included General Surgery and Obstetrics and Gynaecology and Para clinical speciality included Pathology. Although there were no statistically significant differences between specialities, the highest mean empathy score was shown by postgraduate students of General Surgery and lowest by those in Community medicine. Earlier studies (Hojat et al., 2009; Newton et al., 2008) have suggested that students opting for person-centred specialties such as Psychiatry and Surgery tend to have higher empathy levels, supporting the current study's results.[11,12]

Factors Contributing to Empathy: There is a close relationship between development of empathy and life events. In our study, the mean empathy scores were higher among those who had role models in medical profession. Observing empathetic interactions, the way they listen to patients' complaints and their body language while communicating with patients, their care and concern towards patients etc. did seem to play a role in developing patient empathy. AETCOM-Attitude, Ethics and Communication sessions, FAP- Family Adoption Programmes, clinical postings, role plays etc. had a positive influence.

The mean empathy scores were also higher among those (76.1%) who engaged in extracurricular physical activities which served to cope with and manage stress, and was consistent with the previous study that high lighted the importance of extracurricular activities in fostering networking and improving interaction with faculty and peers, which has a positive effect on students' satisfaction and career motivation.[14]

A few (1%) opined that empathy levels can change depending on clinical environment such as ICU/ wards/outpatient clinics. Although many (30%) opined that it is difficult to empathize with patients during out patient visits due to time constraints. Some (5%) were of the opinion that ICU staff may show less outward empathy due to high stress and emotional detachment. Since ICUs house hospitals' most acutely ill patients, care requires constant patient data surveillance and use of advanced technologies more than the emotional demands of acutely ill patients or their families.[15] Outpatient clinics foster more empathy through ongoing patient relationships but there was no significant relationship between these variables and empathy scores.

Statistically significant higher mean empathy scores were obtained in those who had attended training/ workshops on empathy (63.6%). This aligns with the previous study that emphasized the importance of training and targeted activities in improving empathy.[16]

The mean empathy scores were higher among those who had better personal support system (family/friends) (95.7%) and those who had rated their overall psychological well being (46.1%) as excellent. The above observations aligns with the previous study that stated that increasing personal and professional distress and emotional exhaustion may result in lower emotive empathy scores and appropriate working conditions along with proper support system can improve the emotional well being.[17]

Strategies to Foster Empathy: About twelve students out of the total number opined that providing more opportunities for students to engage meaningfully with patients and encouraging students to reflect on their clinical experiences can reinforce empathetic behaviour. Faculty members who demonstrate high empathy can positively influence students' attitudes. Personality development of students should also be focussed in medical curriculum. Out of 519 students, two of them opined that empathy cannot be trained or forced upon by theory classes but can be fostered by role models in medical education who demonstrate more interaction with patients. Those with good clinical experience also do have an influence in fostering empathy.

CONCLUSION

Medical schools should integrate evidence-based strategies to prevent empathy decline. Further

ISSN (O): 2687-5365; ISSN (P): 2753-6556

research is needed to explore the long-term impact of interventions on empathy retention. Cross-cultural studies could provide a better understanding of empathy trends across different medical education systems.

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ISSN (O): 2687-5365; ISSN (P): 2753-6556