Exploring Medical Students' Level of Empathy and its Correlation with Prosocial Behaviour in Jharkhand, India

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ABSTRACT

Background

Empathy was first introduced in the context of the doctor-patient relationship by Southard in 1918. It plays a crucial role in enhancing patient compliance and improving clinical outcomes. Recognizing its significance, there has been a global emphasis on integrating empathy into medical education.

Objective

To assess empathy levels among medical undergraduate students across different academic phases and to examine its relationship with self-reported social distancing behaviour during COVID-19.

Method

A multicentric cross-sectional, observational study was conducted among 459 undergraduate medical students from Phase one to Phase four of medical training across multiple medical schools in the state of Jharkhand, India. Empathy levels were assessed using the Jefferson Scale of Empathy – Student Version. Online data was analysed using SPSS Software version 24.0. Gender based score were tested with Student's unpaired t-test, MBBS phase-wise comparisons with ANOVA, and correlations between empathy and social distancing with Pearson's coefficient test.

Result

A total of 459 medical students participated in the study. The mean empathy score across all participants was 105.96 ± 16.55. A significant decline in empathy scores was observed up to the third phase of medical education, followed by an increase in the fourth phase. Correlation analysis revealed a positive but non-significant relationship ($r = 0.079$, $p = 0.093$) between empathy and self-reported social distancing behaviour.

Conclusion

The study findings highlight significant variations in empathy levels across different phases of medical education. Female students exhibited higher empathy levels than their male counterparts. Additionally, the 'perspective-taking' component of empathy showed a positive correlation with self-reported social distancing behaviour during COVID-19.

KEY WORDS

COVID-19 pandemic, Communication skills, Competency based medical education, Empathy, Jefferson scale of empathy

INTRODUCTION

Alfred Adler described empathy as the ability to see with "eyes of another, listening with ears of another and feeling with heart of another".[1] In the demanding field of healthcare, where providers frequently navigate emotional challenges stemming from patient interactions and personal stressors, this ability becomes essential for fostering meaningful connections and delivering compassionate care. However, studies indicate that patients emotional concerns are often neglected and unaddressed due to an excessive focus laid on the biomedical aspects of the disease.[2] Ernest Southard as early as 1918, highlighted the significance of empathy in doctor-patient relationship as well as a pertinent tool to aid diagnosis and therapy.[3] It has a pivotal role in improving patient compliance, satisfaction and clinical outcomes while serving as a protective shield against psychological exhaustion, burnout and potential legal risks for healthcare professionals.[4,5] Empathetic doctors are proven to make sound clinical decisions and provide more comprehensive, patient-centred care.[6] Recognising it as an essential trait, both the General Medical Council in United Kingdom and Association of American Medical Colleges have emphasised empathy as an essential component of medical education.[7] Following closely, the National Medical Commission in India introduced the AETCOM modules in medical education to nurture interpersonal communication and humanistic values in medical training and practice.[8]

Empathy is recognized as a multidimensional construct comprising cognitive empathy (understanding a patient's experiences) and affective empathy (sharing emotional resonance). Hojat et al. highlighted empathy as a predominantly cognitive skill, involving understanding and communication.[9] The discovery of mirror neurons and the principles of neuroplasticity further suggest that empathy can be developed through learning, reinforcing its relevance in medical education and clinical practice.[9]

The COVID-19 pandemic, which placed an extraordinary burden on healthcare systems, highlighted the importance of prosocial behaviours such as social distancing, which was strongly advocated by national and international institutions.[10] Empathy, a key driver of prosocial behaviour, fosters the willingness to adhere to social distancing as a selfless act for the greater good of society.[11]

Given its proven impact on medical students' academic and clinical performance, as well as their overall professional satisfaction, understanding the factors that influence empathy is essential. In absence of studies assessing level of empathy during the stressful times of pandemic in India, this study was designed with the following objectives:

-To assess empathy levels among medical undergraduates at different stages of their training. And, to explore the association of empathy with self-reported adherence to social distancing, particularly in response to the emotional challenges posed by the COVID-19 pandemic.

METHODS

A multicentric, cross-sectional observational study was conducted at AIIMS, Deoghar, India. It included undergraduate medical students across various phases of medical training from different medical colleges. Exclusion Criteria: Medical students with his-tory of psychiatric disorders, substance abuse, recent surgery, illnesses, or chronic diseases were not included in the study.

Jefferson Scale of Empathy: Student Version (JSE-S) developed by Hojat which is a prevalidated, self-administered, 20-item inventory designed to measure students' self-perceived empathy in patient care. Participants indicated their level of agreement on a 7-point Likert scale with 1 being strongly disagree to 7 being strongly agree. Half of the 20 items are positively worded and directly scored while another half are negatively phrased and are reverse-scored, with the total score ranging from 20 to 140. A higher score indicates greater empathy and a propensity of students to en-gage more empathically in relation to patient care.[9,12] The JSE-E has 3 subscales namely: Perspective Taking (10 items: Ability to understand another's problems from an external viewpoint), Compassionate Care (8 items: actions driven by a sense of concern for those in distress, and Standing in the Patient's Shoes (2 items: Considering situations from pa-tient's perspective).[12] The JSE-S demonstrates robust psychometric properties, with a Cronbach's alpha of 0.76. Its test-retest reliability, construct validity, and criterion-related validity have been well-documented and has been widely used globally among medical, dental and paramedical students for empathy measurement, offering a patient-centered focus unique to medical education.[13,14] The reliability of the JSE-E scale has been assessed on Indian population and has been found to have a good internal consistency across all scales (Cronbach's α=0.8).15

Social Distancing Question: Attitude towards social distancing was measured using a sin-gle-item: "Because of coronavirus COVID-19, I am massively curtailing social contact (so-called 'social distancing')," adopted from Pfattheicher et al.[16] Responses ranged on a Likert scale which ranged from 1 being strongly disagree to 7 being strongly agree. The maximum and minimum score being 1 to 7.[16]

The study was conducted under ICMR-STS Program 2022, with ethics ap-proval obtained from the Institutional Ethics Committee (IEC Code: 2022-54-EMP-02; STS 2022-00942).

Data was collected through an online questionnaire circulated through snow ball sampling technique from August to September 2022 when the students were facing the aftermath of COVID-19 pandemic capturing their emotional and behavioural changes. The medical students in various colleges of North India were contacted via social media and email. The students were selected by stratified cluster random sampling in each medical

college. The students who provided consent, were sent the questionnaire through Google forms. The questionnaire had 3 sections. Section one included demographic details of the participants in-cluding age, gender, marital status, phase of medical education. Section two assessed the partici-pants' level of empathy through English version of JSE-S scale and their prosocial behaviour through single item adopted from Pfattheicher et al. Section three assessed the participants' in-terest regarding career speciality preference as listed in table 1. Completely filled forms received and coded to maintain anonymity and were further analysed statistically.

Online data was collated and analysed using SPSS Software version 24.0 with a p value of less than 0.05 considered as significant. Gender based scores of empathies was analysed using Student's unpaired t-test. The Analysis of variance (ANOVA) test was used for comparing the empathy score of participants in various phases of MBBS course. Karl Pearson's correlation coefficient test was applied for determining the relation between level of empathy and self-reported levels of social distancing.

RESULTS

Out of 482 medical students who responded to the questionnaire, 23 were excluded based on exclusion criteria, accounting for a total of 459 participants.

Table 1. Career Speciality Preference[14]

People-oriented specialties	Technology-oriented specialties
Internal medicine	Pathology
Family medicine	Surgery and surgical subspecialties
Paediatrics	Radiology
Neurology	Radiation oncology
Rehabilitation medicine	Anaesthesiology
Psychiatry	Preventive and Social Medicine
Emergency Medicine	
Obstetrics and Gynaecology	
Ophthalmology	
Dermatology	

Table 2. Demographic details of the participants along with their career preferences

	Gender		Career preferences		
	Males	Females	People Oriented	Technology Oriented	Undecided
Phase I (150)	74	76	71	56	23
Phase II (106)	52	54	47	40	19
Phase III (102)	51	51	49	34	19
Phase IV (101)	52	49	48	35	18
Total	229	230	46.84%	35.94%	17.21%

There was a uniform distribution of students from various phases of medical training with almost equal males and females. While a majority of the participants preferred people-oriented career for their future, a sizeable number (17.21%) were unsure of their choices (Table 2).

The mean empathy score was recorded as 105.96 ± 16.55. A significant decline in the empathy score was observed up to Phase III ($p < 0.001$), followed by a sudden increment in Phase IV of medical education (Table 3). There was a significant difference recorded among various phases of medical education in each subscale of empathy assessed.

Table 3. Distribution of empathy scores with their subscales across various phases of medical education

Scale Factors	Level of medical training	Range	Mean ± Standard Deviation	95% CI for Mean	p-value
Perspective Taking	Phase I	30-70	60.89±8.11	[59.58 to 62.20]	<0.001
	Phase II	36-70	59.92±8.92	[58.20 to 61.63]	
	Phase III	30-70	56.75±8.19	[55.15 to 58.36]	
	Phase IV	30-67	52.83±6.74	[51.50 to 54.16]	
	Total	30-70	57.97±8.61	[57.18 to 58.76]	
Compassionate Care	Phase I	9-56	42.19±11.33	[40.37 to 44.02]	<0.001
	Phase II	8-56	40.77±11.46	[38.56 to 42.98]	
	Phase III	8-51	33.62±11.15	[31.43 to 35.81]	
	Phase IV	9-56	38.64±8.88	[36.89 to 40.40]	
	Total	8-56	39.18±11.27	[38.14 to 40.21]	
Standing in Patient Shoes	Phase I	2-14	9.31±2.99	[8.83 to 9.80]	0.003
	Phase II	2-14	8.87±2.96	[8.30 to 9.44]	
	Phase III	2-14	7.91±2.86	[7.35 to 8.47]	
	Phase IV	2-14	8.89±3.02	[8.29 to 9.49]	
	Total	2-14	8.81±3.00	[8.53 to 9.08]	
Empathy Score	Phase I	59-140	112.39±17.37	[109.59 to 115.20]	<0.001
	Phase II	73-140	109.56±17.53	[106.18 to 112.93]	
	Phase III	59-121	98.28±13.21	[95.69 to 100.88]	
	Phase IV	59-125	100.37±11.75	[98.05 to 102.69]	
	Total	59-1401	105.96±16.55	[104.44 to 107.47]	

Gender wise analysis of total empathy scores revealed that female students had marginally higher levels of empathy as compared to male students but the difference was not statistically significant. The sub scores wise analysis highlighted "compassion care" to be significantly high among females as compared to "perspective taking" and "standing in other shoes" which were higher in males (Table 4).

Table 4. Gender wise comparison of levels of empathy

Scale Factors	Gender	Mean± Standard Deviation	Standard Error	p-value
Perspective Taking	Male	59.32±7.53	0.49	0.001
	Female	56.63±9.39	0.62	
Compassionate Care	Male	36.97±12.52	0.82	< 0.001
	Female	41.37±9.40	0.62	
Standing in the Patient Shoes	Male	9.01±3.17	0.21	0.142
	Female	8.60±2.80	0.18	
Empathy Score	Male	105.30±16.57	1.09	0.391
	Female	106.61±16.53	1.09	

Correlation analysis of prosocial behaviour with empathy scores revealed a positive non-significant correlation (r=.079, p=.093), shown in table 5. However, the sub score analysis high-lighted a positive significant correlation (r=.161, p=.001) of "perspective taking" in empathy with social distancing during COVID-19.

Table 5. Correlation of levels of Empathy and its subscales with self-reported levels of social distancing

Scale Factor	Perspective taking	Compassionate Care	Standing in patient shoes	Empathy Score
r value	0.161	- 0.240	0.061	0.079
p value	0.001*	0.608	0.189	0.093

DISCUSSIONS

Modern medicine relies on patient centred care which depends heavily on effective communication to enable shared decision making. Empathy stand tall in such consultations. The mean score of empathy was recorded in the study was 105.96 ± 16.55. Similar scores have been reported across the world by Katoaka et al. (104.3), and Rahimi et al. (104.1) on Japanese and Iranian medical students.[17,18] On Indian medical students, Shashikumar et al. and Tiwari et al. reported similar mean empathy levels on Indian medical students as 102.91 and 99.87 ± 14.71 while Chaterjee et al. reported mean scores as 96.01 ± 14.56 which is lower than our study.[15,19,20] Chen et al. showed higher empathy scores (114.3) while Chaterjee et al. found lower mean empathy scores (96.01).[20,21] The discrepancy recorded in the mean scores could be related to difference in cultural and social norms apart from teaching methodologies during medical training.

Empathy and Phase of medical training:

The study revealed a significant decline in the mean empathy scores from first to third phase, and then significant increase again in the fourth (clinical) phase of medical training. In consensus with the present study, a study conducted by Lee et al. at Korean medical school concluded that later years of medical training was associated with significantly increased levels of empathy.[22] A recent study on Indian students found similar trend in the mean empathy scores.[20]

Conversely, a study on medical students of Japan revealed higher empathy score during first year and last year of training.[17] In contrast, Chen et al. discovered empathy scores to drop during clinical years of medical training.[21] Another study conducted at Jefferson Medical college reported empathy scores to not alter during the first two years (pre-clinical years) and decline during clinical years, while others have depicted no difference in the level of empathy during medical training.[9,18] The relationship between phase of medical education and empathy has been explored in both cross-sectional as well as prospective studies. Neumann et al. in a systematic review, attributed the decline in empathy to factors such as overwhelming emotional experiences faced by students during clinical postings and the lack of training to address these challenges.[7] These observations align well with the current clinical training practices, which often do not emphasize discussing emotional challenges. Additionally, reliance on technology-based diagnostics, the promotion of emotional detachment, and the demanding high-pressure clinical environment may contribute to the observed phenomenon of declining empathy among medical students.[9] Also the hidden curriculum which depicts role models distancing themselves to cope with hardships of the job, could be responsible for the phenomenon.

Empathy and role of gender:

Our study concluded female participants to have higher levels of empathy as compared to males, but the difference was not significant. On further analysis with subscales, 'perspective taking' and 'compassionate care' showed statistically significant difference in mean empathy scores. The results of study from Iran is in consonance with research finding of present study, they did not find significant difference in empathy scores between male and female.[18] Contrastingly, Dehning et al reported lower empathy scores for males as compared to females on Ethiopian students.[23] Shashikumar et al. in Pune also found higher score of empathy in females however, when compared semester wise, no significant change in mean empathy score of female students was observed.[19]

Hojat et al. conducted a longitudinal study with JSE questionnaire and mentioned that empathy level in females were significantly and consistently more than males with a dip in mean score in general over the year of education.[9] On the other hand, Di Iillo et al. and Shariat et

al. have found no gender difference in empathy scores.[24,25] Contradictory research findings were reported from other countries in Japan, US and Portugal.[17,21,26] The reason for difference in findings might be related to the number of female and male participant, as this study had almost equal participants from both the gender as compared to other studies which had higher number of male students.

Empathy and Social distancing:

The results of our study showed that measuring 'perspective taking' aspect of empathy is positively and significantly correlated with self-reported social distancing behaviour during COVID-19. However, mean empathy score revealed a positive non-significant correlation between empathy and social distancing behaviour.

These findings of perspective taking correlating with the empathy levels corroborate with results of recent study conducted by Pfattheicher et al. and Galang et al.[16,27] They mentioned that promoting the empathetic behaviour in participants' increases the prosocial approach i.e., social distancing. Social responsibility plays a mediating role between empathy and prosocial behaviour as suggested by Jiang et al.[28]

The findings of the study cannot be generalised on a larger scale. As this is a cross sectional study the causality of the decline in empathy scores over the medical training period cannot be established.

CONCLUSION

The findings of the current study demonstrate significant difference in empathy levels with year of training in medical college. The mean empathy level declined from first to third phase with a sudden surge in fourth and final phase of medical training. Female students were found to be more empathetic than males. In addition, 'perspective taking' trait in empathy scale is found to be significantly and positively correlated with self-reported levels of social distancing behaviour during COVID-19 pandemic.

Future Implications: As empathy levels are shown to be declining during medical training, across the globe, it is advisable to inculcate sessions in medical education to enhance this soft skill and critical thinking skill which can aid in providing better health outcomes and promoting the bio psychosocial aspect of health. It appears that empathy has to be learnt as a clinical skill over the years of medical training from the mentors which can help in differentiating future sensitive doctors from mechanical robots. Given that empathy promotes a sense of compassion and increases and individual's drive to help, active cultivation of this quality can improve patient care.

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