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Original Article

Comprehensive Analysis of Empathy by Using Jefferson Scale of Empathy – Student Version Among Undergraduate Medical and Dental Students

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ABSTRACT

Empathy is essential in medicine, but many healthcare professionals struggle to integrate empathetic communication in practice. This study aims to assess empathy levels among medical and dental students and their association with age. **Objectives:** To evaluate empathy levels among medical and dental students using the Jefferson Scale of Physician Empathy-Student Version and examine the correlation with age. **Methods:** Conducted at a private medical college in Lahore, this study involved 324 medical and dental students. Empathy levels were measured using the Jefferson Scale of Physician Empathy and the data were analyzed with SPSS version 24.0. Non-parametric tests were employed to assess differences in the Jefferson Scale of Physician Empathy and subscale scores among participants, with statistical significance set at $p<0.05$. **Results:** The average Jefferson Scale of Physician Empathy score was 66.67 ± 9.5. Among the subscales, "standing in the patient's shoes" had the lowest average score. Bachelor of Dental Surgery students scored slightly higher in perspective-taking and compassionate care, while MBBS students scored higher in standing in the patient's shoes. An inverse relationship between age and empathy scores was observed, with older students exhibiting lower empathy levels. **Conclusions:** It was concluded that Empathy levels among medical students in Pakistan were lower compared to international studies. Emphasizing empathy in medical education should be a priority to enhance compassionate care and professional development among future healthcare professionals.

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INTRODUCTION

Developing a healthcare professional with the necessary technical skills and an understanding of how to relate to their patients is essential in medical and dental education. While specialized knowledge can be gained through a carefully crafted curriculum, fostering qualities like professionalism and compassion proves more difficult [1]. The patient-provider relationship relies significantly on empathy, which is defined in medical practice as the capacity of the physicians to comprehend the perspective, emotions, and concerns of patients; communicate this comprehension effectively and confirm its correctness. Positive interpersonal relationships are crucial and contribute to encouraging behaviours that benefit others [2]. In contrast, healthcare literature defines sympathy as an emotional response of pity towards the adversity of others, particularly those perceived to be suffering unjustly. Empathy plays a crucial role in the clinical relationship and offers advantages for both the patient and the healthcare provider. Studies have demonstrated that physicians who demonstrate empathy tend to have more cooperative patients, resulting in improved health outcomes, higher satisfaction levels [3], enhanced quality of life, and reduced stress [4]. Empathy in physicians has been associated with improved communication and

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patient relationships, enhanced clinical abilities, better inter-professional collaboration, increased satisfaction and well-being, reduced professional burnout, lower levels of substance abuse or attempted suicide, heightened ethical consciousness, and a decrease in official complaints. Similarly, medical students who exhibit greater empathy and experience less burnout tend to derive more pleasure from their lives [5]. Empathy comprises three fundamental elements: Compassionate concern, which involves the capacity to empathize with the patient and is influenced by behavioural, cultural, physiological, and religious factors. Empathy requires the ability to see things from the point of view of the patient and relates to a physician's skill in separating their feelings from those of the patient and avoiding having an emotional impact. Lastly, putting oneself in a patient's shoes encompasses understanding others, actively observing them, and comprehending their thought processes [6, 7]. Numerous research efforts have been dedicated to examining the trend of empathy in medical students, with varying and inconclusive findings. Some studies have indicated a steady decrease in empathy [8]. while others have found no significant change over time [9], and yet some have even observed an overall increase in empathetic response. Research has shown that distress significantly impacts the self-reported empathy of medical students, trainees, and residents. Initially, these individuals exhibit high levels of idealism, enthusiasm, and compassion at the start of their medical education. However, as they are exposed to harsh clinical realities such as patient illness, disease severity, and human suffering and mortality, there is a noticeable decrease in these qualities. Consequently, their focus shifts toward technological and objective aspects of medicine rather than maintaining a human-centred approach [10]. This is to say that in Pakistan, while higher credence is always given to the underlying cognitive skills and technical expertise in medical education, humanistic qualities such as empathy play second fiddle. Moreover, these unintended variations in the sets of cultural norms and hierarchical pressures within the healthcare system work to perpetuate this dichotomy, which sends patients down the order regarding the importance of communication. This runs quite contrary to the general trend worldwide, with increased focus given in Western medical education to emotional intelligence and empathetic modes of care by integrating these into the curriculum. The high level of academic pressure and limited exposure to patient care during the initial years of medical training in Pakistan can also be a contributory factor toward low levels of empathy among students compared to their counterparts in international studies. This is where addressing these shortcomings by culturally adapted reforms in education, integrating global best practices, becomes relevant for nurturing empathy along with technical skills among future healthcare professionals. This research seeks to gauge the levels of empathy in a private medical college, among medical students and pinpoint contributing factors. The findings will be valuable for shaping future studies and strategies aimed at bolstering empathy among medical students.

This study aimed to assess the empathy levels among medical and dental students and to analyze the relationship between empathy levels and age among medical and dental students, specifically assessing how advancing age affects different subscales of empathy, including compassionate care, perspective-taking, and standing in the patient's shoes.

METHODS

This descriptive cross-sectional study was conducted at a private medical and dental college in Lahore, Pakistan, from January to April 2024. Approval for the study was obtained from the Institutional Review Board (IRB) and the Ethical Review Committee of the college (IRB Approval No: IRB-48/01/24/AVC). All participants provided informed consent before data collection, and confidentiality was maintained throughout the study. The sample size was determined using the Open Epi Statistical Calculator, known for its reliability and validity. The sample size was calculated by the maintenance of a 5 percent margin of error & a 95 percent confidence interval, resulting in a total of 324 students. In this study, a convenient sampling technique was used to select the participants. The data were collected through a validated JSPE-S [11], which consists of 20 items measuring empathy. Participants responded on a Likert-Scale which consisted of 5 points, with 10 negatively worded items reverse coded. The three components of empathy, as measured by the Jefferson Scale of Physician Empathy-Student Version (JSPE-S), are (1) Compassionate Care (8 questions): This component assesses the healthcare professional's emotional concern and care for patients. Compassionate care is influenced by cultural, behavioural, and psychological factors and represents the emotional aspect of empathy in the physician-patient relationship. (2) Perspective Taking (10 questions): Perspective taking refers to the cognitive ability to realize the patient's point of view. This skill is essential in helping healthcare professionals make informed, empathetic decisions and foster meaningful, trust-based relationships with their patients. (3) Walking in Patient's Shoes (2 questions): This component evaluates the physician's ability to truly comprehend the patient's condition by imagining oneself in the patient's circumstances. The total score ranged from 20-100, where greater levels of empathy are indicated by higher scores. Additionally, the age and gender of the students were also part of the questionnaire. The online platform was used for the distribution of Google Forms. Data were analyzed using SPSS version 24.0. The Kolmogorov-Smirnov test was

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employed to assess the normality of the data, which revealed a non-normal distribution. As a result, non-parametric tests were chosen for further analysis. The Mann-Whitney U test was used to compare empathy scores between groups, such as gender and degree programs (MBBS vs. Bachelor of Dental Surgery (BDS) students), while the Kruskal-Wallis test was employed for analyzing differences in empathy across age groups. Spearman's correlation was used to examine the relationship between age and the various subscales of empathy, as measured by the Jefferson Scale of Physician Empathy-Student Version (JSPE-S). A p-value of <0.05 was examined as statistically significant throughout the analysis.

RESULTS

The data were collected from 324 medical and dental students. About 135 (41.7%) of the students were male and the remaining 189 (58.3%) were females. The mean age of the students was 23.1 + 0.53 (in years). About three-fourths of the students were enrolled in MBBS and remaining enrolled in BDS. The average empathy score of all the students was 66.67 + 9.5 SD (range: 20-100). A high overall empathy score indicates greater empathy. The average score of standing in the patient's shoe was the lowest among all subscales. A p-value less than 0.05 shows statistical significance, meaning the relationship is unlikely to be due to chance. In this study, the significant p-value for 'walking in the patient's shoes' (p=0.05) suggests a meaningful association between age and this specific empathy subscale. In contrast, the non-significant p-values (p>0.05) for overall empathy, perspective-taking, and compassionate care suggest that any observed correlations may not be statistically reliable. The average score of the three subscales is shown in table 1.

Table 1: Scores for Empathy and Its Subscales Among Participants (SD=Standard Deviation)

Subscales of Empathy	Questions	Mean ± SD
Compassionate Care	1, 7, 8, 11, 12, 14, 18, 19	26.28 + 4.06
Perspective Taking	2, 4, 5, 9, 10, 13,15,16, 17, 20	32.89 + 5.19
Walking In Patient's Shoes	3, 6	7.50 + 1.68
Total Empathy Scores	All Questions	66.67 + 9.5

Responses to various questions of JSPE-S are given in table 2.

Table 2: Frequency of Various Responses of JSPE-S

Factors			Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
C.C	1	My understanding of how my patients and their families feel does not affect medical or surgical treatment	40 (12.3%)	113 (34.9%)	75 (23.1%)	71 (21.9%)	25 (7.7%)
C.C	14	I believe in the treatment of medical ailments there is no place for emotions	39 (12.0%)	149 (46.0%)	60 (18.5%)	57 (17.6%)	19 (5.9%)
P.T	10	My patients value my understanding of their feelings which is therapeutic in its own right	13 (4.0%)	31 (9.6%)	62 (19.1%)	170 (52.5%)	48 (14.8%)
P.T	20	In my opinion, a key therapeutic component of medical and surgical care is empathy	18 (5.6%)	26 (8.0%)	57 (17.6%)	146 (45.1%)	77 (23.8%)
P.T	15	The success of treatment is limited without the usage of empathy, as empathy is a therapeutic skill	16 (4.9%)	28 (8.6%)	58 (17.9%)	156 (48.1%)	66 (20.8%)
P.T	2	My patients feel better, when I understand their feelings	12 (3.7%)	25 (7.7%)	50 (15.4%)	149 (46.0%)	88 (27.2%)
P.T	16	My comprehension of my patients' emotional states as well as their families is a vital part of our interaction	09 (2.8%)	24 (7.4%)	59 (18.2%)	174 (53.7%)	58 (17.9%)
C.C	11	Emotional ties to my patients do not significantly affect the results of medical or surgical procedures because the ailments of my patients can only be healed by medical and surgical treatment	32 (9.9%)	91 (28.1%)	62 (19.1%)	115 (35.5%)	24 (7.4%)
C.C	18	I don't let the close relationships that exist between my patients and their families affect me	12 (3.7%)	35 (10.8%)	73 (22.5%)	167 (51.5%)	37 (11.4%)
C.C	8	Attentiveness towards the personal experiences of my patients, does not influence treatment outcome	33 (10.2%)	110 (34.0%)	75 (23.1%)	84 (25.9%)	22 (6.8%)
P.T	17	In order to provide better care, I attempt to think like my patients	18 (5.6%)	38 (11.7%)	78 (24.1%)	159 (46.0%)	41 (12.7%)
P.T	4	In caregiver-patient relationships, I believe that reading my patients' body language is just as crucial as speaking with them verbally	13 (4.0%)	19 (5.9%)	68 (21.0%)	174 (53.7%)	50 (15.4%)
P.T	13	I make an effort to decipher my patients' mental states by observing their body language and nonverbal clues	10 (3.1%)	27 (8.3%)	65 (20.1%)	163 (50.3%)	59 (18.2%)
P.T	9	I try to imagine myself in the shoes of my patients when providing care to them	10 (3.1%)	50 (15.4%)	62 (19.1%)	162 (50.0%)	40 (12.3%)
C.C	7	During history taking, I try not to pay attention towards the emotions of my patients, and ask about their physical health	27 (8.3%)	80 (24.7%)	70 (21.6%)	119 (36.7%)	28 (8.6%)
P.S	3	It is a bit difficult for me to see things from my patients' Perspectives	23 (7.1%)	87 (26.9%)	85 (26.2%)	112 (34.6%)	17 (5.2%)

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P.T	5	I believe that having a strong sense of humour improves healthcare outcomes	17 (5.2%)	31 (9.6%)	70 (21.6%)	156 (48.1%)	50 (15.4%)
P.S	6	It is challenging for me to perceive things from the view points of patients because people are not the same	20 (6.2%)	54 (16.7%)	86 (26.5%)	135 (41.7%)	29 (9.0%)
C.C	12	It is useless to enquire about a patient's personal life to comprehend their physical complaints	42 (13.0%)	130 (40.1%)	63 (19.4%)	66 (20.4%)	23 (7.1%)
C.C	19	I don't enjoy reading arts and non-medical writings	43 (13.3%)	80 (24.7%)	77 (23.8%)	93 (28.7%)	31 (9.6%)

CC = Compassionate Care
PT = Perspective Taking
P.S = Walking in Patient's Shoes

The average score of JSPE-S, perspective taking and compassionate care of BDS students was slightly higher as compared to MBBS students. While the scores of standing inpatient shoes were higher in MBBS students as shown in figure 1.

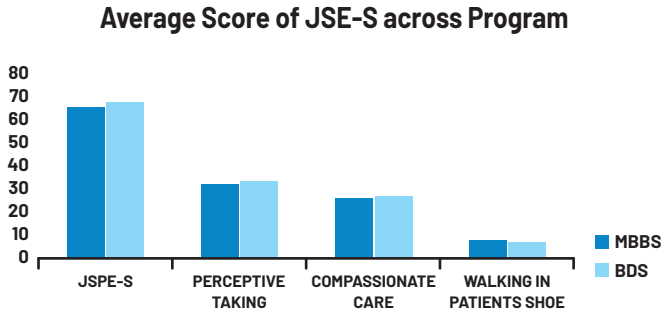

Figure 1: Average Score of JSPE-S Scale and Subscales Among MBBS and BDS Students

Spearman's correlation test was used to analyze the relationship between age and the empathy subscales. The test was chosen because it is appropriate for non-parametric data. The p-value of 0.05 indicated a statistically significant inverse correlation between age and the 'walking in the patient's shoes' subscale. No significant correlation was observed for the overall JSPE-S score or other subscales such as perspective taking and compassionate care in table 3.

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Table 3: Correlational Analysis of Age with JSPE-S and Subscales

Factor	Correlation	p-value
JSE-S Score	-0.11	0.06
Perspective Taking	-0.05	0.42
Compassionate Care	-0.09	0.12
Walking in Patient's Shoes	-0.11	0.05

Accordingly, minor differences in the scores of empathy were present among BDS and MBBS students. The overall mean scores for BDS students were relatively higher in the subscales of perspective-taking and compassionate care, with means of 33.12 ± 5.2 and 26.40 ± 4.1, respectively. In contrast, for the 'walking in the patient's shoes' subscale, the score for MBBS students was higher, 7.65 ± 1.7, compared with BDS students, who scored 7.40 ± 1.6. Though these differences are not significant, p-value>0.05, it would thus appear that medical and dental students differ in their perception regarding empathy-which MBBS students are better at cognitively empathizing with their patients by putting themselves in the place of the patients.

DISCUSSION

Empathy is the capacity for individuals to comprehend, engage with, and acknowledge the internal emotional experiences of others. It plays a significant role in helping people achieve their emotional, social, and professional aspirations as an essential component of socio-emotional wellness [12]. The study objective was to evaluate the empathy levels in a private medical college, among medical and dental students and it involved 324 students with a predominance of female cohort. The student's mean empathy score was 66.67 + 9.5, which is notably lower compared to studies carried out in other parts of Pakistan like Karachi & Sukkur, where they described average scores of empathy as 98.11 ± 12.31 [10] and 101.9 ±16.3 [13] correspondingly. The study in India found that the total average score of empathy was 99.87 ± 14.71 [14] in Bihar among medical college students. Similarly, at the University of Tabuk, a cross-sectional study showed average total empathy scores of 99.05 + 13.75 among medical undergraduates in Saudi Arabia. Several research findings have indicated elevated average empathy scores among medical students, including Australia at 109.07 ± 14.937 [10], South Korea at 105.48 ± 14.67 [16] and Brazil at 119.7 ± 9.9 [17]. This type of variation might be attributed towards the unique educational environment in each country, variances in sampling techniques, and the distinct cultural interpretations of empathy. Medical schools in different countries have varying admission criteria and follow diverse curriculums aligned with their cultural and traditional norms. These factors can influence the levels of empathy displayed by students from various nationalities and backgrounds [1]. This study involved the application of the Jefferson Scale of Empathy and offered additional perspectives on the particular attitudes held by medical students. Within the three subscales, it was observed that the lowest score pertained to walking in the patient's shoes. This discovery indicates a lack of ability among students to empathize emotionally with their patients' perspectives. It highlights the necessity for educational initiatives aimed at cultivating empathy and comprehension of patients' emotional journeys. However, Mirani et al., found contrasting results in a study conducted in Sukkur, Pakistan [10]. They discovered that the average score for walking in a patient's shoes was higher across all empathy subscales among fifth-year female medical

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students. The dental students had slightly higher average scores in perspective-taking and compassionate care on the JSPE-S compared to MBBS students. A study conducted during the Syrian crisis among health professionals found similar results, with medical students scoring lower in empathy (95.55 + 22.99) compared to dental students, although this difference was not statistically significant (99.17 + 15.83; p=0.259). Male dental students in Finland demonstrated less empathy compared to their peers in medical studies [18]. This contrast is thought to stem from the belief held by male applicants to dental programs that patient care in dentistry emphasizes technical proficiency over interpersonal abilities. Our research results revealed a connection between age and JSPE-S score, suggesting that older students are likely to show reduced levels of empathy. Likewise, there was an indirect correlation found between age and perspective-taking, compassionate care, and walking in the shoes of the patients. Similar conclusions have been made regarding the decrease in empathy as age or years of education increase [19]. Various studies have associated several factors with this consistent finding. Factors such as stress related to academic performance, long working hours, insufficient sleep quality, and increased responsibilities with advancing age [20] contribute to declining empathy among older individuals [10]. Separate research from Pakistan carried out by Bangash et al., [9], found no association between empathy and age or years of medical education. The variations in results concerning the relationship between years of education and empathy may be due to diverse educational environments in different nations and societies. From these international comparisons, cultural backgrounds seem to bear considerable importance in the light of how empathy is viewed and expressed. For example, studies conducted in Western countries, Australia and Brazil, reveal notably higher scores for medical students in terms of empathy; such a tendency may express certain cultural traits that attach substantial importance to the nurturing of patient-oriented approaches and effective communication during clinical practice [15, 17]. Most of the studies from South Asian contexts, Pakistan and India, tend to report relatively low scores of empathy, and this may relate to the cultural influence of hierarchical relationships between patients and providers or a greater emphasis on technical competence at the expense of emotional engagement [10, 14]. Understanding such differences is of important while interpreting the levels of empathy globally, and this would suggest that medical education has to be tailored in a way to consider these cultural variations for better patient-provider communication across diverse contexts.

CONCLUSIONS

This study highlights that medical students in Pakistan exhibit lower levels of empathy compared to students in other countries. Dental students demonstrated slightly higher empathy scores than medical students, particularly in perspective-taking and compassionate care. The results also showed a decrease in empathy as students aged, suggesting that as professional experience increases, empathy may diminish under the pressures of academic and clinical environments. These findings emphasize the importance of incorporating empathy training into medical curricula, ensuring that humanistic values are nurtured alongside technical skills. Fostering empathy should be a core focus of medical education to prevent burnout and improve patient care outcomes. Continuous professional development in empathy and emotional intelligence is essential for future healthcare professionals to effectively meet the emotional and psychological needs of their patients.

Authors Contribution

Conceptualization: SN
Methodology: SN, AR, AI, IS
Formal analysis: SN, ANA
Writing-review and editing: ANA, FA, AR

All authors have read and agreed to the published version of the manuscript.

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Conflict of Interest

The authors declare no conflict of interest.

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