

## Empathy Levels in Medical Students as they Advance through their Years of Education

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### Abstract:

**Background:** At Nishtar Medical University, medical students' empathy levels across different years of medical education were compared to identify and present any differences in empathy levels between the medical students of other years.

**Methods:** Using cross-sectional analysis stratified random sampling technique, this study compared empathy among Nishtar Medical University medical students in the first, third, final, and internship years. MBBS 2nd and 4th-year students in Nishtar Medical University, Multan, are excluded from the study. A Google Form questionnaire was shared with the students to compare their empathy levels in various years of medical education. The sample size is 288.

**Results:** Empathy scores decreased over time, with first-year students scoring the highest ( $84.09 \pm 3.68$ ) and third-year students scoring  $75.06 \pm 3.71$ . The 5th year had a somewhat lower empathy score of  $74.63 \pm 3.82$ , followed by a considerable reduction in average scores to  $64.15 \pm 0.84$  during the internship year.

**Conclusion:** A definitive cross-sectional study at Nishtar Medical University has conclusively addressed the inquiry of comparing empathy levels across the different years of medical education. The results unequivocally show a decline in empathy during undergraduate medical training.

**Keywords:** Medical, training, students, physician-patient relationship, empathy, medical students, character, level of empathy.



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## INTRODUCTION

The capacity to feel other people's emotions, see things from their perspective, and put oneself in their shoes is known as empathy. It involves placing oneself in another person's position and experiencing their emotions[1]. Empathy is a complex phenomenon that includes both cognitive and dynamic elements. Cognitive empathy is understanding and speaking about other people's experiences. It is emotional resonance; it is how people see others through their observations. Affective empathy refers to an individual's understanding of other people's feelings[2].

Empathy positively correlates with reflective ability and emotional intelligence in professional and student social workers[3]. Research indicates that clinical empathy improves patient comfort, satisfaction, and trust[4]. Patients with empathic doctors are more likely to feel trusted, engage in more joint decision-making, and follow prescriptions more closely. Therefore, empathy has a big impact on the result of therapeutic trials[5]. It has been discovered that empathic medical professionals make better clinical decisions, are more successful transformational leaders, and enjoy higher job satisfaction and psychological well-being[6, 7, 8].

Medical schools should teach their students empathy because it is a skill that can be learned, according to scientific perspectives in the field. Numerous studies have demonstrated the need for training to improve the empathetic abilities of aspiring professionals[9]. Various factors can contribute to low empathy or a lack of empathy. The most significant ones are the enormous number of patients that healthcare workers must manage, the shortage of sufficient time, the emphasis on therapy, the prevailing culture in medical schools, and the lack of education in empathy[10]. This study aims to compare levels of empathy in medical students across different years of medical education and identify any changes or differences in empathy scores

between the years. A study at Nishtar Medical University compared the empathy levels of medical students at different stages of their education to identify disparities. The study aims to improve curriculum design to foster empathy in future healthcare professionals.

## MATERIALS AND METHODS

In a cross-sectional study, 288 students from Nishtar Medical University in Pakistan participated, with 72 students from each of the first, third, final, and internship years. The sample size was determined with a 95% confidence level and a 5% margin of error. Data was collected using stratified random sampling, and the survey took place from November to December 2023. The Institutional Ethical Review Board (IREB), Nishtar Medical University, Multan, approved the research project under Ref.no 8478/NM. Students from the second and Fourth years were excluded. Data was collected through a Google form-based survey, incorporating inquiries regarding years of medical school education and a self designed Questionnaire to measure clinical empathy. Data were analyzed using SPSS 23 software. Empathy scores among medical students in different years were compared using the ANOVA test, with  $P \leq 0.05$  considered statistically significant.

## RESULTS

Total 288 participants participated in this study, equally divided into four groups (Table 1) of 25 percent ( $n=72$ ) each. An overall descending trend was seen in empathy amongst the groups, with 1st year scoring the highest with mean scores of  $84.09 \pm 3.68$ , followed by 3rd year with mean scores of  $75.06 \pm 3.71$ . The 5th year score was closely behind, with a narrowly lower empathy score of  $74.63 \pm 3.82$ , this was followed by the most significant drop in

average scores, reaching  $64.15 \pm 0.84$  in the internship year.

ANOVA test (Table 2) was performed on the means of the four groups to find if there was a statistically significant difference between the

mean of the groups. Resulting in a p-value  $<0.001$ , proving that the trend of decreasing empathy as years progress is statistically significant.

**Table 1:** Descriptive Statistics for Different Educational Stages

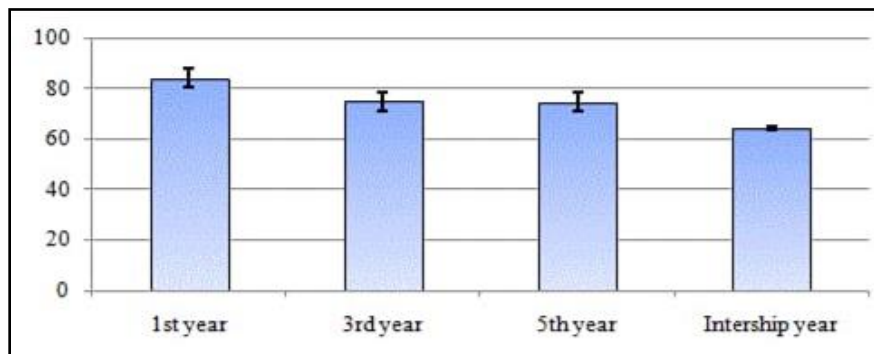
Groups	N	Mean	Std.Dev.	Std. Error
1st year	72	84.0972	3.6815	0.4339
3rd year	72	75.0556	3.7072	0.4369
5th year	72	74.625	3.8178	0.4499
Internship year	72	64.1528	0.8335	0.0982

(Std: Standard)  
(Dev: Deviation)

**Table 2:** Demographic Analysis for Group Comparison

Source	Degrees of Freedom	Sum of Squares	Mean Square	F-Stat	P-Value
	DF	SS	MS		
Between Groups	3	14363.5614	4787.8538	449.9113	<0.001
Within Groups	284	3022.2636	10.6418		
Total:	287	17385.825			

The figure 1 shows the average marks of students in 1 st year, 3rd year, 5th year and internship year. The vertical bars above and below each bar represent the standard error of the mean for each of the groups, which help to show the distinction between the various educational stages. The results also reveal that the 1st year students have the highest mean score, Internship year students have the lowest mean score.



**Figure 1:** Yearly Mean with Standard Deviation

## DISCUSSION

While empathy can be taught as a communication skill, there are many issues with communication training during and after medical school. These issues are related to educational campaigns, the gap between theory and practice, and the importance of communication within the healthcare system. Several studies demonstrate that empathy among physicians and medical students significantly improves how patients respond to treatment. Additionally, it is crucial in building trusting and effective doctor-patient relationships, contributing to overall healthcare quality and patient satisfaction[11]. Our study highlights the dynamic nature of empathy scores across different academic years and professional stages. Medical students' levels of empathy are believed to change during their education. Previous research has shown mixed results, with some studies indicating stable empathy scores while others found a decrease or increase in empathy[12]. This shift is thought to be influenced by the challenges of dealing with complex patient cases, as well as the emphasis on workload and biomedical knowledge in the "hidden curriculum." Additionally, students' prior life and workplace experiences can further impact their empathy levels[13]. A cross-sectional study of medical schools in the United States revealed a significant decrease in empathy scores when comparing students in the preclinical and clinical periods[14]. The Roff S study supports these findings, using the Jefferson Scale of Physician Empathy-Student version to demonstrate a decline in medical student empathy[15]. The study results indicate a troubling trend in the decline of empathy among medical students and interns over time. Our findings suggest that empathy levels are highest among first-year medical students (84.10%), indicating that

incoming students have a strong foundation for empathetic care. However, this percentage decreases significantly among third-year students (75.06%) and further declines among fifth-year students (74.62%) and interns (64.15%). This downward trend raises concerns about its potential impact on patient care and healthcare providers' well-being.

The decline in empathy may be attributed to various factors, including rigorous academic demands, high-stakes assessments, and the intense clinical workload that medical students and interns face. Research comparing empathy levels of medical students and residents based on years of education and training revealed that empathy decreased with increasing years of experience using the Jefferson Scale of Empathy[16]. While many theories for the decline in empathy have been discussed in the literature, none have been able to establish a direct causal connection. Reducing fatigue is a significant factor influencing the performance of medical personnel, and eliminating it can enhance medical practice. Therefore, efforts to reduce fatigue within the current system should be held accountable. There is ample research on the relationship between performance and fatigue, but there is a need for more specific data regarding physicians. Even though it is well known that medical professionals' empathy is decreasing due to increased workload, more must be done to address this problem. Maintaining appropriate levels of clinical empathy can be challenging when fatigue levels are higher[17]. Some researchers have pointed out that medical students often experience burnout, and studies have shown a connection between high burnout levels and low empathy scores[18]. Academic burnout and exhaustion have also been found to be associated with lower empathy in medical students. Clinical training, which involves long work hours, close patient-physician interactions, and sleep deprivation, may lead to

decreased empathy. Burnout-related feelings of depersonalization and emotional tiredness can negatively impact doctors' empathy[19]. According to Shapiro et al., the medical curriculum may divert students from empathy and lead them to adopt a mechanistic view of illness, which might reduce patients to a mere condition or object. Empathy also correlates with a doctor's overall health and reduced fatigue symptoms. Long work hours, high-stress levels, inadequate sleep, and lack of free time are linked to an increased likelihood of experiencing exhaustion. The demanding work hours and heavy workload of medical professionals directly affect public safety. Our study's findings also support the idea that a decline in empathy among interns could be due to long work hours, overnight shifts, and exposure to emotionally challenging situations[20]. The decline in empathy among final-year students and interns is concerning, as these individuals are responsible for direct patient care. The study's participants widely acknowledged the importance of empathy in healthcare. Most respondents in all groups believed that paying attention to a patient's emotions during history taking, understanding a patient's feelings, and recognizing empathy as a therapeutic factor are essential aspects of medical practice. Another interesting finding related to prioritizing medical professionals' needs over patient care. Final-year students and healthcare professionals were less inclined to prioritize their patients over personal time, with percentages as low as 74.62% and 64.15%, respectively. As individuals advance in their medical careers, they may increasingly consider their well-being. Therefore, these results invite further exploration into the factors influencing empathy and provide a foundation for interventions to nurture empathy among future healthcare practitioners. To instill empathy in medical students over time, educators can adopt strategies aligned with the research findings.

A study across 18 countries identified themes of understanding empathy, challenges in teaching it due to the hidden curriculum and clinical supervision, ambivalence towards becoming empathetic doctors, and the decline of empathy during medical education. Training should emphasize basic skills like active listening and utilize clinical supervisors' significant impact on students' empathy. Emphasis on specific knowledge areas like clinical facts in medical education generally diminishes students' empathy worldwide[14]. Empathy can be maintained throughout medical education despite significant barriers that may inhibit it. Promoting patient-centered motivations among medical students from preclinical to clinical years could prevent the decline of empathy.[20] This article will add valuable insights to the literature, and this study's findings may help develop interventions and strategies to promote empathy and compassionate care among medical students. They may also contribute to a better understanding of the factors that shape empathy development in medical education[11].

However, this study focuses on the dynamics of empathy across the academic years and professional stages; thus, it has the following limitations. A concern, however, is the issue of sampling which may only capture a certain population of medical students or professionals depending on the study's setting, thereby restricting generalization of the findings. This paper uses a cross-sectional research design; therefore, it takes data at a specific time only. This design is somewhat weaker in terms of establishing causality or observing the trends in empathy across the time. Moreover, the use of questionnaires to assess the degree of empathy leaves some doubts as to the validity of the data obtained, since patients can intentionally or unintentionally provide biased answers[12, 18].

## CONCLUSION

Thus, the results reveal that empathy decreases at a slightly gradual rate during the initial years of medical training. A more pronounced decline among interns is a cause for concern, as these individuals are at the forefront of patient care. This intriguing finding underscores the potential influence of academic progression on the development of empathetic skills. Nurturing empathy enhances patient care and safeguards medical professionals' well-being, ultimately contributing to a healthcare system characterized by compassion and excellence. As we navigate the complexities of modern medicine, fostering empathy remains an indispensable journey towards better patient outcomes and a more optimistic future for healthcare.

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### Author Contributions:

**BA:** Conduction of the study work, literature search, Data Collection, Manuscript Writing (Abstract, introduction, methods, conclusion, references), Manuscript editing.

**AK:** Concept clearing, conduction of study work, statistical analysis, Manuscript writing (Results, Figures, Tables), Manuscript editing

**MFJ:** Conduction of the study work, correspondence, supervision, and Permissions for Research work.

**FW, ZS, MK:** Literature search, Data Collection, Manuscript writing (Discussion)

**US:** Literature search, Data Collection, Concept clearing, Revision.

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