

Comparison of Self-Reported Empathy Levels among Dental Undergraduate Students in Northern India: A Questionnaire-Based Cross-Sectional Study

Abstract

Context: Empathy is one of the fundamentals of communication relevant within the practice of dentistry, and the research is limited in this field. **Aims:** The present study was conducted to assess the self-reported empathy levels among dental undergraduate students in Lucknow city of Northern India. **Settings and Design:** A descriptive cross-sectional study was conducted among three dental colleges of Lucknow city during July 2019–September 2019. **Subjects and Methods:** E-survey link was circulated among 790 students through e-mails. It has two parts. The first part included sociodemographic information, wherein the second part, the empathy level of students was assessed using the Jefferson Scale of Physician Empathy-Health Profession Students Version Questionnaire. The possible score range is 20–140: the higher the mean score, the higher the self-reported empathy level. **Statistical Analysis Used:** The data collected were analyzed using SPSS software version 24. Chi-square test was used to test gender distribution differences among different years. One-way analysis of variance including *post hoc* tests was used to compare the differences between study variables. **Results:** The mean \pm standard deviation empathy score was 92.55 ± 11.85 , 91.85 ± 12.23 , 93.25 ± 11.24 , 93.37 ± 12.31 , and 88.34 ± 12.01 among the first-year, second-year, third-year, final-year, and interns' students, respectively, with a statistically significant difference. **Conclusion:** It can be concluded from the results of the present study that the mean empathy score was highest among final-year students which is suggestive of the impact of education in behavioral sciences.

Keywords: Communication, dental education, dental students, empathy, Jefferson Scale of Physician Empathy-Health Profession Students

Introduction

Empathy being the key component of effective communication between the health-care provider and patient is receiving increasing attention in a dental fraternity, as it enables them to identify and understand patient's experiences, concerns, and perspectives.^[1] It not only helps capture the patient's past medical history and transmit information but also has a therapeutic effect and supports the patient's healing process.^[2] It has shown to have a positive effect on psychosocial outcomes (e.g., fear, quality of life, anxiety, and depression) and on objectively measurable outcome parameters (e.g., symptom and pain reduction and reduced recovery time).^[3,4]

Many people get confused between the words empathy and sympathy, as both involve sharing,^[5] but the concept of

empathy lies in standing in patient's/other's shoes,^[6] whereas sympathy involves listening and feeling bad for the situation.^[7]

A decline in empathy level was reported by the undergraduate medical and dental students as they progress through their professional education.^[8] In contrast, there were some studies that found senior students as being significantly more empathetic than junior students.^[9-11] In view of such varying empathy findings from different countries, we need to understand empathy levels among dental students in the Indian context.

Subjects and Methods

A descriptive cross-sectional study in the form of e-survey (Google Forms) was conducted among three dental colleges of Lucknow selected randomly through a lottery method among five dental colleges in Lucknow. This study received approval

Sonali Saha¹,
Ridhi Narang²,
Vikram Pal
Aggarwal³,
Godhi S. Brinda⁴,
Dhinsa Kavita¹

¹Department of Pedodontics and Preventive Dentistry, Sardar Patel Post Graduate Institute of Dental and Medical Sciences, Lucknow, Uttar Pradesh, India, ²Department of Public Health Dentistry, Adesh Institute of Dental Sciences and Research, Bathinda, Punjab, India, ³Department of Public Health Dentistry, Surendra Dental College and Research Institute, Sri Ganganagar, Rajasthan, India, ⁴Department of Pedodontics and Preventive Dentistry, JSS Dental College and Hospital, Mysore, Karnataka, India

Submitted : 27-Aug-2020
Revised : 29-Sep-2020
Accepted : 14-Dec-2020
Published: 21-Sep-2021

Address for correspondence:
Dr. Sonali Saha,
Department of Pedodontics and Preventive Dentistry, Sardar Patel Post Graduate Institute of Dental and Medical Sciences, Lucknow, Uttar Pradesh, India.
E-mail: sonalisaha24@yahoo.co.in

Access this article online

Website:
www.contempclindent.org

DOI: 10.4103/ccd.ccd_744_20

Quick Response Code:



How to cite this article: Saha S, Narang R, Aggarwal VP, Brinda GS, Kavita D. Comparison of self-reported empathy levels among dental undergraduate students in Northern India: A questionnaire-based cross-sectional study. *Contemp Clin Dent* 2021;12:255-8.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

from the Institutional Ethical Committee. Data were obtained from the first- to final (fourth)-year students and interns enrolled in bachelor of dental surgery during the study period (July 2019–September 2019). The students were preinformed about the purpose of the study and consent was obtained. Assurance regarding the contents being kept confidential was given.

All forms were precoded to avoid the bias of any nature. Students who gave consent and had completed 6 months following BDS admission were included in the study, whereas those who did not give consent and provided incomplete information were excluded from the study. The initial sample consisted of 868 students but after applying the inclusion and exclusion criteria and after reminder e-mails, the final sample comprised 790 students.

The questionnaire consisted of two parts. The first part included sociodemographic information, wherein the second part, the empathy level of students was assessed by the Jefferson Scale of Physician Empathy-Health Profession Students (JSPE-HPS) version questionnaire.^[7] The psychometric properties of JSE-HPS scale have been reported as satisfactory and the construct validity of the scale had been examined previously.^[9] Designed as a 20-item 7-point Likert scale (1 = strongly disagree to 7 = strongly agree), the JSPE-HPS version is designed to be completed without time constraints. The possible score ranges from minimum 20 through maximum 140; the higher the mean score, the higher the self-reported empathy level.

Statistical analysis was performed by SPSS version 24 (IBM, Armonk, NY, USA) for data storage, tabulation, and the generation of descriptive and inferential statistics. Chi-square test was used to compare gender distribution among the groups. Analysis of variance (ANOVA) was performed to test a hypothesis concerning more than two groups, but it does not provide any deeper insights into patterns or comparisons between specific groups. Therefore, Tukey's honestly significant difference (HSD) *post hoc* test was done to compare the means empathy score of students studying in different years with each other. The results were considered statistically significant if $P < 0.05$.

Results

The present study comprised 790 subjects, of which 22.5% (178) were male and 77.5% (612) were female. Students studying in BDS first, second, third, and final year were 134, 131, 145, and 224, respectively. When student's distribution was according to gender among different BDS grades, it was found to be statistically insignificant [Table 1].

The mean \pm standard deviation empathy scores were 92.55 ± 11.85 , 91.85 ± 12.23 , 93.25 ± 11.24 , 93.37 ± 12.31 , and 88.34 ± 12.01 among the first-year, second-year, third-year, final-year students, and interns, respectively.

When the mean empathy score was compared statistically using ANOVA test among different BDS grades, it was found to be statistically significant with $P < 0.05$. Tukey HSD *post hoc* test revealed statistically significant difference between the first-year students and interns, second-year students and interns, third-year students and interns, and final-year students and interns [Table 2].

Discussion

Empathy is the capability to view things from another person's perspective.^[12,13] Empathy was derived from two Greek terms, "em" and "pathos", meaning "feeling into" and has its origin from the German word "Einführung."^[14] In

Table 1: Chi-square analysis for gender distribution among the study subjects

BDS (years)	Gender		Total, n (%)
	Males, n (%)	Females, n (%)	
1 st	27 (20.1)	107 (79.9)	134 (100.0)
2 nd	27 (20.6)	104 (79.4)	131 (100.0)
3 rd	42 (29.0)	103 (71.0)	145 (100.0)
4 th	48 (21.4)	176 (78.6)	224 (100.0)
5 th (interns)	34 (21.8)	122 (78.2)	156 (100.0)
Total	178 (22.5)	612 (77.5)	790 (100.0)
<i>P</i>	0.36 (NS)		

N: Number of subjects; NS: Not significant

Table 2: Analysis of variance and Tukey's honest significant difference *post hoc* test to compare the means empathy score of students studying in different years with each other

BDS (year), mean \pm SD	Mean	Df	CI
	empathy score		
1 st	92.55 \pm 11.85	4	-1.938-5.9891
2 nd	91.85 \pm 12.23		
3 rd	93.25 \pm 11.24		
4 th	93.37 \pm 12.31		
5 th (interns)	88.34 \pm 12.01		
Total	91.96 \pm 12.09		
<i>P</i>	0.0007 (HS)		
Tukey HSD <i>post hoc</i> pairwise comparison			
1-2	0.532 (NS)	4	-4.7194-3.3194
1-3	0.623 (NS)		-3.2201-4.6201
1-4	0.523 (NS)		-2.7527-4.3927
1-5	0.004 (S)		-8.0631--0.3569
2-3	0.198 (NS)		-2.5433-5.3433
2-4	0.148 (NS)		-2.0782-5.1182
2-5	0.025 (S)		-7.3868-0.3668
3-4	0.996		-3.3669-3.6069
3-5	<0.001 (HS)		-8.6837--1.1363
4-5	<0.001 (HS)		-8.4414--1.6186

Df: Degree of freedom; CI: Confidence interval; SD: Standard deviation; HS: Highly significant; S: Significant; NS: Not significant; HSD: Honest significant difference

relation to patient care, empathy is defined as a cognitive attribute that involves an ability to understand the patient's apprehension, pain, suffering, and viewpoint, combined with a capability to communicate this understanding and an intention to help.^[15]

Due to its crucial role in good dentist–patient relationship, the American Dental Education Association listed empathy as the second most important clinical competency for dental training.^[1]

With this background in mind, the primary objective of this study was to assess the empathy level among the undergraduate students of three dental colleges of Lucknow, India. The present study showed that final–year dental students had statistically higher mean empathy scores than all other classes of students.

The mean empathy score of the present study ranges from 88.34 to 93.37 which is in accordance with the study done by Díaz Narváez VP *et al.*^[16] The probable reason for the same could be that initially when students join the dental school, they are not aware of their responsibilities. Gradually, when they come in contact with the patients, they develop empathy. Furthermore, the rise in final-year students was attributed to lectures, role-playing, or communication skills completed recently in their classes as per the study by Prabhu *et al.*^[17] An early analytical exposure to behavioral sciences and clinical encounter has shown to increase in empathy levels before and after the intervention. Furthermore, final-year students start their internship sooner where they are worried about their career and start focusing on practice skills and management. In any case, these data suggest that education in behavioral science may be effective.

Following similar reasons of increase in empathy, Sherman and Cramer found the highest mean empathy score among the first-year dental students, as their curriculum had focused on sociology and behavioral science with courses in communication skills, cultural competence, and history taking.^[1] Furthermore, the use of nonverbal behaviors (e.g., nodding consent, eye contact, and body posture) and verbal behaviors such as reflection, validation, support, partnership, and respect that are demonstrative of empathetic communication were emphasized. In a systematic review on a decline in empathy levels of dental students by Narang *et al.*,^[18] three studies showed that the mean empathy scores were found to be minimum among third-year students,^[1,17,19] while another set of two studies reported it to be minimum among final-year dental students^[20,21] and also few reported to be lower among interns.^[17,22,23] Empathy appears to drop when the patient contact increases. One of the probable reasons for low levels of empathy may reflect the stressful teaching style at various academic institutions which include long working hours and a lack of sleep. Less chairside communication with the patient, not listening to them patiently, and just

trying to complete clinical quota in time may also lead to a decrease in empathy. Students being away from home and feeling the pressure and tough competition could negatively affect feelings of compassion.

Another possible explanation for the observed decrease in empathy among dental students is the sense of privilege or advantage they feel during training and believe that patients would regard them as God and comply with all instructions. In reality, when students begin working with patients, they realize that patients are not always willing to change their high-risk behaviors in the face of adverse health outcomes. This noncompliance may make it more difficult to feel empathy toward patients who do not or will not implement the student's well-meaning, and often necessary, advice.

The feeling of empathy not only enhances the patient and practice management skills but also improves the students' interpersonal communication skills and understanding of people around them. Since JSE-HPS assessment of empathy level is self-report measures and not on the actual behaviors, observational methods such as the History-taking Rating Scale could be used along to measure empathy level in dental students. Baseline assessment or changes in levels across all undergraduate dental years could not be done as the study was cross-sectional in design. Therefore, longitudinal studies are recommended. There has been inadequate amount of attention paid to the training on empathy development in dental education, leading to a lack of knowledge on how dental education may modulate empathy. Further research is needed to examine this hypothesis.

Empathy plays an important role in achieving patient centeredness. This article observed that education in behavioral sciences through the undergraduate years may be effective in increasing self-reported empathy and further training may be necessary to maintain high levels.

Acknowledgment

The authors would like to thank all the BDS students for participating in the study.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Sherman JJ, Cramer A. Measurement of changes in empathy during dental school. *J Dent Educ* 2005;69:338-45.
2. DiBlasi Z, Harkness E, Ernst E, Georgiou A, Kleijnen J. Influence of context effects on health outcomes: A systematic review. *Lancet* 2001;357:757-62.
3. Stewart M, Brown JB, Donner A, McWhinney IR, Oates J, Weston WW, *et al.* The impact of patient-centered care on

- outcomes. *J Fam Pract* 2000;49:796-804.
4. Griffin SJ, Kinmouth A, Veltman M, Grant J, Stewart M. Effect on health-related outcomes of interventions to alter the interaction between patients and practitioners: A systematic review of trials. *Ann Fam Med* 2004;2:595-608.
 5. Hemmerdinger JM, Stoddard SD, Lilford RJ. A systematic review of tests of empathy in medicine. *BMC Med Educ* 2007;7:24-31.
 6. Di Lillo M, Cicchetti A, Lo Scalzo A, Taroni F, Hojat M. The Jefferson scale of physician empathy: Preliminary psychometrics and group comparisons in Italian physicians. *Acad Med* 2009;84:1198-202.
 7. Hojat M, Gonnella JS, Nasca TJ, Mangione S, Vergare M, Magee M. Physician empathy: Definition, components, measurement, and relationship to gender and specialty. *Am J Psychiatry* 2002;159:1563-9.
 8. Hojat M, Vergare MJ, Maxwell K, Brainard G, Herrine SK, Isenberg GA, *et al.* The devil is in the third year: A longitudinal study of erosion of empathy in medical school. *Acad Med* 2009;84:1182-91.
 9. Boyle M, Williams B, Brown T, Molloy A, McKenna L, Molloy L, *et al.* Level of empathy in undergraduate health science students. *Inter J Med Educ* 2009;1:1-8.
 10. Magalhães E, Salgueira AP, Costa P, Costa MJ. Empathy in senior year and first year medical students: A cross-sectional study. *BMC Med Educ* 2011;11:52.
 11. Kataoka HU, Koide N, Ochi K, Hojat M, Gonnella JS. Measurement of empathy among Japanese medical students: Psychometrics and score differences by gender and level of medical education. *Acad Med* 2009;84:1192-7.
 12. Hojat M, Gonnella JS, Nasca TJ, Mangione S, Vergare M, Magee M. Physician empathy: Definition, components, measurement, and relationship to gender and specialty. *Am J Psychiatry* 2002;159:1563-9.
 13. Asokan S, Nuvvula S. Pediatric dentistry. *J Indian Soc Pedod Prev Dent* 2017;35:2-5.
 14. Coulehan JL, Platt FW, Egener B, Frankel R, Lin CT, Lown B, *et al.* "Let me see if I have this right": Words that help build empathy. *Ann Intern Med* 2001;135:221-7.
 15. Babar MG, Omar H, Lim LP. An assessment of dental students' empathy levels in Malaysia. *Int J Med Educ* 2013;4:223-9.
 16. Díaz-Narváez VP, Coronado AM, Bilbao JL, González F, Padilla M, Howard M, *et al.* Empathy gender in dental students in Latin America: An exploratory and cross-sectional study. *Health* 2015;7:1527-35.
 17. Prabhu S, Kumar VS, Prasanth SS, Kishore S. Standing in patients' shoes survey on empathy among dental students in India. *J Educ Ethics Dent* 2014;4:69-73.
 18. Narang R, Mittal L, Saha S, Aggarwal VP, Sood P, Mehra S. Empathy among dental students: A systematic review of literature. *J Indian Soc Pedod Prev Dent* 2019;37:316-26.
 19. Datta G, Vanishree N, Nayak SS, Bullappa D, Naveen N, Lakshmikantha R, *et al.* Measuring empathy towards patients among dental undergraduate students of Bangalore city across sectional study. *J Med Public Health* 2016;6:113-6.
 20. Diaz-Narvaez VP, Nunez AC, Carrasco D, Bustos A, Zamorano A, Silva H, *et al.* Levels of empathy among dental students in five Chilean universities. *Health* 2016;8:32-41.
 21. Tavakol S, Dennick R, Tavakol M. Empathy in UK medical students: Differences by gender, medical year and specialty interest. *Educ Prim Care* 2011;22:297-303.
 22. Pradeep RK, Pavithra HD, Thenmozhi S. Empathy levels among dental students in India. *Int J Curr Res* 2016;8:33418-20.
 23. Aggarwal VP, Garg R, Goyal N, Kaur P, Singhal S, Singla N, *et al.* Exploring the missing link-empathy among dental students: An institutional cross-sectional survey. *Dent Res J (Isfahan)* 2016;13:419-23.