


Awareness, Knowledge, Attitude and Empathy Levels of Dental Postgraduates Towards Their Patients During Practice and Research—A Questionnaire Based Survey

Journal of Patient Experience
Volume 8: 1-7
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DOI: 10.1177/23743735211056521
journals.sagepub.com/home/jpx


P Mohan Kumar¹ , D Praveen², G Praveen³,
P Arun Bhupathi⁴ , M Ravi Kanth⁵, and KS Uloopi⁶

Abstract

Empathy is vital in ensuring the quality of the patient-clinician relationship. Empathy in the health care setting is the ability to understand a patient's experiences and feelings and communicate this understanding for better clinical outcomes in dental treatments. The study aimed to compare levels of empathy in post-graduate dental students across the different years of the master's degree course. Questionnaire forms distributed among post graduate students and awareness, knowledge, attitude, and empathy levels towards their patients were assessed. Responses of all the post-graduate students of all specialties in a dental institute were subjected to statistical analysis to know and compare their empathy towards the patients during their clinical practice and research throughout their three-year master's degree. The mean empathy score was 52.01 (maximum of 100), with a standard deviation of 6.69. The empathy scores decreased slightly from the first to the third year of the master's degree. The participant's age, marital status, place of residence, and specialties of dental post-graduation showed much significant difference in empathy levels. The study found slight significant gender differences in empathy among the participants. The empathy scores declined gradually very slightly as they were promoted to the next level in the course. The increase in empathy levels found in this study is more significant than those reported in similar studies due to the inclusion of educational and orientation programs at the time of admission into post-graduate studies.

Keywords

clinical practice, empathy, dental post-graduate, patient-centric care, research ethics

Introduction

Empathy toward dental patients is an essential skill for every dental student and clinician to deliver the best care for their dental patients. Empathy is sometimes confused with 'sympathy.' Sympathy is defined as experiencing another's emotions, whereas empathy is appreciating or imagining those emotions (1).

Understanding dental patients' feelings, attitudes, and experiences is an essential and crucial step towards a potent and effective and thorough dental examination. The clinician will effectively communicate with the patients and thereby decrease the Patient's anxiety towards dental procedures, which ultimately improves the clinical outcome (2).

According to Sir William Osler, 'Neutral empathy' states that physicians need to neutralize their emotions so that they can do what is needed without feeling grief, regret, or other difficult emotions while treating patients (3,4).

¹ Department of Periodontics and Implantology, Vishnu Dental College, West Godavari, Andhra Pradesh, India

² Department of Conservative Dentistry & Endodontics, Vishnu Dental College, West Godavari, Andhra Pradesh, India

³ Department of Public Health Dentistry, Vishnu Dental College, West Godavari, Andhra Pradesh, India

⁴ Department of Orthodontics, Vishnu Dental College, West Godavari, Andhra Pradesh, India

⁵ Department of Oral and Maxillofacial Pathology, Vishnu Dental College, West Godavari, Andhra Pradesh, India

⁶ Department of Pedodontics, Vishnu Dental College, West Godavari, Andhra Pradesh, India

Corresponding Author:

Mohan Kumar P, Department of Periodontics and Implantology, Vishnu Dental College, Vishnupur, Bhimavaram –534202, West Godavari, Andhra Pradesh, India.

Email: mosups@gmail.com



Professional empathy' is on a purely 'cognitive' basis. It is defined as 'the act of correctly acknowledging the emotional state of another without experiencing that state oneself.

"Clinical empathy will be the most powerful tool for a successful collaboration between the Patient and the dentist". Stepien and Bernstein combined the different definitions within the literature to expand an expanded definition of empathy in the clinical context.

Accordingly, empathy in the clinical context is which moral (the physician's internal motivation to empathize), emotive (the ability to know the Patient's emotions and perspectives), cognitive (ability to identify and understand patients' emotions and perspectives), and behavioral (ability to convey an understanding of those emotions back to the patients) dimensions were included (5,6).

The ultimate objective of the study was to inspect the empathy levels across the entirety of students enrolled at the post-graduate dental institution. Thus, this observational study aimed to compare the scores of empathy in post-graduate dental students across the different years of the master's degree program at Andhra Pradesh dental institution.

This study also examines the differences in empathy levels with age, gender, marital status, year of study, parents' educational background, previous education, and specific education programs within the curriculum.

Methodology

The study described is a cross-sectional study which involves dental post-graduate students enrolled at a post-graduate, 3-year course affiliated to Dr. NTR University of Health Sciences, Andhra Pradesh, India.

Once the Institutional Ethics Committee approved the study, Google forms were created with 20 open-ended questions and distributed to all the post-graduate students via e-mail and Whatsapp. Participation in the survey was voluntary and anonymous. All the post-graduate students enrolled in the master's course in the dental institution during the academic year of 2018 to 2020 were eligible to participate in the study.

The principal investigator invited the eligible students to take part in the study via email and Whatsapp. Inclusion criteria: students in their 1st, 2nd, and 3rd year of post graduation and the post graduates of all the specialties. Exclusion criteria: under graduate students and interns and those who are not willing to participate in the survey.

Participation in the survey was voluntary and anonymous and non-participation had no negative consequences. Students willing to participate contacted the principal investigator and then received oral information about the study before their participation. Participating students received no allowance.

Students were asked to submit the completed surveys online. The principal investigator once receives all the responses, the scores were tabulated in an excel sheet and then subjected to statistical analysis.

The research tool consisted of a survey encompassing an empathy scale in conjunction with questions on demographics, stage of dental education, previous degree(s), and completion of educational programs within the curriculum.

The empathy scale employed in this study was based on the Jefferson Scale of Physician Empathy-Student version. The JSPE-S is a 20-item psychometrically validated questionnaire. The research instrument where respondents are required to indicate their level of agreement to each item on a five-point Likert Scale was included in the study (i.e., 1 = strongly disagree, 5 = strongly agree). The JSPE-S total score should range from 20 to 100, with higher values indicating a higher degree of empathy.

The JSPE-S was chosen because it was explicitly designed to investigate the development of clinician's empathy and its variation and its correlates in different medical or dental education stages and among other groups of dental students and clinicians.

Statistical Analysis

The participants of the study responded to the survey anonymously, and the data stored in the hosted online survey service. Descriptive data analyses conducted using the data analysis tool provided in the online survey site. Independent 't' test, analysis of variance, and Pearson correlation tests were used in statistical data analyses.

Results

Response rates were nearly 90% of participating post-graduates exceeded our target goal. This pattern of high response rates in an institutional study using an online survey is very impressive and probably unique.

Out of 111 post-graduate dental students, 100 students responded to the survey. Among all the responders, 73% were female, and 27% were male students aged 23–33 years through 1st to 3rd MDS course were included in the study. Among the participants, 33% were 3rd-year students, 29% were 2nd-year students, and 38% of 1-year students were included in the study.

Participant's Characteristics

All the demographic characteristics like students' age, gender, marital status, the decision to enroll in the dental profession, the reason for selection of dentistry as degree, reason for choosing the subject specialty, year of study, and current residence were assessed and compared for any effect on empathy levels towards their patients during clinical research. The demographic factors and the empathy levels were summarized in Table 1.

Descriptive Characteristics of the Scale

Reliability testing showed a Cronbach's Alpha less than 1 for the JSPE-S, indicating the scale items' consistency. The

Table 1. Demonstrate the Demographic Characteristics and Empathy Scores.

Patients Characteristics	Responses in %'s	Empathy Score	
		Total	Average
Age	23–26yrs: 71%	4,252	59.8
	27–30yrs: 25%	1,465	58.6
	≥31: 4	263	65.7
Gender	Male: 27%	1,619	59.9
	Female: 73%	4,361	59.7
Marital status	Single: 83%	4,983	60
	Married: 17%	997	58.6
The decision to Enroll in Dental Profession	One's own: 77%	4,621	60
	Parents: 18%	1,054	58.5
	Others: 5%	305	61
Reason for Selection of Specialty	Peoples: 55%	3,341	60.7
	Technology: 14%	814	58.1
	Others: 31%	1,825	58.8
Subject Specialty	OMR:11%;	633	57.5
	Oral Path:7%;	413	59
	OMFS:7%;	418	59.7
	Ortho:15%	954	63.6
	Cons:15%;	899	59.9
	Perio:15%;	882	58.8
	Pedo:15%	774	51.6
	Prosthodontics:16%	1,006	62.8
Year of Study	I MDS: 38%	2,311	60.8
	II MDS: 29%	1,728	59.5
	III MDS: 33%	1,941	58.8
Current Residence	Rural: 10%	645	64.5
	Semi-Urban: 62%	3,693	59.5
	Urban: 28%	1,642	58.6

mean, standard deviation, and p-value are reported in Table 2 when compared the mean empathy score among different demographic characteristics. The scores for the entire sample were 44.305 and 50.850, respectively, when compared within and between the groups with a mean score of 52.

Group Comparisons of the Empathy Scores Among Dental Post-Graduate Students

There were no much significant differences as such in the empathy scores when comparing the student populations regarding age, gender, marital status, year of study and prior education/degree, residence, decision to enroll in dentistry, and choosing a specialty. But, there were slightly higher empathy scores among post-graduates who were residing in rural areas and the ones who were married. Interestingly the empathy scores were marginally higher among 1st-year post-graduates compared to 2nd and 3 yr students Figure 1.

First, of its kind, we compared the empathy levels among the specialties of dentistry, and the results showed that there were no many differences in empathy scores with the highest ranking in empathy scores registered among orthodontics, prosthodontics, and conservative dentistry post-graduates, respectively, when compared to the fellow students.

Table 2. Comparison of Mean Empathy Score among Different Demographic Characteristics.

Demographic Variable	Mean	Standard deviation	p-value	
Age				
23–26yrs	59.8873	6.82757	.137	
27–30yrs	58.6000	6.04842		
≥31	65.7500	6.13052		
Gender				
Male	59.9630	7.19231	.883	
Female	59.7397	6.54690		
Marital status				
Single	60.0361	6.60274	.438	
Married	58.6471	7.20192		
Residency				
Rural	64.5000	8.10007	.052	
Semi-urban	59.5645	6.81517		
Urban	58.6429	5.25790		
The decision to join Dentistry				
One's own	60.0130	6.65799	.654	
Parents	58.5556	7.37422		
Others	61.0000	5.00000		
The decision to select Post-graduation specialty				
People-oriented	60.7273	7.06440	.293	
Technology oriented	58.1429	6.72375		
Others	58.9032	5.88419		
Name of PG specialty				
OMR	57.5455	5.59220	.341	
Oral Path	59.0000	3.60555		
OMFS	59.7143	5.90803		
Ortho	59.6875	5.18612		
Cons	64.2143	11.06052		
Perio	58.8000	6.41650		
Pedo	59.5385	6.92358		
Prosthodontics	59.1765	4.54471		
Year of course				
1 st MDS	60.8158	7.32214		.450
2 nd MDS	59.5862	6.41715		
3 rd MDS	58.8182	6.18190		

The mean and standard deviation (SD) of empathy levels of post graduate students of dentistry are tabulated in Table 3, with the lowest mean score of 3.5800 for question number 3, and the highest mean score of 4.4600 for question number 7 with a total mean score of 52 was inspected among post-graduates of dentistry.

The correlation between total empathy score and empathy score per question was calculated with the Pearson correlation test. The statistics were described with Pearson correlation rank, and the p-value for each question is tabulated in Table 4.

Discussion

Compared to other health care professions, the relationship between dentist and Patient has a significant impact on clinical treatment outcome. The Patient's satisfaction levels in dental care depend on the dentist's initial visit communication. (1,7)

In dentistry, empathy is to understand the patients' inner feelings and needs at the initial visit and helping them to provide a high rate of success in treatment outcomes. (8,9)

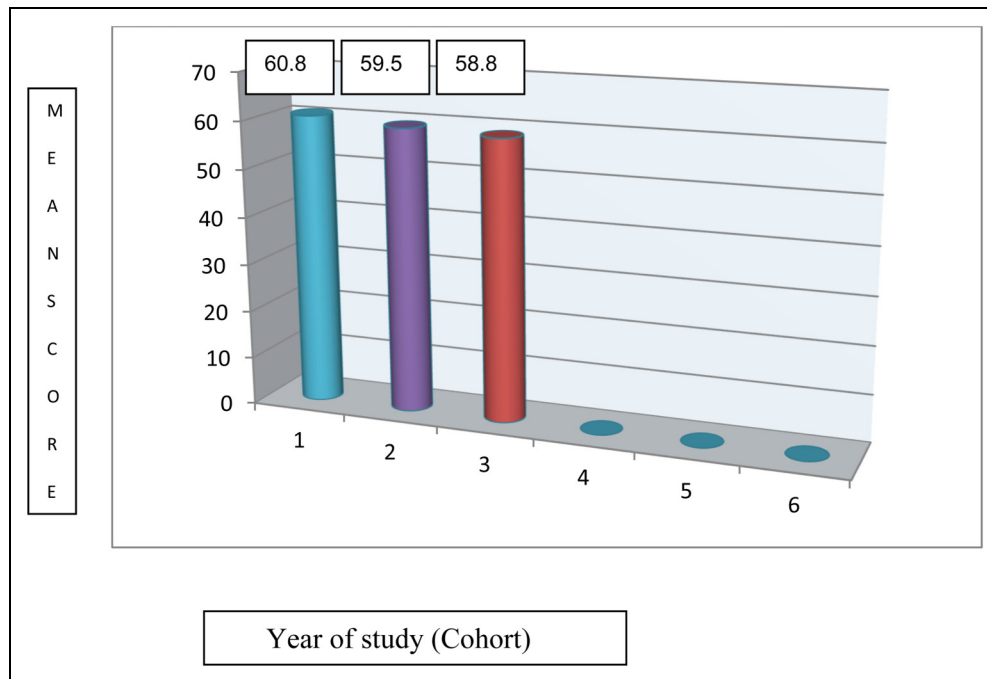


Figure 1. The bar graph demonstrates the mean scores of the Jefferson scale of physician empathy concerning the year of the post-graduate dental program.

Thus, empathy remains an integral part in establishing and maintaining the relationship between dentists and patients. This study demonstrated that empathy levels in dental post-graduates resulted in outstanding success in their treatment procedures done by the students because of the trust created in their patients. (10,11)

Our study demonstrated that empathy levels during the first year of post-graduation in the dental institute are slightly high compared to second and third-year post-graduation students. (12,13) These results follow the studies in different

medical specialties, but the empathy levels remain very close through the post-graduation training. This may be due to the strict guidelines we follow during their entire clinical practice and research projects. (14,15)

The decline in empathy levels in post-graduate students is very low as they progress in their curriculum compared to other medical profession studies and in undergraduate dental studies on empathy scores. (16–18)

The decline in empathy scores is due to increased technical demands in clinical training, which exhausted the

Table 3. Mean and Standard Deviation for Each Question.

Questions	Mean	SD
Does your previous education (undergraduate education or any equivalent Degree) affects dealing with the patients empathetically	4.2300	.76350
Emotion should have a specific place during dental treatment.	4.0600	.69369
Should doctors respond emotionally to patients suffering during their Patients' initial visit?	3.5800	.88967
Should the dental profession appreciate or imagine patients' emotions at any point of time during treatment?	4.0400	.68046
Patients and physicians emotional bonding is necessary for the dental profession	3.8200	.86899
The doctor's attention towards the Patient's personal experiences affects clinical outcome.	3.9300	.86754
Understanding a patient's feelings and body language during communication is very important before any dental treatment.	4.4600	.61002
Clinical empathy affects the Patient's sense of satisfaction and compliance.	4.2300	.63333
There will be any effect of empathetic doctor's on Clinical decision making	3.8900	.68009
Thinking from a Patient perspective is better for any dental treatment.	3.9400	.83871
The role of empathy is as crucial as other therapeutic factors in dental treatment	3.9000	.73168
Interviewing the Patient is the most critical step for the researchers to build empathy (By doing so, one can understand the participant's feelings, level of motivation,	4.0900	.62109
Empathetic practice in research is gaining importance to achieve better outcomes?	3.8300	.68246
"Walk in a Patient's Shoes." following the Patient from phase to phase. (How far this strategic method will help the researchers to build empathy towards their patients)	3.8800	.76910
Change in levels of empathy observed as we progress in the course of post-graduation?	3.9400	.73608

Table 4. Correlation Between Total Empathy Score and Score per Each Question.

Questions	Pearson correlation	p-value
Does your previous education (undergraduate education or any equivalent Degree) affects dealing with the patients empathetically	.242*	.015
Emotion should have a specific place during dental treatment.	.540**	.000
Should doctors respond emotionally to patients suffering during their Patients' initial visit?	.513**	.000
Should the dental profession appreciate or imagine the Patient's emotions at any point of time during treatment?	.587**	.000
Patients and physicians emotional bonding is necessary for the dental profession	.694**	.000
The doctor's attention towards the Patient's personal experiences affects clinical outcome.	.626**	.000
Understanding a patient's feelings and body language during communication is very important before any dental treatment.	.503**	.000
Clinical empathy affects the Patient's sense of satisfaction and compliance.	.652**	.000
There will be the effect of empathetic doctor's on Clinical decision making	.728**	.000
Thinking from a Patient perspective is better for any dental treatment.	.581**	.000
The role of empathy is as crucial as other therapeutic factors in dental treatment	.735**	.000
Interviewing the Patient is the most critical step for the researchers to build empathy (By doing so, one can understand the participant's feelings, level of motivation,	.738**	.000
Empathetic practice in research is gaining importance to achieve better outcomes?	.689**	.000
"Walk in a Patient's Shoes." following the Patient from phase to phase. (How far this strategic method will help the researchers to build empathy towards their patients)	.647**	.000
Change in levels of empathy observed as we progress in the course of post-graduation?	.609**	.000

*Statistically significant.

**Hight statistically significant.

students and neared their course ending. There is no much difference in empathy levels in our post-graduates because of our patient-centric approaches. (8,19)

Patel S et al., in 2019 in his systematic review on curricula for empathy and compassion training in medical education stated that training can enhance physician empathy and compassion. Training curricula should incorporate the specific behaviors identified in their report. (20)

Ferreira-Valente A et al., in 2016 conducted a study on psychometric properties of the Spanish version of the Jefferson Scale of Empathy. A sample of 1104 medical students of two Spanish medical schools completed a socio-demographic and the Spanish JSE-S. The findings provided acceptable to good sensitivity, construct validity and reliability of the adapted Spanish JSE-S with Spanish medical students. (21)

Narang R et al., in 2019 conducted a systematic review on empathy among dental students and stated that as patient exposure increases, the empathy level decreased among dental students. Their observed that education in behavioral sciences may be effective in increasing self-reported empathy, and further training may be necessary for all dental students. (22)

Lee M, and Ihm J in 2021 conducted a cross-sectional study among dental students in Korea on empathy and attitude toward communication skill learning as a predictor of patient-centered attitude. A sample of 312 dental students included in the analyses and they completed the Patient-Practitioner Orientation Scale (PPOS), the Interpersonal Reactivity Index (IRI), and the Communication Skills Attitude Scale (CSAS). The students tend to be moderately patient-oriented and slightly more patient-centered and concluded that conducting follow-up educational

sessions will prevent students from becoming less patient-centered. (23)

Nourein AA et al., in 2019 compared the attitudes towards communication skills learning between medical and dental students in Saudi Arabia. The cross-sectional study included 260 conveniently sampled medical and dental undergraduate students where data was collected on socio-demographic characteristics, education-related factors, and CS using Communication Skills Attitude Scale (CSAS) that assess positive and negative attitudes (PAS, NAS). The study concluded that Demographic and education-related characteristics underpinned medical student positive attitude towards CS compared to dental students. (24)

All the above discussed cross-sectional comparative studies, surveys and systematic reviews concluded that promoting early patient-student communication, improving clinical skills and communication through educational courses should be included in the curricula of both medical and dental profession seem to promote empathy in medical and dental students.

Students who received training in ethics and practice management or any educational programs related to research ethics/clinical practice helped the students of our institute maintain empathy levels through the three-year course of post-graduation.

In this study, we compared the empathy levels among the different specialties. We found the highest empathy scores among orthodontics, prosthodontics, and conservative dentistry post-graduates, respectively, compared to fellow students from other specialties.

Significance of This Observational Study

Our study on comparing the empathy levels among the post-graduate students in the dental institute is different from other research studies because the educational programs conducted at the beginning of the course and the ethical standards and guidelines followed by the students during their clinical practice not only increased the communication skills with their patients but also helped in obtaining the outstanding success rates in treating patients in all the specialties of dentistry in our institute.

Conclusion

Educational programs on research ethics and clinical practice will further increase empathy levels among budding dentists. Empathy among dental professionals is much more critical than in other healthcare settings because the relationship between dentists and patients is vital to achieve higher success in clinical treatments of all specialties.

Acknowledgments

We acknowledge the whole team of Institutional Ethics Committee (IEC) who actively conducted the study according to the guidelines. We also appreciate all the post-graduate students of the institution for their active participation in the study. Last but not least, we acknowledge our management for providing all the necessary aspects in all the stages of the research.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship and/or publication of this article.

Ethical & consent statements



The institutional review board of our dental institute approved this study with IRB number as VDC/RP/2021/78. The study aims; objectives, information confidentiality, and their right to respond to the survey were explained by the investigator's team for all the participants. Oral informed consent was taken from all the participants prior launch of the study.

Statement of Human and Animal Rights

The procedures followed while collecting the data from the participants were in accordance with the ethical standards of the institutional committee on human experimentation. The institutional review board of our dental institute approved this study with IRN number as VDC/RP/2021/78.

The study participants involved were post graduate students of dental institute and they were assessed for empathy levels towards their patients during practice and research. The factors affecting empathy scores were also assessed through questionnaire form after taking written information consent from all post-graduates about the entire study.

ORCID iDs

P Mohan Kumar  <https://orcid.org/0000-0001-7797-1890>
P Arun Bhupathi  <https://orcid.org/0000-0002-4841-1250>

Supplemental material

Supplemental material for this article is available online.

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