



Levels of Empathy among Dental Students at CMH Lahore Medical College and Institute of Dentistry (NUMS) Lahore Pakistan

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ABSTRACT

Objectives: To measure levels of empathy among undergraduate dental students in Pakistani Dentistry Institute and to find the difference with respect to gender and academic year in the dental college. **Methods:** This cross-sectional study was conducted at CMHLMC and IOD in Pakistan, from December 2018 to April 2019, and comprised dental students of all four years. A valid and reliable "The Toronto empathy questionnaire" was used for the collection of data. Responses were indicated on a four-point Likert scale and total scores ranged from 0-64, with higher values indicating higher levels of empathy. Eight out of sixteen items were positively worded and the remaining eight items were negatively worded. Comparison of empathy scores across the year of study was analyzed using one-way ANOVA whereas a t-test was utilized for gender differences. SPSS version 20 was used for data analysis. **Results:** Questionnaire was returned by 281 students, with a 94% response rate. First-year dentistry students scored the highest mean score of 3.0, followed by second and third-year students by scoring 2.8 whereas the final year students obtained the lowest mean empathy score of 2.7. When mean empathy scores were compared among students of all 4 years by ANOVA test, it was found to be statistically significant, $F=3.22$, $p=0.02$. No significant differences in empathy scores were found with respect to gender ($p \geq 0.05$). **Conclusion:** The present study reported a decline of empathy mean scores among dentistry students as the years of study progressed. This study reflects the need for early exposure to clinical training, educational programs and innovative teaching strategies in the undergraduate dentistry curriculum by emphasizing on dentists-patient communication skills, which in turn could encourage dentistry students to become empathetic health professionals.

Keywords: Empathy, Dentistry students, Toronto empathy questionnaire (TEQ), Likert scale

INTRODUCTION

Empathy is the capability to feel and understand another individual's feelings, experiences, problems, and viewpoint, as well as the ability to communicate understanding [1]. Evidence-based studies reported that empathy is a crucial cognitive attribute of health professionals because of its association with good clinical results. Empathy of a health professional promotes the comfort of patients in explaining complaints, reducing pain, recovery period and medical litigation. It augments compliance with physician's recommendations and promotes a good relationship between patients and health professionals. This leads to increased levels of satisfaction [2]. Numerous researches in dentistry report similar findings as those found in medical literature as empathy is considered as the second vital competency for dentistry [3,4].

Interestingly, literature reports that there is a decline in empathy levels of dental students as they progress during their school years [5-7]. Empathy is affected by several elements such as gender, educational level, environment, culture, medical education system, training, interest towards specialties and intellect level of health professionals [3]. Multiple studies reveal an ironic finding that this erosion of empathy is highest in their third year when undergraduates

start their interaction with patients during their clinical exposure [8,9]. However, there is the scarcity of published literature measuring empathy levels among undergraduate dental students. To our knowledge, limited literature has been published in Pakistan regarding this. Therefore the aim of the present study is to measure levels of empathy among undergraduate dental students of the CMH Lahore Medical College and Institute of Dentistry (CMHLMC and IOD), in Lahore, Pakistan, and to find differences in empathy levels based on gender and academic year in dental college.

MATERIALS AND METHODS

This cross-sectional and non-experimental study was conducted from December 2018 to April 2019 at CMHLMC and IOD, Lahore. It was established in 2006 and attached to Combined Military Hospital Lahore. All undergraduate dentistry students studying in the dentistry program at CMHLMC and IOD, Lahore were included in the study. Participants were in either the first, second, third, or fourth year of dentistry program during the 2018-2019 academic years. Of a total of 300 students, 281 participated in the study. After taking approvals from the institutional review board of CMHLMC and IOD as well as from the developer of the valid, reliable, and pretested Toronto Empathy Questionnaire (TEQ) 5, was used for measuring the dental student's level of empathy during their study years. Census sampling utilized TEQ was circulated to 300 dental students enrolled in all years at IOD and verbal consent was obtained from the participants before the survey. Students were communicated regarding the anonymity and confidentiality of data. Demographic information regarding 'participant's sex' and 'educational level' (the year in dental college) was included in the questionnaire. TEQ comprised of 16 items and covered a wide range of various dimensions of empathy. The items were regarding emotional contagion (1,4), emotional assessment (2,7,10,12,15), empathetic response (13), emotion comprehension (8), sympathetic physiological arousal (3, 6, 9, 11) and altruism (5,14,16). The scoring of eight positively worded items in TEQ was never=0, rarely=1, sometimes=2, often=3, always=4 and rest eight negatively worded items (2,4,7,10,11,12,14,15) in which the scoring was reversed i.e. 0=always, 1=often, 2=sometimes, 3= rarely and 4=always. The scores of each item were summed to produce a maximum of 64 total marks and the least possible score was 0. A higher score indicates a higher level of empathy among dentistry students. The data was then entered in SPSS version 20. One-way ANOVA test was used to measure the difference between mean scores among four groups of dental students and t-test was used to measure the difference on the basis of gender. Statistical significance was set at $p < 0.05$.

RESULTS

A total of 281 out of 300 students (94%) in the dentistry program at CMHLMC and IOD completed the questionnaire. There were 206 (73.3%) females and 75 (26.7%) males. An accepted Cronbach alpha of 0.7 was calculated of the complete questionnaire. There were 74 (26%) 1st year dentistry students (DS), 74 (26%) 2nd year dentistry students, 69 (25%) were 3rd year dentistry students and 64 (23%) were in their final year of the dentistry program. Distributions of the participants' gender and educational level are shown in Table 1. Students of 1st year achieved the highest mean score (3.0) followed by 2nd and 3rd year students which scored 2.8. While final year dentistry students scored the minimum mean of 2.7, the lowest marks of students in the final year highlighted the need for improvement among students for the delivery of safe care to patients. A one-way ANOVA was used to compare the TEQ scores between the different years of education in dental college. There was a statistically significant difference at the $p=0.02$ level (Table 1), in the TEQ for the 4-years mentioned above. Although there was statistical significance, the level of TEQ scores among four years was very small. The Tukey test was used which reported that the TEQ scores for first-year dental students were significantly different from second, third and final year dental students.

Table 1 Distributions of the participants' gender and study years at CMH, IOD (N=281)

| Variables | N (%) | Test used | p-value |
|--------------------|-------------|-----------|---------|
| Gender | | | |
| Male | 75 (26.7%) | t- test | 0.50 |
| Female | 206 (73.3%) | | |
| Total | | | |
| Study years | | | |

| | | | |
|----------------------|------------|--------------------|--------|
| 1 st year | 74 (26.3%) | One-way ANOVA test | 0.02** |
| 2 nd year | 74 (26.3%) | | |
| 3 rd year | 69 (24.6%) | | |
| 4 th year | 64 (22.8%) | | |
| Total | 281 (100%) | | |

Figures in parenthesis are in percentage, ** Highly significant

On the other hand, final year students did not attain the highest mean score in any domain of TEQ but scored lowest in four out of six domains (Table 2). There was no significant difference seen in empathy levels of students with respect to their gender ($p>0.05$). Table 3 depicts the means and standard deviations for various domains of empathy.

Table 2 Depicts the mean scores of four years in dentistry program in CMH IOD

| Variables | 1 st year | 2 nd year | 3 rd year | Final year |
|-----------|----------------------|----------------------|----------------------|------------|
| Mean | 3.0 | 2.8 | 2.8 | 2.7 |
| N | 74 | 74 | 69 | 64 |
| Std. dev | 0.32 | 0.44 | 0.41 | 0.57 |
| Median | 3.0 | 2.9 | 2.9 | 2.9 |

Table 3 Mean scores and standard deviation for various domains of empathy

| Empathy domains (item #) | 1 st year Mean (SD) | 2 nd year Mean (SD) | 3 rd year Mean (SD) | Final year Mean (SD) |
|--|--------------------------------|--------------------------------|--------------------------------|----------------------|
| Emotional contagion (1,4) | 2.9 (0.78%) | 2.6 (0.69%) | 2.5 (0.72%) | 2.6 (0.81%) |
| Emotional assessment (2,7,10,12,15) | 2.7 (0.63%) | 2.8 (0.61%) | 2.7 (0.59%) | 2.5 (0.71%) |
| Empathetic response (13) | 3.3 (0.79%) | 3.0 (0.9%) | 3.1 (0.90%) | 2.7 (1.3%) |
| Emotion comprehension (8) | 2.8 (0.78%) | 2.5 (0.89%) | 2.8 (0.87%) | 2.7 (0.94%) |
| Sympathetic physiological arousal (3,6,9,11) | 3.0 (0.47%) | 2.8 (0.58%) | 2.8 (0.47%) | 2.8 (0.69%) |
| Altruism (5,14,16) | 3.4 (0.55%) | 3.1 (0.64%) | 3.2 (0.62%) | 3.1 (0.81%) |

DISCUSSION

The findings observed the levels of empathy and comparison of all four years of undergraduate dentistry students in CMHLMC and IOD, Pakistan found the following:

- There is a tendency of decreased levels of empathy as dentistry students advance in the dentistry course
- There are statistically significant differences among different years of dentistry students
- The female and male gender, in general, has the same levels of empathic orientation

Kulich, et al., reported that empathetic communication is a crucial component between dentist and patient for better outcomes but in the dental curriculum, empathy is not given due importance [10].

These results are consistent, different, or even, contradictory with those observed in other studies of the world. The results of our study reported that as dentistry students' progress through CMHLMC and IOD, TEQ scores start eroding. Even though there was little difference in mean scores among different years of dentistry, they were still statistically significant. This finding is in accordance with many other studies conducted in various parts of the world [1,11-13].

A study conducted in Bangalore city of India by Gouthami, et al., reported that insufficient education and training regarding empathy in dental college results in declining of empathy scores gradually. The maximum academic stress on final year students might be the reason for scoring the lowest empathy points than other academic years. There are various teaching strategies which require teamwork in the early years of dentistry which could also be a reason for better empathy scores among them [14]. The informal curriculum can also play its role in the development of empathy among students whereas lectures, communication skills, and role-playing should be considered as various teaching strategies [15].

On the contrary, a study of the International Journal of Medical Education conducted in Malaysia reported better empathy among fourth-year dental students as compared to the rest [16,17]. In the same way, research by Carolynne

from a Journal of Dental Education revealed different findings from the previous researches regarding this topic. In that study, they divided empathy as emotive and cognitive in a personal and professional context. They reported lower empathy scores of dentistry students who were confined to the emotive dimension [1].

Beatie, et al., revealed the effect of pre and post behavioral science course as first-year dental students showed improved empathetic levels after the course. Likewise, Beatie, et al., reported better empathy scores after the course as well [18]. Another study by Schwartz, et al., also revealed noticeable improvement in empathy among students who were taught empathy through lectures and showed videos of patients input regarding their experiences [19]. Despite that Davis, et al. thought that empathy cannot be forced to occur [16]. In spite of different point of views, empathy as a key component of health provider competence, the findings could help in building a curriculum that will improve empathy during dental education and training by getting it applied in the dental clinical practice and health sciences in general.

CONCLUSION

Empathy is a vital requirement that patients want to be fulfilled. Empathy scores in our study were higher among first, second and third-year students respectively than final year students of dentistry. Future researches are required to draw a big picture of empathy and to get the deep insight into the problem and check the effects of dental training on empathy. Moreover, as empathy is a key trait for every health provider, early exposures with patients, longitudinal educational programs and interventions from the beginning need to be incorporated in the dental curriculum of Pakistan to enhance empathy in dental students.

Strengths and Limitations

A pretested, validated and a reliable questionnaire (TEQ) was used. Our study is a cross-sectional survey and cannot provide deeper insight into problems affecting students. Moreover, this is a single centered study limiting the generalization of our results to dentistry students of other dental colleges including both public and private sector.

Implications

The findings of the current study have significant implications for instructional designers and educators of Pakistan to train and improve the communication skills of dentistry students for the delivery of safe care to patients. Conducting workshops for communication and interpersonal skills for dentistry students may promote empathy among them.

Future Directions

Longitudinal researches conducting sequential mixed methods, qualitative studies, interpretive phenomenological studies and reflections of patients regarding their dentists' empathy are needed to get an accurate status of empathy. The empathy of the dentist helps to get a clear insight into the patient's problems and develops a good relationship between them.

DECLARATIONS

Conflict of Interest

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

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