

Perception of students and teachers regarding the attributes of an effective clinical teacher in dentistry: A cross-sectional analytical study

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Abstract

Objective: To compare the perception of dental students and faculty members regarding the attributes of effective clinical teachers.

Method: This cross-sectional study was conducted at the Dow University of Health Sciences, Karachi, from August 2021 to November 2021, and comprised of third and final year dental students and associated clinical faculty members from three dental colleges in the city. Data was collected using the modified version of a pre-validated questionnaire. Data was analysed using SPSS 25.

Results: Of the 200 students approached, 169(84.5%) responded; 135(79.9%) females and 34(20.1%) males with mean age 21.78 ± 1.099 years (range: 19-26 years). Of the 59 teachers approached, 49(83%) responded; 33(67.3%) females and 16(32.7%) males with mean age 31.59 ± 5.041 years (range: 23-49 years). The students found record-keeping a tiresome task 69(42%), while teachers regarded it essential for clinical development. Unlike teachers, the students were unable to identify the relevance of clinical objectives and they also did not appreciate teachers' involvement in clinical procedures. For other domains regarding personal traits, teaching methods and clinical skills, both groups had similar responses.

Conclusion: There was generally a similarity of opinions among students and teachers regarding the essential qualities of effective dental clinical teaching.

Keywords: Dental education, Clinical teaching, Competent clinical teacher. (JPMA 74: 1119; 2024)

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Introduction

For medical and dental professionals, clinical education is the most essential component of their learning experience, as it is the basis of all the practical implications of their profession. A competent clinical teacher is one of the vital pillars in the context of clinical education who plays a pivotal role in the nurturing of a good dental practitioner. Starting from teaching methodologies to clinical demonstrations to personality traits, various qualities are associated with effective clinical teaching. Dental students and teachers find effective instructional strategies to be essential for education. Comprehensive feedback, communication and standardisation of clinical skills have been highly regarded as well.¹

Dental students are more likely to take interest in clinical subjects and performance as they are able to identify their relevance to the profession. A study in Australia reported similarity of opinions among students and teachers

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regarding effective clinical teaching in dentistry, and the students also doubted the relevance of clinical logbooks.² A competent dental clinical teacher should be able to provide appropriate knowledge to the students in an organised manner that should be intriguing as well as motivational. Medical education describes the characteristics of a good teacher in the light of student and peer feedback.^{3,4} A knowledgeable, skilful, updated and competent tutor is an utmost requirement of quality clinical dental teaching.^{2,3,5} Competent clinical teachers must be able to take over their role as complete facilitators who plan and guide the learners towards a self-motivated clinical learning experience that guarantees them knowledge and skills that are essential for professional clinical development. Medical education frequently refers to sufficient knowledge, skills and teaching methodologies as essential characteristics of effective clinical teaching.^{2,5,6}

A study identified teachers' teaching methods, feedback approaches, clinical knowledge and professionalism along with conducive learning environment as the key factors important to dental students.⁷ A study in Pakistan comprising medical students and teachers determined interest in teaching and clinical competence along with communication skills as the most important aspects of effective clinical teachers.⁸

To the best of our knowledge, there is no data on dental clinical teaching available from Pakistan. The current study

was planned to fill the gap in literature by comparing the perception of dental students and faculty members regarding the attributes of effective clinical teachers.

Subjects and Methods

The cross-sectional, analytical study was conducted at the three dental colleges of Dow University of Health Sciences (DUHS), Karachi, from August 2021 to November 2021. After approval from the institutional ethics review committee, the sample size was calculated using OpenEpi calculator version 3.⁹ The sample was raised using non-probability convenience sampling technique. Those included were third year and final year dental students and associated faculty members of Dr Ishrat ul Ebad Khan Institute of Oral Health Sciences (DIKIOHS), Dow International Dental College (DIDC) and Dow Dental College (DDC).

Those not willing to participate as well as incomplete responses were excluded.

With permission from the three colleges, the lists of students and teachers were provided by the DUHS administration. Signed consent was obtained from each participant before handing out printed questionnaires to be filled. A pilot study was conducted initially to confirm the validity and reliability of the study questionnaire which was a modified version of the proforma cited in literature.² Changes were made to account for local setting. The questionnaire consisted of two main sections. The first one contained demographic data of the students, like age, gender and academic year, and of the teachers, like age, gender and professional teaching experience. The second section comprised 24 items related to dental clinical teaching. The content reliability of the items was up to 0.778. The second section had three sub-sections, exploring student-teacher relationship, clinical teaching methodologies, and important dental clinical skills.

Data was analysed using SPSS 25. Comparative descriptive variables were presented as mean±standard deviations (SDs), while frequencies and percentages were used to explain qualitative variables. The difference of median was calculated using Mann-Whitney U and Wilcoxon rank sum tests as a non-parametric alternative to student's t-test due to data being non-normally distributed. $P < 0.05$ was considered significant.

Results

There were 445 students and 59 faculty members eligible in the three colleges. Of the 200(45%) students approached, 169(84.5%) responded; 135(79.9%) females and 34(20.1%) males with mean age 21.78 ± 1.099 years (range: 19-26 years). All the 59(100%) teachers were

Table-1: Characteristics of the participants.

	Student (n=169) Median (Q1-Q3)	Teacher (n=49) Median (Q1-Q3)
Age (years)	22 (21-22) Mean±SD (Range) 21.78±1.099 (19-26)	31 (28-35) Mean±SD (Range) 31.59±5.041 (23-49)
Gender	n (%)	n (%)
Male	34 (20.1)	16 (32.7)
Female	135 (79.9)	33 (67.3)
Professional year		
3rd year	77 (35.3)	-
4th year	92 (42.2)	-
Professional experience		
≤5 years	-	31 (63.3)
> 5 years	-	18 (36.7)

SD: Standard deviation.

approached, and 49(83%) responded; 33(67.3%) females and 16(32.7%) males with mean age 31.59 ± 5.041 years (range: 23-49 years). Among the teachers, 31(63.3) had professional experience <5 years, while 18(36.7%) had >5 years (Table 1).

About student-teacher relationship, students and teachers agreed that empathic guidance from a clinical tutor along with explicit demonstration of clinical procedure was the key to building a strong bond. Also, they agreed that the availability of teachers for guidance along with timely feedback provision and the maintenance of safe learning environment were qualities necessary for good clinical education. Students and teachers differed on the usefulness of clinical objectives for clinical sessions. Students believed that their clinical performances should not be graded, and that maintenance of clinical record in the form of a logbook was an extraneous exercise. The participants had similar opinions regarding the significance of teaching in small groups and the importance of continuous clinical assessment. They agreed that for effective clinical teaching, teachers should encourage students to participate actively in clinical sessions. Also, teachers should provide relevant references for learning as well. In terms of necessary clinical dental skills, no significant difference between the groups was found (Table 2).

Discussion

Overall, there was a similarity of views expressed by the teachers and the students about the effective traits of a clinical teacher.

However, there were some differences as well. For instance, the students study did not find clinical objectives useful, while the teachers differed. The finding was in contrast to earlier findings.² This difference in responses might highlight a gap in the comprehension of learning

Table-2: Comparison of perceptions reported by students and teachers regarding attributes of effective clinical teacher in dental colleges.

	Students (n=169)		Teachers (n=49)		p-value*
	Median (Q1-Q3)	Mean±SD	Median (Q1-Q3)	Mean±SD	
Sub-section one: Importance of student-teacher relation					
Does empathic guidance from the clinical supervisor support student preparation for independent practice of clinical dentistry?	2 (1-2)	1.82±0.826	2 (1-2)	1.63±0.698	0.161
Will providing clinical objectives for clinical sessions support student preparation for independent clinical practice?	2 (1-2)	1.79±0.778	2 (1-2)	1.59±0.814	0.039
Will completing a part of the clinical procedure by a tutor during clinical sessions, as an interactive activity, assist student preparation for independent clinical practice?	2 (1-2)	1.82±0.792	2 (1-2)	1.69±0.940	0.096
Do you think that a clinical tutor is an important role model for students?	1(1-2)	1.45±0.626	1 (1-2)	1.31±0.585	0.088
Is it better that the tutor be passively involved in clinical sessions instead of directly indulging in performing clinical procedures while teaching students?	2 (1-2)	2.40±1.269	4 (2-4)	2.98±1.521	0.023
Do clinical demonstrations of procedures, assists student preparation for independent clinical practice?	2 (1-4)	1.70±0.653	2 (1-2)	1.65±0.597	0.767
Is continuous feedback during a clinical session by the clinical tutor helpful for students?	2(1-2)	1.79±0.780	2 (1-2)	2.88±1.379	0.193
Does providing feedback only at the end of a clinical session by a clinical tutor assists student preparation for independent clinical practice.	4 (2-4)	2.94±1.218	2 (2-4)	1.90±0.770	0.643
Does the availability of clinical tutor during specified office hours or after class consultation effect students' clinical practice?	2 (1-2)	1.91±0.840	2 (1-2)	1.55±0.614	0.886
Do you think the clinical instructor is the key to maintaining a conducive learning environment?	2 (1-2)	1.73±0.775	2 (1-2)	1.55±0.709	0.145
Sub-section two: Statements about teaching methodologies					
Is small group teaching, such as tutorials, valuable to the development of dental clinical skills?	2 (1-2)	1.70±0.856	1 (1-2)	2.37±1.055	0.24
Are formal lectures valuable to the development of dental clinical skills?	2 (2-4)	2.76±1.364	2 (2-4)	1.63±0.487	0.097
Does continuous clinical sessional assessment support the development of the ability of students to provide independent clinical patient dental care?	2 (1-2)	1.73±0.744	2 (1-2)	1.73±0.758	0.805
Should student performance in clinical sessions be graded?	2 (2-4)	2.46±1.300	2 (1-2)	2.12±1.130	0
Does a student record of their completed patient care, such as a clinical log book, helps students for independent practice?	4 (2-4)	3.17±1.496	2 (1-2)	2.12±1.130	0
Do you think the ability to discuss learning needs with a clinical tutor will assist students?	2 (1-2)	1.76±0.666	2 (1-2)	1.63±0.602	0.185
Should a clinical instructor give citations regarding current situations with reference to native context?	2 (2-2)	1.98±0.820	2 (1-2)	1.84±0.717	0.259
Encouragement and stimulation of class participation from the tutor helps students in their clinical practice:	2 (1-2)	1.79±0.780	2 (1-2)	1.67±0.689	0.367
Sub-section three: Clinical skills/Personal traits					
Decision making ability.	1 (1-2)	1.33±0.541	1 (1-2)	1.33±0.474	0.781
Fine-motor responses.	1 (1-2)	1.47±0.535	1 (1-2)	1.39±0.606	0.185
Communication skills.	1 (1-2)	1.30±0.460	1 (1-2)	1.33±0.591	0.894
Broad knowledge base	1 (1-2)	1.36±0.516	1 (1-2)	1.49±0.617	0.161
Self-assessment	1 (1-2)	1.42±0.530	1 (1-2)	1.45±0.614	0.942
Self-confidence	1 (1-1.50)	1.27±0.520	1 (1-2)	1.41±0.610	0.101

* p-value calculated by using Man-Whitney test; SD: Standard deviation.

objectives by the current set of students. The use of complicated language while constructing learning objectives or being unable to explain a particular concept that the objective is about might have been a flaw on the part of the tutor.¹⁰

Over 70% of the current dental students were of the opinion that the teachers should remain passive during procedural learning, and give them control and autonomy in clinical decisions. However, the tutors did not completely agree with the idea. Comparable results showed that students felt that their autonomy as practitioners should be given due regard, and they should be only passively supported by the teachers.^{11,12}

The current students thought that being assessed for grade achievement should not be part of clinical learning. This might have been owing to the perception that it hindered their learning experience due to performance anxiety.^{12,13} Teachers think it can be a good motivational factor for

students to perform better clinically if they are given grades according to their performance.¹⁴ A study reported that the students were concerned about completing clinical tasks or certain number of patients for gradation instead of learning.¹⁵ Dental students may not agree with the gradation system due to the stress that it causes.^{14,16,17}

The current students were not in favour of compiling and maintaining their clinical logbook. This could be because to document individual patient details along with the procedure performed requires a lot of time and effort.¹⁸ In contrast, the teachers opined that clinical work of students should be documented to keep track of their progress and for internal evaluation. Dental students in an Australian study responded in favour of maintaining the logbooks.¹² We need to make our students realise the importance of logbooks, and, simultaneously, train faculty members as well as students to use the clinical logbooks effectively.^{19,20}

The current participants agreed that clinical teacher was

one of the earliest professional role models for the students. Hence, clinical teachers hold an esteemed position of influencing young minds as the personalities that they would like to portray professionally and personally.^{21,22}

The current teachers also agreed that being empathic enhanced their teaching skills. If a clinical teacher was perceived as an individual who understood the dilemmas of the young learner, the students found that teacher approachable. Thus, a safe learning environment for growth was encouraged that ensured learner satisfaction.²³

Relevant guidance and assistance from clinical teachers are essential for the growth of students, and have the most profound impact on their professional development.²⁴ The current participants perceived this as an essential attribute of clinical education. The finding was in line with an earlier study.²⁵ Students and teachers in the current study agreed that clinical teachers were responsible for maintaining a conducive and safe learning environment for the students. A study reported that clinical teachers took it as their essential duty to maintain an appropriate learning environment for the students, while another study said the learners also felt it vital for a teacher to ensure best possible learning conditions^{1,22}

The current participants considered effective clinical demonstration as the basis of clinical dentistry. This was because until the standard protocols and procedures are showcased, students would not be able to execute them appropriately.³ The finding was in line with an earlier study.¹¹

There was no difference in responses in the current study regarding the timing of feedback provided by clinical teachers on student performance. Participants preferred intermittent feedback that could guide them through a clinical learning session and be implemented instantly. A couple of studies reported similar findings.^{7,26}

The current students and teachers were also in agreement that the availability of clinical tutor for guidance during college timings and appointments afterwards may have a profound effect on the learning of students. Learners might be able to have a self-reflective session and enhance their learning process.²⁷

The current findings were similar to a study in which small group discussions (SGDs) were preferred for clinical learning by the students due to proximity with the tutor and the appropriate student- teacher ratio in such sessions.²⁸

Other studies on dental students found lecture delivery to be a monotonous and ineffective mode of teaching,^{7,15} while the teachers felt that lectures had their own significance even in clinical teaching.

The current students and teachers reported that continuous assessment throughout clinical education had a constructive impact on a learner's clinical development. It is a preferred method for prompt correction, learning and an opportunity for feedback for a student in a clinical setup.²⁹ The tutors in another study also thought that encouraging learner enthusiasm was to be considered an important attribute of a good clinical teacher.¹

The current participants agreed that clinical skills were important for the students. A capable dentist should be firm and swift in decision-making. Profound basic and clinical knowledge of dentistry along with adequate fine motor responses were essential for maintaining good practice.^{1,2} Along with these, good communication skills, self-assessment ability and adequate self-confidence added to the persona of a professional healthcare provider. These abilities constitute the personality of an efficient dental professional.^{28,30}

The current study had its limitations. Tutor training as a faculty on any level was not considered by the study which may have had an impact on the opinions expressed. Besides, the study focused solely on quantitative analysis when qualitative analysis may have led to a more in-depth analysis of the perceptions reported. Finally, the findings cannot be generalised as the subjects belonged entirely to a single university.

Conclusion

Both students and teachers agreed that for effective dental teaching, clinical teachers should ensure conducive learning environment, giving due regard to student autonomy. Teacher should be good role models in professional and personal capacities by demonstrating adequate clinical skills and showing a general sense of empathy. Constructive and timely feedback along with appropriate clinical assistance by the teachers were much emphasised upon. While SGDs were preferred by the students, the teachers felt lectures should not be removed completely from the curriculum. Difference of opinions was observed regarding student-teacher relations, and teaching methodologies of clinical teachers.

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RS: Conceptualized idea, literature search, data collection, drafting.

RA: Proof reading, reviewing, incorporated required amendments and literature search.

NA: Finalized the references and writing.

SAK: Data collection, writing.

OS: Modified the manuscript for the purpose of publication and developed required tables.