

The Relationship of Teachers' Characteristics and Dentistry Students' Academic Motivation at Shiraz University of Medical Sciences During the COVID-19 Pandemic

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ABSTRACT

Background: Throughout the COVID-19 pandemic, virtual teaching can be more complex, and teachers' role in motivating students is more critical than before and must be taken into consideration; therefore, this study aimed to determine the role and influence of dentistry lecturers on students' motivation during the COVID-19 pandemic.

Methods: This cross-sectional study was conducted in 2021 in the dental school of Shiraz University of Medical Sciences. The standardized questionnaires used included demographic data, teachers' characteristics (educational development, performance, personality, and assessment) (Cronbach's alpha as 0.91), and students' motivational aspects (intrinsic motivation and extrinsic motivation) (Cronbach's alpha of 0.87) which was sent online for 200 students. The questions were scored on a 5-point Likert scale, and the collected data was analyzed in Excel and SPSS version 20.0, using independent sample t-test, post-hoc ANOVA, and Pearson's correlation.

Results: Results revealed that professional development had the highest average scores, and the lecturers were mostly qualified as experts on the subject (knowledge) (3.30 ± 0.987). The assessment was considered as the weakest point of the teachers (2.41 out of 5). Dentistry students' intrinsic motivation (3.20 ± 0.774) was higher than extrinsic motivation (2.76 ± 0.991) ($P < 0.001$). The Pearson correlation values of all teachers' characteristics and students' motivation were from 0 to 0.3. However, the relationship between the teachers' characteristics and students' intrinsic motivation was insignificant ($P > 0.05$).

Conclusion: The characteristics of teachers at the faculty of Dentistry at Shiraz University of Medical Sciences had either no or little relationship with the students' academic motivation during COVID-19 pandemic. This would make arrangement of dental programs in universities in different faculties and disciplines easier in different situations including virtual teaching.

Keywords: Dental teachers, Motivation, Dental students, COVID-19, Virtual teaching

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Introduction

In dentistry, effective teaching is crucial. Teachers, as the essential building blocks of the education system, are more than information providers; they are role models, resource developers, effective supervisors, and student-supportive individuals. Therefore, they play a vital role in educating future dentist generations (1-3). According to expert clinicians with insufficient or limited formal teaching training and experience, this profession can often affect the students' motivation and performance (4-6). Motivated students will promote good performance and an increased output level to help the whole nation's progress and development. Routine evaluation and identification of teaching effectiveness and its factors based on students' perceptions are vital for improving the faculty members (7, 8).

Several studies have been conducted to identify the characteristics of an effective teacher (9-13). These qualities are generally considered as professional and personal. Personal qualities such as respect for students, good communication skills, passion for teaching, and professional qualities such as knowledge, clinical skills, rhetoric and efficient teaching skills were the most important criteria for many students (9-11). While many dental and dental hygiene students in Canada and the United States believed that the teachers' qualities could have an enormous impact on their learning and motivation (1, 14), some Iranian students declared that none of the characteristics of a good teacher affected the students' educational motivation (13). In another study on kindergarten students, teachers' quality affected the children's motivation (15).

Since the present dentistry students depict a broad spectrum regarding their cultures, personalities, and learning preferences, it is a challenge for dentistry teachers to meet the educational necessities of all students. Consequently, investigating the perspectives of dentistry students themselves is essential. Also, throughout the coronavirus disease 2019 (COVID-19) pandemic, every aspect

of life, including virtual teaching, can be more difficult for teachers because of new technologies and for students because they are now fearful of the changes that may leave them at a disadvantage over other graduates (16). As a result, the teachers' roles in motivating students are more critical than ever and must be taken into consideration. This study aimed to determine the role and characteristics of dentistry lecturers and the association between the students' demographic variables and their motivation during the COVID-19 pandemic.

Methods

Sampling and Recruitment Procedures

This cross-sectional study was conducted in January and February 2021 in the dentistry school of Shiraz University of Medical Sciences, Shiraz, Iran. The total population of clinical students was 324, and based on Cochran's formula

$$n = \frac{\frac{z^2 pq}{d^2}}{1 + \frac{1}{N} \left[\frac{z^2 pq}{d^2} - 1 \right]}$$

the sample size was estimated to be 176. Due to the possibility of sample loss, we sent the questionnaires to 200 participants and finally 169 completed questionnaires were collected (85% return). First- and second-year students and those with incomplete answers to the questionnaire were excluded. The participation was voluntary, and students' responses were kept anonymous with ethical consent. The Ethics Committee of Shiraz University of Medical Sciences approved the study (code: IR.SUMS.REC.1399.994).

Questionnaire and Data Collection

A Persian questionnaire was used, and the first section included demographic data (gender, student level, and grade point average on scale of 20 (GPA)); the second section included teachers' characteristics questionnaire (educational developments, performance, personality, and assessment) and the third section included educational motivation questionnaire (intrinsic motivation

and extrinsic motivation).

The validity and reliability of the teachers' characteristics standardized questionnaire with 24 questions in four dimensions of educational developments, performance, personality, and assessment (CVR=0.89 and CVI=0.85) have been previously confirmed by Esmaeili et al., (Cronbach's alpha as 0.91) (13). The validity and reliability of the second standardized questionnaire, the educational motivation, with 26 questions in in two dimensions of internal and external motivation have been previously confirmed by Pirzahi et al., with Cronbach's alpha of 0.87 (17). Teachers remained anonymous, and students generally reported their opinions. The questions were answered using a 5-point Likert scale from 1 to 5 (1=strongly disagree, 2=disagree 3=neutral, 4=agree, and 5=strongly agree). The score of the first questionnaire ranged from 24 to 120, and the second one was from 26 to 130. Score three was considered average. Higher numbers

were evaluated as favorable and less than that as unfavorable.

Data Analysis

The collected data were tabulated in Microsoft Excel 2016 for Mac and analyzed using SPSS 20.0. Mean and standard deviations were calculated for each item and category, and an independent sample t-test and Pearson's correlation were used to determine the variables. The P value of 0.05 was considered as the level of significance.

Results

A total of 169 out of 200 questionnaires distributed were completed, representing a response rate of 85%. The responders were mainly female (n=110, 65.11%). The students who most actively participated in the study were the fifth-year students (n=60, 35%), followed by fourth-year students (n=46, 27%), while the sixth-year students were the least active ones in this regard (n=17,10%).

Table 1: Mean score of teachers' characteristics

Categories	Attributes	Mean score±Standard deviation
Professional development	Expert on the subject/ knowledge	3.30±0.987
	Teaching new and practical points	2.47±0.935
	Being interested in their fields	3.25±0.968
Performance	Encouraging students to research	2.30±0.899
	Motivating students	2.25±0.876
	Developing good learning resources	2.64±0.942
	Teaching at students' level	2.75±0.829
	Organizing the course	2.64±0.902
	Amusing students to maintain their interest	2.25±0.792
	Discipline and accuracy in teaching	2.70±0.942
	Accessibility	2.15±0.999
	Being sensitive to students' problems and needs	2.61±0.945
	Managing the class	3.15±0.967
	Deceive in teaching	3.37±0.939
	Personality	Interacting with students
Respecting the students		3.40±0.995
Dressing appropriately		3.29±0.983
Having good sense of humor		2.78±0.895
Accepting criticism		1.93±0.072
Assessment	Being a good examiner	2.56±1.039
	Using various methods of examination	2.19±1.097
	Asking fair questions	2.62±1.031
	Asking innovative questions	2.25±0.792

The mean GPA was 15.66 ± 1.45 . Out of 169 students, 39 (23%) had a GPA of less than 15, and 59 (35%) had a GPA of 17 and above.

Teachers' Characteristics

Table 1 shows the itemized list of teachers' characteristics along with the mean score of each item. Among the characteristics, students scored the professional development as the highest scores and the lowest was reported in assessment. Being an expert on the subjects was the most vital point of dentistry teachers in Shiraz University of Medical Sciences dental school, with an average score of 3.30 ± 0.987 . The mean scores the female students gave (2.70 ± 0.878) were higher than that those given by male students (2.59 ± 0.870). Students with a GPA of 12 gave the highest scores, and those with a GPA of 14 gave the lowest scores.

Students' Characteristics and Motivation

Dentistry students' intrinsic motivation (3.20 ± 0.774) was higher than extrinsic motivation (2.76 ± 0.991) ($P < 0.001$), and female and third-year students had higher motivation, and students with GPA of 17 and above had the highest intrinsic and extrinsic motivation;

nevertheless, motivation had no significant association with students' gender and GPA ($P > 0.05$) (Table 2). Based on the results, weak correlations were found between the teachers' characteristics and students' extrinsic motivation ($P < 0.05$); however, the relationship between the teachers' characteristics and students' intrinsic motivation was insignificant (Table 3).

Discussion

This study was conducted in the dental school of Shiraz University of Medical Sciences to help teachers improve the learning environment and increase the students' motivation. The respondents rated professional developments, including their teachers' best characteristics, and assessment as the worst quality in their teachers. Besides, none of the five pedagogical attributes correlated with intrinsic or extrinsic motivation. However, the Sig. (2-tailed) values for professional development, performance, personality, and assessment against extrinsic motivation were below 0.05, indicating statistical significance in the absence of a correlation. However, no association of potential significance was reported between intrinsic motivation and the

Table 2: Relationship of the student's characteristics and the mean score of their motivation

Students' Demographic Variables	Motivation Mean score \pm Standard deviation	P value
Gender		
Male	2.87 \pm 1.24	0.70
Female	3.09 \pm 1.06	
Student level		
Third-year students	3.15 \pm 1.19	0.01
Fourth-year students	3.12 \pm 1.14	
Fifth-year students	2.84 \pm 1.12	
Sixth-year students	2.82 \pm 0.99	
Grade Point Average		
12-14.99	2.84 \pm 1.09	0.90
15-16.99	2.89 \pm 1.11	
≥ 17	3.27 \pm 1.16	

Table 3: Correlations of the mean score of teachers' characteristics and that of students' motivation

Teachers' characteristics	Intrinsic motivation		Extrinsic motivation	
	r	P value	r	P value
Professional development	0.030	0.702	0.172	0.025
Performance	0.059	0.447	0.226	0.003
Personality	0.067	0.389	0.256	0.001
Assessment	0.129	0.095	0.149	0.049

five attributes, suggesting that the internal rewards perceived by students were not affected by the characteristics of their teachers.

In general, our participants did not exhibit any alterations in their intrinsic and extrinsic motivation that could be explained by or attributed to teachers' characteristics. Our findings support the idea that many factors influence academic motivation. Fenderson *et al.* observed similar findings in 1997 when they asked second-year medical students to evaluate their pathology course. Similar to the present investigation, they did not find any correlations between the students' perception of quality in teaching and their academic achievement, implying that popular instructors are not necessarily better teachers (18). These findings were all consistent with the report published by Notzer *et al.* in 1986, indicating that achievement was not directly influenced by the quality of teaching as perceived by the students (19), as well as the observations made by Kwizera *et al.* on 238 South African medical students in 2001, ascertaining that teacher subject-expertise was not associated with the students' academic achievement (20).

An investigation on high school students which examined the relationship between the teachers' traits and students' motivation showed a significant relationship, specifically revealing which personality traits would result in increasing or decreasing students' motivation (21). Also, a study on the interrelationship of teacher characteristics, features of instructional quality, and student outcomes in the subject of physics conducted by *Keller et al.* suggested that teacher pedagogical content knowledge mainly influenced the students' learning (22). This indicates that factors affecting the perception of students regarding the motivational impact of their instructors are far more numerous.

In 2011, Tocce *et al.* surveyed a population of 131 medical students who had participated in a clinical rotation of gynecology and obstetrics concerning abortion. Interestingly, the investigation found that students who had independently

studied the material obtained better grades than their peers who had been lectured by corresponding teachers (23), implying that given the circumstances, teachers might not significantly impact the motivation and academic achievement of students. Chu *et al.* in 2015 revealed that teachers of higher ranks and expertise positively impacted the academic achievements of economically less-fortunate students, as opposed to those from more-fortunate families (24). This could be of particular interest and relevance to our investigation, as dentistry students are usually assumed to come from rich families, if not fortunate. However, we could not explore the participants' economic status.

More recently, in 2017, Sabag *et al.* experimented on 84 tutors and trainees to assess the potential correlations between the tutors' instructional strategies and trainees' learning strategies. They could not find any positive or negative correlation between the two variables (25), which was partly similar to what we observed with our experimental population of dentistry students. In 2022, Li *et al.* studied the effects of knowledge sharing on students' entrepreneurial motivation. They investigated a population of 111 teachers and students, demonstrating that knowledge sharing, as a teacher's behavioral characteristic, did not play a positive role in students' motivation (26).

While in the present investigation, we could not detect any significant correlation between pedagogical attributes and academic motivation, many studies have revealed comparable results, suggesting that teachers might not permanently alter the students' motivation in significant ways.

Limitation and Suggestion

This study was conducted only in one university with a small sample size, so the generalization of the results should be done with caution; moreover, the answers are subjective, which is one of the limitations of the questionnaire used. Still, the veracity of these findings should be further investigated by prospective studies.

Conclusion

The characteristics of dentistry teachers did not affect the students' motivation at the faculty of dentistry at Shiraz University of Medical Sciences during COVID-19 pandemic. However, motivation is a multidimensional structure, and more research should be conducted to assist policymakers in the revision of dentistry programs and help teachers, deans, and policymakers maximize the students' motivation.

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Authors' Contribution

AB: study concept, project administration, validation, and editing; RK: investigation, methodology, writing; AS: methodology, writing and editing; SS: writing and editing the original draft, data analysis.

Conflict of Interest: None declared.

Ethical Considerations

The subjects' participation was voluntary, and students' responses were kept anonymous with ethical consent. The Ethics Committee of Shiraz University of Medical Sciences approved the study (code: IR.SUMS.REC.1399.994).

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References

- Bal-Taştan S, Davoudi SMM, Masalimova AR, Bersanov AS, Kurbanov RA, Boiarchuk AV, et al. The impacts of teacher's efficacy and motivation on student's academic achievement in science education among secondary and high school students. *EURASIA Journal of Mathematics, Science and Technology Education*. 2018;14(6):2353-66. doi: 10.29333/ejmste/89579.
- Pal NE, Young M, Danoff D, Plotnick LH, Cummings B-A, Gomez-Garibello C, et al. Teachers' mindsets in medical education: a pilot survey of clinical supervisors. *Medical teacher*. 2020;42(3):291-8. doi: 10.1080/0142159x.2019.1679359.
- Starčić AI, Lebeničnik M. Investigation of university students' perceptions of their educators as role models and designers of digitalized curricula. *Human technology*. 2020;16(1):55-91. doi: 10.17011/ht/urn.202002242163.
- Yilmaz E, Sahin M, Turgut M. Variables Affecting Student Motivation Based on Academic Publications. *Journal of Education and Practice*. 2017;8(12):112-20.
- Puryer J, McNally L, O'sullivan D. The views of part-time clinical teachers regarding their role in undergraduate education at the University of Bristol Dental School. *British Dental Journal*. 2015;218(2):79-83. doi: 10.1038/sj.bdj.2015.30.
- Lujan HL, DiCarlo SE. First-year medical students prefer multiple learning styles. *Advances in physiology education*. 2006. doi: 10.1152/advan.00045.2005.
- Sutkin G, Wagner E, Harris I, Schiffer R. What makes a good clinical teacher in medicine? A review of the literature. *Academic Medicine*. 2008;83(5):452-66. doi: 10.1097/acm.0b013e31816bee61.
- Boor K, Teunissen PW, Scherpbier AJ, van der Vleuten CP, van de Lande J, Scheele F. Residents' perceptions of the ideal clinical teacher—a qualitative study. *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 2008;140(2):152-7. doi: 10.1016/j.ejogrb.2008.03.010
- Al-Jobair AM, AlSarheed MA. Saudi dental students' opinions on the qualities and attributes of an effective dental teacher. *Advances in Medical Education and Practice*. 2016;7:533. doi: 10.2147/AMEP.S113212.
- Singh S, Pai DR, Sinha NK, Kaur A, Soe HHK, Barua A. Qualities of an effective teacher: what do medical teachers think? *BMC medical education*. 2013;13(1):1-7. doi: 10.1186/1472-6920-13-128.
- Siamian H, Bala Ghafari A, Aligolbandi K, Seyyede Fereshteh Reza Nezhad

- SF, Sharifi Nick M, Shahrabi A, et al. Characteristics of a good university lecturer according to students. *Journal of Mazandaran University of Medical Sciences*. 2013;22(96):106-13.
- 12 Derakhshan A, Darabi M, Saeidi M, Kiani M. Perspective of medical students of Mashhad University of medical sciences about the criteria of a good university professor. 2013.
- 13 Esmaeili M, Hozni S, Mosazadeh B, Zavareh A. Good teacher's characteristics and its influence on dental students academic motivation in guilan university of medical sciences. *Research in medical education*. 2017;9(3):18-0. doi: 10.29252/rme.9.3.18.
- 14 Schönwetter DJ, Lavigne S, Mazurat R, Nazarko O. Students' perceptions of effective classroom and clinical teaching in dental and dental hygiene education. *Journal of Dental Education*. 2006;70(6):624-35. doi: 10.1002/j.0022-0337.2006.70.6.tb04118.x.
- 15 Zee M, Rudasill KM, Bosman RJ. A cross-lagged study of students' motivation, academic achievement, and relationships with teachers from kindergarten to 6th grade. *Journal of Educational Psychology*. 2021;113(6):1208. doi: 10.1037/edu0000574.
- 16 Farshidfar N, Hamedani S, sahmeddini s. Chemosensory dysfunctions as potential risk factors for tooth demineralization process: The feasible impact of coronavirus disease 2019 on oral health. *Journal of Oral Health and Oral Epidemiology*. 2021;10(Special Issue):1-3. doi: 10.22122/JOHOE.2021.195304.1222.
- 17 Pirzehl A BH. The effect of social factors on education motivation of ferdousi university students. *Journal of Social Science*. 2014;2(10):23-56. doi: 10.22067/jss.v0i0.38460.
- 18 Fenderson BA, Damjanov I, Robeson MR, Rubin E. Relationship of students' perceptions of faculty to scholastic achievement: Are popular instructors better educators? *Human pathology*. 1997;28(5):522-5. doi: 10.1016/s0046-8177(97)90072-1.
- 19 NOTZER N, SOFFER S, YADGAR O. The role of senior teachers in students' achievements. *Medical Education*. 1986;20(1):13-6. doi: 10.1111/j.1365-2923.1986.tb01035.x.
- 20 Kwizera EN, Dambisya YM, Aguirre JH. Does tutor subject-matter expertise influence student achievement in the problem based learning curriculum at UNITRA medical school? *South African Medical Journal*. 2001;91(6):514-6.
- 21 Khalilzadeh S, Khodi A. Teachers' personality traits and students' motivation: A structural equation modeling analysis. *Current Psychology*. 2021;40(4):1635-50. doi: 10.1007/s12144-018-0064-8.
- 22 Keller MM, Neumann K, Fischer HE. The impact of physics teachers' pedagogical content knowledge and motivation on students' achievement and interest. *Journal of Research in Science Teaching*. 2017;54(5):586-614. doi: 10.1002/tea.21378.
- 23 Tocce K, Sheeder J, Vontver L. Failure to achieve the association of professors in gynecology and obstetrics objectives for abortion in third-year medical student curriculum. *The Journal of Reproductive Medicine*. 2011;56(11-12):474-8. PubMed Central PMCID: PMC22195329.
- 24 Chu JH, Loyalka P, Chu J, Qu Q, Shi Y, Li G. The impact of teacher credentials on student achievement in China. *China Economic Review*. 2015;36:14-24. doi: 10.1016/j.chieco.2015.08.006.
- 25 Sabag N, Krisher H, editors. Does a good match of trainees' learning styles to their tutors' instructional strategies contribute to trainees' academic achievements? 2017 IEEE 6th International Conference on Teaching, Assessment, and Learning for Engineering (TALE); 2017: IEEE.
- 26 Li J, Qin J. Effect of teachers' knowledge sharing behavior on students' entrepreneurial motivation in social media environment. *International Journal of Emerging Technologies in Learning (iJET)*. 2022;17(2):143-57. doi: 10.3991/ijet.v17i02.28553.