



FACULTY'S PERCEPTION ON E-ASSESSMENT DURING PANDEMIC – AN ONLINE APPROACH

Dr Sujithra S*	Post graduate student, Department of Public Health Dentistry, KLE Society's Institute of Dental Sciences, Bangalore. *Corresponding Author
Dr Vipin Jain	Reader, Department of Public Health Dentistry, KLE Society's Institute of Dental Sciences, Bangalore.
Dr BK Srivastava	Professor and Head of Department, Department of Public health Dentistry, KLE Society's Institute of Dental Sciences, Bangalore.
Dr. Aarya Bharadwaj	Senior Lecturer, Department of Public Health Dentistry, KLE Society's Institute of Dental Sciences, Bangalore.
Dr Rohan Shinkre	Postgraduate student, Department of Public Health Dentistry, KLE Society's Institute of Dental Sciences, Bangalore.

ABSTRACT

Objectives: The study aims to assess the perception of faculty across health care sector on e-assessment during the pandemic. **Materials and Methods:** A cross-sectional study was conducted on faculty from medical, dental and allied health sciences using snowball sampling. A self-designed validated questionnaire was utilized to collect data across the faculty. Statistical analysis was performed on SPSS version 26 (p-value <0.05). **Results:** Among 102 participants who were a part of the study, the mean difference across medical, dental, and allied sciences for domain one (knowledge and attitudes) and domain five (affective factors) was highest for dental faculty with statistical significance.

KEYWORDS : Faculty, e-assessment, pandemic, medical, dental

INTRODUCTION

COVID-19 was declared a global pandemic in March 2020.¹ It impacted all walks of life including education, leading to the closure of schools and universities. The world has seen the most extensive educational systems disruption in history in more than 190 countries globally. The closure of the academic institutions has impacted up to 99% of the student population across the globe especially the lower-middle-income countries (LMI).²

The pandemic established partial or complete lockdown, where people were forced to stay at home. Education in the health care sector both medical and dental curricula demands direct patient attendance and one of the biggest challenges during the pandemic has been to halt direct patient care, which is a key component of their learning phase. On the other hand, allied health sciences like pharmacy, require students' presence to conduct laboratory experiments as a part of their curriculum. In an attempt to balance the safeguarding of students, faculty, and patients while keeping track of the changing national policies, universities were forced to take different measures to ensure the continuity of education.³

While the whole world was facing much trouble in the biennial, classes progressed via online mode, the assessment of students became an integral part of their education due to the prolonged closure of universities and to forgo completion of the academic year. Thus, the study aimed to understand the faculty's perceptions of online assessment in medical, dental, and allied health sciences.

METHODOLOGY

This analytical cross-sectional study included 102 participants which included faculty across medicine, dentistry and allied health sciences were asked to respond via google forms online from April 2020 to June 2020 by convenience sampling method. The inclusion criteria were, faculty members across medical, dental, and allied health sciences and the participants who provided consent to participate in the study. Participants who responded the google form automatically consented to be a part of the study. A self-designed 17 item closed ended questionnaire with four domains (knowledge, advantages, disadvantages and

affective factors of online assessment) with a was employed to assess the perception of teaching faculty of various healthcare professional colleges on e-assessment for students which was circulated via google forms using email and WhatsApp. The reliability testing of the questionnaire yielded a cronbach's alpha value of 0.86. The face validity was 85% and content validity ratio of the questionnaire was 0.80.

Statistical Analysis

SPSS version 26 (IBM Corp., Armonk, NY, USA) was employed for statistical analysis. ANOVA and post hoc analysis was used to find the mean difference between the three groups i.e., years of teaching experience (0-10 years, 11-20 years and greater than 20 years) of faculty across medicine, dentistry and allied health sciences.

As seen in Figure 1 majority of the study participants were from dentistry and nearly 59 % belonged to an experience range of 0-10 years, 33% within 11-20 year and 6.9% had more than 20 years of teaching experience.

Analysis of variance revealed that only domain 5 concerned with affective factors was statistically significant for the variable of years of teaching experience. Tukey's post hoc analysis was performed to see which group under teaching experience had a better perception of online assessment under domain 5 of affective factors. It was observed that faculty with > 20 years of experience had better awareness of affective factors than faculty with < 10 years or 10-20 years of teaching experience.

One-way ANOVA analysis showed that domain 1- knowledge and practices, domain 3- barriers, and domain 5 on affective factors in relation to the variable of faculty domain (medicine, dentistry and allied health sciences) were statistically significant.

Tukey's post hoc analysis was performed to see which faculty group had a better perception of online assessment across the above statistically significant domains. It was observed that both dental and allied health science faculty had better knowledge/practices perception under domain 1 than the medical faculty (p=0.02, statistically significant).

The Difference In Faculty Perception According To Years Of Teaching Experience Across Four Domains [Table 1]

Domains		Sum of Squares	Mean Square	F	P - value
DOMAIN 1,2 - Knowledge and practices	Between Groups	18.71	9.358	0.596	0.553
	Within Groups	1553.59	15.693		
	Total	1572.31			
Domain 3 - advantages	Between Groups	27.66	13.832	1.384	0.255
	Within Groups	989.70	9.997		
	Total	1017.37			
Domain 4: disadvantages	Between Groups	24.043	12.021	1.324	0.271
	Within Groups	898.97	9.081		
	Total	923.02			
Domain 5: affective factors	Between Groups	112.82	56.415	4.879	0.010
	Within Groups	1144.74	11.563		
	Total	1257.57			

Tukey's Post Hoc Analysis (Table 2)

Domains	Years of teaching (I)	Years of teaching(J)	Mean Difference (I-J)	Std. Error	p-value	95% Confidence Interval	
						Lower Bound	Upper Bound
DOMAIN 1,2 - Knowledge and practices	1 - 10	11 - 20	-.379	.848	.896	-2.40	1.64
		> 20	-1.681	1.581	.539	-5.44	2.08
	11 - 20	1 - 10	.379	.848	.896	-1.64	2.40
		> 20	-1.303	1.644	.709	-5.21	2.61
	> 20	1 - 10	1.681	1.581	.539	-2.08	5.44
		11 - 20	1.303	1.644	.709	-2.61	5.21
DOMAIN III - ADVANTAGES	1 - 10	11 - 20	.422	.677	.808	-1.19	2.03
		> 20	-1.759	1.262	.348	-4.76	1.24
	11 - 20	1 - 10	-.422	.677	.808	-2.03	1.19
		> 20	-2.181	1.312	.225	-5.30	.94
	> 20	1 - 10	1.759	1.262	.348	-1.24	4.76
		11 - 20	2.181	1.312	.225	-.94	5.30
DOMAIN 4 DISADVANTAGES	1 - 10	11 - 20	1.036	.645	.248	-.50	2.57
		> 20	.061	1.203	.999	-2.80	2.92
	11 - 20	1 - 10	-1.036	.645	.248	-2.57	.50
		> 20	-.975	1.251	.717	-3.95	2.00
	> 20	1 - 10	-.061	1.203	.999	-2.92	2.80
		11 - 20	.975	1.251	.717	-2.00	3.95
DOMAIN V	1 - 10	11 - 20	.308	.728	.906	-1.42	2.04
		> 20	-4.012*	1.357	.011	-7.24	-.78
	11 - 20	1 - 10	-.308	.728	.906	-2.04	1.42
		> 20	-4.319*	1.411	.008	-7.68	-.96
	> 20	1 - 10	4.012*	1.357	.011	.78	7.24
		11 - 20	4.319*	1.411	.008	.96	7.68

*. The mean difference is significant at the 0.05 level.

Differences In Faculty (Medical, Dental, And Allied Health Sciences) Perception Across Four Domains [Table 3]

DOMAINS		Sum of Squares	Mean Square	F	p-value
DOMAIN 1,2 - Knowledge and practices	Between Groups	126.092	63.046	4.316	.016
	Within Groups	1446.222	14.608		
	Total	1572.314			
DOMAIN III - ADVANTAGES	Between Groups	25.563	12.782	1.276	.284
	Within Groups	991.810	10.018		
	Total	1017.373			
DOMAIN 4 DISADVANTAGES	Between Groups	55.115	27.557	3.143	.047
	Within Groups	867.905	8.767		
	Total	923.020			
DOMAIN V	Between Groups	103.420	51.710	4.436	.014
	Within Groups	1154.159	11.658		
	Total	1257.578			

Tukey's Post Hoc Analysis [Table 4]

DOMAINS	(I) faculty	(J) faculty	Mean Difference (I-J)	Std. Error	p - value	95% Confidence Interval	
						Lower Bound	Upper Bound
DOMAIN 1,2 - Knowledge and practices	Medicine	Dentistry	-2.603*	0.963	0.022	-4.89	-0.31
		Allied health sciences	-0.810	1.228	0.787	-3.73	2.11
	Dentistry	Medicine	2.603*	0.963	0.022	0.31	4.89
		Allied health sciences	1.794	1.021	0.190	-0.64	4.22
	Allied health	Medicine	0.810	1.228	0.787	-2.11	3.73

	sciences	Dentistry	-1.794	1.021	0.190	-4.22	0.64
DOMAIN III - ADVANTAGES	Medicine	Dentistry	-0.667	0.798	0.682	-2.56	1.23
		Allied health sciences	-1.619	1.017	0.254	-4.04	0.80
	Dentistry	Medicine	0.667	0.798	0.682	-1.23	2.56
		Allied health sciences	-0.952	0.846	0.501	-2.97	1.06
	Allied health sciences	Medicine	1.619	1.017	0.254	-0.80	4.04
		Dentistry	0.952	0.846	0.501	-1.06	2.97
DOMAIN 4 DISADVANTAGES	Medicine	Dentistry	0.444	0.746	0.823	-1.33	2.22
		Allied health sciences	-1.540	0.951	0.242	-3.80	0.72
	Dentistry	Medicine	-0.444	0.746	0.823	-2.22	1.33
		Allied health sciences	-1.984*	0.791	0.036	-3.87	-0.10
	Allied health sciences	Medicine	1.540	0.951	0.242	-0.72	3.80
		Dentistry	1.984*	0.791	0.036	0.10	3.87
DOMAIN V	Medicine	Dentistry	-2.143*	0.860	0.038	-4.19	-0.10
		Allied health sciences	-0.159	1.097	0.989	-2.77	2.45
	Dentistry	Medicine	2.143*	0.860	0.038	.10	4.19
		Allied health sciences	1.984	0.913	0.081	-.19	4.16
	Allied health sciences	Medicine	0.159	1.097	0.989	-2.45	2.77
		Dentistry	-1.984	0.913	0.081	-4.16	0.19

*. The mean difference is significant at the 0.05 level.

The faculty of allied health sciences were aware of the practical barriers of online assessment for students with a statistically significant difference ($p=0.036$) under domain 4. Both dental and allied health science faculty were better aware of the affective factors on the use of online assessment during the pandemic lockdown under domain 5 with a statistically significant difference ($p=0.036$)

DISCUSSION

COVID-19 pandemic has changed the process of medical education with a global impact. This situation demands acceptable, valid, reliable, feasible and fair assessment methods. The current study highlights the perception of faculty (medicine, dental and allied health sciences) regarding online assessment. In the present study it was seen that 46% of faculties had good knowledge about online teaching and assessment techniques similar to a study done by Joshi et.al.³⁷ The difference in faculty perception according to years of teaching experience across five domains showed that domain 5 of affective factors which addresses the faculty perception towards online assessment during pandemic, was statistically significant with senior faculty members (greater than 20 years of teaching experiences) showing positive outlook than relatively younger faculty members. However, in the same domain some faculty members showed their interest on conducting online formative assessments and stated that this platform cannot be replaced for summative assessments. Despite the changing academic situation during the COVID-19 pandemic, academic integrity and assessment security are still indispensable in the higher education sector. Some faculty members in the current study expressed their concern on a lack of institutional provisions for academic integrity management in the context of COVID-19 and also stated that existing resources are inadequate to conduct high-stake assessments such as viva, thesis submissions and benchmark examinations.

REFERENCES

1. WHO, 2020 WHO (2020). WHO Director-General's Opening Remarks at the Media Briefing on COVID-19 - 11 March 2020
2. The Economic Times (2020). Covid-19 pandemic created largest disruption of education in history, affecting 1.6 billion students: UN SG Guterres - The Economic Times
3. Hattar S, AlHadidi A, Sawair FA, Alraheam IA, El-Ma'a'ita A, Wahab FK. Impact of COVID-19 pandemic on dental education: online experience and practice expectations among dental students at the University of Jordan. BMC Medical Education. 2021 Dec
4. Joshi KP, Jamadar D, Dixit R. Perception of faculty toward online teaching and

- learning in the undergraduate medical students during coronavirus disease-19 pandemic. Int J Med Sci Public Health. 2020;9(8) Additional references:
5. Roulin V, Berthiaume D, Allin-Pfister AC. How to evaluate learning in professional higher education? De Boeck Supérieur; 2017 Sep 29.
6. Keller C, Hrstinski S, Carlsson S. Students acceptance of e-learning environments: A comparative study in Sweden and Lithuania 2007, Tarhini A, Elyas T, Akour MA, Al-Salti Z. Technology, demographic characteristics, and e-learning acceptance: A conceptual model based on extended technology acceptance model. Higher Education Studies. 2016;6(3):72-89
7. Horton, W. (2011). E-Learning by Design. Wiley, London: UK
8. Clark RE, Mayer RC. Proven guidelines for consumers and designers of multimedia learning. E-learning and the science of instruction. 2011, Maqableh M, Rajab L, Quteshat W, Masa'deh RE, Khatib T, Karajeh H. The impact of social media networks websites usage on students' academic performance.
9. Benkirane L, Hamza M, Sbihi W, Arabi E. Perception of learning assessment methods by students at the end of their initial training at the faculty of dentistry of casablanca. Education Research International. 2019 Sep 3;2019
10. Elzainy A, El Sadik A, Al Abdulmonem W. Experience of e-learning and online assessment during the COVID-19 pandemic at the College of Medicine, Qassim University. Journal of Taibah University Medical Sciences. 2020 Dec
11. Frazer C, Sullivan DH, Weatherspoon D, Hussey L. Faculty perceptions of online teaching effectiveness and indicators of quality. Nursing Research and Practice. 2017
12. Oducado RM. Faculty perception toward online education in a state college in the Philippines during the coronavirus disease 19 (COVID-19) pandemic. Universal Journal of Educational Research. 2020 Oct
13. Soffer T, Kahan T, Livne E. E-assessment of online academic courses via students' activities and perceptions. Studies in Educational Evaluation. 2017 Sep
14. Almahasees Z, Mohsen K, Amin MO. Faculty's and students' perceptions of online learning during COVID-19. Front. Educ. 2021
15. Kumar LR, Bedra A, Karkera R. Perception of medical students on e-assessment conducted through Yengage portal. Archives of Medicine and Health Sciences. 2013 Jan