ISSN: 2581-5989
PubMed - National Library of Medicine - ID: 101738774

International Journal of Dental Science and Innovative Research (IJDSIR)
IJDSIR : Dental Publication Service
Available Online at: www.ijdsir.com
Volume – 6, Issue – 4, August - 2023, Page No. : 84 - 89

Comparison of communication skills between Synchronous and Asynchronous virtual teaching methods, among dental students in Chidambaram

[1]Ramasamy Sarvathikari, MDS, Department of Oral Medicine and Radiology, Cuddalore Government Dental College and Hospital, Chidambaram, Cuddalore.

[2]Divyapriya G.K., MDS, Department of Oral Medicine and Radiology, Cuddalore Government Dental College and Hospital, Chidambaram, Cuddalore

[3]Reethu Ravichandiran, PG student, Department of Oral Medicine and Radiology, Cuddalore Government Dental College and Hospital, Chidambaram, Cuddalore.

[4]Ilakkiya Balasubramaniyan, PG student, Department of Oral Medicine and Radiology, Cuddalore Government Dental College and Hospital, Chidambaram, Cuddalore.

Corresponding Author: Ilakkiya Balasubramaniyan, PG student, Department of Oral Medicine and Radiology, Cuddalore Government Dental College and Hospital, Chidambaram, Cuddalore (Dt).

Citation of this Article: Ramasamy Sarvathikari, Divyapriya G.K., Reethu Ravichandiran, Ilakkiya Balasubramaniyan, "Comparison of communication skills between Synchronous and Asynchronous virtual teaching methods, among dental students in Chidambaram", IJDSIR- August - 2023, Volume – 6, Issue - 4, P. No. 84 – 89.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Background: Communication skills are recognized as a mandatory core competence in dental health professionals. Dental institutes in developed and developing countries claim that communication is a core clinical skill rather than an optional curricular component and so it should be an integral part of the undergraduate dental curriculum. The influence of information technology has introduced virtual teaching methodologies in the dental curriculum. This study involves teaching communication skills to intern dental students using synchronous and asynchronous methods.

Aims: To assess the efficacy of virtual teaching methods by assessing the improvement of communication skills among dental intern students.

Methods and Material: This prospective study was conducted among 55 dental interns and They were trained in communication skills through synchronous and asynchronous online teaching methods. The primary outcomes were measured by pre and post-course questionnaire assessments.

Statistical analysis used: The intergroup analysis was done using the Wilcoxon sign rank test, and the intragroup analysis was done using the Mann-Whitney U

test. The analysis was performed using SPSS 23.0 (SPSS Inc. Chicago, IL, USA).

Results: The results from this study showed improvement in verbal and nonverbal communication skills of the intern students after interventions, with a p-value>0.05 statistically not significant.

Conclusion: Improving their communication skills establishes a good rapport for effective patient management. Both the synchronous and asynchronous virtual teaching methods are effective in teaching communication skills, this suggests implementing virtual teaching methods in the dental curriculum would be beneficial.

Keywords: Synchronous, Asynchronous, Communication Skills, Dental Students.

Introduction

In the field of healthcare, communication skills are recognized as a mandatory core competency [1]. Communication and behavioral science education are mandated component of dental graduate competence and is highly recognized and appreciated by patients [2, 3]. Dental health professionals need a variety of skills for successful patient management. These include not only clinical and technical skills but also communication skills. The evolving new teaching strategies play an important role in teaching the newer generation of students. The usage of information technology in teaching has made the teaching methodology more effective, and convenient increasing reachability [4]. The COVID pandemic situation had pushed all the faculties to utilize information technology in their teaching methodology [4,5]. Online teaching, though lacking direct teacher-student interaction, has many advantages. This online teaching methodology is broadly classified into synchronous and asynchronous teaching methods. The synchronous method is an online lecture, that provides real-time interaction with a facility of the question-answer session [5]. However, synchronous session requires simultaneous student-teacher presence. On the other hand, asynchronous methods are not time bound, the recorded lecture is posted in the digital platform classroom and students can work at their own pace [5,6]. This study involves the teaching of communication skills through the synchronous and asynchronous method of lectures among intern dental students.

Subjects and Methods

This prospective study was conducted in our institution As per the Helsinki declaration, the institutional Human Ethical Committee scrutinized the study methodology and consent forms, and approved the study IHEC no: IHEC/590/2019. The whole intern dental students of the year 2020-21 were enrolled in our study about 55 in numbers. These enrolled students were allocated to synchronous/asynchronous virtual classes upon their willingness. Group A (synchronous) was assigned to a scheduled live online communication skills training program. The teaching plan was created for 2 months. The course was divided into 3 lectures. Each lecture was about 60 minutes duration with live interaction. Participants were independent and allowed to clarify their doubts at the end of lectures. Each module was recorded and stored in video format. Group B (asynchronous) was organized in Google classroom and informed about the training program. The recorded versions of the online lectures were compiled together and it was posted in Google classroom. These participants can access and view the lectures at their convenient time and own pace. To avoid bias similar activities were assigned to students who choose the asynchronous method.

Among 55 students, 23 students opted for synchronous class and 32 students opted for asynchronous method. Their verbal and non-verbal communication skills were assessed through questionnaires obtained from their patients.

This questionnaire was extracted from previous studies [15, 16, 17], consisting of 22 questions totally out of which 14 questions were on verbal skills and 8 questions on non-verbal skills. In regular OP disposal, after the examination procedure of the patient was done by the interns, the patients were selected randomly and the study was explained to them, and those willing to participate were included in the study. The questionnaire was given to the patients; responses were collected and verified for completion. This data serves as the pre-course assessment.

After the course completion, at regular OP disposal, the patients examined by the interns were randomly selected as post-intervention participants. The post-course assessment questionnaire was given to those patients and communication skills were assessed again and verified.

All the questionnaire data were collected, segregated, and entered in an MS excel sheet. The intergroup analysis was done using the Wilcoxon sign rank test, the intragroup analysis was done using the Mann-Whitney U test. The analysis was performed using SPSS 23.0 (SPSS Inc. Chicago, IL, USA).

Results:

For analysis purposes, the data has been categorized as weak, moderate, and excellent [score: 0-20- weak; 21-40-moderate; 41-60- excellent],

Table 1: Intragroup comparison in the communication skills (pre and post-intervention) among synchronous and asynchronous groups showed a gain in verbal and non-verbal skills in both the groups with mean values of 9.50, 1.5, 5.92, and 17.63 respectively. The p-value was found to be statistically significant ($p < 0.05$).

Table 1: Comparison of communication and non-verbal skills within the groups before and after intervention

Group	Variable	Median (50^{th} percentile)	Mean rank	Z value	p-value
Synchronous group (n= 23)	verbal (BEFORE)	3.8	9.50	-3.49	0.0001*
	verbal (AFTER)	4.5			
	Non-verbal skills (Before)	0.8	1.5	-3.05	0.002*
	Non-Verbal skills (after)	1.0			
Asynchronous group (n=32)	verbal (BEFORE)	3.8	5.92	-3.817	0.00001*
	verbal (AFTER)	4.1			
	Non-verbal (Before)	0.8	17.63	-2.313	0.021*
	Non-Verbal (after)	1.0			

Wilcoxon sign rank test; *p value <0.05 (statistically significant)

Table 2: Intergroup comparison of the synchronous and asynchronous group in verbal and non-verbal skills at baseline and after the intervention was analyzed using the Mann-Whitney U test; the results showed no statistically significant difference between groups ($p>0.05$).

Table 2: Comparison of communication and non-verbal skills between the groups before and after the intervention

	Variable	Group	Mean Rank	U value	Z value	p-value
Before intervention	verbal skills	Synchronous Group	28.74	351	-0.291	0.771
		Asynchronous group (n=32)	27.47			
	Non-verbal skills	Synchronous Group	30.76	304.5	-1.13	0.255
		Asynchronous group (n=32)	26.02			
After intervention	verbal skills	Synchronous Group	31.46	288.5	-1.3	0.17
		Asynchronous group (n=32)	25.52			
	Non-verbal skills	Synchronous Group	26.89	342.5	-0.87	0.38
		Asynchronous group (n=32)	28.89			

Mann –Whitney U test; p-value >0.05 (statistically non-significant)

Post hoc power analyses were performed using G power statistics to detect the statistical power. The synchronous and asynchronous group showed higher statistical power of 0.92,0.94 for verbal skills and 0.80 and 0.60 for nonverbal skills respectively. Therefore, our study results seem to be sufficiently reliable.

Discussion

Communication skill is a core competency for every health professional. In recent times various teaching methods had been introduced to enhance the communication skills of health professionals to create a satisfactory treatment outcome among patients. In the late 90s, Boulton's et al stated that the communication skill of dental interns and post-graduates was very poor and ineffective [2]. The inclusion of communication skills in the dental curriculum has improved the previous state. Our study result showed that the communication skills of participants before intervention were at a moderate level which was similar to that of the statement given by Molaei et al [3]. However, Emadzadeh A et al in their study scored this skill as weak, which might be related to the lack of communication skills training for the students [4].

Several studies have evaluated the effectiveness of the communication skills training program for dental students. Van Der Molenet et al. evaluated the efficacy of a conventional communication skill training program to manage the patient's stress and fear of dental treatment. Their study stated that the communication skill training program had promoted the student's awareness of the capacity and limitations to communicate with patients [6].

Advancements in technology have propelled the education sector in the last few decades. Various studies have shown that the online teaching method was more effective for communication skills training among health professionals than the offline teaching method [7,8]. Choules AP et al. in their study of the e-learning method of communication skill training for medical students reported that digital education is a more potentially effective teaching method than traditional teaching method [11]. Amanda et al. stated that there is no significant difference between the synchronous and asynchronous teaching methods in their study which is following our study outcome [12]. A study conducted by B.Geibers et.al evaluated the effectiveness of online teaching methods of communication skill training programs for students and showed that asynchronous and synchronous groups had a marginal difference with no significant difference.

Both synchronous and asynchronous groups of our study showed improvement after intervention from a moderate level to an excellent level. In group A out of 23 participants 14 (60.8%) showed improvement in communication skills after intervention and in group B out of 32 participants 16 (50%) showed improvement in communication skills after an intervention. Of a total of 55 participants 30 (54.5%) showed improvement in the excellent level of communication skills after intervention (Figure 1).

Hence, the study outcome insists on more opportunities should be provided for every outgoing dental graduate to learn communication skills. Leveraging information technology to make teaching methods more effective and convenient.

Conclusion

The pre-intervention values show the communication skills of the interns are moderate. This suggests that more emphasis on teaching communication skills is needed. Teaching communication skill study should be encouraged in the field of health professionals to enhance their physical and emotional behavior toward patients. Both the synchronous and asynchronous virtual teaching methods are effective in teaching communication skills, this suggests implementing virtual teaching methods in the dental curriculum would be beneficial.

Limitations

Based on the availability and willingness of the participants the study sample was selected. This leads to a discrepancy in the number of participants between the groups. This study does not include the conventional teaching method to compare its efficacy with online teaching methods. The pre and post-questionnaire assessment of respective doctors was not obtained from the same patients which would lead to response bias in the study outcome.

Recommendations

The quality of the study should be enhanced by conducting the study as randomized control trial with an increased sample size. The patient involved in the study should be educated and should have basic knowledge regarding the aims and objectives of the study.

Future prospects

The communication skill study should be emphasized in dental curriculum and every dental professional should be well trained in that across India.

Acknowledgment

The authors would like to thank and appreciate the dental intern students for their cooperation and sincerity to learn communication skills. And sincere thanks to those experts Mrs.VimalaRane, B.A., MSW., MBA[HRM]., PG.Dip and Dr.Aparna Venkatalakshmi, MDS., who had made more valuable lectures for our young dentists.

References

1. Emadzadeh A, Yavari M, Ebrahimzadeh S, Ahmadian N. Communication skills of dental residents and its impact on patient satisfaction in Mashhad University of Medical Sciences. Mashad Univ Dent J. 2004;28(2):69-76.
2. Memarpour M, Bazrafkan L, Zarei Z. Assessment of dental students' communication skills with patients. J Adv Med Educ Prof. 2016 Jan; 4(1): 33–38
3. Haidet P, Dains JE, Paterniti DA, Hechtel L, Chang T, Tseng E, et al. medical student attitudes toward the doctor-patient relationship. Med Edu. 2002 Jun;36(6):568-74.
4. Kitzman R. Improving education on doctor-patient relationships and communication: lessons from

doctors who become patients. Acad Med. 2006 May 1;81(5):447-53.

5. Van Der Molen HT, Klaver AA, Duyx MP. Effectiveness of a communication skills training program for the management of dental anxiety. Br Dent J. 2004; 196:101–7.
6. Lee M, Ihm J. Empathy and attitude toward communication skill learning as a predictor of patient-centered attitude: a cross-sectional study of dental students in Korea. BMC Medical Education 2021 Dec;21(1):1-1.
7. Pineteh EA. Using virtual interactions to enhance the teaching of communication skills to information technology students. BJET 2012 Jan;43(1):85-96.
8. Zhang X, Hung SC. Integration of the high-tech and low-tech in distance teacher training in China: An insight from the case of Jiangsu Radio and Television University. International Review of Research in Open and Distributed Learning. 2007 Mar;8(1):1-4.
9. Holmes MR, Tracy EM, Painter LL, Oestreich T, Park H. Moving from flipcharts to the flipped classroom: Using technology-driven teaching methods to promote active learning in the foundation and advanced masters social work courses. Clinical social work journal. 2015 Jun; 43:215-24.
10. Choules AP. The use of e-learning in medical education: a review of the current situation. Postgraduate medical journal. 2007 Apr 1;83(978):212-6.
11. Rockinson-Szapkiw A, Wendt J. Technologies that assist in online group work: A comparison of synchronous and asynchronous computer-mediated communication technologies on students' learning and community. Journal of Educational Multimedia and Hypermedia. 2015 Jul;24(3):263-79.
12. Dziuban C, Moskal P, Thompson J, Kramer L, DeSantis G, Hermsdorfer A. Student Satisfaction with Online Learning: Is It a Psychological Contract? Online Learning. 2015 Mar;19(2): n2.
13. Heinerichs S, Cattano NM, Morrison KE. Assessing nonverbal communication skills through video recording and debriefing of clinical skill simulation exams. Athletic Training Education Journal. 2013 8 (1-2): 17–22.
14. Brian H. Spitzberg Thomas W. Adams III Book of communication skill rating scale – an instructional assessment of interpersonal competence 1st ed. NCA 1995.
15. Radziej K, Loechner J, Engerer C, Niglio de Figueiredo M, Freund J, Sattel H, et al, How to assess communication skills? Development of the rating scale ComOn Check. Medical Education Online.2017;22(1):1392823..
16. Larsen KM, Smith CK. Assessment of nonverbal communication in the patient-physician interview. J Fam Pract. 1981 1;12(3):481-8.