

Perception of faculties towards online teaching-learning activities during COVID-19 pandemic: A cross-sectional study at a tertiary care center in Eastern Nepal

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ABSTRACT

Introduction: Online teaching learning activities is totally a new modality of medical education in the country with new opportunities, experiences and challenges. Objectives of the study were to explore the perception of faculties towards online teaching learning activities conducted during the COVID-19 pandemic and to find out barriers and facilitators to conducting online teaching learning activities in our context. **Methods:** A web-based cross-sectional study was conducted among medical, dental, nursing and public health faculties using a semi-structured questionnaire. A Google Form was prepared and its link was sent to the faculties via email. Descriptive statistics were calculated using statistical package for the social sciences. **Results:** Out of 158 faculties, 105(66.46%) were male and 121(85.44%) were medical faculties. Only 16(10.13%) faculties had received formal training regarding preparing and/or delivering online teaching learning activities. Out of 158, 133(84.18%) faculties faced technical and internet issues. The most common advantage and disadvantage of online teaching-learning activities perceived by the faculties were 'not limited to time or place' (149, 94.30%) and 'lack of interaction with the students' (130, 82.28%) respectively. Majority (149, 94.3%) of them had positive perception towards online teaching-learning activities conducted during COVID-19 pandemic. Slow internet connection (145, 91.77%) and frequent electricity interruption (131, 82.91%) were the most common perceived barriers to online teaching learning. **Conclusions:** Most of the faculties had positive perception towards online teaching learning activities. Academic leaders and stakeholders should provide uninterrupted internet and electricity connectivity, training on online teaching-learning platform and timely technical support.

Keywords: COVID-19 pandemic, faculties, medical education, perception.

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INTRODUCTION

Coronavirus disease-19 (COVID-19) has affected every corner of human life globally. Educational institutes including medical colleges around the world canceled face-to-face teaching-learning activities for the safety of students, faculty and staffs.¹ The government of Nepal issued lockdown on March 24, 2020 which led to suspension of physical classes.² Medical institutions rapidly shifted from the traditional style of face-to-face classroom teaching to an online teaching-learning (OTL) format.³ OTL engaged the students in the difficult time of the pandemic and it also helped them to continue their medical education up to certain extent.

In the same scenario, faculties started taking online lectures in B.P. Koirala Institute of Health Sciences (BPKIHS). OTL is totally a new modality of medical education in the country with new opportunities, experiences and challenges.⁴ In Nepal, OTL was not practiced

in medical education before the COVID-19 pandemic; however, it became the only choice during the lockdown period to ensure the continuity of medical education in medical colleges across the country. The sudden transition to online mode of teaching-learning might be difficult for most of the faculties and students as well. The faculties are involved mainly in traditional face-to-face classroom teaching, and they might have faced problems towards online teaching learning due to inadequate technical skills and lack of prior experiences. There is still lack of evidence on the effectiveness of online teaching-learning activities in the context of low- and middle-income countries like Nepal. Understanding of the perception of OTL activities among the faculties is needed for the advancement and progression of the system. Therefore, the present study was conducted to explore the perception of faculties towards OTL activities conducted during the pandemic and to find out barriers and facilitators to conducting OTL activities in our context.

METHODS

A cross-sectional descriptive study was conducted among medical, dental, nursing and public health faculties at BPKIHS, Dharan, Nepal between October to December 2021. The faculties who were involved in OTL activities during the COVID-19 pandemic were enrolled. The sample size of 157 was calculated using the formula $n = Z^2 * p * q / L^2$ where p = prevalence of faculty members who preferred the OTL module in the routine curriculum⁵, $q = 1 - p$ at 95% confidence interval, 12% margin of error (L) and 10 % as non-responders. Convenience sampling was used.

A semi-structured questionnaire was prepared based on the study objectives and in accordance with the relevant literature.⁶⁻⁹ It consisted of eight sections: socio-demographic data, prior experience, and training of OTL activity, technical aspects of OTL activity, advantages and disadvantages of OTL activity, perception of OTL activities, barriers to OTL activities and recommendations towards OTL activities. The questionnaire was reviewed by the research team and the subject experts for confirming its relevance, simplicity, and internal consistency as a part of validation. It was pilot tested in 10% of the study population and the sample used for pilot test was not used for the final data analysis. Ethical clearance was obtained from the Institutional Review Board, BPKIHS (IRC/2142/021).

A Google Form (docs.google.com/forms) was prepared, and its link was sent to the faculties via email. Consent for participation was implied by the completion of the questionnaire and its submission. Personal identification (phone number, name, etc.) was not recorded to maintain the confidentiality of the study participants. The filled questionnaires were extracted from google forms and

exported to microsoft excel 2016. Descriptive statistics like mean, frequency, percentage and standard deviation (SD) were calculated using microsoft excel 2016. The findings were presented as tables and graphs.

RESULTS

Out of 260 faculties, 158 (60.7%) participated in the study. One hundred and five faculties (66.46%) were males (Table 1).

Table 1: Socio-demographic characteristics of the study participants (n=158)

S.N.	Variables	Frequency	Percentage
1. Gender	Male	105	66.46
	Female	53	33.54
2. Age group (years)	30-45	135	85.44
	46-60	22	13.92
	More than 60	1	0.63
3. Faculty	Medical	121	76.58
	Dental	28	17.72
	Nursing	9	5.70
4. Designation	Professor	21	13.29
	Additional professor	17	10.76
	Associate professor	35	22.15
	Assistant professor	74	46.84
	Lecturers/ demonstrators	11	6.96
	Up to 5	46	29.11
5. Teaching experience (years)	6-10	70	44.30
	11-15	23	14.56
	15-20	11	6.96
	More than 20	8	5.03

Only 16(10.13%) faculties had received formal training regarding preparing and/or delivering OTL activities. Out of 158, 133(84.18%) faculties faced technical and internet issues during the delivery of the OTL activity. Slow speed of the internet (102,76.69%), unstable internet connection (73, 54.89%) and frequent electricity interruption (55, 41.35%), poor sound quality (24, 18.05%) and inadequate knowledge of online platform (23, 17.29%) were the most common technical and internet issues faced by the faculties during the delivery of the OTL activity. The advantages and disadvantages of OTL activities perceived by the faculties were 'not limited to time or place' (149, 94.30%) and 'lack of interaction with the students' (130, 82.28%) respectively (Table 2).

Table 2: Advantages and disadvantages of online teaching-learning activities as perceived by the faculties (n=158)

Advantages	Frequency	Percentage
Not limited to time or place	149	94.30
Overcoming the circumstances of the current lockdown	140	88.61
It allows students to study at their own pace by reviewing the archive later.	69	43.67
Electronic documentation of the online teaching-learning activities	67	42.41
The class times are flexible.	50	31.65
No crowding	2	1.27
Disadvantages		
Lack of interaction with the students	130	82.28
Lack of student motivation and engagement	100	63.29
The discomfort of teaching and learning without face-to-face mode	96	60.76
Lack of clinical training and communication skills	92	58.23
Technically demanding	61	38.61
Attendance issue	39	24.68
Expensive	23	14.56
Clueless of students' understanding	1	0.63

One hundred and twenty-five (79.11%) faculties rated their experience of OTL activities conducted during the COVID-19 pandemic as satisfactory. Majority (149, 94.3%) of the faculties had positive perception towards OTL activities conducted during COVID-19 pandemic (Table 3).

Table 3: Perception of online teaching-learning activities among faculties (n=158)

S.N.	Variables	Frequency	Percentage
1	COVID-19 pandemic has given me an unexpected opportunity to know more about online teaching-learning activities.	Strongly agree	75 47.47
		Agree	67 42.41
		Neutral	12 7.59
		Disagree	2 1.27
		Strongly disagree	2 1.27
2	Kindly rate your experience of online teaching-learning activities conducted during the COVID-19 pandemic	Excellent	5 3.16
		Satisfactory	125 79.11
		Poor	21 13.29
		Unsatisfactory	6 3.80
3	Kindly rate the perceived ease of using the online learning platform during the pandemic.	Worst	1 0.63
		Easy	3 1.90
		Satisfactory	122 77.22
4	My institution offered enough assistance and formal training on the online teaching-learning mode of education during the COVID-19 pandemic.	Difficult	33 20.89
		Strongly agree	4 2.53
		Agree	26 16.46
		Neutral	41 25.95
		Disagree	64 40.51
	Strongly disagree	23 14.56	

Slow internet connection (145, 91.77%) and frequent electricity interruption (131, 82.91%) were the most common perceived barriers to OTL activities followed by 'not suitable for all practical classes' (119, 75.32%), 'technical problems' (103, 65.19%), 'poor infrastructure'

(67, 42.41%) and 'logistic issues with the recognition of the academic degree by the respective council body of Nepal' (52, 32.91%). Out of 158, 109 (68.99%) faculties agreed that practical classes should be taught through face-to-face classroom teaching (Table 4).

Table 4. Faculties' recommendations towards online teaching-learning activities (n=158)

S.N.	Recommendations towards online teaching-learning activities	Frequency	Percentage
1.	Which domain(s) of learning can be incorporated in the online teaching-learning activities?	Cognitive domain	141 89.24
		Affective domain	97 61.39
		Psychomotor domain	45 28.48
2.	Theory classes should be taught through online teaching-learning activities.	Agree	39 24.68
		Neutral	72 45.57
		Disagree	47 29.75
3.	Practical classes should be taught through traditional face-to-face classroom teaching.	Agree	109 68.99
		Neutral	20 12.66
		Disagree	29 18.35
4.	Online teaching-learning should be a supplementary method to traditional face-to-face classroom teaching.	Agree	114 72.15
		Neutral	28 17.72
		Disagree	16 10.13
5.	Online quizzes would be ideal for online teaching-learning activities.	Agree	98 62.03
		Neutral	51 32.28
		Disagree	9 5.70
		DUDAL	28 17.72
		ZOOM	122 77.22
6.	In your opinion, which online tool/platform could be appropriate for teaching theory classes?	Google Meet	95 60.13
		Microsoft team	3 1.90
		Any platform that caters to LMS for online mode	2 1.27
		DUDAL	13 8.23
7.	In your opinion, which online tool/platform could be appropriate for teaching practical (LABEX)?	ZOOM	93 58.86
		Google Meet	71 44.94
		Others	5 3.16
		None of the above	31 19.62
		DUDAL	13 8.23
8.	Which of the following could be the appropriate online tool/platform for conducting Case-Based Learning?	ZOOM	106 67.09
		Google Meet	71 44.94
		Neutral response	7 4.43
		None of the above	19 12.03
		Simulation software	1 0.63
9.	Which online tool/platform could be appropriate for conducting Problem Based Learning?	DUDAL	13 8.23
		ZOOM	114 72.15
		Google Meet	79 50.00
		None of the above	8 5.06
		Simulation software	1 0.63

Out of 158, 53 (33.54%) faculties opined to not to incorporate OTL modules in the curriculum and 34 (21.52%) faculties favored 90% or more face-to-face lectures and up to 10% online lectures (Figure 1).

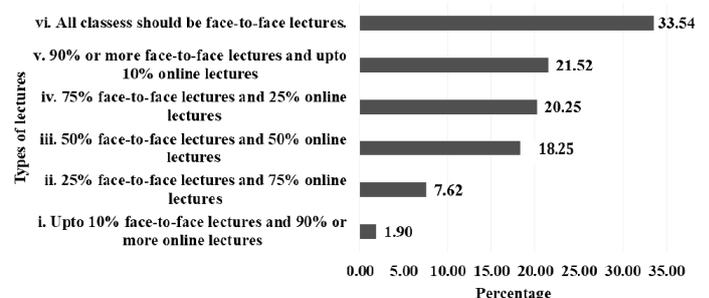


Figure 1: Faculties' recommendation for incorporation of online teaching-learning modules in the curriculum (n=158)

The important factors that would motivate the faculties to participate in online teaching-learning activities were quick technical and administrative support (114, 72.15%), hands-on training on the online platform for conducting teaching-learning activities (103, 65.19%), hands-on training on “how to prepare and conduct OTL activities” (94, 59.49%) and free high quality fast internet connection (65, 41.14%).

DISCUSSION

In the present study, majority (89.87%) of the faculties had not received any formal training on the preparation and/or delivery of OTL activities and similar finding was also reported in other studies as well.^{6,10,11} Nonetheless, all of the faculties put their efforts to conduct OTL activities during the lockdown period which shows their willingness to adapt as per the need. Majority of the faculties faced technical and internet issues during the delivery of the OTL activity. Slow speed of the internet, unstable internet connection and frequent electricity interruption were the most common issues faced by them. Similar finding were also reported by Ebohon et al.¹¹ Timely assistance from the institute during OTL activities might also enhance their participation and performance as well.

The most common advantages of OTL activities perceived by the faculties were ‘not limited to time or place’. In contrast to this, flexibility and convenience was the most commonly cited advantages in a study by Kapoor et al.⁶ The students can access the teaching-learning activities at their convenience from anywhere through their smartphones or laptops. Similarly, the most common disadvantages of OTL activities perceived by the faculties were ‘lack of interaction with the students’. This finding was in accordance with other reports.^{6,11} However, poor internet connectivity, lack of human interface and poor sound or acoustics were the major disadvantages in an Indian study.⁵ The interactions between students and faculties create a community of inquiry where learning is the product of discussion and debate.¹² Use of quizzes, brainstorming sessions and students giving presentations are some of the methods to improve student participation and attention during the OTL activities.¹³

Majority of the faculties had positive perception towards OTL activities. Similar finding was also reported by Joshi et al.¹⁴ Majority of them rated their perceived ease of using the online learning platform during the pandemic as satisfactory which was similar to other finding.¹⁰ The most common perceived barriers to OTL activities were slow internet connection followed by frequent electricity interruption. Similar findings were also reported by Kapoor

et al.⁶ Uninterrupted internet and electricity connectivity must be provided for a smooth OTL activities. Lack of adequate institutional support, lack of technical skills and poor internet connectivity along with lack of institutional learning management system affect the quality of the online teaching. Therefore, these barriers should be addressed for achieving an effective OTL activities. Around half of the faculties disagree that the institution offered enough assistance and formal training on the online teaching-learning mode of education during the COVID-19 pandemic. The stakeholders should train the faculties on OTL activities, and enough assistance should be provided to overcome the various technical difficulties faced during delivery of the online lectures.

Learning in medicine is a conglomerate of acquiring knowledge, skill, and art of dealing with the patients.¹⁵⁻¹⁶ Majority of the faculties opined that only cognitive and affective domains of learning can be incorporated in the OTL activities. These findings were consistent with results obtained in a study by Kapoor et al.⁶ More than two-thirds faculties agreed that practical classes should be taught through face-to-face classroom teaching. Majority of them also agreed that OTL activities should be a supplementary method to traditional face-to-face classroom teaching. Their thought might be influenced by the fact that it is difficult to teach the skills of therapeutic touch required during examination and treatment, compassion, and empathy through online mode.¹⁶ However, videos eliciting history taking and various physical examinations of the patients can be created through various simulation software and its link can be shared with the students to teach psychomotor skills.

Majority opined that ZOOM would be the appropriate online tool/platform for conducting theory classes and practical classes, case-based learning and problem-based learning. Zoom, Google Meet, Google Classroom, WebEx, Moodle, Microsoft Teams, D2L are the most used online platforms by medical institutes globally.¹⁷ It is suggested that the Institute facilitate better online learning management system. There is need to find out the way to use online clinical simulation activities for teaching clinical and other soft skills in the pandemic situation. Majority of the faculties opined to incorporate OTL modules in the curriculum. Similar finding was also reported by other studies.^{5,9} The faculties who did not opine integration of OTL activities might have concern of producing doctors without social skills through complete OTL activities. There might be a risk of producing highly qualified doctors with severely underdeveloped human or social skills if we rely on OTL activities. Therefore, blended learning, which

combines digital learning with the existing traditional face-to-face lectures, might be a good option in our context and it was also supported by the faculties.¹⁸ One-out-five faculties favored 90%:10% distribution of face-to-face and online lectures. In contrast to this, majority suggested a 70%:30% distribution of traditional and online classes in a study by Gupta et al.⁵ The acceptance of blending online and face-to-face instruction has been growing in the academic community as learning is comparatively superior in a blended learning environment.^{19,20} It is high time for the academic leaders and medical educators to utilize this opportunity of pandemic to review the existing curriculum to incorporate some component of online mode of teaching-learning activities. However, in a setting like ours, we need to address the challenges associated with online learning to get optimal results.²¹

It was interesting to find out the important factors that would motivate the faculties to participate in OTL activities that include quick technical and administrative support, hands-on training on online platform for conducting teaching-learning activities and free high quality fast internet connection. There is an urgent need to have own official online platform to conduct teaching-learning activities along with standard and timely technical support in terms of software expertise, data management, data privacy and confidentiality. The findings can also guide the development of academic leadership and management tools. The authors also recommend the need for periodic workshops on OTL activities for the faculty to develop additional skills regarding innovative and new teaching resources and to identify the appropriate curriculum content. Educational administrators and policymakers can use this crisis as an opportunity to introduce new learning modes that can reach everyone, to prepare for emergencies, and to make the system more resilient. It was a single-center study, therefore, the study findings might not be generalized to whole country.

CONCLUSIONS

Majority of the faculties had positive perception towards OTL activities. Uninterrupted internet and electricity connectivity must be provided for a smooth OTL activities. A blended learning might be a good option in our context. There is an unmet need to make the faculties more competent and skilled on OTL methodologies by organizing workshops and seminars. We should have our own official online learning management system to conduct teaching-learning activities. Further studies are needed to assess the efficacy of OTL activities.

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