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## Original Research Article

## Feedback analysis of online classes and assessment during COVID 19 lockdown period from both students and teacher, department of Microbiology, Odisha

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## ABSTRACT

**Background:** During this lockdown period, medical teachers conduct online classes using various Apps. The department of Microbiology wants to know the understanding of Microbiology from MBBS, BDS and nursing students. Also, the satisfaction and problem faced by faculty of Microbiology department.

This is a questionnaire-based study. It was validated, and a pilot was conducted for modifications. The questionnaire was prepared in Google Forms. Three different questionnaires were prepared, two for students perception regarding online class and online assessment and the third one for the perception of faculty about online class and assessment.

The opinions given were analysed, and feedback points were noted. The percentage level of satisfaction and usefulness was calculated with a 95% confidence interval.

**Result:** 75% of faculties agree that it is helpful to students. Most of the time, students attendance was more than offline classroom teaching. Students and faculty were comfortable with the Google form used for assessment & preferred MCQ & SAQ. All faculty & students face network connectivity errors during class and assessment. Response of BDS and nursing students were better than MBBS students. Online assessment can be done one week after the online class.

**Conclusions:** The students (MBBS, BDS & Nursing) and faculty of the Microbiology department perceived moderate satisfaction and usefulness with the ongoing online classes and assessment during this crisis period. MBBS students & faculty expressed the desire to resume regular physical classes, especially for practicals and clinics. Problems faced by teachers and students addressed to Institutional authority to improve the online teaching-learning programme.

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### 1. Introduction

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).<sup>1</sup> It was first identified in December 2019 in Wuhan, the capital of China's Hubei province, and has since spread globally, resulting in an

ongoing pandemic.<sup>2,3</sup> The virus is primarily spread between people during close contact, often via tiny droplets produced by coughing, sneezing, and talking.<sup>4-6</sup> Social distancing strategies aim to reduce contact of infected persons with large groups by closing schools and workplaces, restricting travel, and cancelling large public gatherings.<sup>5</sup> After implementing social distancing and stay-at-home orders, many regions have been able to sustain an effective transmission rate ("Rt") of less than one, meaning the

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disease is in remission in those areas.<sup>7</sup>

The apparent disruption in education's 'normal' functioning has emphasized many questions, which were previously asked and subsequently left unanswered. So, what could the current effects of this global pandemic mean for the future of education? During this lockdown period, most of the teachers conduct online classes using various Apps.

In this institute, faculty members take classes using primarily zoom apps to conduct classes and assessments for second professional MBBS students, BDS students, and Nursing students according to their syllabi.

## 2. Objectives

This study aims to analyze the undergraduate student feedback on the online classes & assessment from second professional MBBS, second-year BDS and Nursing students regarding Microbiology to know the teachers' point of view regarding online classes & assessment Microbiology.

## 3. Materials and Methods

After institutional ethics permission, the department of Microbiology, KIMS, Bhubaneswar, Odisha, conducted the study. Every year 150 numbers of MBBS students, 65 numbers of BDS students and 60 numbers of nursing students join this institute. Students study Microbiology in the second year of their academic curriculum. During COVID19 lockdown, all schools were closed, including medical schools to prevent disease transmission. For continuing education, the university initiates online classes for students. The necessary infrastructure was made for smooth conducting online classes. Most faculty members were first time taking online classes. Students were also first time experience in their carrier exposed to online classes.

Study participants were 150 numbers of MBBS students, 65 numbers of BDS students and 60 numbers of nursing students those giving their consent and faculty of the Microbiology department who gave their consent for this study.

Three separate google form questionnaires were prepared for (A) Feedback form for students on Microbiology online classes, (B) Feedback of students on online assessment of Microbiology, (C) Feedback of faculty members of Microbiology on online classes and assessment. Questions were prepared by faculty members of Microbiology and MEU members of KIMS and validated. Questions were given to students in Google form. The two separate links of the google form questionnaire were forwarded to student's (second professional MBBS, second-year BDS & Nursing), their respective WhatsApp group & email and instructions were also given to them. One link for Google form for Feedback of Microbiology faculty members on online classes and assessment also

forwarded.

Mostly the questions were in MCQ format, and some open-ended questions were also asked. Students were provided with google form questions to answer as options were given, for example, agree, strongly agree and disagree OR yes, no, regarding online classes and assessment during this lockdown period. In open-ended questions, student's and faculty were free to answer. Identification of individual was not asked such as name, email, roll number, etc.

### 3.1. Statistical analysis

The opinions given were analyzed, and feedback points were noted. The percentage level of satisfaction and usefulness was calculated with a 95% confidence interval. The Chi-square test was used for the statistical significance of the study.

## 4. Result

Faculty members of the Microbiology department are from different age groups; three professors, five associate professors, five assistant professors. 80% lady faculty and 20% male faculty.

The common problem's encountered during the class were network issues of both teacher and students; many students joined very late in the class. The faculty lock the zoom after 10 minutes of class to avoid this. Some faculty face problems in technical skills or expertise regarding a particular app.

Most of the faculties gave better network connections will improve the quality of online classes. Other suggestions were to engage students in discussion and video mode throughout the class, training of faculties regarding the technical skills on various apps and use problem-based learning.

Faculties mentioned the advantage of online classes because students were in touch with the subject and the respective teachers during this crisis period. More attendance, more flexibility of class timing, students can review the class seeing recordings and timely completion of the curriculum.

According to faculties, the drawback of online class and assessment was less interaction with students, student participation is doubtful, no eye to eye contact, quality of assessment compromised, and more chance of cheating in assessment.

Most of the students preferred Google Forms can be used for assessment; others are zoom app, google classroom. The drawbacks of online assessment were the primary issue is a network connection error, not appropriate for SAQ and LAQ, difficult to type in mobile or laptop, it takes more time and eye strain.

**Table 1:** Teacher's perception regarding online microbiology teaching and assessment

Opinion	Perception	In percentage
It is a good alternative to classroom teaching	Agree	62.5
	Disagree	37.5
Useful to students	Yes	75
	May be	25
Attendance of students is more as compared to classroom teaching	Yes	37.5
	Sometimes	62.5
Satisfaction towards attentiveness	Yes	12.5
	Sometimes	25
	No	62.5
Clarify student's query regarding the topic during the class	Always	50
	Sometimes	50
	No	0
Satisfy with your teaching method of online classes	Yes	75
	No	12.5
	May be	12.5
Facing any problem during the class	Yes	50
	No	50
	May be	0
Conducting an online assessment of students	Yes	87.5
	No	12.5
Commonly used app	Google form	
The preferred pattern of questions for online assessment	MCQ	50
	SAQ	50

**Table 2:** Profile of students

Discipline	Total no of students (n=310)	Participated in the work (%)
<b>MBBS</b>	150	40.6
Dental	65	21.7
Nursing	60	37.8
<b>Gender</b>		
Male	135	67
Female	175	33

## 5. Discussion

Shifting Microbiology from offline classes, hands-on practical exercises, and written assessment in the examination hall in college, one by one viva and practical assessment to online mode during this crisis period is a challenge to both Microbiology faculties and students of second-year MBBS, BDS & Nursing. During this ongoing pandemic period, faculties have to take an online class and assessment and students must attend the class and give assessment is the only option to touch with the subject and syllabi.

In this COVID induced challenging environment, programs were forced to make quick changes towards delivering classes online and make decisions regarding high-stakes assessments online. In addition, student apprehensions about progression in the academic year and examinations during online education also rose.<sup>8</sup>

The feedback received from faculty and students after these exams were very promising. Some of the student's responses were as follows "Just wanted to thank you all for

the effort to make sure that we have a smooth summative exam. Thank you for listening to our feedback and solving our problems. Online summative exams are better than the real ones!" Another student reported that "It was a strange feeling to give an end of module exam from the comfort of my home. However, the quality of questions and the overall exam setting was at par with the onsite setup. The exam tested my knowledge and closely simulated the reality of having given the exam in person".

Table 1 explained teachers' perceptions regarding online classes and assessment of Microbiology during this crisis period. Most of the Microbiology department faculties agree that online teaching is a good alternative to classroom teaching, 75% of faculties agree that it is helpful to students. Most of the time, students' attendance is more as compared to offline classroom teaching. Whereas faculties are not satisfied with the attentiveness of students during class. 50% of faculty clarify students queries and does not face any problem during the class, whereas 50% of faculty did not clarify queries and face problems during the class. This may be depending on the computer and different apps knowledge

**Table 3:** Student's perception regarding online classes of Microbiology

Opinion	Perception	MBBS (%)	Dental (%)	Nursing (%)	Total (%)	P-value
Beneficial to students	Strongly Agree	8.6%	22.6	9.3	11.9	<0.0001
	Agree	24.1%	77.4	83.3	58.0	
	Disagree	67.2%	0	7.4	30.1	
Help in Understanding basic concepts	Strongly Agree	6.9	12.9	7.4	8.4	<0.0001
	Agree	15.5	71.0	22.2	48.3	
	Disagree	77.6	16.1	70.4	43.4	
SLO mentioned by the teacher	Always	19.0	51.6	55.6	39.9	<0.0001
	Sometimes	32.8	48.4	35.2	37.1	
	Never	48.3	0	9.3	23.1	
Student's Understanding of SLO	Always	10.3	41.9	42.6	29.4	<0.0001
	Sometimes	44.8	41.9	53.7	47.6	
	Never	44.8	16.1	3.7	23.1	
Satisfaction of quality of TLM	Always	22.4	58.1	61.1	44.8	<0.0001
	Sometimes	69.0	41.9	38.9	51.7	
	Never	8.6	0	0	3.5	
Satisfied with AV aids use	Always	19.0	58.1	48.1	38.5	<0.0001
	Sometimes	58.6	38.7	51.9	51.7	
	Never	22.4	3.2	0	9.8	
Clarification of doubt during class	Always	8.6	38.7	33.3	24.5	<0.0001
	Sometimes	50.0	58.1	64.8	57.3	
	Never	41.4	3.2	1.9	18.2	
Satisfied of online class	Always	12.1	64.5	64.8	43.4	<0.0001
	Sometimes	15.5	32.3	31.5	25.2	
	Never	72.4	3.2	3.7	31.4	

and application of individual faculty.

Most of the faculty were satisfied with teaching microbiology online to second-year MBBS, BDS and nursing students. Most faculties agree to conduct an online assessment during this crisis period. All faculties are comfortable using Google Forms for assessment and prefer MCQ & SAQ. LAQ is not acceptable for online assessment because too much typing on a laptop is hectic for students, and teachers cannot remain vigilant to students for a long time online.

All faculties were faced network connectivity errors during class and assessment. It may be from the faculty side, student's side or both. MBBS students are more than BDS and nursing, so teachers and MBBS students face problems. It is a significant drawback of the online teaching method. This can be solved by increasing internet strength. Similar things were also observed by other studies.<sup>9-11</sup>

Table 2 explained the percentage of different streams of students who participated in this work. The total number

of second-year students are 275 (150 no of MBBS, 65 no of BDS & 60 no of Nursing students), out of which 234 students participated in this work. From 234 number students, 40.6% of MBBS, 21.75% of BDS and 37.8% of nursing students. The opinion also varies from students of different streams because their syllabi are different, no of students per class is also different, but the faculty are same.

Table 3 explained students opinion regarding online classes of Microbiology. Response of BDS and nursing students were better than MBBS students. All the opinions were asked in Google form, and answers have significant P-value. It means online teaching can be a good alternate in crisis time, and hybrid mode or blending technique can be used in a normal situation.

Opinions like online teaching are beneficial to students 22.6% BDS students strongly agree with Nursing 9.3% and MBBS 8.6%.

Most nursing students agree that they understand basic concepts in online classes, whereas MBBS and nursing

**Table 4:** Student's perception regarding online assessment

Opinion		MBBS	Dental	Nursing	Total	P-value
Need of online assessment of Microbiology during this COVID19 pandemic period	Yes	19.7	68.2	71.2	50.3	<0.0001
	No	54.5	6.8	3.4	24.3	
	DNK	25.8	25.0	25.4	25.4	
The preferred pattern of question	MCQ	83.3	61.5	69.5	72.8	<0.096
	SAQ	15.2	29.5	25.4	22.5	
	LAQ	1.5	9.1	5.1	4.7	
Online assessment method can be used during a normal situation	Yes	22.7	50.0	44.1	37.3	<0.0001
	No	62.1	20.5	25.4	38.5	
	DNK	15.1	29.5	30.5	24.3	
Online assessment motivated you for self-study.	Yes	16.7	84.1	71.2	53.3	<0.0001
	No	75.8	6.8	13.6	36.1	
	DNK	7.6	9.1	15.3	10.7	
Often the assessments	Weekly	21.2	54.5	50.8	40.2	<0.0001
	Monthly	30.3	25.0	30.5	29.0	
	Bimonthly	7.6	15.9	13.6	11.8	
	DNK	40.9	4.5	5.1	18.9	
	Prior to ONC	4.5	0.0	5.1	3.6	
Timing of the online assessment	End of ONC	16.7	15.9	2.5	19.5	<0.0001
	Week after ONC	78.8	84.1	69.5	76.9	

students mostly disagree with this opinion. This is due to the extensive course of MBBS students and practical knowledge more required for MBBS and Nursing students. Most of the students mentioned that teachers mentioned SLO during class, and sometimes they understand and sometimes do not. This depends on more than one factor like network error, computer knowledge of student, environment and topic. Complex topics understanding online is a challenging task for both student and teacher.

BDS & Nursing students were more satisfied with the online class as compared to MBBS students. Number and extensive syllabi are the reason for this. All students cannot clarify their doubts always due to network error, time limit and no direct contact.

Table 4 explains students perceptions regarding the online assessment of Microbiology.

More number of Dental and Nursing students mentioned there is a need for online assessment of Microbiology during this COVID19 pandemic period as compared to MBBS students.

All streams of students suggest MCQ is better followed by SAQ. Also mentioned, this can be used in a normal situation. This can motivate self-study more in Dental and Nursing than MBBS students. Online assessment can be done one week after the online class to prepare the topic,

and every topic can be covered.

All students mentioned that google form is the best app, followed by zoom or Google classroom.

## 6. Conclusion

This study gives an idea about the student's perception regarding online class and assessment of Microbiology subjects. Also, have an idea about the problems students and faculty of the Microbiology department face. The online class and assessment can be an alternate method during this crisis period. The undergraduate students (MBBS, BDS & Nursing) and faculty of the Microbiology department perceived moderate satisfaction and usefulness with the ongoing online classes and assessment during this crisis period. MBBS students expressed the desire to resume regular physical classes, especially for practicals and clinics, compared to BDS and Nursing students. Faculty also want offline classes and assessments of students. Problems faced by teachers and students addressed to Institutional authority to improve the online teaching-learning programme. So this method of teaching and assessment can be used in future during the crisis period and blended technique in the normal situation. This study revealed sufficient feedback to be shared with all stakeholders regarding improvements in

the online classes.

## 7. Source of Funding

None.

## 8. Conflict of Interest

The authors declare no conflict of interest.


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