

## PERCEPTION TOWARDS ONLINE MCQ TEST FOR MBBS AND BDS STUDENTS' AS AN ASSESSMENT METHOD DURING THE COVID-19 PANDEMIC

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### ABSTRACT

### INTRODUCTION

Universal College of Medical Sciences, Nepal conducted online multiple choice question test as a formative assessment method during COVID-19 pandemic. The aim of this study was to assess the MBBS and BDS students' perception towards online assessment test conducted during COVID-19 lock down period.

### MATERIAL AND METHODS

A descriptive, cross-sectional study was conducted on medical and dental students by administering online Google Forms questionnaire among 1st year and 2nd year MBBS and BDS students at Universal College of Medical Sciences, and College of Dental Surgery, during 2 October, 2021 to 30 December, 2021. General information proforma that elicits the socio-demography and a questionnaire on the lines of Likert's summated rating scale to assess the perception of MBBS and BDS students towards online assessment test was constructed. The collected data were entered into Microsoft excel and exported to SPSS version 22 for analysis. Simple frequency tables, cross tables and standard deviation have been used to analyze data.

### RESULTS

The overall mean and standard deviation for medical students' perception of online assessments were  $3.17 \pm 0.65$ , respectively. Dental students' perception of online assessment tests had an overall mean and standard deviation of  $3.31 \pm 0.77$ , respectively. There was no significant difference in mean perception score towards online assessment test between the MBBS and BDS students (p value 0.1401). The results indicate that both medical and dental students were satisfied with online assessment tests.

### CONCLUSION

Online assessment tests were well received by both MBBS and BDS students. The online assessment tests enhance student learning by allowing immediate feedback. Online tests should be conducted in MBBS and BDS colleges on a regular basis.

### KEYWORDS

COVID-19, MBBS and BDS students, Online assessment, Perception.

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**INTRODUCTION**

The COVID-19 pandemic has affected the professional courses including medical and dental courses viz a viz MBBS and BDS adversely. The state of lockdown and quarantine associated with COVID-19 pandemic forced medical and dental colleges to suspend their conventional teaching methods like didactic lectures, and medical education has gone online.<sup>1-3</sup> Formative assessment is essential to facilitate the learning process in medical education and the subsequent feedback on performance plays a vital role in improving student learning. During COVID-19 pandemic, formative assessment is done online in medical and dental colleges, largely unproctored.<sup>4-14</sup> Similar to other academic institution, Universal College of Medical Sciences, Bhairahawa, Nepal also conducted online MCQ tests as a formative assessment during COVID-19 pandemic. Online assessment is a relatively new concept in medical and dental education. In a developing country like Nepal several technological, internet connectivity issues, education/literacy background and socio-economic challenges may arise while conducting online assessment tests.<sup>15</sup> Hence, the aim of this study was to assess the undergraduate medical (MBBS) and dental (BDS) students' perceptions towards online assessment tests conducted during the COVID-19 lock down period.

**MATERIAL AND METHODS**

A descriptive, cross-sectional study was conducted by administering online Google Forms questionnaire to MBBS and BDS students (1st year and 2nd year) of Universal College of Medical Sciences, and College of Dental Surgery, Bhairahawa, Nepal. This data was collected during the period of 2 October, 2021 to 30 December, 2021, using non-probability purposive sampling. As this study was conducted among medical and dental students during the COVID-19 pandemic (lockdown period) Google Forms questionnaire was sent to 95 students of first year MBBS, and 100 students of second year MBBS; and 20 students of first year BDS, and 40 students of second year BDS (total of 255 students). Among them 130 MBBS students and 35 BDS students (total of 165 students) who filled and sent the questionnaire within 90 days were included in data analysis. Hence the sample size of the present study is 165 (130 MBBS and 35 BDS). The confidentiality of the data has been maintained.

General information proforma (GIP) elicits the socio-demographic characteristics such as gender, age, locality of residence (rural/urban), parent's occupation, and nationality of the respondents. A Google Form questionnaire to assess the perception of MBBS and BDS students towards online assessment tests was constructed on the lines of Likert's summated rating scale. The statements relating to the areas such as social, psychological, academic, administrative, curricular and economic aspects were constructed by collecting from relevant literature and medical students' opinion about medical profession, and screened and validated after thorough scrutiny. Ambiguous statements were modified or rejected. Thus, the content validity of the tool was assumed.<sup>16,17</sup>

The perspective of online assessment tests was graded in terms of things using five options: strongly agree, agree,

neutral, disagree, and strongly disagree. Among the 22 questionnaire items, 17 were favorable to online assessment tests, scoring 5 for strongly agree, 4 for agree, 3 for neutral, 2 for disagree and 1 for strongly disagree. The other five questionnaire items were against (unfavorable) to online assessment tests, scoring 1 for strongly agree, 2 for agree, 3 for neutral, 4 for disagree and 5 for strongly disagree.

The collected data were entered into Microsoft excel and exported to SPSS version 22 for analysis. Simple frequency tables, cross tables and mean tables have been used to analyze data. Characteristics of the sample were categorized using mean and standard deviation.

**RESULTS**

**Table 1. Socio-demographic characteristics of MBBS and BDS students**

	MBBS (n=130)		BDS (n=350)		Total (n=165)	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
<b>Age</b>						
≤ 19 years	12	9.2	2	5.7	14	8.4
> 20 years	118	90.8	33	94.3	151	91.6
<b>Gender</b>						
Male	88	67.7	8	22.9	96	58.2
Female	42	32.3	27	77.1	69	41.8
<b>Residence</b>						
Rural	42	32.3	8	22.9	50	30.3
Urban	88	67.7	27	77.1	115	69.7
<b>Parents's Occupation</b>						
White-collared	70	53.8	23	65.7	93	56.3
Agriculture	60	46.2	12	34.3	72	43.7
<b>Nationality</b>						
Nepali	117	90.0	35	0	152	92.2
Indian	13	10.0	0	0	13	78.8

Table 1 illustrates the socio-demographic characteristics of the respondents. The age distribution of the respondents showed that more than ninty percent (91.6%) of them belonged to age group greater than 20 years. More than half (58.2%) of the respondents were male. Nearly one third (30.3%) of the respondents resides in rural areas. More than two fifth (43.7%) of the respondents' parents were engaged in agriculture. Ninty percent of the students were Nepali whereas 10% were Indian students.

**MBBS students' perception towards online assessment tests**

Table 2 demonstrates how medical students perceived about online assessment tests during the COVID-19 pandemic. The overall mean and standard deviation for perception of online assessments were 3.17 and 0.65, respectively. The level of perception towards online assessment tests was recorded using grand mean of overall perception related item as per previous study.<sup>18</sup> When an individual's mean is greater than or equal to the grand mean (3.17), the perception of online assessment exams is rated as high, and it is rated as poor in the opposite situation. Seven questionnaire items have low level perception, while the mean scores for responses to 15 questionnaire items are almost close to high perception. The findings show that despite feeling underperforming

on seven of the components, students were happy with the other components of online test evaluation.

**BDS students' perception towards online assessment tests**

The dental students' perception of online assessment tests during the COVID-19 pandemic is shown in Table 3. Perception of online assessment tests had an overall mean and standard deviation of 3.31 and 0.77, respectively. The level

of perception towards online assessment tests was recorded using grand mean of overall perception related item as per previous study.<sup>18</sup> When an individual's mean is greater than or equal to the grand mean (3.31), the perception of online assessment exams is rated as good, and it is rated as poor when the opposite is true. In terms of the respondents' mean scores, 13 of the questionnaire items have near to high perception ratings, whereas 9 of the questionnaire items have low perception scores. The results indicate that students were satisfied with more than half of the questionnaire items regarding online test assessment tests.

**Table 2. MBBS Students' perception towards online assessment tests during the COVID-19 pandemic**

Items	SA	Number (n=130)(Percentage)			Mean	Standard deviation	Level
		A	N	D			
1. Online tests helps in learning the subject	3.35	3.35	3.35	21(16.15)	3.35	0.92	High
2. Online tests are as important as classroom tests	3.12	3.12	3.12	37(28.46)	3.12	0.61	Low
3. Multiple choice question type of online assessment is easier to score marks	3.96	3.96	3.96	12(9.23)	3.96	0.88	High
4. MCQ type of online assessment is just mere recall of answer; it does not allow me for critical thinking	2.88	2.88	2.88	42(32.31)	3.12	0.46	Low
5. Online assessment is a good method for evaluation	2.63	2.63	2.63	53(40.77)	2.63	0.36	Low
6. Online tests should be conducted on a regular basis	3.25	3.25	3.25	32(24.62)	3.25	0.51	High
7. Taking up online test is, in practice, more difficult than class room tests	2.79	2.79	2.79	51(39.23)	2.79	0.42	Low
8. Home environment is more distracting and not suitable for taking online tests	2.28	2.28	2.28	27(20.77)	3.72	0.41	High
9. Time limit was sufficient to answer and finish the test and prevent from copying	3.55	3.55	3.55	22(16.92)	3.55	0.94	High
10. The time was not wasted once the test was started, since it had to be completed within a set time	3.84	3.84	3.84	11(8.46)	3.84	1.05	High
11. Adherence to time schedule is as strict in online tests as in class room tests	3.69	3.69	3.69	18(13.85)	3.69	0.82	High
12. Online assessment is advantageous in being able to see grade and feedback immediately after finishing the test	3.66	3.66	3.66	17(13.08)	3.66	0.88	High
13. Feedback from online assessment is not as adequate as class room assessment	3.82	3.82	3.82	11(8.46)	3.82	0.89	High
14. It is hard to concentrate on the questions when doing online test	2.90	2.90	2.90	45(34.62)	3.10	0.51	Low
15. Online assessment is as reliable in assessment of knowledge as classroom assessment	2.67	2.67	2.67	55(42.31)	2.67	0.47	Low
16. It is easier to cheat in online tests than paper based classroom tests	2.02	2.02	2.02	13(10.00)	3.98	0.25	High
17. Online tests are fairer than paper based exams as no one can manipulate it	2.73	2.73	2.73	49(37.69)	2.73	0.28	Low
18. Feedback on the performance that I receive after online tests has motivated me to study	3.17	3.17	3.17	28(21.54)	3.17	0.62	High
19. Online tests are less stressful than classroom tests	3.88	3.88	3.88	16(12.31)	3.88	0.88	High
20. Marking / evaluation is more accurate because computers don't suffer from human error	4.02	4.02	4.02	3(2.31)	4.02	0.97	High
21. Network issues are a matter of serious concern in the conduct of online tests	1.35	1.35	1.35	2(1.54)	4.65	0.31	High
22. Good IT skills will help me do online exams easier and faster	4.09	4.09	4.09	9(6.92)	4.09	0.94	High

**Total Score 411.59, grand mean =3.17 and grand standard deviation= 0.65**

**SA=Strongly Agree, A=Agree, N=Neutral, D=Disagree, S=Strongly Disagree**

**Mean difference of perception towards online assessment tests**

There was no significant difference in mean perception score towards online assessment test between the MBBS and BDS students (p value 0.1401)

**Table 4. Mean difference of perception towards online assessment tests between MBBS and BDS students during the COVID-19 pandemic**

Program	Sample Size (n)	Mean ± SD	p value
MBBS	130	3.17 ± 0.65	
BDS	35	3.31 ± 0.77	0.1401

**Table 3. BDS Students' perception towards online assessment tests during the COVID-19 pandemic**

Items	SA	Number (n=130)(Percentage)		D	Mean	Standard deviation	Level
		A	N				
1. Online tests helps in learning the subject	Low	17(48.57)	11(31.43)	6	3.26	0.82	Low
2. Online tests are as important as classroom tests	High	16(45.71)	7 (20.00)	6	3.40	0.68	High
3. Multiple choice question type of online assessment is easier to score marks	High	26(74.29)	1 (2.86)	1	4.11	1.27	High
4. MCQ type of online assessment is just mere recall of answer; it does not allow me for critical thinking	Low	17(48.57)	8 (22.86)	7	2.49	0.45	Low
5. Online assessment is a good method for evaluation	High	11(31.43)	13 (37.14)	10	4.09	0.46	High
6. Online tests should be conducted on a regular basis	High	14(40.00)	12(34.29)	4	3.34	0.64	High
7. Taking up online test is, in practice, more difficult than class room tests	Low	13(37.14)	10(28.57)	10	3.20	0.57	Low
8. Home environment is more distracting and not suitable for taking online tests	Low	16(47.71)	6 (17.14)	5	2.23	0.35	Low
9. Time limit was sufficient to answer and finish the test and prevent from copying	High	21(60.00)	5(14.29)	5	3.57	0.96	High
10. The time was not wasted once the test was started, since it had to be completed within a set time	High	27(77.14)	4 (11.43)	1	3.91	1.30	High
11. Adherence to time schedule is as strict in online tests as in class room tests	High	23(65.71)	6 (17.14)	2	3.71	1.07	High
12. Online assessment is advantageous in being able to see grade and feedback immediately after finishing the test	High	23(65.71)	6 (17.14)	4	3.54	1.09	High
13. Feedback from online assessment is not as adequate as class room assessment	Low	23(65.71)	2 (5.71)	1	1.86	0.54	Low
14. It is hard to concentrate on the questions when doing online test	High	14(40.00)	7 (20.00)	8	3.51	0.59	High
15. Online assessment is as reliable in assessment of knowledge as classroom assessment	Low	10(28.57)	11(31.43)	12	3.06	0.47	Low
16. It is easier to cheat in online tests than paper based classroom tests	Low	10(28.57)	7 (20.00)	7	2.29	0.30	Low
17. Online tests are fairer than paper based exams as no one can manipulate it	Low	10(28.57)	8 (22.86)	10	2.83	0.39	Low
18. Feedback on the performance that I receive after online tests has motivated me to study	Low	20(57.14)	4 (11.43)	9	3.31	0.93	High
19. Online tests are less stressful than classroom tests	High	22(62.86)	4 (11.43)	2	3.86	1.03	High
20. Marking / evaluation is more accurate because computers don't suffer from human error	High	26(74.29)	2 (5.71)	3	3.77	1.25	High
21. Network issues are a matter of serious concern in the conduct of online tests	Low	12(34.29)	0 (0.00)	0(0.00)	1.34	0.37	Low
22. Good IT skills will help me do online exams easier and faster	High	22(62.86)	4 (11.43)	1	6.06	1.50	High

**Total score 115.72, grand mean =3.31 and grand standard deviation= 0.77**

**SA=Strongly Agree, A=Agree, N=Neutral, D=Disagree, S=Strongly Disagree**

## DISCUSSION

Assessment is not only essential for grading the performance of students, but it is also an important tool that drives learning in medical and dental education. Online assessment tests were conducted online during the SARS epidemic in 2013,<sup>19</sup> and during the COVID-19 pandemic, UK medical schools have been using online assessment tests.<sup>3</sup> Medical institutions have conducted online formative assessments, even in the pre-COVID times to facilitate learning,<sup>20</sup> and these were found to be well appreciated by the student community.<sup>21</sup> The present study was done to assess the MBBS and BDS students' perceptions towards online assessment tests conducted during the COVID-19 lock down period.

### MBBS students' perception towards online assessment tests

MBBS students have low level perception towards seven questionnaire items (2, 4, 5, 7, 14, 15, 17), and high level of perception towards the rest of 15 questionnaire items (Table 2). The findings show that despite feeling underperforming on seven of the components, students were happy with the other components of online test assessment.

### BDS students' perception towards online assessment tests

In terms of the respondents' mean scores, 13 of the questionnaire items (2, 3, 5, 6, 9-12, 14, 18-20, 22) have near to high perception ratings, whereas the rest 9 of the questionnaire items have low perception scores (Table 3). The results indicate that students were satisfied with more than half of the items regarding online test assessment tests.

In our study majority of MBBS students felt that network issues were a matter of concern in the conduct of online tests, but majority of BDS students differed, similar to the findings by Snekalatha et al.<sup>21</sup> In the present study majority of both MBBS and BDS students agreed that IT skills helped them to do online tests easier and faster, but lack of information communication and technology (ICT) skill did not affect performance in online tests, which is similar to the findings by Rajani R et al,<sup>22</sup> Attia M et al.<sup>23</sup>

In the present study majority of both MBBS and BDS students most students appreciated the feasibility and quickness of feedback in the online MCQ-based assessment test, and the feedback had motivated them to study and helped them in learning process. These findings are similar with the results of Snekalatha et al,<sup>21</sup> Attia M,<sup>23</sup> and Kumar LR et al.<sup>16</sup> In our study majority of MBBS students felt it was easier to cheat on online examinations than regular examinations, similar to the findings by Aisyah S et al,<sup>24</sup> Snekalatha S et al,<sup>21</sup> Mellar H et al;<sup>25</sup> whereas BDS students did not agree.

In our study majority of MBBS students felt home environment was more distracting than the class room and was considered not suitable for taking online tests, similar to the findings by Snekalatha S et al,<sup>21</sup> whereas BDS students

differed and felt home environment is more suitable for taking online tests. In present study MBBS students felt online tests are as reliable as classroom tests, similar to findings by Snekalatha et al,<sup>21</sup> whereas majority of BDS students felt online tests are not as reliable as classroom tests. In this study both MBBS and BDS students felt it is easier to score marks, similar to our findings by Rajani R et al.<sup>22</sup> Aisyah S reported in her study that 95% of the students could do online test in the stipulated time,<sup>24</sup> and these findings were in correlation with our findings of both MBBS and BDS students.

## CONCLUSION

The results indicate that online assessment tests were well received by both medical and dental students and appreciated the usefulness of online formative assessment tests. The online assessment tests enhance student learning by allowing immediate feedback. Online tests should be conducted in medical and dental colleges on a regular basis. However, practical challenges, mainly due to network connectivity issues are present in online assessment. Hence college administration has to be taken care of this issue, and to make online assessment tests more reliable, the tests should be conducted with strict monitoring.

## LIMITATIONS OF THE STUDY

The results cannot be generalized as this study is conducted in one medical college and the sample size of MBBS and BDS students is unequal.

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