Perception of BDS students of Kathmandu University on online learning during COVID-19 pandemic

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ABSTRACT

Introduction: The spread of COVID-19 pandemic has gripped the entire world and caused widespread public health concerns, hampered economics and education system immensely. Online classes have been an alternative to give continuity to the theory classes. The objective of this study is to assess the various aspects of online classes and perception of Bachelor of Dental Surgery (BDS) students of Kathmandu University (KU) during COVID-19 pandemic.

Materials and Method: Cross-sectional, questionnaire based descriptive study using online Google form was distributed among the BDS students of KU. The questionnaire was distributed via social media. Frequency distribution of the descriptive data was done. Chi-square test was done to assess the difference in perception about online classes between the basic science and clinical science students.

Result: 89% of the students had never attended any online classes before online education due to COVID-19 pandemic. 76.9% agreed that the online class is distracting. 57.5% used smartphone for seeking online class and medium most frequently used was Zoom platform. 70.2% students could ask questions, communicate & receive response during online class. 55.4% students disagreed that online classes are more effective. Statistical significant differences were seen in students submitting assignments, communication and practical simulation among basic science and clinical science students.

Conclusion: Online class can serve as an alternative effective educational tool. With more practice, system upgrading, capacity building of the student-teacher; it is bound to be more effective as well as efficient. The online class should be designed in such a way that student can focus and find it more interesting and should introduce various strategies to increase the interaction between students and teachers. Further, training on online class is required for both course recipients and providers.

KEYWORDS: BDS students, lockdown, online class, pandemic, perception.

INTRODUCTION

Corona virus disease 2019 (COVID-19) is an infectious disease caused by a novel virus which belongs to the virus family known as Corona virus. It has spread globally, resulting in Corona virus pandemic and gripped the entire world. World Health Organization (WHO) has declared COVID-19, a public health emergency and pandemic. Nepal, too is fighting COVID-19 pandemic like other countries in the world. Despite the continuous efforts to control the pandemic, COVID-19 cases have been persistently spreading and numbers are increasing day-by-day.

COVID-19 pandemic lockdown resulted in the closure of the vast majority of educational institutes like schools, colleges, universities etc worldwide.¹,² These nationwide closures are impacting over 60% of the world’s student population. Several other countries have implemented localized closures impacting millions of additional learners. Online learning has become the alternative
for education in order to control the risk of community transmission. Many educational institutes shifted to online learning via platforms like Zoom, Google Meet, Google Classroom, Microsoft Teams, D2L, Edgenuity etc.\textsuperscript{3,4}

Digital technology can enable teachers and students to access specialized materials well beyond the textbooks, in multiple formats and in ways that can bridge time and space. The Organization for Economic Co-operation and Development has created framework to guide an education response to the COVID-19 pandemic for distance learning.

The aim of the study was to assess the perception of BDS students of KU on online learning during COVID-19 pandemic.

**MATERIALS AND METHOD**

The study design was descriptive, cross-sectional, questionnaire based which was conducted among the BDS students of Kathmandu University College namely; College of Medical Science (COMS), Kantipur Dental College (KDC), Kathmandu Medical College (KMC), Kathmandu University School of Medical Sciences (KUSMS), Nepal Medical College (NMC), and Nobel Medical College (NoMC). Structured questionnaire was used which consisted of two sections. The first section included demographic data and second section had questions about the perception of students on online learning during COVID-19 pandemic. The four likert scale ranged from “Strongly Agree”, “Agree”, “Disagree” to “Strongly Disagree”. Further, five questions (Table 5) responses were merged to the category agreement i.e. (strongly agree & agree) and category disagreement (disagree & strongly disagree).

The study was conducted during May-July 2020. Ethical clearance was obtained from the IRC of Kantipur Dental College (IRC-16/020). BDS students studying under KU who were willing to participate, attending e-class and using social media were included. Sample size was calculated using the data from the study of Sub ediet al\textsuperscript{5}: Sample size ($n$) = $z^2pq/e^2 = 708$.

Self administered online Google firm based survey questionnaire was sent via email, viber, facebook, etc to 1100 BDS students of KU. Among them, 894 students responded. Further, responses were refined and duplication was removed. Final analysis was done on 769 participants. Data was retrieved from the online survey, entered into Microsoft Excel and then imported into the Statistical Package for Social Sciences (SPSS) version 21. Frequency distribution was done for the descriptive data and Chi-square test was done to assess significant difference between the online class experience among the students. $p$≤0.05 was considered statistically significant.

**RESULT**

Table 1 highlights the demographic details of all respondents of KU dental colleges. Table 2 highlights the descriptive statistics on factual details of online class. Majority of the students used smartphone for seeking online class and medium used was Zoom platform. Table 3 highlights the dichotomous perceptual response of respondent on online class. 89.2% have never attended any online class before. 76.9% agreed that the online class is distracting. Table 4 shows the perceptual response of all respondents. 70.2% students can ask questions, communicate & receive response during online class.

Table 5 highlights the level wise dichotomous perceptual differences on online class. Statistically significant differences were seen among the basic and clinical science students who were able to submit assignment, perform practical/ clinical simulation exercise through online classes and if training was required for faculty.

Table 6 highlights the College-wise factual differences on online class. Majority of the participants used Zoom platform and the modality of online class was via Microsoft PowerPoint presentation. Table 7 highlights the College-wise perceptual differences on online class. 66% were able to submit assignments and 47% disagreed to perform class test. 59% strongly disagreed that practical/ clinical simulation exercise could be conducted through online class.
Table 1: Demographic details of all respondents of KU dental colleges

| Parameters          | COMS  | KDCH  | KMC  | KUSMS | NMC  | NoMC  | Total  |
|---------------------|-------|-------|------|-------|------|-------|--------|
| Gender              |       |       |      |       |      |       |        |
| Male                | 12    | 27    | 13   | 20    | 27   | 15    | 114(14.8%) |
| Female              | 46    | 151   | 104  | 135   | 166  | 53    | 655(85.2%) |
| Level of study      |       |       |      |       |      |       |        |
| Basic Science       | 26    | 99    | 68   | 80    | 114  | 21    | 408(53.1%) |
| Clinical Science    | 32    | 79    | 49   | 75    | 79   | 47    | 361(46.9%) |
| Total               | 58(7.5%) | 178(23.1%) | 117(15.2%) | 155(20.2%) | 193(25.1%) | 68(8.8%) | 769 |

Note: Basic Science: 1st-2nd year; Clinical Science: 3rd-5th year

Table 2: Descriptive statistics on factual details of online class

| Questions                                        | Responses          |
|--------------------------------------------------|--------------------|
| No of online classes attended per week during COVID-19 lockdown | 1-6 7-12 13-18 >18  |
|                                                  | 173(22.5%) 257(33.4%) 289(37.6%) 50(6.5%)   |
| No of hours spend/day using book/PC for education other than online class | <1 1-3 3-6 >6 |
|                                                  | 765(99.5%) 4(0.5%) - -   |
| No of hours spend/day using social site or TV for entertainment | <1 1-3 3-6 >6 |
|                                                  | 43(5.6%) 338(44%) 264(34.3%) 124(16.1%)   |
| Device used for internet                         | Laptop Desktop PC Smartphone Tablet |
|                                                  | 292(38%) 2(0.3%) 442(57.5%) 33(4.3%)   |
| Connection for seeking online class              | Wifi Landline internet Cellular data Others |
|                                                  | 623(81%) 44(5.7%) 102(13.3%) -   |
| Medium used for online class                     | Zoom Viber Skype Others |
|                                                  | 663(86.2%) 1(0.1%) 1(0.1%) 104(13.5%) |
| Modality of online class                         | MS PowerPoint MS word Tutorial class Other |
|                                                  | 710(92.3%) 13(1.7%) 21(2.7%) 25(3.3%) |
| Condition of internet connection                 | Good Satisfactory Bad Disturbed electricity |
|                                                  | 99(12.9%) 313(40.7%) 107(13.9%) 250(32.5%) |

Table 3: Dichotomous perceptional response of respondent on online class

| Questions                                      | Yes        | No        |
|------------------------------------------------|------------|-----------|
| Online classes attended before Covid-19 pandemic | 83(10.8%)  | 686(89.2%) |
| Able to access internet easily                 | 529(68.8%) | 240(31.2) |
| Internet class causing economic burden          | 164(21.3%) | 605(78.7%) |
| Online class environment is distracting         | 591(76.9%) | 178(23.1%) |
Table 4: Perceptual response of all respondents

| Questions                                                 | Strongly Agree | Agree         | Disagree     | Strongly Disagree |
|-----------------------------------------------------------|----------------|---------------|--------------|-------------------|
| Able to submit assignment                                 | 78(10.1%)      | 506(65.8%)    | 158(20.5%)   | 27(3.5%)          |
| Can ask questions, communicate & receive response         | 192(25%)       | 540(70.2%)    | 31(4%)       | 6(0.8%)           |
| Practical/ clinical simulation exercise through online class | 8(1%)          | 22(2.9%)      | 286(37.2%)   | 453(58.9%)        |
| Possible to perform class test                            | 12(1.6%)       | 133(17.3%)    | 358(46.6%)   | 266(34.6%)        |
| Training required for faculty                             | 121(15.7%)     | 481(62.5%)    | 163(21.2%)   | 4(0.5%)           |

Table 5: Level wise dichotomous perceptual differences on online class

| Questions                                             | Response     | Basic Sciences (n=408) | Clinical Sciences (n=361) | p-value |
|-------------------------------------------------------|--------------|------------------------|---------------------------|---------|
| Able to submit assignment                             | Agree        | 323(55.3%)             | 261(44.7%)                | 0.026*  |
|                                                       | Disagree     | 85(45.9%)              | 100(54.1%)                |         |
| Can ask questions, communicate & receive response     | Agree        | 389(53.1%)             | 343(46.9%)                | 0.831   |
|                                                       | Disagree     | 19(51.4%)              | 18(48.6%)                 |         |
| Practical/ clinical simulation exercise through online class | Agree        | 8(26.7%)               | 22(73.3%)                 | 0.003*  |
|                                                       | Disagree     | 400(54.1%)             | 339(45.9%)                |         |
| Possible to perform class test                         | Agree        | 69(47.6%)              | 76(52.4%)                 | 0.143   |
|                                                       | Disagree     | 339(54.3%)             | 285(45.7%)                |         |
| Training required for faculty                          | Agree        | 306(50.8%)             | 296(49.2%)                | 0.019*  |
|                                                       | Disagree     | 102(61.1%)             | 65(38.9%)                 |         |

*Statistically Significant

Table 6: College-wise factual differences on online class

| Question                                             | Name of the College | Distribution | COMS   | KDCH  | KMC   | KUSMS | NMC   | NoMC | Total |
|------------------------------------------------------|---------------------|--------------|--------|-------|-------|-------|-------|-------|-------|
| No of online classes attended/week                   | Distribution        | n=58         | n=178  | n=117 | n=155 | n=193 | n=68  | n=769 |       |
| 1-6                                                  |                     | 19(32.8%)    | 88(49.4%) | 24(20.5%) | 26(16.8%) | 13(6.7%) | 3(4.4%) | 173(22.5%) |
| 7-12                                                 |                     | 22(37.9%)    | 23(12.9%) | 42(35.9%) | 62(40%)  | 70(36.3%) | 38(55.9%) | 257(33.4%) |
| 13-18                                                |                     | 11(19%)      | 50(28.1%) | 45(38.5%) | 62(40%)  | 97(50.3%) | 24(35.3%) | 289(37.6%) |
| >18                                                  |                     | 6(10.3%)     | 17(9.6%)  | 6(5.1%)  | 5(3.2%)  | 13(6.7%) | 3(4.4%)  | 50(6.5%)  |
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| No of hours spent / day using book/PC for education other than online class | <1   | 1-3 | 3-6 | >6   |
|---------------------------------------------------------------------------|------|-----|-----|------|
| No of hours spend / day using book/PC for education other than online class |      |     |     |      |
| <1 | 58(100%) | 174(97.8%) | 117(100%) | 155(100%) | 193(100%) | 68(100%) | 765(99.5%) |
| 1-3 | - | 4(2.2%) | - | - | - | - | 4(0.5%) |
| 3-6 | 20(34.5%) | 56(31.5%) | 33(28.2%) | 25(17.9%) | 35(18.1%) | 8(11.8%) | 124(16.1%) |
| >6 | 4(6.9%) | 31(17.4%) | 21(17.9%) | 25(16.1%) | 35(18.1%) | 8(11.8%) | 124(16.1%) |

| No of hours spend / day using internet/TV for entertainment | <1 | 1-3 | 3-6 | >6 |
|------------------------------------------------------------|----|-----|-----|----|
| No of hours spend / day using internet/TV for entertainment |     |     |     |    |
| <1 | 1(1.7%) | 8(4.5%) | 9(7.7%) | 9(5.8%) | 10(5.2%) | 6(8.8%) | 43(5.6%) |
| 1-3 | 33(56.9%) | 83(46.6%) | 54(46.2%) | 58(37.4%) | 79(49.9%) | 31(45.6%) | 338(44.0%) |
| 3-6 | 20(34.5%) | 56(31.5%) | 33(28.2%) | 63(40.6%) | 69(35.8%) | 23(33.8%) | 264(34.4%) |
| >6 | 4(6.9%) | 31(17.4%) | 21(17.9%) | 25(16.1%) | 35(18.1%) | 8(11.8%) | 124(16.1%) |

| Device used for internet | Laptop | Desktop PC | Smartphone | Tablet |
|--------------------------|--------|------------|------------|--------|
| Device used for internet |        |            |            |        |
| Laptop | 20(34.5%) | 66(37.1%) | 46(39.3%) | 72(46.5%) | 73(37.8%) | 15(22.1%) | 292(38.1%) |
| Desktop PC | - | - | 2(1.7%) | - | - | - | 2(0.3%) |
| Smartphone | 36(62.1%) | 105(59%) | 62(53%) | 79(51%) | 109(56.5%) | 51(75%) | 442(57.5%) |
| Tablet | 2(3.4%) | 7(3.9%) | 7(6%) | 4(2.6%) | 11(5.7%) | 2(2.9%) | 33(4.3%) |

| Connection for seeking online class | Wifi | Landline internet | Cellular data |
|-------------------------------------|------|-------------------|---------------|
| Connection for seeking online class |      |                   |               |
| Wifi | 49(84.5%) | 147(82.6%) | 103(88%) |
| Landline internet | 3(5.2%) | 12(6.7%) | 4(3.4%) |
| Cellular data | 6(10.3%) | 19(10.7%) | 10(8.5%) |

| Medium used for online class | Zoom | Viber | Skype | Others | MS Powerpoint | MS Word | Tutorial class | Other | Condition of internet connection |
|-----------------------------|------|-------|-------|--------|-------------|---------|----------------|-------|-------------------------------|
| Medium used for online class |      |       |       |        |             |         |                |       |                                |
| Zoom | 56(96.6%) | 178(100%) | 117(100%) | 154(99.4%) | 90(46.6%) | 68(100%) | 663(86.2%) |
| Viber | 1(1.7%) | - | - | - | - | - | 1(0.1%) |
| Skype | - | - | - | - | 1(0.6%) | - | - | 1(0.1%) |
| Others | 1(1.7%) | - | - | - | 103(53.4%) | - | - | 104(13.5%) |

| Modality of online class | MS Powerpoint | MS Word | Tutorial class | Other | Condition of internet connection |
|--------------------------|---------------|---------|----------------|-------|-------------------------------|
| Modality of online class |               |         |                |       |                                |
| MS Powerpoint | 45(77.6%) | 172(96.6%) | 109(93.2%) | 147(94.8%) | 173(89.6%) | 64(94.1%) | 710(92.3%) |
| MS Word | 1(1.7%) | 2(1.1%) | 3(2.6%) | 1(0.6%) | 6(3.1%) | - | 13(1.7%) |
| Tutorial class | 5(8.6%) | 3(1.7%) | 5(4.3%) | 5(3.2%) | 1(0.5%) | 2(2.9%) | 21(2.7%) |
| Other | 7(12.1%) | 1(0.6%) | - | 2(1.3%) | 13(6.7%) | 2(2.9%) | 25(3.3%) |

| Condition of internet connection | Good | Satisfactory | Bad | Disturbed electricity |
|----------------------------------|------|--------------|-----|----------------------|
| Condition of internet connection |      |              |     |                      |
| Good | 10(17.2%) | 28(15.7%) | 12(10.3%) | 18(11.6%) | 18(9.3%) | 13(19.1%) | 99(12.9%) |
| Satisfactory | 27(46.6%) | 62(34.8%) | 43(36.8%) | 68(43.9%) | 94(48.7%) | 19(27.9%) | 313(40.7%) |
| Bad | 5(8.6%) | 25(14%) | 15(12.8%) | 18(11.6%) | 30(15.5%) | 14(20.6%) | 107(13.9%) |
| Disturbed electricity | 16(27.6%) | 63(35.4%) | 47(40.2%) | 51(32.9%) | 51(26.4%) | 22(32.4%) | 250(32.5%) |
## Table 7: College-wise perceptional differences on online class

| Questions                                                                 | Name of the College | COMS          | KDCH          | KMC           | KUSMS         | NMC           | NoMC         | Total         |
|---------------------------------------------------------------------------|---------------------|---------------|---------------|---------------|---------------|---------------|--------------|---------------|
| Able to submit assignment.                                               |                     |               |               |               |               |               |              |               |
| Strongly Agree                                                           |                     | 2(3.4%)       | 5(2.8%)       | 14(12%)       | 25(16.1%)     | 29(15%)       | 3(4%)        | 78(10%)       |
| Agree                                                                    |                     | 25(43.1%)     | 112(62.9%)    | 87(74.4%)     | 119(76.8%)    | 137(71%)      | 26(38%)      | 506(66%)      |
| Disagree                                                                 |                     | 26(44.8%)     | 53(29.8%)     | 13(11.1%)     | 11(7.1%)      | 24(12%)       | 31(46%)      | 158(21%)      |
| Strongly Disagree                                                        |                     | 5(8.6%)       | 8(4.5%)       | 3(2.6%)       | -             | 3(2%)         | 8(12%)       | 27(4%)        |
| Can ask questions, communicate & receive response.                       |                     |               |               |               |               |               |              |               |
| Strongly Agree                                                           |                     | 11(19%)       | 44(24.7%)     | 37(31.6%)     | 43(27.7%)     | 42(22%)       | 15(22%)      | 192(25%)      |
| Agree                                                                    |                     | 40(69%)       | 127(71.3%)    | 76(65%)       | 110(71%)      | 144(75%)      | 43(63%)      | 540(70%)      |
| Disagree                                                                 |                     | 5(8.6%)       | 7(3.9%)       | 4(3.4%)       | 2(1.3%)       | 6(3%)         | 7(10%)       | 31(4%)        |
| Strongly Disagree                                                        |                     | 2(3.4%)       | -             | -             | -             | 1(1%)         | 3(4%)        | 6(1%)         |
| Practical/ clinical simulation exercise through online class.             |                     |               |               |               |               |               |              |               |
| Strongly Agree                                                           |                     | -             | 2(1.1%)       | 1(0.9%)       | 3(1.9%)       | 1(1%)         | 1(1%)        | 8(1%)         |
| Agree                                                                    |                     | 1(1.7%)       | 4(2.2%)       | 7(6.0%)       | 1(0.6%)       | 6(3%)         | 3(4%)        | 22(3%)        |
| Disagree                                                                 |                     | 27(46.6%)     | 72(40.4%)     | 40(34.2%)     | 59(38.1%)     | 68(35%)       | 20(29%)      | 286(37%)      |
| Strongly Disagree                                                        |                     | 30(51.7%)     | 100(56.2%)    | 69(59%)       | 92(59.4%)     | 118(61%)      | 44(65%)      | 453(59%)      |
| Possible to perform class test.                                          |                     |               |               |               |               |               |              |               |
| Strongly Agree                                                           |                     | 3(5.2%)       | 1(0.6%)       | 4(3.4%)       | 1(0.6%)       | 1(1%)         | 2(3%)        | 12(2%)        |
| Agree                                                                    |                     | 16(27.6%)     | 29(16.3%)     | 30(25.6%)     | 19(12.3%)     | 32(17%)       | 7(10%)       | 133(17%)      |
| Disagree                                                                 |                     | 23(49.7%)     | 84(47.2%)     | 47(40.2%)     | 89(57.4%)     | 90(47%)       | 25(37%)      | 358(47%)      |
| Strongly Disagree                                                        |                     | 16(27.6%)     | 64(36%)       | 36(30.8%)     | 46(29.7%)     | 70(36%)       | 34(50%)      | 266(35%)      |
| Training required for faculty.                                           |                     |               |               |               |               |               |              |               |
| Strongly Agree                                                           |                     | 8(13.8%)      | 30(16.9%)     | 30(25.6%)     | 15(9.7%)      | 25(13%)       | 13(19%)      | 121(16%)      |
| Agree                                                                    |                     | 44(75.9%)     | 112(62.9%)    | 63(53.8%)     | 103(66.5%)    | 115(60%)      | 44(65%)      | 481(63%)      |
| Disagree                                                                 |                     | 6(10.3%)      | 36(20.2%)     | 23(19.7%)     | 36(23.3%)     | 53(27%)       | 9(13%)       | 163(21%)      |
| Strongly Disagree                                                        |                     | -             | -             | 1(0.9%)       | 1(0.60%)      | -             | 2(3%)        | 4(1%)         |
DISCUSSION

In response to school closures caused by COVID-19, United Nations Educational, Scientific and Cultural Organization (UNESCO) recommended the use of distance learning program and open educational applications and platforms that schools and teachers can use to reach learners remotely and limit the disruption of education.\(^5\)

Distance learning uses interactive radio instruction (IRI), interactive audio instruction (IAI), online virtual worlds, digital games, webinars, and webcasts, all of which are referred to as e-Learning.\(^7\) Upoalkpajor JN and Upoalkpajor CB revealed that COVID-19 pandemic has significant impact on education in Ghana.\(^8\)

Among the total respondents, more than 2/3\(^{rd}\) of respondent never attended any online classes before. More than 1/3\(^{rd}\) of respondents attended 13-18 classes/day during COVID-19 lockdown. More than 2/3\(^{rd}\) of respondents were able to easily access internet as needed for their studies which was in accordance with Subedi et al.\(^5\) Majority respondents spend <1 hour/day using book or PC for education purpose other than online classes. More than 1/3\(^{rd}\) of respondents spend 3-6 hours/day using internet, social site or TV for entertainment.

Poor internet connection was the major reason among the students who were not able to access the internet. Subedi et al concluded that 63.2% of students get disturbed for online class because of electricity problem.\(^5\) Eltahir,\(^9\) Esterhuys and Scholtz,\(^10\) Islam et al,\(^11\) Al-Azawei et al,\(^12\) Nwabufo et al\(^13\) concluded that lack of technical support was one of the e-learning system failures. Unavailability of technical staff, lack of support of facilities to perform various activities, slow speed of internet and high internet traffic were encountered during online classes.

The students responded via laptop, desktop PC, smartphone and tablet. Majority of the respondents were comfortable and used smart phone for seeking online class which was in accordance with Subedi et al.\(^5\) They also stated that 56.1% have gadgets available at home for the online class. 40% used laptop/computer. Parajuli KP concluded that mobile learning should be integrated in formal education system.\(^14\) Mobile phone dependence was common among the Ug medical students which suggested the need to develop educational program to educate the students to use mobile phone meaningfully.\(^15\) Students were found to be using mobile phone excessively signaling the evolution of mobile phone use from a habit to an addiction.\(^16\)

More than 2/3\(^{rd}\) of total respondents used wifi for seeking online classes. Subedi et al stated that 32.9% use internet data pack for their online classes while only 13.3% respondents used cellular data in our study.\(^5\)

Different e-learning data packages has been launched by Nepalese telecom companies like Nepal Telecom and Ncell at an affordable rate regarding which most of the student are not aware of. More than 2/3\(^{rd}\) of total respondents experienced that internet class is not posing economic burden on them which could be due to the deduced cost of travelling, lodging and fooding. Although it seems feasible for majority of students from urban cities and well-to-do families, students from adverse families are affected.\(^17\) Students bear out of pocket expenditure for expensive data packages imposing added financial burden as\(^13-18\) classes were being taken per week during COVID-19 lockdown.

Internet connection experienced by the respondents was satisfactory for 1/3\(^{rd}\) of the total respondents. Subedi et al concluded that 63.6% of students get disturbed for online class because of internet problem whereas 63.2% gets disturbed for online class because of electricity problem.\(^5\) The geographical remoteness further hinders the network coverage across the country.\(^17\)

The medium used for online classes was via Zoom, Viber, skype and others. More than 2/3\(^{rd}\) of total participants agreed that training is required for faculty/instructor in order to conduct online classes. Out of the total respondents, 32.5% experienced weak internet due to disturbed electricity problem. Statistically significant differences were seen among the basic and clinical science students who were able to submit assignment, perform practical/clinical simulation exercise through online classes and if training was required for faculty.

Parajuli KP\(^14\) concluded that mobile learning should be integrated in formal education system. Subedi et al\(^5\) concluded that e-learning is a good opportunity to continue education but in developing countries like
Nepal it is not fully effective unless the factors affecting the E-learning process are taken into account. Owusu-Fordjour C et al.\(^{18}\) recommended that students should be introduced to innovative and offline e-learning platforms to supplement classroom teaching.

More than half of total respondents disagreed that online classes are more effective which was in accordance with Owusu-Fordjour C et al.\(^{18}\) J Sandars, S Schroter concluded that there is high awareness of new online technologies by both medical students and practitioners and high interest in its use for medical education. However, the potential of new technologies for UG and PG medical education can be achieved if there is increased training in how to use the new approach.\(^{19}\)

COVID-19 pandemic have serious impacts on students’ learning and well-being. Nepal has formulated a number of Information and communications technology (ICT) and education related policies since 2000; faulty implementation strategies and inability to implement those policies are the main challenges being experienced.\(^{20}\) Online teaching is feasible, cheap and must be made a part of the postgraduate training in India beyond the prevailing lockdown.\(^{21}\)

**CONCLUSION**

Online class has been a reality since COVID-19 pandemic and served as an alternative educational tool. It paves a new pathway for mass as well as personalized education. With more practice, system upgrading, capacity building of the student-teacher; it is bound to be more effective as well as efficient. However, few significant issues encountered are transactional distance, lack of direct communication, domestic distraction, technological difficulties and practical barriers like poor internet connection and disturbed electricity problem and expensive data package for the students.

The online class should be designed in such a way that student can focus and find it more interesting and should introduce various strategies to increase the interaction between students and teachers. Further, training on online class is required for both recipients and course providers.

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