

CHALLENGES IN ONLINE ANATOMY TEACHING (RACHANA SHARIR) IN AYURVEDA MEDICAL COLLEGES OF KERALA DURING THE PERIOD OF COVID-19

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Abstract: The subject Anatomy is known as Rachana sharir in the curriculum of Ayurvedic Medical Education. All Ayurveda Medical Colleges under Kerala University of Health Sciences (KUHS) were closed due to the COVID-19 pandemic. The KUHS has instructed all institutions to teach theory and practical portions as per syllabus through online classes and all institutions started online teaching from March 2020 instead of regular classes. The closure of these Institutions has caused challenges in teaching due to lack of experience in online teaching and preparing study materials. This study focuses on the challenges in teaching anatomy faced by the teachers of Anatomy (Rachana sharir) under KUHS during the period of COVID-19. Descriptive census study was conducted in Vaidyaratnam Ayurveda College, Ollur, Thrissur, Kerala to find out the challenges of faculty members of Ayurveda Medical Colleges of Kerala in teaching Anatomy through on line. After obtaining informed consent, structured self-administered closed ended questionnaire was sent to 32 teachers through online platform and 31 responses were received. Out of 31 teachers in the Department of Rachana sharir 58% (18) were designated as Associate Professors, 29% (9) as Assistant professors and 13% (4) as Professors respectively with mean experience of 9.2 ± 5.9 years. It is observed that most of the teachers were having neither experience (77.4%) nor sufficient knowledge and skill (65%) in online teaching platform. 45% of teachers were using audio, video, PPT, notes or other tools for online teaching. 65% of teachers were confident (Grade 4 and 5) in conducting online classes during the period of Covid-19. But 68% teachers believed that effective communication is not possible through online platform. Most of the teachers (74%) were not satisfied with completing the teaching module. 48% of teachers were in opinion that learning and teaching resources on the online platform are not in accordance with the curriculum. 81% of teachers believed that class room teaching is more effective than online classes. 90% of teachers felt that the dissection in the cadaver is not possible through online classes and all of them opine that demonstration via online class is not sufficient for dissection. Most of the teachers (84%) felt difficulty in assessing the students through online. Teachers should adopt and integrate technology in teaching-learning process. Training should be provided to teachers to enable them to deliver contents to students through online platform. Moodle like platforms can be used for effective conduction of examinations. Dissection-based instruction can be avoided and alternative method of instruction such as prosection and multimedia resources can be used during this pandemic. It is advisable to get feedback from students at the end of each session. Adequate support provided by faculty and good quality teaching tools will help online teaching more effective.

Index Terms: COVID-19, Ayurveda, Rachana sharir, online anatomy teaching, cadaveric dissection, prosection, challenges in teaching.

I. INTRODUCTION

The subject Anatomy is known as Rachana sharir in the curriculum of Ayurvedic Medical Education. Rachana sharir covers modern and ancient anatomy. Deep knowledge of anatomy is very essential for clinical practitioners (1). This subject has been included in the first year Bachelor of Ayurvedic Medicine and Surgery (BAMS) syllabus. The academic year of first year BAMS started on 15th September 2019. Theory and practical classes were taken as per academic calendar till the first week of March. There are 17 Ayurveda Medical Colleges affiliated to Kerala University of Health Sciences (KUHS). All Institutions under KUHS were closed due to the COVID-19 pandemic as per the Government's directions. Ayurveda Medical Colleges of Kerala under KUHS have started online teaching from March 2020 instead of regular classes in the institutions due to the outbreak of COVID-19. The closure of institutions due to the COVID-19 pandemic has caused challenges in teaching due to lack of experience in online teaching and preparing study materials. Teachers were facing problems in managing the students without any supervision. Online teaching was not convenient for teachers, compared to classroom teaching method which they were practicing in the institution earlier.

The KUHS has instructed to all institutions to teach theory and practical portions as per syllabus through online classes. Preparing study materials in the audiovisual format is not difficult for theory portions. But it is found to be difficult to conduct online classes for practical sessions. Practical session includes cadaver dissection, Organology, Histology and Osteology. For effective online education high quality teaching assistance should be provided especially for practical sessions. Online teaching lacks interpersonal and direct interaction among students and teachers (2).

Online instructional design is relevant during the period of COVID-19 to avoid extension of the course. Online teaching requires knowledge in preparing audio and video materials and there should be infra-structure facility to deliver on line classes. Online course requires well planned design to deliver classes in the form of audio and video contents and there should be a good team of technology experts to help the teachers in handling the online platforms (3). Some teachers may not have skills in technology and need technical support from experts. Some of them were facing the challenges of lacking online teaching experience and support from educational technology teams during the period of shifting from class room teaching to online classes. Most of the teachers

were efficient in preparing learning materials as per curriculum but some of them were unable to make the materials in compact form for sending through on line platform. Technological insufficiency, pedagogical insecurity and data privacy are the major issues of online teaching. Rearranging the mode of teaching suddenly will make some discomfort to teachers. It is better to seek technology support from experts. Prior information about teaching plan and activities can be sent to students, that will make online teaching more effective (4). The teachers are exposed an extremely different working environment during this period. Transition from work place to home makes difficulty to teachers and technical staff of the institution (5).

While taking classes online, unexpected problems such as loss of connectivity, difficulty in slide sharing etc can occur. These problems arouse a fear in taking online classes and lead to loss of confidence. Some of the faculties are insufficiently trained to operate online education platforms. The faculty has to be trained to implement effective instructional strategies to prevent negative learning attitudes of students and ensure the effectiveness of online education (3). Effectiveness of online teaching can be influenced by multimedia, instruction, interactive learning activity and e-learning system quality. Online teaching strategies become economically feasible through online courses. It can also provide unique opportunities for teachers and students to share innovations in their own works with the immediate support of electronic groups (2). Teacher's attitudes toward online teaching are a critical issue for improving usage of online platforms. All teachers should collect feedback from students to assess the quality of teaching and to assess the students' perceived satisfaction (2).

As a part of curriculum examinations are conducted online and the students are instructed to write the examination at home and send the answer scripts through e mail or other platforms. Some of the students do not have enough technical knowledge to upload the content. Uploading the contents within the specified time was not easy due to network issue as well. The author itself found that some students uploaded each paper of the answer script as jpg image and it was extremely difficult to download the answer scripts. Online examinations of undergraduate students are not in par with institution based examinations. The teachers are not satisfied with the home based examination method due to lack of supervision. They are not sure about the use of unfair means in writing the examinations at home. Unlike traditional class room examinations teachers have no control over student's behavior. As there is uncertainty about the duration of this pandemic and social distancing measures are needed for long, education of future doctors requires intense and prompt attention (6). The total quality of the online teaching system depends on the quality of; teachers, teaching tools, teaching platform, capability of the teacher and the students. For improving quality, gap finding is an essential part. For this a primary survey study has been conducted to find out the gap in quality of Anatomy teaching through online. This study focuses on the challenges in teaching anatomy faced by the teachers of Anatomy (Rachana sharir) under KUHS during the period of COVID-19.

Objectives of the Study were to identify the challenges of online Anatomy (Rachana sharir) teaching in Ayurveda Medical Colleges of Kerala and to assess the strengths and weaknesses of faculty members of Ayurveda Medical Colleges of Kerala in teaching Anatomy through on line.

II. RESEARCH METHODOLOGY

Descriptive census study was done to find out the challenges of faculty members of Ayurveda Medical Colleges of Kerala in teaching Anatomy through on line. The study was conducted in Vaidyaratnam Ayurveda College, Ollur, Thrissur, Kerala. All 32 teachers of Ayurveda Medical Colleges of Kerala, working in the Department of Rachana sharir (Anatomy) were included in the study. After obtaining informed consent, structured self-administered closed ended questionnaire (Annexure 1) was sent to 32 teachers through online platform and 31 responses were received.

III. RESULTS AND ANALYSIS

Out of 31 teachers in the Department of Rachana sharir (Anatomy) 55% (17) were males. The mean age of teachers was 39 years (± 5.9 years) with experience of 9.2 years (± 5.7 years). Among the teachers, 58% (18) were designated as Associate Professors, 29% (9) as Assistant professors and 13% (4) as Professors respectively (Fig.1).

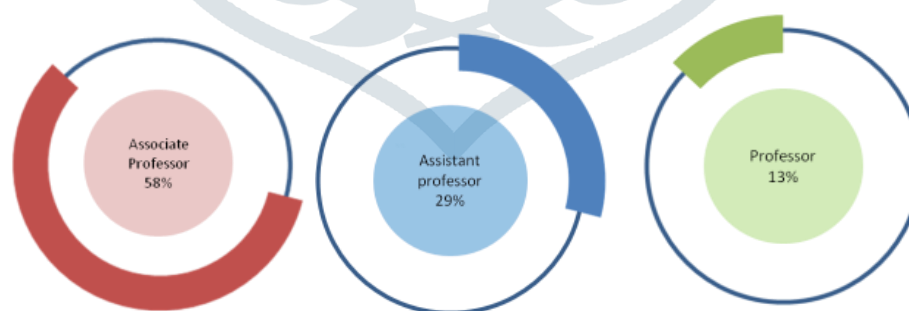


Fig. 1 Distribution of teachers according to designation

It is observed that most of the teachers were having neither experience (77.4%) nor sufficient knowledge and skill (65%) in online teaching platform. This may be due to the fact that till the starting of the pandemic, teachers were comfortably handling the classes in their institution itself and there was no need to conduct online classes using online platforms.

Even though the teachers are not having sufficient knowledge and skill to handle online classes, 74.2% believed that it is convenient to take online classes during the period of COVID-19. Teachers (74%) noticed that the students have sufficient knowledge and skill in the use of e-learning. But 52% of teachers felt that the students are not interested in using e learning and unable access the e learning system also. Most of the teachers (97%) were worried about the internet connection of students.

It is found that 45% of teachers were using audio, video, PPT, notes or other tools for online teaching. Others were using either one or two of these tools for online teaching. Electronic tools have the capacity to facilitate medical education (7) (Table 1, Fig.2).

Table 1 Type of teaching tools used in online class

Teaching tools	Frequency	Percent
Audio, PPT	3	9.7
Audio, PPT, Notes	1	3.2
Audio, PPT, Others	1	3.2
Audio, Video	1	3.2
Audio, Video, Notes	1	3.2
Audio, Video, Notes, Others	1	3.2
Audio, Video, PPT	3	9.7
Audio, Video, PPT, Notes	9	29.0
Audio, Video, PPT, Notes, Others	5	16.1
Audio, Video, PPT, Others	1	3.2
PPT	1	3.2
PPT, Others	1	3.2
Video, Notes	2	6.5
Video, PPT	1	3.2
Total	31	100.0

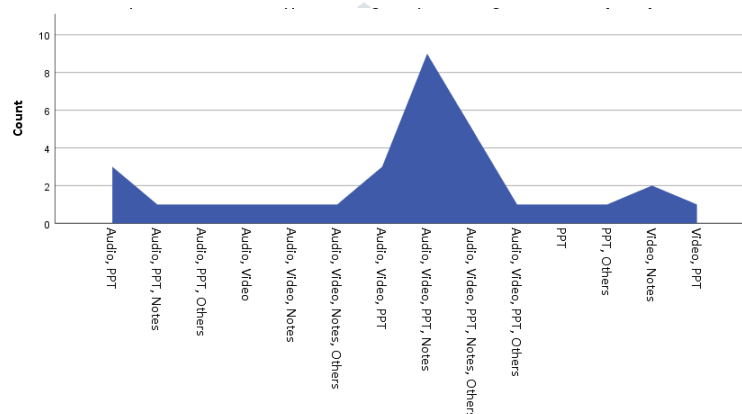


Fig. 2 Type of teaching tools used in online class

To find out the confidence in conducting online classes, effective communication through online platform and satisfaction with online teaching in completing teaching module during the period of COVID-19 has been graded from one to five, one being ‘not at all’ and five being ‘very much’. 65% of teachers were confident (Grade 4 and 5) in conducting online classes during the period of Covid-19. But 68% teachers believed that effective communication is not possible through online platform (Table 2, Fig. 3). Most of the teachers (74%) were not satisfied with completing the teaching module. 48 % of teachers were in opinion that learning and teaching resources on the online platform are not in accordance with the curriculum.

81% of teachers believed that class room teaching is more effective than online classes. 55% of teachers were taking online classes usually from their residence and others from their respective Colleges. While considering the workload in online classes 81% of teachers have enough time to prepare materials for online classes.

90% of teachers felt that the dissection in the cadaver is not possible through online classes and all of them opine that demonstration via online class is not sufficient for dissection. Cadaveric dissection is an integral part of medical education and the basis of anatomy for first BAMS Students. It is a tool for studying the structures of human body. The students have to dissect the cadaver and to identify various structures. While doing dissection students may have doubts regarding the location and relation of various organs. In face to face communication it is easy to clear the doubts during practical session. Now the teachers are sending videos of cadaveric dissections to the students. Hence the students are not getting practical training and are unable to learn directly from the teachers. 68% of teachers opine that the students ask doubts less frequently through online than in class room. 77% of teachers perceived that they were able to clear doubts effectively through the media.

As per instruction from the University the teachers are conducting test papers, model exams and other assessments through online. Most of the teachers (84%) felt difficulty in assessing the students through online. To improve the quality of online teaching 97% of teachers have taken feedback of their online classes from the students.

Table 2 Confidence, effective communication and satisfaction in completing the module while conducting online classes during the period of Covid-19

Grading	Confidence <i>F</i> (%)	Effective Communication <i>F</i> (%)	Satisfaction in completing Teaching module <i>F</i> (%)
1 Not at all	0	1 (3.2)	1 (3.2)
2	01 (3.2)	8 (25.8)	4 (12.9)
3	10 (32.3)	12 (38.8)	18 (58.1)
4	14 (45.2)	9 (29)	7 (22.6)
Very much	6 (19.4)	1 (3.2)	1 (3.2)
Total	31	31	31

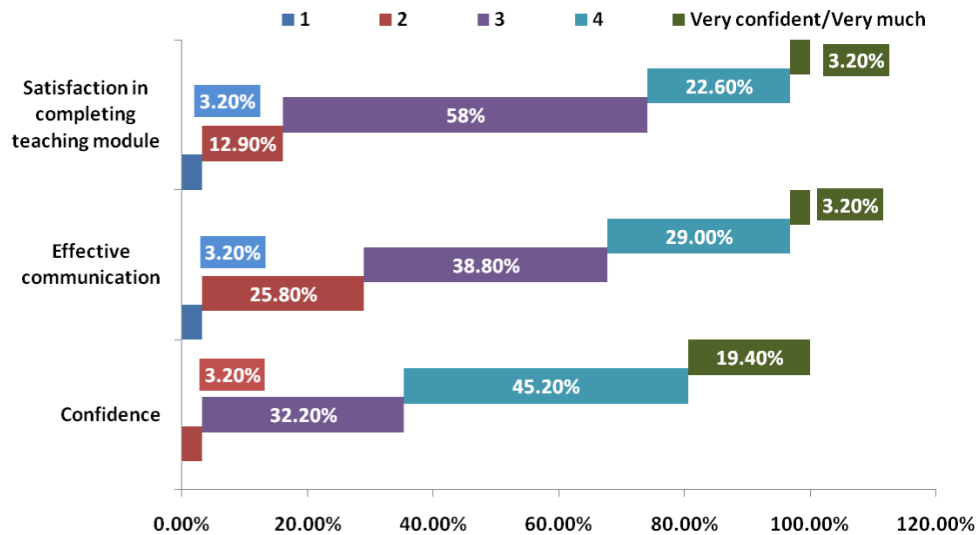


Fig. 3 Confidence, effective communication and satisfaction in completing the module while conducting online classes during the period of Covid-19

Table 3 Questionnaire responses - frequencies

Sl. No	Questions	YES F (%)	NO F (%)
1	Do you have experience in conducting online classes?	7 (23)	24 (77)
2	Do you have sufficient knowledge and skill in online platform to teach Anatomy?	20 (65)	11 (35)
3	Is it convenient to take online classes during the period of Covid-19?	24 (77)	7 (23)
4	Do you think that class room teaching is more effective than online classes?	25 (81)	6 (19)
5	Do you feel that the dissection in the cadaver is possible through online classes?	3 (10)	28 (90)
6	Whether the students ask doubts more frequently through media as in class room?	10 (32)	21 (68)
7	Whether you are able to clear their doubts effectively through the media?	24 (77)	7 (23)
8	Do you feel that you do not have enough time to prepare materials for online classes because of work load?	6 (19)	25 (81)
9	Do you feel that learning and teaching resources on the online platform are not in accordance with the curriculum?	15 (48)	16 (52)
10	Do you think that it is possible to assess the students through online?	26 (84)	5 (16)
11	Do you feel that the student have sufficient knowledge and skill in the use of e-learning?	23 (74)	8 (26)
12	Do you feel that your students are not interested in using e learning?	16 (52)	15 (48)
13	Are you worried about the problem of internet connection of students?	30 (97)	1 (3)
14	Do you feel that your students are not able to access the e learning system?	16 (52)	15 (48)
15	Whether you have taken feedback of online classes from the students?	30 (97)	1 (3)

III. DISCUSSION AND CONCLUSION

Even though a vast majority of teachers do not have sufficient experience or knowledge and skill in terms of online teaching, most of them appreciate online classes during this pandemic. The teachers are ready to teach the students in online platform for smoother learning. Teachers should adopt and integrate technology in teaching-learning process. If they are given adequate training they may be able to overcome the difficulties that they face now. Training should be provided to teachers to enable them to deliver contents to students through online platform.

A majority of teachers think that effective communication is not possible through online teaching. This may be due to the fact that most of the teachers are taking classes from their home and during the class time, domestic matters may interfere the classes. It may be beneficial if the institutions provide unique platforms for online teaching and the teachers are permitted to take classes during the allotted time. This facility will help them to become more confident and they may get enough support from technical experts of the institutions.

There is a need to direct future research towards evaluation of the suitability of the new teaching methodologies in new curricula and student perceptions of integrated and multimodal teaching paradigms, and the ability of these to satisfy learning outcomes (1). It may be beneficial to the teachers if the University provides them short term online training in online teaching methods.

As there were 60 -100 students in different Ayurveda Medical Colleges, the teachers felt difficulty in handling the increased number of emails from the students and large contents of them. Earlier the teachers were valuing the answer scripts of internal

examinations comfortably at the institution. They were not interrupted during valuation time by any domestic matters and they were able to refer the text books if needed. The study shows that the teachers are not satisfied with the valuation at home. To keep the quality of examinations, multiple choice questions can be used for assessment. MCQ can be prepared as per the syllabus and the examination can be conducted in all Ayurveda Medical Colleges under the direction of KUHS. Moodle like platforms can be used for effective conduction of examinations. The curriculum has to be changed in online formats for effective online communication. The first year students were lacking social interaction and peer group support as they were forced to undergo home isolation. Hence online cultural activities can be included occasionally to keep the student morale up.

Most of the teachers pointed out the difficulties in conducting practical classes especially dissection. Earlier the students were learning by doing the dissection at the institution. Dissection-based instruction can be avoided and alternative method of instruction such as prosection and multimedia resources can be used during this pandemic. In prosection students learn by observing a dissection being performed by an experienced anatomist. The University can identify the experts and can instruct them to upload videos of prosection for the benefit of all institutions coming under the University (1).

It will be beneficial if the students are given short term training in online learning. They may be provided online classes about the usage of technology. The parents should be given timely information of online classes and make them aware about the support that they have to provide for their children. Internet connectivity issues should be corrected for easily accessing the classes. Effective instructional strategies will create positive learning attitude among students.

It is advisable to get feedback from students at the end of each session. The questions of feedback form should be graded from one to five. Teachers can modify the teaching methods according to the feedback of students. Adequate support provided by faculty and good quality teaching tools will help online teaching more effective.

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Annexure 1

**Challenges in online Anatomy teaching (Rachana sharir) in Ayurveda Medical Colleges of Kerala
during the period of COVID-19**

Questionnaire for Teachers

1. Do you have experience in conducting online classes? YES/NO
2. Do you have sufficient knowledge and skill in online platform to teach Anatomy? YES/NO
3. Are you confident in conducting online classes during the period of Covid-19?
Not at all 1 2 3 4 5 Very confident
4. Is it convenient to take online classes during the period of Covid-19? YES/NO
5. What type of teaching tools you are using for online class?
Audio/ video /PPT / PDF notes/others (specify)
6. Is it possible to communicate effectively through the online platform as video & audio?
Not at all 1 2 3 4 5 Very much
7. How much you are satisfied with on line class in completing the teaching module of the syllabus?
Not at all 1 2 3 4 5 Very much
8. Do you think that class room teaching is more effective than online classes? YES/NO
9. Do you feel that the **dissection in the cadaver** is possible through online classes? YES/NO
11. Do you think that demonstration via online class is sufficient for dissection class? YES/NO
12. Whether the students ask doubts more frequently through media as in class room? YES/NO
13. Whether you are able to clear their doubts effectively through the media? YES/NO
14. Usually from which place you take online classes? College/ Residence
15. Do you feel that you **do not** have enough time to prepare materials for On line classes,
because of work load? YES/NO
16. Do you feel that learning and teaching resources on the online platform
are not in accordance with curriculum? YES/NO
17. Do you think that it is possible to assess the students through online? YES/NO
18. Do you feel that the student have sufficient knowledge and skill in the use of e learning? YES/NO
19. Do you feel that your students are not interested in using e learning? YES/NO
20. Are you worried about the problem of internet connection of students? YES/NO
21. Do you feel that your students are not able to access the e learning system? YES/NO
22. Whether you have taken feedback of online classes from the students? YES/NO