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Original Research

Effectiveness of Online Live Lecture Versus Online Recorded Lecture for Physiology Classes of Phase I M.B.B.S. Students

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ABSTRACT

Background: The COVID-19 pandemic necessitated a rapid transition to online delivery of academic activities in educational institutions worldwide. This study aimed to evaluate the effectiveness of live and recorded online sessions on the post-test scores of phase I M.B.B.S. students in Physiology.

Methods: A total of 34 consenting phase I M.B.B.S. students were divided into two groups of 17 each. Group A initially received three live online lecture sessions via Google Meet, while Group B received three recorded online classes via Google Classroom. Subsequently, the groups were reversed for three more sessions. Assessment for each session was conducted using Google Forms two days after the lecture. The median assessment scores and pass percentages (score ≥ 5) of both live and recorded session groups were compared.

Results: The median post-test scores were 8 for the live online sessions and 7 for the recorded online sessions. Statistical analysis revealed no significant difference in the median scores between the two groups ($p = 0.987$). The pass percentage was 90.2% for live classes and 89.2% for recorded classes, which also showed no significant difference ($p = 0.818$).

Conclusion: The findings of this study suggest that both live and recorded online classes are equally effective for teaching Physiology to phase I M.B.B.S. students. While live sessions offer opportunities for learner-teacher interaction, recorded sessions provide the advantage of repeatability. The selection between these modalities for theory classes should consider the perspectives of learners and teachers, as well as the practical aspects of online delivery. Further research involving larger cohorts and different subjects across other phases of the M.B.B.S. curriculum is recommended to gain more comprehensive insights.

Key Words: Online live lecture, Online recorded lecture, Physiology.
anesthetic management

INTRODUCTION

The COVID 19 pandemic caused a revolutionary change in education worldwide, including medical education. There has been a paradigm shift towards online teaching modalities. Many educators, despite lacking prior experience in online teaching, had to adopt online technologies.[1]

In India medical schools often lacked a unified platform for delivering online classes. Faculty were using different synchronous and asynchronous online platforms for conducting academic sessions after taking into consideration various factors like internet connectivity, user friendliness for both educator and student, cost effectiveness etc.[2] Both online recorded and online live classes were employed by educators, each with their own advantages and disadvantages.

Live lectures allow real time interaction between the learner and instructor, allowing for immediate doubt clarification. However the quality of classes can be hampered by technical issues and it requires both teachers and students to possess adequate technological skills and high speed internet connectivity, which cannot be guaranteed all the time.

Online recorded classes offer flexibility, allowing students to learn at their own pace and at their own convenience. Learner can also attend the sessions repeatedly till the learner feels satisfied about his learning process. However, this method demands high

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learner motivation, and direct doubt clarification is not possible. Affordability remains a concern for both methods.[3]

Existing data on the impact of these varied online teaching modes on student assessment score and learning processes in medical education is limited. Assessment score serves as one indicator for the effectiveness of teaching modality used.[4,5]This study aims to determine the effectiveness of live and recorded online classes on the learning of Physiology by first year medical students.

RESEARCH QUESTION

Is online recorded lecture an effective teaching method as compared to online live lecture for teaching Physiology to Phase 1 M.B.B.S. students, as assessed by their post test scores?

OBJECTIVES

To compare the effectiveness of online recorded and online live lectures on the post test scores of phase I M.B.B.S. students.

MATERIALS AND METHODS:

This quasi - experimental study was conducted among the first-year medical students (2021 batch), of Government T. D. Medical College, Vandanam, Alappuzha. Informed consent was obtained from 34 out of 175 students, after explaining nature of study and study procedure. The study lasted approximately one month in March 2022.

The 34 participants were randomly divided into two equal groups, Group A and Group B, (17 participants in each group). Six topics from hematology, i.e., primary hemostasis, secondary hemostasis, natural in vivo anticlotting mechanisms, major blood group systems, Rh blood group system and its significance, blood transfusion and it's complications, were chosen for lecture sessions.

Google classroom was used to create separate classes for Group A and Group B. For the first three days Group A received lecture sessions via Google meet, while Group B received recorded sessions of the same topics, which were uploaded as audio recorded PowerPoint presentation in Google classroom. Two days after each lecture an assessment was conducted using Google forms. Each assessment consisted of ten questions with one mark each and a time limit of ten minute each. After first three sessions, the groups were reversed. Group B received live lectures for the next three sessions, and recorded sessions were uploaded for Group A in Google classroom. Assessment was conducted in the same manner after each session. In total, each group underwent three recorded and three live sessions and each session was followed by an assessment.

Assessment scores were collected automatically using Google Forms. Scores below 5 were considered as fail, and scores of 5 or above were considered as pass. The median scores and pass percentages of both groups were compared for statistical significance using the Mann – Whitney test and Chi square test, respectively.

RESULTS

A total of 34 students participated in the study (9 males, 25 females).

Analysis of the assessment scores revealed the following results:

- No significant difference in median scores of live and recorded groups for assessments 1,2,3,5, and 6.
- A significant difference was observed in assessment 4 ($p = 0.038$), where participants of recorded session performed better than live group.
- Overall, comparing the median scores across all six assessments, no significant difference was found between the live and recorded groups. ($p = 0.987$, Mann Whitney test). The median score for live classes was 8 (IQR 2), and for recorded classes was 7 (IQR 3). [Table 1]
- The pass percentage for live class group was 90.2% and for recorded class group was 89.2%.
- The difference in the pass percentages between two groups was not statistically significant ($p = 0.818$, Chi square test) [Figure 1]. The Odds ratio for passing in the live group compared to the recorded group was 1.1.

Table 1: Comparison of the median scores

	Median of assessment scores (IQR)	P value
Live Class	8(2)	0.987
Recorded class	7(3)	

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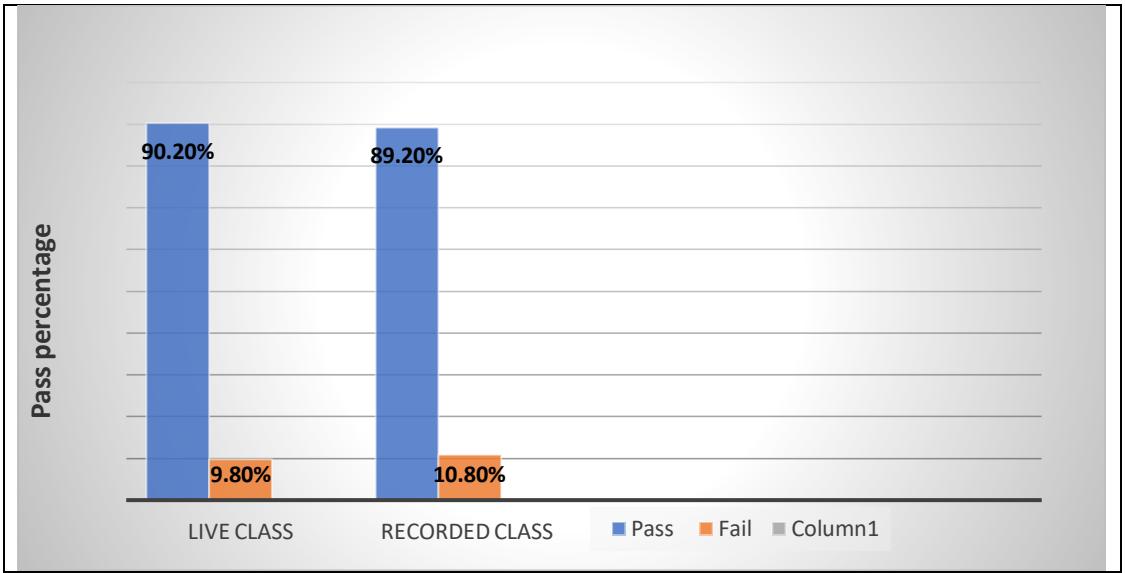

Figure 1: Comparison of the pass percentage for live online class group and recorded online class group

DISCUSSION

The COVID – 19 pandemic compelled medical educators to adopt online teaching methods, leading to debates regarding the effectiveness of synchronous versus asynchronous approaches. This study compared live and recorded online lectures for Phase I MBBS Physiology students and found no significant difference in mean assessment scores or passes percentage between the two groups.

Our findings align with studies by Brockfield et al. and Schreiber et al. who also found no significant difference in exam or assessment scores between students attending offline live sessions compared and online recorded sessions, or between live and recorded lectures, respectively.[6,7]Schreiber et al. noted that some students appreciated the repeatability of recorded sessions, allowing for self – paced learning and note – taking.[7]

However, our results contrast with a study by Yadav et al., which indicated that synchronous online sessions were more effective than asynchronous methods, and students reported better understanding and achieved high test scores in synchronous sessions.[8]

Kim J. W. et al reported that medical students preferred online courses even after the pandemic, particularly recorded classes, because of the clear organisation of learning material and flexibility of learning. However, they also noted the lack of interaction as a disadvantage perceived by both students and faculty. Interestingly, their study found out that students who attended online sessions scored lower than their seniors who had in – person learning.[9]

Lasith et al. suggested a balanced approach using both live and recorded videos so that advantages of both are used maximally and disadvantages are minimised. They emphasised the importance of considering learner maturity and the nature of content while choosing between live or video - based sessions.[10] Another study by Fabriz et al. highlighted that students who are exposed to synchronous settings experienced a greater psychological fulfilment with the academic sessions compared to those exposed to asynchronous settings. They highlighted the need for boosting the digital skills of learners and teachers so that an interactive learning atmosphere can be created.[11]

SUMMARY AND CONCLUSION

Based on the study findings it can be concluded that both live and recorded sessions are equally effective in delivering the academic contents to the learners. Both approaches have their own merits and demerits. Human interaction and self – motivation has key influences on learning process. Hence a balanced approach using both live and recorded sessions will be more feasible. Future research should explore student and faculty perceptions and involve a large number of participants across different subjects and phases of medical education to provide more comprehensive insights.

LIMITATIONS OF THE STUDY

The study had several limitations. It did not consider feedback on learner and faculty perception regarding the two learning approaches and factors influencing their preferences. The sample size of 34 participants is a major drawback, limiting the generalizability of the findings.

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