

## INCORPORATION OF PEER ASSISTED LEARNING IN UNDERGRADUATE MEDICAL EDUCATION-STUDENT'S PERCEPTION & PERFORMANCE

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Received : 12/11/2023  
Received in revised form : 27/12/2023  
Accepted : 13/01/2024

Keywords:  
Peer Assisted Learning (PAL),  
Undergraduate medical education.

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DOI: 10.47009/jamp.2024.6.1.101

Source of Support: Nil,  
Conflict of Interest: None declared

*Int J Acad Med Pharm*  
2024; 6 (1); 513-516



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### Abstract

**Background:** Aim of the study was to assess the effectiveness of Peer Assisted learning (PAL) in 1st MBBS teaching and to assess the student's perception to Peer Assisted learning. **Materials and Methods:** The study participants were 1st MBBS students. PAL sessions were conducted for 3 important topics one week after the didactic lecture of the faculty. Pretests and posttests were conducted. Students' perception towards PAL were assessed using questionnaire. Pre and post-tests were compared using paired 't' test. Students' perception was calculated as percentage of responses. **Result:** There were statistically significant differences between pre and post test scores. Analysis of the questionnaire regarding student's perception suggested that majority of the students have a favorable opinion that it helps in improving conceptual understanding, knowledge retention, communication skills and confidence. **Conclusion:** PAL is an effective T-L method for undergraduate medical teaching. The students also have a favorable perception towards PAL.

## INTRODUCTION

The didactic lectures are the most used traditional teaching learning method (T-L method) in undergraduate medical education. Didactic lecture has got its own advantages and disadvantages. It is the T-L method of choice in large group teaching when the available resources are less and the content to be taught is more.<sup>[1]</sup> The major disadvantage is the lack of active participation of the students. Students take active participation only if they are instructed to do so. One of the T-L methods which ensures active participation of students is Peer Assisted Learning Peer Assisted learning (PAL) is gaining knowledge and skills through active learning support from peers.<sup>[2]</sup> In PAL, the teachers are not professional teachers but student teachers who themselves are learning by teaching their peers. This type of teaching-learning has got advantages to the student-teacher as well as the students who are a part of this teaching-learning method. The advantages of the student teacher are as follows. As per the learning pyramid, average student retention rate is 90% when you teach others where as it is only 5% through attending lectures. As the role of the student-teacher is not passive here, it helps in understanding the

concepts better. The role of a doctor is not the treatment part alone. The communication skills are equally important for the doctor as they have to communicate effectively with the patients and their relatives. PAL helps them face an audience and enhance their communication skills. The advantage of students in PAL is the narrow knowledge gap between the instructor and the student helps in fruitful discussion and effective learning of certain topics.<sup>[3-5]</sup> PAL is less authoritative than traditional teaching and has more scope of interactivity.<sup>[6]</sup> Student teachers are better in providing feedback and in understanding the difficulties of the student.<sup>[7]</sup> There are studies to suggest a positive correlation between PAL and academic performances of the students.<sup>[2-4]</sup> There are also studies where they could not find any different outcome between peer teaching and faculty teaching.<sup>[8,9]</sup> In the study by Cate TO & Durning S, they identified the reasons to include peer teaching as T-L method which include alleviating teaching burden of faculty, preparing physicians for their future role as educator. Peer teaching also has a role in building the confidence and communication skills in students.<sup>[10]</sup> Iwata K et al in their study, could not prove the better performance of peer tutors in medical school final examination.<sup>[11]</sup>

Most of the studies were conducted to assess the role of PAL as a T-L method. This study is not aimed at comparing faculty teaching with peer teaching. Faculty teaching has its own advantage. This is an attempt to assess the effectiveness of Peer Assisted learning in reinforcing the important concepts as well as to realize the student's perception to PAL. If found to be effective, it can be used as a regular T-L method in undergraduate medical teaching for the topics where reinforcement of concepts and skills are necessary.

#### Aim & Objectives

1. To assess the effectiveness of Peer Assisted learning in 1st MBBS teaching
2. To assess the student's perception to Peer Assisted learning.

### MATERIALS AND METHODS

Study participants were 1<sup>st</sup> MBBS students. The study design was Qualitative & Quantitative and Prospective and interventional. Sampling type was purposive sampling and the minimum sample size calculated was 118,

Sample size was calculated using the following calculation

Considering effectiveness is seen in 90%

$P=90, q=10, I= 6\%$  of P

At  $\alpha = 0.05 Z \alpha/2 = 1.96$

$N= (1.96)^2 \times 90 \times 10 / (5.4)2N = 118$  (Minimum sample size)

Primary outcome variables were marks obtained in the pre and post -test and secondary outcome variables were responses to the questionnaire.

Data Collection tool was Google forms under supervision (both pre & post-test & questionnaire for perception). Study participants were all 1st MBBS students

IEC approval was obtained before the start of the study. Informed consent was taken.

#### Planning of the sessions

Three sessions of PAL were planned. Three topics in Physiology were selected which were taught by the faculty in didactic lectures, but important in their future career for conceptual understanding and important from examination point of view. Each topic was divided in to 5 sub topics. Faculty were sensitized about the conduct of the session and the role of faculty was discussed. Each session of PAL was planned to conduct in 4 groups. Total strength of 150 1st MBBS students were divided into 4 groups,

37-38 students in each batch and batches were designated as A, B, C & D. For each session 5 Peer teachers were decided from each batch. Selection of peer teachers were based on academic performance in previous exam and their willingness to become peer teachers. For each sessions peer teachers selected were different and this gave opportunity for maximum students to become peer teachers. Topics were distributed to peer teachers. The role of faculty was to supervise the session, to ensure smooth conduct of the session, clarify the doubts related to the topic and to give feedback to the peer tutors. MCQ questions (10 MCQ each) for each were prepared, validated, and google form the same was made. Questionnaire for assessing perception of the students toward PAL were prepared on google form.

#### Conduct of the session

Study was conducted in the department of Physiology. Pre-test (surprise test) was conducted one week after didactic lecture by faculty. PAL sessions were conducted in 4 batches with one faculty supervising each session. So, in each session there were 20 peer teachers and for 3 sessions there were total 60 peer teachers. Post-test (surprise test) was conducted 1 week after PAL session

Questionnaire (5-point Likert scale) was used to know the perception of students to PAL.

### RESULTS

**Statistical Analysis:** Paired 't' test was used to compare pre & post-test score. The responses of the students who attended all 3 sessions of PAL and all pretest and post tests were used for statistical analysis. There were 120 students who attended all the sessions and the mean pre-test score and post-test score of these 120 students were compared. Minimum sample size was 118. There were statistically significant differences between pre and post test scores for all 3 topics. Details are mentioned in [Table 1].

Student's perception to PAL- 78.74% believed that it helps in conceptual understanding of the topic where as 71.65% students were of the opinion that it helps in better learning and knowledge retention. 74.8% suggested that it has a role in improving communication skill and 82.68% believed that it improves the confidence. 87.4% students were in favour for similar sessions in future. [Table 2 & Figure 1]

**Table 1: Analysis of pre and post -tests of all 3 PAL sessions**

Analysis of Pre & Post Test						
t- Test: Paired Two sample for Means						
	Test 1		Test 2		Test 3	
	Pre-Test-1	Post Test-1	Pre-Test-2	Post Test-2	Pre-Test-3	Post Test-3
Mean	4.975	6.283	5.083	6.800	4.200	5.985
Standard Deviation	1.52	1.75	1.28	1.76	1.43	1.86
Observation	120	120	120	120	120	120
t stat	6.281013489		8.728434289		7.32505983	
p	0.00000		0.00000		0.00000	
t critical- one tail	1.657759285		1.657759285		1.65775928	

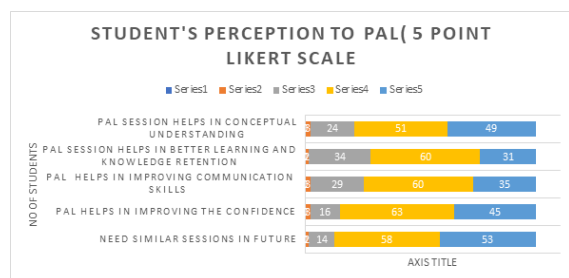
The difference between pre and post test scores are statistically significant in all 3 tests.

**Table 2: Student's Perception regarding PAL**

Sr No	Question	No. of students with Likert scale response 4 & 5 (Agree & strongly agree)	Percentage of the students with Likert scale response 4 & 5 (Agree & Strongly agree) (%)
1	PAL sessions help in conceptual understanding	100	78.74
2	PAL session helps in better learning and knowledge retention	91	71.65
3	PAL helps in improving communication skills	95	74.8
4	PAL helps in improving confidence	105	82.68
5	Need similar sessions in future	111	87.40

Responses of 5-point Likert scale- Percentage of the responses was calculated.

Calculated on 5-point Likert scale (1- strongly disagree, 2- disagree, 3- neutral, 4- agree & 5- strongly agree. The students who have attended at least one PAL session was asked to fill the google form and there were 127 responses.



**Figure 1: Analysis of Responses regarding perception towards PAL**

## DISCUSSION

In our study to compare the effectiveness of PAL, we have compared the pre-test scores and post-test scores. Analysis of pre and post test score suggested a statistically significant improvement in the performance of students' wit PAL session [Table 1], Analysis of student's perception towards PAL suggested that majority of the students believed it was helpful in conceptual understanding, better learning & knowledge retention, improving communication skills and confidence. 87.40% students opined that they need similar sessions in future. Study by Garkal K also suggested similar findings.<sup>[12]</sup> There are studies where PAL has been used as an instructional tool in teaching clinical skills, and case-based simulations and got a favourable result.<sup>[2,7,13,14]</sup>

The new Competency Based Medical Education for Undergraduate medical education laid down by National Medical Commission of India in 2019 give more stress to small group teaching as well as student centric methods. The GMER 2019 redefined the various roles of Indian Medical Graduate as clinician, leader, communicator, lifelong learner and professional.<sup>[15]</sup> Teaching of peers early in their life would help improve their communication skills and the confidence. The responsibility given to peer teachers encourage them to explore for more information and facilitate their self-directed learning which in turn provide the motivation to become lifelong learner.

The two theories which suggest the advantages of PAL are Social Constructivism and Cognitive Congruence.<sup>[2]</sup> Social Constructivism theory focuses on working towards a common goal and collaborative learning. Cognitive Congruence emphasizes on the relatively smaller knowledge gap between tutor and learner and the importance of the same in better communication and enhanced learning.<sup>[2]</sup> For the students, learning from their peers give them a more comfortable environment to clarify their concepts.

But PAL is not without any disadvantages and obstacles. Nisar et al in their study of online PAL teaching in clinical skills suggested that the lack of motivation of students to learn and they attributed the same to the lack of interaction with the physician and the patients as it was online teaching – learning. The other factor which hinders the learning in PAL was the distrust of the students in peer teachers and the doubts about their knowledge and clinical skills.<sup>[16]</sup> Even though our study and various other studies suggested the effective role of PAL in undergraduate curriculum in teaching both the cognitive and psychomotor domains, it requires a proper planning and implementation. The peer tutors are not qualified or experienced to conduct the sessions. So, the faculty has an important role in guiding peer tutors and ensuring the smooth conduct of the sessions. It is the role of the faculty to make sure that there should not be any conceptual mistake on the content which peer teachers teach and the students learn. If this is ensured PAL serve as an effective instructional tool in undergraduate teaching and it can be used frequently for reinforcing concepts and for better knowledge retention.

## CONCLUSION

The present study was conducted to assess the effectiveness of PAL in undergraduate medical education and to understand the students' perception towards PAL. Our study suggested that PAL is effective T-L method which can be used over and above the didactic lecture for important topics for conceptual understanding and knowledge retention. Students also had a favourable response towards

incorporating PAL in undergraduate medical education. If properly implemented it would help in collaborating learning, improves the communication skills and confidence of the students, and it helps in motivating them to do self-directed learning.

## REFERENCES

1. Alaaigib NA, Musa OA, Saeed AM. Comparison of the effectiveness of lectures based on problems and traditional lectures in physiology teaching in Sudan. *BMC Med Educ.* 2019 Sep 23;19(1)
2. Jauregui J, Bright S, Strot J, Shandro J, A novel approach to medical student's peer assisted learning through case-based simulations. *West J Emerg Med.* 2018 Jan :19 (1): 193-197.
3. Williams B, Reddy P. Does peer assisted learning improve academic performance – A scoping review. *Nurse Educ today* 2016 Jul; 42:23-9
4. Elhassel M. The hospitalist huddle: 1 year experience of teaching hospital medicine utilizing the concept of peer teaching in medical education. *Adv Med Edu Pract* 2017; 8: 785-789.
5. Garkal, Shete, Somwanshi N. Learning by teaching: Role of Peer Assisted Learning in medical education. *J. of contemp. Med. Education* 2019.9 (1): 17-20.
6. Menezes A, Burgess A, Clarke A, Mellis C. Peer assisted learning in medical school, tutee's perspective. *Advances in medical education and practice.* 2016: 7:31-38.
7. Kassab S, Abu- Hilleh MF, Al-Shboul Q, Hamdy H. Student lead tutorials in problem -based learning: educational outcomes and students' perception. *Med Teach* 2005 Jan: 27 (6):521-526.
8. Rees E, Quinn P, Davies B, Fotheringham V. How does peer teaching compare to faculty teaching? A systematic review and meta-analysis. *Medical Teacher* 2015; 38(8): 829-837.
9. Srivastava TK, Waghmare LS, Mishra VP et al. Peer teaching to foster learning in Physiology. *J Clin Diag Res* 2015.9 (8) JC 01-06.
10. Cate TO, Durning S. Peer teaching in medical education: Twelve to move from theory to practice . *Med. Teacher* 2007 : 29 (6).
11. Iwata K, Furmedge DS, Sturrock A, Gill D. Do peer-tutors perform better in examinations? An analysis of medical school final examination results. *Med Educ.* 2014 Jul;48(7):698-704
12. Garkal K, Shete A, Somwanshi N. Learning by teaching: Role of ' peer-assisted learning' in medical education. *Journal of Contemporary medical education* 2019; 9 (1): 17-20
13. Jawhari AA, Safhi MA, Magadmi MM, Alobaidi RH, Alghamdi KM, Basyouni RN, Saggaf OM, Yasawy MA, Magadmi RM. Effect of Peer-Assisted Learning on Enhancing Clinical Research Skills Among Medical Students: Students' and Tutors' Perceptions. *Adv Med Educ Pract.* 2021;12:685-696
14. Burgess, A., van Diggele, C., Roberts, C. et al. Planning peer assisted learning (PAL) activities in clinical schools. *BMC Med Educ* 20 (Suppl 2), 453 (2020)
15. [nmc.org.in/activitiwebclient/open/Document/Public/Portal/Gazette/GME](https://nmc.org.in/activitiwebclient/open/Document/Public/Portal/Gazette/GME) 06.11.2029.
16. Nisar, S., Mahboob, U., Khan, R.A. et al. Challenges of peer assisted learning in online clinical skills training of ophthalmology module. *BMC Med Educ* 21, 530(2021).