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ORIGINAL ARTICLE

Comparison of peer assisted learning versus conventional teaching system among undergraduate Medical students in term of knowledge, skill and attitude.

Syeda Nargis Fatima[1], Zeeshan Ahmed[2], Anjum Rehman[3], Ashfaq Muhammad[4], Muhammad Khalid Siddiqui[5], Ghazala Masood Farrukh[6]

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ABSTRACT… Objective: To compare the effectiveness of peer assisted learning versus conventional learning among the undergraduate students of a medical college in term of knowledge, skill and attitude. **Study Design:** Descriptive study. **Setting:** Department of Physiology Shaheed Mohtarma Benazir Bhutto Medical College Lyari. **Period:** 23 September to 04 November 2024. **Methods:** Non probability sampling technique was used to divide the group of 100 students from First year MBBS into two equal groups. One group 'A' of fifty students selected for Peer learning and the other group 'B' of fifty students selected for conventional learning through faculty teaching. Topic of ECG was selected, which included, knowledge about ECG and performance of electrocardiography on the subject. Formative assessments of both the sub groups were taken through BCQs, SEQs and OSPEs. **Results:** There was no significant difference ($P \geq 0.05$) in knowledge score, whereas significant difference was found in test scores of skill and attitude of PAL versus CT ($P \leq 0.01$). **Conclusion:** Based on the findings of the current study, it can be concluded that both PAL and CT groups were found to be equally effective in improving knowledge, but PAL can be included in a curriculum to improve the skills and attitude of First year MBBS students regarding ECG.

Key words: Conventional Teaching (CT), Objective Structured Practical Examination (OSPE), Peer Assisted Learning (PAL).

INTRODUCTION

Learning is a continuous journey through knowledge and understanding. Medical education has gained a lot of interest over the past few decades.

Conventional teaching methodology which is based on delivery of lectures by teachers is one of the most eminent academic strategies adopted worldwide by many medical institutes. Previously it was regarded as one of the best teaching strategy to transmit the comprehensive knowledge of the subject to the students.[1] But this conventional system alone is not sufficient to meet the requirements of current medical curriculum of knowledge, skill and attitude as the traditional lecture based education is pedagogic in which learners remain passive without utilizing their higher order thinking and mutual interaction of thoughts. This flaw has been aggravated in current years with the extension of student population and associated class size[2], and in the light of the directions provided by authorized bodies, the medical doctors of future are bound to be professionals with expertise of leadership, researcher, and communicator and decision maker along with the care taker of their patients.[3] For these abilities to be indulged in medical graduates, medical curriculum has been revised and standardized from the established teacher focused traditional curriculum to more student centered learning tools.[4] One of the most important factors, which plays key role in acquisition of knowledge by medical students along with the gratification is the choices of teaching methodologies.[5] In recent years, there are some innovative, visionary and economical ways adapted by many educational systems to

1. MBBS, M.Phil, Associate Professor Physiology, Shaheed Mohtarma Benazir Bhutto Medical College, Lyari, Karachi.
2. MBBS, MHPE, Director Medical Education, Shaheed Mohtarma Benazir Bhutto Medical College, Lyari, Karachi.
3. MBBS, FCPS, Professor Gynaecology and Medical Educationist, Shaheed Mohtarma Benazir Bhutto Medical College, Lyari, Karachi.
4. MBBS, MPH, Assistant Professor Community Health Sciences, Sir Syed Medical College for Women, Karachi.
5. MBBS, FCPS, Assistant Professor Physiology, Dow Medical College, Dow University of Health Sciences, Karachi.
6. MBBS, M.Phil, Assistant Professor Physiology, Dow Medical College, Dow University of Health Sciences, Karachi.

Correspondence Address:
Dr. Syeda Nargis Fatima
Department of Physiology
Shaheed Mohtarma Benazir Bhutto
Medical College, Lyari, Karachi.
drnargisfatima@yahoo.com

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enhance the quality of traditional lecture based teaching which can be useful for students to grow their understanding and learning abilities.[6]

Peer Assisted Learning (PAL) is an ingenious design for learning in which people from similar educational context help each other through learning materials, which they have already gone through. These Peers may be of higher or equal educational experience level.[7]

During mid of 1950, First time the concept of Peer Assisted Learning came from a private research university of Ohio, Case Western Reserve University. In 1974 Maastricht University Netherlands was the first in Europe to adapt PL in their course plan for the students.[8]

Peer-teaching is one of the most common PAL strategies, in which peer tutors participate in teaching activity voluntarily and are chosen on the basis of their academic records.[9] This method is the best way to practice leadership. PAL tutors can enhance their learning skills, which can be useful for them as well to become a better version of postgraduate trainee, clinician or faculty member.[10]

Only limited numbers of quantitative studies have been done to analyze the effect of PAL versus conventional teaching methodology. No significant statistical data provides the efficacy of learning through students tutor. Majority of qualitative studies just revealed the benefits of peer assisted learning.

The aim of this study was to evaluate the influence of PAL on students of first year MBBS in comparison with traditional learning system with regard to knowledge, skills and behavior.

METHODS

An intervention experimental study was designed between PAL (Peer Assisted Learning) and Conventional learning of First year MBBS students in one of the topic of cardiovascular system Module (ECG -electrocardiography).

Duration of study was Eight weeks from 23 September to 04 November 2024. Followed by approval from institutional review board (IRB/SMBBMC/Approval/2024/788). Non-probability Convenience sampling technique was used for the grouping of first year MBBS students into two groups, while second year MBBS students with top five ranking in first year MBBS final exams were chosen as Peer tutor based on result of first year MBBS final exam which was obtained from examination department. First year MBBS class of 100 students was divided into two equal groups A & B having fifty students (Figure-1).

Distribution of Studied Samples (n=100)

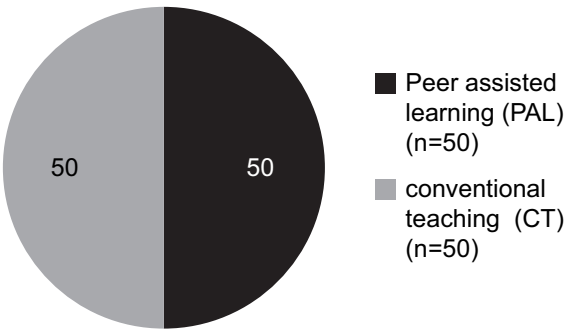

Figure-1

The entire even roll numbers were included in group A and designated as PAL group and all the odd roll numbers were included in group B, designated as conventional learning. Group A, was further divided into sub groups A1, A2, A3, A4 and A5 having 10 number of student learner. Each sub group was led by one peer tutor. Peer tutors were given an introductory lecture about PAL before commencement of the class. After the intervention, a post-test formative assessment was taken from student's learner, both included in PAL and Conventional learning. For assessment of knowledge, BCQs (Single best choice questions) and SEQ (Short easy questions) were included while for the assessment of skills and attitude, OSPE examination was carried out. All the assessment methods and difficulty index were the same for both groups of PAL and conventional learning. Examination was conducted and checked by same faculty members to avoid the bias in the result. The result of both the groups in terms of knowledge, skill and attitude were

compared through quantitative data analysis techniques. For qualitative data analysis, recorded individual interviews (IDP) were taken from peer tutors with selected questionnaire designed to analyze the perception of peer tutors about experience of PAL.

Results of the study were compared using t – test. Data analysis was done on SPSS version 23 and significance level was set at < 0.05.

RESULTS

The study result revealed that the mean knowledge score (19.5 ± 0.6) in PAL group was higher ($P<0.05$) than that in CT group (17.3 ± 0.58) and the mean skill score of PAL group (50.23 ± 2.34) was also higher ($P > 0.05$) than in the CT group (19.50 ±1.55). Mean attitude score of PAL group (44.89 ±1.53) was higher ($P<0.05$) than in CT group (20.08 ±0.55). There was no significant difference ($P\geq0.05$) in knowledge score, whereas significant difference was found in test scores of skill and attitude of PAL versus CT ($P\leq0.01$). (Figure-2)

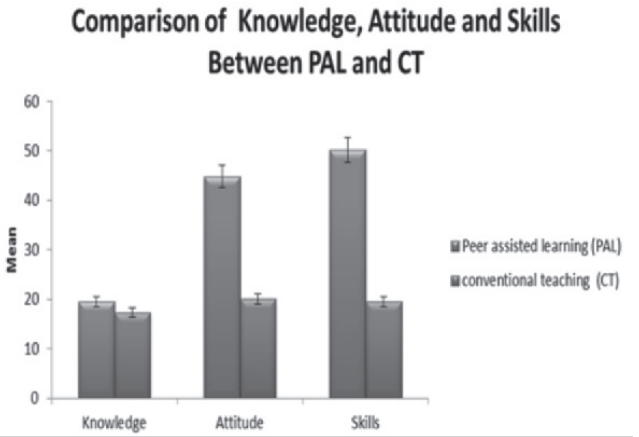

Figure-2

DISCUSSION

Peer assisted learning is being used globally in medical education. It is mutually beneficial for student tutors and student learners.[11,12,13,14,15,16] It is also good for institution, as it lessens the teaching load on faculty.[17] Moreover, it can be used to fill gaps in the curriculum taught by professional faculty.[18] PAL has been incorporated in the curriculum globally, in higher education and to some extent in health profession as well.[19] In Pakistan, PAL is still under consideration to include in the curriculum and only a few references are available in Pakistani context.[20,21]

The results of our study showed that mean knowledge scores of Peer assisted learning was higher than the conventional learning but not statistically significant. A meta-analysis published by Rees et al[22] draw the inference that students taught by peers do not have remarkable difference in knowledge or skills outcomes in contrast to those taught by faculty. One similar study conducted by Naghma G et al[23] reported that the collaborative effect favored peer-teaching in both the knowledge and skills domain, but did not make it to the significance level. In contrast a study conducted by Mussarat U et al[24] revealed that Teacher sponsored learning was found to be better as compared to Peer assisted learning in terms of test scores of students. However in a study[25] the students stated that they would prefer to learn the subject from faculty rather than peers.

CONCLUSION

The findings of the current study is different from the previous similar studies conducted in various medical institutes of Pakistan so it can be concluded that both PAL and CT groups were found to be equally effective in improving knowledge, but PAL can be included in a curriculum to improve the skills and attitude of First year MBBS students regarding ECG. It is recommended that further studies on large scale should be done to evaluate the effectiveness of PAL to successfully incorporate peer assisted teaching along with conventional teaching in the curriculum.

LIMITATIONS

Our study had several limitations. Firstly, the test used for assessment was only formative, not summative. Students were well aware that the test would not have any impact on any of their grades. This caused the students to relax and understand they may not put their maximum effort, leading to unintentionally underperformed.

Secondly, as only one topic ECG was selected for the study rather than whole physiology curriculum

of first year MBBS.

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RECOMMENDATIONS

Based on the results of this study, it is recommended that further studies of this type be carried out at large scale with more modules and subjects included so that the importance of both strategies can be fully understood and be incorporated in the curriculum.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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REFERENCES

1. Zhang, Y., Maconochie, M. **A meta-analysis of peer-assisted learning on examination performance in clinical knowledge and skills education.** BMC Med Educ. 2022; 22:147. https://doi.org/10.1186/s12909-022-03183-3.

2. Balta N, Michinov N, Balyimez S, Ayaz M. **A meta-analysis of the effect of Peer Instruction on learning gain: Identification of informational and cultural moderators.** Int J Educ Res. 2017; 86:66-77.

3. Association of Faculties of Medicine of Canada. **The future of medical education in Canada (FMEC): A collective vision for MD education.** AFMC report, Ottawa. 2010. cited 2014 May 15.

4. Daud S, Chaudhry AM, Ali SK. **Lecture based versus peer assisted learning: Quasi-experimental study to compare knowledge gain of fourth year medical students in community health and nutrition course.** Res Dev Med Educ. 2016; 5(2):62-68.

5. Meo SA. **Evaluating learning among undergraduate medical students in schools with traditional and problem-based curricula.** Adv Physiol Educ. 2013; 37:249-53.

6. Babaahmadi A, Maraghi E, Moradi S, Younespour S. **Comparison between peer learning and conventional methods in Biostatistics course among Postgraduate Nursing students, Final score, Statistics and Test Anxiety: A Quasi experimental study with a control group.** Shiraz E. Med J. 2021 Nov; 22(11):e111984.

7. Safari M, Yazdanpah B, Mahmoudi F, Yaghobean N. **Comparing student's rate of learning through lecturing and peer group teaching and study their viewpoints.** Res Med Educ. 2018; 10(3):24-34.

8. Frenk J, Chen L, Bhutta ZA, Cohen J, Crisp N, Evans T, et al. **Health professionals for a new century: transforming education to strengthen health systems in an interdependent world.** Lancet. 2010; 376(9756):1923-58.

9. Aljahany M, Malaekah H, Alzahrani H, Alhamadah F, Dator WL. **Simulation Based Peer Assisted Learning: Perception of HealthScience Students.** Advances in Medical Education and Practice. 2021; 12:731-737.

10. Bugaj TJ, Blohm M, Schmid C, Koehl N. **Peer-assisted learning (PAL): Skills lab tutors' experiences and motivation.** BMC Medical Education. 2019; 19:353.

11. Ten Cate O. **Practice Report** / **Bericht aus der Praxis: Peer teaching: From method to philosophy.** Z Evid Fortbild Qual Gesundhwes. 2017 Nov; 127-128:85-87. doi:10.1016/j.zefq.2017.10.005. Epub 2017 Nov 9. PMID: 29128431.

12. Dandavino M, Snell L, Wiseman J. **Why medical students should learn how to teach.** Med Teach. 2007; 29(6):558-65.

13. Santee J, Garavalia L. **Peer tutoring programs in health professions schools.** Am J Pharm Educ. 2006 Jun 15; 70(3):70. doi:10.5688/aj700370. PMID: 17136190; PMCID: PMC1636940

14. Sobral DT. **Cross-year peer tutoring experience in a medical school: Conditions and outcomes for student tutors.** Med Educ. 2002 Nov; 36(11):1064-70. doi:10.1046/j.1365-2923.2002.01308.x. PMID: 12406267.

15. Soriano RP, Blatt B, Coplit L, CichoskiKelly E, Kosowicz L, Newman L, et al. **Teaching medical students how to teach: A national survey of students-as-teachers programs in U.S. medical schools.** Acad Med. 2010 Nov; 85(11):1725-31. doi:10.1097/ACM.0b013e3181f53273. PMID: 20881824.

16. Yu TC, Wilson NC, Singh PP, Lemanu DP, Hawken SJ, Hill AG. **Medical students-as-teachers: A systematic review of peer-assisted teaching during medical school.** Adv Med Educ Pract. 2011 Jun 23; 2:157-72. doi:10.2147/AMEP.S14383. PMID: 23745087; PMCID: PMC3661256.

17. Ten Cate O, Durning S. **Dimensions and psychology of peer teaching in medical education.** Med Teach. 2007 Sep; 29(6):546-52. doi: 10.1080/01421590701583816. PMID: 17978967.

18. AbdelSalam M, El Tantawi M, Al-Ansari A, AlAgl A, Al-Harbi F. **Informal peer-assisted learning groups did not lead to better performance of saudi dental students.** Med Princ Pract 2017; 26: 337-42.

19. Sami MA, Baig LA, Iqbal SP, Khattak UK, Gul F. **Comparison of peer assisted learning with traditional faculty led teaching in family medicine clerkship: An experimental study.** J Coll Physicians Surg Pak, 2022; 32(10):1278-83.

20. Saeed G- e-N, Ahsin S, Saad K, Afzal. **A comparison of academic performance in peer assisted and expert-assisted learning through test scores.** Pak J Phsyiol [Internet]. 2018 Dec. 31 [cited 2025 Jan. 1]; 14(4):47-50. Available from: https://pjp.pps.org.pk/index.php/PJP/article/view/1029

21. Daud S, Ali SK. **Perception of learners about peer assisted learning and lectures.** Int J Sci Study, 2014; 3:1449-55.

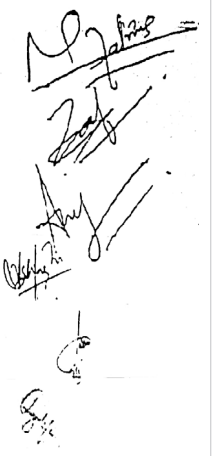
22. Rees T, Hardy L, Güllich A, Abernethy B, Côté J, Woodman T, Montgomery H, Laing S, Warr C. **The great british medalists project: A review of current knowledge on the development of the world's best sporting talent.** Sports Med. 2016 Aug; 46(8):1041-58. doi:10.1007/s40279-016-0476-2. PMID: 26842017; PMCID: PMC4963454.

23. Gul-e-Naghma Saeed, Sadia Ahsin, Komal Saad, Amir Afzal. **Comparison of academic performance in peer assisted and expert-assisted learning through test scores.** Pak J Physiol. 2018;14(4)

24. Mussarat U, Ehsan F, Zainab A. **Comparative Evaluation of Peer assisted and Teacher assisted learning using Small group Discussion.** JIIMC. 2022; 17(1).

25. Hodgson Y, Bearman M, Schneider-Kolsky M. **Lessons learned in implementing peer- assisted learning.** Int J Innovat Sci Math Educ 2012; 20(3):19-30.

AUTHORSHIP AND CONTRIBUTION DECLARATION

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Syeda Nargis Fatima	Principal researcher and study organizer, Planned and developed the research proposal and objectives. Managing and overseeing all research activities, and ensuring compliance of research protocol.	
2	Zeeshan Ahmed	Participated in study design, conduction of the intervention.	
3	Anjum Rehman	Selection of study design, conduction of the intervention.	
4	Ashfaq Muhammad	Carried out statistical analysis and supervisor of research protocol groups.	
5	Muhammad Khalid Siddiqui	Carried out statistical analysis and supervisor of research protocol groups.	
6	Ghazala Masood Farrukh	Participated equally in the study design and the intervention.	