

Peers to Professors: Exploring the role of students and faculty in same-level reciprocal peer assisted learning in Family Medicine clerkship

Muneeza Aamir Sami¹, Lubna Ansari Baig², Saima Perwaiz Iqbal³, Riffat Shafi⁴, Sobia Parveen⁵

Abstract

Objective: Peer-assisted learning (PAL) is teaching by the learners to the learners, a teaching strategy globally integrated into curricula. One particular variant is same-year reciprocal PAL, in which peer tutors and tutees are from the same academic year and alternate teaching roles. However, few studies have examined this specific form of PAL, and both student and faculty perspectives on its efficacy remain largely unexplored. To address this gap, we conducted a qualitative study among fourth-year medical students during their Family Medicine clerkship.

Methods: Employing content thematic analysis, we gathered data through in-depth interviews and focus group discussions involving both faculty members and students. Students received training to lead small group discussions, and their perceptions were subsequently collected. Coding of the transcripts was carried out by three researchers independently, with themes agreed upon mutually. COREQ guidelines were followed throughout the planning, implementation, and analysis of this study.

Results: The finalized themes included "Enhancement of Teaching Skills," "Conducive Educational Environment," "Operational Issues," and "Recommendations for the Future".

Conclusion: Our findings suggest that PAL promotes collaboration among students and enhances knowledge, confidence, time management, teamwork and reflecting skills besides many other. It serves as a valuable supplement to traditional teaching methods, although it cannot replace them entirely. Thorough planning prior to implementation is essential for achieving beneficial long-term outcomes for both students and faculty.

Key words: peer groups, medical students, learning, clinical clerkship, teaching methods, undergraduate medical education.

¹ Assistant Professor, Shifa College of Medicine; ² Professor, University of Lahore; ^{3,4} Professor, Shifa College of Medicine; ⁵ In-charge, Shifa College of Medicine.

Correspondence: Dr. Muneeza Aamir Sami, Assistant Professor, Shifa College of Medicine, Islamabad. Email: muneeza.scm@stmu.edu.pk

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1. Introduction

Teaching is a lifelong competency expected of doctors which is endorsed by accreditation organizations like the Liaison Committee on Medical Education, the Accreditation Council for Graduate Medical Education as well as the General Medical Council.^{1,2} It is a requisite skill for medical graduates and residents, yet formal training in teaching is often lacking in their education.³ Therefore, initiating this training at the undergraduate level is crucial.

Peer-assisted learning (PAL) engages students in teaching one another and is utilized across disciplines to foster teaching, communication, and leadership skills.⁴⁻⁷ PAL offers advantages like easing faculty workload and creating an approachable, cognitively-aligned learning environment.⁸ Same-year 'Reciprocal PAL' allows students belonging to the same academic year, to alternate between the roles of tutor. Despite having logistical advantages over cross-year PAL, it has been less explored.⁹ Furthermore, the perspectives of faculty, key stakeholders in educational settings, are often overlooked in PAL research.¹⁰

Pakistan's healthcare system faces significant challenges, including inadequate doctor-to-population ratio, inequitable access to healthcare and education, faculty shortages, and outdated curricula. Therefore, it's crucial to develop resource-maximizing strategies to address these issues effectively. Peer-assisted learning is one such approach teaching methodology that may be utilized to train our undergraduate students for their future teaching and physician roles in addition to resolving faculty shortfalls. There are very few examples of PAL being incorporated in the curriculum although theoretically its utility is manifold in low-resource settings as it is known to reduce faculty burden. There is a need to explore the perspectives of the students and the faculty about their experience of same level reciprocal PAL and its comparison with traditional teaching.

The educational theory supporting PAL is rooted in social constructivism, suggesting that learning is fundamentally based on interactions among individuals and their environments.¹¹ This reciprocal relationship enriches understanding (12) especially when peers share similar knowledge levels and social



standing, as supported by theories of social and cognitive congruence.¹²

This study was conducted in a private medical college that has an integrated system-based modular curriculum. Total duration of the program is five years and clinical rotations begin from year three while clinical clerkships take place in year four and five and are purely hospital based. This intervention was carried out for the first time in this college and it exposed the students to same-level reciprocal PAL and recorded their perceptions. It aimed to investigate student and faculty views on the feasibility and effectiveness of PAL, particularly in settings with limited resources.

2. Materials & Methods

It is a qualitative study using thematic content analysis carried out at Shifa College of Medicine in Islamabad, Pakistan.

There were forty students in Family Medicine clerkship along with three faculty members. The students were divided in three clerkship rotations and were selected through universal sampling. They were divided in three clerkship rotations. The three faculty members were closely involved in the project and observed the PAL sessions.

Focus Group Questions

- Introduction/ Ice breaking session
- What type of PAL were you involved in? small group/large group sessions?
- Were you ever involved in formal PAL in the past?
- What suggestions will you make to further improve PAL?
- Will you recommend PAL in your curriculum in future?
- What were the benefits/strengths of PAL?
- What were the disadvantages/weaknesses of PAL?
- What are the advantages of PAL for peer-tutors?
- What are the disadvantages of PAL for peer-tutors?
- What are the advantages for peer-learners?
- What are the disadvantages of PAL for peer-learners?

In-depth interview questions

- What were the benefits of this experience for the students?
- What were the benefits of this experience for the faculty?
- What were the benefits of this experience for the institution?
- Were there any disadvantages for the students?

- Were there any disadvantages for the faculty?
- Were there any disadvantages for the institution?
- Do you think the learners gained from this experience?
- Were PAL tutors taken seriously by their peers?
- Would you want PAL in future?
- How can PAL be improved in future?

Questions for focus groups and interviews were finalized in consultation with co-researchers and piloted on non-participants. Group sizes varied, there were 11 students in Group 1, 14 in Group 2, and 15 in Group 3, with an average student age of 22.075 ($\pm .916$) years. Total there were 19 female and 21 male students. An orientation session was arranged for the participants at the start of the clerkship where their roles and purpose of the research were explained by the principal investigator and the clerkship director and informed consent was given by all. Besides, a two-hour long training workshop was held for all the students on 'How to conduct small group discussions?' on the first day of each clerkship round. There were 12 PAL led sessions on various topics pertaining to Family Medicine and their schedule was shared with the students after the workshop. Since it was a same-level reciprocal PAL model, all the students got a chance to tutor their peers at least once. The learning objectives of each session were communicated to the peer tutors through email. The students were encouraged to consult subject matter expert to get guidance for their respective sessions in terms of scope of discussion and the resources that were to be consulted. Each PAL led session lasted for an hour and was observed by a faculty member from the department of Family Medicine. Total three faculty members from the department of Family Medicine observed these sessions. In order to get their insight about PAL in detail, in depth interviews were conducted with them. However, since the total number of students involved was 40, three focus group discussions one with each clerkship group were conducted to get their opinion regarding PAL. All the focus groups and interviews were audiotaped. The principal investigator led the focus groups while the co-supervisor took notes. Audio recordings of focus groups and interviews were transcribed and sent to the relevant group of students and faculty for confirmation. The participants' input was taken into consideration. The principal investigator and the co-authors read the transcripts independently, highlighted recurring words and identified codes manually. They convened for numerous meetings during which comparable codes

were re-organized and through mutual agreement were further consolidated into overarching themes. Data were cross-validated by comparing student and faculty perspectives.

3. Results

Four themes were extracted with different codes. Faculty and students have been assigned the letters 'F' and 'S' respectively with numbers to ensure confidentiality.

Table 1: Themes and sub-themes of interview and focus group discussion

Theme 1: Enhancement of teaching skills		Theme 2: Conducive educational environment	
• Gain in confidence • Gain in knowledge /Better preparation for exam • Time management • Reflection on various learning styles • Teamwork • Being responsible • Better communication skills • Prior knowledge supplements teaching		• More interaction • Similar knowledge level/lack of inhibition • Professionalism • Level of comfort	
Theme 3: Operational issues	Theme 4: Recommendations for the future		
• Lack of clinical experience of peer tutors • Level of anxiety/Inability to answer questions • PAL sessions limited to Learning Objectives • Credibility of peer tutors' knowledge • Non-serious attitude of peer tutors • Observing tutors • Faculty workload	• Comprehensive training for the peer tutors and tutees • Role of the observing tutor • PAL for basic sciences • PAL as innovation in medical education: Need of the day		

Theme 1: Enhancement of teaching skills

This theme refers to various skills that the participants attributed to PAL. All regarded PAL as a valuable

approach that helped them enhance their coaching and pedagogical skills.

i) Gain in confidence

Both faculty and students agreed that PAL enhanced self-confidence among the participants. The students felt an overall boost in conviction in their abilities and skills regarding group facilitation and effective teaching and learning. S2 said, 'I think that if there were times that somebody was really hesitant to speak in front of a lot of people, PAL increased confidence like it was a smaller group and you know people that you are talking to'.

F2 added, '...students were able to brush up their presentation and public speaking skills thus gaining confidence'.

ii) Gain in knowledge /Better preparation for exam

Students were able to study the content in detail and there was consensus about peer tutors gaining knowledge through PAL. S10 said, 'You get a more in-depth knowledge of the topic as compared to rest of them'.

F3 stated, 'Whatever they studied for their sessions, will retain it for long and that will cover the topic for their exams also'.

iii) Time management

Faculty and students acknowledged improved time management skills which encouraged them to optimize their learning. They had to fix time for preparation, utilize the available resources and minimize distractions by staying focused. S37 said, 'The discussions we have with friends are not structured. This was, we had to reach at a certain time, discuss certain topics and it was serious'.

iv) Reflection on various learning styles

PAL offered insights into different learning styles, enabling tutors to adjust their methods. S12 said, 'People have different learning levels and backgrounds. Some people are visual learners and some auditory learners. So, it is important to give your lesson in both formats so that it will appeal to both types of learners'.

v) Teamwork

All opined that peer tutors and tutees demonstrated good teamwork. S30 remarked, '...I actually think they responded more with me, like when we were peers rather than when there is a teacher'.

F1 noted, 'Students showed teamwork and discipline during PAL sessions'.

vi) Being responsible

Students felt accountable as peer tutors. S15 said, 'Your knowledge actually had to be more than the learning objectives, which were given to you in order to be able to answer all the questions'.

F3 said, 'In faculty-led sessions the students... sit to kill time, "mam please finish it fast". While in PAL the tutor who was teaching, would say "It's not done yet, I have to teach more"'.

vii) Better communication skills

All participants noted enhanced presentation and public speaking skills. S4 disclosed, 'Through this experience I learnt how to gather information from different sources and compile them in easy-to-understand language for others'.

F2 said, 'They also let each of their colleagues have a turn, which they normally do not do. They were also able to brush up their presentation and public speaking skills'.

viii) Prior knowledge supplements teaching

Faculty were mindful of assigning manageable topics to students. S1 commented, 'The topics that we studied were the ones that were just a repetition... But if we are explaining a topic to someone for the first time then I would not want to learn through PAL'.

F3 said, 'We chose those topics to be delivered through PAL that we thought students could do on their own'.

Theme 2: Conducive educational environment.

There was unanimity among the subjects regarding the stimulating yet comfortable learning setting that they witnessed in PAL. Various factors mentioned below were attributed to for this engaging and collaborative environment.

i) More interaction

Both students and faculty noticed enhanced interaction in PAL compared to traditional settings.

S16 said, 'It was more interactive because when you are with a teacher you do not learn to the same extent'.

F3 added, 'In fact, even when we teach them quite often they are sleeping and they are not listening because they take it as routine. Since this (PAL) was different from regular routine so they took it seriously...'.

ii) Similar knowledge level/lack of inhibition

Participants acknowledged that PAL allowed for open questioning without hesitation.

S33 said, 'As peer tutors we were aware of the similar knowledge level of our peers and we could explain the concepts at their level'.

F1 said, '...I guess, you are hesitant in asking a teacher, again I'm reflecting as a student, when I was a medical student. You are reluctant and embarrassed to ask a silly question from a teacher during a lecture'.

iii) Professionalism

All agreed that the sessions were conducted professionally. S28 said, 'All were sitting comfortably, they came on time and left on time, so it was nice'.

F2 said, 'They were very professional about it. The interaction among each other was good, respectful, there was no conflict as such'.

iv) Level of comfort

Both faculty and students felt PAL fostered a comfortable teaching and learning environment. S21 said, 'Everybody was paying attention, and they were all very receptive, so it was a very comfortable environment to teach'.

F3 too, remarked 'The students seemed to enjoy the PAL sessions more than they appear to enjoy the teacher led sessions'.

Theme 3: Operational issues

This theme addresses the challenges that were faced by the participants in PAL.

i) Lack of clinical experience of peer tutors

Students consistently reported limitations in providing detailed discussions due to insufficient clinical experience.

S11 from the first rotation said, 'Students would ask me questions and I did not know the answers to that...'.

S20 from the second rotation commented, '...if I am teaching a topic then I would not have enough experience for clinical correlation that a clinician or a doctor would have'.

F3 also remarked '...when the teachers taught they also included their experience. That was missed (in PAL), a student will cover topic, objectives or course but s/he will not go out of box'.

ii) Level of anxiety/Inability to answer questions

While most were comfortable with questions, many peer tutors expressed anxiety.

S40 disclosed, 'The problem was that I was anxious at that time thinking what if there is a question from here and there, which I am unable to answer, then what will I do?'.

F2 however had a different perspective and observed, 'Tutees tried to cover up the peer tutors and therefore they abstained from asking questions'.

iii) PAL sessions limited to Learning Objectives

Students pointed out that they felt confined to learning objectives during discussions.

S16 indicated, 'Most of the time the discussion in the PAL group remained confined only to those learning objectives'.

F2 communicated, 'There were a couple of students who did not even bother to read the learning objectives of the session. They just read from the book at the time of the class'.

iv) Credibility of peer tutors' knowledge

Some students doubted the reliability of peer tutors' expertise. They were at times skeptical of the answers provided by them to their queries. They also showed dissatisfaction in terms of guidance provided to them regarding assessment.

S34 said, 'We did not have credibility of knowledge at all'.

v) Non-serious attitude of peer tutors

All agreed that the teaching quality in PAL varied.

Though the majority of the peer-tutors did take their job seriously, there were few students who lacked a sense of responsibility.

S14 confessed, 'I had given some mis-leading facts during my class as I had not studied in detail'.

F1 also mentioned, 'There were some who did not come prepared. In such cases it is unfair with the rest of the students who are relying on their tutor to explain the concept well'.

vi) Observing tutors

The students of the first and the third groups unanimously favored the presence of the observing tutor (reasons explained below), while the second group expressed mixed feelings.

S2 said, 'As long as I know that there is a teacher present who can stop us at any moment and can add points or remove some, so I don't have a problem studying from this strategy'.

All three faculty members were in favor of supervised PAL.

F3 posited, 'A tutor has to be there to make up for the deficiencies in the discussions conducted by the peer tutors'.

vii) Faculty workload

There were differing views among the faculty regarding workload during PAL. The clerkship director who had

to look after a lot of administrative issues related to the project in addition to teaching found it an overwhelming experience, whereas the two faculty members who were only involved in observing the PAL sessions felt less burdened. They advocated PAL in resource constrained settings where student to faculty ratio is high and faculty is over burdened. F1 (clerkship director) said, 'I'm just glad that we were able to run (the project) in three cycles successfully. That in itself is an achievement!'. She further said, 'Acclimatizing the faculty with the set up was another challenge for me especially since the faculty turnover is quite high in the department'. At times non-availability of the faculty was another challenge for the planning team.

F3 (observing faculty), said, 'PAL can come in handy when there is dearth of faculty or when the faculty is over worked'.

Theme 4: Recommendations for the future

This theme focuses on the path ahead comprising suggestions given by the participants for future improvement in the implementation of PA and the outcomes related to it. .

i) Comprehensive training for the peer tutors

Participants declared that a good orientation program and training are must for the success of any new teaching strategy. The students opined that training they received for peer tutoring could have been more elaborate.

F1 said, 'Training workshop for the students on teaching skills should be of longer duration. The two-hour long session that we had was not enough. I will suggest a full day workshop'.

ii) Role of the observing tutor

Both students and faculty advocated for a Q&A and wrap-up session led by observing tutors.

S25 commented, 'I think the observers, more importantly at the end of the session should have given their own summary of the topic and then added more to what we missed and make it more practical'.

F3 said, 'Unsupervised sessions will be unproductive'.

iii) PAL for basic sciences

The research subjects also stated that experience is crucial in teaching both clinical and pre-clinical sciences, however PAL in pre-clinical sciences may yield better results because of its higher relevance and impact in clinical teaching.

'PAL might have a better scope in basic sciences rather than in clinical sciences, as clinical experience

and knowledge is not required in basic sciences to that extent'. (F1)

iv) PAL as innovation in medical education: Need of the day

Most of our students favored integrating PAL into the curriculum and all the faculty strongly advocated this proposal. They stressed upon the significance of PAL in promoting a collaborative and supportive learning environment. F1 suggested, '.....involving students in assessment tasks like making MCQs and OSCE stations will enhance their commitment as tutors'. F2 emphasized, 'future medical education should be multidimensional, incorporating a mixture of lectures, small group discussions and PAL'.

4. Discussion

Participants noted gains in teaching, confidence, communication, self-reflection and presentation skills through PAL. These skills may not improve through traditional teaching and they are not part of the core curriculum in most of the developing countries, either. Despite cultural differences, our undergraduate students acknowledged gaining similar skills to undergraduate as well as postgraduate students in other studies, exposed to PAL.¹³⁻¹⁹

Students mentioned that PAL provided them with an opportunity to study thoroughly for their sessions which helped them in exam preparation. In addition to improved soft skills, gain in knowledge is also attributed to this particular teaching and learning strategy.^{14,20}

Both faculty and students recommended keeping the difficulty level of topics in view when assigning them. For a successful PAL program, this is an important finding so as not to put the peer tutors off with increasing level of difficulty of the content matter. Moreover, our students confessed that prior knowledge and exposure to a topic helped them in preparing well for their teaching sessions. This is in congruence with the theory of constructivism and is supported in other studies.^{21,22}

Our participants described a conducive educational climate that fostered teamwork and professionalism. This is also reported by Aljahany et al who conducted PAL while teaching simulation-based scenarios to health-professional students in Saudi Arabia.²³

Our results support the notion that students communicate with their peers without any hesitation. This is due to the fact that there are no inhibitions in students with similar ages and knowledge levels who

tend to explain each other better corroborating other research.^{14-18,24}

Similar findings have been observed by Jawahari et al in teaching clinical research skills to medical students through peer-assisted learning.²⁵

Our focus was on cognitive skills, but the results apply to psychomotor skills as well.²⁶

Our study highlighted the lack of clinical experience of peer tutors as a challenge. It was suggested that by employing PAL in basic sciences this issue could be minimized as mentioned in the literature.²⁷ However a systematic review on randomized control trials on PAL has reported more benefits of PAL in clinical years compared to pre-clinical years.²⁸ They have attributed it to a more mature outlook and independent thinking of students of clinical years who seem less interested in didactic teaching. Our participants on the other hand opined that the clinical experience of a teacher enriches and complements his/her teaching experience to the benefit of the students.

Our tutees also spoke about the lack of guidance provided to them by the peer tutors, especially regarding assessment. They acknowledged that the lack of content knowledge of peer tutors and the wide gap between the faculty and the peer tutors' knowledge was quite evident. An Irish study done to teach communication skills to post-graduate trainees in Anesthesiology has highlighted this as one of the most cited weaknesses of PAL by their participants.²⁹ This also seems to be a universal issue in PAL studies worldwide.^{10,19,20,30,31} The potential solution to this problem may lie in involving the students in the assessment process, as proposed by one of our faculty in the interviews. The students will not only get some training on assessment but they will also be in a better position to guide their peer tutees, thus benefitting them both.

Both students and faculty in our study advocated for supervised PAL, citing improved group dynamics. Faculty presence not only ensures discipline but also fills any knowledge gaps that peer tutors may have overlooked. In a systemic review of the comparison of PAL with faculty-led teaching, the authors have recommended a combination of peer teaching and faculty teaching as opposed to peer teaching alone.^{31,32}

The clerkship director who was looking after the administrative affairs of the clerkship in addition to the teaching responsibility highlighted that PAL was a labor-intensive experience. Similar findings have been reported by PAL organizers of other studies. Other

authors have suggested a solution in the form of delegation of tasks to other faculty members as well as involving students, giving them the autonomy to manage the whole project.^{10,13,30,33}

On the other hand, faculty who were observing PAL endorsed it, noting its role in reducing faculty workload. This is in conformity with another study, as one of the major advantages of PAL.³⁴ Especially beneficial in low-resource settings, PAL can come in handy relieving the faculty from some of their teaching load and giving them more time for research and clinical work.

Additionally, study participants called for more robust peer tutor training and well-defined learning objectives, aligning with other research that stresses quality control of peer tutoring and their proper training on pedagogical theories and practices.^{18,21,32} Thus the peer tutors must be trained in basic teaching and communication skills before they are entrusted with the responsibility of tutoring.¹³ For the future, a specialized teaching elective for senior students is another step towards peer tutor training, a move supported by prior studies to improve teaching and learning outcomes.^{19,35-37}

There's unanimous support for formally integrating PAL into the curriculum from our study, specifically in areas where peer tutors have prior exposure to the subject.

Strengths and Limitations:

This is a unique study that has collected the perceptions of the faculty in addition to the students about peer-assisted learning. Our findings have implications for the health professions education to incorporate PAL in the curriculum by considering the views of the concerned stakeholders and avoiding common pitfalls as suggested by them in the study.

This study is from one institution and must be generalized with caution for other similar institutions in Pakistan. The sample size was small, however, it included all the students undergoing rotation at that time.

5. Conclusion

We conclude that PAL fosters collaboration among students with an increase in confidence, time management, teamwork, cognitive and reflecting skills among many others. Both faculty and students perceived PAL as a useful instructional strategy which can complement but not completely replace faculty teaching. Our findings suggest that peer assisted learning is doable, feasible and can be incorporated in the curriculum. It has benefits both for the students and the

faculty, but just like any other educational intervention it has to be thoroughly planned and well thought through.

Recommendations from our study include giving special emphasis to peer tutor training so that the learning of other students is not compromised. Similarly, we propose PAL as an elective for undergraduate students and subsequent longitudinal studies that can study the long-term impact of peer tutors in the workplace. Further research in exploring the benefits of supervised versus unsupervised PAL will be beneficial as well. The use of technology should also be considered to make this strategy more palatable and feasible for all the stakeholders. Student engagement can be enhanced by strategies like flipped classrooms, quizzes and interactive discussion boards. Recorded video lectures of subject matter experts on related topics can be made available to all the students after each session which will not only ensure standardization in teaching but will provide an opportunity for the faculty to focus more on research and other academic work.

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M.A.S, L.A.B, S.P.I, R.S - Conception of study
- Experimentation/Study Conduction

M.A.S, L.A.B, S.P.I, S.P -

Analysis/Interpretation/Discussion

M.A.S - Manuscript Writing

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