Physical Education, Health and Social Sciences

https://journal-of-social-education.org

E-ISSN: 2958-5996

P-ISSN: 2958-5988

Perception of Undergraduate Medical Students Regarding Peer Assessment Learning in Peshawar

Salman Ahmad[1*], Muhammad Hashir[2], Aleena salahuddin[3], Muhammad Saad Khan[4], Farhan Ullah[5], Abdullah[6], Humera[7], Abdul Rehman[8], Mashal Rahim[9]

[1 & 2] 2nd year MBBS, Northwest school of medicine Peshawar
[3 & 4] 1st year MBBS, Northwest school of medicine Peshawar
[5] 2nd year BDS, Khyber college of dentistry Peshawar
[6 & 9] 2nd year MBBS Jinnah medical college Peshawar
[7] 1st year BDS, Khyber college of dentistry
[8] 2nd year MBBS Saidu medical college
Corresponding Author Email: isalmanahmad20@gmail.com

DOI: https://doi.org/10.63163/jpehss.v3i3.665

Abstract

A cross-sectional survey was undertaken among second to fifth-year undergraduate medical students at three Peshawar medical schools: Northwest School of Medicine, Rehman Medical College, and Pakistan International Medical College. Following informed consent and ethical approval, students completed a 15-item Likert scale comparing faculty-led instruction versus peer-assisted learning (PAL). Convenience sampling revealed that 262 of the 384 students who answered were qualified for the study. The anonymised data was analyzed in SPSS with descriptive statistics, paired-samples t-tests, independent t-tests, one-way ANOVA, and chi-square tests ($p<0.05$).The mean PAL score (Q1-Q15) was 1.62 (SD 0.51), while the average professor score (Q5-Q10) was 0.84 (SD 0.92). A paired t-test indicated that faculty-led teaching outperformed PAL (mean difference = -0.77, $t = -19.81$, $p < 0.001$). The preference numbers were: PAL = 214, Faculty = 47, and Equal = one. PAL perception varied by gender (male = 1.72 vs female = 1.46; $t = 3.252$, $p = 0.0017$) and college (ANOVA $p < 0.001$), with significant associations between preference and gender/college. In layman's terms, students generally prefer PAL and peer-led learning, although they believe faculty-led education is more effective based on the metrics utilized. We suggest implementing structured, supervised peer-teaching programs with tutor training while maintaining faculty assistance. The study's key flaws are its cross-sectional design (no causal claims), the exclusion of first-year students, the use of a self-created questionnaire, convenience sampling, and limited generalizability outside of the studied colleges.

Introduction

Medical education is changing rapidly to fulfill the requirements of modern healthcare. Traditional didactic method is being enhanced by more interactive and student-centered learning. Peer learning OR PAL is defined as “people from similar social groupings, who are not professional teachers, helping each other learn, and by doing so, learning themselves”. (1) PAL is becoming more widely acknowledged in the field of curriculum development as a way to assist undergraduate healthcare students in improving one's ability to teach. There is a global interest in incorporating PAL in to medical curriculum particularly in response to increased student enrollment and shortage of teachers (2) Worldwide, there is a growing interest in PAL in the medical field, which corresponds to increased medical student intake, limited teaching resources, and PAL not only improves self-

directed and cooperative learning, but it also allows a large number of students to actively learn in a group setting. (3) Peer assessment can provide a priceless viewpoint about the overall performance of students and as compared to faculty peers often work together for extended periods of time. (4) study shows that PAL not only improves one's skills and capabilities but also help in enhancing their theoretical knowledge of basic clinical principles (5) One other study shows that attendance and respect towards other mates increases due to PAL. Despite these potential benefits pal has its own limitations. Studies have identified concerns of students regarding student reluctance to grade each other honestly, variable evaluation and discomfort with peers (6). Despite applying measures to engage students through reflection, soliciting feedback, and sustaining focus, engagement levels are disappointingly low. As pal emphasizes student dependence but the role of faculty remains essential (7) the role of pal faculty as a key component means that faculty must properly state the aim of peer assessment activities. (8) Peer assessment has some limitations too so it must be addressed before execution. Flawed execution may result in unpleasant class environment and tension amongst students.

The present landscape of medical education reveals a strain between the promising capacity of PAL and the practical difficulties encountered in its execution. Benefits of PAL such as self-confidence and professional development are documented. Further-more students perception regarding PAL may vary due to certain reasons. To better understand above mentioned points it is important to study PAL as a complex educational interaction influenced by many factors. To study benefits of pal, challenges faced by students and comparison of pal to faculty led teaching may provide valuable things through which pal can become more effective. Despite global interest, there is limited research from Pakistan on how undergraduate medical students perceive PAL especially in comparison to traditional faculty-led teaching. The challenges faced by students in both academic and clinical settings while being engaged in PAL are unexplored. This study aims to overcome these gaps by concentrating on undergraduate medical students in Peshawar

Methodology

Objectives

1. To compare perceptions of undergraduate medical students regarding peer assessment learning versus faculty assessment learning.
2. To evaluate perceptions of undergraduate medical students regarding the benefits of peer assessment learning
3. To find out the challenges faced by undergraduate students when participating in peer assessments

Study Design

A cross sectional study was carried out among the undergraduate medical students of 3 different medical colleges of Peshawar which are as follow

1. Northwest school of medicine
2. Rehman medical college
3. Pak international medical college

The duration of study was 3 months. Undergraduate medical students of 2nd, 3rd, 4th and final year from both the public and private medical colleges were involved in the research group. All the medical students of different years except 1st year, who consented to participate, were eligible for the study. Medical students of 1st year who had limited exposure to PAL were excluded.

Standard Procedure of the Study

Consent was obtained from the Northwest school of medicine's Institutional Review Board (IRB) before data collection began. Permissions were obtained by the administrations of the respective medical colleges. The data was collected by the student researchers who had received ethical data and were familiarized with objectives of research. During college hours, each participant was contacted and given an oral briefing about the purpose, nature, and voluntary features of the study. All the participants were undergraduate medical students of 2^{nd},3^{rd},4^{th} and final year of four different medical colleges who came under the inclusion criteria. Before participating each student received a printed participant information sheet. Students were informed that their participation was entirely voluntary and they can withdraw anytime from the study without facing negative consequences. Data collection was carried out over 3 week period. A self-structured questionnaire using likert scale was used having 15 questions. Each participant was given 15 to 20 minutes to complete the form. To ensure confidentially no personal information like name CNIC numbers were taken. The collected data was organized and prepared for later anaylsis. Data collection was done with in the planned three week period without any major challenges.

Data Collection

A Convenience sampling technique was used. Sample size was calculated using ya-mane's formula $n=N/1+N(e)^2$. the following parameters were used

n-= sample size

N= total population =1950

E= margin of error= 0.05

By putting the values we get $n \approx 332$

Data Analysis

Data from the 384 respondents were imported into SPSS (IBM SPSS Statistics) for cleaning, coding, and analysis. Invalid or "0" responses (used as placeholders) on the PAL questionnaire were recoded as missing. Descriptive statistics (frequencies and percentages for categorical variables; means and standard deviations for continuous scores) were computed. An overall PAL perception score was calculated as the mean of all valid PAL items for each student. For students who also rated faculty-led teaching (n=218), a parallel "faculty" perception score was computed. For inferential testing, independent-samples t-tests (for two-group comparisons, e.g. gender) and one-way ANOVA (for multi-group comparisons) were used to compare mean PAL scores between groups. Associations between categorical variables (e.g. gender vs. preference category) were evaluated using Pearson's chi-square test of independence. Statistical significance was set at $p<0.05$.

Ethics

Since study involves minimal risk and no clinical intervention so it is ethically appropriate for undergraduate level students.

Results

According to the study inclusion criteria, first-year students were excluded. The reported results therefore refer to undergraduate medical students in 2nd, 3rd, 4th and final years. After applying this eligibility criterion, the analyzable sample comprised **n = 262** students (out of 384 respondents). Data collection occurred over a three-week period during normal college hours; informed consent and ethical approvals were obtained as described in Methods.

Table 1. Demographic characteristics of eligible participants

Characteristic	Category	N	%
College	NWSM	119	45.4%
College	RMI	61	23.3%
College	PIMC	82	31.3%
Gender	Female	125	47.7%
Gender	Male	68	26.0%
Gender	Unspecified	45	17.2%
Gender	Other	24	9.2%
Year	2	108	41.2%
Year	3	112	42.7%
Year	4	38	14.5%
Year	5	4	1.5%

Table 2. Descriptive statistics for PAL and Faculty scores (eligible sample)

Variable	N	Mean	Std. Dev.	Min	Max
PAL score (Q1–Q15 mean)	262	1.62	0.51	0.20	3.20
Faculty score (Q5–Q10 mean)	262	0.84	0.92	0.00	3.67

Comparison of PAL vs Faculty-led teaching

Among the 262 eligible students who rated both PAL (Q1–Q15) and faculty-led teaching (Q5–Q10), mean PAL score was 1.62 (SD 0.51) while mean Faculty score was 0.84 (SD 0.92). A paired-samples t-test showed a mean difference of -0.77 (SD of difference 0.63); $t = -19.810$, $p = 0.0000$, indicating that faculty-led teaching was rated significantly higher than PAL in this sample.

PAL Perception by Gender, College, and Year

Independent-samples t-test comparing PAL scores between Male (n=68) and Female (n=125) students showed: mean (Male) = 1.72, mean (Female) = 1.46; $t = 3.252$, $p = 0.0017$. One-way ANOVA comparing PAL scores across colleges (NWSM, RMI, PIMC) was performed. The ANOVA results showed a significant difference in PAL perception scores between NWSM, RMI, and PIMC ($F(2, 259) = 14.21$, $p < 0.001$). A post-hoc study discovered that mean PAL scores varied significantly between institutions, suggesting that the institutional setting and teaching culture may influence how students perceive peer-assisted learning.

Chi-square analysis found a significant connection ($\chi^2(6, n = 262) = 105.21$, $p < 0.001$) between gender and students' preferred learning method (PAL vs. Faculty). A strong association was discovered between preference and college ($\chi^2(4, n = 262) = 38.34$, $p < 0.001$), suggesting that institutional changes influenced student choices.

Chi-square test for association between preference and college: $\chi^2 = 38.340$, $p = 0.0000$, $df = 4$.

Summary of Key Findings

1. After applying inclusion criteria (excluding first-year students), the analyzable sample included 262 students from NWSM, RMI, and PIMC.
2. The overall mean PAL score (Q1–Q15) in the eligible sample was 1.62 (SD 0.51).
3. The overall mean Faculty score (Q5–Q10) was 0.84 (SD 0.92).
4. Faculty-led teaching was rated higher than PAL among students who rated both methods.
5. PAL perceptions differed by gender and by college (ANOVA significant); post-hoc testing may identify which pairs differ.
6. No consistent association between preference (Faculty vs PAL) and demographic variables was observed in chi-square tests.

Discussion

Our findings indicate that undergraduate medical students in Peshawar have a generally positive attitude toward peer-assisted learning (PAL), which is consistent with results from both local and international studies. A study conducted in Peshawar (Usman et al., 2019) discovered that the majority of students believed PAL was more educational than lectures, with 60-70% rating satisfaction with peer-led sessions (9). Likewise, Daud and Ali (2014) found that learners "embraced" PAL as an effective, enjoyable strategy (10). This study found that students assessed PAL positively (mean = ~1.62 on a Likert scale). This is consistent with articles that demonstrate the benefits of PAL. It encourages confidence, cooperative learning, and critical thinking (11). For instance, Mills et al. (2014) discovered that 80% of students found peer-facilitated communication skills sessions "very useful," with no significant difference in satisfaction when compared to clinician-led education (12). Similarly, Alzaabi et al. (2021) reported that the vast majority (25/28) of students found peer learning useful in clinical skills training (13). These data suggest that students appreciate the interactive, collaborative environment of PAL.

Our study found that conventional faculty-led education received considerably higher ratings than PAL (mean = 0.84 vs 1.62, $p < 0.001$). This conclusion may reflect students' trust in experienced instructors, as well as perceived inequities in peer expertise. Many curricula in Pakistan are still highly lecture-based, thus pupils are used to authority-driven instruction. The much higher score for faculty-led sessions suggests that, while PAL is important, students may see expert information as more authoritative. This pattern is not unique; rigorous reviews have demonstrated that peer teaching can provide learning outcomes comparable to faculty training in controlled environments (14) . However, many students still value teacher input. un Bahrain, for example, students concluded that peer assessment was "insufficient to evaluate performance in the absence of faculty support."(13). Similarly, Koens et al. concluded that PAL should be "complementary" to teacher-led initiatives (15). Our results dovetail with these findings: PAL appears beneficial but best viewed as adjunctive, not a replacement for faculty teaching.

Surprisingly, more than half of our students (n=214) chose PAL over faculty-led instruction, despite the fact that the average evaluation favored faculty-led sessions. This apparent paradox may represent several aspects of preference and perceived effectiveness. Students may love the peer environment and feel more involved, but they still prefer faculty-led sessions in terms of content quality. Previous research showed that the majority of students preferred peer learning methods. A UK study discovered no significant difference in student satisfaction when taught by peers, physicians, or professors (12) and an Asian study found that PAL "empowers students to develop a more responsible approach" to studying(13). The high preference for PAL in our sample demonstrates that students value active, self-directed learning. Meta-analyses support this. Brierley et al. (2022) found that medical students who got PAL performed much better on exams (SMD=0.52) than those who did not (16) and participants reported better understanding and

confidence (17). These positive outcomes likely contribute to students' willingness to engage in PAL, even when they acknowledge the strength of faculty teaching.

Our analysis also uncovered demographic differences. Female and male students' PAL perception scores differed significantly. Although gender influences in PAL have not been completely examined, general education research indicates that females usually prefer collaborative learning circumstances (12). In our situation, female students may have considered the supportive peer environment more conducive to learning, whereas male students may have been less enthusiastic. Cultural factors may also be at play: in many countries, ladies place a larger value on peer discourse. This gender discrepancy requires further examination in local circumstances. We also observed variances by college (NWSM, RMI, and PIMC). Such disparities may reflect institutional culture, teacher views about PAL, or past experience with active-learning approaches. For example, if a college has more experience with small-group instruction, its students may be more willing to try PAL. These disparities among colleges show the significance of adapting PAL implementation to the specific needs of each school.

Our findings have several implications. First, they say that, while students value PAL, institutions should carefully balance it with faculty-led instruction. Peer programs need to be coordinated and supervised. According to local proposals, educational workers should be trained to encourage rather than resist PAL (9). For example, giving student tutor training and defined standards can assist ensure the effectiveness of peer sessions. The Dubai study recommends that peer learning be "preceded by supervised faculty-taught sessions" to ensure adequate skill acquisition (13). Second, given students' preference for PAL, curricula may include regular peer-led workshops or tutorials. Such integration may help to reduce teaching problems and increase student accountability (9). Evidence shows PAL can enhance academic confidence and understanding (17). So using it for revision or lab skills could be advantageous. Third, gender and college disparities suggest that implementation should consider student subgroups. Tailored support (e.g., mixed-gender groups, gender-sensitive facilitation) may help to reduce gaps in engagement.

This cross-sectional poll collects perceptions at a specific point in time and cannot determine causality. Because first-year students were excluded, our findings do not reflect all undergraduate opinions (which is compatible with our methods). While locally validated, the questionnaire was developed by the author and is self-reported, which may introduce bias. Also, we looked at perceptions and preferences rather than actual learning outcomes; some studies show that PAL increases exam scores (16). However, we did not evaluate academic performance. Finally, while we chose three colleges in Peshawar, their relevance to other regions or countries is unknown. Future study should incorporate qualitative approaches to understanding why students prefer one method over another, as well as longitudinal studies to measure PAL's long-term impact on learning and skills.

Conclusion

Undergraduate medical students in Peshawar support PAL, but believe faculty-led teaching is marginally more effective. The majority chose PAL as their learning method, indicating a preference for active, peer-driven learning. Differences between genders and colleges highlight the significance of social and institutional factors. We recommend adding PAL into the curriculum as a complementary strategy: schedule peer-tutoring sessions, train student tutors and faculty facilitators, and combine them with expert-led education. Such an approach can encourage self-directed learning while reducing teacher workload (9,15). Future research should focus on the impact of PAL on real-world learning outcomes, as well as how to improve peer-led approaches for various student groups. Overall, our findings support the use of well-structured PAL programs in medical facilities, with continuous evaluation to maximize benefits.

References

1. Abdulrahman S, Alkhateeb NE, Othman SM. Peer-Assisted Learning Versus Faculty-Led Teaching of Interviewing Skills: A Comparative Study. Indian Pediatr. 2024 Aug 15;61(8):735-739. Epub 2024 Apr 5. PMID: 38584408.
2. Guraya SY, Abdalla ME. Determining the effectiveness of peer-assisted learning in medical education: A systematic review and meta-analysis. J Taibah Univ Med Sci. 2020 May 30;15(3):177-184. doi: 10.1016/j.jtumed.2020.05.002. PMID: 32647511; PMCID: PMC7336023.
3. Lerchenfeldt, S., Mi, M. & Eng, M. The utilization of peer feedback during collaborative learning in undergraduate medical education: a systematic review. *BMC Med Educ* **19**, 321 (2019). https://doi.org/10.1186/s12909-019-1755-z
4. Chen L, Chen H, Xu D, Yang Y, Li H, Hua D. Peer assessment platform of clinical skills in undergraduate medical education. J Int Med Res. 2019 Nov;47(11):5526-5535. doi: 10.1177/0300060519861025. Epub 2019 Sep 18. PMID: 31530204; PMCID: PMC6862878.
5. Tayem YI, James H, Al-Khaja KA, Razzak RL, Potu BK, Sequeira RP. Medical Students' Perceptions of Peer Assessment in a Problem-based Learning Curriculum. Sultan Qaboos Univ Med J. 2015 Aug;15(3):e376-81. doi: 10.18295/squmj.2015.15.03.012. Epub 2015 Aug 24. PMID: 26355668; PMCID: PMC4554273.
6. Abraham, R., Singaram, V.S. Self and peer feedback engagement and receptivity among medical students with varied academic performance in the clinical skills laboratory. *BMC Med Educ* **24**, 1065 (2024). https://doi.org/10.1186/s12909-024-06084-9
7. Stenberg M, Mangrio E, Bengtsson M, Carlson E. Formative peer assessment in higher healthcare education programmes: a scoping review. BMJ Open. 2021 Feb 9;11(2):e045345. doi: 10.1136/bmjopen-2020-045345. PMID: 33563627; PMCID: PMC7875268.
8. TY - JOUR AU - Mukherjee, Sanhita AU - Gangopadhyay, Tanmoy AU - Bagchi, Hrishikesh AU - Mukherjee, Sujoy AU - Sinha, Bosumita PY - 2023/07/23 SP - 1 T1 - Implementing peer assessment to explore medical student's conceptual learning and contribution to project-based assignment VL - DO - 10.5455/njppp.2023.13.05243202301062023 JO - National Journal of Physiology Pharmacy and Pharmacology ER
9. Usman R, Jamil B. Perceptions of undergraduate medical students about peer assisted learning. The Professional Medical Journal. 2019 Aug 10;26(08):1283-8.
10. Daud S, Ali SK. Perceptions of learners about peer assisted learning and lectures. Int J Sci Res. 2014;3(11):1449-55.
11. Khalid AM, Sadiq N, Anjum AF, Hashmi IN, Aslam M, Hamid S, Hussain G, Hashmi SN, Safdar M. Perception of Peer learning, as an innovative learning strategy among first year medical students lacking senior guidance. The Professional Medical Journal. 2020 Sep 10;27(09):1895-901.
12. Mills JK, Dalleywater WJ, Tischler V. An assessment of student satisfaction with peer teaching of clinical communication skills. BMC medical education. 2014 Oct 13;14(1):217.
13. Alzaabi S, Nasaif M, Khamis AH, Otaki F, Zary N, Mascarenhas S. Medical students' perception and perceived value of peer learning in undergraduate clinical skill development and assessment: mixed methods study. JMIR Medical Education. 2021 Jul 13;7(3):e25875.

14. 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. Advances in medical education and practice. 2011 Jun 23:157-72.
15. Zhang Y, Maconochie M. A meta-analysis of peer-assisted learning on examination performance in clinical knowledge and skills education. BMC Medical Education. 2022 Mar 5;22(1):147.
16. Brierley C, Ellis L, Reid ER. Peer-assisted learning in medical education: A systematic review and meta-analysis. Medical education. 2022 Apr;56(4):365-73.
17. Aman K, Parvez F, Saleem S, Ayub H, Amin S, Salman R. The Role of Peer-Assisted Learning in Enhancing Medical Students' Academic Performance: Peer-Assisted Learning in Medical Students' Academic Performance. Pakistan Journal of Health Sciences. 2025 Jul 31:16-21.