Perception of Peer-Assisted Learning in Clinical Skills among Undergraduate Medical Students at Omdurman Islamic University in 2021-2022

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Abstract

Introduction: Peer-assisted learning (PAL) is defined as, “the development of knowledge and skill through active help and support among status equals or matched companions.” It also creates a safe learning environment and provides efficient use of faculty time. By utilizing PAL, students can be trained in clinical skills within the available time with more focus on their weaknesses. In this study, we investigated PAL efficiency among under graduated medical students. We focused on the terms of acceptance and confidence after the PAL sessions, and the Information sharing between tutors to students.

Methods: In this descriptive cross-sectional study, 260 students during Orthopedics and Surgery courses were involved. I would like to mention that PAL was implemented during those modules and then the students opinion about it was obtained by an online questionnaire.

Results: Students were satisfied with PAL and they found it comfortable and helpful in gaining knowledge, confidence and clinical skills. It's statistically significant that the fourth grade accept PAL more than the fifth (p=0.030). Also the acceptance between females is more than males (p=0.001). During orthopaedic courses PAL is accepted more than in surgery courses (p=0.06). However, there is no difference between the acceptance of PAL and the decision that PAL can replace or augment expert-assisted learning (p=0.749). There is no difference between the courses and the decision of PAL can replace or augment expert-assisted learning p= (0.584).

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Conclusion: Peer-assisted learning appears to be an effective way to improve students' performance and confidence. We highly recommend that PAL should be involved as a formal part of our University curriculum.

Keywords: Peer-assisted Learning (PAL), Medical Students, Clinical skills, Educational strategies

Introduction

Peer-assisted learning (PAL) is defined as, "the development of knowledge and skill through active help and support among status equals or matched companions" (1). Some studies have proved that both lectures and PAL are important educational strategies that cater to the different learning needs of medical learners (2). Peer-assisted learning creates a safe learning environment and provides an efficient use of faculty time. Students can train each other in clinical skills within the available time with more focus on their weaknesses.

The traditional ways of learning through a lecture-based approach have a lot of shortages, including difficulty in expressing one point of weakness and concerns with someone who is in a different level. It is also difficult to ensure high quality training to all students who have different learning qualities within the limited time.

Peer-assisted learning was adopted by different scopes such as engineering. A qualitative case study was conducted on the first -year students in South Africa. This explored the student's experience of the PAL program using an open-ended questionnaire. The students reported that PAL can provide a safe, comfortable and conducive environment for learning (3). The effectiveness of an educational intervention on students' experiences as peer teachers was examined in this study, which was conducted by paramedics at Manosh University. In this study, the students reported feeling more confident in leading tutorial groups, and the tutors reported being more likely to set high standards for their students (4).

Another cohort study investigated the role of Peer Assisted Study Sessions (PASS), in contributing to the experience of international postgraduate coursework students through an investigation of its perceived benefits. The study included an online survey and individual semi-structured interviews. There was a level of consensus across the online survey and interview showing that the participants were motivated to attend PASS to practice skills associated with the study in the unit to understand the contents better and to get a passing grade or earn higher marks. In addition, PASS provided post-graduate students with a learning environment suitable to their unique needs which related to difficulties in understanding complex materials in a foreign English language and their lack of confidence in participating in class discussions (5).

In Ireland PAL was found to be widely accepted by both tutors and learners after investigating with fifth -year medical students facilitating their second-year colleagues. In addition, the data highlighted the ease of knowledge exchange (1).

Furthermore, a different study was done at Wolfson Medical School Building. It aimed to determine whether PAL can enhance clinical examination skills training. A total of 68 students filled out the questionnaire after PAL was being conducted in small groups. The data revealed that PAL highly

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accepts student interest and supports suggestions that PAL could be a useful adjunct to clinical skills training (6).

An article was published in the Journal of Taibah University of Medical Science, about the effectiveness of PAL in the medical education, and stated that there was strong evidence that students studying medical and related health science can learn more effectively through a well-structured PAL program. The findings of this study suggest that PAL was an effective teaching and learning approach that can potentially boost students academic achievement while also enhancing their effective learning. (7)

The use of PAL in teaching basic surgical skills was also assessed in a randomized single-blinded control trial study in Malaysia. This study was conducted on third-year medical students at the clinical campus of an international medical university. Students' performance was assessed using direct observation of procedural skills and (DOPS) techniques. According to the students' perceptions, their peer surgical skills were in a manner similar to that of their teachers. The results showed that PAL is an effective educational tool to improve medical student proficiency in performing basic surgical procedures. (8)

Similarly, another study investigated Near-peer-assisted learning (NPAL) in undergraduate medical students and their perception of having medical interns as their near-peer teachers. The study found that most medical students acknowledged and agreed that the near peer medical interns could provide unique input in helping them master their clinical and communication skills competencies (9). Clinical improvement by PAL has also been tested in a study in Islamabad. Students who received PAL training statistically showed significant improvement in performance, better than those who received regular EAL training. It concluded that PAL can replace Expert Assisted Learning (EAL)rather than simply augmenting it (10).

Another study was conducted in the UK. The foundation year doctors, and senior medical students led five surgical skills courses at eight domains in surgery with a tutor-to-student ratio of 1:4. The mean scores were compared pre course and post course. The results revealed that there is an overall increase in mean scores across all eight domains of the course. This study has shown that PAL surgical skills leads to increased confidence for both students and teachers.(11)

An additional study was conducted. The third-year medical students were invited to participate in a randomized trial with a blinded outcome assessment and eventually registered for the mandatory curricular clinical examination course. The learning success was proved by a voluntary objective structured clinical examination (OSCE). This study concluded that adding a near-peer teaching course to the routine course greatly improved the clinical examination skills of medical students in an efficient manner in the context of a resource-constrained setting. (12)

In 2009 at Monash University, Australia, a working group organized five 2 hours felt vertical study program (VESPA) sessions. Each was case-based and study materials were provided. Participants were allocated to a group of 10-15 students of all year levels, and pre-interns acted as facilitators.

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Sessions were evaluated using a 10-question survey. A total of 647 evaluation surveys, (96%) agreed the case materials were easy to follow and (87%) believed they allowed students from all year levels to contribute (85%). VESPA helped them understand curriculum content. (13)

Also in Sri Lanka study explored students' experiences with Kuppi classes as a learning process. Kuppi classes are exclusively organized and run by students. Focus group discussions and in-depth interviews for data collection were used. They concluded that Kuppi was developed as a parallel process to fill in gaps in students' understanding and better explain unclear aspects of the formal curriculum. Within the Kuppi, students successfully use informality, familiarity, and social bonds with one another to acquire the knowledge required for their examinations. (14)

Another study was done at the University of Sydney. It is concerned about a program aimed at improving the quality of teaching by medical educators. This program is known as Teaching on the Run (TOR). A total of Seventeen senior medical students participated in the TOR program by completing before and after questionnaires based on the key outcomes of the program. This study claimed that TOR increased students' perceived ability to apply educational principles, plan learning activities, and provide feedback. The study concluded that the TOR program may provide a foundation from which future medical educators may be trained. (15)

Hence, this study is aiming to investigate PAL among Sudanese undergraduate medical students to enrich the literature.

The objectives of this study were to: (a) evaluate the perception of PAL among medical students. (b) assess the delivery of the knowledge from the tutor to the students. (c) assess the degree of the student's clinical confidence in the exam after the PAL session.

Methods

Study design

We conducted a survey-based study to evaluate the participants' perception of Orthopedics and Surgery courses developed with the PAL method in the faculty of medicine and health sciences (FMHS), Omdurman Islamic University (OIU) from December 2021 to February 2022.

Sample size and sample methods

The surveys were applied to 260 students from a total of 743 students in a period of 20 days.

Eligibility criteria

Students that were took courses based on PAL were invited to participate in the study. Format of the courses PAL-based courses covered Orthopedics and Surgery. The students followed a teaching method and used interactive materials (e.g., slides, videos, or board) were finally selected.

Instrument

We used a questionnaire to collect data from our participants. Because there was no validated tool, we designed an instrument based on items from published papers and recommendations given in the literature. The questionnaire was reviewed by an expert in medical education. The questionnaire had a three-section structure. Section A compressed sociodemographic characteristics (age, sex and study

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year). Section B compressed 28-Likert scale questions divided into four subsections (satisfaction with the course, satisfaction with the teacher's performance, motivation to develop teaching skills and preference to implement PAL in the medical school curriculum).

Analysis and presentation of data

Results were entered into a Microsoft Excel spreadsheet and then exported to SPSS V26. Descriptive analysis was used for the sociodemographic characteristics, and mean scores for each Likert-scale item were expressed in tables using means and medians.

Ethics

The OIU Research Committee approved the study. Participation was voluntary and anonymous. Through the participation and completion of the questionnaire, the students authorized their inclusion in the study.

Results

From a population of 743 students, 260 participants (34.99%) filled out the questionnaire. This included 131 (50.4%) fourth-year students; females 64 (48.8%) and males 67 (51.14%) and 129 final-year students (49.6%); females 71 (55%) and males 58 (45%). (Table-1). Fourth-year students Participated in PAL sessions during the Orthopedics and Traumatology course while final-year students attended PAL for a surgery course.

In terms of overall satisfaction with the performance of the tutors in PAL, 164(63.1%) were on the agreement side (Table-1). While in the context of feeling comfortable in asking questions, 173 (66.5%) stated that was true, 44 (16.9%) were neutral and 43 (16.6%) stated that was not the case (Table-1). More than half (156 students; 60%) agreed to this. More than half of the students (156 students; 60%) agreed that PAL sessions were organized with good time management (Table-1). Regarding gaining clinical skills and knowledge from PAL sessions; 162(62.3%) agreed (Table-1).

The vast majority of participants (192 students; 73.8%) declared that the environment within the PAL was friendly. (Table-1).

Table I

Perception of PAL among medical students

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Overall I was fully satisfied by the performance of the tutors in the PAL	21(8.1)	12(4.6)	63(24.2)	105(40.4)	59(22.7)

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I felt comfortable asking questions in PAL more than in clinical rounds	15(5.8)	28(10.8)	44(16.9)	101(38.8)	72(27.7)
The tutor delivered sessions in a clear and organized manner with a good time management	17(6.5)	17(6.5)	70(26.9)	123(47.3)	33(12.7)
PAL was more beneficial in gaining clinical skills and knowledge	16(6.2)	22(8.5)	60(23.1)	113(43.5)	49(18.8)
Overall PAL learning environment was less formal and more friendly	15(5.8)	13(5.0)	40(15.4)	122(46.9)	70(26.9)
After PAL I was more confident to conduct clinical exams	13(5.0)	13(5.0)	69(26.5)	122(46.9)	43(16.5)
I felt PAL was more exam-oriented	17(6.5)	13(5.0)	49(18.8)	120(46.2)	61(23.5)
The PAL filled the gaps I had in expert-assisted learning	10(3.8)	15(5.8)	47(18.1)	126(48.5)	62(23.8)
PAL is better than expert-assisted learning	10(3.8)	14(5.4)	46(17.7)	123(47.3)	67(25.8)

Discussion

The FMHS at OIU has been established in 1990. PAL has not been recognized as a formal method of learning by the faculty. Nevertheless, PAL is frequently used by students to supplement formal teaching which might encourage the faculty to adopt PAL as a formal method of teaching.

In line with other studies, the current study also found PAL to be beneficial as it creates a comfortable learning environment and effective time management. Within the time allotted, every student can receive individualized clinical examination skills training with a stronger emphasis on their areas of weakness.

In this study, PAL was more accepted among fourth-year students than fifth-year students, despite both years being equally involved in this study. This may be because the PAL sessions were more organized and the groups were smaller and distributed between plenty of numbers of tutors in the fourth year.

In the current study, the majority of students felt more confident in performing clinical examinations after PAL sessions. This is constant with the results of the Wolfson Medical School study, 2007, which found that PAL is highly accepted and includes post-training confidence (6). Results were also similar in Queen Elizabeth Hospital, Birmingham, UK, in a study which stated that PAL increased confidence for both students and teachers. (11). This study also found that PAL could augment the EAL. This is consistent with another study in Aga Khan University, which claimed that both lectures and PAL are important educational strategies (2). In addition to a Sri Lanka study which concluded

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that Kuppi was developed as a parallel process to fill in gaps in students' understanding. This gives a better explanation of unclear aspects of the formal curriculum. (14)

About gaining clinical skills and knowledge PAL sessions were noticed to be effective in gaining skills and knowledge. This result corresponds to a study at King Abdul-Aziz University, in 2015, in which medical students acknowledged and agreed that their near-peer medical interns could provide unique input in helping them master clinical and communication skills competencies (9). Also, the study in Technische Universität, München, Germany, 2013, concluded that adding a near-peer teaching course to the routine course, greatly improved the clinical examination skills of medical students in an efficient manner in the context of a resource-constrained setting. (12)

The study highlighted that PAL is more exam-oriented. Perhaps this is due to the fact that the proximity of PAL tutors to exams and the level of students, corresponds with a study at Islamabad University. This showed better examination performance among students who were involved in PAL in comparison to EAL. (10)

This study revealed that PAL is highly accepted and this can be referred to as a friendly learning environment. Overall, students' satisfaction with PAL is highly considerable.

Regarding limitations, conducting this study in only two courses in the fourth and fifth years is one of the limitations of this study. Further studies in more modules in all different years were more beneficial in gaining clinical skills and knowledge.

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