







### 5.3 Interactive and Cooperative Learning

Similarly, a statistically significant difference was observed in the perceptions of PAL and Lecture groups regarding interactive and cooperative learning. PAL learners were in higher agreement that their sessions improved their communication skills ( $p=0.01$ ), were helpful in obtaining others' perspectives on the course ( $p=0.05$ ), stimulated them to take active part in discussions ( $p<0.001$ ) and provided an opportunity for learning with others ( $p<0.001$ ).

### 5.4 Learning Environment

Regarding the learning environment, there was not much difference in scores among the Lecture and PAL groups pertaining to their respective sessions being conducive in providing reassurance about course related concerns and opportunities to ask questions whenever required. Interestingly, PAL group scored statistically significantly higher scores in rating their sessions informal ( $p=0.006$ ), enjoyable ( $p<0.001$ ), comfortable and relaxed ( $p=0.002$ ). PAL group was also in higher agreement that their learning environment was conducive to air concerns away from teaching staff ( $p=0.008$ ) and to discuss with peers the course related questions and explanations of the answers ( $p<0.001$ ).

The overall agreement with statements on the Likert scale questionnaire was greater among the PAL group with a statistically significant higher global rating of 8.12 of their sessions compared with the rating of 6.20 for the Lectures ( $p<0.001$ ).

#### 5.4.1 Focus group discussion (FGD) findings with the PAL group

Qualitative analysis of data resulted in emergence of five main themes:

1. Learning Environment
2. Group Dynamics
3. Accomplishment of Learning
4. Comparison of Lectures and PAL
5. Incorporating PAL in the regular teaching program

#### 5.4.2 Learning Environment

Overall, comments about the learning environment in PAL were positive. Learners liked the atmosphere and were comfortable during the sessions:

*"Enjoyable experience."*

*"We were active and didn't feel sleepy. PAL was not boring at all."*

*"We were more relaxed than in lectures."*

Social interaction was cherished by many and they enjoyed making new contacts:

*"There was interaction with people we knew and those whom we did not know before. We made new friends"*

*"Interacting with random people rather than regular friends was a new experience."*

The PAL environment was found to be suitable for learning:

*"Environment was conducive for learning. It kept you involved."*

*"We took five to ten minutes break whenever we wanted."*

### Group Dynamics

A sense of closeness and interactive collaboration was explicit among the comments of PAL group members:

*"There was good co-operation among group members."*

*"Enjoyed interacting with others rather than study alone."*

*"There was good communication and discussions within group members."*

*"If the other group members were working then it was difficult to sit back and not do anything."*

*"If we saw anyone who is not involved, when we finished our work, we would help out that person."*

Each group managed the way their learning activities would take place:

*"In our group we divided the topics among all members, followed by discussions and then we solved the workbook."*

*"In some groups one person read and the others listened. They finished in less time. In the other groups, everyone read a portion and then discussed. They needed more time."*

### Accomplishment of Learning

All participants liked the PAL learning experience:

*"Overall it was a good learning experience."*

*"I liked the active learning in PAL sessions."*

*"I liked the self- study aspect of PAL."*

The different activities in PAL sessions were seen as an enhancement to learning. Reiteration was perceived as an effective mode of studying:

*"PAL had double benefit. Firstly, we did self- study. Secondly, at the time of solving workbook we had to study again as it was an open book activity."*

*"Repetition made learning easy and effective. Important points were highlighted."*

*"When we read the topic ourselves we can only retain a certain amount as we cannot write everything down to learn. In group discussions we had a baseline memory from self-study and on top of that when someone speaks we grasped that as well. So there was double learning"*

Participants were satisfied that they accomplished their learning within the PAL sessions which saved them a lot of time:

*"Good time management and planning. There was minimal need of revision at home."*

There was a universal agreement that PAL was appropriate for studying *Community Nutrition and Health* course:

*"PAL was good choice for Community Nutrition and Health course. We learned the topic well."*

All participants agreed that they did not need assistance from teachers while studying in their groups:

*"We had no problem or needed any guidance in studying during the PAL session."*

There was a unanimous agreement that PAL was favourable for the preparation of class test and final professional examinations:

*"PAL sessions were sufficient for solving past exam questions."*

*"We covered the whole topic in our sessions and then again for the test. I think this was a good preparation for the final exam."*

### Comparison of Lectures and PAL

Interestingly, none of the participants wanted to abolish lectures completely:

*"There should be 50% Lectures and 50% PAL."*

*"Lectures should only be kept to explain new or difficult concepts like Biostatistics. There should be more PAL sessions."*

However, PAL was rated higher than lectures in terms of mental concentration, relaxation and learning for examinations:

*"In lectures, no one can focus for 25 minute but in PAL sessions we use to complete our reading in 20 to 25 minutes. We were focused and not bored like in lectures."*

*"In lectures the same voice is in one pattern and there is no variation. In PAL sometimes I spoke sometimes someone else did, so there was variation."*

### Incorporating PAL in the regular teaching program

All FGD participants were of the opinion that PAL should be part of the routine academic program:

*"This system must be adopted on regular basis."*

None of the participants wanted to change the PAL model:

*"The way it was it was good. It should continue as it is."*

*"Same level peer model was good. Don't want leaders."*

## 6. Discussion

The results from the present study showed that 4<sup>th</sup> year MBBS students embraced the concept of same year peers assisted learning in Community Medicine *Nutrition* course. This study substantiated the benefits of peer assisted learning in promoting conducive environment for social and cognitive congruence and making learning gratifying and enjoyable.

The PAL cohort members perceived all aspects of their learning experience to be more favorable than the Lecture group. The social and the environmental features were the most endorsed benefits of peer involvement in teaching. The quantitative analysis revealed that in comparison with Lecture cohort, significantly greater satisfaction was observed in peer learners regarding their mode of interactive and cooperative learning, ease of communication and active participation in discussions. The above mentioned points were again highlighted in the focus group discussions (FGD) and other advantages added were forming new associates, close cooperation among group members, helping and involving each other to learn, and effective planning and managing learning tasks. The social attributes of collaborative learning have been reiterated in medical education research, forming the main reason for its application as an effective educational strategy. Many researchers have acknowledged the impact of collaboration among peers in enhancing team work and communication skills [16] [17], [18], [27], [28]. Peer learners in our study found their sessions helpful in valuing viewpoints of others. Ibraheem and Aijaz (2011) and Hammond et al., (2010) also reported that one of the qualities of PAL which impressed their students was the opportunity to take on board other learners' views and ways of thinking, and analyzing them with their own perceptions [17], [28].

In the current study, the informal and relaxed learning environment was another significantly higher source of satisfaction in PAL cohort compared with the Lecture group. This not only enhanced learner enjoyment and active engagement in peer learning, but also provided a platform to air concerns away from faculty members and discusses academic matters freely with colleagues. The FGD participants also mentioned being more focused in peer activities than they were in lectures, lack of boredom and opportunity to relax when required, as supplementary attributes of PAL environment. The opportunity to ask questions was equally endorsed by both PAL and Lecture groups. Hammond et al. (2010) also noticed that their study participants valued the informal environment in peer led sessions which allowed them to "sound out ideas away from lecturers" and enjoy cooperative learning [28]. Similarly, Glynn et al. (2006) reported that the peer learners found their environment relaxed and comfortable with no inhibitions to communicate and seek knowledge [27]. Shankar et al. (2011) stated from Nepal, that students are more likely to open to their peers and share difficulties and concerns [26]. Participants from his study enjoyed the "friendliness" of the PAL environment. The opinion that PAL environment was friendly and there was less inhibition in communicating with peers was likewise shared by students in the study conducted by Naqi (2014) in Lahore [32]. In the opinion of Kommalage and Thabrew (2011), the cognitive distance, which is the student teacher space, is wider in Asian cultures [26]. This distance is reduced among peers which removes the internal inhibitions, and improves the learning process. Significantly greater number of PAL participants compared with their Lecture colleagues perceived their sessions was instrumental developing their learning skills. They comprehended peer-managed learning to be better in planning personal learning activities, using multiple study resources and developing group study skills. Additional information provided by FGD participants about PAL sessions was that learning was achieved through combination of self-study and group discussions. They found their activities to be helpful in managing their learning time effectively, which abolished the need to revise their work outside the college time. They were confident that they accomplished their learning goals for *Health and Nutrition* course which equipped them to prepare for assessments. All agreed that for the process of learning, they did not need faculty guidance. This was also depicted in the non-use of any human resource by the PAL cohort, except their peers. The literature search conducted by Burgess et al. (2014) confirmed that peer endeavors prepare learners to plan and lead their own learning activities with a greater willingness to acquire knowledge [25]. Naqi (2014) concluded from his research experience that PAL motivated and empowered learners which enhanced their self-confidence [32]. Shankar et al. (2011) made observations from their study results that after attending PAL sessions, learners were confident that they could attempt questions and prepare for examinations [23].

Peer group was significantly more assured than their Lecture equivalents in admitting that PAL generated awareness of course expectations and preparing them to attempt workbook exercises. However, there were comments from participants of FGD regarding the need for consultation with faculty

members on attempting some workbook questions, the answers to which they could not even find on internet. The research conducted by Hodgson et al. (2013) also revealed that though their study participants were satisfied with the active learning part of PAL, they still expressed more confidence in faculty teachers than their own peers for imparting conceptual knowledge [19].

Through FGD, learners voiced their concerns about lectures being monotonous, with loss of attention span after 15 to 25 minutes and lack of opportunity to relax. Many recommendations emerged from FGD. Participants were of the opinion that *same year, equal status* model of PAL should be part of regular teaching. The only change that was required in the present set up was flexibility in PAL sessions, which should be task oriented rather than time-bound. Learners still wanted lectures to clarify complex concepts, with PAL as a supplementary method. Other research conducted in this field also recommended addition of PAL in the regular teaching program [23], [28], phasing it in gradually [32].

There was no difference in rating for conceptual clarity, developing self-study skills, getting reassurance about course related concerns and opportunity to ask questions between PAL and Lecture groups. This maybe because Community Medicine lectures are interactive and teachers use student-centered approaches like asking questions as well as giving post-lecture assignments which require reading and literature search.

## 7. Conclusions

The study concludes that Lecture and peer assisted learning are both important educational strategies which cater for different learning needs of medical learners. PAL has benefits of collaborative and cooperative learning experience which was manifested in the strong social congruence among PAL group in the present study. The cognitive congruence and metacognition advantages of PAL were apparent in the study. Lecture was still perceived by learners as an irreplaceable learning approach but PAL was endorsed as a supplemental program to provide opportunities to learners for self-directed, dynamic, enjoyable and relaxed learning experience and responsibility. Thus PAL can easily be incorporated in a traditional curriculum, along with lectures.

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