Teacher Centered Versus Student Centered Strategies for Undergraduate Students

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ABSTRACT

Objective: To compare the student-centred learning strategies with teacher-centred strategies in developing adult learning principles for medical students.

Study Design: Quasi-experimental study.

Place and Duration of Study: Ziauddin Medical College and Jinnah Medical & Dental College, Karachi, Nov 2017 to Oct 2018.

Methodology: The study participants included first and second-year medical students. They were divided into two groups. One group of students was recruited from a medical college having a hybrid curriculum through problem based learning and lectures. The other students were recruited from a college following a traditional curriculum through only teacher-centred strategies and lectures. The comparison between the two groups of students was based on adult learning principles. A questionnaire including 17 items from the principles of adult learning scale (PALS) was given to medical students. Out of 17 items from the principles of adult learning scale, 13 were related to student learning, and four were regarding teacher instruction. The students were asked to determine the teaching practices promoting the development of adult learning principles on a Likert scale from 0-5.

Results: In the learning section, the medical students having student-centred learning strategies had 28.16 ± 10.98 scores compared to students with teacher-centred strategies with a score of 33.73 ± 12.66 on the principles of adult learning scale. In the teacher instruction section, the score was 13.81 ± 3.76 in students with learner-centered strategies and 14.76 ± 3.79 in students with teacher-centred strategies.

Conclusion: The teacher-centred learning strategies promote the development of adult learning principles better than the student-centred strategies in medical students.

Keywords: Lectures, Medical, Principles of adult learning, Problem-based learning, Students.

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INTRODUCTION

Adult learning can be defined as a teaching paradigm that includes strategies of student self-direction goals of practical relevance to the learner.[1,2] Learner centeredness is a distinguishing characteristic of adult education. The ultimate goal of medical education is to apply best teaching practices and help transform adult medical learners into influential physicians.[3,4]

Teacher-centred strategies involve the transfer of information from teachers to students through lectures. The advantage of a lecture is that knowledge can be transmitted to many students simultaneously.[5]

Problem-based learning (PBL) is a learning strategy developed on principles of adult learning.[6] Adult learning are problem centred rather than topic-centred and most of the adults learn best through practical applications. The PBL process promotes interaction between students and staff, stimulating the learning environment.[7]

Students should be allowed to participate in planning, diagnosis needs, and setting learning goals. Ownership in the educational process allows the learner to stay motivated longer and influence the quality and amount of learning. Training teachers in student-centred educational strategies translate into better student learning outcomes.[8,9]

A teacher-centred approach to adult education is more commonly practised in college and university settings than a learner-centric approach. There is no evi-dence of studying the comparison of traditional and student-centred strategies in the development of adult learning principles in medical students.[10]

This study was designed to find out if there was any difference in adult learning principles in the students exposed to PBL or lectures as an instruction. The objective of the study was to compare the student-centred learning strategies with teacher-centred strategies in the development of adult learning principles for medical students.

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METHODOLOGY

The study design was quasi-experimental study and was conducted at Ziauddin Medical College and Jinnah Medical and Dental College, from November 2017 to October 2018. The Ethics Review Board approved the study (Certificate number=0461217).

Inclusion Criteria: First-year and second-year medical students were included in the study. One group of students was recruited from Ziauddin Medical College, having a hybrid curriculum through PBL and lectures. The other group of students were recruited from Jinnah Medical and Dental College following the traditional curriculum through lectures.

Exclusion Criteria: Non-consenting students were excluded from the study.

The sample size was calculated from the Raosoft sample size calculator. There were 200 medical students in Ziauddin Medical College and 200 in Jinnah Medical and Dental College. The sample size was calculated keeping 5% margin of error, 95% confidence interval and 50% response distribution.[11] The minimum recommended sample size was of 197 students. Therefore, study participants included 100 students from 1st-year and 2nd-year MBBS from each institute (Figure-1). After getting the ethics approval, the participants were enrolled in the research study. Informed consent was obtained from each participant.

The principles of adult learning scale (PALS) was developed and validated for measuring coherence between adult education professionals' real observable classroom behaviour and their exhibited belief in the collaborative teaching-learning mode. The PALS is a validated 44-item summated rating scale designed to provide an overall measure of the support of the collaborative teaching and learning mode.[12] This model is a learner-centred instruction method.

In order to study the principles of adult learning score, a PALS questionnaire was distributed to first and 2nd-year medical students. The questionnaire included 17 items from the principles of adult learning scale (PALS).[12] Out of 17 items, 13 were in the student learning section of the questionnaire, and four were in the teacher instruction section. One group of students was exposed to a student-centred learning strategy, i.e. PBL in addition to lectures, and the other group had teacher-centred strategies, i.e. lectures. The medical students were asked to indicate the frequency with which their teachers practice the action described in the items. The students were asked to determine the teaching practices promoting the development of adult learning principles on a Likert scale from 0 to 5. The PALS is based on the advanced principles in adult education literature.[13] A high score on PALS indicates a learner-centred approach, while a low score on PALS reflects a preference for the teacher-centred approach. The score close to the mean specifies a combination of teaching behaviours that draw segments from both the learner-centred and the teacher-centred approach.[13]

Statistical Package for Social Sciences (SPSS) version 21.0 was used for the data analysis. Quanti-tative variables were summarized as mean ± SD and qualitative variables were summarized as frequency and percentages. Independent sample t-test was applied to find the mean differences among the groups. A comparison of the groups was made based on two learning strategies. The *p*-value of ≤0.05 was considered statistically significant.

RESULTS

In the learning section, the medical students having student-centred learning strategies had 28.16 ± 10.98 scores compared to students with teacher-centred strategies with a score of 33.73 ± 12.66 on the principles of adult learning scale. In the teacher instruction section, the score was 13.81 ± 3.76 in students with learner-centred strategies and 14.76 ± 3.79 in students with teacher-centred strategies.

Table-I showed the comparison of PALS scores related to students learning in student-centred and teachercentred strategies. It included student motivation, interaction in class, learning related to practical problems, and students' prior experiences with learning.In most of the student learning section items, the PBL students had a lower score than students having lectures.

Table-I: Comparison of Principles of adult learning scale score between student centered and teacher centered strategies on the basis of student learning.

Groups	n	Principles of Adult Learning Scale Score	*p*-value
Problem Based Learning (Mean ± SD)	100	28.16 ± 10.98	0.001
Lecture (Mean ± SD)	100	33.73 ± 12.66	

Table-II showed the comparison of PALS scores related to teachers' instruction in student-centred and teacher-centred strategies. This section included items related to teacher instruction like using lectures as the

mode of information transfer, providing knowledge rather than being a resource person, using tests as the principal method of evaluating students.

Table-II: Comparison of principles of adult learning scale between student centered and teacher centered strategies on the basis of teacher instruction.

Groups	n	Principles of Adult Learning Scale Score	*p*-value
Problem Based Learning (Mean ± SD)	100	13.81 ± 3.76	0.077
Lecture (Mean ± SD)	100	14.76 ± 3.79	

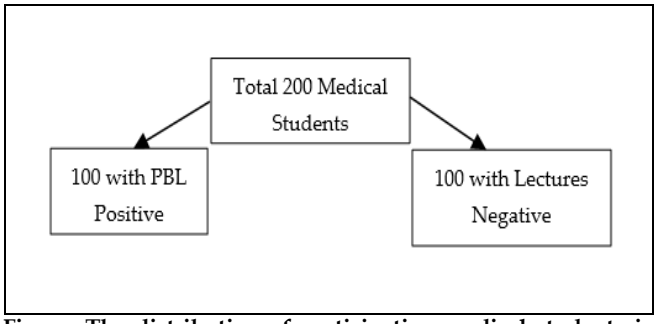

Figure: The distribution of participating medical students in groups.

DISCUSSION

Andragogy is the art and science of helping adults learn.[12] Applying adult learning principles in medical education requires changing perceptions of the roles of educators and learners.[13] The learner's role is to receive knowledge, search, challenge, and construct knowledge. This understanding is basic to problembased learning.[1]

Several studies have been published comparing studentcentred and teacher-centred learning strategies. Muganga *et al*,[6] reported that teachers assume the role of information providers in teacher-centred learning while student-centred methods challenge students to actively construct their knowledge through real-world experiences. Spencer *et al,* [15] reported that new knowledge is a prerequisite for working on the problem in the traditional approach, while in PBL, new knowledge and understanding arise through working on a problem. Regarding the effectiveness of PBL as compared with traditional instruction, Carrio *et al*,[16] reported that PBL is significantly better than traditional instruction for training competent practitioners, promoting long-term retention of knowledge, and improving student and teacher satisfaction, while traditional learning approaches are more effective for short-term retention of knowledge.

The present study was based on comparing student and teacher-centred strategies promoting adult learning principles. In this study, the mean scores of the students in the PBL group were lesser than the scores in the lecture group. This was consistent with the study done by Gewurtz *et al*,[9] reporting that there was a need to develop the factual basis of whether PBL is an effective approach for implementing these principles. Robert *et al,* 1 reported that there was very little improvement in cognitive evaluation scores in the adult learning model over traditional teaching methods. The PALS score was higher in the group of students having lectures. This finding was consistent with the study done by Palis *et al*.[7] They reported that applying adult learning principles in lectures increases learning and the effectiveness of lectures.

In this study, the PALS questionnaire was used to find out the teachers' practices in developing adult learning principles. The adult education literature indicates that the teacher's actions influence student achievement.[17] Collins 10 reported that understanding adult learning principles can help teachers become better facilitators of learning. A study was done by Zanolli *et al*,[18] on problem-based learning signifies the role of the facilitator on small group productivity. The new role of the facilitator requires the ability to encourage, facilitate, and assist the adult learner.[19]

Conti 17 studied the relationship between the teachers' practice of the adult learning principles measured by PALS and student academic achievement based on teacher assessment. The major finding of this study was that a relationship exists between the teaching style used in the adult education setting and student achievement. Shanley 20 mentioned the opinion of students that small groups do not work because of imminent differences in ability, motivation and grading practices of tutors. The PBL tutors must know the adult learners' needs. This will help them in becoming better facilitators. Gravani 21 reported that as adult learners, teachers need to have an active involvement in faculty development programs. Without the faculty assisted learner-centred approach, there is a challenge to educational effectiveness that runs contrary to the key elements of adult learning.[22]

The teacher-centred learning strategies promote the development of adult learning principles better than the student-centred strategies in medical students. In student-centred learning strategies, effective imple-

mentation is required to promote the development of adult learning principles.

LIMITATIONS OF STUDY

Only first-year and 2nd-year medical students were included in this study. Further research needs to be conducted to explore the development of adult learning principles in medical students of clinical years.

CONCLUSION

The teacher-centred learning strategies promote the development of adult learning principles better than the student-centred strategies in medical students.

Conflict of Interest: None.

Authors' Contribution

SF: Conception, acquisition, interpretation of data for the work, drafting the work and agreement to be accountable for all aspects of the work.

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