Medical Education

Comparison of results of first professional part-II examination of medical students of Rawalpindi Medical College who attended Problem Based Learning sessions with those who did not

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ABSTRACT

Objective

To assess the efficacy of the Problem Based Learning (PBL) system by comparing the results as well as the number of distinctions of the medical students who attended the PBL sessions as against traditional teaching methodologies.

Subjects and Methods

A comparative cross-sectional study was carried out in Rawalpindi Medical College by purposive sampling where by the results of all the students who appeared in First Professional Examination Part-II (2008 & 2009) were analyzed. One session (2008) had only lectures as teaching methodology and the other session (2009) attended both Problem Based Learning sessions and lectures simultaneously. The sample included all the results achieved by the students of session 2008 & 2009 i.e., results of 287 students who attended both PBL and lectures and results of 268 who had only lectures. Data were collected from the records of student section of Rawalpindi Medical College office.

Results

Percentage of failure in different subjects with lectures was found to be higher (54.3%) than those who attended both lectures and PBL (45.7%). Fraction of distinctions was more (52.4%) among those who were taught by both teaching methodologies as compared to those who only attended lectures(47.6%). Equal proportion of students from both categories got grade A plus while grade C was obtained by only three students who were taught by both PBL and lectures as compared to five students who only attended the lectures. 86% and 83% students taught by both (PBL & lectures) and only lectures passed the examination.

Conclusion

PBL along with lectures was not disadvantageous to the students rather it has led to more distinctions among students and increased pass percentage. (Rawal Med J 2010;35:254-256).

Key words

Problem Based Learning, professional examination, assessment.

INTRODUCTION

PBL is an instructional (and curricular) learner centered approach that empowers learners to conduct research, integrate theory and practice and apply knowledge and skills to develop a viable solution to a defined problem.[1] In PBL, students brainstorm on a problem, generate hypothesis and formulate learning objectives. Certain verbal and non verbal expressions are used by students in response to specific learning issues. These are useful indices of learning and can be used to help tutors decide when and when not to intervene.[2] Lectures are moderately effective for teaching medical knowledge but generally fail at promoting clinical reasoning.[3] PBL depends on self-directed learning, triggered by a clinical problem. The students meet in small groups led by a facilitator and discuss carefully designed clinical cases. At conclusion, students encounter all information necessary to solve the case and gain knowledge that in a conventional curriculum would usually be disseminated by lecture.[4] The brief experience consists of daily meetings given to small groups of students at the final stages of pre-clinical courses.[5]

PBL is based on alternative pedagogical model to the conventional didactic one and offers benefits to quality of student learning. The approach has been adopted by many institutions.[6] In response to explosion in medical information, there have been considerable recent changes in medical curriculum development. The move to problem based learning is in part a result of these changes.[7] Present study was conducted to derive the appropriate padagogical methods that should be adopted by medical colleges to produce the best doctors.

SUBJECTS AND METHODS

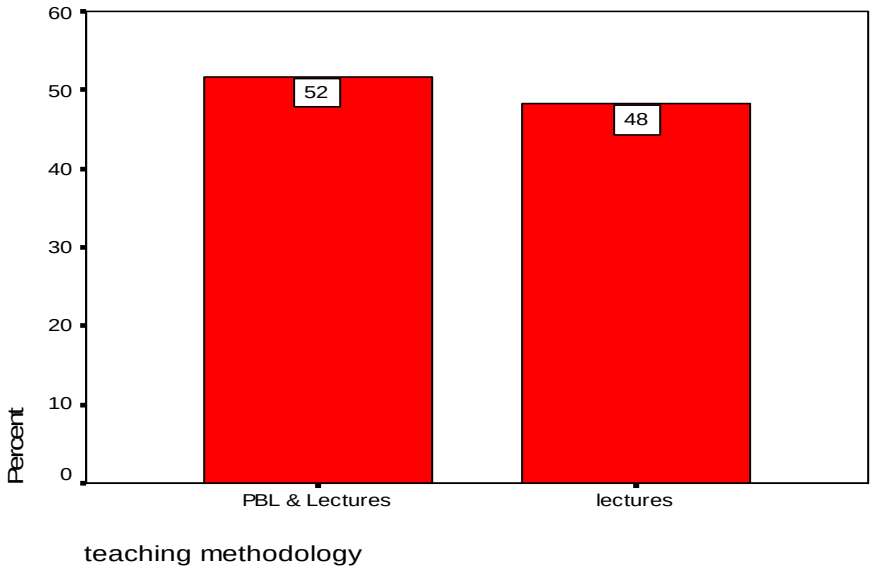
This comparative cross-sectional study was carried out in Rawalpindi Medical College by purposive sampling. The results of all the students who appeared in First Professional Examination Part-II (2008 & 2009) were analyzed. One session (2008) had only lectures as teaching methodology and the other session (2009) attended both PBL sessions and lectures at the same time. The sample incorporated all the results achieved by the students of session 2008 & 2009 i.e., results of 287 students who attended both PBL & lectures and results of 268 who had only lectures. In this study, PBL was defined as a teaching method whereby problem based scenarios are given to the students instead of delivering lectures and students are asked to find out the solution to those problems themselves by means of books

and internet etc. Data was analyzed using SPSS version 10.0 and Microsoft Excel 2007.

RESULTS

Out of the total results of 555 students, 287 students attended both PBL & lectures while 268 students were only taught by delivering lectures. Among students, 58.4% and 41.6% were females and males respectively. More students were taught by both teaching methodologies i.e; PBL and lectures (Fig1).

Fig 1. Distribution of students based on teaching methodologies.



Students who were taught by both PBL sessions and lectures seemed to have better results than those who only attended the lectures (Table 1).

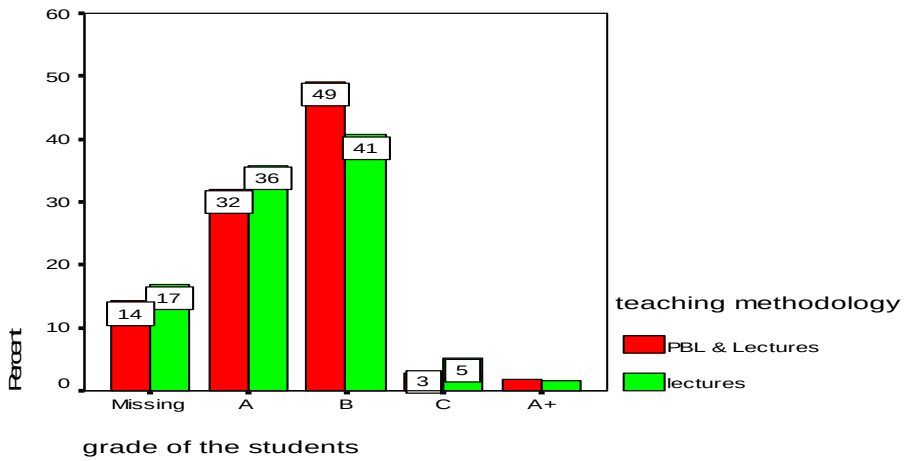
Table 1. Results of students taught by various teaching methodologies.

Teaching methodology	**Result of the students**	
	Pass	**Fail**
PBL & Lectures	247 (86%)	40 (14%)
Lectures	222 (83%)	46 (17%)

Percentage of failure with lectures was found to be higher (54.3%) than those who attended both lectures and PBL (45.7%). On the other hand, fraction of distinctions was more (52.4%) among those who were taught by both teaching methodologies as compared to those (47.6%) who only attended

lectures.

Fig 2. Grades achieved by the students taught by different methodologies.



Grades obtained by the students of both categories are displayed in figure 2.

DISCUSSION

According to a study on PBL versus lectures at the Universidad Europea of Madrid (UEM) PBL participants obtained higher grades compared to those receiving lectures only($P<0.05$). PBL is a teaching-learning methodology that improves student academic results.[8] In another study, PBL students obtained better mean marks (7.6/10) in the examination, which were higher than the mean marks achieved by those receiving conventional lectures. The contact time between teacher and student was much higher in the PBL students, which not only improves the teaching-learning process but is also reported to communicate good practice guidelines more effectively.[9]

This study conducted in RMC showed comparable results with no statistical significant difference (p0.05) in pass percentage of two groups, however, the total number of distinctions (i.e.33vs.30) obtained were more with the PBL & lecture group and the number of failures (i.e.63vs.53) in different subjects were more with the group who did not attend the PBL session. Our results are supported by another comparative study which showed slightly superior academic results in a PBL group than in a group receiving lectures, but the difference did not reach significance.[10]

CONCLUSION AND RECOMMENDATIONS

The study could only provide the evidence that PBL as it was experimented along with traditional teaching methodology did not create any disadvantage to the students in the ultimate outcome in term of their results. The problem solving exercises may help them in their future professional practices, however, this can be studied only after these students get into real life profession.

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REFERENCES

1. Savery, JR. Overview of PBL. Interdiscipl J PBL, Spring 2006;1.

2. Gukas ID, Leinster SJ, Walker R. Verbal and nonverbal indices of learning during PBL among first year medical students and threshold for tutor intervention. Med Teach 2010;32:C5-11.

3. Dhaliwal G, Sharpe BA. 12 tips for presenting a clinical problem solving exercise, Med Teach 2009;31:1056-9.

4. Chang G, Cook D, Maguire T, Skakun E, Yakimets WW, Warnock GL. Problem based learning; its role in undergraduate surgical education. Can J Surg 1995;38:13-21.

5. Heyman SN, Reches A, Safadi R, Cohen R. Introduction of a brief PBL experience in traditional medical faculty curriculum. Harefuah 2007;146:435-8.

6. Greening J. Scaffolding for success in PBL. Med Educ Online 1998;34. Available from:http://www.Med.educ.online.org

7. Carlile S, Barnet S, Sefton A, Uther J. Medical problem based learning Supported by intranet technology; a natural student centered approach. Internal J Medicine Inform 1998;50:225-33.

8. Moreno-López LA, Somacarrera-Pérez ML, Díaz-Rodríguez MM, Campo-Trapero J, Cano-Sánchez J. Problem-based learning versus lectures: comparison of academic results and time devoted by teachers in a course on Dentistry in Special Patients. Med Oral Patol Oral Cir Bucal 2009;14:e583-7.

9. Martín García P, Ríos Santos JV, Segura Egea JJ, Fernández Palacín A, Bullón Fernández P. Dental audit (I): Exact criteria of dental records; results of a Phase-III study. Med Oral Patol Oral Cir Bucal 2008;13:E 407-13.

10. Rich SK, Keim RG, Shuler CF. Problem-based learning versus a traditional educational methodology: a comparison of preclinical and clinical periodontics performance. J Dent Educ 2005;69:649-62.