

Original article

Study of importance of problem based learning in medical undergraduate students

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Abstract:

Aim: To find out importance of problem based learning among II year MBBS undergraduate students.

Methods: It was cross sectional study. Structured questionnaire comprised with various questions about problem based learning methodology was given to 100 II MBBS students of Rural medical college, Loni, India, who regularly attend the problem based learning sessions. them to give feedback about problem based learning. Collected data was subjected for analysis.

Results: According to 31% students PBL was excellent method to gather the knowledge, while 49% students said PBL was very good method regarding its suitability. It was observed that 48% students PBL helped them in building up communication skills, interpersonal relationship and problem solving capacity to very good extent. While scores for creativity and interesting were there. According to 35% there was excellent chance for self development in PBL, students should be encouraged to participate actively.

Conclusion: Problem based learning should continue for better analytical approach and clarification of concepts and helps integrative type teaching for undergraduate medical students.

Key words: Learning method, Problem based learning, Integrative teaching, Medical students

Introduction:

Problem Based Learning (PBL) was started in 1969 by Barrows and Tamblyn at Mc Master University, Canada for undergraduate medical students. Later the system was adopted by Europe, USA and rest of the world.^[1] A study carried out among 1st year medical students at Nelson Mandela school of Medicine showed that majority of the students benefited from input of other students in PBL tutorials as they were conducted in small groups.^[2] Contrary to this study, a study from Kuwait University revealed that introduction of new teaching methodologies may evoke certain factors that lead students to develop adverse perception of their educational environment.^[3] Another study showed that knowledge and power of interpretation

was quite improved among students on reaching the 3rd year but their interest in the process of PBL conduction was lost and they developed shortcuts to solve the problem.^[4] It has been reported that instead of didactic communication in lecture hall, active participation of students in PBL had a bigger role to play in continuing medical education.^[1] Rural Medical college, Loni, is a pioneer in the country to introduce PBL in undergraduate medical programme. The PBL curriculum is being developed and implemented under guidance and collaboration of faculty of health sciences, Linköping University, Sweden. Hence the present study was planned to find out the importance of problem based learning among of II year MBBS

students of Rural Medical College, Loni, Maharashtra, India.

Material and Methods:

Study design:- Cross sectional study.

Sample size: 100 students of II MBBS (Male -69, & Female -31).

Study place: Rural Medical college, Loni,India.

Study duration: Aug 2010-July 2011.

Problem based scenarios were given to the students instead of delivering lectures and students were supposed to solve those problems in groups by themselves step by step such as

-Interpretation of scenario, clarification of terms and concepts given in the problem

-Brainstorming of scenario that is free associations concerning the scenario

-Systematization of the outcome of the brainstorm into problem areas

-Defining one or more problems or issues

-Formulation of learning needs in relation to the problem chosen to study

-Collect knowledge in relation to the learning needs (from books, library, journals, and internet)

-Students were also asked, is problem based learning is enough to learn the topic?

Results were analyzed in the form of percentage and analyzed.

Results:

Out of 100 students, 69 students were male and 31 students were female.

-In next meeting of problem solving group discussed the collected or newly acquired information among themselves to exchange the gained knowledge related to the problem

Thus problem goes on solving with gaining the knowledge, and the role of teacher (Tutor) is to co-ordinate the PBL session.

Data was collected in the form of feedback by means asking students to write the score (1=Poor, 2=Good, 3=Very Good, 4=Excellent) for each quality of problem based learning. The following qualities of both teaching methodology were assessed by students by providing structured questionnaire, consisting following points such as

-Understanding of topic.

-Gathering or acquisition of knowledge.

-Time require to learn the given topic.

-Suitability, improvement of communication skill.

-Work or efforts need to learn.

-Opportunities to clear the doubts

-Creativity, Interesting.

-Chance to self development.

Table 1: Percentage feedback of learning methods

Scores→ Qualities assessed ↓	Problem Base Learning		
	Good (%)	Very Good (%)	Excellent (%)
Understanding of topic	37	43	20
Gathering or acquisition of knowledge	33	36	31
Suitability	25	49	26
Chances given to improve	19	48	33

communication skill.			
Opportunities to clear the doubts	19	46	35
Creativity	26	47	27
Interesting	38	41	31
Chance to self development	20	47	35

As shown in table 1, According to 31% students, PBL was excellent method to gather the knowledge, while 49% students said PBL was very good method regarding its suitability. It was observed that, 48% students PBL helped them in building up communication skills, interpersonal relationship and problem solving capacity to very good extent. According to 46% students, there was very good opportunities to clear the doubts in PBL. While scores for creativity and interesting were very good. According to 35% there was excellent chance for self development in PBL. None of the student has given zero (poor) score to any of the quality. According to 29% students PBL was time consuming method and needs lots of efforts. According 33% students TLM is enough method to learn the subject, but According 64% students have experienced that Problem based learning should remain continuous with regular teaching such lectures, practical, tutorials for better understanding of medical knowledge. While, according 3% students PBL was enough method to learn the topic and there was no need of lecture based teaching.

Discussion:

In present study, majority of the students (64%) were in the favor of both PBL. Some of them are easily understood by self learning while comprehension of some topics needs the help of tutor for better understanding. A study on teaching methods in Shifa College of Medicine showed that 67% of the students wanted Lecture Based Learning and PBL going on side by side.^[5] A cross-sectional study by Habib F et al showed that 79%

of the medical students liked PBL sessions and it was observed that PBL helped them in building up communication skills.^[6] In 1899, Sir William Osler realized that the complexity of the medicine had already progressed beyond the ability of teachers to teach everything that student to need to know.^[7] In 1932, the Commission on Medical Education of the Association of American Colleges stated that medical education should develop sound habits as well as methods of independent study and thought, which will equip the students to continue their self education through life.^[8] Maximum students in the present study expressed that PBL leads to better understanding of subject and invokes self learning habit among students. Probably this was due to the fact that PBL scenarios in RMC are designed by the trained faculty members of the college who have full command on their respective subjects/topics. This methodology not only helps the students to understand the subject in depth but the process of PBL conductance also inculcates self learning practice among students as they have to formulate their learning objectives themselves after receiving PBL scenarios, solve the problem themselves by means of internet, consulting various books etc. and actively participate in group discussions. Rural Medical College, Loni, has a well established library that is equipped with all the latest editions of books, journals and availability of internet facilities which help students to gather the information about medical science during PBL sessions. A similar study by Alam AY et al also concluded that PBL along with Lecture Based

Learning will promote independent and creative learning among medical students.^[5] In this study students claimed that tutor were well trained for conducting PBL sessions. Facilitators committed for PBL sessions have undergone through various workshops to polish their skills for PBL facilitation and educational experts from Likopian University regularly visit the institute to conduct workshops. Moreover, facilitators in PBL are not supposed to teach the students. Rather they have just to observe their performance and check them from deviation of their right track. An international study to assess the role of facilitators in PBL tutorials showed that facilitators must regularly review PBL tutorial processes and group dynamics with in tutorial settings.^[9] Students agreed that subjects' integration helped in the clarification of concepts in

medical studies. Likewise, another study revealed that integrated curriculum promoted better understanding of health sciences pertaining to common diseases and majority of the respondents (77.61%) expressed that PBL in modules assisted to great extent in interpreting the cases in their annual examinations.^[10]

Conclusion:

Problem based learning method is indispensable for better understanding and more clarification of concepts pertaining to health sciences. The majority of students wanted problem Based Learning must go side by side to understand topics. A combination of both the conventional and newer curricula provides the most effective training for undergraduate medical students.

References:

1. Anwar MS, Shah SS. Problem Based Learning as an alternative to traditional lecture system: Its application in integrated undergraduate medical curriculum. *JIIMC* 2009;5:75-76.
2. Singaram VS, Dolmans DH, Lachman N, Van der Vleuten CP. Perceptions of problem-based learning (PBL) group effectiveness in a socially-culturally diverse medical student population. *Edu Health (Abingdon)* 2008;21:116.
3. Bouhaimed M, Thalib L, Doi SA. Perception of the educational environment by medical students undergoing a curricular transition in Kuwait. *Med Princ Pract* 2009;18:204-08.
4. Memon MA, Barakzai Q. Analysis of PBL performance of Batch Xi (3rd year MBBS) in three consecutive years. *JIIMC* 2009;5:47.
5. Alam AY, Shah S. Faculty and students Survey: Methods of imparting knowledge suitable for undergraduate medical students. *Pak J Med Res* 2003; 42:116-19.
6. Habib F, Baig L, Mansuri FA. Opinion of medical students regarding problem based learning. *J Pak Med Assoc* 2006;56:430-32.
7. Osler W. An introductory address on examinations, examiners, and examinees *Lancet* 1913;1047-50.
8. Rappleye WC. Medical education: final report of the Commission on Medical Education. New York: Association of Medical Colleges, Commission on Medical Education 1932;173-4.
9. Papinczak T, Tunny T, Young L. Conducting the symphony: a qualitative study of facilitation in problem-based learning tutorials. *Med Educ* 2009;43:377-83.
10. Jaffri N, Huda N, Jaleel A. Integrated undergraduate curriculum at Ziauddin University. *JIIMC* 2009;5:71