



Assessment of Faculty Perceptions in Introducing Case Based Learning as a Teaching Learning Tool for II MBBS Students

KEYWORDS

Faculty perception, Case based learning, Self directed learning

Dr Kalpana Date

Associate Professor, Department of Microbiology,
N.K.P. Salve Institute of Medical Sciences & R.C.
Digdoh Hills, Hingna Road, Nagpur

Dr Amruta Dashputra

Assistant professor, Department of Pharmacology,
N.K.P. Salve Institute of Medical Sciences & R.C.,
Digdoh Hills, Hingna Road Nagpur

ABSTRACT Case based learning (CBL) can be used as an effective teaching tool in medical colleges to promote self directed learning. Microbiology is taught to undergraduate students in lecture and practical form in II MBBS. Value addition to this teaching practice can be done by introducing CBL. The study was planned to assess feasibility of Case based learning (CBL) in II MBBS teaching. CBL was discussed and demonstrated to fifty faculty members. Feedback was taken in predesigned, prevalidated form. Results of study showed that staff members agreed that CBL can be used as an effective teaching tool and will improve clinical correlation in students. Staff members agreed that CBL will help to make their subject more interesting, help students in improving their performance in the examination and will lead to more sustained learning as compared to the theory classes alone. Nearly half of the staff members felt that existing staff strength will not be sufficient to incorporate CBL in the curriculum. Most of the teachers who attended the session felt that CBL is practical and interactive way of teaching where learning is self directed. Communication skills of students will improve; their confidence to handle cases will also increase. Finally teachers commented that this interactive small group teaching tool will prove to be useful to make better doctors.

Introduction:

Medical education is changing rapidly, for which more than half of the American medical schools are engaged in curriculum reforms (Hollander et al, 2002). Many courses use case studies in their curriculum to teach content, involve students with real life data and provide opportunities for students to put themselves in the decision maker's shoes. There is growing emphasis in many Indian medical schools to decrease the quantum of rote memorization and to adopt learning strategies that enhance critical thinking among students (Ghosh, 2007). Learning methods have been classified as teacher – controlled and learner-controlled method. Learner controlled method promotes self directed learning. Self directed learning is a process in which learners take responsibility for their learning. Giving greater responsibility to students for their own learning increases motivation (Kumar & Zayapragas-sarazan, 2012).

Self directed learning is increasingly used in medical curricula as it is thought to promote lifelong learning in medicine (Simon, 2005). In self directed learning, learners are involved in selecting learning resources and learning methods and self assessment of learning outcomes with teachers acting as facilitators (Knowles, 1975). The emerging trend all over the world is to have a problem- based, integrated student-centered medical curriculum, demanding active participation from the students and facilitating self- directed learning (Hamad, 1985). Working effectively within teams has been recognized by medical educator as an important competency for learners. Teams are increasingly being used in medical education to enhance active learning and foster better interpersonal communication skills. (Roa & Shenoy, 2013).

Case based learning (CBL) is an active learning strategy closely related to the problem based learning (PBL). CBL in fact incorporates many traits derived from PBL (Ciraj et al, 2010). The main difference between CBL and PBL is that in CBL problem or case scenario was given after didactic lecture of respective topic whereas in PBL problem or case scenario was given directly without didactic lecture. Case based learning (CBL) can be used as an effective teaching tool in medical colleges as an adjunct to other teaching techniques especially in para clinical subjects.

This study was planned keeping in mind the paraclinical subjects like microbiology of MBBS (Bachelor of medicine & bachelor of surgery). Microbiology is taught to undergraduate students in lecture and practical form in II MBBS. Value addition to this teaching practice can be done by introducing case based learning. This will make teaching more interesting, practical oriented, self directed. Though time constraint is there in the time table, CBL can be used for a few selected topics. There are many advantages of CBL; like learning is self directed and students actively participate in this type of teaching learning method. A problem is given to them and they use their previous knowledge and experience to solve it with minimum interference from teacher. Here teacher act as a facilitator. Problem is given from the topic already taught to them in theory class. It is now time for them to apply their knowledge to practical problem. This way they retain the topic better. They then find out the best possible solution by discussion in small groups. Everyone puts forth their ideas and understanding about the case. After brainstorming and group discussion they come to a probable solution. In CBL whatever is learned is applied to a real life situation. This makes learning application oriented and knowledge is retained in a better way. As every student can participate in the learning process, the whole process becomes interesting. This increases students' attention and their communication skills. In the long run it may improve their attendance in the class.

So we had designed this study to get feedback of teacher's perception regarding introduction of CBL in teaching curriculum after showing them demonstration of CBL. The course assessment instrument like feedback may help to know about the pros and cons of this teaching method (Badyal et al, 2010).

Objectives:

- 1) To assess perception of faculty regarding introducing Case based learning as teaching learning tool.
- 2) To promote self directed learning in students.

Materials and methods:

This cross-sectional study was planned to assess faculty perceptions regarding introducing CBL in II MBBS teaching at

N.K.P. Salve Institute of Medical Sciences and Research Centre, Nagpur. This medical institute follows a curriculum and teaching modules according to guidelines given by Medical Council of India. Before starting this study, few topics were short listed for CBL, after interaction with clinicians. Case scenarios were prepared on selected topics. Case scenarios were presented in department of microbiology and medicine and changes were made as per suggestions from staff members. Then finally CBL was discussed and demonstrated to institutional faculty members by authors and teaching staff of department of microbiology. After demonstration of CBL a prevalidated feedback form was given to the pre, para and clinical faculty members. They were given enough time to fill the forms. Feedback forms contained total 18 items. Ten items were closed ended question, with yes/ no/ can't say option. Remaining items are open ended question.

Statistical analysis: Data was collected and analyzed by percentage method.

Results:

In the present study 50 faculty members of preclinical, para-clinical and clinical subjects participated. Results of this study showed that

- 93.75% staff members agreed that CBL can be used as an effective teaching tool in their subject.
- 97.91% were of the opinion that CBL will improve clinical correlation in students.
- 77.09% felt that CBL will help students in improving their performance in the examination whereas 18.75% could not opine on this and 4.16% felt it will not be useful to improve examination performance.
- 93.75% staff members agreed that CBL will help to make their subject more interesting.
- 87.5% felt that CBL will lead to more sustained learning as compared to the theory classes alone.
- 89.58% teachers opined that CBL will enable students to improve their communication skills.
- 68.75% teachers opined that CBL should be incorporated in the MUHS (Maharashtra University of Health Sciences) syllabus while others could not opine on this.
- Nearly half of the staff members felt that existing staff strength will not be sufficient to incorporate CBL in the curriculum. When interviewed they opined that it can be used for few selected topics.
- 50% staff members agreed that CBL can be incorporated in the time table. Rest of them either did not agree or could not opine on this issue.
- 56.25% felt that staff members will not require any special training to conduct CBL but a considerable percentage 43.75% of staff members felt that special training in this regard is essential and the rest of them could not opine.
- Most of the teachers who attended the session felt that CBL is practical and interactive way of teaching where students learn on their own with minimal help from teachers. It is beneficial both for students and teachers as teaching skill will be improved and students' participation will be increased.
- Most of the teachers agreed to the fact that CBL will improve teachers teaching skill as it is a clinical, practical application of knowledge. Communication between students and teacher will improve. Teacher will come across more ideas from students; he has to find more resources which will enrich his knowledge.
- All the teachers agreed that CBL will be beneficial for students as students will understand and remember the subject better. Students will correlate theoretical knowledge and clinical cases. Communication skills of students will improve; their confidence to handle cases will increase. Students will develop interest in the subject especially the pre and Para clinical as CBL will teach clinical correlation in these subjects. Finally as students' interest will increase their attendance will also improve.
- 66.66% teachers were using case scenarios for conduct-

ing exams while rest were are not.

- Most of the teachers commented that common cases should be included like common infectious diseases in Microbiology.
- Most of the teachers commented that they are likely to use case scenarios as a tool for teaching in future.
- Finally teachers commented that this interactive small group teaching tool will prove to be useful to make better doctors and also will prepare students for further entrance examinations.

Discussion:

Medical Education should not be just about where and what student learn but should also be about methods by which they learn. A teaching learning method that incorporates active learning gives students opportunity to develop interactive relationship with the subject, encourage them to generate knowledge rather than simply receive. According to new curricula introduction of case based learning/problem based learning will be helpful to end the wide gap between pre-clinical and clinical subjects.(Cavenath, 2011).

In the present study maximum staff members agreed that CBL can be used as an effective teaching tool in their subject and it will improve clinical correlation in students. PBL/CBL curriculum resulted in better relationship between faculty and students. This positive interaction with medical teachers does appear to be an important factor in student's satisfaction with their learning environment (cavenath, 2011). It is generally accepted that the chances of retaining the knowledge will be better if the learning is expected to occur around a realistic problem. Cases used during CBL necessarily shift the focus of student learning beyond the facts and stimulate the students to utilize scientific knowledge to frame questions and to answer them. In this process they also learn to gather information, find answers to questions and provide support for their conclusions. This approach will help medical students learning skills, analytical skills and ultimately their decision making abilities. Actually all these traits help to develop active learning. (Ciraj et al, 2010)

In this study most of the faculty felt that CBL will help in improving student's performance in the examination whereas few faculties were in dilemma. But most of them were in agreement that CBL will help to make their subject more interesting. Learning through PBL/CBL has shown that long term retention of content is significantly increased. Students who used CBL/ PBL were also better at collaboration and information gathering and had better interpersonal skills (Waterman &Stanly, 2005) .There is a need to move from opinion based education to evidence based education (Harden et al ,1999).

Maximum teacher opined that CBL will lead to more sustained learning as compared to the theory classes alone and CBL will enable students to improve their communication skills. It was observed that students were usually satisfied with interactive activities or teaching methods. (Badyal et al, 2010).

Result of study conducted by Blewett et al support continued use of interactive case based sessions. But they recommended prospective research to assess the utility of these sessions (Blewett et al, 2009). Experiments by medical teachers had shown that it is possible to introduce a problem based/case based form of learning into a new course in parallel with more traditional modes of teaching making it successful (Morrison & Murray, 1994).

Essential learning outcome that medical students should have are, the need for development of critical approach, research oriented attitude and communication skills. For that it is widely agreed that problem solving skills are essentials in the medical practice, but still there is a doubt and dilemma to transform educational strategies in this direction (Ciraj et

al, 2010). Difference of opinion was found regarding incorporation of CBL in time table in the MUHS syllabus, and even in curriculum. It was probably due to time constraint; as syllabus needs to be completed within stipulated time. While conducting CBL practical difficulty may arise with limited existing staff strength. Practically it is difficult to convert total curriculum in CBL. CBL is possible for few selected topics and not for all the topics. Another reason might be requirement of special training for teaching staff member to conduct CBL. Naturally faculty apprehension was common when one deviates from the routine (Ciraj et al, 2010).

Medical practice is essentially a problem –solving activity whether at individual, family or community level (Hamad, 1985). It is possible to introduce changes in teaching format under the traditional curriculum with the advantages of reducing didactic teaching and workload and improving self-directed learning skill in students (Neuble and Clark, 1986). A judicious combination of didactic lecture and case base learning may be helpful in molding the medical students for self directed learning, to learn group dynamics and to develop the skill of correlating basic sciences with clinical science. (Ghosh, 2007)

Conclusion:

After attending a demonstration on how to conduct a CBL session and valuable discussion that most of the faculty members were of the opinion that CBL can be a very effective teaching tool in their subject. Faculty perception showed that it was possible to introduce a case based form of learning into a conventional medical curriculum in parallel with the traditional modes of teaching. It will not only improve clinical correlation in students but also make the subjects more interesting. CBL will enable students to improve their communication skills and communication between students and teacher will also improve. But due to time constraint this technique can be used for few selected important topics

only. This study showed not only attitude of faculty regarding CBL, it also highlighted barriers in conducting CBL. By this study we can interpret that CBL can be introduced in medical curriculum.

Limitation and Recommendations: -

Successful implementations of PBL/CBL require cooperation of students and teachers along with administrative regulatory body. There may be resistance from few faculty members who do not favour self directed learning by students; it is due to probably fear of losing their importance and identity. Another limitation of the study was that, there may be a bias among faculty members participating in the study. There are recommendations from faculty members to undergo Teachers Training Programme, to make them equipped with new teaching methodology.

Acknowledgements- Authors acknowledges the help offered by teaching staff of department of microbiology for conducting the demonstration of CBL. Authors are also thankful for immense support given by Medical Education Technology Unit of NKPSIM & RC, Nagpur.



REFERENCE

- Badyal, D.K., Bala, S., & Kathuria, P. (2010). Students' evaluation of teaching | and assessment methods in pharmacology. *Indian J Pharmacol*; 42 (2) 87-89 | 2. Blewett, E. L., & Kisamore, J. L. (2009). Evaluation of an interactive, | case –based review session in teaching medical microbiology. *B M C | Medical Education*, 9: 56. <http://www.biomedcentral.com/1472-6920/9/56>. | 3. Cavenagh, P. (2011). The effect of traditional medical education. In: Penelope | Cavenagh, Sam J Leinster, Swan Miles (Eds.): *The Changing Face of | Medical Education*. UK: Radcliffe Publishing, pp. 13- 23 | 4. Ciraj, A.M., Vinod, P., & Ramnarayan, K. (2010) Enhancing active learning | in microbiology through case based learning: Experiences from an India | medical school. *Indian Journal of Pathology & Microbiology*, 53 (4):729-733 | 5. Ghosh, S. (2007). Combination of didactic lectures and case oriented | problem solving tutorials towards better learning: perception of students from | a conventional medical curriculum. *Advan Physiol Educ*, 31, 193-197 | 6. Hamad, B. (1985). Problem based education in Gezira. *Sudan, Medical Education |* 19,357-363, | 7. Harden, R. M., Grant J, Buckley, G, & Hart I.R. (1999). Best evidence | medical education. *Medical Teacher*. 21;553-562. | 8. Hollander, H., Loeser, H., & Irby, D. (2002). An anticipatory | quality improvement process for curricular reforms. *Academic Medicine*, | 77(9), 930 | 9. Knowles, M. (1975). Self –Directed Learning: A Guide for learners and | Teachers. New York: Association Press, | 10. Kumar, S., & Zayapragassaran, Z. (2012). Self directed learning in graduate | Medical curriculum. *N. T. T. C. Bulletin*, Vol 19.2 September, 2-3 | 11. Morrison, J.M., & Murray, T.S. (1994). An experiment in problem based | learning. *Medical Education*, . 28, 139-145. | 12. Neuble, D.J., & Clarke, R.M. (1986). The approaches to learning of students | in a traditional and an innovative problem based medical school. *Med Educ |* 20, 267-273. | 13. Roa, Y. K., & Shenoy, G. K. (2013). Introducing team based learning | in undergraduate pharmacology. *Indian Journal of Pharmacology*, 45 (1), 102-103. | 14. Simon, F.A., & Aschenbrener, C.A. (2005). Undergraduate medical | education accreditation as a driver of lifelong learning. *J contin Edu Health Prof*. 25 (3),157-61 | 15. Waterman, M. A., & Stanley, E. D. (2005). Investigative case based | learning: Teaching scientifically while connecting science to society. | In *Invention and Impact Building Excellence in undergraduate | Science, Technology, Engineering and Mathematics (STEM) Education*. | p 55-60 |