



EVALUATION OF CONVENTIONAL LECTURE METHOD VERSUS PBL (PROBLEM BASED LEARNING) USING THE CASES NOTES PREPARED BY NEW GRADUATES.

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ABSTRACT... Objectives: To evaluate conventional lecture method and problem based learning using the cases notes prepared by new graduates. **Study Design:** Cross-sectional study. **Setting:** Departments Anesthesia, Gynecology and Obstetrics of Nishtar Medical University and Hospital, Multan. **Period:** December 1st, 2018 to April 30st, 2019. **Material & Methods:** Total 138 patients' files were selected, 69 anesthesia files for PBL and 69 gynecology files for CLM. All the files were analyzed for date and time when the doctor saw the patients, physical examination, review of systems, personal and social history, family history, diagnosis, investigations and filing the results, drugs given at the time of admission and at discharge. Data was put in the SPSS 23 and compared between the two groups. Percentages were compared by applying Chi-square test and $p \leq 0.05$ was taken as statistically significant. **Results:** The CLM group was significantly better in the documentation of the date and time, review of the systems, medication at the time of admission and the time of discharge. The PBL group performed significantly better in taking drug history and smoking, making final diagnosis and requesting specific investigation. **Conclusion:** Both PBL and CLM systems are efficient selectively, but a combination of both these system will be more efficient approach.

Key words: Conventional Lecture Method, Case Notes, Evaluation, Medical Graduates, Problem Based Learning.

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INTRODUCTION

It is important to keep proper clinical notes for the appropriate management of the patients. These notes are also helpful in doing research, to handle medicolegal cases and to go through audit.¹ Medical teaching institutions try to help the trainees to learn minimum key points which are necessary to take a comprehensive clinical history. These specific points vary around different specialties while some points overlap across various specialties. Students usually attend various rotations and tend to learn all the necessary key points. At the time of graduation and post-graduation, candidates are expected to have learned all the clinical guidelines needed for taking thorough clinical history from the patients. Various departments have now devised their own specific performas which has sections to be filled with key history points.²⁻⁵

Problem based learning (PBL) in various ways has become popular in medical schools over the past few years. There was serious division seen between the supporters and the skeptics when the teaching patterns was switched for the first time, and serious concerns were seen regarding the quality and level of knowledge being conveyed to the students.⁶⁻⁸ No specific mode of learning is defined as problem based learning, rather it comprises of wide range of approaches.⁹ In PBL, groups are encouraged to focus on the discovering information themselves. This helps to boost their ability to solve problems, learn independently as well as to keep up with their team and work together.¹⁰ Facilitators are expected not to interfere with the Facilitators are expected not to interfere with the discussion of the student even when the students are facing a difficult situation. In this scheme of learning, a clinical problem or scenario is presented in

front of the students as a trigger for discussion. Students have to understand and define the problem, look for relative issues and search for possible solutions for the presented problem.

In comparison with conventional lecture method (CLM) learning technique, PBL is thought to improve the quality of learning as witnessed by the satisfaction level of the learners without any changes observed in test scores.¹¹ It has been hypothesized that students tend to emerge as better problem solvers when they are made to confront the clinical problems than would from the CLM based learning. The supporters of the PBL argue that this technique encourages lifelong learning and clinical practice, stimulates curiosity and urge to understand the complexity of medicine.^{6,9} Those who are against the PBL technique argue that this process is not time efficient, infuriating time-pressured students and often leads to wrong results.¹² Further, PBL does not help the students to learn how to implement appropriate knowledge and skills in clinical practice.¹³ A reservation, that the expertise of the faculty and the resources are wasted if not used in passive way, also been observed.

The purpose of our study was to observe if there was a significant difference between the notes taken by the doctors trained by PBL method and the notes taken by those who were trained by CLM. The guidelines from the royal college of surgeons were modified and used for our study. Clinical notes were used as the tool for assessing the level of learning between the two groups of the new graduates, before their clinical techniques were corrupted by the influence of senior doctors.

MATERIAL & METHODS

This cross-sectional study was conducted in the department of Anesthesia and department of Gynecology and Obstetrics at Nishtar medical university and hospital, Multan. The duration of study was from December 1st 2018 to April 30st 2019. Sample size was calculated from the reference study.¹⁴ Total 138 patients' files were selected. Sixty nine files were compiled by the residents of Anesthesia department availing problem based learning technique (PBL) and

while remaining sixty nine files were compiled by the residents of Genecology and Obstetrics department who are utilizing conventional lecture method (CLM).

All the files were analyzed thoroughly and the required data was entered in the forms according to the already set parameters as described in Table-I. One observer was set to go through all the files. The included parameters were date and time when the doctor saw the patients, history of presenting complaint, medical and surgical history, drug history, drug allergy, personal history, social history, family history, diagnosis, investigation, filing the results of investigations, drugs given at the time of admission, instruction to the patients, discharge medication and signing of entries. The sample size calculated for each group was sixty nine. All the data was put in the SPSS version 23 software with allocated codes and compared between the two groups. Percentages were compared by applying Pearson Chi square test and $p \leq 0.05$ was taken as statistically significant.

RESULTS

Both date and time of the doctor seeing the patient was mentioned on 47.8% and 10.1% of the files, only date was mentioned in 34.8% and 29% of the files, only time was mentioned in 10.1% and 4.8% of the files and no documentation was seen in 7.2% and 56.6% of the files for CLM and PBL, respectively ($p < 0.001$). Smoking history was mentioned along with the amount in 50.7% and 29% of the files and without amount in 20.3% and 33.3% of the files while documentation was missing in 29% and 37.7% of the files for PBL and CML, respectively ($p = 0.029$). Drug history was mentioned along with the amount in 42% and 18.8% of the files and without amount in 8.7% and 15.9% of the files while documentation was missing in 49.3% and 65.2% of the files for PBL and CML, respectively ($p = 0.011$). For CLM and PBL, complete physical examination was performed in 87% and 91.3% of the patients while only local examination was done in 10.1% and 7.2% of the patients, respectively ($p = 0.691$). Review of all the systems was recorded in 5.8% and 23.2%, some systems were recorded in 15.9% and 40.6%, all

the systems were lumped in 62.3% and 23.2% and no review of the systems was recorded in 15.9% and 13% for PBL and CLM, respectively ($p < 0.001$). Final diagnosis, provisional diagnosis, provisional as well as differential diagnoses and no diagnosis were made in 73.9%, 10.1%, 10.1% and 5.8% of the files compiled by the graduates of PBL system while in 53.6%, 13%, 30.4% and 2.9% of the files compiled by the graduates of the CLM system, respectively ($p = 0.017$). Specific and non-specific investigations were requested for 66.7% of 31.9% of the patients by the PBL graduates while for 33.3% and 59.4% of the patients by the CLM graduates, respectively ($p < 0.001$). On admission medication along with doses was

mentioned in 42%, medication without doses was mentioned in 34.8% and no documentation was done in 23.2% of the files by the PBL graduates; while CLM graduates mentioned on admission medication along with doses in 71%, medication without doses in 20.3% of the files and documentation in 8.7% files was missed ($p = 0.002$). Discharge medicine along with doses was mentioned in 47.8% files, medicine without doses was mentioned in 23.2% files and 29% files were left blank by the PBL graduates; while CLM graduates mentioned discharge medicine along with doses in 66.7% files, medicine without doses in 21.7% files and documentation in 11.6% files was missed ($p = 0.026$). Table-II

Parameter	Categorization
Patient's name and number	On all the pages, only on some pages.
Date and time of doctor seeing the patient	Both date and time recorded, date only, time only, no documentation.
History of present illness	Any indication of duration, yes or no. Any indication of the severity, yes or no.
Medical and surgical history	Medical and surgical history recorded or not. Drugs being used recorded with or without doses. Surgical procedures recorded or not.
Drug history	Previous used of drugs recorded or not.
Drug allergy	Allergy to drugs recorded or not.
Social history	Employed or not. Family member accompanying the patient or not. History of alcohol intake present or not, if yes then the amount specified or not. History of smoking recorded or not, if yes then the amount specified or not.
Systemic review	All information recorded, some recorded, no record, lumped together.
Physical examination	General as well as local examination recorded, only local examination recorded.
Diagnosis	Final diagnosis recorded, provisional diagnosis with differentials recorded, only provisional diagnosis recorded, no diagnosis recorded.
Investigations	Investigations recorded and specifies, investigations recorded but not specified, no investigations recorded.
Drugs at the time of admission	Drugs recorded with prescribed dosages, drugs recorded without dosages, drugs not recorded.
Instruction to the patients	Instructions given to the patients recorded or not.
Investigation results	Results of the requested investigation filed or not.
Drugs at the time of discharge	Drugs prescribed at the time of discharge documented along with dosage and frequency, recorded but without dosage and frequency, no drugs recorded.
Entries signed	Entries signed or not.

Table-I. Set guidelines to review the patients' charts.

Variable	PBL (%)	CLM (%)	p-value
Date and time record	Both	10.1	<0.001
	Date only	29.0	
	Time only	4.8	
	None	56.5	
Smoking	Amount mentioned	50.7	0.029
	Amount not mentioned	20.3	
	Not mentioned	29.0	
Review of systems	All recorded	5.8	<0.001
	Some recorded	15.9	
	Lumped	62.3	
	No record	15.9	
Drug history (prescribed or otherwise)	Amount mentioned	42.0	0.011
	Amount not mentioned	8.7	
	Not mentioned	49.3	
Physical examination	General and local	91.3	0.691
	Local only	7.2	
	None	1.4	
Diagnosis	Final diagnosis	73.9	0.017
	Provisional diagnosis	10.1	
	Provincial and differentials	10.1	
	none	5.8	
Investigations	Specific	66.7	<0.001
	Non specific	31.9	
	None	1.4	
Drugs on admission	With doses	42.0	0.002
	Without doses	34.8	
	None	23.2	
Drugs on discharge	With doses	47.8	0.026
	Without doses	23.2	
	None	29.0	

Table-II. Comparison of the patients' files compiled by the medical graduates trained by PBL and CML.

DISCUSSION

As both PBL and CLM are significantly different styles of medical education, the comparison of the two techniques is a very difficult task. The change in the intellect of the individual by any of these approaches is a major challenge. A different type of PBL curriculum is described differently in undergraduate training institutions of dentistry.^{6,15} There is a controversy in the techniques used to compare the knowledge skills of the graduates of the two systems. This may be attributed to the fact the techniques usually used for assessment are not suitable to both the systems.^{16,17} Still there is

need to compare both these techniques to know about the shortcomings of the training method and improvements can be made in the teaching patterns for the better training of the students. By reaping the benefits of the two techniques, efficiency of the trainees and quality of the clinical skills can be achieved.¹⁸

In our study, we observed that the performance of the CLM group was significantly better in the documentation of the date and time, review of the systems, medication at the time of admission and the medication prescribed at the time of

discharge. The PBL group performed significantly better in taking history of drug intake and smoking, making final diagnosis and requesting specific investigation. However, the performance was not significantly different in physical examination. In some other studies, no difference in the clinical performance of the CLM and PBL students has been observed.^{6,19,20}

Truth seeking behavior and open mindedness has been observed in the PBL students.²¹ This is probably the reason that the PBL student were able to take better history of smoking and alcohol intake. It may be due the curious attitude imparted by the PBL technique that this groups was able to make better final diagnosis as compared to the CLM group which was able to make differentials.²² There may be shortcomings of the PBL approach, as it has been found very difficult to design the problems that can ensure the attaining of necessary discussion and self-directed learning aims.²³

Overall, it can be said that the combination of the two teaching techniques can be really helpful in training the student and boosting their clinical skills. This type of teaching has proved to be significantly useful in the computer science student when they entered university after secondary school.²⁴ There are significant challenges faced regarding PBL in the developing countries as a large number of highly trained staff is needed in medical schools^{25,26} and a hybrid of the two teaching technique can help to solve this issue and to reap the benefits of both PBL and CLM.²⁷

CONCLUSION

Both PBL and CLM systems are efficient selectively, but a combination of both these system will be more efficient approach.

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3	Muhammad Azeem Gulzar	Data collection.	
4	Bilal Nazar	Data analysis, Proof reading.	
5	Masood Alam	Data analysis, Manuscript writing.	
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