

Original Research Article

Knowledge, attitude, and practice of medical staff regarding problem based learning: experience of a Saudi Arabian university

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Received: 28 July 2018

Accepted: 07 September 2018

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ABSTRACT

Background: Problem-based learning is an instructional approach that emphasizes inquiry. Problem-based learning was developed in the late 1960s and has been the most influential innovation in medical education during the past 50 years. Implementation of problem-based learning requires fundamental changes in the way educators conceive, design, deliver, and assess the curriculum. We designed this cross-sectional study to determine whether the staff members in the clinical years in the faculty of medicine in Northern Border University (NBU) has a previous experience with problem-based learning methods of teaching and to know their attitude towards it.

Methods: Data were collected from 46 staff members in the clinical years of the faculty of medicine using hard copy questionnaire and analyzed using statistical package for social sciences software program.

Results: The results showed that eighty percent of the clinical staff were graduated from colleges using the classical curriculum. Around 30% of them worked as PBL tutors before joining the faculty of medicine but all of them worked as PBL tutors after joining. Only one-third of the clinical staff know the steps of PBL when joining the faculty of medicine. Around 80% of study group think that hybrid curriculum is the best curriculum for faculties of medicine.

Conclusions: The study group had the knowledge, practice, and experience of PBL method of teaching, they attended PBL workshops and like to attend more PBL workshops, in addition, the majority of faculty members think that the hybrid curriculum is the best for implementation in faculties of medicine.

Keywords: Classical curriculum, Hybrid curriculum, Inquiry science, Problem-based learning curriculum, Problem based learning facilitator

INTRODUCTION

Problem-based learning (PBL) is a small group teaching method through which students acquire knowledge in addition to clinical skills and attitudes. Theoretically, it is based on adult learning theory and constructivism and is suggested to produce an excellent teaching environment and improve the outcomes of graduate knowledge, skills, and attitudes. When problem-based learning is implemented it requires fundamental changes in the

conception, design, delivery, and assessment of the curriculum by educators.¹

PBL involves seven steps that students follow in groups of 10 to 15, these steps are:

- Discuss the case and make sure everyone understands the problem,
- Identify the questions that need to be answered to shed light on the case,

- Brainstorm what the group already knows and identify potential solutions,
- Analyze and structure the results of the brainstorming session,
- Formulate learning objectives for the knowledge that is still lacking,
- Do independent study, individually or in smaller groups: read articles or books, follow practical's or attend lectures to gain the required knowledge,
- Discuss the findings.

The initial five steps are covered in the first tutorial, then students work individually or in small groups on their part of the problem and come together in the second tutorial to discuss the results as a group.²

PBL curriculum has been advocated 50 years back first by a Canadian medical school and then implemented all over the world as mentioned by Schwab and also mentioned by Neufeld and Barrows.³ PBL curriculum was used effectively for training medical students in different medical schools and was considered a successful innovation as written by Kaufman in his book *Implementing problem-based medical education: Lessons from successful innovations*.⁴ Despite the cost and resource implications, problem-based learning has been implemented to varying degrees throughout the world, for example, it is used in most medical schools in the United States of America and many new medical schools in developing countries.⁵

Several challenges have been faced by medical programmes that implement PBL because it is based on small group discussions and a major challenge is how to have an effective assessment method because it involves self, peer and tutor assessments and these are practically difficult to perform especially for none experienced students and tutors.⁶

There was a rapid change in medical education in Saudi Arabia and this was obvious in the increase in the number of medical schools from 5 to more than 21 and also the change from traditional to the more innovative problem based and community-based curricula.⁷

An example of Saudi Arabian universities that implemented the new PBL curriculum is the King Abdulaziz University which implemented the new curriculum to provide a learning environment in which competence is gained not only by teaching to impart knowledge but also by encouraging curiosity for learning. For medical schools to implement PBL programmes as a teaching tool they have to make changes and training for teachers to become facilitators.⁸

Northern Border University is one of the new universities in Saudi Arabia found in 2007 and Faculty of Medicine is one of its branches, it applied a hybrid PBL curriculum. The aim of this study was to determine whether the staff members in the clinical years in the faculty of medicine

had previous experience with problem-based learning (PBL) and to know their attitude towards it.

METHODS

This was a cross-sectional prospective study.

Study period

The study was conducted in the period between January and July 2016.

Study Population

Staff members in the clinical departments of the faculty of medicine, Northern Border University, Arar city, Kingdom of Saudi Arabia.

Sample Size

The target was 55 staff members from different clinical departments, in the faculty of medicine. Northern Border University.

Inclusion criteria

Staff members from different clinical departments in the faculty of medicine, Northern Border University which includes the department of medicine, department of general surgery, Ophthalmology department, Ear Nose and Throat department, Orthopedics department, Obstetrics and Gynecology and Pediatrics departments.

Exclusion criteria

Staff members from basic sciences departments in the faculty of medicine and staff members from other colleges in Northern Border University.

Data collection methods

We collected data using a specially designed questionnaire distributed to 55 staff members in the different clinical departments including medicine, general surgery, orthopedics, ophthalmology, obstetrics and gynecology, pediatrics and ear nose and throat departments. Forty-six members of the clinical staff responded to the questionnaire which included questions about the definition of PBL, type of curriculum in colleges of graduation and questions about the experience of being a PBL tutor before and after joining the faculty of medicine. It also included questions about the phases and steps of PBL in which we refer to the problem-based learning design developed by Maastricht university which is usually conducted in two phases including seven steps. In the questionnaire, we asked about the previous attendance of PBL workshops and the future need for attending PBL workshops. Questions also included their opinion about the best curriculum to be applied in faculties of medicine and the actual curriculum applied in

our faculty of medicine. The collected data were analyzed using the statistical package for social sciences (SPSS) program version 20, considering a p-value of <0.05 as statistically significant.

RESULTS

After analysis of the collected data we found that all of the clinical staff in the faculty of medicine, Northern Border University know what is the meaning of problem-based learning and what it stands for. The next finding was that about 80% of the staff members in the clinical departments were graduated from colleges using the classical design curriculum, while about 20% were graduated from colleges using hybrid and problem-based learning design curriculum (Figure 1).

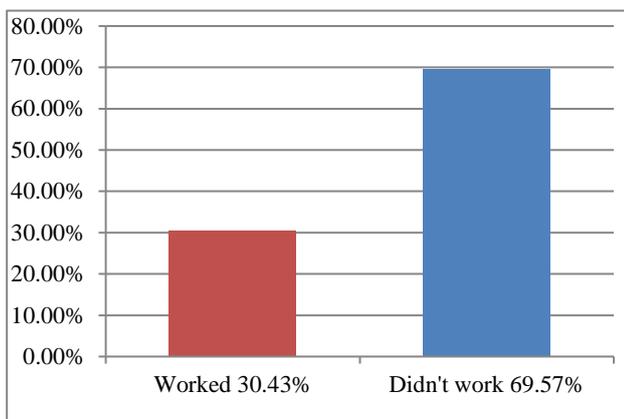


Figure 1: Percentage of staff members who worked as problem-based learning tutors before joining the faculty of medicine.

Authors found that around 95% of study group likes to work as problem-based learning tutors and no one is refusing the idea of being a problem-based learning tutor. About 95% of the study group knows that there are two phases of PBL while 5% are confused about the phases of PBL (Figure 2).

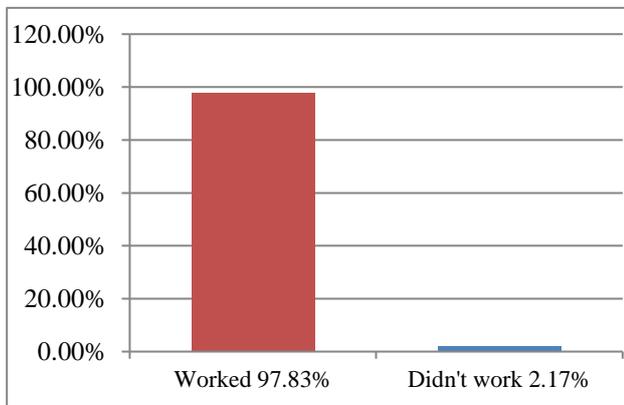


Figure 2: Percentage of staff members who worked as problem-based learning tutor after joining the faculty of medicine.

One-third of the study group think that the steps of PBL are seven steps while the other two-thirds do not know the actual number of steps.

Most of the study group (95%) likes to attend PBL workshops and 5% did not like to attend PBL workshops.

Authors found that Around 80% of study group think that hybrid curriculum is the best curriculum to be applied in faculties of medicine and that about 90% of study group think that hybrid curriculum is the curriculum which had been implemented in the faculty of medicine, Northern Border University while 10% think that PBL curriculum is the curriculum which had been implemented (Figure 3).

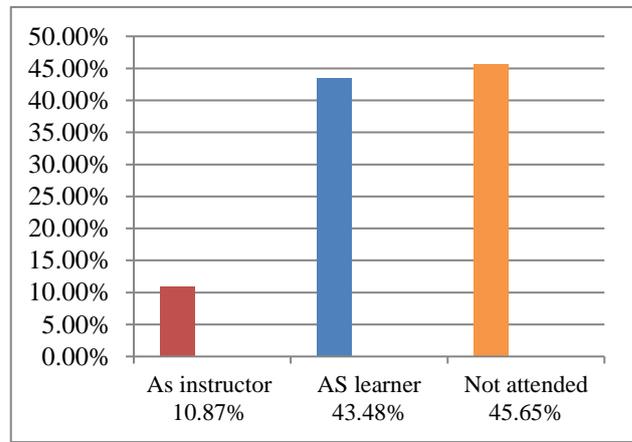


Figure 3: Attendance of staff members to workshops as instructors or learners.

DISCUSSION

Different clinical departments were involved in the research including medicine, surgery, obstetrics and gynecology, pediatrics, community, and ENT. Forty-six out of fifty-five members of the staff responded to the questionnaire. All the staff members were expatriates from neighboring countries including Sudan, Egypt, Pakistan, and India. Three-quarters of the staff were assistant professors and their age range between 30 and 60 years. Authors found that all the staff members responded know the definition of PBL, also we found that around 80% of the staff members had been graduated from medical schools applying classic curricula and only 20% of the staff members had been graduated from medical schools applying either PBL or hybrid curricula. This is because most of the universities in the neighbouring countries were found before the invention of PBL curricula and kept using the old curricula, but most of the universities found after the seventies of the last century used the PBL curricula.

On the other hand, about 70% of the study group had experience as facilitators of PBL sessions because they worked as staff members in universities applying the PBL

curricula, while 30% had no experience because they worked in universities using the classical curricula.

Most study group (95%) knows the phases of the PBL but there is variation about how to carry the steps of PBL. One-third of the study group think that the steps of PBL are seven steps while the other two-thirds of the study group do not know the actual number of steps this is because most of our study group worked in medical schools implementing seven-steps PBL method of teaching or a modified version. Around 55% of the staff members attended PBL workshops and around 45% did not attend any PBL workshops.

About 95% of the study group like to attend PBL workshops. This result is in concordance with the study done in Suez university by El Naggar and his colleagues.⁹ It also in concordance with the study done in King Abdul Aziz University in Jeddah by Lana and AL-Shawwa.¹⁰

Around 80% of the study group think that hybrid curriculum is the best curriculum to be applied in which there are core courses in addition to the PBL sessions. This is in contrast to the study done at Qassim University in Saudi Arabia where 60% of the staff think that pure PBL curriculum is the best.¹¹ This may be because most of our staff were graduated in medical schools implementing traditional curricula and they know that our college is applying a hybrid curriculum.

CONCLUSION

The study group has the knowledge, practice, and experience of PBL method of teaching, they attended PBL workshops and like to attend more PBL workshops. In addition, they think that hybrid curriculum is the best to be applied in faculties of medicine as this was already applied in our college. There is a need to do more PBL workshops for learners and instructors and to conduct more research about PBL to clarify both students and administration attitudes and practices towards PBL.

ACKNOWLEDGEMENTS

Authors would like to thank Dr. Sumanth MM, Assistant Professor, Department of Community Medicine, M.M.C and R.I., Mysore for assisting with the statistical work.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee of faculty of medicine, Northern Border University, Kingdom of Saudi Arabia

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Cite this article as: Mustafa SM, Abukanna AM, Elnaeem KM. Knowledge, attitude, and practice of medical staff regarding problem based learning: experience of a Saudi Arabian university. *Int J Res Med Sci* 2018;6:3582-5.