

Medical students' Perception of The Problem Based Learning Vs. Traditional Tools of Teaching: Experience from King Faisal University 2013.

Bayan AL-Mulhim⁽¹⁾, Latifa Bo-Hmail⁽¹⁾, Malak Alali⁽¹⁾, Amira Abdel Rahman⁽²⁾

(1) College of Medicine, King Faisal University, Al-Ahsa, Saudi Arabia

(2) Professor at public health and community medicine department , Seuz canal university , Faculty of medicine , public health and community medicine department , Ismailia , Egypt.

Abstract

Background: Problem-based learning (PBL) has been broadly perceived by several to confer benefits in encouraging critical reasoning, retention of information, independent learning and interpersonal skills. **Aim:** To evaluate the satisfaction of King Faisal University (KFU) medical students about applying the PBL program compared to the traditional tools of teaching. **Method:** A self-administered questionnaire was constructed to determine the perception and satisfaction of students regarding problem-based learning program at College of Medicine, KFU. It included personal data, acceptance of new curriculum, communication skills, satisfaction with program and assessment, and adaptation of new curriculum. **Result:** A total of 217 female and male students were involved. The study reveals that the students are satisfied with many objectives of the Problem Based Learning program . Also , they think that PBL Program helps in developing their skills. However, Majority of them are not satisfied with the evaluation system in the college as they think that it does not express their progression level. The majority of

respondents agreed that PBL is better than the traditional program in improving patient encounter skill. **Conclusion:** The evaluation of students' satisfaction with the new program(Problem-Based Learning) is ongoing assessment, the results showed the initial impression and experiments in the first year of the new curriculum.

Introduction:

Problem-based learning (PBL) is a student-centered, self-directed, integrated way of education. It has been broadly perceived by several to confer benefits in encouraging critical reasoning, retention of information, independent learning and interpersonal skills. First PBL program in medical teaching is commonly attributed to McMaster University almost 40 years ago (1). It is an instructional method that uses clinical problems as a context for students to learn problem-solving skills and to acquire biomedical knowledge. It provides a student-centered learning atmosphere and encourages curiosity (2). Studies have demonstrated that PBL does not improve knowledge acquisition, but that it may increase the long-term retention of knowledge (2). This methodology is supposed to affect a student's approach to learning by fostering meaningful, comprehensive, and extensive learning on the support of higher cognitive skills and collaborative learning actions in small groups. It assumes that each student has a prior learning tendency that depends on the students' understanding of the learning environment given to different aspects of the

learning environment (3,4). Accordingly, PBL challenges students to “learn to learn,” working cooperatively in groups to seek solutions to real-world problems (5). Some evidence suggests that medical students following PBL curricula are better disposed towards research (6), and show significant improvements in preventative care and diagnostic performance in practice after graduation (7). There is an educational concern about how to assess the students justly using self-assessment, peer assessment, and tutor assessment, as these current methods often make tutors and students anxious (8).

Faculty of Medicine in King Faisal university has a unique advantage which is, having the traditional program that uses in part of fourth-year undergraduate a course of PBL to enhance the abilities of students before starting clinical years. Additionally, the Faculty began from 2012 a Problem-based learning program in collaboration with Groening in Netherlands. The PBL starts from the preparatory year with a course within the frame of the integrated system to continue afterward with five years of medical studies in the PBL program .

However , few literatures are found in evaluating the students' satisfaction about the PBL program. In our research, we are aiming to assess the satisfaction of King Faisal University, medical students about applying the PBL curriculum.

Methodology :

A cross-sectional study was conducted among medical students at Faculty of Medicine, KFUPM, Al-Ahsaa from December 2012 to December 2013. All first, fourth year and fifth-year medical students were invited to participate in our study. All the participants were provided a self-administered survey. Consent of the Faculty of Medicine administrative authority was taken before the delivery of questionnaires. The questionnaire consists of five sections which determine the perception and satisfaction of students regarding problem-based learning program. The five sections included personal data (age, sex, year of study and type of curriculum), acceptance of new curriculum, communication skills, satisfaction with system and assessment and adaptation with the new curriculum. This questionnaire was tested by conducting a pilot study and modifications were done. The tool was constructed in English then translated into Arabic and back translation into English was done for validation of questionnaire.

Statistical Analysis:

All responses were divided into a scale of 1 (yes, no, do not know). Data is used for comparison of problem-based learning program with traditional learning. It was described in the form of frequency, percent, mean, standard deviation and graphs. Initial comparisons between the first-year problem based learning medical students and traditional program students who got a course of PBL during their study. Chi-square test applied for the categorical variables and Student-t-test for continuous variables. Level of

significance was set at $p < 0.05$. All data variables were encoded, and statistical analysis was performed using the Statistical Package for Social Science (SPSS) version 19.

Results

A total of 217 undergraduate medical students have participated in the current study with a response rate of 61.5%. Participated students were divided as problem-based medical students 101 (46.5%), and traditional medical students 116 (53.4%).

The study shows female student's participants to be more with PBL program than in the traditional program (53%, 47%) respectively, whereas the male students were more from the traditional program than PBL program (66%, 34%) respectively with $P=0.05$. Figure (1).

Majority (51%) of PBL students reveals that they are not satisfied with the new curriculum, while (49.5%) students are satisfied. In the traditional years students, (32.9%) students are not satisfied with PBL in comparison to (50.4%) who are satisfied. Table (1).

Regarding the role of the program in improving the skills, the majority of PBL students (76.2%) agree that their studying method helps in improving their skills in comparison to (68.7%) traditional years students. Figure (2). (81.20%) PBL students and (74.10%) Traditional years students think that college assessment does not express their effort with $P=0.048$.

The study also evaluate the program stressor that shows (51.6%) PBL students feels that they are under a lot of stress in comparison to (48.4%) traditional students with P-value = .001. Table (3)

Figure (1): Distribution of gender among problem based medical students compared to traditional medical students, Faculty of Medicine, KFU

P<0.05

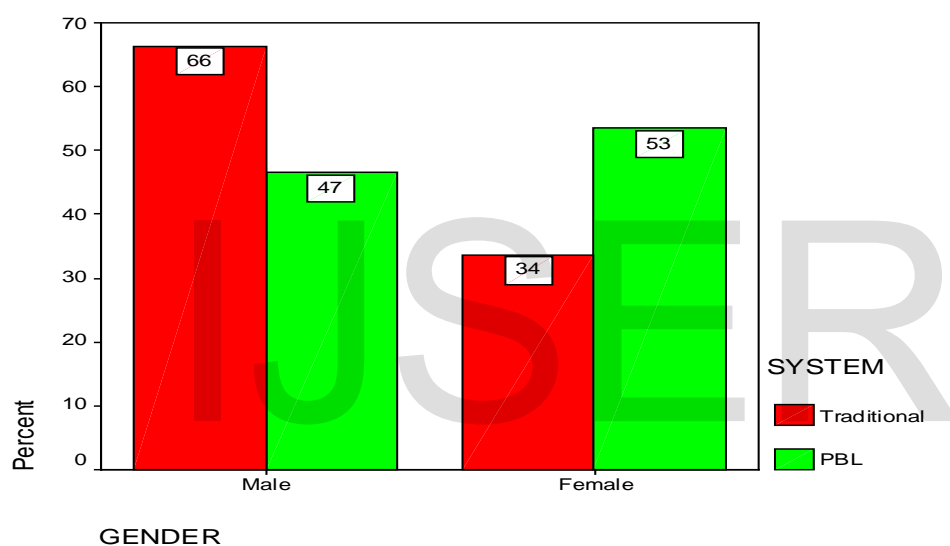


Figure (2) : Comparison between traditional medical students and problem based medical students perception of the role of the program in improving the skills .

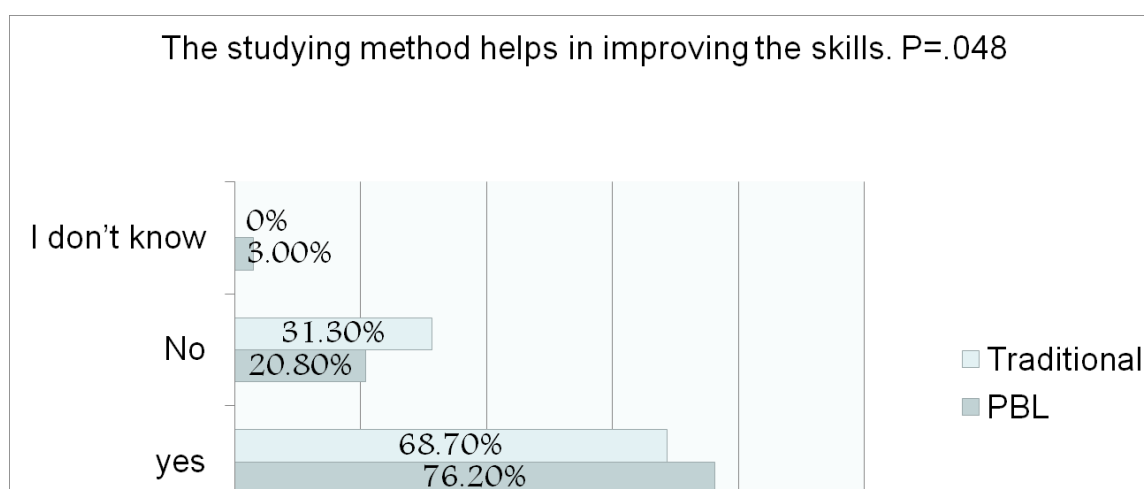


Table (1): The overall satisfaction of the Problem Based Learning students in comparison to Traditional years medical students at KFU, collage of medicine 2013 P value = .000

	Satisfied	Not satisfied
PBL	55 (49.5%)	46 (51.1%)
4 th Year	48 (43.2%)	18 (20%)
5 th Year	8 (7.2%)	26 (12.9%)

Table (2): Perception of problem based medical students and traditional program medical students regarding time to study at Faculty of Medicine, KFU

	PBL N (%) N=101	Traditional N (%) N=116	P value
Time that is given to study at home is enough			.000

Yes	15(16.5%)	76(83.5%)	
No	86(69.4%)	38(30.6%)	
I feel that I need more time to understand and organize the knowledge more than the traditional program .			.002
Yes	96 (51.6%)	90 (48.4%)	
No	2 (11.8%)	15 (88.2%)	
Do not know	3 (25 %)	9 (75%)	

Table (3): Perception of problem based medical students and traditional program medical students regarding program stressors at Faculty of Medicine, KFU

	PBL	Traditional	P value
	N (%) N=101	N (%) N=116	

I feel that the PBL program puts me under a lot of stress at one time.			.001
Yes	99 (51.6%)	93 (48.4%)	
No	2 (14.3%)	12 (85.7%)	
Do not know	0 (0%)	9 (100%)	

Discussion

Problem-based learning (PBL) is an instructional program that has been used successfully for over 30 years and continues to gain acceptance in multiple disciplines (9). This is the first comparison study about the satisfaction of medical students among Problem Based Learning and traditional programs at King Faisal University. There are mainly four criteria to compare the problem based medical students and traditional program medical students regarding the time of study and satisfaction of tutoring at Faculty of Medicine, KFU.

The study shows that the Female student's participants were more in PBL program than in the traditional program, whereas the male students were more from the traditional program than PBL program respectively.

Majority of PBL students are not satisfied with the new curriculum. In contrast to the previous study, that shows the students are more satisfied with PBL than traditional

training (10). It may be because this is the first year of the program and the students facing trouble in adapting the new methods, whereas the traditional program students are mostly satisfied by the guidance of their previous year's colleagues.

PBL students (76.2%) agree that their studying method helps in improving their skills in PBL students in compare to Traditional students (68.7%). A previous study that supports our finding reveals that the PBL program helps developing student skills particularly problem-solving skills and help to sharpen analytic skills (11). Also, PBL method resulted in better examination scores than did traditional teaching for the same students (12)

In this study, all of the PBL and traditional years students think that the college assessment does not express the effort neither the progression levels. This finding is similar to a prior study that shows the majority of the students are not satisfied with the evaluation program in the college as they think that it is not student-centered as it does not reveal the improvement made by the student with the passage of time (11).

There is a significant difference between PBL students (51.6%) compared to traditional students (48.4%) in facing stressors during studying. In another study, the students reported that they did not know what the faculty expected of them and that there were too many student-facilitated sessions, resulting in an unclear curriculum (13). This could lead to student insecurity and lack of confidence about whether they have learned the relevant concepts in inadequate, or even excessive, detail for assessments, adding to the established fear among medical students of making a mistake (13,14). In contrast to a

previous study that shows no significant difference between the proportion of students on the two programs (14). Our result can be explained by the fact that PBL students have three conflicted lines in the first year, which are not found in the traditional program, and each one of them has its assignments and tasks that interfere with the student's study. Accordingly, they have a few working hours in the college than PBL students.

Limitations:

To our knowledge, this is the first research done to assess the students' satisfaction with the new program(Problem-Based Learning). However, this study had some limitations that may affect the results. It was limited to a single university, with a limited population as at that time we have only the first year medical students that follow PBL program. It is unlikely for the results of the statistical analysis to imply that they are valid outside this university or that they can be generalized to other settings.

Conclusion:

This study had determined the different relationships between Problem-based learning, and traditional program applied in the college of medicine at King Faisal University in Al-Ahsaa. We compared between the students' satisfaction in each program to the students' achievement, methods of teaching and distribution of marks, skills of dealing with patients, time of study and satisfaction of tutoring. The evaluation of students' with the new program

(Problem-Based Learning) will be continuous assessment . The results showed are the initial impression and experiments in the first year of the new curriculum.

References :

1. Chegwiddden, W. R. (2006). A problem-based learning pathway for medical students: improving the process through action research. ANNALS-ACADEMY OF MEDICINE SINGAPORE, 35(9), 642.
2. Wiznia, D., Korom, R., Marzuk, P., Safdieh, J., & Grafstein, B. (2012). PBL 2.0: enhancing problem-based learning through increased student participation. Medical education online, 17(1), 17375
3. Gurpinar, E., Kulac, E., Tetik, C., Akdogan, I., & Mamakli, S. (2013). Do learning approaches of medical students affect their satisfaction with problem-based learning?. Advances in physiology education, 37(1), 85-88.
4. Biggs, J. B. (1984). Learning strategies, student motivation patterns, and subjectively perceived success. Cognitive strategies and educational performance, 111-134.

5. Barman, A., Jaafar, R., & Ismail, N. M. (2006). problem-based learning as perceived by dental students in universiti sains Malaysia. The Malaysian journal of medical sciences: MJMS, 13(1), 63.
6. Khan, H., Taqui, A. M., Khawaja, M. R., & Fatmi, Z. (2007). Problem-based versus conventional curricula: influence on knowledge and attitudes of medical students towards health research. PLoS One, 2(7), e632
7. Tamblyn, R., Abrahamowicz, M., Dauphinee, D., Girard, N., Bartlett, G., Grand'Maison, P., & Brailovsky, C. (2005). Effect of a community oriented problem based learning curriculum on quality of primary care delivered by graduates: historical cohort comparison study. Bmj, 331(7523), 1002
8. Hay, J. A. (1995). Investigating the development of self-evaluation skills in a problem-based tutorial course. Academic Medicine, 70(8), 733-5.
9. Savery, J. R. (2015). Overview of problem-based learning: Definitions and distinctions. Essential readings in problem-based learning: Exploring and extending the legacy of Howard S. Barrows, 9, 5-15.
10. Gurpinar, E., Alimoglu, M. K., Mamakli, S., & Aktekin, M. (2010). Can learning style predict student satisfaction with different instruction methods and academic achievement in medical education?. Advances in Physiology Education, 34(4), 192-196.

11. Shamsan, B., & Syed, A. T. (2009). Evaluation of problem based learning course at College of Medicine, Qassim University, Saudi Arabia. International journal of health sciences, 3(2), 249.
12. Khaki, A. A., Tubbs, R. S., Zarrintan, S., Khamnei, H. J., Shoja, M. M., Sadeghi, H., & Ahmadi, M. (2007). The first year medical students' perception of and satisfaction from problem-based learning compared to traditional teaching in gross anatomy: Introducing problem-based anatomy into a traditional curriculum in Iran. International journal of health sciences, 1(1), 113
13. Lewis, A. D., Menezes, D. A. B., McDermott, H. E., Hibbert, L. J., Brennan, S. L., Ross, E. E., & Jones, L. A. (2009). A comparison of course-related stressors in undergraduate problem-based learning (PBL) versus non-PBL medical programmes. BMC Medical Education, 9(1), 60.
14. Vitaliano, P. P., Russo, J., Carr, J. E., & Heerwagen, J. H. (1984). Medical school pressures and their relationship to anxiety. The Journal of nervous and mental disease, 172(12), 730-736