

PERCEPTION OF MEDICAL STAFF OF AL-AZHAR UNIVERSITY IN ASSIUT TOWARDS PROBLEM-BASED LEARNING APPROACH

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ABSTRACT

Background: Problem-based learning (PBL) is now a well established method in medical education in many medical schools in the world. Assessing knowledge and perception of the medical staff towards PBL is important, particularly in medical colleges which have not yet introduced this method.

Objective: Assessing knowledge, attitude, and practice of the medical staff at Faculty of Medicine (Assiut), Al-Azhar University towards problem-based learning approach.

Methods: A cross-sectional study was conducted at the previously mentioned setting during the study year 2015/16 where the PBL teaching method was still un-applied. All medical staff (n= 178) of the college was invited to participate in this study. Relevant data about staff characteristics as well as their knowledge, attitude and practice towards PBL were collected through a predesigned structured questionnaire.

Results: The overall response rate of the medical staff was 74.7% (133 out of 178). The proportion of staff having good knowledge about PBL was (69.2%) with the highest percentage of good knowledge was insignificantly observed among staff aged 50+ years(83.3%), male staff (70.2%) and staff of academic departments (74.2%), while professors had significantly the highest percentage(85.3%) of good knowledge. There was also an overall favorable attitude (88%) among the staff towards PBL. The mean score of favorable attitude was insignificantly higher among staff aged 50+ years, female staff and staff of academic departments, while assistant professors had significantly the higher mean score of favorable attitude than other staff grades. A small proportion of the studied staff (7.5%) has practiced PBL before.

Conclusion: A reasonable proportion of the medical staff was found to have good knowledge and favorable attitude towards PBL, while previous practice of PBL was low among the staff. Preparing educational courses about PBL as newly suggested teaching methods is recommended for all staff in terms of its definition, advantages and outcome for the college development and quality of the teaching process.

Keywords: Perception, Medical staff, PBL approach.

INTRODUCTION

Problem based learning (PBL) is a student-centered learning in which the students learn both thinking strategies and domain knowledge .The teacher is not just facilitating knowledge but guiding students to discover and learn on their own (Azer, 2011 and Schmidt et al., 2011).

Executing such method in medical education requires not only trained human resources but also a number of preparatory steps including a lot of planning and organization. An essential step in this process is preparation and engagement of the faculty so that academics and clinicians become aware of the rationales for the change and work as part of a team in the construction of the new program

(Margetson, 1994 and Hande et al., 2014).

Problem based learning is a method that has been highly recommended but at the same time was criticized. The main criticism raised against PBL is that it is not suitable or applicable for all types of education and that there is a lack of evidence supporting the effectiveness of this theory (Meo, 2013).

During its relatively short lifespan, the PBL teaching method has faced both praise and criticism, and one of the strongest proposed criticisms is that PBL is not suitable for everyone. The evidence of the effectiveness in regard to weaker and stronger students is conflicting (Hung, 2011, Lim & Lew, 2012 and Tayyeb, 2013).

This study aimed to assess the knowledge, attitude and practice of the medical staff at the Faculty of Medicine (Assiut), Al- Azhar University towards BPL as a suggested teaching method.

SUBJECTS AND METHODS

Study setting and sampling procedures:

This was a cross-sectional KAP study, conducted at Faculty of Medicine (Assiut), Al-Azhar University to assess the knowledge, attitude and practice of its medical staff towards PBL approach. All medical staff (n=178) from the different college departments during the study year 2015-2016 was invited to participate in this study. The privacy and confidentiality of data were considered as the data were collected and manipulated anonymously. Permission was also taken from the dean of the Faculty.

Staff who agreed to participate in this study was asked to fill a predesigned

structured questionnaire which was developed according to the findings of the previous studies and literature review. Data about relevant staff characteristics included age of the participant, sex, current job title (professor, assistant professor or lecturer) and the department they work in. The questionnaire also included data about knowledge, attitude and previous practice of PBL. The study questionnaires were distributed manually to the medical staff members.

Assessment of the knowledge: The knowledge was assessed according to 20 questions with three answers for each question (yes, no and do not know). For simplicity, "no" and "do not know" answers were categorized as "no". These 20 questions were then classified into two main parts representing PBL: i) The concept of PBL represented by 12 questions and included items about PBL definition, and objectives, problem solving, teamwork, delivery of integrated knowledge, and active learning, ii) Evaluation of the students' performance represented by 8 questions. Each knowledge item for these studied parts was then scored as follows: "Yes" = 1, and "No" = 0. The knowledge for each item of PBL as well as for total knowledge was assessed and categorized into good, fair and poor according to knowledge score given for each item. Good knowledge was defined if the respondents' answers by "yes" were more than 75%, fair knowledge (50-75%), and poor knowledge if less than 50%.

Assessment of attitudes: Attitude towards PBL was assessed using Likert response scale from 1-5 (1= totally disagree; 2= disagree 3= neutral; 4=

agree; 5= totally agree). The attitude included 12 statements representing all aspects concerning PBL. For each item of the attitude, the score 1 was given to the answer either totally agree or agree, and the score -1 was given to the answer either totally disagree or disagree while the score 0 was given to the answer (neutral). Accordingly, the used 12 attitude items in the study questionnaire have a maximum score of +12, and a minimal score of -12. A mean score for all studied attitude items was then calculated from the individual scores.

Statistical analysis: The collected data were analyzed using SPSS version 20. Data were presented using frequencies, means and standard deviations. The staff knowledge, attitude and practice were assessed and analyzed using unpaired t-test, one way ANOVA and chi square tests. P value < 0.05 was used as a level of statistical significance.

RESULTS

A cohort of 178 medical staff (162 male and 16 female) at the Faculty of Medicine (Assiut), Al-Azhar University, was enrolled to participate in this study to assess their knowledge, attitude and practice of PBL. Number of the staff who actually participated in this study was 133 with an overall response rate equals to 74.7% .

It was found that 69.2% of the studied staff had good knowledge about all studied items of PBL, while only (9%) had poor level. The percentage of good knowledge was higher among staff aged 50+ years as 83.3%, male staff as 70.2% and staff of academic departments as 74.2% with statistically insignificant differences. Recording higher percentage of good knowledge was also detected among professors as 85.3% rather than other lower staff grades with statistically significant difference (Table 1).

Table (1): Distribution of the studied staff according to their relevant characteristics vs the level of knowledge towards problem based learning approach.

Level of knowledge Staff Characteristics	Poor (9.0%) n (%)	Fair (21.8%) n (%)	Good (69.2%) n (%)	Statistical Tests
Age groups (years)				
<40 (n=60)	3(5.0)	17(28.3)	40(66.7)	X ² =6.7 P=0.16
40- (n=49)	7(14.3)	10(20.4)	32(65.3)	
50+ (n=24)	2(8.3)	2(8.3)	20(83.3)	
Sex				
Male (n=121)	9 (7.4)	27 (22.3)	85 (70.2)	X ² =4.1 P=0.13
Female (n=12)	3(25.0)	2 (16.7)	7 (58.3)	
Department				
Academic (n=31)	3(9.7)	5(16.1)	23(74.2)	X ² =0.8 P=0.7
Clinical (n=102)	9(8.8)	24(23.5)	69(61.6)	
Job title				
Professors (n=34)	2 (5.9)	3(8.8)	29 (85.3)	X ² =12.7 P=0.013
Assistant professors (n=26)	5 (19.2)	3(11.5)	18(69.2)	
Lecturers (n=73)	5(6.8).	23 (31.5)	45(61.6)	

The items of PBL which had the highest percentages of favorable attitude (totally agreed and agreed) by the staff were reported as follows : the 1st (PBL is better than traditional teaching method), the 3rd (PBL helps students to perform problem solving), the 7th (PBL helps students to perform medical notes writing), the 9th (PBL helps students work in a team), the 10th (PBL establishing interaction with peers) and the 11th (PBL establishing patient doctor relationship) as 83.5% , 85.8% , 84.2% , 86.5% , 82.7%

and 82% respectively, while the lower percentages for favorable attitude were reported for the items : the 6th (PBL helps students to think correctly in the problem), the 8th (PBL helps students to acquire clinical and communication skills) and the 12th (PBL would results in a better graduated doctor) as 42.9%, 61.7% and 52.6% respectively. As a whole, 88% of the staff revealed a favorable attitude response towards all attitude items, while only 10% showed unfavorable attitude (Table 2)

Table (2): Staff attitude towards different problem based learning approach Items.

PBL approach items	Staff attitude		
	Unfavorable* %	Neutral %	Favorable** %
1. PBL is better than traditional teaching method	11.3	5.2	83.5
2. PBL helps students to perform problem searching	15.8	20.3	63.9
3. PBL helps students to perform problem solving	9.8	4.4	85.8
4. PBL helps students to perform an initiative learning	7.6	12.7	79.7
5. PBL helps students to share professional knowledge	19.5	9.1	71.4
6. PBL helps students to think correctly in the problem	24.8	32.3	42.9
7. PBL helps students to perform medical notes writing	10.6	5.2	84.2
8. PBL helps students to acquire clinical and communication skills	18.1	20.2	61.7
9. PBL helps students work in a team	9.0	4.5	86.5
10. PBL establishing interaction with peers	3.8	13.5	82.7
11. PBL establishing patient doctor relationship	8.3	9.7	82.0
12. PBL would results in a better graduated doctor	15.0	32.4	52.6
Total: For all attitude items	10.0	2.0	88.0

Unfavorable*: Totally disagree +disagree

Favorable***:Totally agree +agree

The mean attitude score was found to be insignificantly higher among staff aged ≥ 50 years as 6.9 ± 2.9 , female staff as 8.3 ± 1.2 and staff of academic departments as 5.9 ± 6.6 than that of younger staff, male

staff and staff of clinical departments respectively, while assistant professors showed significantly a higher attitude score 8 ± 1.4 than other staff grades (Table 3).

Table (3): Average attitude score among the studied staff by their characteristics.

Parameter	Attitude score (Mean ± SD)	Statistical Tests
Staff Characteristics		
Age groups (years)		
< 40 (n=60)	6.5±5.1	F*=2.6 P=0.073
40- (n=49)	4.4±6.7	
50+ (n=24)	6.9±2.9	
Staff sex		
Male(n=121)	5.6± 5.7	T=1.6 P=0.1
Female(n=12)	8.3 ± 1.2	
Staff department		
Academic (n=31)	5.9 ± 6.6	T=0.05 P=1.0
Clinical (n=102)	5.8 ± 5.2	
Staff job title		
Professors (n=34)	3.1 ±7.5	F=7.4 0.001
Assistant professors (n=26)	8.0 ± 1.4	
Lecturers (n=73)	6.3 ± 4.9	

F*: One way ANOVA test.

A little proportion of the whole staff 7.5% had practiced PBL method before. The staff aged (40-49 years), staff of academic departments and assistant professors showed insignificantly higher percentages of practicing PBL before as 12.2% , 9.7% and 15.4% respectively than

other age groups, staff of clinical departments and other staff grades respectively. At the same time, female staff showed significantly a higher percent of previous practicing PBL as 33.3% than males 5% (Table 4).

Table (4): Distribution of the studied staff by their characteristics and past history of PBL practice.

Past history of PBL practice	+ve (7.5%) N (%)	-ve (92.5%) N (%)	Statistical Tests
Staff Characteristics			
Age group(year)			
< 40 (n=60)	2(3.3)	58(98.2)	X ² =3.1 P=0.2
40- (n=49)	6(12.2)	43(93.9)	
50+ (n=24)	2(8.4)	22(95.8)	
Sex			
Male (n=121)	6(5.0)	115 (95.0)	X ² =12.6 P=0.000
Female(n=12)	4(33.3)	8(66.6)	
Department			
Academic (n=31)	3(9.7)	28 (90.3)	X ² =0.3 P=0.6
Clinical (n=102)	7(6.9)	95 (93.1)	
Job title			
Professors(n=34)	1 (2.9)	33 (97.1)	X ² =3.4 P=0.2
Assistant professors (n=26)	4(15.4)	22 (84.6)	
Lecturers (n=73)	5(6.8)	68 (93.2)	

DISCUSSION

The present study explored the knowledge and perception of the staff at the Faculty of Medicine (Assiut), Al-Azhar University towards problem based learning (PBL) approach. Although PBL has been implemented and assessed in many medical school programs all over the world, few studies have focused on the medical staff knowledge and perception towards PBL, and most studies assessed students' perception towards PBL.

The study demonstrated a reasonable overall good level of knowledge (69.2%) about all items of PBL among the studied staff. Although not significant, the level of good knowledge was higher among staff aged ≥ 50 years, male staff and staff of academic departments while the professors showed a significant higher level of good knowledge (85.3%) compared to less staff grades.

The study conducted in Saudi Arabia by **Aboonq (2015)** revealed that more than three-fourths (76.5%) of all studied medical staff of Taiba University have a good knowledge about all studied items of PBL. The level of good knowledge is insignificantly higher among male staff and clinical departments staff. A statistically significant higher level of good knowledge is found among associate professors 88.0%, and professors 86.2% than junior staff as 58.1%. He attributed the relatively low level of good knowledge among the junior staff compared to that level among professors due to lack of training course about PBL which may be essential to overcome this shortage for those junior staff members.

In the present study, the staff reported a high percentage of favorable attitude (agree and totally agree) response towards almost attitude items. More than 80% of the studied staff reported favorable attitude for the 1st, 3rd, 7th, 9th, 10th and 11th attitude items, while the 6th, 8th and 12th items represented the lowest percentages of favorable attitude. Moreover, the mean attitude score was insignificantly higher among staff aged ≥ 50 years, female staff and staff of academic departments, while assistant professors showed significantly a higher attitude score rather than other staff grades.

The findings detected by **Aboonq (2015)** in his study on medical staff of Taibah University (KSA), illustrated that more than 85% of the studied staff reported that they "agree and totally agree" for the 1st, 2nd, 6th, 8th, 9th and 10th attitude items towards PBL. In addition to that, about two-thirds of the studied staff, however, reported that they "agree and totally agree" for other studied attitude items. Furthermore, the average attitude score was significantly higher among males (9.5 ± 4.3) compared to females (7.3 ± 6.8), and among clinical departments staff (9.2 ± 4.5) compared to academic departments staff (7.1 ± 5.3). Moreover, there has been a higher mean score among assistant professors and professors compared with lecturers, although not significant. More or less similar to these findings, the results of the study conducted in Mymensingh Medical College in Bangladesh revealed that about 69% of faculty members agreed that PBL enhances self-directed learning, and 64% of the faculty members agreed that they welcome PBL in clinical teaching (**Rahman et al., 2004**).

The findings obtained by **Tavakol et al. (2009)** in their study in United Kingdom, showed that many participant medical educators valued the PBL approach in the practice and training of doctors. However, some participants hold contrasting views upon the importance of the PBL approach in basic medical education, whereas more than a third of participants (38.5%) had a neutral stance on PBL as a student-oriented educational approach. The same proportion also had a neutral view of the efficiency of PBL tutorial compared to traditional learning. They emphasized the importance of the facilitator training and faculty development in PBL.

In continued clinical nurse education, a cross sectional study included 40 clinical nurses revealed that 57.5% of the participants responded positively about the use of PBL as continuing nurse education in terms of self-motivated and cooperative learning, whereas 20.0% of the participants answered that the PBL method was not suitable for clinical nurses (**Kim et al., 2006**).

In the present study, the previous practice of PBL was found to be 7.5% among the studied staff. Staff aged (40-49 years), staff of academic departments and assistant professors showed insignificantly higher percentages of previous practicing PBL, while female staff had significantly a higher percentage of previous practice of PBL as 33.3% vs 5% of males.

The results obtained by **Aboonq (2015)** found that the proportion of staff who reported previous practice of PBL was about thirty percent. The previous practice of PBL was higher among male staff as 49%, clinical departments staff as

42%, among associate professors 40% and professors 38%. The researcher stated that although there was a low percent of previous practice of PBL among the studied staff, more than 90% of them have endorsed the use of this new approach in the studied college. He concluded that these findings appeared consistent with the other results where the staff who had higher percentage of previous practice of PBL were found to have the higher percentage of good knowledge as well as favorable attitude towards PBL.

Our study might have a number of limitations. Bias resulting from selection may have been a limitation factor in this study because those subjects who participated may be more familiar and responsive than those who didn't participate for any reason. Added to that, the relatively low number of the total staff enrolled to this newly established college in Assiut. However, because of the reasonable response rate encountered in this study, this factor appeared to have a little role in the study findings.

CONCLUSION

The present study revealed a reasonable proportion of medical staff (69.2%) at the Faculty of Medicine (Assiut), Al-Azhar University, to have good knowledge and a high percent of favorable attitude (88%) towards PBL. However, the percent of the staff who reported previous practice of PBL was low (7.5%). Conducting in depth studies concerning PBL is suggested in addition to educational courses about PBL method to raise the awareness level of the staff towards PBL in terms of its definition, benefits and outcome is recommended

specially for those who were not engaged previously in such teaching method.

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تقبل أعضاء هيئة التدريس بكلية الطب (أسيوط) - جامعة الأزهر لطريقة التدريس المبنية على أسلوب حل المشكلات

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خلفية البحث : تعتبر طريقة التدريس المبنية على أسلوب حل المشكلات من وسائل التدريس الحديثة غير التقليدية و المطبقة بكثير من المدارس الطبية فى أنحاء العالم و التى تعتمد على تدريب الطالب على إكتساب مهارات جمع المعلومات وكذلك مهارات التحليل والتقييم والنقد عند دراسة المقررات الدراسية.

الهدف من البحث : تقييم معارف وإتجاهات وممارسات أعضاء هيئة التدريس بكلية الطب (أسيوط) جامعة الأزهر تجاه تلك الطريقة فى التدريس و التى لم تطبق بعد بالكلية.

طرق البحث: من خلال دراسة مقطعية إستطلاعية تم دعوة جميع أعضاء هيئة التدريس بالكلية من مدرس الى أستاذ (178 عضوا اشترك منهم 133 بالفعل فى البحث) خلال العام الدراسى 2015-2016 باستخدام صحيفة إستبيان معدة لهذا الغرض وتحتوى على البيانات المطلوبة.

النتائج : نسبة من لديهم معلومات جيدة بهذه الطريقة من بين أعضاء هيئة التدريس ككل كانت 69.2 %، وأن أكبر النسب للمعرفة الجيدة كانت 83,3 % من الأعضاء الأكبر سنا (+50 عاما) والذكور 70,2%، وكذلك الأعضاء المنتمين للأقسام الأكاديمية 74,2%، ولكن بغير دلالة إحصائية، بينما شكل الأساتذة أعلى نسبة 85.3 % للمعرفة الجيدة من الأعضاء الأقل درجة وبدلالة إحصائية. أما بالنسبة لإتجاهات الأعضاء فقد كشفت الدراسة أن 88 % من المبحوثين ككل كانت لهم إتجاهات مواتية أو إيجابية تجاه تلك الطريقة من التدريس، مع وجود نسبة أعلى من الإيجابية ضمن الأعضاء الأكبر سنا (+50 عاما) و الإناث وكذلك أعضاء الأقسام الأكاديمية ولكن بدون دلالة إحصائية، فى حين كانت النسبة الأكبر من الأساتذة المساعدين لهم إتجاهات إيجابية عن باقى درجات الأعضاء وبدلالة إحصائية. وبالنسبة لممارسة هذا النوع من التدريس من قبل فقد وجدت نسبة قليلة 7.5 % من فعلوا هذا من بين أعضاء هيئة التدريس وكان أكثرهم من الإناث وبدلالة إحصائية.

الإستنتاج: وجوب إعداد برامج تعليمية لكل أعضاء هيئة التدريس بالكلية بخصوص هذا النوع من طرق التدريس المحتمل تطبيقه مستقبلا وذلك فيما يتعلق بتعريفه و مزاياه وعائده بالنسبة للطلاب والكلية، وجودة العملية التدريسية.