

Effectiveness Of Problem Based Learning On Student's Knowledge Construct In Final MBBS Students- A Cross-Sectional Study

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Abstract:

Background:Traditional teaching methods help students to acquire subject knowledge content but not knowledge construct. One important challenge in medical education is to improve the knowledge construct that enables them to translate their knowledge into useful application. Problem based learning (PBL) is emerging as one of the best methods of improving students' knowledge construct.**Objective:**The study was aimed to assess the effectiveness of Problem based learning as an instructional tool in acquisition of content knowledge, critical thinking and problem solving skills in mental health issues among final MBBS students. **Methodology:** The study was done in a private medical college in Puducherry. Thirty students from final MBBS were randomly chosen and included in the study.They were administered with pre-test, exposed to one hour of problem based teaching and again administered with post-test the next day. **Results:**There was statistically significant improvement in students' knowledge construct in mental health issues following exposure to problem based teaching methods**Conclusion:**PBL was found to be an effective instructional tool in fostering critical thinking and problem solving skills among medical students

Keywords:PBL, knowledge construct, pre-test, post-test

1. INTRODUCTION

Mental health problems affect nearly 197.3 million people in India, contributing significantly to disease burden in terms of years lived with disability [YLDs] and disability adjusted life years [DALYs]¹. However the level of exposure to mental health issues among MBBS graduates is abysmally low and is frequently negated by both the faculty and students. This had led to trivialization of mental disorders by primary physicians and rampant exploitation by quacks and traditional healers. In traditional teaching methods most of the under graduate students had difficulty in comprehending the phenomenology of mental disorders. To address this flaw, more innovative methods that reflect real life scenarios and improve the level of

comprehension had been tried. Problem based learning(PBL) is one such method and its usefulness in improving the comprehension and knowledge construct has been supported by studies done in Lahore and China^{2, 3}. Problem based learning is a student centred pedagogy in which students learn about a subject through the experience of solving an open ended problem⁴. Studies to assess the effectiveness of Problem based learning (PBL) in India are few and far. This study aims at studying the effectiveness of PBL in final MBBS students.

2. MATERIAL AND METHODS

All consenting final year MBBS students of Aarupadai Veedu Medical College, Puducherry were included in the study. Each student is assigned with a number and through random number table the students are selected till the desired number of thirty is reached. Though the selected students have been exposed to classical or traditional teaching methods in mental health issues they were further given one week of time to prepare. A module containing case based scenarios of common mental illness was carefully crafted by the senior faculties of the department. The typical module contains case scenarios and application based questions related to the scenarios. The key to those questions were also prepared in accordance with the latest literature and their veracity is established. The fifteen students are called for the pre-test and given one hour to answer the pre-test questions. Maximum marks are set for 20. Then they were given one hour of classroom teaching on this problem based questionnaire. The session is made as interactive as possible and student participants are facilitated to ask and clear their doubts. To prevent the carry over effect the student were asked to come on the next day to perform the post test. Students "t" test was applied to assess the significance of difference between pre-test and post-test marks and SPSS version 20 is used for the analysis.

3. RESULTS:

The students scored an average of 2.93 marks [14.67%] during the pre-test session. Then they were exposed to one hour of problem based questionnaire. The next day they were administered with post-test questions and the mean score was 13.6 [68%]. Students "t" test was applied, which showed a significant improvement in students problem solving ability and knowledge construct in mental health issues following problem based learning. [Table I]

4. DISCUSSION

The study shows a statistically significant improvement in students problem solving ability and knowledge construct in mental health issues which was similar to the study conducted in Islamabad⁵. Students expressed their interest to include such PBL exercises in their routine curriculum in addition to the traditional didactic lectures as they feel it improves not only their applied aspect of physiology but also for better understanding of the subject content. However some studies show students in traditional programs scored higher than students in PBL curriculum⁶. Whereas a meta-analysis showed no significant difference between knowledge that PBL students and non-PBL acquire⁷. Hence further assessment may be needed to provide more insight into the effectiveness of PBL and its wider application. Feedback from students were mostly positive and they wanted to include such PBL exercises in their routine curriculum in addition to the traditional didactic lectures as they feel it improves not only their applied aspect of psychiatry but also for better understanding of the subject content..

5. CONCLUSION

Problem Based Learning was found to be an effective instructional tool in fostering critical thinking and problem solving skills among medical students. It can be widely implemented after further assessments.

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Table I

Test	Mean	Standard Deviation	Standard Error	Mean Difference	P Value	Confidence Interval
Pre Test	2.93	1.387	0.358	-10.667	<0.001	-13.219 to -8.115
Post Test	13.60	5.320	1.369			
Pre Test Percent	14.67	6.935	1.791	-53.333	<0.001	-66.094 to -40.573
Post Test Percent	68.0	26.511	6.845			