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## A STUDY TO ASSESS THE PERCEIVED BENEFITS OF PROBLEM BASED LEARNING OVER LECTURE METHOD IN ENHANCING CRITICAL THINKING SKILLS AND PROBLEM SOLVING ABILITY AMONG NURSING STUDENTS

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### ABSTRACT

This present study was done to evaluate the perceived benefits of problem-based learning (PBL) over Lecture method in terms of enhancing critical thinking skills and problem solving ability among nursing students in Coimbatore. A Quasi Experimental study with control group pre test and post test design was adopted. A total sample of 260- II year B.Sc. Nursing students were selected, out of which 130 were allotted to the interventional group and the remaining 130 were allotted to the control group (Traditional Lecture method) using purposive sampling technique. The interventional group was taught using PBL method of teaching, whereas the control group was taught using lecture method of teaching. Later the subjects were assessed for their perceived benefits of the teaching method used on the development of critical thinking skills and problem solving ability, which were assessed by a five point Likert scale. The Likert scale responses were scaled as, strongly agree, agree, uncertain, disagree and strongly disagree and the level of critical thinking skills and problem solving ability was graded as Low (1-25%), Moderate (26-50%), Well (51-75%) and Excellent (76-100%). It was observed in this study that in the interventional group, all the subjects 130 (100%) had favorable perception towards PBL method of learning, whereas the subjects who learnt through Lecture method did not perceive it favorably.

### KEYWORDS

Problem based learning, Problem solving ability, Skills and Nursing Students.

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### INTRODUCTION

During the past few decades there have been notable advances in the Health care organizations, resulting in rapid growth of technology and theory. In order to deal it effectively, nurses must become skilled in higher level thinking and reasoning abilities, as they are required to provide skilled care in often un familiar settings<sup>1</sup>.

Most universities in the world are trying to find some educational approaches which would improve the

self-confidence and practical decision making capacities in the students<sup>2</sup>. Nurses have found that there is a gap between theory and practice. They are usually unable to do medical performances<sup>3</sup>. Education with an active learning will result in significant increase between the education and medical practice. Critical thinking is the first needed skill for nurse students. It is the advance process of cognitive domain for decision making upon caring patients<sup>4</sup>.

Fowler<sup>5</sup> claims that the increasing complexity of modern healthcare demands critical thinking among practicing nurses. Moreover, nurses are constantly facing challenges in making decisions.

Employers seek graduates who are highly knowledgeable, skilled problem solvers, team players, and lifelong learners<sup>6</sup>. In order to prepare students for entry into professional practice, the learning they receive should develop in them lifelong learning skills and problem solving abilities<sup>7</sup>.

Unfortunately, the traditional lecture method of teaching used commonly in undergraduate courses are often content driven, emphasizing abstract concepts over concrete examples and application. Little attention is given to learning problem solving, and lifelong learning skills<sup>8</sup>.

A traditional teaching-learning environment tends to produce shallow, surface thinkers and as an outcome, the nurses may fail to be critical thinkers and problem solvers<sup>9</sup>.

According to Charlton<sup>10</sup> lectures are for the most part a form of spoken communication that is delivered to an audience by an actually-present and visible person. Once combined with active learning strategies, teaching becomes a process where the learner takes an energetic role in education. Further, retention of knowledge is perceived to be increased. Nurse educators in academia have long supported the notion of self-directed problem-based learning (PBL). Problem-based learning originated in the late 1960s at Mc Master University in Ontario, Canada. Howard Barrows, the founder of this educational methodology, developed the self-directed model to improve education in the school of medicine<sup>11</sup>.

PBL is an active learning instructional method that uses "real world" problems to facilitate instruction so

students can develop critical thinking and problem solving skills while gaining new knowledge. In PBL, students become active learners as they are required to solve the real-world problems and requires students to become responsible for their own learning, i.e. self-directed learning. Problem based learning courses have also been reported as having an increase in course enrolment and more positive feedback from faculty and employers<sup>12</sup>.

In a study comparing PBL with conventional lecture approaches, the PBL students scored higher in the clinical problem solving ability. One suggested way to bridge the gap between education and medical practice is to change the traditional education system (lecture based learning) into a problem-based learning (PBL) approach which historically can be traced back to Socrates<sup>13</sup>.

An essential component of PBL is that context is introduced in the context of complex real - world problems. Several studies have reported on the effectiveness and applicability of PBL in medical education. According to Beers<sup>14</sup>. "One of the strongest arguments in favor of PBL is that it provides a more enjoyable and stimulating learning environment for both students and faculty". Studies have assessed student's attitudes, clinical reasoning abilities, problem solving skills, critical thinking skills, effect on learning styles, and retention of information as related to the use of PBL.

"Albanese and Mitchell<sup>15</sup> conducted a literature review on outcomes and implementation issues of PBL. All of the studies cited found students' attitudes toward PBL to be positive". Although students and faculty need to put additional work in active learning, Kingsland<sup>16</sup> observed that students find PBL courses satisfying.

Albanese and Mitchell<sup>15</sup> as cited in Morales-Mann and Kaitell<sup>17</sup> reported that students and faculty felt more rewarded and nurtured and thus enjoyed PBL more than traditional learning approaches.

## **OBJECTIVE**

To assess the students' perception on the influence of PBL and Lecture method on their critical thinking skills and problem solving ability in both control and the interventional groups.

## **MATERIAL AND METHODS**

The present study was a quasi-experimental study undertaken to evaluate the effectiveness of Problem-Based Learning (PBL) over lecture method on the critical thinking skills and problem solving ability among nursing students in selected Nursing Institutions at Coimbatore.

A quasi experimental study with control group pre test and post test design was adopted for this study. The sample size was around 260-II year B.Sc (N) students, out of which 130 were allotted to the interventional group (PBL) and the remaining 130 to the control group (Lecture). Purposive Sampling Technique was used for this study. A Multiple Choice questionnaire on diabetes mellitus based on Bloom's Taxonomy was developed to assess critical thinking skills and problem solving ability of nursing students. A Teaching Module on PBL methodology was developed. A problem scenario was given to the interventional group which needed to be solved using PBL process. The PBL steps were: Clarify concepts, Define the problem, Analyze the problem-Brainstorm, Organize facts and knowledge, Formulate learning objectives and Self- study. Whereas in the control group, the same topic was taught using lecture method of teaching by the concerned subject faculty of the respective Institution in a routine way. Later the subjects were assessed for their perceived benefits of the teaching method used on the development of critical thinking skills and problem solving ability, which were assessed by a five point Likert scale. The Likert scale responses were scaled as: strongly agree, agree, uncertain, disagree and strongly disagree and the level of critical thinking skills and problem solving ability was graded as Low (1-25%), Moderate (26-50%), Well (51-75%) and Excellent (76-100%).

## **RESULTS**

Area wise distribution of mean, SD and mean percentage of post test scores of interventional and control groups on perceived benefits of the influence of the teaching method on critical thinking skills and problem solving ability.

Table No.1 shows an overall 36% of difference in mean scores with a mean percentage of 52% and

88% in control group and interventional group respectively, which shows a positive perception in the interventional group towards PBL.

Table No.2 Levels of perceived benefits of the teaching method on critical thinking skills and problem solving ability among nursing students between control and the interventional groups.

Table No.2 demonstrates the difference in the level of perceived benefits between the control and the interventional groups. As shown, all 130 (100%) had favorable perception in the interventional group, whereas only 18(14%) had favorable and 112(86%) had unfavorable perception in the control group. This finding proves that the students who underwent PBL process had a favorable attitude towards PBL method of learning.

## **DISCUSSION**

Clinical decision-making involves higher cognitive skills (critical thinking), that are crucial to obtaining positive patient outcomes. Critical thinking is an essential skill for nurses to have because patient situations vary as much as the individuals themselves do.

Measuring the construct of critical thinking has been a challenge to all who have tried. Educators in nursing and other clinically focused fields have tried to measure it, determine whether it changes over time and decide if a particular teaching approach enhances it.

PBL was developed in the mid-sixties as a useful instructional alternative to conventional (lecturing) teaching. It is designed to help students construct and develop self-directed learning skills. The PBL in fact, establishes a format through which students learn. In recent decades, PBL has been proposed as an alternative to learning by the traditional lecture method. Many studies confirm that learning by the PBL method improves critical thinking skills, clinical reasoning skills, clinical knowledge, learning motivation, and learning autonomy. Increasing retention, interest, and motivation are some of the benefits of PBL. As performance of nursing requires critical thinking and problem solving, it is important for nurse educators to find appropriate teaching methods to enhance students' cognitive skills. In

Indian context, maximum student learning is achieved through lecture method of teaching, which suppresses the critical thinking skills of students, the traditional class room is teacher-centered, with students passively accepting information given by the lecturer, who is in the position of authority<sup>18</sup>. Based on many supportive studies, the author has taken up an initiative to implement PBL method of teaching as an innovative method to increase critical thinking skills and problem solving ability among nursing students.

It was observed in this study that in the interventional group, all the subjects 130(100%) had favorable perception, whereas only 18(14%) had favorable and 112(86%) had unfavorable perception in the control group. This finding proves that the students who underwent PBL process had a favorable attitude towards PBL method of learning. Further, an overall 36% of difference in mean scores was observed between the groups with a mean percentage of 52% and 88%, in control group and the interventional group respectively, which shows a positive perception in the interventional group towards PBL.

This finding is supported by a study done by Ali Hassan pour Dehkordil and Saeed Heydarnejad<sup>19</sup> who found a significant difference between PBL and traditional lecture groups. A positive learning attitude was observed in the PBL group. Similar results were found with the previous studies that PBL students had significantly higher scores in the learning attitude than those of traditional lecture students<sup>20</sup>.

Similarly, the results of other studies showed that PBL caused the level of attitude and behavior of

students to be enhanced<sup>21</sup>. In Azar's study<sup>22</sup> the active learning methods i.e., PBL, led to an increase in the behavior of students.

Further on comparing each statement on the perceived benefits of the teaching method, almost majority of the subjects in interventional group had disclosed positive response for all the statements. In the control group, only few had given positive response to the statements asked, which shows that the students were not enjoying their learning by pure lecture method of teaching. Therefore, it is evident that the PBL method of teaching had enhanced their learning skills. Moreover, it is proved that the students enjoyed the PBL learning process which was disclosed from their response.

Similarly, in a study conducted by Tiwari *et al*<sup>23</sup> analysis of the qualitative interview data revealed differences in the students' perceptions of their learning experiences. The PBL students found the experience enjoyable, whereas the lecture students were quite un impressed about their learning experience. In terms of the students' views about what may have influenced the development of their thinking, the PBL students attributed much of it to the PBL tutorials. The lecture students did not feel that thinking was encouraged in lectures.

This result is supported by the study done by Martyn P Kings bury and Joanne S Lymn<sup>24</sup>, who found in their study that the overall students response to this PBL was over whelmingly positive.

**Table No.1: Control and interventional post test scores**

S.No	Area	Max score	Control group Post test scores n=130			Interventional group Post test scores n=130			Difference in mean %
			Mean	SD	Mean %	Mean	SD	Mean %	
1	Overall	200	104.34	14.05	52	175.11	5.27	88	36

**Table No.2: Levels of perceived benefits**

S.No	Level of perceived benefits	Control group n =130		Interventional group n =130	
		Post test		Post test	
		F	%	f	%
1	Un favourable	112	86	-	-
2	Favourable	18	14	130	100

**CONCLUSION**

Recent trends in education point to a shift from a traditional form of teaching to a self-directed learning concept. Information - dense lectures, presented by a series of experts to large student audiences, seemed disconnected from the application of content to real life. This study has supported the use of problem-based learning to enhance critical thinking skills and problem solving ability of the nursing students. In the light of the findings of this study, there is a positive effect on the influence of PBL in enhancing critical thinking skills and problem solving ability among nursing students than that of the traditional lecture method of teaching. Several features of PBL support increased motivation for learning. Students are more motivated when their learning activity is implicated in personally meaningful tasks. So, it was concluded that PBL is a potentially powerful and essential approach to promote quality in nursing practice.

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**CONFLICT OF INTEREST**

We declare that we have no conflict of interest.

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