

## A study to assess the attitude and evaluate the effectiveness of PBL and MMCP on critical thinking skill of nursing students on patient care in selected nursing institutions at Puducherry

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**Abstract:** Critical thinking is the intellectual skills required to make sound clinical judgments in daily nursing practice. The aim of the study was to assess the attitude and evaluate the effectiveness of PBL and MMCP on critical thinking skill of nursing students on patient care. A true experimental two group pre -test and post- test design of 22 nursing students by simple random sampling technique. A self-structured questionnaire was administered to the nursing students. Descriptive and inferential statistics were used to analyse the data using SPSS version 25. Among 22 nursing students, In MMCP group, mean score of effectiveness of critical thinking skill of nursing students in the pre-test attitude was  $62.73 \pm 19.309$  and post -test attitude was  $106.18 \pm 9.506$ . In PBL group, mean score of effectiveness of critical thinking skill of nursing students in the pre-test attitude was  $60.36 \pm 13.902$  and post -test attitude was  $97.73 \pm 10.603$ . Nursing teachers must be able to implement new teaching techniques that can enhance nursing students' continuous and effective learning while paying careful attention to the standards governing patient care.

**Key Words:** Problem Based Learning, Mind Mapped Care Plans, Critical Thinking, Nursing Students, Patient Care, Puducherry.

### 1. INTRODUCTION:

Clinical education is one of the fundamental areas in the development of the nursing profession, providing nursing students with the opportunity to transform conceptual knowledge into psychomotor skills and apply them to patient care <sup>(1)</sup>. Critical thinking is part of the intellectual skills required to make sound clinical judgments in daily nursing practice. Expertise in nursing is when the nurse has developed the ability to use appropriate nursing knowledge and good judgment in patient care <sup>(2)</sup>.

Problem-Based Learning (PBL) was first implemented in a medical education curriculum at Toronto's McMaster University in the late 1960s. It is an innovative teaching strategy that is student-centred and not teacher-centred like classroom teaching. PBL is implemented to engage students in active learning. As principles of good practice in undergraduate education, they present students with a problem or situation in order to apply prior knowledge and acquire new knowledge <sup>(3)</sup>.

Mind mapping was proposed as a new learning-memory tool in the early 1960s by Tony Buzan, a psychologist and education expert in Britain <sup>(4)</sup>. Mind mapping is a creative way for students to engage in a unique learning method that can expand memory and help create a new environment for processing information. Mind Maps are recognized as a powerful metacognitive tool that can facilitate knowledge acquisition through meaningful learning and thus can be used to encourage and assess critical thinking <sup>(5)</sup>.

Critical thinking skills are necessary competencies that enhance nurses' clinical decision-making skills, especially in complex situations they often encounter in patient care. Some of the authorities and theorists in nursing education believe that traditional teaching approaches are not very effective in preparing nurses for today's dynamic and flexible clinical environments. Therefore, nursing education needs to use appropriate teaching-learning approaches to overcome this deficiency.

### 2. MATERIALS & METHODS:

**Design:** A true experimental two group pre -test and post- test design was adapted for the present study.

**Sample Size:** A sample of 22 nursing students were selected. About 11 nursing students for Problem Based Learning (PBL) group from Indirani College of Nursing at Puducherry and 11 nursing students for Mind Mapped Care Plans (MMCP) group from Vinayaga Mission College of Nursing at Puducherry.

**Sampling Technique:** Simple random sampling technique was used to select the sample.

**Data collection Procedure:** The formal permission obtained from the concerned authorities. Ethics approval was obtained from the Institute Ethical Committee (IEC). The purpose of the study was explained to nursing students. Demographic variables were collected using interview schedule. Pre- test and post-test assessment by using self-structured questionnaire. The intervention for 7 consecutive days with 15 - 30 minutes. After 7th day, post-test was assessed the level of nursing practice and attitude among the nursing students in Problem Based Learning (PBL) group and Mind Mapped Care Plans (MMCP) group.

### 3. RESULTS:

Out of the 22 nursing students who were interviewed, majority in MMCP group 7(63.6%) were in the age group 16 -18 years whereas in PBL group 6(54.5%) were in the age group 19-21 years. Both in MMCP 6(54.5%) and PBL 6(54.5%) group were Third year. Both in MMCP and PBL 5(45.5%) group, area of preference after course completion were academic [teaching]. In MMCP group 6(54.5%) aptitude to join nursing were in parents whereas in PBL group 5(45.5%) were in self-interest. Both in MMCP 8(72.7%) and PBL 9(81.8%) group, clinical system of exposure were full block. In MMCP group 7(63.6%) clinical training obtained through institution were in parent hospital whereas in PBL group majority 11(100%) were in affiliated hospital. **(Table1)** In MMCP group of pre-test, 9(81.8%) had moderately favourable, and 2(18.2%) had favourable level of attitude. In post- test, 8(72.7%) had favourable, and 3(27.3%) had moderately favourable level of attitude. In PBL group of pre-test, 10(90.9%) had moderately favourable, and 1(9.1%) had favourable level of attitude. In post- test, 6(54.5%) had favourable, and 5(45.5%) had moderately favourable level of attitude. **(Table2)** In MMCP group of pre-test, 8(72.7%) had average, and 3(27.3%) had good level of practice. In post- test, 9(81.8%) had good, and 2(18.2%) had average level of practice. In PBL group of pre-test, 10(90.9%) had average, and 1(9.1%) had good level of practice. In post- test, 7(63.3%) had good, and 4(36.4%) had average level of practice. **(Table3)** In MMCP group, mean score of effectiveness of critical thinking skill of nursing students in the pre-test attitude was  $62.73 \pm 19.309$ , post -test attitude was  $106.18 \pm 9.506$ , pre-test practice was  $15.82 \pm 4.423$  and post- test practice was  $24.64 \pm 3.557$ . The calculated paired 't' test value of  $t = 12.42$  shows statistically highly significant difference in the pre and post-test of attitude. The calculated paired 't' test value of  $t = 6.29$  shows statistically highly significant difference in the pre and post-test of practice. In PBL group, mean score of effectiveness of critical thinking skill of nursing students in the pre-test attitude was  $60.36 \pm 13.902$ , post -test attitude was  $97.73 \pm 10.603$ , pre-test practice was  $15.09 \pm 3.646$  and post- test practice was  $22.82 \pm 3.737$ . The calculated paired 't' test value of  $t = 8.97$  shows statistically highly significant difference in the pre and post-test of attitude. The calculated paired 't' test value of  $t = 10.62$  shows statistically highly significant difference in the pre and post-test of practice. **(Figure 1)**

### 4. DISCUSSION:

True experimental two group pre -test and post- test design was used to select the sample; Total 22 nursing students were selected by simple random sampling technique. The aim of the study was to assess the attitude and evaluate the effectiveness of PBL and MMCP on critical thinking skill of nursing students on patient care. Nursing students were assessed by using self-structured questionnaire. Considering the distribution of samples based on their demographic variables, majority in MMCP group 63.6% were in 16 -18 years whereas in PBL group 54.5% were in 19-21 years, Both MMCP 36.3% and PBL 27.3% group were first year, Both group 45.5% of area of preference after course completion were academic [teaching], In MMCP group 54.5% of aptitude to join nursing were in parents whereas in PBL group 45.5% were in self-interest, Both MMCP 72.7% and PBL 81.8% group of clinical system of exposure were full block and in MMCP group 63.6% of clinical training obtained through institution were in parent hospital whereas in PBL group 100% were in affiliated hospital.

The First objective of the study was to assess the attitude on traditional nursing care plan on patient care among the nursing students of MMCP and PBL. In MMCP group of pre-test, 81.8% had moderately favourable, and 18.2% had favourable level of attitude. In post- test, 72.7% had favourable, and 27.3% had moderately favourable level of attitude. Similar results noted in a study done by Nirmala T and Shakuntala B.S. (2012) shown 74.5% of nursing students were in favour of concept mapping <sup>(6)</sup>.

In PBL group of pre-test, 90.9% had moderately favourable, and 9.1% had favourable level of attitude. In post-test, 54.5% had favourable, and 45.5% had moderately favourable level of attitude. Consistent results was supported by Srinivasan Gandhi and Devan Prabhu Dass (2019) showed in pre-test of nursing students, 38.7% had a favorable, 31.7% had moderately favorable and 30% had unfavorable attitude regarding Problem based learning module. In post-test,

68.5% of the nursing students had a favourable and 32.5 % had moderately favorable attitude regarding Problem based learning module (7).

The second objective of the study was to determine the effectiveness of critical thinking skill of nursing students in nursing practice in MMCP and PBL. In MMCP group, mean score of the pre-test attitude was  $62.73 \pm 19.309$ , post - test attitude was  $106.18 \pm 9.506$ , pre-test practice was  $15.82 \pm 4.423$  and post- test practice was  $24.64 \pm 3.557$ . The calculated paired 't' test value of  $t = 12.42$  shows statistically highly significant difference in the pre and post-test of attitude at  $p = 0.001$ . The calculated paired 't' test value of  $t = 6.29$  shows statistically highly significant difference in the pre and post-test of practice at  $p = 0.001$ . In PBL group, mean score of the pre-test attitude was  $60.36 \pm 13.902$ , post -test attitude was  $97.73 \pm 10.603$ , pre-test practice was  $15.09 \pm 3.646$  and post- test practice was  $22.82 \pm 3.737$ . The calculated paired 't' test value of  $t = 8.97$  shows statistically highly significant difference in the pre and post-test of attitude at  $p = 0.001$ . The calculated paired 't' test value of  $t = 10.62$  shows statistically highly significant difference in the pre and post-test of practice at  $p = 0.001$ .

**Table 1: Frequency and percentage wise distribution of demographic variables among nursing students in PBL and MMCP group**

S.NO	DEMOGRAPHIC VARIABLES	MMCP GROUP		PBL GROUP	
		N	%	N	%
1	<b>Age in year</b>				
	16 – 18	7	63.6	5	45.5
	19 – 21	4	36.4	6	54.5
2	<b>Level of Student</b>				
	Third Year	6	54.5	6	54.5
	Final Year	5	45.5	5	45.5
3	<b>Area of preference after course completion</b>				
	Academic [ teaching]	5	45.4	5	45.5
	Clinical [ bedside]	3	27.3	4	36.4
	Community	3	27.3	2	18.1
4	<b>Aptitude to join nursing</b>				
	Self interest	2	18.2	5	45.4
	Parents	6	54.5	4	36.4
	Friends	3	27.3	2	18.2
	Relatives	0	0	0	0
5	<b>Clinical system of exposure</b>				
	Partial block	0	0	0	0
	Full block	8	72.7	9	81.8
	Both	3	27.3	2	18.2
6	<b>Clinical training obtained through institution was</b>				
	Parent Hospital	7	63.6	0	0
	Affiliated Hospital	3	27.3	11	100
	Both	1	9.1	0	0

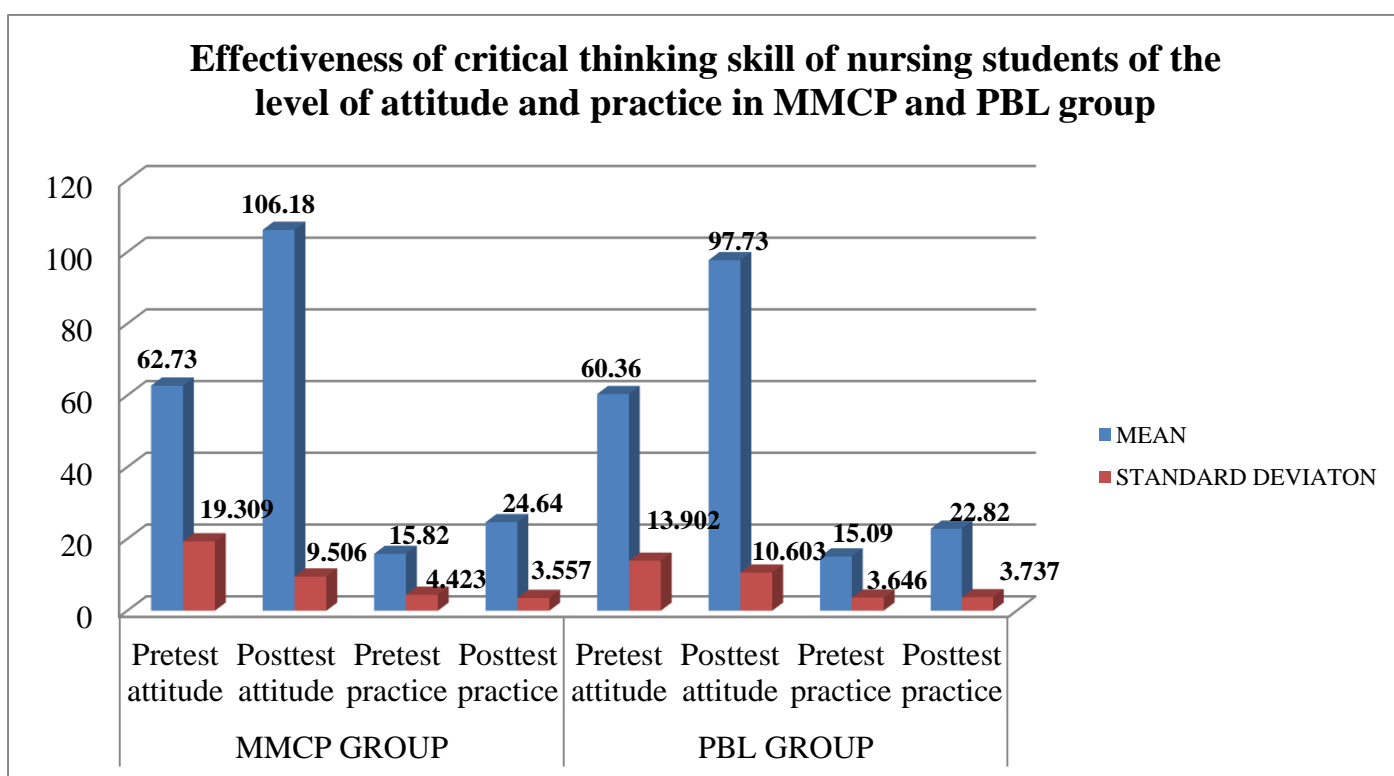
**Table 2: Frequency and percentage wise distribution of pre-test and post-test of the level of attitude on traditional nursing care plan on patient care among the nursing students in PBL and MMCP group.**

Attitude on traditional nursing care plan on patient care among the nursing students	LEVEL OF ATTITUDE							
	MMCP				PBL			
	PRE TEST		POSTTEST		PRE TEST		POSTTEST	
	N	%	N	%	N	%	N	%
UNFAVOURABLE	0	0	0	0	0	0	0	0
MODERATELY FAVOURABLE	9	81.8	3	27.3	10	90.9	5	45.5
FAVOURABLE	2	18.2	8	72.7	1	9.1	6	54.5
<b>Total</b>	11	100	11	100	11	100	11	100
<b>Mean±Standard deviation</b>	62.73±19.309		106.18±9.506		60.36±13.902		97.73±10.603	

Table 3: Frequency and percentage wise distribution of pre-test and post-test of the level of practice on patient care among the nursing students in PBL and MMCP group.

Practice on patient care among the nursing students	LEVEL OF PRACTICE							
	MMCP				PBL			
	PRE TEST		POSTTEST		PRE TEST		POSTTEST	
	N	%	N	%	N	%	N	%
AVERAGE	8	72.7	2	18.2	10	90.9	4	36.4
POOR	0	0	0	0	0	0	0	0
GOOD	3	27.3	9	81.8	1	9.1	7	63.6
<b>Total</b>	11	100	11	100	11	100	11	100
<b>Mean±Standard deviation</b>	15.82±4.423		24.64±3.557		15.09±3.646		22.82±3.737	

Figure – 1 Effectiveness of critical thinking skill of nursing students of the level of attitude and practice in MMCP and PBL group



## 5. CONCLUSION:

Most nursing students' critical thinking disposition scores were doubtful. It's important for nursing students to learn how to think critically and cope with challenging situations in the classroom. Nursing teachers must be able to implement new teaching techniques that can enhance nursing students' continuous and effective learning while paying careful attention to the standards governing patient care.

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