International Journal of Recent Advances in Multidisciplinary Topics
Volume 7, Issue 4, April 2026
www.ijramt.com | E-ISSN: 2582-7839 | RESAIM Publishing | www.resaim.com

A Study to Compare Team-Based Learning Versus Self Learning on Learning Outcome Among Nursing Students in Selected College of Nursing, Bishrampur, Chhattisgarh

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***Abstract*: Background: Team-Based Learning is an innovative, student-centred, active learning strategy designed to enhance knowledge, critical thinking, and problem-solving skills through teamwork. In Team Based Learning, learners are divided into small, diverse teams that remain consistent throughout the course. The learning process typically involves three main phases: pre-class preparation, readiness assurance testing, and application of concepts to problem-solving tasks. Through this structured approach, students engage more deeply with the content, apply theoretical knowledge to real-life scenarios, and develop communication and decision-making skills. Aim: To compare the outcome of Team Based Learning and Self Learning among nursing students. Setting and Design: the study was conducted at V.M. college of Nursing, Bishrampur (C.G.), A quasi-experimental research design was adopted. Material and Methods: 60 Nursing students were selected using random sampling technique and assigned into Team based Learning (n=30) and Self Learning (n=30). A self-structured tool to assess socio demographic variables and self-structured check list to assess the learning outcome (knowledge, comprehension, application and synthesis). Data are analysed using descriptive and inferential statistics. Result: the findings revealed a statistically significant difference in learning outcome between the Team Based Learning and Self Learning is accepted as t_{cal} 2.24 is more than t_{tab} 2.05 at $p<0.05$ level of significance. Total mean ± sd. percentage analysis shows that Team Based Learning in good category 86.66% and poor category 13.33% & Self Learning in good category 70% and poor category 30%. 't'-test to find out the Learning outcome of Team Based Learning & Self Learning on mean ± SD were 15.6 ± 2.25 and 13.56 ± 3.6 respectively. The result was analyzed using t-test and a significant and a significant improvement in learning outcome is statistically proved as 't' value calculated that is 2.24 is more than table value (2.05) at P>0.05 level of Significance.**

***Keywords*: Team based learning, Self-Learning, Learning outcome, Knowledge, Comprehension, Application, Synthesis.**

1. Introduction

Global research consistently demonstrates that Team Based Learning (TBL) is more effective than Self Learning (SL) in enhancing knowledge retention, student engagement, and clinical decision-making skills among nursing students. A meta-analysis of 25 studies in healthcare education found that Team Based Learning improved academic performance by an average of 15–20% compared to Self-Learning, with a moderate to large effect size (Cohen's d = 0.65–0.85).

In India Studies on self-learning in nursing education suggest that while self-learning fosters independence and critical thinking, it may not be as effective as team-based learning (TBL) in enhancing engagement and overall learning outcomes. A study conducted among 300 nursing students in India found that 80% of participants believed Team Based Learning, with post-test scores improving by 12–15% after Team Based Learning. However, engagement and satisfaction scores remained moderate, averaging 3.6 ± 1.0 and 3.7 ± 1.2 on a 5-point scale, respectively.

2. Objectives

1) To assess the outcome of Team Based Learning among nursing students.
2) To assess the outcome of Self Learning among nursing students.
3) To compare the outcome of Team Based Learning and Self Learning among nursing students.
4) To find association between outcome of Team Based Learning and sociodemographic variables among nursing students.
5) To find association between outcome of Self Learning and sociodemographic variables among nursing students.

3. Material and Methods

A quasi-experimental research approach was adopted where 60 Nursing students were selected using random sampling technique for the quantitative study and from that sample till the point of saturation for qualitative analysis was taken using random sampling. A self-structured tool to assess socio demographic variables and self-structured check list to assess the learning outcome (knowledge, comprehension, application

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and synthesis).

Frequency and percentage analysis was done to describe the sociodemographic characteristic of Nursing students. paired 't' test was done to find out comparison between Team Based Learning and Self Learning among nursing students. Chi-square test was done to assess the association between Team Based Learning and socio-demographic variables or Self Learning and socio-demographic variables.

4. Result and Discussion

A. Distribution of Subject According to Socio-Demographical Variables

In present study socio-demographical data elicit that among the study sample maximum Nursing students 22 (36.67%) belongs to the age group of 20 and 21 (35%) of people belongs to the age group of 22, 14 (23.33%) of 21 years of age and rest 3 (5%) nursing students belongs to 19 years of age. 54 (90%) were females & Rest Were 6 (10%) males. 50(83.33%) of the were Hindu, 9(15%) of the subjects were Christians and one of them was (1.66%) Muslim. 47 (78.33%) of belongs to Rural area and the rest 13 (21.66%) belongs to Urban area. 43 (71.66%) spend 2-4 hours a day, 11(18.33%) spend less than 2 hours and remaining 6 (10%) studies 2-4 hours in a day.

B. Assess the Learning Outcome (Knowledge, Comprehension, Application and Synthesis)

In regard to Team Based Learning to in term application is more learning outcome as mean percentage score 91.11% (Mean ± SD 5.46 ± 0.86, CV 15.75), in term of knowledge 88% (Mean ± SD 4.4 ± 0.67, CV 15.22) & in term of synthesis 83.33% (Mean ± SD 2.5 ± 0.68, CV 27. 2) and rest were in term of comprehension 80.83% (Mean ± SD 4.4 ± 0.67, CV 15.22) respectively. How over in regards to Self-Learning in term knowledge is less learning outcome as mean percentage score 83.33% (Mean ± SD 4.16 ± 1.23, CV 29.56), whereas with regard to in term of synthesis 81.11% (Mean ± SD 2.43 ± 0.62, CV 25.51) & in term of comprehension is 70.83% (Mean ± SD 2.83 ± 1.03, CV 36.39) & rest were in term of application 68.88% (Mean ± SD 4.13 ± 1.27, CV 30.75).

C. Overall Analysis to Evaluate the Learning Outcome of Team Based Learning & Self Learning Among Nursing Students

The comparative analysis of learning outcomes between Team Based Learning (TBL) and Self-Learning. In the Team Based Learning group, a significant majority (86.66%) of students achieved a good learning outcome (score range 13–18), with a high mean score of 15.6 (86.66%) and a low standard deviation (SD) of 2.21. The coefficient of variation (CV) for this group was 14.16%, indicating more consistency in performance. On the other hand, the Self Learning group had 70% of students in the good outcome category, with a lower mean score of 13.56 (75.37%) and a higher SD of 3.61, suggesting greater variation in performance. The CV for the Self Learning group was also higher at 26.62%, indicating less consistency. These findings suggest that Team Based Learning was more effective and consistent in improving learning outcomes among nursing students compared to Self Learning.

D. t'-test to Find out the Learning outcome of Team Based Learning & Self Learning

Represents that comparison of Learning outcome score of Team Based Learning and Self Learning. Mean ± SD of Team Based Learning and Self Learning were 15.6 ± 2.25 and 13.56 ± 3.6 respectively with a df of 29. The result was analysed using t-test and a significant difference in learning outcome is statistically between two different methods of learning under study. 't' value calculated between the means proved that Hence H_1 hypothesis There is significant difference in learning outcome between the Team Based Learning and Self Learning is accepted as t_{cal} 2.24 is more than t_{tab} 2.05 at $p<0.05$ level of significance.

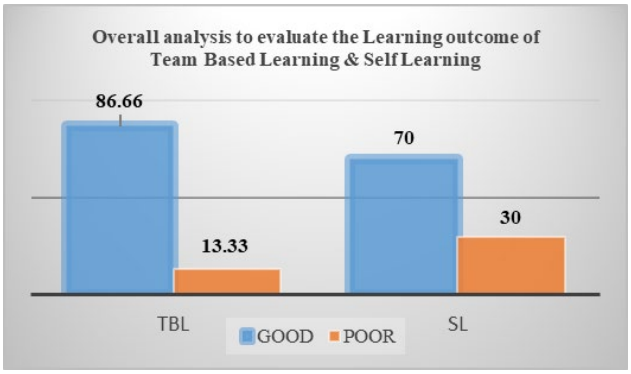

Fig. 1. Overall analysis to evaluate the learning outcome of team-based learning & self-learning

Chi-square test was done to assess the association between TBL and socio-demographic variables: presents study the analysis revealed that age was the only variable with a statistically significant association ($\chi^2 = 8.57$, df = 3) as its calculated value exceeded the tabulated value (7.82) at $P > 0.05$. This implies that age had a significant effect on the learning outcome in the TBL group. However, other variables, including gender ($\chi^2 = 0.51$), religion ($\chi^2 = 0.07$), area of residence ($\chi^2 = 0.32$), and average study hours per day ($\chi^2 = 0.51$), did not show a significant association, as all their calculated values were less than the tabulated value of 3.84 with $P < 0.05$, indicating no statistically significant relationship between these factors and the effectiveness of Team Based Learning.

Hence H_2 There is significant association between Team Based Learning and age of nursing students is accepted where as other demographic variable like gender, religion, area of

Table 1
Overall analysis to evaluate the learning outcome of team-based learning & self-learning among nursing students

Learning outcome	Categories	Frequency	Percentage%	Mean	Mean score%	SD	CV	't' value	Table value
Team Based Learning	Good (13-18)	26	86.66	15.6	86.66	2.21	14.16	2.24	2.05
	Poor (0-12)	4	13.33						
Self-Learning	Good (13-18)	21	70	13.56	75.37	3.61	26.62		
	Poor (0-12)	9	30						

residence and average study hours per day is rejected.

Chi-square test was done to assess the association between Self Learning and socio-demographic variables:

presents study the analysis revealed that area of residence was the only variable showing a statistically significant association with Self Learning outcomes ($\chi^2 = 6.42$), as the calculated value exceeded the tabulated value of 3.84 at $P > 0.05$. This suggests that where students lived influenced their Self-Learning effectiveness. However, other variables such as age ($\chi^2 = 3.44$), gender ($\chi^2 = 0.017$), religion ($\chi^2 = 1.97$), and average study hours per day ($\chi^2 = 1.07$) had calculated values below their respective tabulated values, indicating no significant association with Self Learning outcomes, despite the P values being listed as $P < 0.05$, which appears to be a labelling inconsistency in the table.

Hence H_3 There is significant association between Self Learning and area of residence is accepted whereas other demographic variable like age in year, gender, age in year, average study hours per day is rejected.

5. Implication

A. Nursing Practice

- Team-Based Learning can be applied in nursing practice by organizing small groups of nurses or students to discuss real patient cases, identify nursing problems, and plan appropriate interventions together.
- Team Based Learning during ward rounds, each team can review their assigned patients, analyse nursing priorities, and share their decisions with the team, encouraging collaborative problem-solving.

B. Nursing Administration

- Team-Based Learning can be applied by forming small groups of nursing students or staff to discuss administrative problems and make collective decisions.
- Team Based Learning can increase student/staff satisfaction and engagement, potentially leading to reduced dropout rates and a more positive institutional reputation. Hence a team of nurses of various categories to be appointed for patient care

C. Nursing Education

- Team-Based Learning can be formally integrated into the nursing curriculum, especially in subjects that require higher-order thinking such as critical thinking, decision-making, and problem-solving.
- Team-Based Learning can be implemented into case-based or problem-solving activities can be assigned to teams to apply theoretical knowledge to clinical or community situations.

D. Nursing Research

- Nursing profession focuses on improving the quality of its practice and also to gain professional standards through continuous development of its body of knowledge. More knowledge regarding the Team Based Learning.
- Team-Based Learning can be used to teach nursing students or staff nurses research concepts such as research design, sampling, data collection, and analysis in an interactive way.

6. Recommendation

- A large study sample could have been taken in the study for better generalization.
- Further research is needed to assess the long-term retention and clinical application of knowledge gained through Team Based Learning and Self Learning methods.
- As Team Based Learning may enhance interactive and deeper learning, nursing institutions should consider incorporating it into regular teaching strategies, especially for complex and applied subjects.
- There is a need for mixed-methods research to understand both quantitative outcomes (e.g., exam scores) and qualitative experiences (e.g., student satisfaction, teamwork dynamics).

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