Educational Administration: Theory and Practice
2024, 30(4), 10899-10910
ISSN: 2148-2403
https://kuey.net/

Research Article

To assess the effectiveness of two preferred teaching methods Case Study and Concept Mapping, on the competency level of UG Nursing Students regarding Children's Respiratory Health Assessment with special reference to Uttarakhand, India

Dr. Shabistan Ahmed[1*], Dr.Ratna Prakash[2]

[1*]Principal, Government College of Nursing, Haldwani, Uttarakhand, adasaabirnaaz1977@gmail.com
[2]Director, Pal College of Nursing& Medical Sciences, Haldwani,Uttrakhand. ratna.cp@gmail.com

Citation: Dr. Shabistan Ahmed et.al (2024), To assess the effectiveness of two preferred teaching methods Case Study and Concept Mapping, on the competency level of UG Nursing Students regarding Children's Respiratory Health Assessment with special reference to Uttarakhand, India, *Educational Administration: Theory and Practice, 30(4)10899-10910*
Doi: 10.53555/kuey.v30i4.8908

ARTICLE INFO

ABSTRACT

A quasi-experimental pre- and post test design was used to assess the effectiveness of two preferred teaching methods Case Study and Concept Mapping, on the competency level of UG Nursing Students regarding Children's Respiratory Health Assessment with special reference to Uttarakhand, India, .In this study independent variables were teaching methods (case study & concept mapping), , and dependent variable were competency level of UG Nursing Students, in term of knowledge, Critical thinking, skill and satisfaction score. Total enumeration sampling technique was used for data collection, data was analyzed for 105 nursing students of selected nursing institutions of uttarakhand. (N=105). The purpose of the study was to identifying the best method for teaching Children's Respiratory Health Assessment to UG nursing students.The Mean±sd of pre test scores among case study group was found to be 18.73± 3.81, 5.26±1.58 and
8.25±3.88 in Knowledge, Critical thinking and Skills respectively whereas Mean±sd among concept mapping group was
18.69±3.72 (Knowledge), 4.75±1.73 (Critical thinking) and 9.34±4.38 (Skills). The Mean±sd of post test scores among case study group for Knowledge, Critical thinking and Skills was found to be 23.16±7.67, 5.94±2.61 and 20.08±5.37 respectively whereas in case of concept mapping group, Mean±sd was found to be 25.19±6.64, 5.71±1.61 and 20.60±5.66 respectively. It can be inferred that the knowledge of nursing students significantly increased after the intervention of two teaching methods. The difference in the mean was found to be statistically highly significant in both the groups. Therefore, it can be concluded that the level of knowledge has increased among subjects of case study and concept mapping, level of critical thinking has increased among subjects of concept mapping. In term of skill level it can be concluded that skill level is increased by two teaching methods. Satisfaction of nursing students regarding two teaching methods case study and concept mapping was favourable towards concept mapping method. Findings of the study were concluded that some learning was found to be better through case study method and some through concept mapping method.

KEY WORDS- Assess, Efficacy, case study, concept mapping, Children's Respiratory Health Assessment, Knowledge, Critical thinking, Skill, Satisfaction.

BACKGROUND

Nursing education aims to prepare each individual nurse to render quality patient care in comprehensive manner along with optimum health guidance to individuals, family and community. This can be achieved only through developing desirable knowledge, skill and attitude among nursing students.
A teaching method comprises of the principles and methods used for instruction. Commonly used teaching

methods may include class participation, demonstration, recitation, memorization, or combinations of these. The choice of teaching method or methods to be used depends largely on the information or skill that is being taught, and it may also be influenced by the aptitude and enthusiasm of the students. Selection of teaching strategies is a fundamental component of instructional design. The goal is to help student's process of acquiring information more deeply, which allows them to relate new information to existing ideas or experiences. As a preamble of this research study two simple but useful teaching strategies are being introduced by the researcher, namely, Case Study and Concept Mapping.
The Preferred Teaching-Learning Methods:

• Case Study

Case study is a method of teaching learning in which a case is presented by a student or teacher. The purpose of the case study method give a vivid picture of the related nursing care by associated it with a specific individual. It is a form of teaching method done by teacher student about the patient condition as a whole.
According to Loretta Heidgerken, "Case study describes the life history of an individual or all of the factors which affect a situation. It tries to give us much breadth and depth of an individual or situation as possible."

• Concept Mapping

In 1972, Joseph Novak and his research team at Cornell University have developed the technique of concept mapping to enhance the student's conceptual understanding.
A concept map is a diagram or graphical tool that visually represents relationships between concepts and ideas. Concept maps begin with a main idea (or concept) and then branch out to show how that main idea can be broken down into specific topics. Most concept maps depict ideas as boxes or circles (also called nodes), which are structured hierarchically and connected with lines or arrows (also called arcs). These lines are labeled with linking words and phrases to help explain the connections between concepts.

NEED FOR STUDY

Knowledge, attitude and practice are always the parts of education, which is inseparable in any educational system especially in nursing.
But theoretical and practical part of Nursing Education are still often separated instead of being intertwined as a whole which is better understood by the very low utilization of findings from nursing research in clinical practice.
There are a variety of teaching strategies that nurse educators can use to improve students' learning. It is of great importance to select appropriate teaching strategies in nursing education to make the training more appealing and more effective.
Following methods are considered by the investigator with an aim to fill up the gap between theory and practice in nursing. In this consideration, case study & concept mapping are found to be appropriate for the UG level of nursing students to develop clinical competency. Introduction of concept mapping can bring major advancement in clinical care competency of nursing students by improving confidence, critical thinking, problem solving skills and lifelong learning skills.
By keeping value points about concept mapping in mind, the researcher has felt the necessary to introduce concept mapping in nursing education, as an effective method of teaching and bring awareness on concept mapping in nursing educational institutions. Researcher hopes that concept mapping introduction will over weigh the outcome of traditional method of teaching.

REVIEW OF LITERATURE

For the present study an extensive review of research and non-research literature relevant to the study was undertaken to develop deeper insight into the problem and to build the foundation of the study. Out of that, a few literature information which are thought to be supportive to the study focus, are presented here under the following sub-headings:-

- Case study
- Concept mapping
- Children's respiratory health
- Comparison and Efficacy
- Student's satisfaction about teaching methods

The case study method and lecture method were compared in software engineering students by G Kirti, V Vasudeva (Aug, 2007). A five point Likert scale also used to collect the data. The sample size was 186. Wilcox on signed rank Test used to analyze the data. The result suggested that the two approaches, lecture and case study are significantly different in their learning outcomes and case study approach ranked fairly higher than the lecture method of teaching.
William. M.M. conducted a study on student's reaction to case study presentation was assessed by conducting a survey on 90 undergraduate students on Neuroscience course. The students responded that they liked case study because they got in depth knowledge, opportunity to learn about case study, and also got

opportunity to learn from case Study presentation of other students.

A study conducted by Muhammad Safdar, et al. describes the procedure of developing an instructional tool, 'concept mapping' and its effectiveness in making the material meaningful to the students. This study seeks to contribute to this development by considering how the insights of David Ausubel (1968) can be converted into an effective and efficient instructional method. It was found that concept maps help improving achievement of the students and make learning more meaningful so that retrieval is possible.[29]

Susan MH. et al,(2006), conducted a study on Student Learning with Concept Mapping of care Plans in Community-Based Education. A quasi- experimental pre and post test design was used to examine the content of concept maps of care plans constructed by junior-level baccalaureate students (n = 23) at the beginning and end of a community-based mental health course. Additionally, students completed a questionnaire to self-evaluate their learning and report their satisfaction with concept mapping. This study supported concept mapping as an additional learning strategy and has extended knowledge in community based nursing education.[32]

Daley BJ. Shaw CR conducted a study on Concept maps: a strategy to teach and evaluate critical thinking. The purpose of this study was to describe that implemented concept maps as a methodology to teach and evaluate critical thinking. Students in six senior clinical groups were taught to use concept maps, they created three concept maps over the course of the semester. Randomly selected students' first and third concept maps were scored Data analysis demonstrated a group mean score of 40.38 on the first concept map and 135.55 on the final concept map, for a difference of 98.16. The paired t value comparing the first concept map to the final concept map was -5.69.

The data indicated a statistically significant difference between the first and final maps. This difference is indicative of the students' increase in conceptual and critical thinking.

Cogo ALP, Dal Pai D, et al.conducted a study on Case studies and role play: learning strategies in nursing to report professors' experience This is an experience report of a learning experience report from the Nursing Care of Adults I with course load of 300 hours per semester, in Bachelor Nursing to an average of 40 to 50 students every semester.

The result shows the development of case studies and role play considered health care needs from epidemiological profile of chronic non communicable diseases morbidity and mortality, nursing as an assisting method, and social aspects of hospitalized individuals. Study concluded that case studies and role play encouraged students to active search for learning and brought theory closer to real health care situations.

PURPOSE

Identifying the best method for teaching Children's Respiratory Health Assessment to UG nursing students.

OBJECTIVE

Primary Objectives

- To assess the competency level of UG Nursing Students in performing Children's Respiratory Health Assessment
- To assess the effectiveness of teaching Children's Respiratory Health Assessment using Case Study and Concept Mapping methods, on the competency level of UG Nursing Students

Secondary Objective

- To determine the disparity in participant's satisfaction in learning.

HYPOTHESIS

Hypothesis: will be tested at 0.05 level of significance

H1 There will be a significant difference between the mean pre test & post test scores of nursing students regarding children's respiratory health assessment in terms of-

- Student's knowledge
- Student's skill
- Student's critical thinking

Ho There will be no significant difference between the mean pre test & post test scores of nursing students regarding children's respiratory health assessment in terms of-

- Student's knowledge
- Student's skill
- Student's critical thinking

METHODOLOGY

DESIGN AND SAMPLE

A quasi experiment research approach was adopted for the study with two group pretest posttest research design. In this study independent variables were teaching methods, it includes case study & concept mapping, in teaching Children's Respiratory Health Assessment, and dependent variable were competency

level of UG Nursing Students, in term of knowledge, Critical thinking, skill and satisfaction score. The total enumeration sampling technique was used to obtain an adequate size of sample subjects. Total 119 students were enrolled in Basic B.Sc. nursing third year, who were studying subject child health nursing. But 14 students were absent during pre test and teaching program, they were excluded from the study. So the data was analyzed for 105 nursing students of selected nursing institutions of uttarakhand. (N=105)

DATA COLLECTION TOOLS

Based on the objectives and the conceptual framework of the study, the following instruments were developed in order to generate the data:-

- Personal information of students
- Structured knowledge questionnaire
- Structured Critical thinking questionnaire
- Structured observational checklists for children's respiratory health assessment
- Satisfaction Rating Scale for students

Personal information of students Personal profile of students contained 7 items which included code no, Age in years, Gender, education, Marital status, and Have you attended any class/ seminar/ workshop/ demonstration on Children respiratory health assessment?- If yes when and where. Have you attended any class/ seminar/ workshop/demonstration on Case study method of teaching or concept mapping method of teaching?-If yes when and where There was no scoring for personal information.

Structured Knowledge Questionnaire Forty objective type questions were prepared for assessing the knowledge of nursing students on Children respiratory health assessment. A structured knowledge questionnaire was prepared and each item was given a score of one so that maximum score of the structured knowledge questionnaire was 40. In planning the structured knowledge questionnaire, the purpose, general objectives, specific objectives & specific content area were outlined. There are two dimensions i.e. objectives & content. The objectives depicted the domain of testing i.e. Recall, comprehension and application. The content details included the major areas for assessing the knowledge of subjects

Structured Critical Thinking Questionnaire

A structured critical thinking questionnaire was developed to assess the critical thinking of nursing students regarding Children respiratory health assessment. Ten objective type questions were prepared. Total score is 10. There are two dimensions i.e. content & objectives. The objectives depicted the domain of testing i.e. Knowledge, comprehension and application. The content details included regarding critical thinking of subject

Structured Observational Checklists Structured observational checklist was developed to assess Children respiratory health assessment skill of nursing students. Dichotomous observational checklists were developed with two alternative response columns: done and not done. Scoring of observational checklists was by observing the procedure done by the students either 1 or 0.5 if steps of procedure done or 0 if steps of procedure not done. Total steps included into checklist were 22 and the total score of checklist ranged from 0 to 36.

Structured Satisfaction Rating Scale

A structured Satisfaction Scale about case study and concept mapping were developed to get the satisfaction of students and facilitators regarding the usefulness of two preferred teaching methods case study and concept mapping. A modified Likert type Satisfaction Rating Scale was prepared. There were fifteen statements regarding two preferred teaching methods case study and concept mapping, with four alternative response columns: strongly agree, agree, disagree and strongly disagree. Analysis of satisfaction will be based on the response by the students as strongly agree, agree, disagree and strongly disagree. Among 15 statements, 11 positive statements & 4 statements were negative in case study Satisfaction Scale and 13 positive statements and 2 negative statements were considered in concept mapping Satisfaction Scale.

Validity & reliability

The content validity of data collection tools were established by 7 experts who were PhD teaching faculty in Nursing and doctors working in the field of peadiatrics. The reliability coefficient for the structured knowledge questionnaire and critical thinking questionnaire was calculated by KR-20. The value of 'r' was found to be 0.929 and 0.921 . Inter-rater reliability method (single event and two observers) was used to calculate the reliability coefficient of the structured observational checklist. The values of 'r' were found to be 0.94. Reliability of the Satisfaction scale was established by Cronbach alpha and the value of 'r' was found to be 0.92. Pre-test established feasibility of the research tools.

DATA COLLECTION TECHNIQUE

& PROCEDURE After obtaining formal administrative permission, the selected subjects were explained about the purpose and usefulness of the study and assurance about the confidentiality of their response, a

written consent from the participants in the study was obtained. Teaching schedule for one week was prepared to conduct the teaching sessions. Students were divided into two groups by random selection. Group I was selected for case study and group II was selected for concept mapping. For group I teaching was given on Children's respiratory health assessment and subdivided the group into small group of 10 students in each group, so that five small groups were made and taken to the clinical setting to teach skill part on Children's respiratory health assessment. For group II teaching was given on Children's respiratory health assessment through concept mapping method and further subdivided the group into small group of 10 students in each group, so that five small groups were made and demonstrate skill part on Children's respiratory health assessment into the skilled lab. Valedictory session was organized after the completion of teaching on Children's Respiratory Health Assessment using Case Study and Concept Mapping methods. Structured Satisfaction rating Scale was administered to the students. Post test of knowledge, critical thinking and skills were assessed on 15th day.

DATA ANALYSIS & INTERPRETATION

SECTION-I **Distribution of sample subjects of case study and concept mapping by their personal information.**

Table-1 Frequency & percentage distribution of sample subjects of Case study & concept mapping by their personal information

Variable		Case study Frequency (%)	Concept Mapping Frequency (%)	Total Frequency	p- value
Age (Years)	18- 22	53 (100.0)	51 (98.08)	104	0.495
	23- 26	0 (0.00)	1 (1.92)	1	
Gender	Female	52 (98.11)	50 (96.15)	102	0.618
	Male	1 (01.89)	2 (03.85)	3	
Marital Status	Single	53 (100.00)	49 (94.23)	102	0.118
	Married	0 (0.00)	3 (5.77)	3	
Attended Class /Seminar /Workshop attended on children's Respiratory Health Assessment	Yes	0 (0.00)	0 (0.00)	0	
	No	53 (100.00)	52 (100.00)	105	

Data presented in table 1 shows that all the samples of case study method were in the age group of 18-22 years as far as concept mapping 98% were in age group of 18-22. Only 2% samples were in the age group of 23-26 years. Among subjects of case study 98% were males and 2% were females. Similarly among subjects of concept mapping majority (96%) of the subjects were males. Only small percentages i.e. 4% were females. As far as marital status is concerned all the case study subjects were unmarried whereas among concept mapping subjects 6% were married while 94% were unmarried. All the nursing students have not attended any class/ workshop/ seminar on children's Respiratory Health Assessment. Statistically, no significant difference was found between two groups in terms of their personal information ($p>0.05$).

***SECTION-II*Assessment of level of knowledge, critical thinking and skills of nursing students in study groups which includes Pre-test and Post-test analysis**

Table-2 Pre test level of Knowledge, critical thinking and Skill of nursing students in study group

Variable	Case study		concept Mapping	
	Mean± sd	Media n (min-max)	Mean± sd	Median (min – max)
Knowledge	18.73 ±3.81	19 (9 - 26)	18.69 ±3.72	19(8 -26)
Critical Thinking	5.26 ±1.58	5 (1-8)	4.75 ± 1.73	5 (1-8)
Skills	8.25 ±3.88	8 (5 -18)	9.34 ± 4.38	10 (1 -17)

Data presented in Table 2 depicts pre-test level among case study group and concept mapping in terms of their knowledge, critical thinking and skills. The Mean±sd of scores among case study group was found to be 18.73± 3.81, 5.26±1.58 and 8.25±3.88 in Knowledge, Critical thinking and Skills respectively whereas Mean±sd among concept mapping group was 18.69±3.72 (Knowledge), 4.75±1.73 (Critical thinking) and 9.34±4.38 (Skills). The min and max scores among case study group in pre-test was found to be 9 and 26, 1 and 8, 5 and 18 for Knowledge, Critical thinking and Skills respectively on the other hand the min and max scores among concept mapping group was found to be 8 and 26 (Knowledge), 1 and 8 (Critical thinking) and 1 and 17 (Skills).

Table 3: Post-test level of Knowledge, critical thinking and Skill of nursing students in study groups

Variable	Case study		Concept Mapping	
	Mean ± sd	Medi an (min- max)	Mean ± sd	Median (min– max)
Knowledge	23.16 ±7.67	23 (7- 39)	25.19 ±6.64	26 (6-35)
Critical Thinking	5.94 ± 2.61	7 (1- 10)	5.71 ±1.61	6 (1-9)
Skill	20.08 ±5.37	17 (6- 31)	20.60 ±5.66	20 (9-34)

The data in Table 3 reflects post-test level mean scores of two groups i.e. case study and concept mapping. The Mean±sd of scores among case study group for Knowledge, Critical thinking and Skills was found to be 23.16±7.67, 5.94±2.61 and 20.08±5.37 respectively whereas in case of concept mapping group, Mean±sd was found to be 25.19±6.64, 5.71±1.61 and 20.60±5.66 respectively. The min and max scores among case study group was found to be 7 and 39, 1 and 10, 6 and 31 for Knowledge, Critical thinking and Skills respectively on the other hand the min and max scores among concept mapping group was found to be 6 and 35 (Knowledge), 1 and 9 (Critical thinking) and 9 and 34 (Skills).

SECTION III : Comparison of knowledge, critical thinking and skill scores of nursing students between and within study groups.

Table 4: Comparison of Knowledge score of nursing students between and within study groups

	Group	Pre test(Mean± sd)	Post test (Mean ± sd)	Diff eren ce (95% CI)	P –value (Within group)
Know ledge Score	Case study	18.73 ±3.81	23.16 ±7.67	4.43 (2.3 3, 6.53)	<0.0001
	Concept Mappin g	18.69 ±3.72	25.19 ±6.64	6.5 (4.3 5, 8.64)	<0.0001
p- value (Between group)		0.952	0.152		
Difference (95% CI)		0.04 (-1.41 ,1.51)	2.02 (0.75, 4.80)		

As far as knowledge score is concerned as shown in Table 4 which depicts that in case study group the Mean±sd scores at pre-test level was found to be18.73 ±3.81 and at post-test level it was found to be 23.16±7.67. The difference in the mean was found to be statistically highly significant as p- value is <0.001.
In concept mapping group the Mean±sd scores at pre-test level was found to be18.69±3.72 and at post-test level it was found to be 25.19±6.64. The difference in the mean was found to be statistically highly significant as p-value is
<0.001.
Therefore, it can be concluded that the level of knowledge has increased among subjects of case study and concept mapping.
At pre-test level, the Mean±sd score of case study group was found to be 18.73±3.81 while in case of concept mapping it was found to be 18.69±3.72. However, statistically no significant difference was found between groups at Pre-test level.
At post-test level, the Mean±sd score of case study group was found to be 23.16±7.67 while in case of concept mapping it was found to be 25.19±6.64. However, statistically no significant difference was found between groups at Post-test level. Hence, it can be concluded that there was no difference between groups at pre-test or post- test level in terms of knowledge.

Table 5: Comparison of critical thinking score of nursing students between and within study groups

	Group	Pre test (Mean ±sd)	Post test (Mean ± sd)	Diff (95%CI)	P value (Within group)
critical thinking Score	Case study	5.26 ±1.58	5.94 ± 2.61	0.67 (0.11, 1.47)	0.0927
	Concept Mapping	4.75 ±1.73	5.71 ±1.61	0.96 (0.35, 1.57)	0.0026
p- value (Between group)		0.115	0.587		
Difference (95% CI)		0.51 (0.12,1.15)	0.23 (-0.61, 1.07)		

The data in Table 5 reflects that Mean±sd of case study group at pre-test level was 5.26±1.58 and at post-test level it was found to be 5.94±2.61. Statistically no significant difference was found. The Mean±sd score was found to be 4.75±1.73 and 5.71±1.61 at pre-test and post level in case of concept mapping subjects. The difference in the mean was found to be statistically highly significant as p-value is<0.001 Thus, it can be concluded that the level of critical thinking has increased among subjects of concept mapping. The Mean±sd

score of case study group was found to be 5.26±1.58 at pre-test level while in case of concept mapping it was found to be 4.75±1.73. However, statistically no significant difference was found between groups at Pre-test level. At post-test level, the Mean±sd score of case study group was found to be 5.94±2.61 while in case of concept mapping it was found to be 5.71±1.61. However, statistically no significant difference was found between groups at Post-test level. Hence, it can be concluded that there was no difference between groups at pretest or post-test level in terms of critical thinking.

Table 6: Comparison of skill score of nursing students between and within study groups

	Group	Pre test (Mean± sd)	Post test (Mean± sd)	Diff (95%CI)	p– value (Within group)
Skill Score	Case study	8.25±3.88	20.08±5.37	11.73 (9.85, 13.60)	<0.0001
	Concept Mapping	9.34 ± 4.38	20.60±5.66	11.63 (9.60,13.67)	<0.0001
p- value (Between group)		0.201	0.638		
Difference (95% CI)		1.06 (0.57,1.06)	0.52 (-1.67,271)		

Table 6 illustrates the level of skill among and within study groups. The Mean±sd score of case study group at pre-test and post-test was found to be 8.25±3.88 and 20.08±5.37 respectively on the other hand the Mean±sd score of concept mapping group at pre-test and post test was found to be 9.34±4.38 and 20.60±5.66 respectively. Statistically, the difference was found to be highly significant within groups ($p<0.001$). In case study group the Mean±sd was found to be 8.25±3.88 while in case of concept mapping it was found to be 9.34±4.38 at pre-test level while at post-test level the Mean±sd score was found 20.08±5.37 and 20.60±5.66 for case study and concept mapping group respectively. Statistically, no significant difference was found between groups.

Section IV Assessment of satisfaction of nursing students regarding teaching methods i.e. case study and concept mapping.

Table 7: Satisfaction of nursing students regarding teaching methods case study and concept mapping

Sl. No.	Statements	Group	Strongly Disagree	Disagree	Agree	Strongly Agree	p- value
1.	It provides actual	Case Study	-	-	29 (54.72)	24 (45.28)	0.141
	knowledge.	Concept			21 (40.38)	31 (59.62)	
		Mapping					
2.	Itprovides	Case Study	-	4 (7.55)	32 (60.38)	17 (32.08)	0.166
	comfortable	Concept		0 (0.00)	36 (6923)	16 (30.77)	
	environment for	Mapping					
	learning.						
3.	Itprovides	Case Study		9 (16.98)	27 (50.94)	17 (32.08)	0.455
	experience of	Concept		10 (19.23)	20 (38.46)	22 (42.31)	
	clinical learning.	Mapping					
4.	Itrequires	Case Study		20 (37.74)	22 (41.51)	11 (20.75)	0.001
	minimal use of	Concept		5 (9.62)	38(73.08)	9 (17.31)	
	resources.	Mapping					
5.	It is easy to	Case Study		15 (28.30)	22 (41.52)	16 (30.19)	0.001
	completethe	Concept		2 (3.85)	20(38.46)	30 (57.69)	
	learning content	Mapping					
	in time.						
6.	It motivates me	Case Study	2 (3.77)	4 (7.555)	28 (52.83)	19 (35.85)	0.140
	to learn more.	Concept	0(0.00)	1 (1.92)	24 (46.15)	27 (51.92)	
		Mapping					
7.	It is easy to	Case Study	-	1 (1.89)	34 (64.15)	18 (33.96)	0.423
	understand.	Concept		1 (1.92)	27 (51.92)	24 (46.15)	
		Mapping					
8.	Itcovers	Case Study	2 (3.77)	6 (11.32)	27 (50.94)	18 (33.96)	0.037
	cognitiveand	Concept	0 (0.00)	2 (3.85)	39 (75.00)	11 (21.15)	
	intellectual	Mapping					
	learning.						
9.	It proceeds from	Case Study	-	8 (15.09)	29 (54.72)	16 (30.19)	0.157
	simple to	Concept		2 (3.85)	34 (65.38)	16 (30.77)	
	complex	Mapping					
10.	It is easy to	Case Study	-	17 (32.08)	25 (47.7)	11 (20.75)	0.013

	organize the	Concept		5 (9.62)	28 (53.85)	19 (36.54)	
	class.	Mapping					
11.	Itimproves	Case Study	-	9 (16.98)	30 (56.60)	14 (26.42)	0.086
	student's	Concept		3 (5.77)	27 (51.92)	22 (42.31)	
	participation.	Mapping					
12.	Itimproves critical thinking.	Case Study Concept Mapping		3 (5.66) 3 (5.77)	35 (66.04) 29 (55.77)	15 (28.30) 20 (38.46)	0.520
13.	Ithelps to develop interest in the subject.	Case Study Concept Mapping	-	4 (7.55) 0 (0.00)	28 (52.83) 35 (67.31)	21 (39.62) 17 (32.69)	0.065
14.	It improves skills.	Case Study Concept Mapping	-	1 (1.89) 4 (7.69)	30 (56.60) 20 (38.46)	22 (41.51) 28 (53.85)	0.121
15.	It helps in group activity.	Case Study Concept Mapping		8 (15.09) 3 (5.77)	22 (41.51) 22 (42.31)	23 (43.40) 27 (51.92)	0.317
Total Score of satisfaction rating Scale			Mean± sd		Median (Min- Max)	Difference (95% CI)	p- value
		Case Study Concept Mapping	47.73±5.68 50.34±4.74		46 (38-60) 51 (40 -57)	2.62 (0.58, 4.63)	0.012

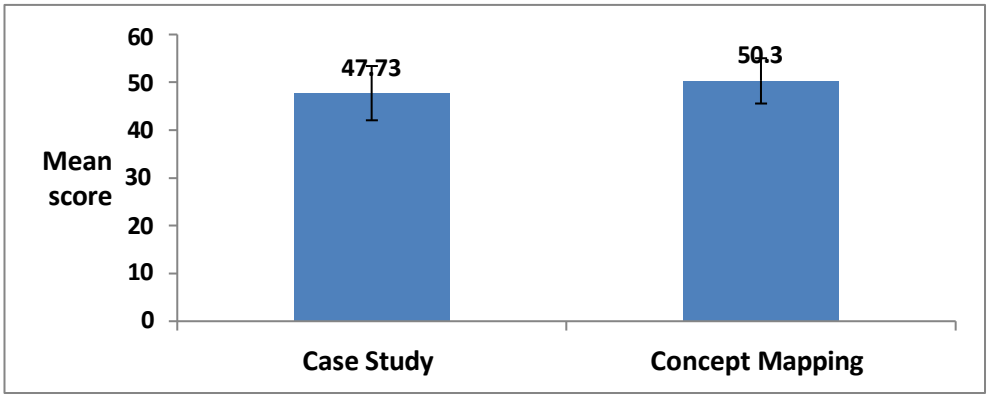

Fig 1: Satisfaction of nursing students regarding teaching methods case study and concept mapping

It is apparent from Table 7 that 60% of students strongly believe that concept making provides actual knowledge and at the same time 69% agree that it also provide comfortable environment for learning. 51% of the students agree that case study method provides experience of clinical learning but at the same time 73% agree concept mapping requires minimal use of resources and consumes less time as it helps to easily complete the learning content in time as reported by 58% of the subjects who strongly believe this. Case study method motivates the students to learn more and makes the content easy to understand as reported by more than 50% of the subjects. 75% of the respondents agree that concept mapping covers cognitive and intellectual learning simultaneously. It proceeds from simple to complex and easy to organize in the class therefore more than 50% of the students agree that they are satisfied with this method. Respondents reported that they agree with the facts that case study method improves student's participation (57%), critical thinking (66%) and Skills (57%). 67% of the respondents agree that concept mapping method helps to develop interest in the subject while on the other hand 52% strongly agree that it helps in group activity. Mean± Sd of satisfaction rating score was 47.73±5.68 & 50.34±4.74in case study & concept mapping method, Statistically, significant difference was observed between two groups in terms their satisfaction with respect to teaching methods. The concept mapping method was found to be better as compared to case study method based on statements like it requires of minimal use of resources, easy to complete the learning content in time, covers cognitive and intellectual learning, it is easy to organize in the class.

Therefore, it can be concluded that concept mapping method provides actual knowledge, comfortable environment for learning, requires less resources, timely, covers intellectual and cognitive learning, proceeds from simple to complex, easy to organize in the class, helps to develop interest and at last but least promotes group activity.

DISCUSSION:

The discussion is organized in relation to the objectives and findings of the study.

The study compares the efficacy of two preferred teaching methods, case study & concept mapping groups on the children's respiratory health assessment of nursing students, studying in selected institution of Uttarakhand**.**

Previous study findings

Bonney, Kevin conducted a study on Case Study Teaching Method Improves Student Performance and Perceptions of Learning Gains. A total of 63 students completed the course during this time period; 56 students consented to the inclusion of their data in the study. This study tested the hypothesis that case studies are more effective than classroom discussions and textbook reading at promoting learning of key biological concepts, development of written and oral communication skills, and comprehension of the relevance of biological concepts to everyday life. This finding was positively correlated to increased student perceptions of learning gains associated with oral and written communication skills and the ability to recognize connections between biological concepts and other aspects of life. Based on these findings, case studies should be considered as a preferred method for teaching about a variety of concepts in science courses.

Present study findings

Knowledge was significantly improved by two teaching methods case study and concept mapping. Case study group the Mean±sd scores at pre-test level was found to be18.73 ±3.81 and at post-test level it was found to be 23.16±7.67. In concept mapping group the Mean±sd scores at pre-test level was found to be18.69±3.72 and at post-test level it was found to be 25.19±6.64. The difference in the mean was found to be statistically highly significant in both the groups. Therefore, it can be concluded that the level of knowledge has increased among subjects of case study and concept mapping.

Previous study findings

Daley BJ. Shaw CR conducted a study on Concept maps: a strategy to teach and evaluate critical thinking. The purpose of this study was to describe that implemented concept maps as a methodology to teach and evaluate critical thinking. Students in six senior clinical groups were taught to use concept maps, they created three concept maps over the course of the semester. Randomly selected students' first and third concept maps were scored Data analysis demonstrated a group mean score of 40.38 on the first concept map and 135.55 on the final concept map, for a difference of 98.16. The paired t value comparing the first concept map to the final concept map was -
5.69. The data indicated a statistically significant difference between the first and final maps. This difference is indicative of the students' increase in conceptual and critical thinking.

Present study findings

Critical thinking score of groups depicted that Mean±sd of case study group at pre-test level was
5.26±1.58 and at post-test level it was found to be
5.94±2.61. Statistically no significant difference was found.The Mean±sd score was found to be
4.75±1.73 and 5.71±1.61 at pre-test and post level in case of concept mapping subjects. The difference in the mean was found to be statistically highly significant. Thus, it can be concluded that the level of critical thinking has increased among subjects of concept mapping. Skill score in study groups, the Mean±sd score of case study group at pre-test and post-test was found to be 8.25±3.88 and 20.08±5.37 respectively on the other hand the Mean±sd score of concept mapping group at pre-test and post test was found to be 9.34±4.38 and 20.60±5.66 respectively. Statistically, the difference was found to be highly significant, it can be concluded that skill level is increased by two teaching methods.

Previous study findings

Caliskan, Sera, Selcuk, Gamze S. (2010) presented their research findings of a small-scale study comparing the effects of problem-based learning (PBL) and traditional methods on student teachers' satisfaction with an introductory physics course. The participants in the study were 25 first- year student teachers taking an introductory physics course. In this study, the pre-test/post-test experimental method with an equivalent control group was used. There was one control (n=12) and one experimental group (n=13). The experimental group received physics instruction in PBL format, whereas the control group received traditional instruction. The data were collected using the Student Satisfaction Scale (SSS). Results indicate that the experimental group was more satisfied than the control group

Present study findings

Satisfaction of nursing students regarding two teaching methods case study and concept mapping was favourable towards and concept mapping method. The difference between satisfaction score of nursing students regarding two teaching methods was found to be significant at 0.05 levels in statement no 4, 5, 8, 10 and 11. Statistically, significant difference was observed between two groups in terms their satisfaction with respect to teaching methods. The concept mapping method was found to be better as compared to case study method based on statements like it requires of minimal use of resources, easy to complete the learning

content in time, covers cognitive and intellectual learning, it is easy to organize in the class.

SUMMARY

Knowledge was significantly improved by two teaching methods case study and concept mapping . Mean±sd post test knowledge score was
23.16±7.67 in case study group and 25.19±6.64 was in concept mapping group. Mean±sd post test Critical thinking score 5.94±2.61 in case study &
5.71±1.61 concept mapping was significantly enhanced by two teaching methods; both the teaching methods were effective. The level of skill within the study groups. The Mean±sd score of case study group at post-test was 20.08±5.37 & 20.60±5.66 in concept mapping group. Statistically, the difference was found to be highly significant within groups ($p<0.001$). The level of skill between the study groups. In case study group the Mean±sd was found to be at post-test level 20.60±5.66 & 20.60±5.66 for concept mapping group. Statistically, no significant difference was found between groups. The difference between satisfactions score of nursing students regarding two teaching methods was found to be significant at 0.05 levels in statement no 4, 5, 8, 10 and 11. Statistically, significant difference was observed between two groups in terms their satisfaction with respect to teaching methods.
Satisfaction of nursing students regarding two teaching methods case study and concept mapping was favourable towards the concept mapping method.

CONCLUSION

Findings of the study concluded that some areas of learning were found to be better through case study method and some through concept mapping method. Neither of the methods was superior to the other in teaching all aspects like knowledge, critical thinking and skills on children's respiratory health assessment as to force us to use it to the exclusion of the other. Nursing in India, even in 21st century still has retained some teacher oriented traditional methods of teaching. Especially the pedagogy is very much conventional, though the teaching learning environment has to undergone drastic changes, so as the present day students' learning style. In this respect, it is important to pay special attention in selecting teaching methods appropriate to the subjects, students' level of understanding, the facilities available and most importantly the methods which would motivate students to learn and retain the learning. Another aspect of nursing education emerges out of this study is the need for utilizing teaching learning methods which help nursing students to correlate classroom learning to actual clinical care. In short, outside the set objectives, this research study has been able to bring out some vital issues about teaching learning in nursing.

RECOMMENDATIONS

On the basis of findings of the study, the following recommendations are offered for future research. A similar study can be conducted by adopting true experimental research approach with pre test- post test control group design and on a larger sample groups All teachers need to be adequately trained in all teaching methods and develop understanding of their appropriate utilization. Senior courses students need to be taught the actual utilization of teaching methods, appropriate to their Practice Teaching Topics and level of students they are assigned to teach. The institutions catering to nursing education need to make policy for mandatory use of various and appropriate teaching- learning methods to develop students' interest instead of only traditional lecture-demonstration method.

REFERENCE

- What is a Case Study? Available at: https://en.wikipedia.org/wiki/Case_study
- Shankeranarayanan B, Sindhu B. Learning and teaching learning. Jaypee publishers. 2012; 4:2.
- KP Neerja. Text book of Nursing Education. CBS distributors and publishers New Delhi. 2006:1: 8-9.
- Yin RK. Estudo de caso: planejamento e métodos. 4ª ed. Porto Alegre (RS): Bookman; 2010.
- Stake RE. Investigación com estúdio de casos. 4ª ed. Madrid (ES): Ediciones Morata; 2007.
- M H Susan.W Patricia.G Susan.H Deborah.H L Kathryn.U Orose. D Savinske. M F Elizabeth.Y Sue. Student Learning with Concept Mapping of care Plans in Community- Based Education .Journal of Professional Nursing, Vol 22, No 1 (January– February), 2006: pp 23–29
- Application of Concept Mapping in Health Care-Availableat: https://www.lucidchart.com/pages/concept- map
- Shengji Jin,Hongmei Yu,Yimin Sun. On the Importance of Teaching Methods and Teacher's Devotion in Education. Information Technology and Applications, 2009. IFITA '09. International Forum on. ISBN: 978-0-7695- 3600-2
- Marion, Froast B.A. An analysis of the scope and value of problem based learning in the education of health professionals. Journal of advance nursing. 1996; 24:1047-1053.

- Dr. Tamilmani, A textbook of educational methods and media. Vikas Publishing. Page 34-37; 9789382711230
- Rania E. F. Concept mapping strategy: An effective tool for improving maternity nursing students' achievement. Journal of Nursing Education and Practice. Aug 2017, Vol. 7, No.3, p10; URL: http://dx.doi.org/10.5430/jnep
- Jennings, D.Concept Maps for Assessment. UCD Teaching and Learning, 2012 UCD, Ireland. www.ucd.ie/teaching
- Polit. Denis. F. And Hungler B.P. (1999) Nursing research; Principles and methods, 6th edition. Newyorl. JB. Lippincott Company.
- Fawcett J. Analysis and Evaluation of Contemporary Nursing Knowledge: Nursing Models and Theories. F.A. Davis; Philadelphia, PA: 2005. [Google Scholar]
- Polit DF, Beck CT. Nursing Research: Principles and Methods. 7th edn. Lippincott Williams & Wilkins; Philadelphia, PA: 2004. [Google Scholar]
- Treece JW, Treece EW. Elements of Research in Nursing (4thed.). St. Louis: Mosby; 1986
- https://books.google.co.in//books?isbn=080161 9521
- https://books.google.co.in/books?isbn=072953 9253
- Jie-huixu. Toolbox of teaching strategies in nurse education. Chinese Nursing Research. June 2016: 3(2); 54-57. Available at: https://doi.org/10.1016/j.cnre.2016.06.002
- G Kirti, V Vasudeva. A study of the effectiveness of Case study Approach in Software Engineering (Serial Online) http://iiit.net/techreports/2008_61.pdf
- Using Case Studies to Teach Introductory Design Concepts to First Year Engineering. (Serial Online) http://design.uwaterloo.ca/documents/ASEE- 2007-V-5.final.pdf.
- M M William. The use of Case studies in Teaching Undergraduate Neuroscience. The Journal of Undergraduate Neuroscience Education. 2017, Spring; 5(2):53-62
- Dutra D. K. (2013). Implementation of case studies in undergraduate didactic nursing courses: a qualitative study. *BMC nursing*,2013, july. *12*(1), 15.https://doi.org/10.1186/1472-6955-12-15
- Sudhakar Teegavarapu. Joshua D. Summers. Case Study Method for Design Research: A Justification. Proceedings of IDETC/DTM 2008 ASME 2008 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference August 3-6, 2008, New York, USA. DOI: 10.1115/DETC2008-49980
- Bonney, Kevin. Case Study Teaching Method Improves Student Performance and Perceptions of Learning Gains. Journal of microbiology & biology education: 2015 (16),8. p. 21-28 DOI: http://dx.doi.org/10.1128/jmbe.v16i1.846
- Lynnette N. Diane V. Michelle S. A Comparison of Case Study and Traditional Teaching Methods for Improvement of Oral Communication and Critical-Thinking Skills. Journal of college science teaching 39(5) · January 2010
- Cogo ALP, Dal Pai D, Aliti GB, Hoefel HK, Azzolin KO, Busin L, et al. Case studies and role play: learning strategies in nursing. Rev Bras Enferm [Internet]. 2016;69(6):1163-7. DOI: http://dx.doi.org/10.1590/0034-7167- 2016-0277
- J Mills. C West.T Langtree. K Usher.R Henry.J C Salaun.M Mason. Putting it together': Unfolding case studies and high-fidelity simulation in the first-year of an undergraduate nursing curriculum. Nurse Education in Practice 14 (2014) 12e17
- Safdar M., Hussain A., Shah I., Rifat Q. Concept Maps: An Instructional Tool to Facilitate Meaningful Learning. European journal of educational research. 1(1); 55-64.
- Safdar M., Hussain A., Shah I., Rifat Q. Make the laboratory work meaningful through Concept maps and V Diagram. IOSR Journal of Research & Method in Education. 2013:3 (2);55-60 available at: www.iosrjournals.org