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ORIGINAL ARTICLE

A Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge Regarding Concept Mapping Among II Year B.Sc (N) Students at Yashoda College Of Nursing, Secunderabad

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Abstract

Background: Learning is a complex process of cognition which occurs among individuals at all ages. Meaningful learning requires understanding of the concepts that is an important element of topic under study. The Concept Maps are used as an effective teaching plan in promoting critical thinking. It also serves as an instructional and learning tool in nursing education. *Objectives*: 1. To assess the Knowledge of II year B.Sc(N) students regarding Concept Mapping in terms of pretest. 2. To provide Structured Teaching Programme regarding Concept Mapping among II year B.Sc (N) students. 3. To assess the Effectiveness of Structured Teaching Programme by comparing the pretest and post test scores regarding Concept Mapping among II year B.Sc (N) students. 4. To determine the association of the pretest Knowledge scores with selected demographic variables regarding Concept Mapping among II year B.Sc (N) students. *Methods*: A Quasi-experimental study involved sample of 49 students where Paper-pencil technique was used among II year B.Sc (N) students. Each student was given 20-30 minutes of the time with Structured Knowledge Questionnaire which includes Knowledge regarding Concept Mapping. *Results*:In pre-test scores, 45 (91.83%) of II yearB.Sc (N) studentshad average Knowledge and 4 (8.16%) had below average Knowledge. In post-test 47 (95.91%) of them had above average Knowledge and 2 (4.08%) of them had average Knowledge.This increase in post-test Knowledge scores indicates that the STP regarding Concept Mapping was effective in increasing the Knowledge among II year B.Sc (N) students. *Conclusion*: Concept Maps are one of the educational innovations in nursing education since 25 years. The nursing students should be motivated to apply Concept Mapping as a learning method in their curriculum to analyze and attain better understanding of the topic. Thus the use of contemporary teaching approaches such as Concept Mapping in Nursing education can be advantageous.

Keywords: Concept Mapping; Graphic tools; Visual representation; Logical thinking; Nursing education.

Introduction

The development of educational innovation is significant in future research towards strengthening of nursing education. Concept maps are one of the educational innovations in nursing education since 25 years.[1] Constructing a concept map requires a great deal of patience and skill for processing the information. Two or three versions of a map are often required to construct a rational map. The nursing students should be given sufficient time for preparation of concept maps in order to obtain an accurate map; so that the students can develop confidence to integrate this strategy as assignments which needs logical thinking.[2]

Concept is a word picture or mental idea of a phenomenon of a study. Concepts are the words or terms that symbolize some aspects of reality. For example:

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stress, pain, or love. Maps are either graphic or pictorial tool which allows the visual representation of a student's knowledge about a certain topic. These depictions include the antecedents, consequences, and attributes of the main concept.[3]

Concept maps are graphical tools for organizing and representing students' knowledge in a group of concepts and it requires keywords to link these concepts about a topic. A group of concepts are usually encapsulated in circles or boxes and the relationship between concepts or propositions are denoted by means of a connecting line. Propositions are statements about some objects or events that contain two or more concepts connected by linking words or phrases to form meaningful statements. Concepts maps are of four types which include spider mapping, hierarchy mapping, flow chart mapping and system mapping.[4]

Concept map was developed by Joseph D. Novak at Cornell University in the year 1970. Concept maps are based on the assimilation theory of meaningful learning created by David Ausubel in 1963. The A concept map is a schematic diagram used for representing a set of relationships between concepts in a framework of propositions.[1] The intent of Concept Mapping in nursing education is to develop students' critical thinking skills that are to assess the patient, gather information from the literature, select relevant points, correlate all the gathered information clinically and illustrate the information graphically. This process helps the students to establish priorities, seek relationship among large classroom situation. It is very effective for students to analyze the up-to-date information with the old and to inter-connect it in different ways.

Mapping can be simple or complex and can vary significantly to enhance learning. Primarily, a map construction is done by identifying the main idea (concept) of a study. Secondly, a hierarchical structure is developed by branching out it into specific topics. Thirdly, select appropriate linkages to form valid relationships. Concept maps serve as an instructional tool for the students to acquire meaningful learning as the relevant information is presented in a meaningful way. It makes the learner to anchor new ideas skillfully by creating a network between old and new material.[2]

Using this technique, the students can plan and direct overall concepts or ideas to draw the map of contents, and therefore use their cognitive skills of analysis, evaluation, and reasoning. Also they will be able to summarize the content while preserving the meaning. The concept maps are used as assessment tool which encourages the students to empower their growth in education, encouraging student's reflection and communication and imparting a sense of empowerment to the students based on their observed growth.

Furthermore, it enables the students to evaluate what they have learned and what they need to learn. In nursing education, the key concepts are assessment data that students collect either through case studies or clinical assignments. This process assists the students to visualize complex relationships and apply theory to the clinical area.[5]

Methodology

After obtaining the permission from the Principals of selected college, the subjects were approached individually with the permission of authorities. The data was collected from II year B.Sc (N) studentsof selected college with informed consent included in the study. The sample was selected by simple random sampling technique. A total of 49 samples were given self-administered questionnaire.

Inclusion Criteria:

The study included II year B.Sc (N) students- Who are willing to participate in the Study, Who were available during the period of data collection and Who can understand English.

Development and Description of Tool

The instrument is developed based on related studies, review of literature, research problem and objectives of study. The tool helps to assess the Knowledge of II year B.Sc (N) students regarding Concept Mapping at Yashoda College of Nursing, Secunderabad.

The instrument used in the study consists of 2 parts:

Part - A:

Deals with sociodemographic data such as Age in years, Religion, Education of parents, Type of family and Previous Knowledge regarding Concept Mapping.

Part - B:

Deals with Structured Knowledge Questionnaire regarding Concept Mapping comprising of 24 multiple choice questions.

Score Interpretation:

Part - A:

Explaining regarding the coding of sociodemographic data.

Part - B:

Presents that maximum score was 24.

- Correct answer carries- 1 mark.
- Wrong answer carries- 0 mark.

Score Interpretation for Knowledge:

- Below average Knowledge (below 33%)
- Average Knowledge (33-36%)
- Above average Knowledge (more than 36%)

Reliability of The Tool:

Reliability of the research instrument is defined as "the extent to which the instrument yields the same results on repeated measures." It is then concerned with consistency, accuracy, precision, stability, equivalence and homogeneity. The reliability of the study is r=0.75

Procedure for Data Collection:

As mentioned earlier, formal permission was obtained. After explaining about study, the investigator made the students to sit comfortably and paper-pencil technique was administered. They were asked them to note correct answer in the brackets given. The data collection took 20-3-mins for completion from each participant.

Results:

Table 1: reveals that in relation to Age; majority 27(55.1%) of them were 19 to 20 and remaining 22(44.8%) of them were 21 to 22. In relation to Religion, majority, 22(44.8%) of them were both Hindus and Christians, and the remaining 5(10.2%) of them were Muslims. Pertaining to Education of parents; majority 31(63.2%) of them were both educated, while 11(22.4%) of them were one educated and one illiterate, and the remaining 7(14.2%) of them were both illiterate. Related to Type of family; majority 40(81.63%) of them belongs to nuclear family, while 6(12.2%) of them belongs to joint family and the remaining 3(6.12%) of them belongs to extended family. With regard to Previous Knowledge regarding Concept Mapping; majority 47(95.91%) of them do not have Knowledge regarding Concept Mapping and the remaining 2(4.08%) of them had heard regarding Concept Mapping.

Table 2: depicts that there was an increase in the post-test scores when compared to the pre-test scores. In pre-test scores, 45(91.83%) of nursing studentshad average Knowledge and 4(8.16%) had below average Knowledge. In post-test 47(95.91%) of them had above average Knowledge and 2(4.08%) of them had average Knowledge. This increase in post-test Knowledge scores indicates that the STP regarding Concept Mapping was effective in increasing the Knowledge among nursing students.

Table No: 4 shows the chi-square was carried out to determine the association between pretest Knowledge scores with Religion (x2 value=1.34, df=3), Type of family (x2 value=5.81, df=3) andPrevious Knowledge regarding Concept Mapping (x2 value=1.26, df=1) were found to be significantly associated at $p< 0.05$ level. However, Age in years and Education of parents was found to

Table 1: Frequency and percentage distribution of demographic variables of B.Sc(N) II year students.

n=49

Knowledge scores	Demographic variables	Frequency	Percentage
1.	Age in years		
1.1	19-20 years	27	55.1
1.2	21-22 years	22	44.89
1.3	23-24 years	00	00
1.4	Above 24 years	00	00
2.	Religion		
2.1	Hindu	22	44.89
2.2	Muslim	5	10.2
2.3	Christian	22	44.89
2.4`	Others	00	00
3.	Education of parents		
3.1	Both educated	31	63.26
3.2	One educated and one illiterate	11	22.44
3.3	Both illiterate	7	14.28
4.	Type of Family		
4.1	Nuclear	40	81.63
4.2	Joint	6	12.24
4.3	Extended family	3	6.12
4.4	Others	00	00
5.	Do you have previous Knowledge regarding Concept Mapping?		
5.1	Yes	02	4.08
5.2	No	47	95.91

Table 2: Frequency and percentage distribution of pre-test and post-test Knowledge scores among B.Sc (N) II year students regarding Concept Mapping.

Knowledge scores	Pre-Test		Post-Test	
	Frequency (f)	Percentage (%)	Frequnecy (f)	Percentage (%)
Below average	4	8.16	00	00
Average	45	91.83	2	4.08
Above average	00	00	47	95.91
Total	49	99.99	49	99.99

Table 3: Paired 't'-test to find out the effectiveness of STP regarding Concept Mapping.

n=49

KnowLedge Score	Mean	StanDard DeviaTion	Standard Error	Paired 'T' Test		Inference
				Cal Value	Tab Value	
Pre-test	11.04	1.38	0.03			
Post-test	18.81	0.70	0.01	10.39	2.23	S*

Table 4: Association between pre-test Knowledge scores of B.Sc(N) II year students with selected demographic variables.

n=49

S.No.	Demographic variables	Knowledge			Chi-square		df	Inference
		Below average	Average	Above average	Cal. Val	Tab. Val		
1	Age in years							
	19-20 years	02	25	00				
	21-22 years	02	20	00	0.04	0.87	3	NS
	23-24 years	00	00	00				
	Above 24 years	00	00	00				
2	Religion							
	Hindu	02	20	00				
	Muslim	01	04	00	1.34	0.87	3	S*
	Christian	01	21	00				
	Others	00	00	00				
3	Education of parents							
	Both educated	02	29	00				
	One educated &one illiterate	01	10	00	0.48	0.95	2	NS
	Both illiterate	01	06	00				
4	Types of family							
	Nuclear							
	Joint	02	38	00				
	Extended	02	04	00	5.81	0.87	3	S*
	Others	00	03	00				
		00	00	00				
5	Previous knowledge regarding concept mapping				1.26	0.99	1	S*
	Yes	01	01	00				
	No	03	44	00				

be non-significant. Hence the research hypothesis (H2) was accepted for association of pretest Knowledge scores with Religion, Type of family and Previous Knowledge regarding Concept Mapping. The research hypothesis (H2) was rejected for Age in years and Education of parents.

Conclusion

The findings of the study revealed that out of 49 samples, in pre-test scores, 45(91.83%) of nursing studentshad average knowledge and 4(8.16%) had below average knowledge. In post-test 47(95.91%) of them had above average knowledge and 2(4.08%) of them had average knowledge. This increase in post-test knowledge scores indicates that the STP regarding Concept Mapping was effective in increasing the knowledge among nursing students.

Recommendations

On the basis of the study that had been conducted, certain suggestions are given for further study.

- A comparative study can be conducted between Medical and Nursing University students.
- A comparative study can be conducted between Nursing and Non-nursing students.
- A cross sectional study can be conducted to assess the Knowledge and Attitude of nursing students regarding Concept Mapping.
- A descriptive study can be conducted to assess the Knowledge regarding Concept Mapping among nursing students.
- A similar study can be undertaken with a control group design.

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