

Effect of Concept Mapping in Improving Nursing Students' Knowledge and Attitudes Related to Care of HIV/AIDS Patients

Mythili D¹, Sailaxmi Gandhi², Thirumoorthy A³, Vijayalakshmi P⁴

Abstract

This one group pre- and post-test study evaluated the effectiveness of concept mapping and lecture method of teaching among 73 under graduate nursing students. One group was exposed to concept mapping technique and the other group was exposed to lecture method of teaching about HIV/AIDS. Findings indicated a statistically significant increase in the knowledge and attitude of students towards HIV/AIDS among students exposed to concept mapping than students who underwent lecture method. The results of this study indicated that modern teaching strategies may enhance learning among nursing students. However further evaluation is needed.

The changing face of teaching has moved away from didacticism to learning facilitation and with this is the need for teachers to play different roles and use new techniques (Benner & Sutphen, 2010). The criterion for good teaching is the amount of student learning that occurs. Teaching is "no longer seen as imparting knowledge and doing things to the student, but is redefined as facilitation of self-directed learning" (Senita, 2008). In an attempt to alter this position, the teacher can use concept mapping techniques and vicarious learning strategies to encourage students to articulate and theorise what they know already in relation to the meaning of their experiences and their interpretation (Johnson & List-Ivankovic, 2010). These strategies emphasise the social nature of learning, and see co-operative behaviour as stimulating students both socially and intellectually. Sharing of experiences allows students to critically think and undertake structured reflection on how the events may influence their personal circumstances. This facilitative approach to teaching teases out previous learning and helps students 'make sense' of experiences in relation to real world events (Gregory, 2002).

Instructional methods should promote active learning and teach students to analyse and evaluate the pertinence of information and apply the information in various settings and situations (Simpson & Courtney, 2002). However, a major trend in improving educational practices is enhancing the

'share' of knowledge as a basis for shaping critical thinking (Tikhomirov, 1988). Use of teaching methods that encourage interaction, dialogue, discourse and collaborative learning (Fraser *et al.* 1993; Gravett 2001; Mellish *et al.* 1998) is integral to the facilitation of critical thinking by students and concept mapping is one such teaching method based on the theoretical foundation laid down by educational psychologists (Ausubel 1963; Ausubel, *et al.* 1978).

Lecture method of teaching tends to consider students as passive receptors of information, without active participation in learning process students are rarely expected to ask questions.

In order to achieve meaningful learning, Mellish *et al.* 1998 assert that the student must have an appropriate learning set or intention, which means that the student must consciously decide to learn the material meaningfully, rather than in a rote fashion. Students should choose to learn meaningfully and have the emotional commitment to integrate new meanings with existing, relevant knowledge, rather than simply memorising concept definitions or propositional statements. Thus, the present study was developed to compare the effectiveness between traditional and modern teaching strategies among the undergraduate nursing students.

Materials and Method

A pre- and post-test design was adopted for the present study among second year BSc nursing stu-

The authors are : 1. Clinical Instructor, 2. Assistant Professor, Dept of Nursing; 3. Addl Professor, Dept of Psychiatric Social Work; 4. Clinical Instructor, College of Nursing at National Institute of Mental Health and Neuro Sciences (Deemed University), Bangalore.

dents in October 2013. A total of 73 students were divided randomly into two groups. One group was introduced to lecture method and the other group exposed to concept mapping method. Inclusion criteria for the present study include: (a) students who were in second year BSc nursing programme (b) willing to participate, (c) students who have not attended classes on HIV/ AIDS previously. Exclusion criteria included students not willing to participate.

Data collection Instrument: This questionnaire had three sections;

Section A included participants' socio-demographic details such as age, gender, income, religion, background, experience in taking care of patients with HIV/AIDs and source of information.

Section B measured students' knowledge regarding HIV/AIDS using a previously validated questionnaire developed by Abolfotouh (1995). It was based on review literature (Diclemente, Zorn, & Temoshok, 1986, Doyle & Conroy, 1991 Adebap, Bangbala, & Oyedirn, 2003). This section consisted of 51 statements that assessed 5 domains: cause of AIDS (5 statements), nature (16 statements), mode of transmission (15 statements), treatment/control (7 statements), and groups at high risk (8 statements). The correct response was scored as "1," and the incorrect and "Don't know" responses as "0." An overall knowledge score was calculated by summing the scores for statements, thus the highest possible score was 51 points.

Section C consisted of 19 statements to measure nursing students' attitude towards HIV/AIDS in 3 domains namely (a) attitudes towards people living with AIDS (PLWA; 10 statements), (b) attitudes toward care (4 statements), and (c) attitudes toward precautionary measures (5 statements). Attitude towards AIDS was measured on a 4-point Likert-type scale, with 4 indicating *strongly agree* and 1 indicating *strongly disagree*. The 4-point scale, rather than a 5-point scale, was used to motivate respondents to indicate either a positive or a negative attitude. For analysis, points '1' and '2' were combined to form the category "positive attitude," while points '3' and '4' were combined to form the category "negative attitude."

Data collection methods: This was a two-group pre- and post-test design. After obtaining the permission from the authorities the researcher met the students and explained about the purpose of the study. Students who were willing to participate in the study were divided into two groups using table of random numbers; 37 students were introduced to the lecture method of teaching and others were

exposed to concept mapping method. The topic taught to them using these strategies was Care of Patients with HIV/AIDS.

The students in the traditional teaching method group received four sessions by lecture method and the students in the modern teaching method group received four sessions of teaching through concept mapping techniques. Educational contents included the meaning of HIV/AIDS, risk factors and aetiology of HIV/AIDS, clinical manifestations, medical and nursing management of patients living with HIV/AIDS. Knowledge and attitude of both the study groups were assessed before and after the intervention.

Data collection tools in this study included Socio-demographic profile which included personnel information and Self Report Questionnaire with knowledge (50 items) and attitude (19 items). Negative statements were reversely coded before the analysis and were analysed using appropriate statistics. Results were interpreted in the form of tables.

Results

Table 1 depicts that majority of the students in 3rd year BSc Nursing were Christian (n=60, 82.2%) and about 9 students were Hindu which was 12.3 percent and only 4 students belonged to the Muslim community. A vast majority of the students were from rural background (n=54, 74%) and 19 subjects were from urban background. Few students (n=43, 58.9%) had come across a person with HIV/AIDS and some students (n=30, 41.1%) had not come across a person with HIV/AIDS. Almost all (n=72, 98.6%) had heard about HIV/AIDS. The source of information of HIV/AIDS was mainly through television (n=26, 35.6%), newspaper (n=24, 32.9%), other sources (n=20, 27.4%) and friends (n=3, 4.1%) respectively.

Table 2 shows the mean scores obtained by the subjects on the knowledge questionnaire about HIV/AIDS through lecture method and concept mapping method. Concept mapping dealt with the application of concept maps for teaching the topic on HIV/AIDS. The scores increased from 34.16 at pre-test to 45.7 at post-test. Lecture method dealt with the use of lecture techniques to teach the subjects about the knowledge about HIV/AIDS. The scores increased from 33.64 at pre-test to 35.6 at post-test. Similarly the post-test score (49.36 ± 4.69) using concept mapping technique to assess the attitude of the participants to HIV/AIDS was more compared to the post-test score (46.59 ± 5.9) using lecture method (Table 3).

Table 1: Percentage and frequency distribution of sample characteristics

Variables	Group	Frequency (n)	Percentage (%)
Religion	Hindu	9	12.3
	Muslim	4	5.5
	Christian	60	82.2
Background	Rural	54	74.0
	Urban	19	26.0
Have you come across a person with HIV / AIDS	Yes	43	58.9
	No	30	41.1
Have you heard of HIV / AIDS	Yes	72	98.6
	No	01	1.4
Source of information	Television	26	35.6
	Newspaper	24	32.9
	Internet	00	0.0
	Friends	03	4.1
	Others	20	27.4

Table 2: Comparison of pre- and post-test knowledge scores between lecture method and concept mapping

	Pre-test		Post-test		p-value
	Mean	SD	Mean	SD	
Concept mapping	34.16	4.89	45.7	1.54	0.003*
Lecture method	33.64	3.17	35.6	3.2	

*Significant at $p < 0.05$ level

Table 3: Comparison of pre and post test attitude scores between lecture method and concept mapping

	Pre-test		Post-test		p-Value
	Mean	SD	Mean	SD	
Concept mapping	45.25	4.89	49.36	4.69	0.014*
Lecture method	41.08	3.99	46.59	5.95	

*Significant at $p < 0.05$ level

Discussion

Majority (98.6%) of the students in the present study had heard about HIV/AIDS. However 58.9 percent of the students had come across a person with HIV/AIDS. The post test score (45.16 ± 1.54) related to their knowledge level on HIV/AIDS using concept mapping was more compared to the post-test score (35.62 ± 3.24) using lecture method. Similarly the post-test score (49.36 ± 4.69) using concept mapping technique to assess the attitude of the participants to HIV/AIDS was more compared to the post-test score (41.08 ± 3.9) using lecture method.

These findings were similar to a study from Iran that found that the results of this research showed that concept mapping method enhances improve-

ment in cognitive learning of nursing students in the nursing cardiovascular theoretical course than lecturing. Masoumeh et al (2012) demonstrated a statistically significant improvement in critical thinking post-test scores between an experimental group and control group when concept mapping was taught and used.

Rooda (1994) also found concept mapping to be an effective tool for improving the academic performance of sophomore-level BSc nursing students in an introductory nursing research course. He concluded that the concept mapping teaching strategy was fun to use and helpful for learning content. Taylor & Wros (2007) also showed that concept mapping is an effective meta cognitive tool and an effective teaching strategy in nursing to evaluate both content knowledge and thinking patterns. Daley et al (1999) implemented concept mapping as a method for teaching and evaluating critical thinking in BSN students and found that there was a significant improvement in the students' ability to conceptualise ideas and think critically.

Both the teaching methods concept mapping and lecture methods are effective in imparting knowledge to the students. But the present nursing education lays emphasis on critical thinking skills which is enhanced by the use of concept maps. Lectures provide less opportunity for students to process information and develop problem-solving skills. Students' loose interest quickly and lack an opportunity to provide feedback (Stringer J, 2002; Jeffries, 2001). Unfortunately, lecture allows students to be passive learners, depending solely on the faculty to teach them information instead of actively involving themselves in the learning process (Bovee, 2000; Hill, 2002). Concept maps are an explicit overt representation of the concepts and propositions held by an individual. Meaningful learning is accomplished by the anchoring of new idea or concepts with previously acquired knowledge (Horton, 1993). Concept mapping can promote problem-solving and critical thinking, thus helping students organise complex patient data, process complex relationships, and offer holistic care to patients (Novak & Gowin, 1984). It also allows for visual illustrations of thought processes and improves students' ability to assess patients holistically, synthesise complex patient data, and build relationships among data (Baugh & Mellott, 1998).

The present study had certain limitations such as small sample size that made generalisation difficult and absence of control group.

Conclusion

The present study findings indicated that concept mapping proved to be more effective teaching strategy than lecture method as the knowledge among the students exposed to concept mapping enhanced significantly. Similar to previous research, this study also proved that concept mapping strategy is an effective teaching method in improving learning outcome of students.

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