

Effectiveness of Lecture Cum Demonstration and Lecture Cum Video Assisted Teaching Method on Knowledge and Skills of Undergraduate Nursing Students of Selected Nursing Educational Institution of Dehradun, India

Chandan Pradhan¹, Rajesh Kumar Sharma², Muthuvenkatchalam Srinivasan³

¹Assistant Professor, Kalinga Institute of Nursing Science, KIITU, Bhubaneswar, Orissa 750124, India. ²Associate Professor, Himalayan College of Nursing, Swami Rama Himalayan University, Dehradun, Uttarakhand 248016, India. ³Assistant Professor, College of Nursing, All India Institute of Medical Sciences, Patna, Bihar 801507, India.

Abstract

The aim of the study was to evaluate and compare the effectiveness of lecture cum demonstration and lecture cum video assisted teaching method of undergraduate nursing students. A true experimental study with two group pre-test post-test design was adopted. Simple random sampling technique was used to draw 60 subjects from a class of 100 students. A Pre-test for all study participants to assess the knowledge regarding neurological assessment was conducted. After Lecture session selected subjects were randomly assigned into Video assisted teaching group (n=30) and Demonstration teaching group (n=30). Demonstration of neurological assessment was administered to Demonstration group and a pre-recorded videography of the same procedure was presented to Video group separately. Post-test was performed using Knowledge questionnaire to assess the knowledge and Objective Structured Clinical Examination was conducted to assess skills of the students. The collected data analysed using descriptive and inferential statistics. The findings revealed that there was no significant difference between subjects of Demonstration and Video group in terms of baseline characteristics. The mean post-test Knowledge score 20.20 ± 2.9 was significantly higher ($p=0.001$) than that of mean pre-test knowledge score 17.60 ± 2.9 in Demo group. The mean post-test knowledge score 22.87 ± 3.2 was significantly higher ($p<0.001$) than the mean pre-test knowledge score 17.90 ± 2.4 in Video group. The mean gain in knowledge score of Video group (4.9 ± 3.6) was significantly ($p=0.016$) higher than that of gain in knowledge in Demo group (2.6 ± 3.6). Both the teaching methods resulted in significant improvement in knowledge scores; however Video assisted teaching method was found to be effective as compared to Demonstration method in terms of gain in knowledge scores. Video assisted teaching can be an effective tool not only due to its easy to share and self-teaching possibility but also effective in improving knowledge compared to other teaching techniques.

Keywords: Demonstration Method; Video Assisted Teaching Method; Teaching Methods; Nursing Skills.

Introduction

Learning is the acquisition of habits, knowledge and attitudes. It involves new ways of doing things and it operates on an individual's attempt to

overcome obstacles or to adjust to new situations. It represents progressive changes in behaviour. An individual starts learning immediately after the birth or even earlier in the womb of the mother. Experience, direct or indirect is found to play a dominant role in moulding and shaping the behaviour of the individual [1]. To advance the science of nursing education and evaluate the learning outcomes associated with innovative new education models and teaching strategies, it is essential that we base our practice as educators on evidence [2]. A demonstration is a teaching

Corresponding Author: Chandan Pradhan, Assistant Professor, Kalinga Institute of Nursing Science, KIITU, Bhubaneswar, Orissa 750124, India.

E-mail: chandan1111@gmail.com

Received on 21.09.2018, **Accepted on** 16.10.2018

method used with both large and small groups. Demonstration method utilizes several senses; students can see, hear, and possibly experience an actual event. It stimulates interest, presents ideas and concepts more clearly, provides direct experiences and reinforces learning [3]. A video assisted teaching method can be used for both large and small groups. Skills transfer is faster by video teaching. Long-term reinforcement is easier and more effective by video teaching as a result, skills are practiced more frequently on the job, increasing skill development [4]. Hence considering overall, the magnitude of consequences and review done by the investigator on effectiveness of learning through Video assisted teaching and Demonstration techniques, the investigator developed a deep interest to study this significant, researchable and feasible problem. Neurological Assessment has been taken up as the teaching component for both Video and Demonstration teaching methods as it can bring out the difference in the knowledge and acquired skills among the students.

Material & Methods

A true experimental study with two group pre-test post-test design was adopted. Simple random sampling technique was used to draw 60 subjects from 100 students of 3rd year B.Sc. Nursing course. On the first day the demographic data of the students were collected and same day pre-test to assess the knowledge scores before intervention was carried out for the entire sample. A 30 minutes lecture session was conducted for the entire group regarding anatomy and physiology of nervous system and an introduction to neurological examination with the help of power-point presentation and lecture cum discussion. After lecture randomization was done

by lottery method and subjects were randomly assigned to Demonstration group (n=30) and Video Assisted teaching group (n=30). Intervention was given with the help of Demonstration to Demo group and Video graphical presentation to Video group. Then on seventh day Post test was conducted to assess knowledge by Knowledge questionnaire (r=0.8 by split half method) and skill by Objective Structured Clinical Examination (r= 0.78 by inter-rater reliability method). Video graphical presentation of Neurological assessment was prepared by the investigator by a trained videographer in Skills lab of the college on a simulated patient. Objective structured clinical examination of neurological examination prepared in six stations,

The objectives of the study were to determine the effectiveness of Demonstration method on knowledge and to determine the effectiveness of Video Assisted Teaching method on knowledge. Another objective was to compare the effectiveness of Demonstration and Video Assisted Teaching on knowledge and to compare the effectiveness of Demonstration and Video Assisted Teaching on skills regarding Neurological assessment among nursing students. The collected data analysed using descriptive and inferential statistics.

Result

After obtaining ethical clearance from ethical committee & administrative permission from the Principal of Himalayan College of Nursing. Study participants whoever fulfilling inclusive criteria of the study were explained the purpose of the study & consent from was obtained before data collection process. The collected data were quantitatively analyzed using SPSS 20.0 software.

Table 1: Shows frequency and percentage distribution of the personal variables of Demo and Video group (N = 60)

Sl. No.	Personal Variables	Group Frequency and %		χ^2 Value	'p' Value
		Demo Group	Video Group		
1	Sex			0.131	0.72
	Male	04 (13.3 %)	05 (16.7 %)		
	Female	26 (86.7 %)	25 (83.3 %)		
2	Previously Learned Neurological Assessment			0.351	0.55
	Yes	29 (96.7 %)	28 (93.3 %)		
	No	01 (3.3 %)	02 (6.7 %)		

Chi-square(χ^2)table value for df=1 and p=0.05 is 3.8

The finding of the study in table 2 shows that the mean post-test knowledge score 20.20 ± 2.9 was significantly higher ($t=3.8$; $p=0.001$) than the mean pre-test knowledge score 17.60 ± 2.9 in Demo group. The mean post-test knowledge score 22.87 ± 3.2 was significantly higher ($t=7.3$; $p<0.0001$) than the mean pre-test knowledge score 17.90 ± 2.4 in Video group. This shows that Teaching was effective in both the group.

Table 3 shows that mean gain in knowledge score was higher in video assisted teaching compare to demonstration group.

Table 4 revealed that there was no significant difference between the mean OSCE practice score of Demo group and Video group.

Table 2: Shows comparison between mean pre-test and mean post-test knowledge scores of Demo group and Video group (N= 60)

Group	Pre-test Knowledge scores Mean \pm S.D	Post-test Knowledge scores Mean \pm S.D	Mean Difference	't'* Value	'p' Value
Demo	17.60 ± 2.9	20.20 ± 2.9	2.6	3.8	0.001
Video	17.90 ± 2.4	22.87 ± 3.2	4.97	7.3	<0.001

* Paired sample 't' test; 't' table value for $df=29$ and $p=0.05$. is 2.05

Table 3: Shows the difference between mean gain in knowledge scores of Demo group and Video group (N=60)

Effect Size	DM Mean \pm S.D	VAT Mean \pm S.D	Mean Difference	't'* Value	'p' Value
Mean gain in Knowledge score	2.6 ± 3.6	4.9 ± 3.6	2.3	2.49	0.016

* Independent sample 't' test; 't' table value for $df=58$ and $p=0.05$ is 2.00

Table 4: Shows comparison of mean OSCE practice score of Demo group with that of Video group (N=60)

Group	OSCE Score Mean \pm S.D	Mean Difference	't'* Value	'p' Value
Demo	93.50 ± 8.1			
Video	93.30 ± 9.6	0.2	0.086	0.93

* Independent sample 't' test; 't' table value for $df=58$ and $p=0.05$ is 2.00

Discussion

The aim of the study was to determine the effectiveness of demonstration method and video assisted teaching method on Knowledge and Skills of undergraduate nursing students. The findings of the study are discussed in terms of objectives and hypothesis.

The demonstration method was an effective educational tool in improving the knowledge of the participants. The mean post-test knowledge score was significantly higher than the mean pre-test knowledge score. Similar findings were reported by Paul Ocheje Ameh and Y. S. Dantan [5] on effects of lecture and demonstration methods on the academic achievement of students in chemistry. The result of the study showed that the mean academic achievement of demonstration group was significantly higher than that of the Lecture group. Similarly an experimental study was conducted by Agboola Omowunmi Sola and Oloyede Ezekiel Ojo on effects of project, inquiry

and lecture-demonstration teaching methods on senior secondary students' achievement in separation of mixtures practical test. The results of ANOVA of the difference in the scores of the post-test of the project, inquiry and lecture-demonstration methods showed that group taught by lecture-demonstration method had significantly better performance than taught by inquiry method between the groups [6].

The Video assisted teaching method was an effective educational tool in improving the knowledge of the participants. The mean post-test knowledge score was significantly higher than the mean pre-test knowledge scores.

Similar findings were reported by a prospective, randomized; crossover study conducted by K.J. Howard-Quijano, Y.M. Huang, R. Matevosian, M. B. Kaplan and R.H. Steadman on Video-assisted instruction improving the success rate for tracheal intubation by beginners. Results showed that during video-assisted instruction, beginners were successful at 69% of their intubation attempts

whereas those trained during the non-video-assisted portion were successful in 55% of their attempts [7].

In this study there was an effectiveness of gain in knowledge in both the intervention groups whereas there was no significant difference between the practice score of the two groups.

Similarly in a prospective randomized study conducted by Brooks PA, Renvall MJ, Bulow KB and Ramsdell JW on comparison between lecture and videotape in-service for certified nursing assistants in skilled nursing facilities, there was significantly higher score for both in-service groups compared with the control group [6].

Conclusion

The findings show that the mean post-test Knowledge score 20.20 was significantly higher than the mean pre-test knowledge score 17.60 in Demo group and the mean post-test Knowledge score 22.87 was significantly higher than the mean pre-test knowledge score 17.90 in Video group. The gain in knowledge in Video group was significantly higher than the gain in knowledge in Demo group as mean effect size of Video group was 4.9 which were more than demo group (2.6). The mean OSCE practice score of Demo group was 93.50 and that of Video group was 93.30. The Independent sample 't' test score was calculated to be 0.086 ($p=0.93$) which was less than the table value. This shows that there was no significant difference between the mean OSCE practice score of Demo group and Video group.

From findings of the study it can be concluded that both the teaching methods were effective in improvement in the knowledge in the participants whereas the practice did not improve.

References

1. Aggarwal J. Psychology of learning. [Online]. 2004 [cited 2013 March]; Available from: URL:http://www.mu.ac.in/myweb_test/SYBA%20Study%20Material/edu-II%20psycho.pdf.
2. Judith H. Transforming nursing education to meet emerging health care needs. [Online]. 2012 [cited 2012 Sept] Available from: URL:http://www.rwjf.org/en/blogs/human-capital-blog/2012/09/transforming_nursing.html.
3. Sullian R, McIntosh N. Delivering effective lectures. [Online] 1996 [Cited 2010 oct 30]. Available from: URL:https://www.google.co.in/?gws_rd=cr#q=Sullian+R%2C+McIntosh+N.+Delivering+effective+lectures.
4. Wehrli G, Nyquist J. Teaching strategies/methodologies: Advantages, Disadvantages/Cautions, Keys to Success. [Online]. 2003; Available from: URL:http://som.unm.edu/ume/ted/pdf/ed_dev/gen_teach_strategies.pdf.
5. Ameh P, Dantani Y. Effects of lecture and demonstration method on the academic achievement of students in chemistry [serial online] 2012 [cited 2013 May 19];1(1):29-37. Available from: URL:<http://modernscientificpress.com/Journals/ViewArticle.aspx?YTDXIp8pwb35qABc+2BV/6Weu0M2e8W9i1zVEuXGr9NBHunrDYZkzqKMUMg8ZjWD>.
6. Sola A, Ojo O. Effects of project, enquiry and lecture-demonstration teaching methods on senior secondary student's achievement in separation of mixtures practical test [serial online] 2007 [cited 2013 May];2(6):124-32. Available from: URL:<http://www.academicjournals.org/err/PDF/pdf%202007/Jun/Sola%20and%20Ojo.pdf>.
7. Quijano K, Huang Y, Matevosian R, Kaplan M, Steadman R. Video-assisted instruction improves the success rate for tracheal intubation by novices [serial online] 2008 Aug [cited 2013 May];101(4):568-72. Available from: URL:<http://bj.oxfordjournals.org/content/101/4/568.full.pdf+html>.
8. Brooks P, Renvall M, Bulow K, Ramsdell J. A comparison between lecture and video tape inservice for certified nursing assistants in skilled nursing facilities [serial online] 2000 Sep-Oct [cited 2013 May];1(5):191-96. Available from: URL:<http://www.ncbi.nlm.nih.gov/pubmed/12812618>.