

Scientific Paper Presentation : Plenary Session - III

Sub Theme : Information Technology and Nursing Education

Effect of Classroom Demonstration and Video Demonstration on Knowledge and Practice among Nursing Students

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Nursing is a healthcare profession with focus on the care of individuals, families, and communities so they may attain, maintain, or recover optimal health and quality of life from birth to death. A constant challenge in nursing education is to effectively teach competencies and allow students to safely practice essential nursing skills. Faculty must develop sound methods of instruction to achieve programme outcomes, which in turn determine programme effectiveness, assure professional readiness and meet accreditation standards. Many teaching learning strategies have been suggested for essential skill development (Bartel, 1998). Further, in recent years the demands of caring for increasingly acutely ill patients, shorter hospital stays and staffing shortage have curtailed teaching opportunities in many clinical areas, potentially limiting the support available for nursing students to learn in practice. Collectively these issues have compelled nurse educators to seek alternative methods of clinical skill instruction.

According to Cadmus (1990), "Classroom demonstrations not only allow the students to see firsthand how things behave, but also provide them with visual associations that they may capture, and preserve the essence of physical phenomena more effectively than do verbal descriptions."

Valentine & Saito said that videotaping is a skill in the laboratory that requires repeated practice and direction by self and peers, with minimal faculty supervision. The use of videotaping provides student and instructor feedback for evaluation of the process and correcting performance.

Rajan (1999) reported that IV related complications are estimated in 4 lakh out of 5 million clients who are catheterised each year. Complications arise from omission and commission due to poor relationship between the knowledge and practice of nurses; so it is important to know the degree of knowledge and practice required in IV infusion, so as to contribute to safe infusion and prevent complications.

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Problem Statement

A comparative study to evaluate the effectiveness of class room demonstration versus video demonstration regarding intravenous procedure on knowledge and practice among the BSc nursing second year students at PG College of Nursing, Bhilai.

Objectives

- ♦ To assess the knowledge and practices regarding IV procedure before and after class room demonstration and video demonstration among the two experimental groups I and II.
- ♦ To assess the effectiveness of class room demonstration and video demonstration on knowledge and practice among the experimental groups I and II.
- ♦ To compare knowledge and practice regarding IV procedure after class room demonstration and video demonstration between experimental group I and experimental group II.

Review of Literature

The review of literature is discussed under the following headings:

Literature related to class room demonstration

Dr Lu (2009) undertook a study to assess the effectiveness of traditional class room teaching on intramuscular (IM) injection nursing skills and taking 147 students, 80 as a experimental group and 67 as a control group at a junior college in Eastern Taiwan. Participants in the experimental group had significantly higher scores on both IM injection knowledge and skill learning.

Michael Bauer (2010) in her study of teaching BP measurement: CD ROM versus conventional classroom instruction, she investigated 27 BSc (N) students' adherence to the recommended auscultatory BP measurement procedure following three different forms of instructions: a conventional lecture and a classroom demonstration of the technique, the CD ROM tutorial programme and a combination of both methods. The results indicated that

while the CD ROM appeared no substitute for real life hands-on experiment, it could enhance learning particularly when used in conjunction with the traditional teaching method.

Literature related to video demonstration

Barbara L et al (1991) made a study to determine the effect of an interactive video disk programme entitled "diabetic health assessment," versus traditional lecture on cognitive learning and affective behaviours of baccalaureate nursing students. Subjects were randomly selected, 41 as a control group and 42 as experimental group. There were significant differences in post-test score of experimental group and control group. The univariate F for the cognitive measures was non-significant ($p = 0.283$, $df = 2, 72$) indicating that students' achievement under interactive video is not significantly different than under traditional lecture. The univariate F for that affective measure was significant ($p = 0.000$, $df = 2, 72$) indicating that the students learning by interactive video possessed a more positive attitude.

Holly King Miller (2000) conducted a study to compare videotaped and faculty present demonstrations of clinical skills. The 48 students were selected from 2nd year BSc and 24 students were taken for video demonstration and 24 students for class room demonstration; 6 teachers were assigned for video demonstration and 6 for class room demonstration. The performance scores on only one skill (administering IV medications by intermittent infusion sets) differed at a statistically significant level ($t = 2.19$, $p = 0.035$) between the two student groups. Those in faculty group had a higher score than did those in the videotaped group.

Literature related to IV procedure

Srihapol et al 1995, conducted a study on incidence rate of infusion related phlebitis. 35 hospitals were enrolled and data were collected from 6256 infusion sites of infusion followed by hands and arms respectively. About 34 percent of the infusion was interrupted by local complication of which 8 percent was phlebitis.

Percira et al (2000) conducted a study to quantify the complications arising from use of IV therapy; 68 percent of the procedures were performed without gloves, 60 percent assessment was not performed satisfactorily and 47 percent of cannula remained inside between 24 and 72 hours. Among the complications 20 percent were related to infiltration, 5.4 percent to infiltration and haematoma constituted 5.3 percent. Data suggest that there is need to improve the education of the nursing team about the IV therapy.

Literature related to knowledge and practice

Katedra Chorob (2009) conducted a study to assess the knowledge of hypertension and blood pressure measurement procedure after lecture and demonstration. The questionnaire investigating the respondents' knowledge was filled out by 132 students of the 6th year Medical College. Only 21.2 percent of students had good knowledge about BP measurement technique, 70 percent to 90 percent of subjects knew hypertension diagnostic criteria, about 30 percent gave the correct values defined as "high-normal". About 37.1 percent were aware of complications concerning heart, brain, kidney, eye and peripheral blood vessels. Only 11 percent knew all drugs recommended by WHO/ISH guidelines, as first-line medication; but 95 percent were only able to mention at least four of them.

Methodology

Research approach : Experimental evaluative research approach

Target population : BSc Nursing students

Accessible population : BSc Nursing Students, PG College of Nursing, Bhilai (CG)

Sampling technique and sample size : Random sampling, 60 samples

Variables : independent - class room & video demonstration, dependent: knowledge & practice.

Tool : Self structured questionnaire regarding IV procedure for assessment of knowledge and checklist for assessing practice.

Method of analysis : Descriptive and inferential statistics.

Findings and Interpretation

Section A : In relation to the socio-demographic variable - In the group I (class room demonstration)-majority i.e.17 (56.67%) belonged to age group 21 - 22 years; most of them i.e. 22 (73.33%) were Christian, 22 (73.33%) were ST, 22 (73.33%) were exposed to all the wards, 24 (80%) had acquired knowledge from seniors, 24 (80%) were getting equipments always, 25 (83.33%) belonged to income group Rs. 10,000 - 20,000 per month, 10 (33.33%) students had done 0 -5 IV procedures, 10 (33.33%) students had done 10 -15 IV procedures, 20 (66.67%) students had often observed IV procedure, 9 (30%) students had assisted IV procedure 1-2 times, 16 (53.33%) students had 1:10 student-patient ratio in ward, 8 (26.67%) students answered that 2 - 4 nurses were available in a ward per shift, 8 (26.67%) students answered that 2 - 4 nurses were available

in a ward per shift and 20 (66.67%) students had Hindi as their medium.

In group II, maximum i.e. 28 (93.33%) were between 18 -20 years, all (100%) were female, 13 (43.33%) were Hindu, 16 (53.33%) belonged to other classes; 23 (76.67%) were exposed to all the wards, 18 (60%) had acquired knowledge from previous teaching, 17 (56.67%) were getting equipments some time, 24 (80%) belonged to income group Rs. 10,000 - 20,000 per month; 11 (80%) students had done 0-5 IV procedure, 16 (53.33%) students had often observed IV procedure, 11 (36.67%) students had assisted IV procedure 1-2 times, 14 (46.67%) students had 1:10 student-patient ratio in wards, 14 (46.67%) students answered that 1- 2 nurses were available in a ward per shift, 14 (46.67%) students answered that 2 - 4 nurses were available in a ward per shift and 23 (76.67%) students were from Hindi medium.

Section B : In relation to analysis of overall knowledge and practice score of class room demonstration regarding IV procedure, the data revealed that out of 30 students' pre-test level of knowledge, 56.67 percent had poor level of knowledge, 43.33 percent had average level of knowledge. In post-test 70 percent had average knowledge and 30 percent had good knowledge; out of 30 students pre-test practice 56.67 percent had average practice and 43.33 percent had poor practice. In post-test 93 percent had good practice and 6.67 percent had average practice.

In relation to finding out the effectiveness of class room demonstration regarding IV procedure on knowledge and practice t-test was 6.47, which is highly significant i.e. greater than level of significance ($p>0.05$) at $df = 29$. t-test for practice was 6.55, which is highly significant ($p>0.05$) i.e. greater than level of significance at $df = 29$.

Section C : In relation to analysis of overall knowledge score and practice score of video demonstration regarding IV procedure, it was revealed that out of 30 students pre-test level of knowledge 73.33 percent had poor level of knowledge and 26.67 percent had average level of knowledge. In post-test 63.33 percent had average knowledge and 36.67 percent had good knowledge. Among 30 students in pre-test practice, 53.33 percent had average practice and 46.67 percent had poor practice. In post-test 93.33 percent had good practice and 6.67 percent had average practice, t-test was 6.4, which is highly significant ($p >0.05$) at $df = 29$.

Section D : t-test analysis to finding out the effectiveness of class room demonstration vs video demonstration on knowledge and practice – It was shown

that there is no significant difference in class room demonstration and video demonstration. The total mean of class room demonstration was 32.93 and mean of video demonstration is 33.23. 't' value calculated as 0.1 was not significant at 5 percent level of significance at $df 58$. The total mean of class room demonstration is 44.27 and mean of video demonstration is 43.63. 't' value was 0.33, and not significant at 5 percent level at $df 58$. This data signifies that there is no significant difference in the effectiveness of class room demonstration and video demonstration on practice.

Conclusion

It was found that there is no significant difference in the effectiveness of class room demonstration and video demonstration on knowledge and practice. Hence, it is concluded that both class room demonstration and video demonstration are equally effective.

Recommendations

- ♦ A similar study can be undertaken with a large sample size for wider generalisation.
- ♦ The present study can be replicated on a large sample, with a pre-test post-test control group design.
- ♦ A comparative study can be conducted among MSc (N) and BSc (N) students regarding care of patients on intravenous infusion.
- ♦ A similar study can be carried out (a) among nursing personnel working in different wards, (b) by using different teaching strategies, (c) to assess the attitude of students regarding video demonstration.

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Books

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