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A Comparative Study to Evaluate the Effectiveness of Lecture Cum Demonstration Versus Video-Assisted Teaching on Knowledge and Practice Regarding Community Bag Technique Among Nursing Students

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Abstract:

Index Terms – Community Bag Technique, Lecture Cum Demonstration, Video-Assisted Teaching, Nursing Students, Knowledge, Practice, Nursing Education.

Introduction: Community Bag Technique is an essential component of community health nursing, requiring systematic handling and infection control during home visits. The present study compared the effectiveness of Lecture Cum Demonstration and Video-Assisted Teaching on knowledge and practice regarding Community Bag Technique among nursing students.

Objectives: 1) To assess the knowledge and practice score regarding Community Bag Technique among students of selected nursing colleges in both groups at baseline. 2) To evaluate the effectiveness of Lecture Cum Demonstration on knowledge and practice regarding Community Bag Technique. 3) To evaluate the effectiveness of Video-Assisted Teaching on knowledge and practice regarding Community Bag Technique. 4) To compare knowledge and practice scores regarding Community Bag Technique between the Lecture Cum Demonstration and Video-Assisted Teaching groups. 5) To determine the association of pre-test knowledge and practice scores with selected demographic variables.

Methodology: A quantitative, two-parallel-arm comparative pre-test–post-test design was adopted among 90 B.Sc. Nursing students selected by simple random sampling and allocated equally to Lecture Cum Demonstration (n=45) and Video-Assisted Teaching (n=45) groups. Data were collected using a demographic sheet, self-structured knowledge questionnaire, and 20-item practice checklist. Interventions were administered on Day 1, followed by post-test assessment on Day 7. Data were analyzed using paired and unpaired t-tests and chi-square test, with statistical significance set at $p<0.05$.

Results: In the lecture-cum-demonstration group, mean knowledge and practice scores improved significantly from 6.31 ± 1.18 to 11.68 ± 1.44 and 9.28 ± 1.80 to 14.17 ± 1.98, respectively ($p < 0.001$). Similarly, the video-assisted teaching group showed significant improvement in knowledge (6.20 ± 1.17 to 10.66 ± 1.34) and practice (8.82 ± 1.61 to 11.95 ± 1.75; $p < 0.001$). Lecture-cum-demonstration was significantly more effective than video-assisted teaching in improving knowledge ($t = 2.97$, $p = 0.004$) and practice ($t = 3.75$, $p < 0.001$). Age and semester were significantly associated with pre-test knowledge. **Conclusion:** The study concludes that Both lecture-cum-demonstration and video-assisted teaching effectively improved knowledge and practice regarding community bag technique. However, lecture-cum-demonstration was significantly more effective, supporting demonstration-based teaching for skill acquisition in nursing education.

Keywords: Lecture Cum Demonstration, Video Assisted Teaching, Community Bag Technique, Knowledge, Practice, Nursing Students.

I. INTRODUCTION

Infection prevention is an essential component of safe and effective community healthcare. During home visits, community health nurses and nursing students use the community health nursing bag to carry essential equipment and supplies. Proper bag technique helps maintain asepsis, prevent cross-contamination, and reduce the risk of infection during home-based care.[1] The community health nursing bag is an important resource for nurses during home visits, as it facilitates the transportation and availability of essential equipment required for providing nursing care in the community. Proper use of the bag also promotes efficient care delivery and infection prevention.[2] Although community nursing bags have been used for many years, their utilization during home visits remains limited. Research has therefore explored modifications to the community nursing bag and its acceptability among student nurses.[3] The bag technique is an essential skill that should be acquired by nursing students as part of their community health nursing education. Different teaching methods, including demonstration and video-assisted instruction, can be used to develop students' knowledge and skills regarding this procedure.[4] Although conventional demonstration remains a commonly used teaching method, video-assisted teaching may provide a standardized and visually engaging learning experience.[5] Therefore, the present study was undertaken to compare the effectiveness of Lecture Cum Demonstration and Video-Assisted Teaching on knowledge and practice regarding Community Bag Technique among nursing students**.**

II. OBJECTIVE

1. To assess the baseline knowledge and practice regarding community bag technique among nursing students in both groups.

2. To evaluate the effectiveness of lecture cum demonstration on knowledge and practice.

3. To evaluate the effectiveness of video assisted teaching on knowledge and practice.

4. To compare the effectiveness of lecture cum demonstration and video assisted teaching.

5. To find the association between selected demographic variables and pre-test knowledge and practice scores.

III. HYPOTHESIS

- **Null Hypothesis (H_0)**: There is no significant difference in knowledge and practice score regarding community bag technique among students of selected nursing colleges after intervention lecture cum demonstration and video-assisted teaching.
- **Alternative Hypothesis (H_1)**: There is significant difference in knowledge and practice score regarding community bag technique among students of selected nursing colleges after intervention lecture cum demonstration and video-assisted teaching.

IV. ASSUMPTION

Lecture cum demonstration and video – assisted teaching may equally improve the knowledge and practices regarding bag technique among students of selected nursing colleges.

V. RESEARCH MATERIAL AND METHOD

a. Research Approach

A Quantitative research approach to compare the effectiveness of Lecture Cum Demonstration versus Video-Assisted Teaching on Knowledge and Practice Regarding Community Bag Technique among Nursing Students.

b. Research Design

Two Parallel arm interventional study to objectively compare the effectiveness of two distinct interventions Lecture Cum Demonstration and Video-Assisted Teaching on Knowledge and Practice Regarding Community Bag Technique among Nursing Students.

c. Population and Sample

Sample were Nursing Students of selected Nursing Colleges.

d. Sample Size

The total 90 Nursing students were selected from selected Nursing colleges, with 45 participants in each group (including drop-out 10%)

- Group A (Lecture cum demonstration): 45 Nursing students
- Group B (Video- assisted teaching): 45 Nursing students

Sample size was calculated by the statistician using the following formula:

$$n \geq \frac{Z^2_{1-\alpha/2} \times p(1-p)}{d^2}$$

Where:

- Alpha (α) = 0.05
- Estimated proportion (p) = 0.06
- Estimated error (d) = 0.05
- $Z_{1-\alpha/2} = 1.96$

$$n \geq \frac{(1.96)^2 \times 0.06(1-0.06)}{(0.05)^2} = 86.67$$

Minimum calculated sample size = 87 participants.
Considering **10% loss to follow-up**, the final sample size was taken as **90 participants (45 participants in each group).**

e. Sampling technique

A Probability convenient sampling technique was employed to select the participants.

f. Sampling Criteria

Inclusion criteria of the study:

- Nursing students of BSc nursing.
- Nursing students of 5th and 7th semester.

Exclusion criteria of the study:

- Students who previously attended any training for 5-7 days exclusively on community bag technique.

g. Variables

i. **Demographic variables:** the demographic variables in this study on community bag technique are: Age, Gender, Semester, Received any training previously of nursing students.

ii. **Independent variables:** The independent variable in this study was Lecture Cum Demonstration and Video assisted teaching on community bag technique.

iii. **Dependent Variable:** The dependent variable in this study was Knowledge and Practice regarding Community bag technique.

h. Research Question

Which teaching method, lecture cum demonstration or video – assisted teaching is effective in improving knowledge and practice regarding bag technique among students of selected nursing colleges?

Determining the research question in PICOT format

COMPONENT	DESCRPTION
P (POPULATION)	Nursing students of selected nursing colleges
I (INTERVENTION)	Lecture-cum-Demonstration (LCD)
C (COMPARISON)	Video-Assisted Teaching (VAT)
O (OUTCOME)	Improvement in knowledge and practice regarding bag technique
T (TIME)	7 days after intervention

VI. TOOL AND TECHNIQUE FOR THE STUDY

Section A: **Demographic data**, the information statements included in this section were:

- Age
- Gender
- Semester
- Received any Previous training

Section-B: Self structured knowledge questionnaire regarding knowledge on community bag technique.

The investigator developed 15 multiple-choice question to record knowledge regarding Community Bag Technique.

Table no 3.2: Grading Criteria for Knowledge Questionnaire

Knowledge Score	Score Range
Poor	**0-5**
Average	**6-10**
Good	**11-15**

Section-C: Practice Checklist on Community bag technique.

The investigator developed 20 questions in the checklist to assess practice score regarding Community Bag Technique.

Table no. 3.3: Grading Scale for Practice

Practice Score	Score Range
Poor	**0-5**
Average	**6-10**
Good	**11-15**
Excellent	**16-20**

a. Validity and Reliability of Tool

Validity of tool

Content validity of the research tools was established by obtaining expert opinions from 15 experts, including nursing, medical, statistics, language, and community health nursing experts. Based on their suggestions and consultation with the research guide, necessary modifications and corrections were incorporated into the final tools before data collection.

Reliability of tool

The reliability of the research tool was assessed on 12 samples using the parallel-form method. The reliability coefficients were **0.9539** for the Lecture Cum Demonstration group and **0.9506** for the Video Assisted Teaching group, indicating that the tool was highly reliable.

b. Description of tool

Data Collection and Intervention:
Data were collected in November after obtaining permission from the college principal and local authority. The study purpose was explained, confidentiality was assured, and informed consent was obtained. A pre-test was conducted using a structured questionnaire and practice checklist, followed by the respective teaching intervention on the same day. A post-test was conducted after seven days using the same tools.

Lecture Cum Demonstration (LCD): A 45-minute classroom-based session involving direct teaching, demonstration, discussion, and immediate feedback.

Video-Assisted Teaching (VAT): A 45-minute online session using multimedia presentation, investigator-led instruction, and interactive discussion.

VII. DATA ANALYSIS

Descriptive statistics were used to summarize demographic and outcome data. Paired t-test was used to assess pre-test to post-test changes within each group. Unpaired t-test was used to compare improvement between the two groups. Chi-square test was used to assess associations between selected demographic variables and pre-test knowledge and practice scores. Statistical significance was considered at $p<0.05$.

VIII. RESULT

Demographic characteristics: Among 90 nursing students, most were aged ≥21 years (91.1% in the LCD group and 93.3% in the VAT group) and were female (91.1% and 86.7%, respectively). Most students were from the 7th semester (77.8% and 91.1%), and none had received previous training in community bag technique.

Table 8.1: Percentage wise distribution of Nursing Students according to their demographic characteristics.

n=90

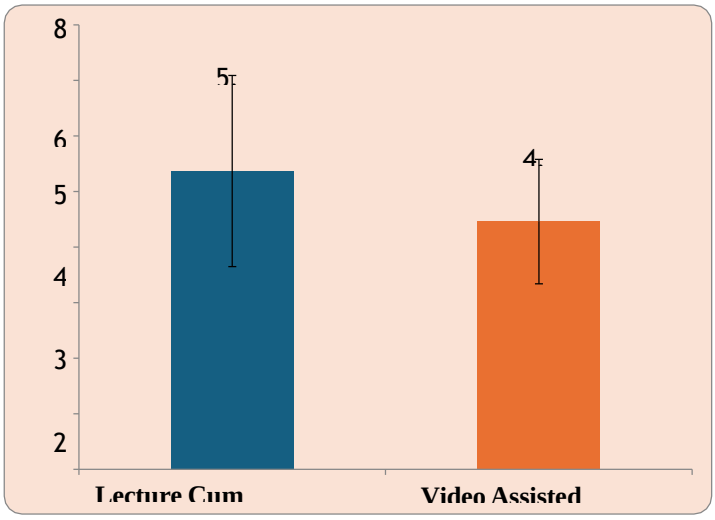
Demographic Variables	**Lecture Cum Demonstration group(n=45)**	**Video Assisted Teaching group(n=45)**
Age(yrs)		
18 years	0(0%)	0(0%)
19 years	0(0%)	1(2.2%)
20 years	4(8.9%)	2(4.4%)
≥21 years	41(91.1%)	42(93.3%)
Gender		
Male	4(8.9%)	6(13.3%)
Female	41(91.1%)	39(86.7%)
Others	0(0%)	0(0%)
Currently enrolled semester		
5th Semester	10(22.2%)	4(8.9%)
7th Semester	35(77.8%)	41(91.1%)
Received any Previous training on Community Bag Technique		
Yes	0(0%)	0(0%)
No	45(100%)	45(100%)

Pre-test knowledge: In the LCD group, 24.44% had poor and 75.56% had average knowledge, while in the VAT group, 28.89% had poor and 71.11% had average knowledge. The mean knowledge scores were 6.31 ± 1.18 and 6.20 ± 1.17, respectively.

Pre-test practice: In the LCD group, 4.44% had poor, 75.56% average, and 20% good practice, compared with 2.22%, 86.67%, and 11.11%, respectively, in the VAT group. Mean practice scores were 9.28 ± 1.80 and 8.82 ± 1.61, respectively.

Effectiveness of interventions: Significant improvement was observed in knowledge and practice scores in both groups. In the LCD group, knowledge increased from 6.31 ± 1.18 to 11.68 ± 1.44 ($t=20.94$, $p<0.0001$), and practice from 9.28 ± 1.80 to 14.17 ± 1.98 ($t=12.19$, $p<0.0001$). In the VAT group, knowledge increased from 6.20 ± 1.17 to 10.66 ± 1.34 ($t=26.75$, $p<0.0001$), and practice from 8.82 ± 1.61 to 11.95 ± 1.75 ($t=12.99$, $p<0.0001$).

Comparison of interventions: LCD produced significantly greater improvement than VAT in knowledge (mean difference: 5.37 ± 1.72 vs. 4.46 ± 1.12; $t=2.97$, $p=0.004$) and practice (4.88 ± 2.69 vs. 3.13 ± 1.61; $t=3.75$, $p<0.0001$).



Graph 8.1: Comparison of difference between Knowledge Score in pre and post-test of Nursing Students in Lecture Cum Demonstration Group and Video Assisted Teaching Group

Association with demographic variables: In the LCD group, pre-test knowledge was significantly associated with age (χ^2=13.57, p<0.0001) and semester (χ^2=14.44, p<0.0001), but not gender. Pre-test practice showed no significant association with age, gender, or semester.

In the VAT group, pre-test knowledge was significantly associated with age (χ^2=7.91, p=0.019) and semester (χ^2=4.54, p=0.033), but not gender. Pre-test practice was significantly associated with gender (χ^2=7.27, p=0.027), but not age or semester.

IX.DISCUSSION

Demographic characteristics:
Most nursing students in both groups were aged ≥21 years, female, and studying in the 7th semester. All participants (100%) reported no previous training in Community Bag Technique.

Pre-test knowledge and practice:
Before intervention, most students in both groups had poor to average knowledge and practice regarding Community Bag Technique. The mean pre-test knowledge scores were 6.31 ± 1.18 in the LCD group and 6.20 ± 1.17 in the VAT group, while mean practice scores were 9.28 ± 1.80 and 8.82 ± 1.61, respectively. There was no significant difference between groups at baseline ($p > 0.05$), indicating comparable groups.

Effectiveness of teaching methods:

Both interventions produced significant improvement in knowledge and practice. In the LCD group, knowledge increased from 6.31 ± 1.18 to 11.68 ± 1.44 ($t = 20.94$, $p = 0.0001$), and practice increased from 9.28 ± 1.80 to 14.17 ± 1.98 ($t = 12.19$, $p = 0.0001$). In the VAT group, knowledge increased from 6.20 ± 1.17 to 10.66 ± 1.34 ($t = 26.75$, $p = 0.0001$), while practice increased from 8.82 ± 1.61 to 11.95 ± 1.75 ($t = 12.99$, $p = 0.0001$). These findings demonstrate that both methods were effective.

Comparison of LCD and VAT:
LCD produced significantly greater improvement than VAT in both knowledge and practice. The mean knowledge gain was 5.37 ± 1.72 in LCD compared with 4.46 ± 1.12 in VAT ($t = 2.97$, $p = 0.004$), while practice gain was 4.88 ± 2.69 compared with 3.13 ± 1.61, respectively ($t = 3.75$, $p = 0.0001$). Thus, LCD was more effective than VAT in improving knowledge and practice regarding Community Bag Technique.

Association with demographic variables:
Age and semester were significantly associated with pre-test knowledge in both groups, whereas most demographic variables were not significantly associated with pre-test practice. These findings suggest that academic exposure may influence baseline knowledge, while practical competency is more dependent on structured training.

Overall:
The study demonstrates that both LCD and VAT are effective teaching strategies for improving knowledge and practice regarding Community Bag Technique among nursing students; however, **Lecture Cum Demonstration was significantly more effective than Video Assisted Teaching**. This finding supports the use of interactive, demonstration-based teaching for developing procedural skills.

X. CONCLUSION

The study concluded that both Lecture-Cum-Demonstration and Video-Assisted Teaching were effective in improving nursing students' knowledge and practice regarding Community Bag Technique. However, Lecture-Cum-Demonstration produced significantly greater improvement than Video-Assisted Teaching, indicating its superiority in developing practical competency. Most students had inadequate baseline knowledge and practice and had no previous training in the technique. Age and academic semester showed significant association with knowledge in some groups, while most demographic variables were not associated with practice. The findings emphasize the importance of structured, interactive and demonstration-based teaching in nursing education to strengthen students' competency in community-based procedures.

XI.Recommendations

On the basis of the findings of the study, it is recommended that the following studies can be conducted

- A study can be repeated by taking large population.
- Similar study can be conducted in different target population.
- A similar study can be conducted on other nursing students (G.N.M students and A.N.M students).
- A similar study can be conducted in hospital settings.
- Comparative studies may be carried out to assess the effectiveness of other innovative teaching methods such as simulation-based learning, e-learning modules, or blended teaching approaches.
- Regular in-service training and structured teaching programmes should be organized for nursing students and staff nurses to improve competency in community bag technique.
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XII. ETHICAL CONSIDERATION

- Research proposal will be approved by the ethical committee.
- Prior permission will be obtained from concern authorities.
- Informed written consent will be obtained from the subject in convenient language.
- Confidentiality and anonymity of subject will be maintained.
- Freedom to withdraw from study at any point of time will be assured to study subjects.

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