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Effectiveness of video-assisted teaching on knowledge and practice regarding patient's safety during transportation

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Abstract
Title with purpose of the study: The top agenda of all the accreditation cell of the hospital is "patient's safety first". But it has been observed that there is decrease in the patient's safety during intra-hospital transportation of patient as there is less trained and lack of equipment outside the unit. "Effectiveness of video-assisted teaching on patient's safety during transportation among transporters" with objectives effectiveness of video-assisted teaching on knowledge and practice, correlation between knowledge and practice, and association of findings with demographic data.
Material and Methods: Quasi-experimental non-randomized control group design was used. The theoretical framework adopted for study was based on Ludwig Von Bertalanffy's General System Theory. Sample size was 60 selected by purposive sampling technique. Data collection was done by using knowledge questionnaire and observation check list. Tool was validated by 17 experts from various field of nursing. Reliability of tool was found to be 0.82 for knowledge questionnaire and 0.85 and 0.84 for practice observation section A(shifting of patient from bed to trolley and vice versa) and section B(shifting of patient from bed to wheelchair and vice versa) respectively. The pilot study was conducted and was found feasible.
Result: Result had shown great improvement in knowledge and practice after video-assisted teaching. In pre-test 73.33% transporters had average knowledge whereas in post-test 63.33% transporters had good knowledge about patient's safety during transportation which suggests improvement in knowledge. The practice mean score is increasing from 6.73 to 9.8 and from 5.97 to 9.1 in practice section A & B respectively at 0.05 level of significance.
Conclusion: Thus video-assisted teaching shows, it was effective in both knowledge and practice regarding patient's safety during transportation among transporters.

Key words: intra-hospital transportation, patient's safety, transporters

1. Introduction

"Knowing is not enough; we must apply.
Willing is not enough; we must do."
—Goethe [7]

1.1 Back ground of the study
Patient safety is the primary requirement of all the hospitals. It has been observed that most of the critical patient's safety is at risk during transportation of patient for various investigations, procedures, etc., within the hospital set up as well inter hospital.
Constant quality upgrading is an acknowledged directive in healthcare services. In the past few years, Patient safety has rapidly risen to the top of the healthcare policy agenda, and been integrated into quality initiatives. It has been observed mostly that while shifting patients from one place to another causes temporary or permanent trauma to the critically ill patients.
The expert transportation team plays an important role in the maintaining the patient's safety, hence it is important to provide an effective teaching to the transporters in the hospital in order to maintain the safety of the patients.
Client's safety is a vital parameter in improving the high-quality of health care. It has been observed that mostly, the work which explain regarding patient's safety and good practices

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that help to prevent and reduce harm have paying more attention on downbeat result of Care like morbidity & mortality. Nurses play a vital role in co-ordination among the transporters. During transportation of client, they help to decrease the injuries to clients [12]. Critical care nurses have primary duty to protect critically ill clients from injury by continuous monitoring and quick interference. This idea help us to remember the Florence Nightingale's thought about keeping the sicker clients nearby nursing station for good monitoring and designed first to bring into play an "ICU" [14].

The Joint Commission standards mainly focus on safety along with the incorporation of other issues. An affiliate of the Joint Commission, Joint Commission Resources (JCR) provides various products and services and they communicate the same by publishing in various printed materials regarding safety [15].

Health care workers should aim for safety of their clients. For achieving this, a new health care delivery system is needed - a system that takes preventive measure. To develop such system, the main qualities needed by health care workers are commitment and information system [17].

Thomas Hanne, *et al.* conducted a research in 2009 on Bringing strength to Patient Flow Management by modifying the Patient Transports in Hospitals. In the hospital, for diagnostic or therapeutic reasons Intra-hospital transportations are required. Depending on the hospital outline, transportation between nursing wards and diagnostic or therapeutic area is either provided by ambulances or by the trained personnel. The patient transportation service is inadequately managed and lacks work-flow coordination. This contributes to higher hospital and to patient inconvenience. This methodology has been developed to solve the underlying optimization problem— an unchangeable dial-a-ride problem with hospital-specific constraints, draws on fast heuristic measure to ensure the timely and efficient provision of transports. The major benefits of Opti-TRANS comprise streamlined transportation processes and work flow, significant savings, and improved patient's satisfaction mainly increased awareness in hospital staff of the importance of implementing efficient logistics practices [36].

Isla M. H., *et al.* conducted a research in 2011 on quality and safety issues of Non-emergency patient transport with Purpose of systematic review of the factors associated with the quality and safety of non-emergency transport services. 12 research articles from seven countries were taken. Five studies examined issues relating to the structure of transport services, which focused on the use of policies and protocols to assist the transfer process. All studies addressed factors associated with the transfer process. Outcomes were measured in one study. The study concludes that we have to focus on the consequences which include quality and safety related to the transportation of the patient. Because of poor standardization & lack of communication, safety is compromised in case of non-emergency patient transfers [35].

1.2 Need of the Study
According to digital research which was conducted by Benoit F. *et al.* in 2010 via the online databases using the various key words related to transportation. The result reveals that proper training plans for the teams are expected to lead to an improve in the safety and decreasing the risks in long-term [4].

A research was conducted at Hyderabad with objective to observe the figure and various types of unpredicted events happening during intra-hospital transportation of seriously ill ICU clients.

The researcher concluded that if the clients are accompanied by either intenstivist or medically trained individual during transportation and follow strict transportation guidelines then these adverse events can be reduced.

Hence, it is important to provide the education regarding "patient's safety during transport" to the transporters, who involve in the transport of the patient. The researcher is interested to find out whether video-assisted teaching to the transporters in the hospital will be effective or not.

The key elements of safety include preventing harm, detecting adverse injuries to prevent harm to participants, detecting and analyzing patient injuries and an environment which help to balance for reporting of the events. Improving the patient's safety requires multi-phased process beginning with the detection of injuries & ending with the mechanism for ensuring improvements in patient safety [13].

It has been observed that, patients frequently fall during shifting which lead to injury to themselves as well as care taker. According to a study, it has been revealed that fall is the most common cause of injury in the nursing home patients and for the reasons such as giddiness, sudden pain and most important factor is lack of knowledge and skill among transporters. Therefore, it's important to know and to develop the skill regarding patient's safety during transportation. As a transporter, he/she should be confident regarding the process of transportation correctly and follow all the safety precautions so that will reduce harm to patients and transporters. Most common etiological factor for injury in hospital set-up is weakness or gait problems, hazardous conditions, wet tiles or wheelchair without lock, sedative medications which has side effect like dizziness, giddiness & troubles during transportation, either from bed to wheel-chair or from wheel-chair to washroom. These problems can be reduced by effective learning and improving proper transfer skills and main thing by being alert at all time [8].

Falls and injury are the main problems with regard to patient's safety. It is not limited to elderly but does occur in all age group.

Every year in the USA, fall in hospitals of which 30-50% result in injury. Injured patients need additional management and sometimes extended hospital stays. Fall with injury added 6.3 days to the hospital stay. About $14,000.8 is the average cost for the fall with injury, which has 465 reports of falls with injuries since 2009, commonly occurring in hospitals. Approximately 63% of these falls lead to death, and other patients get the injuries. ECRI Institute stated that there is significant number of falls taking place in non-hospital settings like long-term care facilities. Most frequent contributing factors pertaining to following inappropriate assessment, Communication barrier, Lack of following the protocols and safety practices, Inadequate orientation of staff, supervision, staffing levels or skill mix, Deficiencies in the physical environment, Lack of leadership [9]. Thus, training(education) and hands on practice is must to reduce the injury to clients as well as the transporters.

Francielli M.P. *et al* conducted a research in 2013 on the analysis of unpleasant events during intra-hospital transportation of critically ill clients and reveals that

physiological changes are the main adverse events which are followed by failure of equipments and team.

As very few researches are available on this topic, researcher is interested to conduct research on patient's safety during transportation.

2. Problem Statement

"An experimental study to assess the effectiveness of video-assisted teaching on knowledge and practice regarding patient's safety during transportation among transporters from selected hospitals of Pune city."

3. Research Objectives

1. To assess the knowledge of transporters regarding patient's safety during transportation before and after video-assisted teaching among transporters.
2. To assess the practice of transporters regarding patient's safety during transportation before and after video-assisted teaching among transporters.
3. To assess the effectiveness of video-assisted teaching on knowledge and practice regarding patient's safety during transportation.
4. To correlate knowledge & practice regarding patient's safety during transportation among transporters. To associate the findings with selected demographic variables.
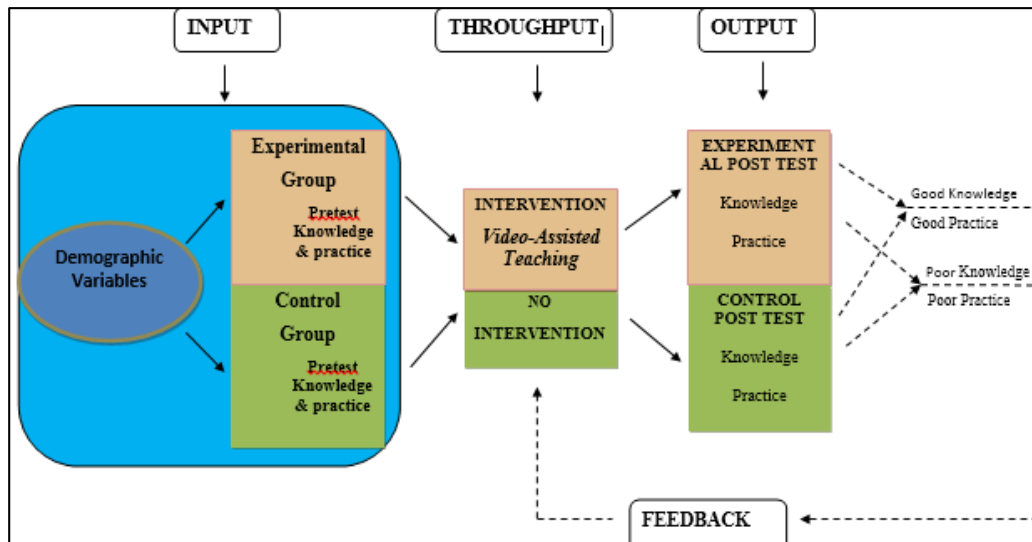

Fig 1: Conceptual framework based on modified ludwig general system theory

4. Hypothesis

Knowledge level

H_0: There is no significant difference in knowledge after video-assisted teaching on patient's safety during transportation among transporters at 0.05 level of significance.

Practice

H_0: There is no significant difference in practice after video-assisted teaching on patient's safety during transportation among transporters at 0.05 level of significance.

Correlation between knowledge and practice

H_0: There is no correlation between knowledge and practice among transporters at 0.05 level of significance

Association of findings with demographic variables

H_0: There is no association between pre-test knowledge and practice with selected demographic variables among transporters at 0.05 level of significance.

4.1 Operational Definitions

- **Video- assisted teaching:** Contains step by step demonstration of transportation of clients from bed to stretcher and vice versa and bed to wheelchair and vice versa and importance of patient's safety during transportation.

- **Knowledge:** Awareness regarding patient's safety during transportation which will be assessed by using knowledge questionnaire.

- **Practice:** Transporter's skills during transportation of client which will be assessed by using an observation checklist.
- **Patient's Safety:** Prevention of patient harm during transportation.
- **Transportation:** Intra-hospital transfer of patient from one department to another department (area).
- **Transporter:** An assigned hospital employee who transfer the patient from one place to another.

5. Research Methodology

5.1 Research Approach: Quantitative approach

5.2 Research Design: Quasi-experimental design under that non-randomized control group design.

Table 6.1: Symbolic representation of the Research Desig

Group	Pre-test	Treatment	Post- test
Experimental	O_1	X	O_2
Control	O_1	------	O_2

O_1: Pre-test to the experimental and control group

X: Administration of video-assisted teaching on patient's safety during transportation**:** No treatment

O_2: Post-test to the experimental and control group

5.3 Variables
5.3.1 Independent variable video-assisted teaching on patient's safety during transportation.

5.3.2 Dependent variable knowledge and practice regarding patient's safety during transportation.

5.4 Setting: the study was conducted in the selected hospitals

5.5. Population: in this study, population consisted of transporters from hospitals.

5.6. Sample: sample is transporters from selected hospitals of Pune city.

5.7. Sample selection criteria for the study
5.7.1. Inclusion criteria
- Transporters, who know to read & write English or Marathi language.

5.7.2. Exclusion criteria
Transporters who have attended any teaching programme on patient's safety during transportation Staff nurse

5.8. Sample size: total sample of 60(30 control and 30 experimental) transporters were selected.

5.9. Sampling technique: non-probability purposive sampling technique.

5.10. Data collection tool
Tool used for data collection are:
1. Knowledge questionnaire **2.** Observation check list (transportation of client from bed to trolley & transportation of client from bed to wheelchair) **3.** Video-assisting teaching

5.11. Validity
Content validity done by experts from the field of Medical-Surgical Nursing, Community Health Nursing, Gynaecology & Obstetric, Intensivist, and Statistician.

5.12. Reliability: - split half and inter-rater method was for reliability of knowledge questionnaire and practice checklist respectively and it found reliable.

5.13. Pilot study: study is feasible.

6. Major Findings and Discussion
Section I: Analysis of Demographic Characteristics of the Samples

Table 7.1: Distribution of transporters according to demographic data in terms offrequency and percentage**.** n = 30, 30

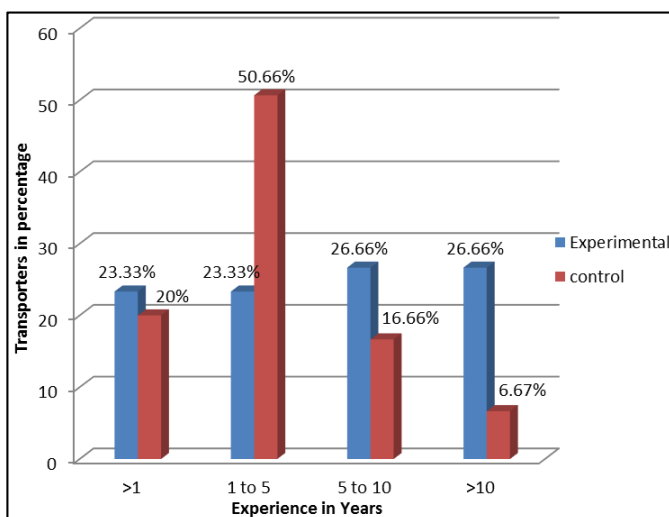| Demographic data		Experimental group		Control Group	
		(f)	%	(f)	%
Age in Year	< than 25	6	20	3	10
	25 -35	16	53	9	30
	More than 35	8	27	18	60
Gender	Male	15	50	6	20
	Female	15	50	24	80
Education	Primary	14	44.66	12	40
	Secondary	11	36.66	8	26.67
	Higher secondary	5	16.66	10	33.33

Fig 7.1: Distribution of sample based on their years of experience n = 30, 30
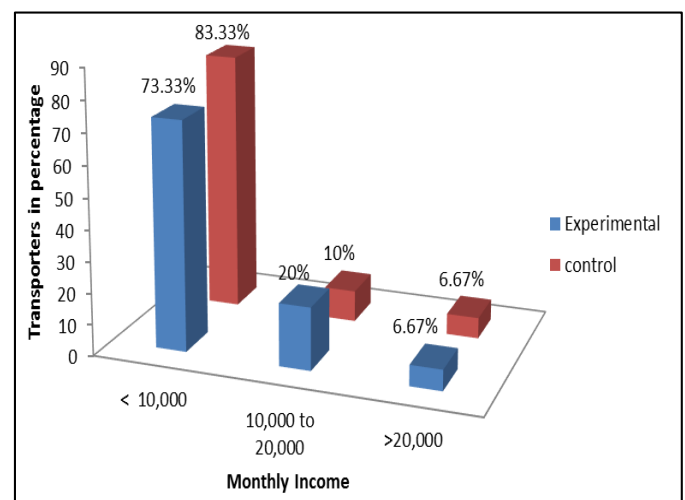

Fig.7.2: - Distribution of sample based monthly income both in control and experim ental group n=30, 30
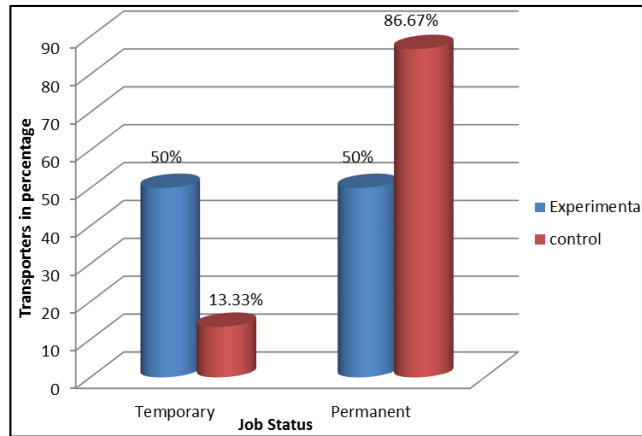
Fig 7.3: Distribution of sample based on job status both in control and experimental group n= 30, 30

Section II (a): Analysis of data related to knowledge regarding patient's safety during transportation before and after video-assisted teaching among transporters.

Table 7.2: Assessment of the knowledge regarding patient's safety before and after video-assisted teaching. n=30, 30

E	Category	Pre-test				Post-test			
		F	%	Mean	SD	F	%	Mean	SD
Experimental	Poor (0-7)	3	10	11.5	3.22	0	0	15.17	2.10
	Average (8-14)	22	73.33			11	36.67		
	Good (15-20)	5	16.67			19	63.33		
Control	Poor (0-7)	1	3.33	12.3	2.26	4	13.33	11	2.45
	Average (8-14)	24	80			24	80		
	Good (15-20)	5	16.67			2	6.67		

Section II (b): Analysis of data related to practice regarding patient's safety during transportation before and after video-assisted teaching among transporters.
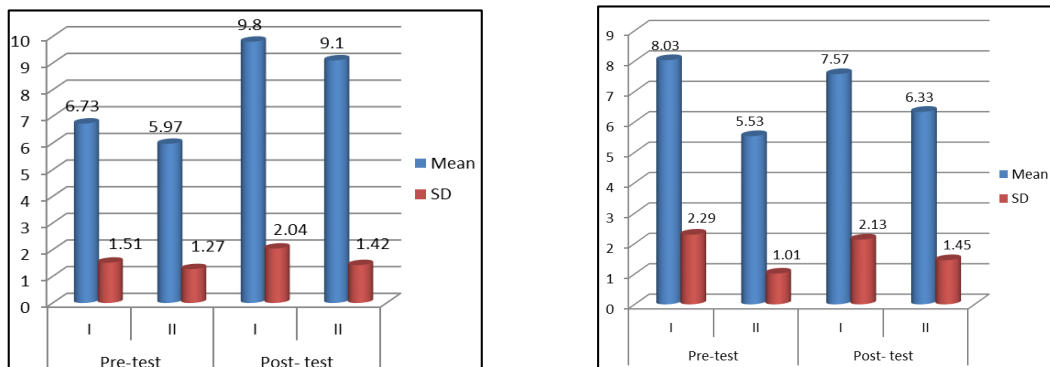
I: Practice of shifting patient from bed to stretcher and vice versa; **II:** Practice of shifting patient from bed to wheel chair and vice vers

Fig 7.4: Assessment of the practice regarding patient's safety during transportation before and after video assisted teaching among transporters. n=30, 30

Section II (c): - Analysis of effectiveness of video- assisted teaching on knowledge and practice regarding patient's safety during transportation before and after video-assisted teaching among transporters.

Table 7.3: Effectiveness of video-assisted teaching on knowledge and practice regarding patient's safety during transportation n=30, 30

	Section	Mean	SD	Df	t- value		P- value
					Calculated	Table	
Knowledge	–	11	2.45	29	6.67	2.05	0.00001
		15.17	2.102				
Practice	A*	6.73	1.51	29	7.11	2.05	0.00001
		9.8	2.04				
	B**	5.97	1.27	29	8.19	2.05	0.00001
		9.1	1.42				

Note: *: shifting of patient from bed to trolley and vice versa - shifting of patient from bed to wheelchair and vice versa

Section II (d): Analysis of data related to correlation between knowledge and practice regarding patient's safety during transportation among transporters.

Table 7.4: Correlation between knowledge and practice n = 30, 30

Group	Section		Correlation coefficient (r)
Experimental	Knowledge	Practice A*	-0.433
		Practice B**	-0.013
Control	Knowledge	Practice A*	-0.009
		Practice B**	+0.366

Note: *: - shifting of patient from bed to trolley and vice versa
Shifting: **: - of patient from bed to wheelchair and vice versa

Section III: Association of research findings with selected demographic variables.
There is only association between age and knowledge among experimental group.

8. Discussion of the Finding
Singh M., Sood A. Conducted a study on Effectiveness of Video-assisted teaching on Knowledge and Practice of Intra-Venous Cannulation for Under-five in which sixty staff nurses (30 each in experimental and control group) were selected using purposive sampling technique. A quasi experimental research design was adopted. The tools used for data collection were self-administered structured knowledge questionnaire and structured practice checklist on I.V.
In the present study also, there were same criteria used. Prashma conducted a study on range of motion exercises among restricted mobile patients with aim to assess the effectiveness of video-assisted teaching on knowledge and practice. Data collection was done by interview and observation checklist. Descriptive and inferential statistics were used for analysis. The data analysis shows that the mean of Post-test Knowledge score was higher than Pre-test. The calculated paired 't' test value is greater than table value which shows that there is significant increase in the Knowledge and Practice score after video-assisted teaching. Knowledge and practice are positively correlated to each other at 0.05 level of significance (r = +0.768*). Calculated χ^2 value shows there is significant association between age group and type of family of respondents and with their Post-test Knowledge level as well as association between gender of respondents with Post Practice level. Above findings show that the Video-assisted Teaching regarding range of motion exercises was effective on improving the Knowledge and Practice of restricted mobile patients as well as it helped in the enhancing quality of life.
While correlating the present study with above study, it shows that there is effect of video assisted teaching on the both patient's safety as well as exercise.

9. Implication
9.1 Nursing Practice
1. This study will help educators to make competent transporters.
2. Patient's safety will be maintained in the hospital and improve the quality of service rendered to the patients during transportation.
3. In current scenario, it has been observed that there is lack of competent transporters available in the hospital world-wide, hence, by providing this video-assisted teaching, we can improve their knowledge and skill.

9.2 Nursing Education
The nursing curriculum should include learning experiences for the students to assess, intervent, implement and evaluate nursing intervention based on patient's safety during transportation. It can be practised by the student nurses in their clinical posting especially in the critical care unit.

9.3 Nursing Administration
It becomes easy for the hospital administrative to approach for the accreditation as Ist agenda of accreditation of the hospital is patient's safety like JCI, NABH, etc.
Nurse Administrator plays a vital role in sharpening nursing skill and improving education.
Hence, this research will be helpful to the administrator in providing the education to the staff which will improve standard of nursing care.

9.4 Nursing Research
This research can be used as the review of literature in the further study which will act as precursor. As very less reviews are present on this topic, it will be useful for future researcher to conduct the study and correlate the findings.
Further studies can be done on bigger groups. The present research findings may be used as guide for further studies.

10. Limitation
1. The following study was limited to 60 transporters of selected hospitals.
2. Limited period of time for study.
3. The study is limited to the experience level of the researcher.

11. Recommendations
1. The same study can be replicated on a large sample.
2. The same study can be done with all measures of the patients especially critically ill patients and nurses can be included as sample.
3. A simulated teaching method can be prepared and tested for its effectiveness.

12. Conclusion
The video-assisted teaching significantly brought out the improvement in the knowledge and practice in the transporters of experimental group, analysis of data showed that there is no significant co-relation between knowledge and practice. The video-assisted teaching was found to be effective in providing information and improving the skills. The entire study gave a heartening experience to the researcher.

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