



(RESEARCH ARTICLE)



## A study to assess the effectiveness of video assisted teaching program on knowledge regarding fire extinguisher and safety among basic b.sc nursing 1<sup>st</sup> year students in selected nursing college of Nagpur city

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### Abstract

**Title:** A Study to Assess the Effectiveness of Video Assisted Teaching Program on Knowledge Regarding Fire Extinguisher and Safety among Basic B.Sc. Nursing 1 Year Students in Selected Nursing College of Nagpur City

**Introduction:** Educating people on fire safety skills has been identified as a key strategy to save lives and reduce injuries associated with fires, and hence the following study will be conducted to assess the effectiveness of video assisted teaching program on knowledge regarding fire extinguisher and safety among basic B.Sc. nursing 1<sup>st</sup> year students in selected nursing colleges of Nagpur city.

**Objectives:** The objectives of this study entail to assess the pre-test and post-test knowledge. To evaluate the effectiveness of video assisted teaching program. To find out the association between knowledge score with selected Demographic variables.

**Method:** The method decided to conduct the research is one group pre-test post-test pre-experimental design. The Population selected for this study is Basic B.Sc. nursing 1<sup>st</sup> year students, whereas Target population will be students of the selected nursing colleges for the same year and accessible would be who are available at the time of data collection. The semi-structured questionnaire will be prepared to collect data. The sample size will be 60 students in selected nursing college of Nagpur city, with the aid of using non-probability convenient sampling technique.

**Conclusion:** The investigator assumes that the video assisted teaching program on fire extinguisher and fire safety will be effective and help in improving the knowledge of students.

**Keywords:** Effectiveness; Video assisted teaching program; Knowledge; Assess; Fire Extinguisher

### 1. Introduction

The number of recent fire incidents that have resulted in fatalities, serious injuries and costly damage to property has focused concern on methods to prevent fires and promote fire safety. The lack of personal fire safety skills in the general public has been identified as a contributing factor for fire-related fatalities and injuries (De Gloria et al., 2014). Fire safety design measures include early detection and containment to prevent the spread of fire between neighbouring tenancies and fire extinguishing systems. Many buildings have sprinklers to dampen a fire or smoke removal systems. However, these are not common in homes, schools or low rise and older buildings.

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In this modern era especially after covid 19 the cases of fire broke out happened very frequently therefore educating people on fire safety skills has been identified as a key strategy to save lives and reduce injuries associated with fires. And hence the following study was conducted to assess the effectiveness of video assisted teaching program on knowledge regarding fire extinguisher and safety among basic B.Sc. nursing 1st year students in selected nursing colleges of Nagpur city. In hospitals, primary health care centers, nursing homes, rehabilitation, day care centers fire safety is very important now a days. Every health care provider member's should be educated by the basic fire fighting techniques.

The propose of the study was to collect data from a random sample of the undergraduate students on an ordinary person's ability to use a fire extinguisher safely and effectively.

### *Objectives*

- To assess the pre - test knowledge regarding fire extinguisher and fire safety among Basic B.Sc. Nursing students in the selected Nursing college of Nagpur city.
- To assess post test knowledge regarding fire extinguisher and fire safety among Basic B.Sc. Nursing students in the selected Nursing college of Nagpur city.
- To evaluate the effectiveness of video assisted teaching program regarding fire extinguisher and fire safety among Basic B.Sc. Nursing students in the selected Nursing college of Nagpur city.
- To find out the association between knowledge score among Basic B.Sc. Nursing students regarding fire extinguisher and fire safety with selected Demographic variables.

### **1.1. Scope of study**

- Individual level :- at the individual level, it will be helpful for the students in recognizing the need of using fire extinguisher and its safety measures and first aid in crisis situation , carry out during fire break out to prevent injuries through reassurance and protection from further dangers.
- College level:- at the college level, student play an important role in fire protection . Their role can be properly carried out, if student are equipped with the relevant skill. Appropriate about fire services training at college level.
- Hospital level :- at the hospital level , this knowledge of handling fire extinguisher will help the nurses to prevent future complications and saving life by prompt initial action.

### **1.2. Hypothesis**

Will be tested at 0.05 level of significance

- H0: There will not be any significant difference between pretest – post test score of Fire extinguisher and fire safety.
- H1: There will be significant difference between pre and post test score of fire extinguisher and fire safety among undergraduate students of basic BSc nursing 1st year.

### **1.3. Delimitations**

- The study is limited to only 60 undergraduate nursing students.
- The study limited to undergraduate nursing students who are willing to participate in the study.

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## **2. Review of literature**

In 2021 Chirag, Ankit Kumar, Garvit Jain, Anubha Mandal conducted a study on Fire Safety and Management Analysis in India. Fire is rapid oxidation of material in the exothermic chemical process of combustion, releasing heat, light and various reaction product, although it is also a natural process for our ecosystem but can cause fatal accidents leading to destruction. As per report of India there were 11,037 fire accidents reported across the country in 2019 which was 16% less than in 2018. The risk and management are regularly regulated by the government which have caused much downfall in fire accidents and fatalities but still improvisation is a must for sustainable approach. Buildings are places where most of fire accidents takes place which has fatal consequences. Therefore, various systems are being established in buildings by the government and fire safety regulations accordingly specifically to reduce such injuries and property damage.

In 5 may 2021, conducted a study on Hospital fires in India: What is causing a sudden surge in incidents. The latest incident of hospital fire was reported from Gujarat's Bharuch in which 16 patients and two nurses lost their lives. Hospital fires: Since August last year, India has witnessed as many as 24 cases of hospital fires, and collectively, 93 people have died in such incidents. Moreover, most of the deceased were COVID-19 patients, according to a report in IE. These fires are occurring even as fire checks and audits have been conducted in these hospitals. Of 24 fires, 11 were major fires and the remaining were minor fires, the report added, stating that over half the total fires had occurred in the past two months, after the country began witnessing a massive second wave of coronavirus. During this time, 59 deaths occurred due to these fires, of which, 33 were in Maharashtra due to six incidents of fire, while Gujarat witnessed 21 deaths in three incidents. If the figures starting from August are looked at, Maharashtra reported 43 deaths and Gujarat reported 35. The latest incident of hospital fire was reported from Gujarat's Bharuch in which 16 patients and two nurses lost their lives.

In 2021 Legal Medicine, Fire in operating room: The adverse "never" event. Case report, mini-review and medico-legal considerations. The patient's security and safety represent a topic of great importance for public health that led several healthcare organizations in many Countries to share documents to promote risk management and preventing adverse events. Surgical Fire (SF) is an infrequent adverse event generally occurring in the operating room (OR) and consisting of a fire that occurs in, on, or around a patient undergoing a medical or surgical procedure.

In 2020, Naziah Muhammad Salleh, Nuzaihan Aras Agus Salim, Mastura Jaafar, MohdZailan Sulieman, Andrew Ebekoziien conducted a study on Fire safety management of public buildings: a systematic review of hospital buildings in Asia. As part of the practical implications, this paper recommends fire safety management plan as one of the practical possible measures for addressing technical, management and legislation factors. Also recommended is training and fire safety education of healthcare staff in collaboration with safety firefighters to address major issues that may arise from management factors. The government should upgrade the safety technology equipment in healthcare facilities as part of measures to mitigate issues concerning technical and legislation factors. Also, the identified factors are part of the theoretical contributions to the advancement of knowledge and this brings to the front burners new opening.

In 2019, Andralaschi, cristainofoderi conducted a study on road planning construction and maintains to improve forest fire fighting. Forest roads play a key role in firefighting activities in that all ground based activities are strictly related to the presence of forest roads as access to fire edges .In important role of forest roads are often planned then built without considering their use in firefighting in literature where few studies are dedicated to the importance of forest in firefighting. The objectives of this clarify principal a obtaining road network for firefighting collecting and the most important aspects and reported experiences to be taken into account in forest road network planning and maintains in fire -prone areas. The important of forest road planning and building also considering their importance protecting against forest fire. The importance of fire prevention and the related role of forest roads special attention has been dedicated then because a not well maintained forest roads is a because a not well maintained forest road and it presents a useless economic and environment cost .

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### 3. Material and method

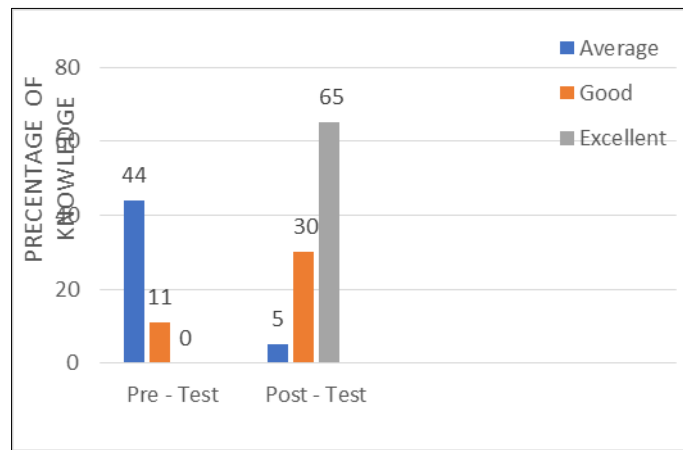
This study was based on the quantitative approach. The samples were 60 Basic B.Sc. Nursing students in the selected nursing college of Nagpur city during the study period. Non probability convenient sample techniques was used. Criteria were Students in Basic B.Sc. Nursing 1st year. Students willing to participate in study, both male and female students.

The tool and video assisted teaching program for the study was prepared by referring various sites, related research and internet, Blue print of the section was prepared and then the item and video assisted teaching program were finalized which was validate by 4 experts of various fields.

Prior visit was made to the selected Nursing College of Nagpur city to take permission from the concerned authorities. After explain the objectives and purpose of the study, consent was taken from the participants. Then the pre-test was conducted for 10 minutes, later video assisted teaching program was given and After that post test was conducted, based on the objectives and hypothesis, the data was analysed and by using various statistical test i.e. percentage, Mean, Standard deviation, one way analysis of variance, paired and unpaired ' t ' test. The level of significance for testing the hypothesis set was at 0.05 levels.

#### 4. Result and discussion

Majority of the sample in the 60.0% of sample were of sample of age group 19 years, 96.7% of sample had female and 3.3% of sample were male, 86.7% of sample belongs to Hindu religion, 48.3% of sample are leaves in urban areas, 46.7% of sample have previous knowledge regarding fire extinguisher and fire safety among Nursing Students, 39.3% of sample source of knowledge from television/ mobile phones regarding fire extinguisher and fire safety, 73.33% of sample had average knowledge in pre-test and 65% of sample had excellent knowledge in post-test. There was a marked improvement in the post test score as mean was 15.81 compared to pre-test mean score 8.48 . The calculated t value was much higher than the tabulated t value at 5 level of significance. Thus it was statistically interpreted that the video assisted teaching program on fire extinguisher and fire safety among Basic B.Sc. Nursing 1st year Students was effective. So the H1 hypothesis was accepted. There will no significant association was found in age, gender, religion, residence, knowledge.



**Figure 1** Assessment with level of pre-test knowledge

**Table 1** Assessment with level of pre-test knowledge

Level of pre test knowledge	Score range	Level of Pre test Knowledge Score	
		No of Nursing Students	Percentage
Poor	0-25%(1-5)	5	8.33
Average	26-50%(6-10)	44	73.33
Good	51-75%(11-15)	11	18.33
Excellent	76-100%(16-20)	0	0
Minimum Score		2	
Maximum Score		14	
Mean Knowledge Score		8.48±2.54	
Mean % Knowledge Score		42.41±12.73	

The above table shows that 8.33% of the basic B.sc first year nursing students had poor level of knowledge score, 73.33% had average and 18.33% of nursing students had good level of knowledge score. Minimum knowledge score in pre-test was 2 and maximum knowledge score in pre-test was 14. Mean knowledge score in pre-test was 8.48±2.54 and mean percentage of knowledge score in pre-test was 42.41±12.73.

**Table 2** Assessment with level of post-test knowledge

Level of post test knowledge	Score range	Level of Post test Knowledge Score	
		No of Nursing Students	Percentage
Poor	0-25%(1-5)	0	0
Average	26-50%(6-10)	3	5
Good	51-75%(11-15)	18	30
Excellent	76-100%(16-20)	39	65
Minimum Score		9	
Maximum Score		19	
Mean Knowledge Score		15.81±2.28	
Mean % Knowledge Score		79.08±11.40	

The above table shows that 5% of Basic BSc first year nursing students had average level of knowledge score, 30% had good and 65% of nursing students had excellent level of knowledge score. Minimum knowledge score in post-test was 9 and maximum knowledge score in post-test was 19. Mean knowledge score in post-test was 15.81±2.28 and mean percentage of knowledge score in post-test was 79.08±11.40.

**Table 3** Significance of difference between knowledge score in pre and post test of Basic B.sc 1<sup>st</sup> year students

Overall	Means	SD	Mean Difference	t - Value	p - value
Pre test	8.48	2.54	7.33±2.66	21.30	0.0001
Post test	15.81	2.28			S,p<0.05

This table shows the comparison of pre-test and post-test knowledge scores of Basic B.sc first year nursing student regarding fire extinguisher and fire safety. Mean, standard deviation and mean difference values are 44 5 11 30 0 65 0 20 40 60 80 PERCENTAGE OF KNOWLEDGE Pre - Test Post - Test Average Good Excellent compared and student's paired 't' test is applied at 5% level of significance. The tabulated value for n=60-1 i.e. 59 degrees of freedom was 2.00. The calculated 't' value i.e. 21.30 are much higher than the tabulated value at 5% level of significance for overall knowledge score of Basic BSc first year nursing students which is statistically acceptable level of significance. Hence it is statistically interpreted that the Planned Teaching and Video Assisted Teaching on knowledge regarding fire extinguisher and fire safety among Basic BSc first year nursing students was effective. Thus the H1 is accepted

## 5. Conclusion

After the detailed analysis, this leads to the following conclusion:

The 1<sup>st</sup> year basic B.sc 1<sup>st</sup> year students have average knowledge regarding fire extinguisher and fire safety, There was a significant increase in the knowledge after the video assisted program. For the effectiveness pre-test, post-test was applied and the score were 40.0 at pre-test and 79.0 at post-test. Thus this concluded that video assisted teaching program was effective fire increasing knowledge regarding fire extinguisher and fire safety.

### Recommendation

- A Similar study can be replicated on larger population for generalization of findings.
- A comparative study can be carried out to find out the knowledge and practises of Nursing Students in nursing colleges.
- A planned teaching program can be carried out to assess the effectiveness of find out knowledge and practise of fire safety among Nursing Students.

- A similar study can be conducted with the help of SIM (self-instructional module) or a pamphlet or booklet.

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

No conflict of interest to be disclosed

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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