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Assess the effectiveness of training module on knowledge regarding fire and safety among staff members of selected nursing college

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Abstract
Fire and safety is the set of practices intended to prevent the destruction caused by Fire. Fire and safety measures include those that are intended to prevent the ignition of an uncontrolled fire and those that are used to limit the spread and impact of fire. Fire related accidents have on average, killed 35 people every day over the five years between 2016 and 2020, according to a report by the National Crime Record Bureau (NCRB). The statement of the problem was to assess the effectiveness of training module on knowledge regarding fire and safety among staff members. The objectives of the study were to assess the pre-test and post-test knowledge regarding fire and safety among staff members and find out effectiveness of training module on knowledge regarding fire and safety among staff members, determine the association between knowledge regarding fire and safety of staff members with their demographic variables. The data was collected from 30 samples using a self-administered questionnaire. The study revealed that Training Module On Knowledge Regarding Fire And Safety was effective and also revealed that that there is no significant association between the knowledge score and selected demographic variables like age, gender and residential area but there is a significant association between the knowledge score and the educational level.

Keywords: Assess, knowledge, training module, fire and safety

Introduction
"Ounce of prevention is worth pound of cure."

Benjamin Franklin

Fire safety is a critical component in healthcare settings, where the risk of fire-related emergencies poses significant threats to patients, staff, and infrastructure. Nurses, as frontline healthcare providers, must possess adequate knowledge and preparedness to manage such emergencies effectively. Training modules serve as an essential tool for enhancing staff competency in fire prevention, response, and evacuation procedures. Assessing the effectiveness of such training is vital to ensure knowledge retention and practical application in real-life scenarios (Kumar *et al.*, 2022). This study aims to evaluate the impact of a structured fire and safety training module on the knowledge levels of nursing college staff [1].

Materials and methods
Statement of Problem: Assess The Effectiveness of Training Module on Knowledge Regarding Fire and Safety Among Staff Members of Selected Nursing College.

Objectives
1. Assess the pre-test knowledge regarding fire and safety among staff members.
2. Assess the post-test knowledge regarding fire and safety among staff members.
3. Find out the effectiveness of training module on knowledge regarding fire and safety among staff members.
4. Determine the association between knowledge regarding fire and safety of staff members and their demographic variables.

Research Approach
The research approach used for the study was quantitative research approach.
- **Research Design:** Non- experimental descriptive design with one group pre-test and post-test
- **Variables:** The demographic variables are Age, Gender, Location, Occupation, Education and attending training on fire safety practices.
- **Setting:** The study was conducted in the premises of P.K DAS college of Nursing.
- **Sample:** Sample of this research is comprised of staff members of PK Das College of Nursing, targeting staff members including office assistants, cleaners, cook, gardeners, drivers, warden, librarian, maintenance staff, and security personnel.
- **Sample Size:** The sample size of the study was 30.
- **Sample Technique:** Simple random sampling technique was used to select participants by lottery method.

Inclusion Criteria
- Staff members who are willing to participate in research study.
- Staff members available at the time of data collection.

Exclusion Criteria
- Staff members who are not willing to participate in study.
- Staff members who are not available at the time of data collection.

Description of Tool
A self-administered questionnaire (SAQ), was used to collect the data which comprised of two sections.
- **Section A:** Demographic variables like Age, Gender, Location, Occupation, Education and attending training on fire safety practices.
- **Section B:** 20 questions to assess the knowledge regarding fire and safety.

Content Validity
To ensure content validity of the tool was validated by a panel of experts in fire and safety, and research methodology, who validated the tool regarding the adequacy of the content and based on their valid suggestions reframing of the instrument was done.

Data Collection Procedure
The main study was conducted after obtaining necessary permission from the college authority and informed consent from participants prior to data collection and the data was collected from 30 samples. A brief self-introduction along with an explanation of the purpose of the study was given to the staff members. The self-administered questionnaire was distributed to the sample, and completed self-administered questionnaire was collected after 20 minutes, then the training module on fire and safety was administered by Power Point presentation and demonstration of use of fire extinguisher.

Plan for Data Analysis
Data was analysed using descriptive statistics (frequency, percentage, mean) and inferential statistics (Chi-square test) to determine the association between level of knowledge and demographic variables of staff members.

Results & Discussion
Hypothesis
1. There will be significant difference between pre-test and post-test scores of knowledge about fire and safety among staff members.
2. There will be significant association between knowledge among staff members about fire and safety with their selected demographic variables.

Results
The chapter deals with major findings of the study. The present study was undertaken to assess the effectiveness of training module on knowledge regarding fire and safety among staff members of selected college of nursing. The samples were selected using simple random sampling method. Non- experimental descriptive design with one group pre-test and post-test was used and the approach used is quantitative research approach. The data collected was analyzed and statistically tested. The following are the final result of the study [4, 5].

Discussion
The findings of the study was discussed under the following sections:
- **Part I:** Description of demographic characteristics of staff members
- **Part II:** Analysis of knowledge of staff members regarding fire and safety
- **Part III:** Effectiveness of training module.
- **Part IV:** Association of pre-test knowledge score about fire and safety and demographic variables

Part I: Percentage wise distribution of staff members according to their demographic Variables
- Distribution of staff members according to their age shows the highest percentage (36.67%) of staff members were in the age group of 41-50 years, whereas (26.66%) were in the age group of 51-60 years, (20%) were in the age group of 31-40 years and (10%) were in the age group of 61-70.
- Percentage wise distribution of staff members according to their gender reveals that highest percentage (63.33%) of samples were females and (36.67%) were males.
- Percentage wise distribution of staff members to their residential area shows that highest percentage (53%) were from rural area and (47%) were from urban area.
- Percentage wise distribution of staff members according to their educational level reveals that the majority (56.67%) had primary level education, (23.33%) were graduates, (13.33%) had secondary level education and (6.67%) had education level up to pre-degree level.

Part II: Analysis of knowledge of staff members regarding fire and safety.
Pretest data shows that highest percentage (60%) of the staff members had below average knowledge regarding fire and safety. 40% of the staff members had average knowledge and 0% of staff members had excellent knowledge about fire and safety this reveals that on the whole the knowledge level of staff members regarding fire and safety was low [2, 3, 4].

Part III: Effectiveness of training module.
The mean post-test knowledge score obtained (16.34) (81.7%) was higher than the mean pre-test knowledge score (8.9). Paired 't' test was used to find out the significant difference between the mean pre-test and post-test knowledge score. The calculated 't' value (2.756) was found to be significant at 0.01 level. This showed the training module was effective in increasing the knowledge of staff members regarding fire and safety [4, 5].

Part IV: Association of pre-test knowledge score about fire and safety and demographic Variables
In order to determine the significant association of pre-test knowledge score with selected demographic variables, Chi-

square test was used. All chi square values were lesser than that of the tabulated values except educational level. The findings indicated that there is no significant association between the knowledge score and selected demographic variables like age, gender and residential area but there is a significant association between the knowledge score and the educational level [4, 5].

Findings of the study proved that the knowledge of staff members regarding fire and safety was below average. The present study, in short gave the investigator a new experience a chance to widen the knowledge and venue to interact with staff members. The direction from the guide and cooperation of institution played a major role in the completion of this study.

Conclusions

The following conclusions are made based on the below findings:

In knowledge score assessment it has been found the majority of staff members 18(60%) of the staff members had below average knowledge in the pretest and no one had excellent knowledge.

There was gain in post-test knowledge score where 22 (72.33%) of the staff members had excellent knowledge regarding fire and safety and none of them had below average knowledge.

The mean post-test knowledge score obtained (16.34) (81.7%) was higher than the mean pre-test knowledge score (8.9). The calculated 't' value (2.756) was found to be significant at 0.01 level. This showed the training module was effective in increasing the knowledge of staff members regarding fire and safety.

There was association between educational level and the knowledge score and no association between the knowledge scores and the other selected demographic variables (Age in years, gender & residential area).

Several studies support the effectiveness of structured training modules in enhancing fire and safety knowledge among healthcare and academic staff, including those working in nursing colleges. In a randomized controlled trial conducted among healthcare workers in China, participants who received an online video-based fire safety training module demonstrated a significant improvement in knowledge scores-from 26.91 to 31.77 ($p<0.001$)-compared to those in the control group, who showed a decline in knowledge (Wang *et al.*, 2018).

Similarly, a study conducted by Viveki *et al.* (2016) among staff members of a nursing college in Maharashtra, India, revealed that only 32% of respondents had adequate knowledge of fire types and extinguisher use. Following a structured training session, post-test scores significantly improved, highlighting the importance of regular fire and safety education programs within academic institutions [2].

Moreover, a comparative study on training formats (instructor-led vs. computer-based) among long-term care staff found both methods equally effective in enhancing fire safety knowledge, suggesting flexibility in delivery options that suit the academic environment of nursing colleges [3].

These findings strongly indicate that implementing tailored training modules for college staff not only improves individual preparedness but also contributes to safer learning environments and broader community awareness.

For nursing colleges, such interventions are particularly crucial, as staff members are role models for students and often first responders during emergencies

The overall experience of conducting the study was a positive and fulfilling one, marked by the excellent cooperation extended by the staff members of PK DAS College of Nursing, Vaniyamkulam, in Palakkad district. The respondents expressed satisfaction and appreciation for the information provided during the course of the study. This endeavor served as a valuable learning experience for the investigator.

The findings of the study highlighted a significant need for staff members to enhance their knowledge concerning fire safety. Strengthening their understanding in this area is likely to contribute to improved community-based awareness as well. Consequently, such efforts are expected to yield long-term benefits for both the institution and the wider community.

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