



Hands-on Training-A Tool to Improve Knowledge and Knowledge on Practices of Operating Room Nursing Professionals Regarding Bronchoscopy Procedures

Avadhesh Kumar Yadav*, Rajendra Kumar Sahu, Vineeth P, Mayank Tripathi, Meena K Krishnan and Raman P

Department of Atomic Energy, Homi Bhabha Cancer Hospital/Mahamana Pandit Madan Mohan Malviya Cancer Centre Varanasi Uttar Pradesh, India

*Corresponding e-mail: avadheshkumar1382@gmail.com

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ABSTRACT

Background: Bronchoscopy procedure applied as a useful tool for diagnostic as well as therapeutic purposes in modern medical practices. A nurse working in the procedure area has a unique responsibility for the preparation and assisting in the procedure. It is the basic responsibility of the nurse to monitor patient's pre and post-procedure. For safe and low risk complications during or after procedure physicians and nurses to be trained on it. **Methods:** In this retrospective analysis, pre-test and post-test data of 40 Nurses who joined in service training were evaluated; Data were collected during the weekly in service training program. Data from 01.09.2021 to 30.11.2021 were used for the analysis of this study. **Result:** Pre-test mean knowledge score of subjects was 23.3 standard deviation was 6.95, when participant's knowledge was checked before the training program 20% (8) subjects had inadequate knowledge, 50% (20) had moderate knowledge, 30% (12) had adequate knowledge. Posttest mean knowledge score was 30.95 and the standard deviation was 5.19, after the in-service training program, 88% (31) had an adequate knowledge score and 22% (9) had a moderate level of knowledge score. In the present study, the t value in paired t-test was 7.15 which was higher than the critical value of (df39) 1.68, which presents the effectiveness of the training program. Regarding the association between socio-demographics and knowledge, score association was found between operation theatre experience and clinical experience as a calculated chi-square value 9.85, 9.85 was greater than the critical value 5.99 (df2). **Conclusion:** Our study results suggest that we need to change the traditional approach and consider redesigning the bronchoscopy education program. We can say that training and learning should off once technical skills are acquired, but continuous learning with the opportunity for continuous improvement in knowledge and practices required improving practices and possibly intermittent reassessment is also required to organize training.

Keywords: Bronchoscope, Bronchoscopy, In-service in bronchoscopy

INTRODUCTION

Background of the study

The bronchoscopy procedure applied as a useful tool for diagnostic as well as therapeutic purposes in modern medical practices [1]. The nurse working in the procedure area has a unique responsibility for the preparation and assisting in the procedure. It is the basic responsibility of the nurse to monitor patient's pre and post-procedure. In Bronchoscopy, a flexible bronchoscope is used to examine the inside of the nasal cavity, pharynx, larynx, vocal cords, tracheal bronchial tree, Bronchi, and lungs. A device named a bronchoscope is a thin and tube-like instrument with a light and with a lens for viewing, inserted *via* nose or mouth, and is passed down in the tracheobronchial tree for examination [2]. Cancer or other sign of the disease may be detected by these procedures, therapeutically may also be used to remove tissue, or foreign materials [3]. For safe and low-risk complications during or after procedure physicians and nurses to be trained on it. The nurses working in the procedure area must have good knowledge and clinical skill about handling and care of devices also, they should know the physiology of bronchoscopy. For providing standardized services, charge nurses must ensure the knowledge and technical competence of nurses; they should organize regular ins service programs, for improving the quality of care by increasing the knowledge and technical competency of nurses working in the procedural areas which will ensure excellent quality of care hospital.

Objectives

- Evaluate the effectiveness of the structured in-service training.
- Check the existing level of knowledge and practices regarding bronchoscopy procedures.
- Check the post-test knowledge and practices regarding bronchoscopy procedures.
- Examine an association between post-test score and sociodemographic variable

MATERIALS AND METHODS

In this retrospective analysis, data collected during the weekly in-service training program were evaluated. Data from 01.09.2021 to 30.11.2021 were used for the analysis of this study.

RESULTS

Socio-demographic profile (Table 1), in the present study majority of subjects, 80% (32) belonged to the 20-30 years age group, and 20% (8) subjects belonged to the 21-40 years age group. Regarding gender 73% (29) were female and 27% (11) were male. In terms of education, 90% (36) were graduates and 10% (4) were diploma holders. In the matter of marital status, 55% (22) were married and 45% (18) were unmarried. In the terms of jobs, 55% (22) subjects were appointed by the agency with government contract 45% (18) were regular employees. Regarding the experience of the operating room, 54% (23) were having more than 1 year of experience, 22% (9) were having above than 6 months but less than 1 year, and 20% (8) had experienced less than 6 months. Regarding clinical experience 65% of the subject (26) had more than 1 year experience, 15% (6) had experienced between 1-3 years, and only 20% (8) had less than 1 years of clinical experience.

Table 1 Socio-demographic distribution of subjects

Variable	Frequency	Percentage
Age in years		
20-30 years	32	80
31-40 years	8	20
Gender		

Male	11	27
Female	29	73
Education level		
Diploma nursing	4	10
Graduate in nursing	36	90
Marital status		
Unmarried	18	45
Married	22	55
Type of Job		
Contract	22	55
Regular	18	45
Experience in operation theatre		
Below 6 month	8	20
6 months-12 months	9	22
Above 12 months	23	54
Clinical experience		
1 year	8	20
1 year-3 years	6	15
Above 3 years	26	65

Existing knowledge

The Pre-test Mean knowledge score of subjects was 23.3 standard deviation was 6.95. When participants' knowledge was checked before the training program 20% (8) subjects had inadequate knowledge, 50% (20) had moderate knowledge, 30% (12) had adequate knowledge.

Knowledge after in-service training program

Posttest mean knowledge score was 30.95 and the standard deviation was 5.19. After the in-service training program, 88% (31) had an adequate knowledge score and 22% (9) had a moderate level of knowledge score (Table 2 and Figure 1).

Table 2 Analysis of knowledge score

	Inadequate Knowledge	Moderate Knowledge	Adequate Knowledge
Pre-test	20% (8)	50% (20)	30% (12)
Post-test	0	22% (9)	88% (31)

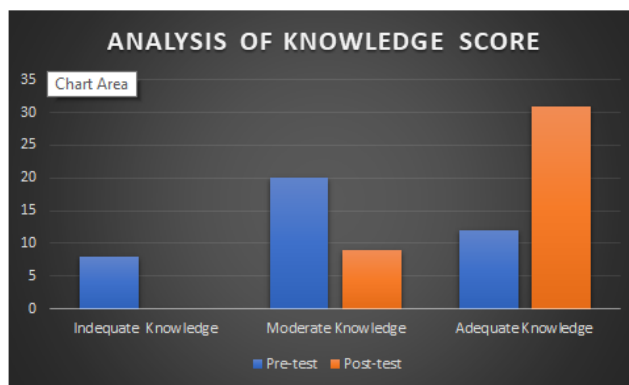


Figure 1 Analysis of knowledge score (pre-test and post-test score analysis)

Effectiveness of training program

In the present study, the t value in paired t-test was (Table 3) 7.15 which was higher than the critical value of (df 39) 1.68, which presents the effectiveness of the training program.

Table 3 Effectiveness of training program

T-Test: Two Paired Samples							
Groups	Mean	Std Dev	Std Err	t	Df	t-critical	0.05
Pre-test	23.5	6.95					
Post-test	30.95	5.19	1.04	7.15	39	1.68	Sign
Difference	7.45	6.59					

Association between knowledge and Socio-demographic picture

Regarding the association between socio-demographics and knowledge, score association was found between Operation theatre experience and clinical experience as calculated *chi-square* value 9.85, 9.85 was greater than critical value 5.99 (df 2) (Table 4).

Table 4 Association between the knowledge score and socio-demographic variables

S. No	Socio-demographic data	DF	Calculated <i>Chi-square</i>	Critical <i>Chi-Square Value</i>	Significance at 0.05
1	Age group	1	2.9	3.84	Not significant
2	Gender	1	1.56	5.99	Not significant
3	Marital status	1	0.001	12.59	Not significant
4	Educational status	6	7.02	12.59	Not significant
5	OT experience	2	9.85	5.99	Significant
6	Clinical experience	2	9.85	5.99	Significant
7	Types of Job	1	5.388	12.59	Not Significant
8	Source of information	6	9.68	12.59	Not significant

DISCUSSION

This retrospective study rendered the efficacy of in-service training and modification if required for arranging training sessions. This study suggests the nurse researcher develop insight into the development of new modules and organization of more in-service education programs, arrangement of other educational activities for improving the knowledge and technical competence of nurses working in various procedural areas, the research required to identify or develop effective nursing practices for eliminating gaps and disparities in health care. The incorporation of assessment in training is a form of quality assurance in the future. Assessment as a form of feedback allows training in a structured manner as well as focusing attention on areas of concern during the performance of a task. Bronchoscopy hands-on training programs should be given to nurses working in a procedural area such as operation theatre to improve their skill and technical competency [4]. A skilled bronchoscopist and technically competent endoscopy nurse and respiratory therapist in bronchoscopy equipment use can decrease the complication rate [5]. The finding of the study suggests weekly in-service training will increase the knowledge and technical competence of nurses working in operation theatre at a newly developed oncology hospital.

CONCLUSION

Our study reflects that knowledge and practice on bronchoscopy procedure are not satisfactory with the traditional approach of teaching our post-test result also reflects that training of nursing staff using the modern audio visual method will significantly improve the knowledge and knowledge in practices and hence continuing nursing education regarding bronchoscopy is highly recommended.

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