A Quasi-Experimental Study to Evaluate the Effectiveness of Structured Teaching Programme (STP) Regarding Endotracheal Suctioning in Term of Knowledge and Practice Among Staff Nurses in Selected Hospitals of Panipat, Haryana

Ms. Sudesh Kumari M.Sc. (N) [1], Ms Reena[2], Prof. Mr. Sathish R M.Sc. (N)[3]

Dept. of Medical Surgical Nursing, Lecturer, Birender College of Nursing, Uchana, Jind, Haryana
Dept. of Child Health Nursing, Tutor. Government Nursing College – Safidon, Jind
Dept. of Mental Health Nursing, Professor, DRIEMS school and college of Nursing, Cuttack

Abstract- **Despite number of incidences happening related Respiratory infections among patients receiving ventilator care in the area emergency and ICU, most concern factor where supply of oxygen is necessary for life action process of human organism. These four parts of sensitive issue limited literature, in this topic area includes quantitative research approach to achieve the objectives. The pathway of research run on the quasi-experimental design at the area of staff nurses in selected hospitals of Panipat, Haryana. By using convenient sampling technique 60 samples (control-30 & experimental 30) were selected considering inclusion criteria and ethical protocol was followed. On the basis of sensitive issue self- structured questionnaire and demonstration (Self structured checklist) was administered to collect data by self-reporting method, after basic Knowledge and practice about the issue was thought by Structured Teaching Programme including demonstration. The major findings of the study in control group is 16 (53.3%) sample with moderate level of knowledge 14(46.7%) with adequate knowledge. The major findings of the study in control group is 10(33.3%) sample with moderate level of practice 19(63.3%) with adequate practice and 1(3.3%) inadequate practice. The statistical method of paired 't' and Pearson's Correlation was used for effectiveness of teaching and demonstration technique showed mean score difference of knowledge among the control and experimental group is 6.667. Mean score difference of knowledge among the control and experimental group is 4.767. It concludes the importance of the education about endotracheal education among staff nurses' community in the area of respiratory care.**

Keywords: STP, ET tube suctioning, Staff nurse, Hospital.

INTRODUCTION -BACKGROUND OF THE STUDY

Respiration is a basic human need that man tends to ignore unless they feel some difficulty in breathing. Respiration is a physiological function that is almost synonymous with being alive. The endotracheal suctioning is a method of clearing the secretion from the airway and is performed through an artificial airway (endotracheal tube) either nasotracheal or orotracheal. It promotes optimal exchange of oxygen and carbon dioxide in and out of lungs and to prevent pneumonia resulting from the collection of the secretion The patients in the intensive care units often require mechanical assistance to maintain airway patency. Artificial airways are usually required for persons with mechanical ventilation. The presence of endotracheal tube, however, present a threat to the integrity and normal functioning of the respiratory system, incidence of nosocomial pneumonia is 0.5% to 5% for all hospital admission whereas incidence in patients receiving mechanical ventilation is much higher

METHODOLOGY

Understanding the nature of the consequence of the problem after various review and statistical data, selected quantitative approach to measure the effectiveness of teaching, quasi-experimental design

was adopted, also 60 (control -30 &experimental -30) staff nurses were selected by using convenient sampling technique who met the inclusion criteria. Proper permission was obtained from ethical committee and from the hospital authority to conduct the study, collect data for the statistical analysis, used self -structured questionnaire contains two parts after the extensive review, checking of validity and reliability of tool. Teaching was delivered by using AV aids, Demonstration technique at the level of staff nurse's pre-test knowledge and practice score. Statistical approach of descriptive, inferential and paired 't' test method used to evaluate the data to achieve the objectives.

RESULTS

The collected data was analyzed with the use of SSPS version 20 as per the objective of the study, presented in form of table and bar chart to understand the distribution of various socio demographic factors and level of knowledge and practice after the Structured Teaching Programme.

SOCIO DEMOGRAPHIC PROFORMA		Experimental group		Control group	
		Experimental Frequency	Experimental Frequency (%)	Control Frequency	Control Frequency (%)
Age	a (21-23) years	18	60	12	40
	b (24-26) years	8	27	14	47
	c (27-29) years	4	13	4	13
Gender	Male	2	7	15	50
	Female	28	93	15	50
Qualification	GNM	8	27	22	73
	B. Sc (N)	14	47	6	20
	Post Basic B. Sc. (N).	6	20	2	7
	M.Sc. (N)	2	7	0	0
Experience	<1 Years	18	60	10	33
	1-2 Years	7	23	10	33
	2-3 Years	4	13	6	20
	>3 Years	1	3	4	13
Present Clinical Area	General Ward	10	33	4	13
	Emergency	2	7	6	20
	ICU	9	30	12	40
	Any Other	9	30	8	27

By understanding the table, majority 60% of staff nurses in experimental group belongs to 21-23 years of age group, 93% of them female, majority of 47 % with the qualification of B.Sc.(N). Staff nurses with Experience of one year is 60% and 30% belongs to the area of ICU respectively.

The knowledge was assed in terms of three category such as inadequate, moderate and adequate, 't' test was used to find the effectiveness of study and found by revel of the table data. The adequate knowledge of 1(3.3%) found in pre-test and 14 (46.7%) adequate knowledge present at post- test level among the samples of experimental group.

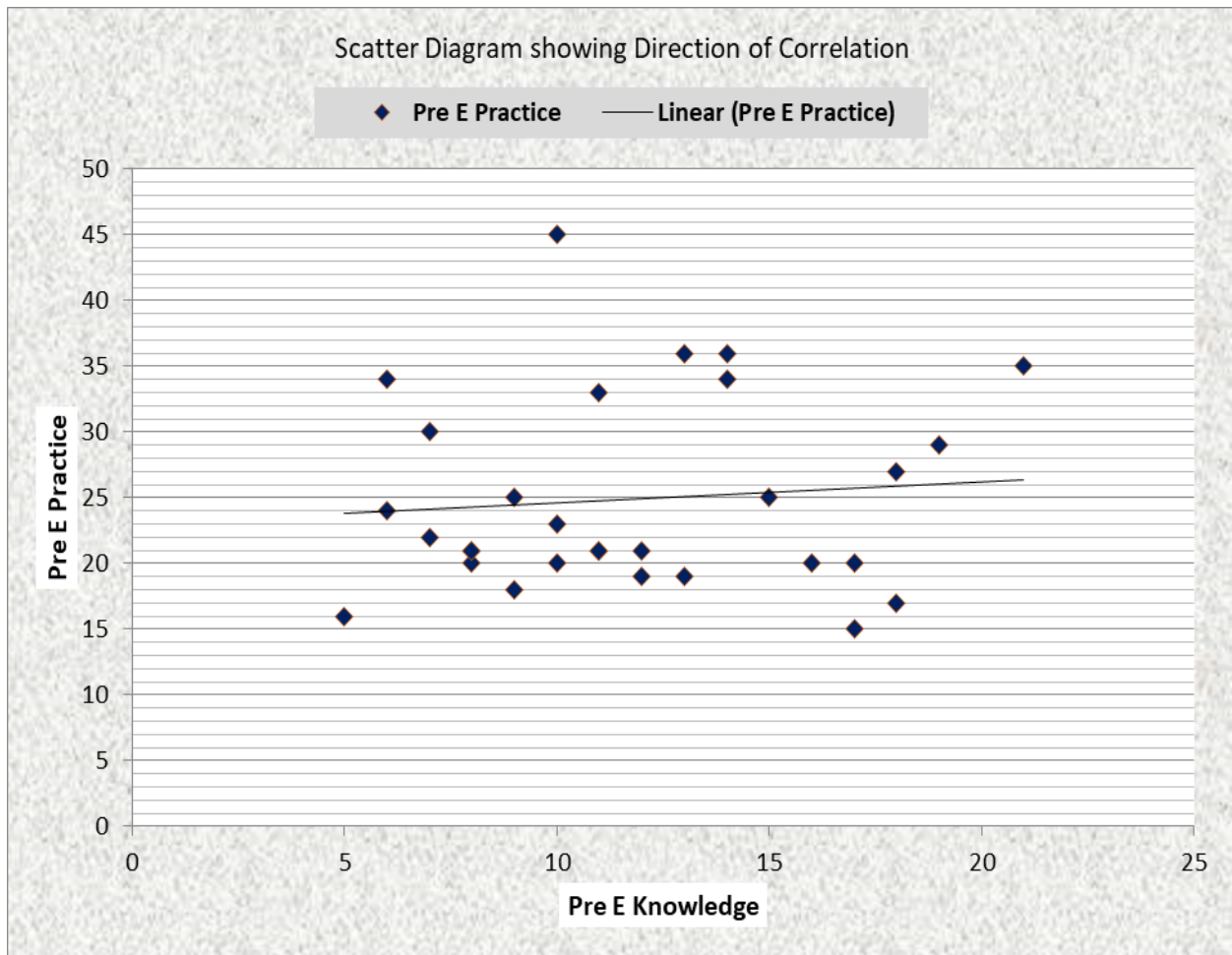| Category	Test	Score	Value	Difference	N=30	Significance	T value	Remarks
Group	Paired T Test	Mean Score	S.D.	Mean Diff.	Paired T Test	P value	Table Value at 0.05	Result
Experimental Group	Pre -Test Knowledge	11.83	4.31	8.500	9.360	0.0000	2.05	Significant
	Post Test Knowledge	20.33	2.96					

Minimum =0, Maximum 30

The mean post-test practice score in experimental group was 35.47 and in pre-test practice score it was 24.90, and the mean post-test practice score and pre-test practice score was 30.70 and 28.73 respectively in control group. The pre-test mean difference was 10.567 and1.967 in experimental and control group respectively. The standard deviation value for pre-test and post-test were 7.36 and 8.17 respectively. The t value at 0.05 level of significance is 2.05 which were statically significant.

Category	Test	Score	Value	Difference	N=30	Significance	T value	Remarks
Group	Paired t Test	Mean Score	S.D.	Mean Diff.	Paired t Test	P value	Table Value at 0.05	Result
Experimental Group	Pre-Test PRACTICE	24.90	7.36	10.567	9.358	<0.001	2.05	Significant
	Post Test PRACTICE	35.47	8.17					
Maximum=48				Minimum=0				

Pearson's Correlation

The above diagram shows the correlation between pre-test knowledge score and pre-test practice score in experimental group. The mean pre-test knowledge score in experimental group was 11.83 and mean pre-test practice score it was 24.90. The standard deviation values for pre-experimental knowledge and pre-experimental practice were 4.308 and 7.364 respectively. The correlation value of pre-test knowledge and pre-test practice was 0.279 which show the mild correlation.

Chi square statistical test was used for association of pretest knowledge and practice with selected demographic variables but none associated with knowledge and practice level.

DISCUSSION

Achievement of the objectives is compared with other related studies to mark justification of data and understanding of various factors related to the study. *To assess the pre-test and post-test level of knowledge among staff nurses regarding endotracheal suctioning in experimental and control group.* In pretest majority of samples 53.3% had moderate level of knowledge. The posttest level of knowledge among samples in experimental group reveals majority 53.3% had moderate level of knowledge. Control group pretest majority of samples 60% had moderate level of knowledge and posttest majority of samples 66.7% had moderate level of knowledge.

The above findings were supported by some of the similar studies which had been done before.

Parihar Raju Ram (2015) conducted a study to assess the knowledge regarding ETS among staff nurses working in ICU. A pre-experimental study was carried out to assess the knowledge of 26 staff nurses selected by purposive sampling, who were employed in different ICUs of MDM hospital in Jodhpur, Rajasthan, were assessed by using a structured knowledge questionnaire and PTP was administered and the post-test was conducted after fifteen days. Descriptive and inferential statistics were used for data analysis. The study findings indicate that the mean pre-test knowledge score (17.07) of the staff nurses have average knowledge regarding ETS. The mean post-test knowledge score (25.30) was higher than the pre-test score. The 't' test computed for knowledge ('t'(25)=8.1154, P≤0.001) score.

Achievement of the objectives is compared with other related studies to mark justification of data and understanding of various factors related to the study. *The second objective of the study was to assess the pre-test and post -test level of practice among staff nurses on endotracheal suctioning.* In pre- test majority of samples 70% had moderate level of practice. The post -test level of practice among samples in experimental group reveals majority 63.3% had adequate level of practice. Control group pre -test majority of samples 70% had moderate level of practice and post -test majority of samples 66.7% had moderate level of practice.

The above findings were supported by some of the similar studies which had been done before. Savita Sharma, Jyoti sherin(2014) conducted *a* quasi-experimental design was used with an experimental approach, data was collected from 30 selected ICU nursing personnel of Maharishi Markandeshwar Institute of Medical Science &Research Hospital, Mullana. Purposive sampling technique was used for data collection. Subsequent reinforcements were given until >80% practice score was achieved. Findings of the study revealed that the mean post-implementation knowledge score and practice score of nursing personnel regarding endotracheal suctioning was significantly higher than the mean pre implementation knowledge and practice score (p<0.001). Hence, the protocol was effective in enhancing the knowledge and improving the practices of nursing personnel regarding the endotracheal.

Achievement of the objectives is compared with other related studies to mark justification of data and understanding of various factors related to the study. *The third objective of the present study was to evaluate the effectiveness of structured teaching programme in term of knowledge and practice among staff nurses on endotracheal suctioning.* find the mean post- test knowledge score in experimental group and in control group it was 20.33 and 13.67 respectively and the post -test mean difference is 8.500 and 0.833 respectively. The SD value in experimental and control group it was 2.96 and 5.68 respectively. The unpaired t test value for the degree of freedom 58 at 0.05 level of significance was 5.697. Which is greater than the table value 2.00. Bincy Jacob, Ancy Ramesh (2013) conducted a study on Efficacy of Planned Teaching on Knowledge Regarding Tracheostomy Suctioning Among Staff Nurses. The subjects consisted of 50 staff nurses. Tool used for this study was structured knowledge questionnaire. Major findings: Among the subject's majority 40 (80%) belongs to 21-30 years and only 10 (20%) belonged to 31- 40 years. Gender shows that 52% of them were females and 48% were males. 58% of them were educated up to GNM, 36% were Basic B.Sc.(N) and 6% were educated up to P.B.B.Sc.(N). Years of experience reveals that 76% of them had experience of 1-5 years, 20% had 6-10 years and 2% each had experience of 11-15 years and >15 years respectively. 24% of them were working in SICU, 44% in MICU, 30% in ENT and 2% were working in oncology ward. Experience in the present working area shows that 92% of them had experience between 1-5 years, 6% had between 5-10 years and 2% had between 10-15 years of experience. Staff nurses

who participated in the training on tracheostomy care or suctioning after basic nursing training shows that 56% of them attended the said training and 44% are not attended any training. The findings show that in pre -test 48% subjects were having satisfactory level of knowledge,52 % of study participants were having good level of knowledge and none was having excellent level of knowledge. In post test scores 80.00% of subjects showed excellent knowledge, 20% of subjects showed good knowledge and none was in the satisfactory level. The findings of the present study show a significant improvement of knowledge scores after the planned teaching.

The fourth objective of the present study is to find out the correlation between pre- test level of knowledge score and pre- test practice score among staff nurses on endotracheal suctioning.

The mean pre- test knowledge score in experimental group was 11.83 and the mean pre -test practice score in experimental group was 24.90. The standard deviation value for mean pre test knowledge and pre- test practice was 4.308 and 7.364 respectively. The correlation value of mean pre- test knowledge and mean pre -test practice was 0.0908. Which were shows the mild positive correlation.

The above findings were supported by some of the similar studies which had been done before.

Ms. Shamna Majeed Abdul Majeed, Mrs. Shambhavi (2011) conducted a study to assess the effectiveness of planned teaching programme on knowledge and practice on endotracheal suctioning among staff nurses in selected hospitals of Manglore. The study design was pre -experimental one group pre-test post-test design. The purposive sampling technique was used to draw 30 staff nurses as samples. Data was collected by administering the structured knowledge questionnaire on endotracheal suctioning to assess the knowledge and observational checklist to assess the practice. After collecting data, the planned teaching programme was administered to the subjects and on the 7th day a post test was conducted by using the same questionnaire and observational checklist. The post-test analysis showed there was a significant increase in the knowledge score. In the post-test majority (100%) had good knowledge and none of them had inadequate knowledge on endotracheal suctioning. The post- test analysis showed there is a significant increase in the practice score. In the post-test, majority (100%) had good level of practice of performing endotracheal

suctioning. Significant association was found between work experience and the post- test level of knowledge ($\chi 2$= 7.1, p≤ 0.05) and post-test practice($\chi 2$= 8.45, p≤ 0.05).

The fifth objective of the study was find out the level of association between pre- test knowledge score and selected socio demographic variables.

In the present study it was found that there was no significant association between pre- test knowledge and selected socio demographic variables in experimental group.

The above findings were supported by some of the similar studies which had been done before.

Bincy Jacob, Ancy Ramesh (2013) conducted a study on Efficacy of Planned Teaching on Knowledge Regarding Tracheostomy Suctioning Among Staff Nurses. Descriptive evaluator research approach is used in this study. The subjects consisted of 50 staff nurses. A pre- experimental one group pre-test post-test design was used. Tool used for this study was structured knowledge questionnaire. Major findings: Among the subjects majority 40 (80%) belongs to 21-30 years and only 10 (20%) belonged to 31- 40 years. Gender shows that 52% of them were females and 48% were males. 58% of them were educated upto GNM, 36% were Basic B.Sc.(N) and 6% were educated upto P.B.B.Sc.(N). Years of experience reveals that 76% of them had experience of 1-5 years, 20% had 6-10 years and 2% each had experience of 11-15 years and >15 years respectively. 24% of them were working in SICU, 44% in MICU, 30% in ENT and 2% were working in oncology ward. Experience in the present working area shows that 92% of them had experience between 1-5 years, 6% had between 5-10 years and 2% had between 10-15 years of experience. Staff nurses who participated in the training on tracheostomy care or suctioning after basic nursing training shows that 56% of them attended the said training and 44% are not attended any training. The findings show that in pre- test 48% subjects were having satisfactory level of knowledge,52 % of study participants were having good level of knowledge and none was having excellent level of knowledge. In post test scores 80.00% of subjects showed excellent knowledge, 20% of subjects showed good knowledge and none was in the satisfactory level. The findings of the present study show a significant improvement of knowledge scores after the planned teaching.

The sixth objective of the study was find out the level of association between pre -test practice score and selected socio demographic variables.

In the present study it was found that there was no significant association between pre- test knowledge and selected socio demographic variables in experimental group.

The above findings were supported by some of the similar studies which had been done before.

Raghda Elbokhary, Await Osama (2015) conducted a descriptive cross-sectional hospital-based study. The aim of this study is to assess knowledge and practice of ICU nurses regarding mechanically ventilated patients endotracheal suctioning in Khartoum teaching hospital. A total coverage (42 nurses) sampling technique was used to selected nurses. All nurses working in Khartoum teaching hospital ICU included in the study. The majority of nurses working in Khartoum teaching hospital (35.7) have two months to one year working experience, (85.7%) have poor knowledge level, (76.7%) have fair practice level, and there is no significant relationship between working experience and level of knowledge and practice. The study concluded that nurses have better practical level and they were not affected by nurse's length experience as there should be

CONCLUSION

The study findings revealed that majority of the staff nurses need practice by understanding the technique of ET suctioning program/education and significant improvement among staff nurses by structured teaching programme and none of the variables found to be associate with knowledge of samples. Indicating performing a high skilled procedure in exact scientific principles reduces nosocomial infection due to ventilator care.

REFERENCE

[1] Black. M. Joyce. Medical Surgical Nursing-clinical management for continuity of care. 5th Edition. New Delhi; W.B. Saunders:1997;1174-1176

[2] Http://www.rcjournal.com

[3] Ylipalosaari P, Ala-Kokko T, Laurila J, Ohtonen P, Syrjälä H. Intensive care acquired infection is an independent risk factor for hospital mortality: a prospective cohort study. Critical Care. 2006; 10: R66. PMid:16626503

[4] Thelan .A. Davie & Urden D. Textbook of critical care nursing Diagnosis and management. 1st Edition. St.Louis; Mosby Company:1990;456-458.

[5] Thompson. L. Suctioning adults with artificial airway. The Joanna Brigs institute for evidence-based nursing and midwifery;4:4,2-6

[6] Brunner & Suddarth. Textbook of Medical Surgical Nursing. 8th Edition. New York; Lippincot: 2004;553-555.

[7] Choithram college of Nursing, Indian Journal of Nursing Studies,Vol:1,no

[8] Lewis SM, Collier IC, Heitkemper MM. Medical surgical nursing: assessment and management of clinical problems. 4th ed. Philadelphia: Mosby; 1996.

[9] Shirazi HZ, Karger M, Edraki M. The effect of instructing the principles of endotracheal tube suctioning on knowledge and performance of nursing

[10] Safdar N, Dezfulian C, Collard HR. Clinical and economic consequences of ventilator-associated pneumonia: A systematic review. Critical Care Medicine. 2005; 33: 2184-2193. PMid:16215368 http://dx.doi.org/10.1097/01.CCM.0000181731.53912.D9

[11] Young-Ra JI, Hee Seung Kim et al.2002).

[12] Polanski, Arlane L. (1993)Lulckman's Core Principles and Practice of Medical & Surgical Nursing, 4th Ed. Saunders company, Philadelphia, pp 533.