

## **Effectiveness of need based training on knowledge regarding oxygen therapy for pediatric clients**

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**Abstract :** *Oxygen therapy is widely used in acute health care of children with respiratory insufficiency so the nurse who is caring for children under oxygen therapy should have good knowledge, attitude and performance regarding it. The study was aimed to assess effectiveness of need based training on knowledge regarding oxygen therapy among pediatric staff nurses, 3<sup>rd</sup> year BSc(N) and post basic BSc(N) students posted in selected pediatric hospital in Vijaypur. 80 samples were included in the study out of which 28 were staff nurses, 30 were 3<sup>rd</sup> year BSc(N) and 22 were Post Basic BSc(N) students. The samples were selected by non probability quota sampling technique. Structured knowledge questionnaire was used to assess the knowledge regarding oxygen therapy. The results revealed that 40% of participants had poor knowledge and 57.5% scored average, and none had excellent knowledge during pretest. Post- test shows that 27.5% of participants had good knowledge, 66.25% scored average and 5% of people had poor knowledge. On comparison between pretest and post-test knowledge scores using paired "t" test shows that there is a significant difference between pretest and post-test knowledge score on oxygen therapy. However, on comparison between the 3 groups on pretest knowledge score regarding oxygen therapy there was no significant difference between the groups ( $F=3.128$ ). The study concluded that to update the knowledge of staff nurses, need based training is essential and should be incorporated in their working schedule.*

**Key words:** *oxygen therapy, need based training, staff nurses, knowledge*

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### **I. Introduction**

Oxygen is an indispensable element of life; its deficiency has deleterious consequences to all organs of the human body leading eventually to cell dysfunction and death. Oxygen supplementation is used on a daily basis in clinical practice. Also oxygen therapy is highly specialized and its prescription must be tailored on an individual basis. Health care professionals and especially nurses most often use oxygen therapy empirically without sufficient knowledge of its indications, dosage, side effects and toxicity. Oxygen therapy is a nursing procedure where specific medical orders should be given in order to minimize side effects for hospitalized children. Oxygen therapy is a commonly used intervention in the treatment of hospitalized patients. The administration of oxygen in the United States began in the 1920's. WHO recommends oxygen administration in a child having acute respiratory infection with cyanosis and inability to drink. Oxygen should also be given in a child with grunting and tachypnea. The appearance of cyanosis is a late indicator of hypoxemia and therapy should be started before its appearance.

A study was conducted on oxygen therapy for children. A need-based preparation and evaluation of a self-instructional module for staff nurses on care of a child receiving oxygen therapy. The study was conducted in two phases. A survey approach was used for Phase –I and one group pre-test, post-test design was adopted for Phase-II. The total sample of the study was 30 staff nurses, with 6 months experience in Pediatric Ward. The findings of the study showed high learning need status in most of the areas and the staff nurses also expressed the desirable need for learning in detail. It was found that age, total years of experience, experience in paediatric ward and married with or without children were independent of their learning need. SIM was effective in terms of gain in knowledge score as well as acceptability and utility scores of staff nurses.

The investigators during their clinical supervision in pediatric wards of B.L.D.E.A's Shri B.M. Patil Medical college Hospital & RC, Vijaypur noticed that lot of errors in administration of oxygen therapy for the prestigious pediatric group. Hence we planned to conduct a study on effectiveness of need based training on knowledge regarding oxygen therapy among staff nurses as well as students those who are posted in pediatric wards.

### **II. Problem statement**

A study to assess the effectiveness of need based training on knowledge regarding oxygen therapy among pediatric nurses and Post basic BSc(N) students working pediatric wards of selected Hospital, Vijaypur.

### III. Objectives

- To assess the pretest knowledge regarding oxygen therapy among Pediatric nurses, 3<sup>rd</sup> year BSc(N) and Post basic BSc(N) students.
- To find the effectiveness of need based training on knowledge regarding oxygen therapy among Pediatric nurses, 3<sup>rd</sup> year BSc(N) and Post basic BSc(N) students.
- To compare the pretest knowledge between Pediatric nurses, 3<sup>rd</sup> year BSc(N) and Post basic BSc(N) students.
- To find out the association between pretest knowledge scores of pediatric nurses, 3<sup>rd</sup> year BSc(N) and Post basic BSc(N) students with their selected demographic variables.

#### Hypotheses:

The following hypotheses would be tested at 0.05 level of significance.

**H<sub>1</sub>:** There is a significant enhancement in the mean post test knowledge scores of pediatric staff nurses, 3<sup>rd</sup> year BSc(N) and Post basic BSc(N) regarding oxygen therapy.

**H<sub>2</sub>:** There is a significant association between the mean pre-test knowledge scores and the selected demographic variables.

#### Assumptions:

1. Staff and students working in pediatric wards administer oxygen to children with hypoxaemia and hypoxia or anoxia.
2. Increased knowledge about the procedure of oxygen administration improves the skill in performance.

#### Delimitations:

Assessment of knowledge in this study is only based on correct responses made to the items in the structured knowledge questionnaire.

No efforts were made to assess the attitude or skill of pediatric nurses and post basic nursing students.

#### Methodology

Pre-experimental design was adopted for this study. 80 participants were included for the present study out of which 28 were pediatric nurses working in general pediatric wards, NICU and PICU, remaining 52 were 3<sup>rd</sup> year BSc(N) and Post basic BSc(N) students those who were posted in the above mentioned wards. Non probability, quota sampling technique was chosen for the study. The tool for assessing the knowledge regarding oxygen therapy consisted of 2 parts: i) proforma for assessing demographic variables, ii) A structured knowledge questionnaire for assessing the knowledge regarding oxygen therapy.

#### Results

Data analysis was done using descriptive and inferential statistics. Regarding demographic variables, majority(68.75%) of the participants were between the age of 20-25 years of age; majority were male; about 82.5% had previous knowledge regarding oxygen therapy(table 1).

Table 1: distribution of demographic characteristics of participants

S NO	Demographic variables	Frequency	Percentage	
1	Age In Year	20-25	55	68.75
		25-30	19	23.75
		30-35	3	3.75
		>35	3	3.75
2	Gender	Male	43	53.75
		Female	37	46.25
3	Occupation	Staff nurse	28	35
		Student	52	65
4	Staff Nurse Area of Working	PICU	9	33.34
		NICU	6	22.22
		General ward	12	44.44
5	Previous Knowledge	Yes	66	82.5
		No	14	17.5
6	If Yes	CNE	1	1.51
		Class room Teaching	52	78.78
		Printed Material	6	9.09
		Need based training	7	10.60

The analysis of pretest knowledge score reveals that 40% of participants have poor knowledge, 57.5% had average knowledge and none had excellent knowledge on oxy gent therapy(table 2).

Table 2: frequency and percentage distribution of pre-test knowledge score of participants on oxygen therapy  
n=80

S no	Grades	Scores	F	%
1	Poor	0-5	32	40
2	Average	6-10	46	57.5
3	Good	11-15	02	2.5
4	Excellent	16-20	00	00
Total			80	100

The post-test knowledge score shows that 66.25% of participants had average knowledge, 27.5% had good knowledge and 1.25% had excellent knowledge on oxygen therapy and none had poor knowledge (fig 1).

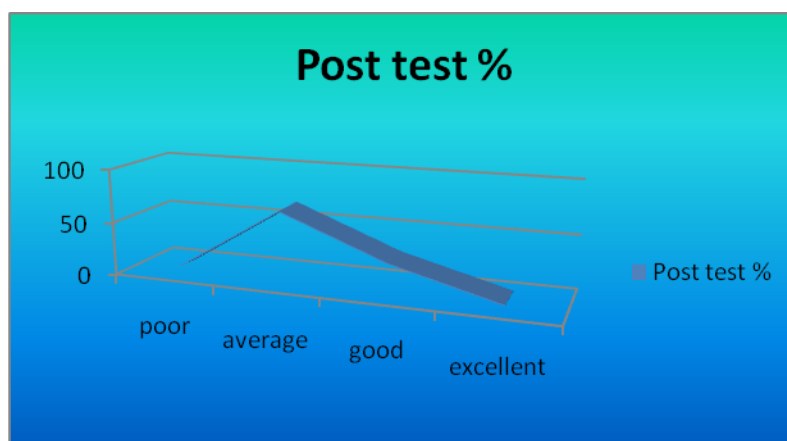


Fig 2: percentage distribution of post-test knowledge score of participants on oxygen therapy

On comparison of pre-test and post knowledge score by using paired “t” test, the study result shows that there is a significant enhancement in overall knowledge score of participants regarding oxygen therapy (table 3).

Table 3: Effectiveness of need based training

n=80

Test	Mean	Range	SD	‘t’ Value	Significance
Pre test	5.9	2-11	2.18	8.813	Significant
Post test	9.18	3-17	2.56		

Df (79)=1.99

Hence the research hypothesis H1 is accepted.

On comparison between the 3 group of participants’ pretest knowledge score (staff nurses, 3<sup>rd</sup> year BSc(N) and post basic BSc(N) students) by using ANOVA, the study found that there is no significant difference in their pre-test knowledge level (F=3.128).

On association between pretest knowledge score of participants with their selected demographic variables, the result reveals that there is no significant association between pre-test knowledge score with selected demographic variables (table 4). Hence H2 is rejected.

Table 4: Association between pretest knowledge scores with selected demographic variables

n=80

S no	Demographic variables	DF	Chi Square	Remarks
1	Age in years	1	0.412	NS
2	Gender	1	0.069	NS
3	Occupation	1	0.304	NS
4	Staff nurse area of working	2	2.563	NS
5	Previous knowledge	1	0.0960	NS
6	If yes	1	1.120	NS

NS- Not significant

Df(1)=3.84,

Df(2)=5.99,

#### IV. Discussion

In the present study, pretest knowledge score reveals that 40% of participants have poor knowledge. On comparison of pre-test and post knowledge score by using paired “t” test, the study result shows that there is a significant enhancement in overall knowledge score of participants regarding oxygen therapy. It shows that need based training is effective in enhancing knowledge regarding oxygen therapy. The findings are supported by another study conducted on the effect of education on hypothetical and actual oxygen administration decisions. The study findings showed that emergency nurses knowledge increased as a function of education, both patients scenario data and clinical practice observation showed decreased selection of nasal cannula, increased selection of masks and trend towards selection of higher oxygen flow rates following education. The researcher concluded that evaluation of educational interventions in nursing should focus on identifying strategies that enhance learning in a clinical environment, which are valid in terms of the clinical context and culture in which they are being used.

The present study findings can be compared with another prospective study carried out to assess the knowledge level of nurses working in hospitals concerning the oxygen supply to patients and the safety regulations that rule it. The study sample consists of 672 nurses. Data was collected by means of a questionnaire, which contained 35 closed ended questions. The study findings revealed that nurses have adequate knowledge in matters of oxygen therapy and the nurses who worked in ICU were found to be more informed by a significant difference of  $P = 0.005$ . The study findings concluded that the results while not disappointing, prove the constant need to renew knowledge with systematically organized programmes and the need to realize the responsibility one must show and have while exercising the profession as a nurse.

#### Recommendations:

- A study can be carried out by assessing skill of novice staff nurses working in pediatric set up.
- A comparative study can be done by using two different methods of training programs to assess the effectiveness of those in enhancing knowledge, attitude and skill.

#### V. Conclusion

The present study findings conclude that there is a need to update the knowledge of staff nurses, need based training is essential and should be incorporated in their working schedule at regular intervals.

#### References:

- [1] Considine J, Botti M, Thomas S. The effects of education on hypothetical and actual oxygen administration decisions. *Nurse Education Today* 2007 Aug; 27(6): 651-60.
- [2] Chr. Marvaki, Z. Roupa, N. Rilalis, M. Polikandrioti, Chr. Melissa, B. Demertzis, M. Gourni. Safety during oxygen therapy; 2004 Oct – Dec; 69(20).
- [3] C Rose, Y Heward, A McCabe, H Duncan. Knowledge of oxygen delivery among paediatric trainee doctors and experienced paediatric nurses *Archives of Disease in Childhood* 2010; 95:A70.
- [4] Machado A, Bhaduri A, George A. Oxygen therapy for children Need- based preparation and evaluation of a self-instructional module for staff nurses on care of a child receiving oxygen therapy. *Nursing Journal of India*. 1998 Jun; 89(6): 125-7.
- [5] Pease P. Oxygen administration: is practice based on evidence. *Pediatrics Nursing*. 2006 Oct; 18(8): 14-8.