Original Research Paper

Volume-8 | Issue-3 | March-2018 | PRINT ISSN No 2249-555X

Nursing

# A STUDY TO ASSESS THE EFFECTIVENESS OF A LEARNING PACKAGE ON RESPIRATORY CARE OF CHILDREN ON MECHANICAL VENTILATOR AMONG NURSES OF NICU AND PICU IN SELECTED HOSPITAL OF GUWAHATI ASSAM.

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**ABSTRACT** The respiratory care bears prime importance in case of sick child on ventilator or even in cases of some kind of respiratory assistance. A smart and well trained nurse can alert treating physician about the respiratory status if the child is doing better or is deteriorating. So keeping this in mind a pre experimental study was undertaken to assess the effectiveness of a learning package on respiratory care of children on mechanical ventilator among nurses of NICU and PICU in selected hospital of Guwahati Assam.

**Methods:** In this study Pre- experimental one group pre test-post test research design was adopted. The structured knowledge questionnaire and observational checklist was developed to collect the data. The sample was selected by using non- probability purposive sampling technique and data collection was carried out among 35 nurses of NICU and PICU in selected hospital, Guwahati. Later pre-test & post-test was conducted before and after distributing learning package. The data collected was analyzed.

**Results:** The results showed that there was a marked increase in post-test knowledge and practice score. In knowledge, post-test mean was 27.88 and the pre-test was 17.45 and in practice, post test mean was 18.45 and pre-test mean was 13.48 which represents the effectiveness of learning package. The t-paired value was found to be 9.19 and 9.20 respectively which were highly significant at $p<0.05$ levels.

**Conclusion:** On the basis of the findings, the researcher concluded that the learning package was effective in improving the knowledge and practice regarding respiratory care of children on mechanical ventilator among NICU and PICU nurses.

**KEYWORDS :** Learning package, Knowledge, Practice, NICU & PICU nurses, Respiratory care.

## INTRODUCTION

Children are the nation's supremely important asset; According to WHO children are a priceless resource and that any nation which neglects them would do so at its peril. WHO spot light the basic truth that we must all safe guard the healthy minds and bodies of the world's children. The care of children has in recent decades, changed dramatically for nurses due to the advances in medical knowledge. [1]

Children are not able to adequately ventilate their lungs because of various disorders resulting in respiratory insufficiency or failure. These clients require immediate intervention, including the establishment of an artificial airway and mechanical lung ventilation with a positive pressure ventilator. Mechanical ventilation allows the child to inhale high percentages of oxygen. When children are initially placed on mechanical ventilator, they must be closely observed so that the effectiveness of the therapy can be evaluated and complications can be prevented from occurring. Serious complications that may arise during initial mechanical ventilation include rapid electrolyte changes, severe alkalosis and hypotension due to decrease in cardiac output. [2]

Many deaths occur in pediatric ICU's due to ventilator associated complications. The common complications are ventilator associated pneumonia, accidental extubation, septicemia etc. The incidence of mortality rate in pediatric ICU's is around 14%. The Pediatric ICU Nurse should have adequate knowledge and aptitude in ventilatory care. The mortality in pediatric ICU can be reduced by standardizing the protocols of care of children on ventilator. Assessing the knowledge level of the individual staff in PICU will help in identifying the lacunae in their skill, knowledge and evolve strategies to improve the training of critical care nurses. 'Each child is a precious gift of lord', so no complication occur in the PICU's due to lack of knowledge and skill in nurses. [3]

The respiratory care bears prime importance in case of sick baby on ventilator or even in cases of some kind of respiratory assistance. Even neonates with respiratory distress need a special monitoring by a trained nurse. A smart and well trained nurse can alert treating physician about the respiratory status if the baby is doing better or is deteriorating. [4]

## MATERIALS AND METHODS

In this study the Evaluative research approach and Pre- experimental one group pre test-post test research design was adopted. This study was conducted in Pratiksha hospital of Guwahati Assam. The structured knowledge questionnaire to assess the knowledge and observational checklist was developed to assess the practices of NICU and PICU nurses regarding respiratory care of children on mechanical ventilator. A learning package also was prepared regarding respiratory care of children on mechanical ventilator. The sample was selected by using non-probability purposive sampling technique. On the first day pre-test was conducted in which there after learning package was distributed and explained regarding respiratory care of children on mechanical ventilator, and on seventh day post-test was conducted among PICU and NICU nurses.

Reliability of the tool on knowledge questionnaire was calculated by split half method followed by Spearmen Brown Prophecy Formula and was found to be 0.91.Reliability of the tool on observational checklist was calculated by Inter rater reliability followed by Karl pearson's correlation coefficient formula and was found to be 0.96.

The sample of the study consisted of 35 NICU and PICU nurses. The study was conducted after obtaining permission from the concern authorities. Later pre-test & post-test was conducted before and after distributing learning package. The data collected was analyzed by using descriptive and inferential statistics.

## RESULTS AND DISCUSSION

### Demographic characteristics of respondents

With regard to the gender majority (100%) were female nurses and (0%) were male nurses. With regard to age majority (68.6%) were in the group of 18-25 years, and (20%),(11.4%), (0%) respectively in the age group of 26-30 years,31-35 years, 36 years and above. Majority (80%) of the NICU and PICU nurses were from GNM background, (17.1%) of NICU and PICU nurses were from B.Sc, and (2.9%) of NICU and PICU nurses belongs to the P.B.Sc and (0%) from M.Sc background**.** With regard to area of posting, most of the nurses were from NICU (65.8%), (34.2%) were from PICU, (0%) were from both. With regard to year of experience majority of them i.e (74.3%) had experience 1-2 years, (20%), (5.7%) and (0%) had experience 3-4 years, 5-6 years and above 6 years. Majority of NICU & PICU nurses (57.1%) had been exposed and (42.9%) had not been exposed to any in-service education.

**Table 1: Frequency and percentage distribution of NICU and PICU nurses according to their gender and age.**

n=35

| Demographic variables | Frequency (f) | Percentage (%) |
|---|---|---|
| **Gender** | | |
| **Male** | 0 | 0.0 |
| **Female** | 35 | 100.0 |
| **Age** | | |
| **18-25yrs** | 24 | 68.6 |
| **26 – 30 yrs** | 7 | 20.0 |
| **31 – 35 yrs** | 4 | 11.4 |
| **Above 36 yrs** | 0 | 0.0 |
| **Educational qualification** | | |
| **GNM** | 28 | 80.0 |
| **B.Sc** | 6 | 17.1 |
| **P.BSc** | 1 | 2.9 |
| **M.Sc** | 0 | 0.0 |
| **Area of posting** | | |
| **NICU** | 23 | 65.8 |
| **PICU** | 12 | 34.2 |
| **BOTH** | 0 | 0.0 |

**Table 3: Frequency and percentage distribution of NICU and PICU nurses according to their year of experience and exposure to any in-service education.**

n=35

| Demographic variables | Frequency (f) | Percentage (%) |
|---|---|---|
| **Year of experience** | | |
| • **1-2yrs** | 26 | 74.3 |
| • **3 – 4 yrs** | 7 | 20.0 |
| • **5 – 6 yrs** | 2 | 5.7 |
| • **Above 6 yrs** | 0 | 0.0 |
| **Exposure to any in-service education** | | |
| • **Yes** | 20 | 57.1 |
| • **No** | 15 | 42.9 |

The mean of the post-test knowledge score (27.88) was higher than the mean of the pre-test knowledge score (17.45) with a mean difference of 10.43. There was a significant difference between the pre-test and the post-test knowledge score with the t-value of 9.19 and found to be significant at p<0.05 level. This indicated that the learning package on respiratory care of children on mechanical ventilator among the NICU & PICU nurses was effective.(Fig:1)

n= 35

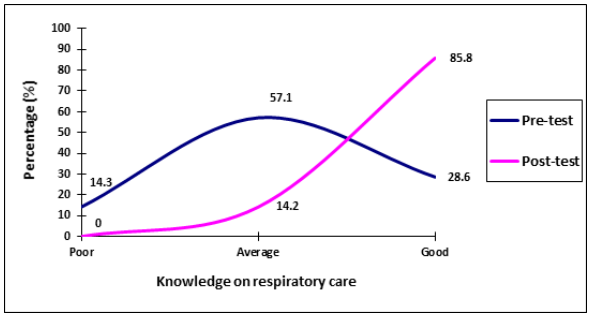


**Fig 1: Line diagram showing the percentage distribution of NICU and PICU nurses according to pre-test and post-test knowledge score on respiratory care of children on mechanical ventilator.**

The pre-test knowledge score of the NICU & PICU nurses was found to be associated with age, educational qualification, years of experience and exposure to in-service education and pretest practice was found to be associated with educational qualification. And the practices score of the NICU & PICU nurses was found to be associated with educational qualification. Hence, there was association between the pre-test knowledge on respiratory care of children on mechanical ventilator with the age, educational qualification, years of experience and exposure to in-service education. And also there was association between the practices on respiratory care of children on mechanical ventilator with the educational qualification

## CONCLUSION

The present study was conducted to assess the effectiveness of learning package on knowledge regarding respiratory care of children on mechanical ventilator among NICU and PICU nurses in a selected hospital, Guwahati. The findings of the study revealed that there was a marked increase in post-test knowledge. In knowledge, post-test mean was 27.88 and the pre-test was 17.45 which represent the effectiveness of learning package. The t-paired value was found to be 9.19 respectively which were highly significant at p<0.05 levels.

Thus, the learning package was effective in improving the knowledge regarding respiratory care of children on mechanical ventilator among NICU and PICU nurses. On the basis of the findings, the researcher concluded that the learning package was very effective.

## ACKNOWLEDGE

I am highly grateful to the authority of the organization and principal of Sankar Madhab College of Nursing, Panikhaiti, Assam, for granting permission to conduct the study successfully.

## REFERENCES

1. World Heath Day Report. Nursing Journal of India. (1997, April). Retrieved from http://www.rguhs.ac.in/cdc/onlinecdc/uploads/05-N007-778.doc.
2. Black, M.J., & Jacobs, E.M.(1993). Medical Surgical Nursing. Philadelphia: Saunders Comp, pp. 977-84.
3. Intensive Care Medicine. Poster Sessions in ventilatory associated complications. (2004, February). Retrieved from http://www.rguhs.ac.in/cdc/onlinecdc/uploads/05_N126_31733.doc.
4. Wong, L.D., & Hockenberry, J.M. (1999). Nursing Care of Infants and Children. Missouri. Mosby. pp.1324.
5. Papoff , P., Caresta, E., Manganaro, M., Cicchetti, R., Mancuso, M., Ferro, V., & Moretti, C. (2010, June). Minerva Pediatric. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/21090082.
6. WHO.Newborns: reducing mortality. (2016,January). Retrieved from http://www.who.int/mediacentre/factsheets/fs333/en/.
7. Sankar, M.J., Neogi, S.B., Sharma, J., Chauhan, M., Srivastava, R., & Prabhakar, P.K. (2016, December). State of newborn health in India. Journal of Perinatology. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5144119/.
8. Rose, L., & Nelson, S. (2006, April). Issues in weaning from mechanical ventilation: Literature review. Journal of Advance Nursing. pp. 73-85. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/16553693.
9. Noyes, J. (2006, November). Health and quality of life of ventilator-dependent children. Journal of Advance Nursing. pp.392-403. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/17042819?dopt=Abstract.
10. David, G.N., & Roger. (2007, January). MD.Textbook of pediatric intensive care. Retrieved from http://www.roqerspediatricintensivecare.com.
11. Hansen, B.S., & Severinsson, E. (2005, August). Intensive care nurses perceptions of protocol directed weaning- a qualitative study. Intensive Crit Care Nurses. pp. 196-205. Retrieved from http://www.rguhs.ac.in/cdc/onlinecdc/uploads/05_N134_25911.doc.
12. Anitha, G.F., Lakshmi, S., Shanthi, S., Darlington, C.D., & Vinoth, S. (2016, May). Clinical profile of children mechanically ventilated in a pediatric intensive care unit of a limited resource setting. International Journal of Contemporary Pediatrics. Retrieved from http://www.ijpediatrics.com/index.php/ijcp/article/viewFile/282/277.
13. Kulkarni, V., & Manasa, B.M. (2017, May). A retrospective study on clinical profile and outcome of respiratory cause of Ventilation in children with age group between 1month to 5 Years in Pediatric intensive care unit of a tertiary centre hospital in Karnataka, India. Journal of Pediatric Critical Care. Retrieved from http://www.journalofpediatriccriticalcare.com/UserFiles/2017/0402-jpcc-apr-jun-2017/JPCC0402003.pdf.
14. Basavanthappa, B.T. (2007). Nursing Research . New Delhi: Jaypee Brothers Medical Publishers (P) Ltd. pp.262
15. Elolkuvana, D.R.B. Nursing theory and practical view. New Delhi: Jaypee brothers medical publishers(P) Ltd. pp.76
16. Polit, F., Buck, T., & Hungler P. (2001). Essential of Nursing R. Method, Appraisal and Utilization. pp.742
17. Joseph, C., Vijayakumar, C., Augustine, J., John, G. (2004, October ). Nursing care of patient on mechanical ventilator. The nursing journal of India, vol.xcv(10), pp231-2. Retrieved from http://www.rguhs.ac.in/cdc/onlinecdc/uploads/05_N002_10234.doc.
18. Citale, S.V., & Behera, M.K. (2017, May). Study and outcome of mechanically-ventilated paediatric patients in intensive care setup in tertiary care hospital. Based Med Healthc. Retrieved from: http://www.jebmh.com/latest-articles.php?at_id=96106
19. Shringi, T. (2015, October). Effectiveness of planned teaching program on knowledge regarding the care of patient on ventilator among the staff nurses in intensive care unit. 3rd Indo-Global Summit & Expo on Healthcare. New Delhi,India. Retrieved from: http://healthcare.indoglobalsummit.com/abstract/2015/.
20. Anitha, G.F., Lakshmi, S., Shanthi, S., Darlington, D.C., Vinoth, S. (2016, May). Clinical profile of children mechanically ventilated in a pediatric intensive care unit of a limited resource setting. International Journal of Contemporary Pediatrics Shirly GFA et al. Int J Contemp Pediatr. Retrieved from: http://www.ijpediatrics.com/index.php/ijcp/article/viewFile/282/277.