ISSN No:-2456-2165

# "Effectiveness of In-Service Education on Knowledge of Nurses Regarding Prevention and Management of Sensory Alterations in Patients Admitted to ICUs of Selected Hospital, Bangalore."

BASAVARAJ A HADAPAD
Assistant Professor,
Department of medical surgical nursing,
SDMIONS, Dharwad

**Abstract:-**

**Background of study: Intensive Care Units (ICUs) provide patients with life-saving care. It contains an environment which is unique and has the most sophisticated medical, nursing and technical interventions which can be integrated to combat life-threatening illness. This environment provides for the patient's maximum security and protection with its sophisticated electronic equipment, highly competent and attentive staff members[1].**

**Nurses must critically analyze the relationship between the physical and psychological stressors and must be cautious to evaluate the risk and benefit of various interventions, so the nurse has to implement strategies to minimize and manage the various sensory alterations that can develop in patients admitted to ICUs[1]**

**Statement of problem:The present study aimed to evaluate the effectiveness of In-service education on knowledge of nurses regarding prevention and management of sensory alterations in patients admitted to ICUs Bangalore.**

**Objectives: To assess the knowledge of nurses on prevention and management of sensory alterations in patients admitted to ICUs.To evaluate the effectiveness of In-service education on knowledge of nurses' prevention and management of sensory alterations in patients admitted to ICUs.To find the association between the pre-test knowledge scores and selected demographic variables.**

**Methods: The conceptual framework for this study was based on Modified Open System Model by J.W. Kenny. Pre-experimental one group pre-test and post test design was adopted for the study. Content validity and reliability of the tool was established where [r = .96]. The pilot study was conducted before conducting the main study. Thirty nurses were selected for the study through convenience sampling technique. The data was collected by using self administered structured knowledge questionnaire to assess the knowledge of nurses on prevention and management of sensory alterations in patients admitted to ICUs. An In-service education was conducted as an intervention strategy. The final data was collected, analyzed and interpreted by using descriptive and inferential statistics.**

**Results: The results of the study showed that the overall mean pre-test knowledge score was 11.37 and the overall post test knowledge mean score was 17.7. 't' value $t_{(29)}$ = 23.93** was significant at 0.05 level. Hence the research hypothesis [$H_1$] was accepted. There was no association between pre-test knowledge scores and selected demographic variables. Hence research hypothesis [$H_2$] is rejected.**

**Conclusion: The study concluded that the In-service education was an effective teaching strategy to enhance the knowledge of ICU nurses regarding prevention and management of sensory alterations in patients admitted to ICU.**

## I. INTRODUCTION

Intensive Care Units (ICUs) provide patients with life-saving care. It contains an environment which is unique and has the most sophisticated medical, nursing and technical interventions which can be integrated to combat life-threatening illness. This environment provides for the patients maximum security and protection with its sophisticated electronic equipment, highly competent and attentive staff members[1].

Each year, more than four million patients are admitted to intensive care units in the United States and about half a million die in ICUs. Today, in many Western countries, 10% or more acute inpatient beds are devoted to critical care and the number of patients requiring ICU care is predicted to double in the next two decades as the population grows.[2]

The ICU environment plays a significant role in the overall health care experience and healing process of the patient. However, the environment is not always optimal for healing in the ICUs. The patients experiences some sort of state of chaos that may be triggered by drugs, the

environment, dehumanizing practices and sleep deprivations following the onset of their sickness, injury and accident and can result in feeling of extreme instability, vulnerability and fear[3,4].

Information received through the five senses (vision, hearing, taste, smell and touch) evokes physiological and emotional responses of anxiety or serenity. A patient, who enters into the ICU environment, often faces unfamiliar sights, sounds, smells and minimal contact with the family. If the patient feels depersonalized and is unable to receive meaningful stimuli, serious sensory impairments can develop. The patients admitted in ICUs have a chance of developing impairment of sensory perception which may have a serious impact on their health and nutritional status, activities of daily living, independence, quality of life and the possibility of recovery. It has been estimated that between 12.5% and 38% of conscious patients admitted to ICUs experiences sensory alteration, a condition which seems to resolve upon transfer to the ward[5,6].There are three different type of sensory alteration which includes sensory deficit, sensory deprivation and sensory overload. A sensory deficit is a defect in senses such as loss of vision, hearing, taste, smell and touch. Sensory deprivation means depriving the sense of stimuli and can lead to depression, hallucinations and anxiety in patients admitted ICUs for a long period of time. Sensory overload is the bombarding the senses with stimuli which is individualized and in the longer period of admission in the ICUs can lead to the individual shutting down and avoiding communication with others[7].

Being a nurse in a critical care unit is a challenge and matter of prudence. The advent of the most vital specialty, the critical medicine, life threatening emergency and major surgeries, which require support and control over the functions, could be managed successfully. On the other hand, helping the patient to cope with the process of illness and sophisticated, mechanized, dehumanizing critical care environment is a challenge to nurses all over the world[1].

There are three main categories of ICU stressors: psychological (danger of death, social isolation), treatment-related (artificial ventilation, tubes, and painful procedures) and environmental (unfamiliar surroundings, activity and noise, worrisome sights and sensations, sleep deprivation). All these categories can lead to changes in sensory perceptions in critically ill patients[8].

Nurses must critically analyze the relationship between the physical and psychological stressors and must be cautious to evaluate the risk and benefit of various interventions, so the nurse has to implement strategies to minimize and manage the various sensory alterations that can develop in patients admitted to ICUs[1].

Hence, appropriate education for nurses regarding sensory alteration occurring in patients admitted to ICUs will enable the nurses to promote patients' adaptation to ICUs environment and help in management of patients during crisis and thereby reducing stress in patients and nurses.

*A. Statement of problem:*

The present study aimed to evaluate the effectiveness of In-service education on knowledge of nurses regarding prevention and management of sensory alterations in patients admitted to ICUs Bangalore.

*B. Objectives of the study*

- To assess the knowledge of nurses on prevention and management of sensory alterations in patients admitted to ICUs.
- To evaluate the effectiveness of In-service education on knowledge of nurses' prevention and management of sensory alterations in patients admitted to ICUs.
- To find the association between the pre-test knowledge scores and selected demographic variables.

*C. HYPOTHESIS:*

- **$H_1$:** There is a significant difference between the pre-test and post test knowledge scores of the nurses regarding prevention and management of sensory alterations in patients admitted to ICUs.
- **$H_2$:** There is a significant association between the pre-test knowledge scores and their selected demographic variables.

## II. METHODOLOGY

- **RESEARCH APPROACH:** Quantitative approach
- **RESEARCH DESIGN:** Pre-experimental one group pre-test post-test design
- **SAMPLE SIZE:**30 nurses working in ICUs of a selected hospital.
- **SAMPLING TECHNIQUE:** Non probability convenience sampling technique
- **TOOLS:** Section I: Proforma on Socio demographic data. Section II: Self administered structured knowledge questionnaire for nurses on prevention and management of sensory alteration in patients admit
- ***PLAN FOR DATA ANALYSIS:*** The data analysis was analyzed in terms of descriptive (Frequencies, percentage, Mean, mean percentage, standard deviation) and inferential (Paired t' test and Chi-square test (Yates correction)) statistics.
- ***SETTING OF THE STUDY*:**This study was conducted in Medical Intensive Care unit, Surgical Intensive Care Unit and Cardio-Thoracic Intensive Care Unit of Vydehi Hospital, Bangalore.

- **SAMPLING CRITERIA**
  - **Inclusion criteria**
    - ✓ The nurses who were working in a selected ICU.
    - ✓ The nurses who were available during the period of data collection period.
    - ✓ The nurses who were willing to participate in the study.
  - **Exclusion criteria**
    - The nurses who were working in wards and outpatient department.

- **VARIABLE**
  - **Independent:**In-service education
  - **Dependent:**Knowledge of nurses
  - **Demographic:**Age, gender, marital status, religion, professional qualification, professional experience, year of experience in ICU, and present area of working, management of patients with sensory alteration and attended any In-service education programme on sensory alteration.

- **Content validity of the tool**
  The prepared tool on self administered structured knowledge questionnaire along with statement problem, objectives of the study and blue print on self administered structured knowledge questionnaire along with the criteria checklist were submitted to five experts [Annexure C & E].The experts were requested to give their opinions. Based on the suggestions regarding appropriateness given by the experts, certain items in the tool were modified and rearranged. The modified tool was sent to the same experts for revalidation.
- **Reliability of the tool**
  The reliability of the tool was established by split-half method using Spearman-Brown formula. The tool was administered to six nurses in the selected ICU of Vydehi Hospital Bangalore. The reliability was established by coefficient of correlation where r = 0.96. Hence, the tool was found to be reliable.
- **Data collection instrument:** Self administered structured knowledge questionnaire for nurses on prevention and management of sensory alteration in patient's admitted to ICUs.

## III. RESULTS

The collected data were tabulated and analysed using descriptive and inferential statistics. The analysis of the data organized under the following sections.

Table 1 shows that pre-test mean score 11.37, standard deviation (SD)2.442 and standard error (SE) while in post-test mean core 17.7 , standard deviation (SD) 2.187 and standard error (SE) 0.399 and the 't' value found as 23.93 and P value P<0.05**

*Table 1: Mean, standard deviation, 't' value and P value computed with the pre-test and post test knowledge scores of the nurses.*

*Test.* **N = 30**

| Knowledge | Mean score | Means score percentage | SD | SE | df | 't' | P value |
|---|---|---|---|---|---|---|---|
| Pre-test | 11.37 | 56.85 | 2.442 | 0.446 | | | |
| Post test | 17.7 | 88.55 | 2.187 | 0.399 | 29 | 23.93 | P<0.05** |

The data presented in table 2 show pre-test knowledge scores of nurses based on knowledge, the nurses 16[53.34%] had good knowledge, 10[33.33%] had average knowledge and only 4[13.33%] excellent knowledge. While post test knowledge scores of nurses based on knowledge, all the nurses 30(100%) had excellent knowledge on prevention and management of sensory alterations in patients admitted to ICUs.

*Test.* **N = 30**

| Level of knowledge | Scoring | Pre-test | | Post test | |
|---|---|---|---|---|---|
| | | f | Percentage (%) | f | Percentage (%) |
| **Excellent** | >75% (15 – 20) | 04 | 13.33 | 30 | 100 |
| **Good** | 50 - 74 % (10 – 14) | 16 | 53.34 | - | - |
| **Average** | 25 – 49% (05 - 09) | 10 | 33.33 | - | - |

Table 2: Frequency and percentage distribution of pre-test and post test knowledge scores of nurses based on knowledge.

## IV. DISCUSSION

According to the of pre-test knowledge scores of nurses based on the level of knowledge, majority of the nurses 16[53.34%] had good knowledge**,** 10[33.33%] had average knowledge and only 4[13.33%] excellent knowledge and none of the nurses had poor level of knowledge.

According to post test knowledge scores of nurses based on level of knowledge, all the nurses 30(100%) had excellent knowledge on prevention and management of sensory alterations in patients admitted to ICUs.

The overall mean pre-test score was 56.85% with SD ± 2.442 and the overall mean post test score was 88.55% with SD ± 2.187 and mean difference was 31.7%. The overall mean post test knowledge scores of nurses who were exposed to In-service education is significantly higher than the overall mean pre-test knowledge scores.

't' value had been computed to find the significant difference between the means and it was significant, 't' [29] = 23.93 was significance at 5% level. Hence the research hypothesis [$H_1$] was accepted. Therefore, the findings of the study revealed that In-service education was effective in enhancing the knowledge of nurses on prevention and management of sensory alterations in patients admitted to ICUs. This finding was also supported by similar study which showed improvement in the overall medicine administration process with mean score of 96% following training programme among ICU nurses.

## V. CONCLUSION

The study concluded that the In-service education was an effective teaching strategy to enhance the knowledge of ICU nurses regarding prevention and management of sensory alterations in patients admitted to ICU.

Hence, In-service education is one of the best education teaching strategy for nurses in enhancing their skills, knowledge and attitude in relation to specific aspects of their roles in the ICU environments and therefore, can be effective in disseminating knowledge on early prevention and management of sensory alterations in patients admitted to ICUs and thereby helping the patients in reducing and managing sensory alterations at the earliest.

### *A. NURSING IMPLICATIONS*

The implications made in the study are vital to the nursing education, nursing practice, nursing administration and research.

### *B. NURSING PRACTICE*

Nurses who are the health care providers working in the ICU should be equipped with excellent knowledge regarding prevention and management of sensory alterations in patients admitted to ICUs. In-service education helps the nurses to enhance their skills, knowledge and attitude in relation to specific aspects of their role in the ICU settings. The findings of the present study could be utilized as a basis for conducting in-service education where ICU nurses can learn to employ creative strategies to minimize the impact of advanced technology which is so important for the survival and recovery of critically ill patients so as reduce the sensory alterations in patients admitted in ICUs.

### *C. NURSING EDUCATION*

In-service education provides opportunities for nurses to acquire knowledge, skills and behavior in view of advancing technology and changing health delivery system. It contributes towards staff development and towards promotion of nurses for greater proficiency, responsibility and maintaining high standard of nursing care in the ICUs.The findings of the present study could be utilized as a basis for In-service training to be conducted for nurses working in ICUs, so as to update their knowledge and be trained to assess the sensory alterations occurring in patients admitted in the ICUs and to be used as an informational and educational mode for nurse educators.

### *D. NURSING ADMINISTRATION*

Nurse administrators are key organizers to plan and conduct In-service education programmes for nursing personnel so as to enable the nurses to update their knowledge and skills in the areas of ICUs. Circulars announcing the scheduling of the educational sessions should be presented by the nursing staff to their peers on their specific unit as part of their in-service training. Nurse administrators should plan for money, manpower, material, methods and time to conduct successful educational programmes in the hospital. The findings of the present study could be utilized as a basis for conducting In-service education programme for newly employed and experienced nurses regarding prevention and management of sensory alterations in patients admitted to ICU so as to deliver high standards of patient care as well as to enhance individual professional skills. Periodic evaluation programmes need to be done so as to check the effectiveness of new programmes and for bringing necessary changes from time to time.

### *E. NURSING RESEARCH*

There is greater need for research in the areas of clinical research and practice regarding prevention and management of sensory alterations in patients admitted to ICUs. Nursing researchers should focus on delivering effective programmes which should be directed to achieve performance objectives. The findings of the present study could be utilized as a basis for conducting research through effectiveness of In-service education programmes in the areas of validation of competence for devised/ revised standards of care and practice and new/revised hospital policies and procedures especially for patients admitted in the ICUs so as to decrease their length of stay in the ICUs.

## REFERENCES

[1.] Sudhamaniamma S. ICU Psychosis-Nurse' Challenge. The Nursing Journal of India. 2001 Nov;92(11):249-250.
[2.] Nowlin Anne. Technology Brings Virtual ICUs to Smaller Hospitals. RN Professional Journal with Personal Touch [Internet]. 2004 [Reprinted Aug 2004]. Available from: http://www.icumedicine.com/08-01-04-get-ready-for-virtual-icu.html
[3.] Kaplow Roberta, Sonaya R. Harbin. Critical Care Nursing. Sudburg: Jones & Bart publisher; 2007.
[4.] Granberg A, Lundberg D, Bergbom EI. Patients experience of being critically ill and cared for in an ICU in relation to ICU syndrome. Journal of critical care [Internet]. 1998 14(6); 294-307. Available from:
[5.] http://www.ncbi.nlm.nih.gov/pubmed/10196913
[6.] James S M. Study Reveals ICU Conditions Influence Sensory Alteration in Patients. Journal of Nightingale Nursing Times. 2008 Feb; 34-35.
[7.] Martyn Dyson. The therapeutic nurse-patient relationship and influence of the intensive care setting. Journal of clinical nursing [Internet]. 1999 8(3); 284-290. Available from: http://www.ncbi.nlm.nih.gov/pubmed?term.
[8.] Jack Powell. What Are Types of Sensory Alterations? [Internet]. 2011May 14. Available from: http://www.ehow.com/info_8415103_types-sensory-alterations.html