Effectiveness of Planned Teaching Programme on Knowledge of Nurses Regarding Care of Acute Head Injury Patients

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Abstract— Head injury is the leading cause of long term disability among children and young adults and the number of people surviving it with impairment has increased significantly in recent years. This has led to a call for nurses’ skill in trauma and rehabilitation, especially in acute phase. This study was undertaken to assess the effect of planned teaching programme on knowledge of nurses regarding care of acute head injury patients. Objectives: To assess the pre test and post test knowledge score of nurses in providing care to patients with acute head injury, to determine the effectiveness of planned teaching programme in providing care to patients with acute head injury and to find the association between pre test knowledge score with selected sociodemographic variables of nurses. Research methodology: A pre-experimental one group pre-test and post-test research design was selected for the study and non probability convenient sampling technique was used to select 60 staff nurses. A structured knowledge questionnaire was used to evaluate the knowledge level on acute care of head injury patients before and after the Planned Teaching Programme. The collected data were analyzed with chi-square and t test. Findings: The result showed the significant difference suggesting that the Planned Teaching Programme was effective in increasing the knowledge of the staff nurses ($t = 20.94$). There was highly significant ($P<0.01$) association between the knowledge of the nurses regarding care of acute head injury patients and selected sociodemographic variables like professional qualification, total clinical experience and area of work. Conclusion: The study concluded that developed Planned Teaching Programme (PTP) was effective in improving the knowledge of nurses regarding care of acute head injury patients. 

Key words: Knowledge; Effectiveness; Acute care; Head injury; Planned Teaching Programme; Nurses

I. INTRODUCTION

Every year, millions of people sustain a head injury. Most of these injuries are minor because the skull provides the brain with considerable protection. The symptoms of minor head injuries usually go away on their own. More than half a million head injuries a year, however, are severe enough to require hospitalization. Learning to recognize a serious head injury, and implementing basic first aid, can make the difference in saving someone’s life.¹ Brain injury is a common cause of morbidity and mortality in all age groups and represents a major public health problem with high annual cost. The mortality rate due to brain injury at the global level is estimated to be 97/100,000 population per year. In India, it is the seventh-leading cause of mortality contributing to 11% of total deaths; 78% of cases are due to road traffic injuries alone.²

II. NEED FOR THE STUDY

Traumatic brain injury is the leading cause of long term disability among children and young adults and the number of people surviving it with impairment has increased significantly in recent years. This has led to a call for nurses’ skill in trauma and rehabilitation, especially in acute phase.

A patient’s recovery from a brain injury is unpredictable and requires flexible nursing strategies for each stage of recovery. As per a report entitled “First India Injury Report: Problem – Solutions”, it is estimated that nearly 8, 50,000 persons died and 16.5 million were hospitalized due to injuries in India. Among various injuries, Traumatic Brain Injuries (TBIs) are a leading cause of morbidity, mortality, disability, socioeconomic losses and poor quality of life among survivors. It is estimated that nearly 1 million persons are injured, 200,000 people die and nearly 1 million require rehabilitation services every year in India. In the city of Bangalore alone, nearly 10,000 individuals sustain brain injury and more than 1,000 die every year.³

In one of the recent studies in patients with brain injury in India, it was observed that severe, moderate, and mild brain injuries constituted 16%, 14%, and 70% of cases, respectively. It is surprising that only 24.3% patients with “mild” brain injury showed good recovery, 74.3% showed moderate recovery, and 1.4% died. As many as 10% of the patients with mild brain injuries needed continuous and long-term supportive care. A disturbing fact is that the productive 20–29 year old age group is the most commonly affected.⁴

A patient’s recovery from a brain injury (BI) is unpredictable and requires flexible nursing strategies for each stage of recovery.¹ The nurses’ role is extremely important because the expert nurse cognitively manipulates many variables over a continuum of care and, if such tasks are skillfully and successfully performed, the incidence of secondary brain injury is reduced.⁵ Very few studies were done on acute care of head Injury patients. A detailed review of literature and the investigator’s clinical experience in intensive care unit, prompted to undertake a study of this nature.

III. REVIEW OF LITERATURE

A. Review of literature related to general information about head injury

The Center for Disease Control and Prevention (CDC) and the National Center for Injury Prevention and Control (NCIPC) conducted a separate study, considered the immediate medical effects of TBI’s caused by a sudden jolt to the head or a penetrating head injury. The agencies concluded that: 1.4 million Americans experienced a traumatic brain injury in 2006. Out of those: 1.1 million were treated and released from in local emergency rooms, 235,000 were hospitalized, and 50,000 died from their injuries. A TBI can result in lifelong physical, cognitive, emotional and behavior problems. Other symptoms can include fatigue, confusion, headaches, sleep disorder,
memory problems, nausea, and/or mood swings. Typically, victims notice symptoms of TBI very soon after the accident or injury, but some symptoms can take up to a few weeks after the event to appear."

An article by Noble K.A. on Traumatic brain injury and increased intracranial pressure, in the year 2010 cited that Traumatic brain injury (TBI) affects approximately 1.4 million individuals and has a mortality rate greater than 30% in the first 72 hours after injury. The patient with TBI can present a significant challenge for the perianesthesia nurse in the acute care setting. Increased intracranial pressure is a common consequence of TBI and the rapid assessment and management can affect the long term outcome of the patient with TBI. New monitoring modalities have been developed to monitor cerebral blood flow and nutritional supply to neurologic tissues. A case scenario will be used to identify priorities for the perianesthesia nurse caring for this challenging patient."

B. Literature regarding nurses’ knowledge of care of acute head injury patients
Beverley Copnell in her study quotes that; contemporary nursing literature emphasizes the desirability of clinical nurses being “knowledgeable”. However, the need for nurses constantly to acquire more knowledge is reiterated. Lack of knowledge is seen to underlie an array of professional problems. Little is known of how nurses themselves understand what it means to practice knowledgeably. The findings contest the notion, espoused in nursing literature, that acquisition of knowledge can “empower” nurses, thus providing the solution to problems they may experience. Rather, strategies are required that challenge and disrupt relations of power that construct nurses as “ignorant”.¹⁰

McNutt and Molly M. in their study, ‘Nursing Interventions for Critically Ill Traumatic Brain Injury Patients’ in the year 2010, quoted that Neuroscience intensive care unit (ICU) nurses deliver a number of interventions when caring for critically ill traumatic brain injury (TBI) patients. Yet, there is little research evidence documenting specific nursing interventions performed. As part of a larger study investigating ICU nurse judgments about secondary brain injury, ICU nurses were asked to identify interventions routinely performed when caring for TBI patients. Quantitative and qualitative analyses indicate that all nurses routinely monitored hemodynamic parameters such as oxygen saturation, blood pressure, and temperature. Nurses were responsible for monitoring intracranial pressure and cerebral perfusion pressure approximately 50% of the time. Qualitative analyses revealed that additional nursing interventions could be categorized as neurophysiological interventions, psychosocial interventions, injury prevention interventions, and interventions to maintain a therapeutic milieu.¹¹

C. Literature regarding effect of planned teaching on the knowledge of nurses regarding care of acute head injury patients
A study was conducted by Sherene G. Edwin on effect of planned teaching programme on knowledge, attitude and knowledge on practice of acute respiratory infections among mothers in 2009 revealed that, there was a gross inadequacy (100%) of knowledge regarding acute respiratory infection among mothers. The pre test mean in experimental group was 18.2 and post test mean was 65.56 in experimental group. Planned teaching programme was found to be effective in improving the knowledge, attitude and knowledge on practice of mothers regarding acute respiratory infection as shown by post-test scores of experimental group.¹²

A study was conducted by Chako Meena in 2008 with the aim to evaluate effectiveness of structured teaching programme on knowledge and practice regarding management of thrombolytic therapy among staff nurses working in selected hospital Bangalore among 40 samples selected by purposive sampling technique. The findings suggested that mean post test knowledge score 69.19 was higher than mean pre test knowledge score 34.05 with the ‘t’ value of 26.05 and found to be significant at the level of p<0.001. The author concluded that structured teaching programme was effective method of providing information on knowledge and practice regarding management of thrombolytic therapy.¹³

A study was conducted By Carol Tweed in 2008 to assess intensive care nurses’ knowledge of pressure ulcers and the impact of an educational program on knowledge levels. A knowledge assessment test was developed. A cohort of registered nurses in a tertiary referral hospital in New Zealand had knowledge assessed 3 times: before an educational program, within 2 weeks after the program, and 20 weeks later. Multivariate analysis was performed to determine if attributes such as length of time since qualifying or level of intensive care unit experience were associated with test scores. The content and results of the assessment test were evaluated. Completion of the educational program resulted in improved levels of knowledge. Mean scores on the assessment test were 84% at baseline and 89% following the educational program. The mean baseline score did not differ significantly from the mean 20-week follow-up score of 85%. The author concluded that levels of knowledge to prevent and manage pressure ulcers were good initially and improved with an educational program.¹⁴

IV. STATEMENT OF THE PROBLEM
“A study to assess the effectiveness of planned teaching programme on the knowledge of nurses regarding care of acute head injury patients in selected hospitals of Bangalore”.

V. OBJECTIVES
1) To assess the pre test knowledge score of nurses in providing care to patients with acute head injury.
2) To assess the post test knowledge score of nurses in providing care to patients with acute head injury after planned teaching programme.
3) To determine the effectiveness of planned teaching programme in providing care to patients with acute head injury using pre and post test knowledge scores.
To find the association between pre test knowledge score of nurses with selected socio-demographic variables of nurses.
VI. ASSUMPTION
1) The staff nurses may have some knowledge on care of acute head injury patients.
2) Staff nurses can gain knowledge from planned teaching programme.
3) Education can bring positive changes in the health care practices of the staff nurses.

VII. HYPOTHESIS
H₁: The mean post test knowledge scores of the staff nurses will be significantly higher than the mean pre-test knowledge scores.
H₂: There will be a significant association between pre test knowledge score of nurses with selected sociodemographic variables.

VIII. RESEARCH METHODOLOGY
A. Research approach & Research design
The research method adopted for the present study was an evaluative research approach. A pre-experimental, one group pre-test post-test design was used for this study.

B. Dependent variable
In the present study, it refers to the knowledge of nurses on care of acute head injury patients.

C. Independent variable
In this study it refers to the planned teaching programme which has brought about change in the knowledge of nurses.

D. Setting of the study
Based on the geographical proximity, feasibility and familiarity with the setting, the investigator selected Kavitha hospital, Sunkadakatte, Bangalore; Sree Venkateshwara Hospital, Jnanajyothinagar, Bangalore and Unity Lifeline Hospital, Nagarabhavi 2nd Stage, Bangalore to carry out the present study.

E. Sample and sample size
Here the study sample comprised of 60 staff nurses working at Kavitha hospital, Sunkadakatte, Bangalore; Sree Venkateshwara Hospital, Jnanajyothinagar, Bangalore and Unity Lifeline Hospital, Nagarabhavi 2nd Stage, Bangalore.

F. Sampling techniques
In this study non probability convenient sampling was used for selecting the samples.

G. Inclusion criteria
The inclusion criteria for sampling were
1) Nurses who are G. N. M. or B. Sc. Nursing.
2) Nurses who are willing to participate in the study.
3) Nurses who are available during data collection.

H. Exclusion criteria
1) Nurses who are only A. N. M.
2) Nurses who had already undergone in-service education on care of head injury patients.

I. Data collection technique and tool
Self administered Structured Knowledge Questionnaire (30 items) on care of acute head injury patients used to assess the knowledge level of staff nurses. Content validity was done by 11 experts. In order to establish reliability of the tool, the technique called Split Half method was used (r = 0.83). The pre-test was conducted by administering the Structured Knowledge Questionnaire followed by PTP on care of acute head injury patients. On the 7th day post test was conducted by using the same tool.

IX. PLAN FOR DATA ANALYSIS
The analysis was made on the basis of objectives and hypothesis. Descriptive and Inferential statistics were used to find out the for analysis of data and the significant of difference between the pre and post test knowledge scores, chi-square test to determine the association between the pre-test knowledge score with selected variables of staff nurses.

X. FINDINGS AND DISCUSSION

<table>
<thead>
<tr>
<th>Sociodemographic variables</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) 21 to 30 yrs</td>
<td>43</td>
<td>71.67%</td>
</tr>
<tr>
<td>b) 31 to 40 yrs</td>
<td>15</td>
<td>25%</td>
</tr>
<tr>
<td>c) 41 to 50 yrs</td>
<td>2</td>
<td>3.33%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Male</td>
<td>20</td>
<td>33.33%</td>
</tr>
<tr>
<td>b) Female</td>
<td>40</td>
<td>66.67%</td>
</tr>
<tr>
<td><strong>Professional Qualification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) GNM</td>
<td>49</td>
<td>81.67%</td>
</tr>
<tr>
<td>b) B.B.Sc.Nursing</td>
<td>11</td>
<td>18.33%</td>
</tr>
<tr>
<td><strong>Total clinical experience</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Less than 1 yr</td>
<td>24</td>
<td>40%</td>
</tr>
<tr>
<td>b) 1 - 2 yrs</td>
<td>11</td>
<td>18%</td>
</tr>
<tr>
<td>c) 2 - 3 yrs</td>
<td>6</td>
<td>10%</td>
</tr>
<tr>
<td>d) 3 - 4 yrs</td>
<td>3</td>
<td>5%</td>
</tr>
<tr>
<td>e) 4 - 5 yrs</td>
<td>6</td>
<td>10%</td>
</tr>
<tr>
<td>f) More than 5yrs</td>
<td>10</td>
<td>17%</td>
</tr>
<tr>
<td><strong>Area of work</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) ICU</td>
<td>6</td>
<td>10%</td>
</tr>
<tr>
<td>b) General ward</td>
<td>21</td>
<td>35%</td>
</tr>
<tr>
<td>c) OPD</td>
<td>13</td>
<td>21.67%</td>
</tr>
<tr>
<td>d) Casualty</td>
<td>8</td>
<td>13.33%</td>
</tr>
<tr>
<td>e) Neuro ICU</td>
<td>5</td>
<td>8.33%</td>
</tr>
<tr>
<td>f) OT</td>
<td>7</td>
<td>11.67%</td>
</tr>
<tr>
<td><strong>In-service training programme</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Yes</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>b) No</td>
<td>60</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 1: Frequency and percentage distribution of subjects (n=60)
Table 1 describes the sociodemographic characteristics of the samples. Majority of the subjects 43(71.67%) were between age group of 21-30 years and only 2(3.33%) were below age group of 41-50 years. It also reveals that majority of the subjects 40(66.67%) were females and only 20(33.33%) subjects were males. Regarding the professional qualification, majority of the subjects undergone GNM 49(81.67%) and only 11(18.33%) subjects were graduated in B.Sc. nursing. Most of the subjects 24(40%) had overall experience below 1year, 10(17%) had more than 5 years experience and only 3(5%) subjects had 3-4 years of experience. In the area of work, majority of the subjects 21(35%), working in general ward and only 5(8.33%) subjects working in Neuro ICU. None of the subjects
60(100%) were undergone any training programme regarding care of acute head injury patients.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scores</td>
<td>Percent</td>
</tr>
<tr>
<td>Inadequate</td>
<td>47</td>
<td>78.4%</td>
</tr>
<tr>
<td>Moderately adequate</td>
<td>13</td>
<td>21.6%</td>
</tr>
<tr>
<td>Adequate</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Combined knowledge score</td>
<td>60</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2: Overall level of knowledge score in pre-test and post-test (n=60)

Table 2 shows that during pre-test out of 60, majority of subjects 47(78.4%) had inadequate knowledge and only 13(21.6%) subjects had moderate knowledge regarding Acute care of head injury patients. Whereas in post-test 45(75%) of the subjects had moderately adequate knowledge scores and 15(25%) had adequate knowledge scores.

Table 3: Pre and post- test mean knowledge score of staff nurses regarding care of acute head injury patients.

<table>
<thead>
<tr>
<th>S. N.</th>
<th>Knowledge variables/ No. of items</th>
<th>Post Test</th>
<th>Pre Test</th>
<th>Paired 't' Value</th>
<th>Inference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Anatomy and physiology of Brain (4)</td>
<td>3.38 (SD 0.58)</td>
<td>1.88 (SD 0.82)</td>
<td>11.821 S*</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>General information about Head injury (6)</td>
<td>5.18 (SD 0.67)</td>
<td>2.35 (SD 0.98)</td>
<td>18.143 S*</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Acute care of Head injury patients (20)</td>
<td>11.63 (SD 3.03)</td>
<td>6.56 (SD 3.13)</td>
<td>12.477 S*</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Overall Knowledge</td>
<td>20.20 (SD 3.09)</td>
<td>10.80 (SD 3.78)</td>
<td>20.954 S*</td>
<td></td>
</tr>
</tbody>
</table>

Table. 2: Overall level of knowledge score in pre-test and post-test (n=60)

XI. CONCLUSION

Pre-test findings showed that deficient knowledge regarding “care of acute head injury patients” existed in varying degree among staff nurses in all areas of learning. The present study revealed that most of the subjects 78.4% had inadequate knowledge regarding “Acute care of head injury patients”. Overall 25% subjects had adequate knowledge and 75% subjects had moderate knowledge, 85% subjects had adequate knowledge regarding general information about head injury in the post test. The PTP tested in the study was found to be effective in improving the knowledge of staff nurses. PTP is an effective teaching method for providing information. It was very much appreciated by the staff nurses and they expressed their gratitude for providing education on the topic. There was no significant association between specific variables like age and gender but there was significant association between professional qualification, years of experience, area of work and knowledge of staff nurses regarding care of acute head injury patients.

XII. NURSING IMPLICATIONS

A. Nursing Practice

Staff nurses should have knowledge and skill in care of acute head injury patients as it is important in saving the life of the patients. Making this aspect of care more efficient and accurate needs thorough knowledge regarding prompt and continuous neurological assessment, maintaining airway and breathing pattern, ensuring proper oxygen supply, maintaining adequate cerebral blood flow, controlling raised intracranial pressure (ICP), managing other injuries and prevention of seizures. The findings of the study evident that nurses should periodically update their knowledge. Regarding nursing practice several implications can be drawn from the present study, continuing education programme by nursing person on care of acute head injury patients should be made on ongoing training in the hospital area. There is a need for efforts by all nurses to increase the knowledge and awareness regarding acute care of head injury patients, and nurse responsibility and there by disseminate information through planned and incidental teaching. Findings of the study can be used to prepare standardized protocol on care of acute head injury patients to improve the cognitive affective and psychomotor domains of staff nurses working in hospital to impart the comprehensive nursing care. This can be done in collaboration with the nurse administrators by planning and conducting in-service education periodically and priority areas.

B. Nursing Education

Education is the base for knowledge. Nursing education emphasizes that health care system should pay more attention on training the students so that the nurses themselves will become more knowledgeable and can be their own selves as well as to the others by imparting health education by using various methods of educational technology. The curriculum may be responsible for imparting knowledge among nurses in acute care but nurse educators have the additional responsibility to update their knowledge. The existing nursing curriculum on care of acute head injury patients should be strengthened where as the students will be enhanced with the knowledge on care of...
acute head injury patients. PTP can be used in education programme where classroom attendance is minimal i.e. distance education programmes.

C. Nursing Administration

Staff development programme in any organization is the prime responsibility of the nurse administrator. The availability of such staff development programme in nursing profession is inadequate at present. Administration plays a major role in regulating and coordinating the laws. Institutions rendering services to the clients should review their policies and practices. Nursing administrator should co-ordinate and conduct various educational programme in order to improve and update nurses knowledge on care of acute head injury patients.

D. Nursing Research

Nurses need to be vigilant when giving care to the patient. The scope of interventions for a wide variety of disease conditions and the research basis for practices are continuing to expand in a phenomenal rate. Nurses need to be actively engaged in all phases of the research process, to address ongoing questions of interest to continually improve client care. There is a need for extensive and intensive research in this area so that strategies for educating nurses on the continuous neurological assessment, maintaining airway and breathing pattern, ensuring proper oxygen supply, maintaining adequate cerebral blood flow, controlling raised ICP, managing other injuries and prevention of seizures and other secondary complications.

The nurse researcher should conduct the research on care of acute head injury patients which provides more scientific data and adds more scientific body of information and Nursing care.

XIII. RECOMMENDATIONS

1) Similar study can be replicated on a large sample to generalize the findings. There is a need for extensive and intensive research in this area so that strategies for educating nurses on the continuous neurological assessment, maintaining airway and breathing pattern, ensuring proper oxygen supply, maintaining adequate cerebral blood flow, controlling raised Intracranial pressure, managing other injuries and prevention of seizures and other secondary complications.

2) An experimental study can be done with a control group.

3) A comparative study can be conducted between the government and private hospital nurses.

4) A similar study can be done by assessing attitude and practice.

REFERENCES


