

# Usability Testing of 7 As for Assessment and Management of Head Injury: A Kasturba Gandhi Nursing College Model among Staff Nurses Working in Emergency Medical Services, Mahatma Gandhi Medical College and Research Institute, Puducherry—An Exploratory Research

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## ABSTRACT

A head injury, also known as a traumatic brain injury, is an injury to the head caused by blunt trauma, acceleration, or deceleration forces that cause one or more of the following symptoms: any time when you are confused, disoriented, or have a loss of consciousness, any memory problems around the time of the accident, a loss of consciousness that lasts shorter than 30 minutes, and the development of neurological or neuropsychological abnormalities. In order to move to the next level of care and handling the patients, nurses must assess head injury patients in an emergency room.

**Objectives:** The objective of the study was to test the usability of 7 As for assessment and management of head injury—a Kasturba Gandhi Nursing College (KGNC) model among staff nurses working in Emergency Medical Services.

**Materials and methods:** Quantitative research approach was used for this study. One group pretest and posttest design was adopted for the study. Forty samples were selected by using purposive sampling method. Demographic variables of the staff nurses were collected using structured questionnaire and designed model was represented in the form of poster and will be displayed on Emergency Medical Service (EMS) walls before the data collection. Posttest was conducted using structured questionnaire. Data were analyzed using descriptive and inferential statistics like frequency, percentage, mean, standard deviation, Mann–Whitney test, and Chi-square test.

**Results:** Among them, 32 (80%) belonged to 21–25 years, 7 (17.5%) were between 26 and 30 years, and only 1 (2.5%) was between 31 and 40 years. The analysis of gender shows that 9 (22.5%) of them were males and 31 (77.5%) of them were females. The analysis of education shows that all of them (40 subjects) (100%) completed Bachelor of Science in Nursing (BSc Nursing). The analysis of years of experience shows that 5 (12.5%) of them have 0–1 year, 32 (80%) of them have 1–3 years, 3 (7.5%) of them had 4–8 years of experience, and none of them has more than 9 years.

In the level of usability of 7 As on assessment of head injury among staff nurses out of 40 samples, 22 (55%) of nurses were in category of Easy to Practice, 17 (42.5%) of nurses were in the level of Able to Practice, and only one good in procedures and no one felt had to practice.

**Conclusion:** The nurse working in clinical setting can use this assessment method in an easy way to assess and diagnose the severity of illness. The staff nurses can use this in their clinical practice. The study findings create empirical evidence to improve the quality of nursing care in terms of patient safety, time-consuming, cost-effectiveness, and preventable damage, and it can use in all the wards of the hospitals and also in home setup during rehabilitation.

**Keywords:** Assessment, Emergency department, Head injury.

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## INTRODUCTION

Head injury is considered as any trauma to the head, other than superficial facial injuries. In the United Kingdom, head injury is the leading cause of mortality and disability among people aged 1–40. In England and Wales, 1.4 million patients visit emergency rooms with a recent head injury each year. Children under the age of 15 account for between 33 and 50% of these.<sup>1–9</sup> Approximately 200,000 people are hospitalized each year with a brain injury. One-fifth of them exhibit signs that suggest a skull fracture or evidence of brain injury. Most patients recover without the need for specialized care, but some suffer long-term disability or even death as a result of complications that may have been avoided or mitigated with early detection and treatment.<sup>10</sup>

The death rate from a head injury is extremely low, with about 0.2% of all patients who visit emergency rooms with a head injury

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dying as a result of the injury.<sup>11</sup> Although 95% of patients who have had a brain injury present with normal or moderately impaired conscious levels (Glasgow Coma Scale [GCS] greater than 12), the majority of fatal outcomes occur in the moderate (GCS 9–12) and severe (GCS 8 or fewer) head injury groups, which account for only 5% of attendees.<sup>12,13</sup> As a result, emergency rooms handle a significant number of patients with minimal or minor head injuries, and they must identify the tiny number of patients who will develop catastrophic acute intracranial problems. It is believed that 25–30% of children under the age of two who are admitted to the hospital with a head injury have suffered an abusive head injury. Some of the terminology used in relation to child and vulnerable adult protection has been revised in this guidance.

The following are some of the steps involved in treating a brain injury: The three independent responses on the GCS should be used to monitor and exchange information about individual patients (e.g., a patient scoring 13 based on scores of 4 on eye-opening, 4 on verbal response, and 5 on motor response should be communicated as E4, V4, M5). If a total score is to be recorded or conveyed, use a sum of 15 and specify this denominator to avoid misinterpretation. Individual components of the GCS should be described in all communications and notes, and they should always be included with the total score.<sup>13,14</sup> They include a “grimace” option to the verbal score in the pediatric version of the GCS to aid scoring in preverbal children. The preinjury GCS may be less than 15 in some patients (e.g., those with dementia, underlying chronic neurological illnesses, or learning difficulties). Assess adults who have suffered a head injury and manage their care according to clear principles and standard practice, as embodied in the Advanced Trauma Life Support (ATLS) course.<sup>15,16</sup>

The present study was conducted to evaluate the usability of assessment and management protocol framed by an investigator to ease the staff nurses who are working in duration and ability of practice of the developed tool for assessing the head injury and handling the patients in emergency departments.

## AIMS AND OBJECTIVE

- The objective of the study was to test the usability of 7 As for assessment and management of head injury—a Kasturba Gandhi Nursing College (KGNC) model among staff nurses working in Emergency Medical Services, Mahatma Gandhi Medical College and Research Institute (MGMCRI) Puducherry.

## HYPOTHESIS

- The hypothesis is 7 As for assessment and management of head injury—a KGNC model has good usability among staff nurses working in MGMCRI, Puducherry.

## MATERIALS AND METHODS

Quantitative research approach was used for this study. One group pretest and posttest design was adopted for the study. The population of the study includes staff nurses working in Emergency Medical Services in Mahatma Gandhi Medical College, Research Institute and Hospital, Puducherry. Forty samples were selected purposive sampling technique. The content validity of the tool was obtained. Permission was obtained from Institutional Human Ethical Committee and informed written consent was obtained from the subjects. Demographic variables of the staff nurses were collected using structured questionnaire and designed model will

be represented in the form of poster and will be displayed on EMS walls before the data collection. Posttest was conducted using structured questionnaire. Data were analyzed using descriptive and inferential statistics.

## Inclusion Criteria

- Staff nurses who are working in the Emergency Service Department.
- Staff nurses who are in Emergency Service Department during data collection.

## Exclusion Criteria

- Staff nurses who are not willing to participate.
- Staff nurses who are on leave during data collection.

## RESULTS

Frequency and percentage distribution of the sociodemographic variables among staff nurses are described in Tables 1 and 2, and Figure 1 shows the distribution of level of usability of 7 As on assessment of head injury among staff nurses. Out of 40 samples, 22 (55%) of the nurses were in category Easy to Practice, 17 (42.5%) of the nurses were in level of Able to Practice, and only good in procedures, and no one felt hard to practice.

## DISCUSSION

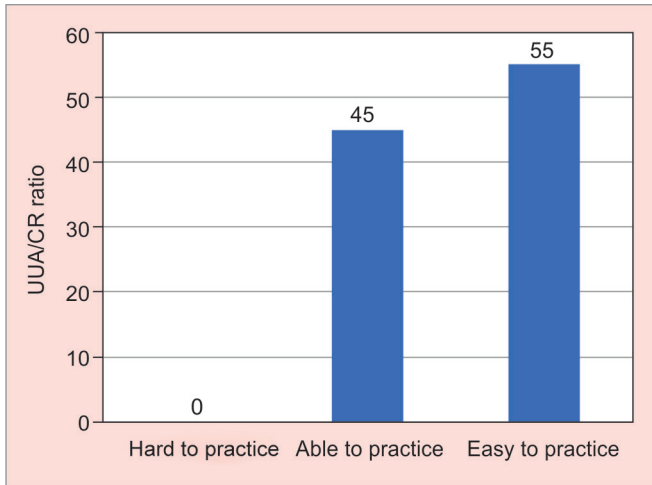
The objective of the present study was to test the usability of 7 As for assessment and management of head injury—a KGNC model among staff nurses working in Emergency Medical Services, MGMCRI, Puducherry.

**Table 1:** Frequency and percentage distribution of the sociodemographic variables among staff nurses (N = 50)

| Sl. No. | Sociodemographic variables | Frequency (n) | Percentage (%) |
|---------|----------------------------|---------------|----------------|
| 1       | <b>Age in years</b>        |               |                |
|         | 21–25 years                | 32            | 80             |
|         | 26–30 years                | 7             | 17.5           |
|         | 31–40 years                | 1             | 2.5            |
| 2       | <b>Gender</b>              |               |                |
|         | Male                       | 9             | 22.5           |
|         | Female                     | 31            | 77.5           |
| 3       | <b>Education</b>           |               |                |
|         | GNM                        | 0             | 0              |
|         | PB BSc Nursing             | 0             | 0              |
|         | BSc Nursing                | 40            | 100            |
| 4       | <b>Years of experience</b> |               |                |
|         | 0–1 year                   | 5             | 12.5           |
|         | 1–3 years                  | 32            | 80             |
|         | 4–8 years                  | 3             | 7.5            |
|         | More than 9 years          | 0             | 0              |

**Table 2:** Distribution of level of usability among staff nurses (N = 50)

| Level of usability | Frequency (N) | Percentage (%) |
|--------------------|---------------|----------------|
| Hard to Practice   | 0             | 0              |
| Able to Practice   | 18            | 45             |
| Easy to Practice   | 22            | 55             |
| <b>Total</b>       | <b>40</b>     | <b>100</b>     |



**Fig. 1:** Level of usability of 7 As for the assessment of head injury among staff nurses

The analysis of age in years shows that 32 (80%) of them were belonged to 21–25 years, 7 (17.5%) were between 26 and 30 years, and only 1 (2.5%) was between 31 and 40 years. The analysis of gender shows that 9 (22.5%) of them were males and 31 (77.5%) of them were females. The analysis of education shows that all of them (40 subjects) (100%) were completed BSc Nursing. The analysis of years of experience shows that 5 (12.5%) of them have 0–1 year, 32 (80%) of them have 1–3 years, 3 (7.5%) of them had 4–8 years of experience, and none of them has more than 9 years.

Table 2 and Figure 1 show the distribution of level of usability of 7 As on the assessment of head injury among staff nurses. Out of 40 samples 22 (55%) of nurses were in the category of Easy to Practice, 17 (42.5%) of nurses were in level of Able to Practice, and only good in procedures and no one felt had to practice.

## RECOMMENDATION

- Standard protocol can be formulated on 7 As assessment of head injury in critical care nursing.
- For better generalization, the analysis can be repeated with a wide sample.
- The efficacy of other nursing assessment can be measured by comparison.

## CONCLUSION

It was concluded that the nurses working in clinical setting can use this assessment method in an easy way to assess and diagnose the severity of illness. The staff nurses can use this in their clinical practice. The study findings create empirical evidence to improve the quality of nursing care in terms of patient safety, time-consuming,

cost-effectiveness, and preventable damage, and it can also use in all the wards of the hospitals and also in home setup during rehabilitation.

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