

# Effectiveness of Self-Instructional Module (SIM) on Glasgow Coma Scale (GCS) Among Nursing Personnel Working in Selected Tertiary Care Hospitals, Maharashtra

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**Abstract:** **Aim of the study:** The study aims to find the effectiveness of self-instructional module (sim) on glasgow coma scale (gcs) among nursing personnel working in selected tertiary care hospitals. **Problem statement:** “Does Self-Instructional Module (SIM) on Glasgow Coma Scale (GSC) is effective among Nursing Personnel working in Selected Tertiary Care Hospitals, Maharashtra.” **Primary objective:** Primary objective of study was to find out the effectiveness of self-instructional module (sim) on glasgow coma scale (gcs) is effective among nursing personnel working in selected tertiary care hospitals, Maharashtra. **Secondary objective:** 1) To assess the knowledge of nursing personnel on GCS in experimental and control group before intervention. 2) To assess the knowledge of nursing personnel on GCS in experimental and control group after intervention. 3) To find out the effect of SIM on GCS among nursing personnel in experimental and control group after an intervention. 4) To find out the association between post-test knowledge scores on GCS and selected demographic variables of nursing personnel in experiment group. **Method:** A quasi-experimental research design used for the study. It was conducted over 150 nursing personnel by using Non probability Convenient sampling technique. **Results:** In this study the findings, it was observed that the pre-intervention demographic variables of nursing personnel in control and experimental group were more or less similar revealing both the groups had similar characteristics. It was observed that the percentages of knowledge (control group; 52.3% & experimental group; 50.4%) on Glasgow coma scale among nursing personnel were more or less similar before intervention. However, after an intervention, the percentage of knowledge on Glasgow coma scale was significantly increased from 53.7% to 83.9% in experimental group whereas it was almost remained unchanged in control group. These was a significant difference ( $p < 0.05$ ) was found between knowledge on Glasgow coma scale and age, qualification, professional experience, income & attended seminar/conference/workshop of nursing personnel. Findings of study revealed that the SIM on Glasgow coma scale in as a method of self learning was effective among nursing personnel working in selected hospitals, Maharashtra. **Interpretation and conclusion:** The findings of present study, it was concluded that the pre-intervention demographic variables of nursing personnel in control and experimental group were more or less similar revealing both the groups had similar characteristics. Percentage of knowledge and the mean scores of nursing personnel were more or less similar in both the groups before intervention. However, after an intervention, the percentage of knowledge and the mean scores of nursing personnel were significantly increased in experimental group whereas it was remained unchanged in control group. There was a significant difference between pre-test and post-test knowledge scores in experimental group. And, there was also a significant difference between the post-tests of control and experimental group. Thus, it was concluded that the SIM on Glasgow coma scale as a method of self- learning was effective among nursing personnel working in selected tertiary care hospitals, Maharashtra.

**Keywords:** effectiveness, self-instructional module (sim), glasgow coma scale (gcs), nursing personnel, tertiary care hospitals

## 1. Introduction

The Glasgow Coma Scale (GCS) was developed more than thirty years ago as a practical tool to measure the "depth and duration of impaired consciousness". Simplicity was the principle concern with the goal to provide a method to quantify and communicate reliable information about level of consciousness. Glasgow Coma Scale is an important tool for decision-making and triage and its initial score acts as an important prognostic indicator after traumatic brain injury (TBI).<sup>1</sup> The correct assessment of the Glasgow Coma Scale shows variability among providers and its assessment has been shown to be difficult with variable implications on treatment. Patients on scene are often unstable and more difficult to assess.<sup>2</sup> The purpose of this study is to assess the knowledge among nursing personnel working in the hospital of the Glasgow Coma Scale by using a specially designed questionnaire.<sup>2</sup> The out-of-hospital Glasgow Coma Scale is also of value for the attending neurosurgeon and emergency physician when an emergency department Glasgow Coma

Scale cannot be obtained, due to endotracheal intubation and/or neuromuscular paralysis. Inaccurate reporting may result in unnecessary treatment and diagnostic tests. In addition to the summed value, each component of the three categories of the Glasgow Coma Scale should also be reported.<sup>3</sup>

## 2. Need for the study

The most critical phase is to handle the pressure situation while working in those areas where there is need of critical thinking, expert skill and independent decision making abilities. It is estimated that around 9% of the global mortality and 12% of the global disease burden is due to injuries.<sup>8</sup> The number of people with anorexia nervosa who fully recover is small. 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

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the seventh-leading cause of mortality contributing to 11% of total deaths; 78% of cases are due to road traffic injuries alone. Mild brain injury has been consensually defined by the Mild Traumatic Brain Injury (MTBI) Committee of the brain injury interdisciplinary special interest group of the American Congress of Rehabilitation Medicine as: (A) Loss of consciousness (LOC) not exceeding 30 minutes. (B). after 30 minutes, an initial Glasgow Coma Score (GCS) of 13–15 is observed. (C). Posttraumatic amnesia (PTA) not exceeding 24 hours. The definition includes patients with direct head trauma as well as those who suffer an acceleration/deceleration injury (“whiplash”) without specific direct head trauma.(D) 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 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. (E) Historically, the options for evaluation in Mild traumatic brain injury have included skull radiography, Computed tomography, Magnetic Resonance imaging, and inpatient observation. Various newer modalities such as cerebral perfusion studies, brain stem– evoked potential, and serum markers are presently being evaluated for the diagnosis, characterization and prognostication of Mild traumatic brain injury.<sup>9</sup> Incidence about 125,000 acquire a disability every year secondary to Traumatic brain injury. Prevalence about 9,700,000 Indians are living with disabilities related to Traumatic brain injury. Most affected are those within 15-25 years of age, Male: Female – 3:1, Causes are: • Motor vehicle accidents • fall, assaults • Sports accidents • Gunshot wound • Violent shaking of a young child.<sup>10</sup>

### 3. Review of Literature

Review of literature was carried out on recent and ongoing research relevant to the present study. The review of literature is done under following areas of glasgow coma scale (gcs).

- 1) Literature related to consciousness, different stages of altered level of conscious and its factors
- 2) Literature Related to GCS
- 3) Literature related to knowledge of nursing personnel on GCS
- 4) Literature related to effectiveness of self-instructional module. (SIM)

#### Delimitations:

The study was limited to -

- 1) Assessment of knowledge
- 2) 150 nursing personnel
- 3) Serving in tertiary care hospital, Maharashtra
- 4) Study is limited to private hospitals.

#### Hypothesis:

H1: There is a significant difference between pre-test and post-test knowledge scores on GCS among nursing personnel in experimental and control group.

H2: There is a significant difference between post-test

knowledge scores among nursing personnel in experimental and control group regarding GCS.

H3: There is a significant association between post-test knowledge scores on GCS and demographic variables of nursing personnel in experimental group.

### 4. Methodology

**Research approach:** Quantitative research approach

**Research design** Quasi- experimental research design

**Variables under study:**

- **Independent variable:** Self-Instructional Module.
- **Dependent variable:** Knowledge

**Accessible population-** Nursing personnel who were available for research studies were considered as accessible population

**Sample and sampling technique** **Sample:** Nursing Personnel

**Sample size:** 150 Nursing Personnel

**Sampling technique:** Non probability convenient sampling technique

**Inclusion criteria:**

In this study, inclusion criteria was adolescent who are,

- Nursing personnel those who were consented to participate in the study
- Nursing personnel those who were available at the time of data collection
- Nursing personnel those who are registered in the state nursing council

**Exclusion criteria:**

- Nursing personnel with the designation of nursing superintendent grade I and II

**Tool Preparation**

**Description of Tools:**

- 1) Section I - Semi structured questionnaire of demographic variables
- 2) Section II –Self-Administer Questionnaire on Glasgow Coma Scale

**Tool Validity**

To obtain Content validity of SAQ and SIM were established in consultation with 7 experts from the field of Medical Surgical Nursing (n=5), neuro-Surgeon (n=1), language expert (n=1). The suggestions of subject experts were taken into consideration and reframed the same.

**Tool Reliability**

In this study, Karl Pearson's correlation coefficient was calculated and SAQ was found to be reliable  $r = 0.9$ . Hence, the SAQ was considered reliable.

**Pilot Study**

It was conducted on 15 Nursing personnel and The collected

data was coded, tabulated and analysed by using descriptive statistics (mean, mean percentage, standard deviation) correlation coefficient and to find out the association between the demographic variables and knowledge scores. The data was represented in the form of tables and graphs. The data regarding knowledge of nursing personnel was analysed statistically by using paired 't'-test. It was found to be significant at 0.05 level. The pilot study was feasible in term of time, money and resources.

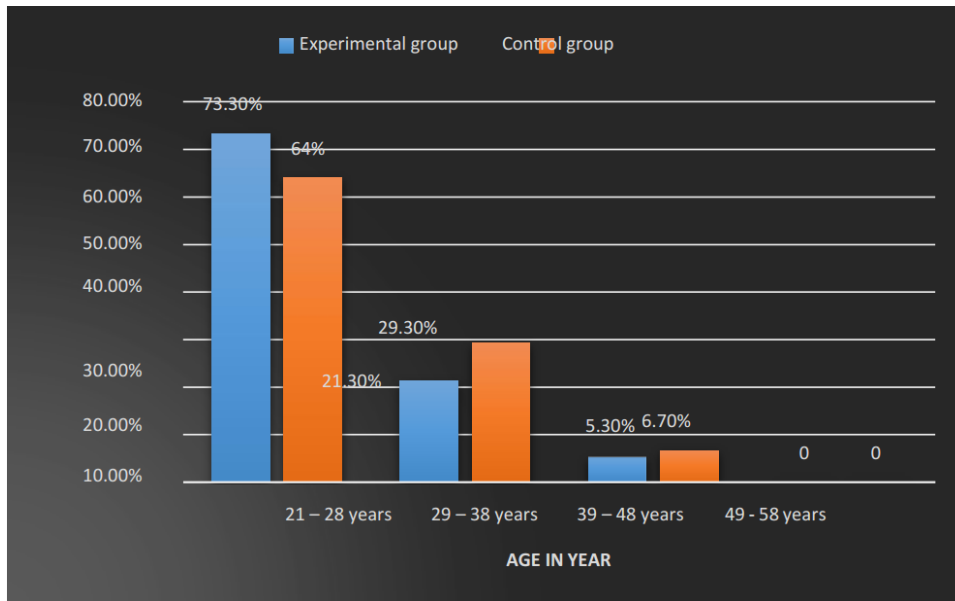
**Plan for Data Analysis**

The main study data was gathered from 28/12/21 to 11/01/22 Permission from the principal was taken before

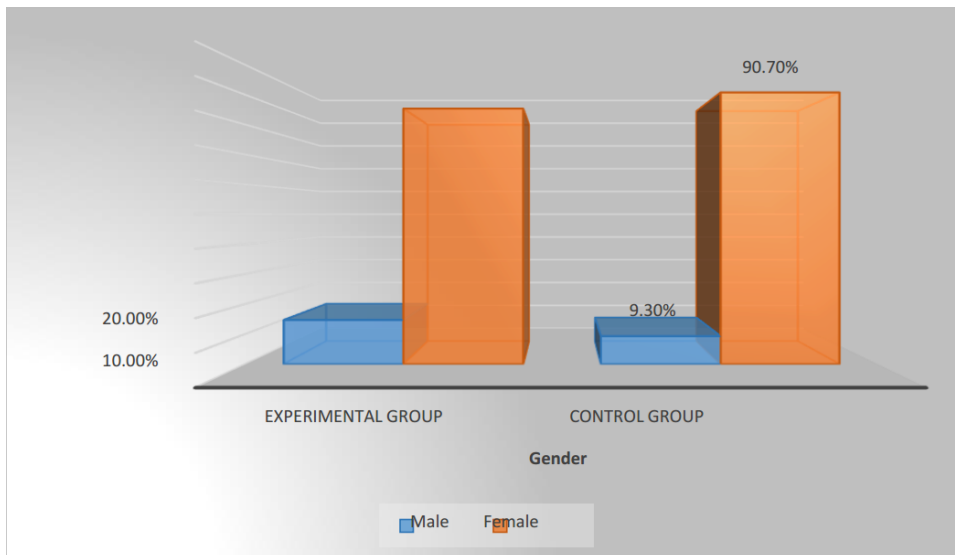
conducting the study. The investigator introduced her and explained the purpose of the study and consent was obtained. The questionnaires were distributed to the samples. The questionnaires were completed in the presence of the investigator to avoid contamination and bias in the collection of data.

**5. Results**

**Section I:** Distribution of nursing personnel according to their demographic variables in experimental and Control group



**Figure 4.1.1:** Percentage distribution of nursing personnel according to their age in experimental & control group



**Figure 4.1.2:** Percentage distribution of nursing personnel according to their gender in experimental & control group

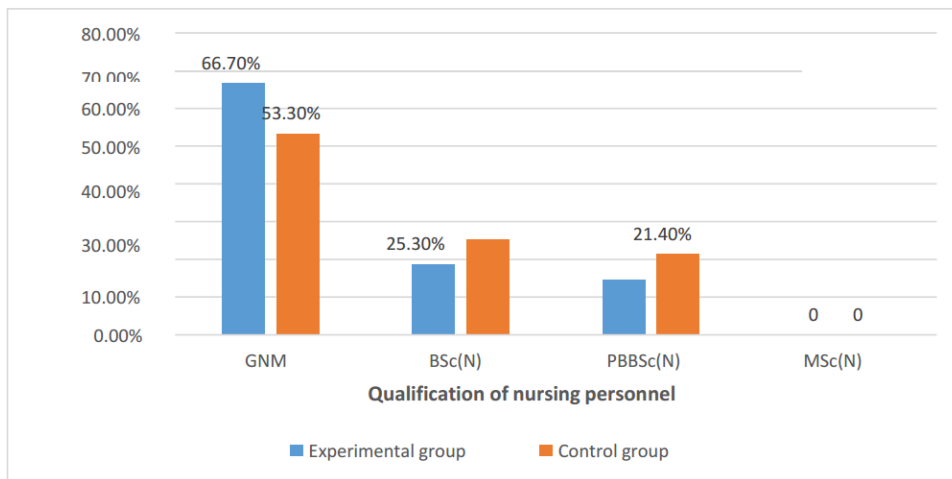


Figure 4.1.3: Percentage distribution of nursing personnel according to their qualification experimental & control group

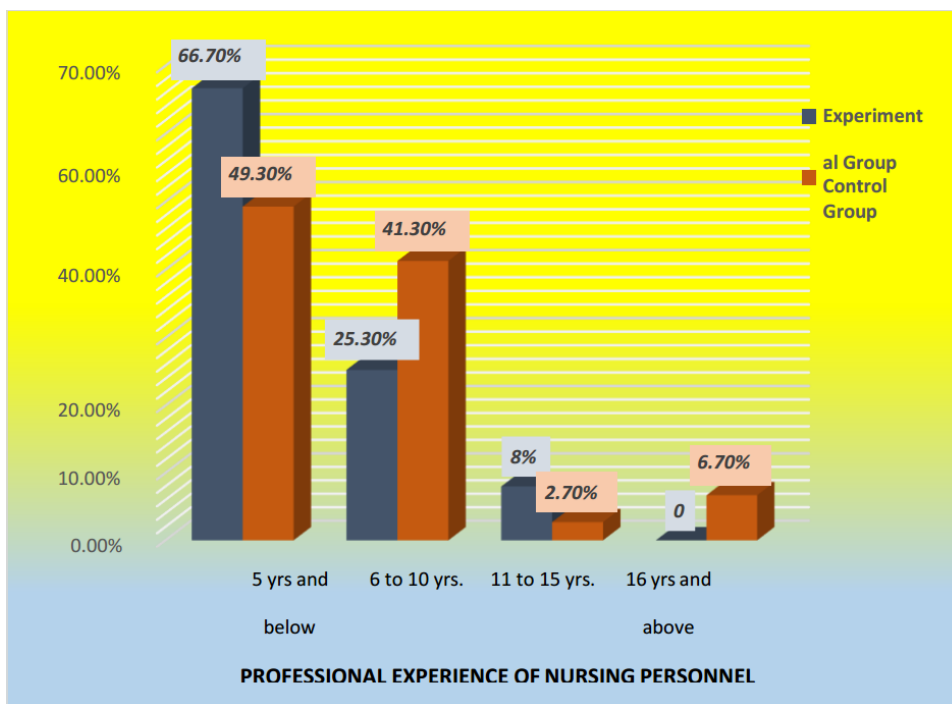


Figure 4.1.4: Percentage wise distribution of nursing personnel according to their professional experience in experimental group and control group

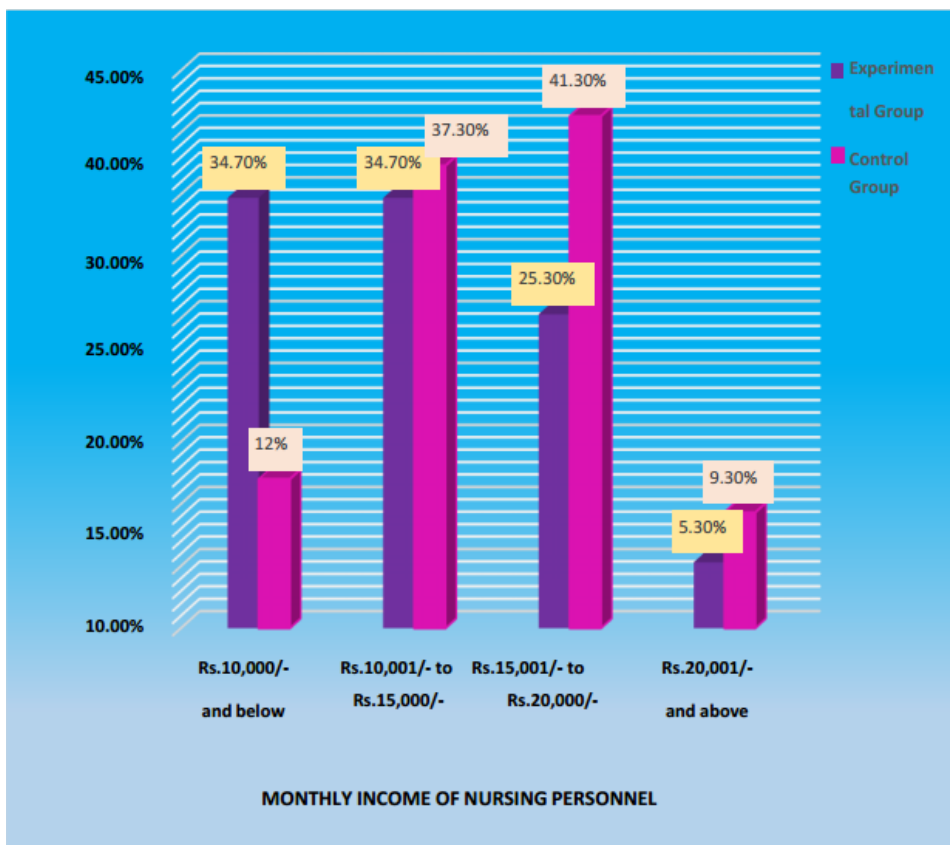


Figure 4.1.5: Percentage distribution of nursing personnel according to their monthly income in experimental & control group

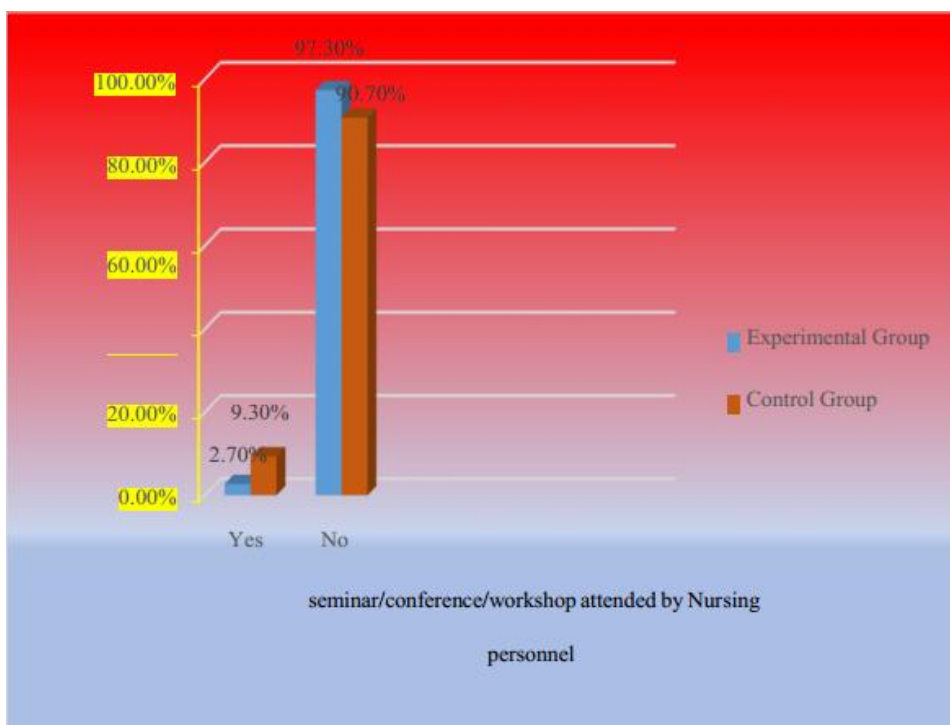


Figure 4.1.6: Percentage distribution of nursing personnel according to their Attended seminar/ conference/ workshop in experimental & control group

## Section II

**Table 4.2.1:** Percentage distribution of knowledge score on Glasgow coma scale among nursing personnel in experimental and control group before intervention,  $n=150$ 

Level of Knowledge Score	Control Group		Experimental Group	
	<i>f</i>	%	<i>f</i>	%
Poor	00	0%	01	1.3%
Average	23	30.6%	24	32%
Good	34	45.3%	34	45.3%
Very Good	18	24%	15	20%
Excellent	00	0%	01	1.3%
Overall	75	52.3%	75	50.4%

Distribution of knowledge scores of nursing personnel before intervention reveals that around 34(45.3%) nursing personnel were had average knowledge and one fourth of good knowledge 18(24%) in control group whereas none of them had poor, or excellent knowledge. However, the overall knowledge before intervention was 52.3% in control group (table - 4.2.1).

With regard to experimental group, highest 34 (45.3%) nursing personnel had good knowledge whereas poor or excellent knowledge 01(1.3%). However, the nurses with

average and very good knowledge were 24 (32%) & 15 (20%) respectively. Altogether, the nursing personnel knowledge before intervention was 50.4% in experimental group.

Hence, it was interpreted that the nursing personnel in control group had better knowledge on Glasgow coma scale when compared to experimental group before intervention. Overall, the nursing personnel had a good knowledge on Glasgow coma scale in both the groups.

**Table 4.2.2:** Mean knowledge scores on Glasgow coma scale among nursing personnel in experimental and control group before intervention,  $n = 150$ 

Level of Knowledge Score	Control Group		Experimental Group	
	<i>f</i>	Mean $\pm$ SD	<i>f</i>	Mean $\pm$ SD
Poor	00	00	01	5 $\pm$ 0.1
Average	23	9.7 $\pm$ 0.4	24	8.9 $\pm$ 1.1
Good	34	13.2 $\pm$ 1.3	34	13.0 $\pm$ 1.3
Very Good	18	17 $\pm$ 1.1	15	17.4 $\pm$ 1.2
Excellent	00	00	01	22 $\pm$ 0.1
Overall	75	13.0 $\pm$ 2.9	75	12.6 $\pm$ 3.5

Distribution of Mean & SD knowledge scores on Glasgow coma scale before intervention shows the higher mean score (13.0  $\pm$  2.9) for control group when compared to experimental group with a Mean & SD knowledge score of 12.6  $\pm$  3.5 (table - 4.2.1).

Hence, it was interpreted that the nursing personnel in experimental group had more less similar mean score on Glasgow coma scale when compared to control group before intervention.

**Table 4.2.3:** Area wise percentage distribution of knowledge scores on Glasgow coma scale among nursing personnel before intervention in experimental group and control group,  $n=150$ 

Area of Knowledge	Number of items	Knowledge in %	
		Control group	Experimental group
General information on Glasgow coma scale	07	67 %	50.0%
Application of Glasgow coma scale	18	46.9 %	50.5%
Overall	25	52.3 %	50.4%

Area wise percentage distribution of knowledge scores on Glasgow coma scale among nursing personnel before intervention shows that higher percentage (50.5%) were had knowledge on the area of application of Glasgow coma scale in experimental group whereas general information on Glasgow coma scale was quite similar (50.0% respectively) in experimental group (table - 4.2.3).

With regard to control group, the highest percentage (67%) of nursing personnel had knowledge on the area of general information on Glasgow coma scale whereas lower

percentages (46.9%) of them had knowledge on the area of application of Glasgow coma scale

Hence, it was interpreted that the control group had better area wise knowledge when compared to experimental group before intervention. It was also interpreted that the knowledge was more or less similar distributed in both the groups.

**Table 4.2.4:** Area wise mean knowledge scores on Glasgow coma scale among nursing personnel in experimental and control group before intervention

Area of Knowledge	Number of items	Control group		Experimental group	
		Mean	SD	Mean	SD
General information on Glasgow coma scale	7	4.6	1.3	3.5	1.4
Application of Glasgow coma scale	18	8.4	2.4	3.0	9.1
Overall	25	13.0	2.9	12.6	3.5

Areas wise Mean & SD knowledge scores on Glasgow coma scale before intervention shows the higher mean score (3.5±1.4) was for the area of Glasgow coma scale & its general information in experimental group whereas the area pertinent to application of Glasgow coma scale had the quite similar mean score of 3.0 ± 9.1.

With regard to control group, the higher mean score (8.4±2.4) was for the area of Glasgow coma scale & its

application whereas the area of general information had the lowest mean score (4.6 ± 1.3) in control group (table - 4.2.4).

Hence, it was interpreted that the nursing personnel in control group had better area wise mean score on Glasgow coma scale when compared to experimental group before intervention. It was also interpreted that the knowledge was more or less similar between the areas of Glasgow coma scale in both the groups.

**Section III**

**Table 4.3.1:** Comparison of knowledge scores on Glasgow coma scale among nursing personnel after intervention in control and experimental group, n=150

Level of knowledge	Control group				Experimental group			
	Pre-test		Post test		Pre-test		Post test	
	f	%	f	%	f	%	f	%
Poor	0	0%	00	0%	01	1.3%	00	0
Average	23	30.6%	19	25.3%	24	32%	00	0
Good	34	45.3%	37	49.3%	34	45.3%	01	1.3%
Very good	18	24%	19	25.3%	15	20%	23	30.6%
Excellent	00	0%	00	0	1	1.3%	51	68%
Overall	75	52.3%	75	53.7%	75	50.4%	75	83.9%

With regard to control group, the nursing personnel with average, good and very good knowledge were 30.6%, 45.3% & 24% respectively in pre- test whereas it was more or less similar (25.3%, 49.3% & 25.3%) in posttest without making any significant difference in the values. Further, none of them had poor or excellent knowledge neither in pretest nor in posttest.

With regard to experimental group, the nursing personnel had excellent knowledge (68%) in post-test, whereas in pre-test it was lowest knowledge 01 (1.3%) making a huge difference in the percentages of knowledge. In addition, the

nursing personnel with average, good & very good knowledge were increased from 1.3%, 30.6% & 68% in post-test. However, poor knowledge 1.3% in pretest whereas none of the nursing personnel were with poor knowledge in posttest in experimental group (table - 4.3.1).

Hence, it was interpreted that the huge difference in knowledge percentage in experimental group was due to an effect of self-learning through SIM (Self- Instructional module) on Glasgow coma scale. Whereas a slight knowledge variation in control group was negligible as that might have occurred by chance.

**Table 4.3.2:** Comparison of Mean knowledge scores on Glasgow coma scale among nursing personnel in experimental group and control group after intervention, n=150

Level of knowledge	Control group				Experimental group			
	Pre-test		Post test		Pre-test		Post test	
	f	Mean ± SD	f	Mean ± SD	f	Mean ± SD	f	Mean ± SD
Poor	00	00	00	00	01	5 ± 0.1	00	00
Average	23	9.7 ± 0.4	19	9.8 ± 0.3	24	8.9 ± 1.1	1	1 ± 0.1
Good	34	13.2 ± 1.3	37	13.3 ± 1.3	34	13.0 ± 1.3	00	00
Very good	18	17 ± 1.1	19	17.1 ± 1.1	15	17.4 ± 1.2	23	19.0 ± 1.2
Excellent	00	00	00	00	1	22 ± 0.1	51	22.0 ± 0.9
Overall	75	13.0 ± 2.9	75	13.4 ± 2.8	75	12.6 ± 3.5	75	20.9 ± 2.1

The overall Mean knowledge score in control group was 13.0 ± 2.9 before intervention whereas it was slightly changed to 13.4 ± 2.8 after an intervention without making any significant difference in the mean values.

On the other hand, in experimental group, nursing personnel had very good or excellent knowledge 17.4 ± 1.2, 22 ± 0.1 pre-test whereas the Mean scores were significantly increased to 19.0 ± 1.2 & 22.0 ± 0.9 in post-test. However,

the overall Mean knowledge score of nursing personnel on Glasgow coma scale was significantly increased from  $12.6 \pm 3.5$  to  $20.9 \pm 2.1$  in post-test (table 4.3.2).

Hence, it was interpreted that the huge difference in Mean knowledge scores in experimental group was due to an effect of self-learning through SIM on Glasgow coma scale.

**Table 4.3.3:** Comparison of area wise knowledge percentage on Glasgow coma scale among nursing personnel in experimental group and control group,  $n=150$

Area of Knowledge	Number of items	Control group		Experimental group	
		Pre-test	Post test	Pre-test	Post test
General information on Glasgow coma scale	7	18.5%	18.5%	50.0%	25.2%
Application of Glasgow coma scale	18	33.8 %	35.2%	50.5%	58.6%
Overall	25	52.3 %	53.7%	50.4%	83.9%

The overall knowledge percentage in control group was 52.3% in pre-test whereas it was remained quit similar (53.7%) in post-test. Similarly, in all areas of Glasgow coma scale, the pre-test and post-test knowledge percentage was more or less similar in control group (table 4.3.3).

scale.

Hence, it was interpreted that the huge difference in knowledge percentage in experimental group was due to an effect of self-learning through SIM on Glasgow coma scale. However, a slight variation in control group was negligible as that might have occurred by chance.

Pertinent to experimental group, the overall knowledge percentage was 50.4% in pre- test, whereas after an intervention the percentage of knowledge on Glasgow coma scale was significantly increased to 83.9%. Similarly, the post-test knowledge percentages were increased irrespective of specific areas of Glasgow coma scale.

However, the knowledge area of application of Glasgow coma scale had the highest increase in percentage (58.6%) when compared to other knowledge areas of Glasgow coma

**Table 4.3.4:** Comparison of area wise Mean knowledge scores on Glasgow coma scale among nursing personnel after intervention in experimental and control group knowledge,  $n=150$

Area of Knowledge	Number of items	Control group				Experimental group			
		Pre-test		Post test		Pre-test		Post test	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
General information on Glasgow Coma scale	7	4.6	1.3	4.6	1.3	3.5	1.4	6.3	0.8
Application of Glasgow coma scale	18	8.4	2.4	8.8	2.4	3.0	9.1	14.6	1.9
Overall	25	13.0	2.9	13.4	2.8	12.6	3.5	20.9	2.1

The overall area wise Mean knowledge score in control group was  $13.0 \pm 2.9$  before intervention whereas it was slightly changed to  $13.4 \pm 2.8$  after an intervention without making any significant difference in the mean values. Similarly, in all the areas of Glasgow coma scale, the pre-test and post-test knowledge mean scores were more or less similar in control group (table 4.3.4).

increased irrespective of specific areas of Glasgow coma scale. However, the knowledge area of application of Glasgow coma scale had the highest increase in Mean score  $14.6 \pm 1.9$  when compared to other areas of Glasgow coma scale.

In respect of experimental group, the overall Mean knowledge score was  $12.6 \pm 3.5$  in pre-test, whereas after an intervention, the overall Mean knowledge score on Glasgow coma scale was significantly increased to  $20.9 \pm 2.1$ . Similarly, the post-test Mean knowledge scores were

Hence, it was interpreted that the huge difference in Mean knowledge scores in experimental group was due to an effect of self-learning through SIM on Glasgow coma scale. However, a slight variation of Mean score in control group was negligible as that might have occurred by chance.

**Section IV**

**Table 4.4.1:** Significant difference between pre-test and posttest knowledge score on Glasgow coma scale among nursing personnel in experimental and Control group,  $n=150$

Group	Test	Mean $\pm$ SD	Mean difference	df	't' value	P value
Control	Pre-test	$13.0 \pm 2.9$	$0.4 \pm 0.1$	74	0.9	$p=0.18, NS$ $p>0.05$
	Post- test	$13.4 \pm 2.8$				
Experimental	Pre-test	$12.6 \pm 3.5$	$7.4 \pm 1.4$	74	18.32	$p=0.0001***$ $p<0.05$
	Post- test	$20.9 \pm 2.1$				

*P value* < 0.0001 \*\*\*highly significant, table value < 0.001 \*\*moderately significant, table value < 0.05 \*significant, NS-not significant



Paired ‘t’ test was computed to find out the significant difference between pre-test and post-test knowledge score on Glasgow coma scale among nursing personnel in control and experimental group.

Highly significant difference ( $p < 0.0001$ ) was found with a ‘t’ value of 18.32 between a pre-test & post-test knowledge score in experimental group whereas the calculated ‘t’ value of 0.90 between a pre-test and post-test knowledge score shows not significant ( $p > 0.05$ ) in control group (table - 4.4.1).

**Table 4.4.3:** Significant difference between the posttest knowledge scores of control and experimental group,  $n=150$

Group	Test	Mean ± SD	Mean difference	df	‘t’ value	P value
Control	Post- test	13.4 ± 2.8	7.5 ± 0.7	1,48	18.3	0.0001*** S, $p < 0.05$
Experimental	Post- test	20.9 ± 2.1				

*df-1,48 table value < 0.0001\*\*\*highly significant, table value < 0.001\*\*moderately significant, table value < 0.05 \* significant*

Unpaired ‘t’ test was computed to find out the significant difference between the post- test knowledge scores of control and experimental group. Highly significant difference ( $p < 0.0001$ ) was found between the post-tests of control group and experimental group with a calculated ‘t’ value of 18.3 (table - 4.4.3).

Hence, it was interpreted that highly significant difference between the post- test knowledge score was due to an effect of self- learning through SIM on Glasgow coma scale among nursing personnel. Therefore, the SIM as a teaching tool on Glasgow coma scale among nursing personnel was considered as effective.

However, a difference observed between the post-test knowledge score value in control group and experimental group was true difference; hence a research hypothesis is accepted.

**Section V**

**Table 4.5.1:** Association between post-test knowledge score and age,  $n=75$

Age in years	f	Mean & SD	F value	P value
21 – 28 years	55	20.89 ± 2.43	0.73	0.48 NS, $p > 0.05$
29 – 38 years	16	21.00 ± 0.78		
39 – 48 years	04	22.25 ± 1.50		
49 - 58 years	00	00		

*df - 74, table value - 0.48, NS- not significant*

Analysis of variance (F-test) was computed to find out the significant association between the post-test knowledge score and the age of nursing personnel. The finding of F value shows that there is no significant association ( $p > 0.05$ ) between post-test knowledge score and age.

Hence, it was interpreted that the age of nursing personnel was not associated with the knowledge on Glasgow coma scale. However, the F value was true difference and not by chance. Therefore, the research hypothesis was rejected.

Hence, it was interpreted that the higher score of nursing personnel in experimental group was due to an effect of self-learning through SIM on Glasgow coma scale. Therefore, the SIM on Glasgow coma scale among nursing personnel was considered as effective. Whereas a slight variation of value in control group was negligible as that might have occurred by chance and not by choice.

However, the difference observed between pre-test & post-test knowledge score value in experimental group was true difference; hence a research hypothesis was accepted.

**Table 4.5.2:** Association between post-test knowledge score and gender,  $n=75$

Gender	f	Mean & SD	F value	P value
Male	12	20.90 ± 1.57	0.017	0.89 NS, $p > 0.05$
Female	63	21.00 ± 2.24		

*df - 74, table value -0.89, NS not significant*

Analysis of variance (F-test) was computed to find out the significant association between the post-test knowledge score and the gender of nursing personnel. The finding of F value shows that there is a no significant association ( $p > 0.05$ ) between post-test knowledge score and gender.

Hence, it was interpreted that the gender of nursing personnel was associated with the knowledge on Glasgow coma scale. However, the F value was true difference and not by chance. Therefore, the research hypothesis was rejected.

**Table 4.5.3:** Association between post-test knowledge score and qualification,  $n=75$

Qualification	f	Mean & SD	F value	P value
GNM	50	20.96 ± 2.23	0.042	0.98 NS, $p > 0.05$
Basic B. Sc. Nursing	14	21.20 ± 2.07		
Post Basic B. Sc. Nursing	11	21.09 ± 0.83		
M.Sc. Nursing	00	00 ± 00		

*df - 74, table value 0.98, NS- not significant*

Analysis of variance (F-test) was computed to find out the significant association between the post-test knowledge score and the qualification of nursing personnel. The finding of F value shows that there is no significant association ( $p > 0.05$ ) between post-test knowledge score and qualification.

Hence, it was interpreted that the qualification of nursing personnel was not associated with the knowledge on Glasgow coma scale. However, the F value was by chance and not true difference. Therefore, the research hypothesis was rejected.

**Table 4.5.4:** Association between post-test knowledge score and work experience,  $n=75$ 

Work Experience	f	Mean & SD	F value	P value
Below 5 years	50	20.86 ± 2.52	0.55	0.57 NS, $p>0.05$
6-10	19	21.05 ± 0.97		
11-15	06	21.83 ± 1.32		
16 years and above	00	00		

df - 74 table value - 0.57, NS- not significant

Analysis of variance (F-test) was computed to find out the significant association between the post-test knowledge score and the work experience of staff nurses. The finding of F value shows that there is no significant association ( $p>0.05$ ) between post-test knowledge score and work experience.

Hence, it was interpreted that the work experience of nursing personnel was not associated with the knowledge on Glasgow coma scale. However, the F value was by chance and not true difference. Therefore, the research hypothesis was rejected.

**Table 4.5.5:** Association between post-test knowledge score and monthly income,  $n=75$ 

Monthly income	f	Mean & SD	F value	P value
10000 and below	26	21.00 ± 3.03	0.88	0.45 NS, $p>0.05$
10001 to 15000	26	20.65 ± 1.80		
15001 to 20000	19	21.10 ± 0.93		
More than 20001	4	22.50 ± 1.00		

df - 74 table value - 0.45, NS- not significant

Analysis of variance (F-test) was computed to find out the significant association between the post-test knowledge score and the monthly income of nursing personnel. The finding of F value shows that there is no significant association ( $p>0.05$ ) between post-test knowledge score and monthly income.

Hence, it was interpreted that the monthly income of nursing personnel was not associated with the knowledge on Glasgow coma scale. However, the F value was by chance and not true difference. Therefore, the research hypothesis was rejected.

**Table 4.5.6:** Association between post-test knowledge score and monthly income,  $n=75$ 

Attended seminar/ conference/ workshop	f	Mean & SD	F value	P value
Yes	2	22.50 ± 0.70	1.01	0.31 NS, $p>0.05$
No	73	20.94 ± 2.18		

df - 74 table value - 0.31, NS- not significant

Analysis of variance (F-test) was computed to find out the significant association between the post-test knowledge score and the Attended seminar/conference/workshop of nursing personnel. The finding of F value shows that there is no significant association ( $p>0.05$ ) between post-test knowledge score and attended seminar/ conference/ workshop.

Hence, it was interpreted that the attended seminar/ conference/ workshop of nursing personnel was not associated with the knowledge on Glasgow coma scale.

However, the F value was by chance and not true difference. Therefore, the research hypothesis was rejected.

## 6. Summary

This chapter dealt with analysis and interpretation of data collected from 150 nursing personnel working in tertiary care hospital, Maharashtra. The collected data was analyzed based on the objectives and hypothesis of research study.

## 7. Conclusion

From the findings of present study, it was concluded that the pre-intervention demographic variables of nursing personnel in control and experimental group were more or less similar revealing both the groups had similar characteristics. Percentage of knowledge and the mean scores of nursing personnel were more or less similar in both the groups before intervention.

However, after an intervention, the percentage of knowledge and the mean scores of nursing personnel were significantly increased in experimental group whereas it was remained unchanged in control group. There was a significant difference between pre-test and post-test knowledge scores in experimental group. And, there was also a significant difference between the post-tests of control and experimental group.

Thus, it was concluded that the SIM on Glasgow coma scale as a method of self- learning was effective among nursing personnel working in selected tertiary care hospitals, Maharashtra.

## 8. Recommendations

Similar study with large sample can be undertaken to bring out more generalization of findings.

Comparative study can be undertaken to find out the difference in knowledge among nursing personnel attending urban and rural hospitals / government or private hospital.

A similar study can be conducted by using STM / VATM on Glasgow coma scale

A similar study can be conducted including attitude and practice on Glasgow coma scale.

Recommended to conduct true experimental design.

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