

 ISSN NO. 2320-5407	Journal Homepage: www.journalijar.com INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR) Article DOI: 10.21474/IJAR01/12345 DOI URL: http://dx.doi.org/10.21474/IJAR01/12345	 INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR) ISSN 2320-5407 Journal Homepage: http://www.journalijar.com Article DOI: 10.21474/IJAR01/12345
---	---	--

RESEARCH ARTICLE

A PROGRAMME TO ENHANCE KNOWLEDGE ON GLASGOW COMA SCALE AMONG THE NURSES

Dr. Gitumoni Konwar¹ and Ms. Monmili Engtipi²

1. Dean, Royal School of Nursing and Medical & Allied Sciences, The Assam Royal Global University, Guwahati, Assam.
2. Sister Tutor, GNM Training School, Diphu, Karbi Anglong, Assam, India.

Manuscript Info

Manuscript History

Received: 20 November 2020

Final Accepted: 24 December 2020

Published: January 2021

Key words:-

Knowledge, Glasgow Coma Scale, Effectiveness, Self-Instructional Module

Abstract

Background and objective: To assess the knowledge gain after use of a Self Instructional Module on Glasgow Coma Scale among the nurses working in Gauhati Medical College and Hospital, Guwahati, Assam. The aim of the study was to determine the existing knowledge on Glasgow Coma Scale and the impact of Intervention regarding the Glasgow Coma Scale in terms of knowledge enhancement.

Methods: Pre-experimental One group pre-test post-test evaluative study comprising 40 nurses selected with lottery method was done with a Questionnaire. On the first day pre test was conducted using knowledge questionnaire regarding Glasgow Coma Scale and the Self Instructional Module were then given to the respondent on the same day after completion of the pre test. The post test was conducted on the 8th day.

Results: The study findings revealed that mean pre-test knowledge score was 12.600 with SD 4.754 and mean post-test knowledge score was 17.425 with SD 3.478 with calculated 't' (39) = -10.339, $p < 0.05$ indicates that there was statistically significant increase in the post knowledge score. Findings of the study also indicated that there was statistical significant association between pre -test knowledge score of staff nurses with selected socio- demographic variables like age and working experience ($p < 0.05$).

Conclusion: Findings of the study has increased the level of knowledge among the nurses after the administration of Self- Instructional Module. Therefore, it is to be concluded that the present study participants benefited by Self Instructional Module (SIM).

Copy Right, IJAR, 2021,. All rights reserved.

Introduction:-

Consciousness is a term that has been used to refer to a variety of aspects of the relationship between the mind and the world with which it interacts. In medicine, consciousness is assessed by observing a patient's arousal and responsiveness and can be seen as a continuum of states ranging from full alertness and comprehension, through disorientation, delirium and loss of meaningful communication and ending with loss of movement in response to painful stimuli.¹ Issues of practical concern include how the presence of

Corresponding Author:- Dr. Gitumoni Konwar

Address:- Dean, Royal School of Nursing and Medical & Allied Sciences, The Assam Royal Global University, Guwahati, Assam.

consciousness can be assessed in severely ill, comatose, or anesthetized people, and how to treat conditions in which consciousness is impaired or disrupted.² There are several tools used for assessing and monitoring the consciousness of the clients in critical units as well as other units. One such widely and universally accepted tool is the Glasgow Coma Scale, an assessment tool designed to note trends in a client's response to stimuli.³ This scale was first developed by Graham Teasdale and Bryan J. Jennet in 1974 at the University of Glasgow, Scotland, as a practical tool to measure depth and duration of impaired consciousness.⁴

The GCS is measured in three Components: Eye opening (E), Verbal responsiveness (V) and Motor responsiveness (M). The score from each component is added to get a total score which determines the state of consciousness of the patient. The maximum score 15 indicates a patient is fully alert and the minimum score 3 indicates a patient is deeply unconscious.

The Glasgow Coma Scale gives a reliable, objective way of recording the conscious state of a person for initial as well as subsequent assessment.⁷ The GCS was initially used to assess level of consciousness after head injury but now it is used by first aid, EMS (emergency) nurses and doctors as well. However, the GCS is not without its limitations. It has limited applicability in children and there is an increasing evidence that problems are encountered in completing some aspects of the GCS (Waterhouse, 2008)¹⁷, further its ease of use allows for misinterpretation (Addison and Crawford, 1999).¹⁸

The World Health Organization (WHO) estimates that 5 million deaths occur every year in Intensive Care Units.¹¹ In India, every year approximately 3.2 million patients are admitted in ICU, in which 80 % patients are in coma stage and in that 48,000 deaths are occurring.¹² If timely and appropriate detection of physiological deterioration by medical and nursing staff is undertaken, it is likely to benefit the patients. The most common signs are hypotension and a fall in Glasgow Coma Scale scoring.¹³ Therefore it is very important that every nurse working in areas needing critical care such as High Dependency Units possess enough knowledge to assess and intervene appropriately and she/he should also be able to communicate any change in patient's condition for multidisciplinary intervention.¹⁴

Hence, a nurse through knowledge on Glasgow Coma Scale is very important to save life of the patients. In view of the significance evaluation of GCS for determining the client improvement a study has been undertaken to enhance nurse's knowledge on Glasgow Coma Scale with the help of a Self Instructional Module developed on Glasgow Coma Scale among nurses working in Gauhati Medical College & Hospital (GMCH). Another objective of the study was to find out the association between pre-test knowledge and demographic variables like age, professional qualification and working experience.

Material and Methods:-

The study is aimed at finding out the improvement of Knowledge on Glasgow Coma Scale among the Nurses working in Gauhati Medical College and Hospital, Guwahati, Assam, India after implementation of a Self-Instructional Module. The study was conducted by using one group pre test – post test pre-experimental research design. The 40 samples were drawn with the lottery method. The data was collected with - Demographic profile (age, professional qualification, working experience) and Knowledge questionnaire on GCS and a self instructional module was developed. The reliability of the tool was found $r=0.86$ for the knowledge questionnaire.

Administrative permission and institutional ethical committee approval was obtained prior to the collection of the data. The confidentiality of their identity and responses are assured in order to insure their co-operation and prompt responses. The pre-test structured knowledge questionnaire was administered to the nurses after obtaining consent. Self- Instructional Module was then given on the same day after completion of the pre test. Post test was administered to the nurses using the same knowledge questionnaire on the 8th day.

Result and Analysis:-

The data was collected at GMCH from 40 nursing personnels. The study findings were presented in the following tables:

Table - 1:-Distribution of nurses according to demographic variables.

Demographic Variables		Frequency	Percentage
Age	20-30	12	30.0
	31-40	21	52.5
	41-50	5	12.5
	51-60	2	5.0
Professional qualification	GNM	34	85.0
	B.Sc. Nursing	3	7.5
	Post Basic Nursing	3	7.5
Work experience	3-5	13	32.5
	6-10	12	30.0
	More than 10 years	15	37.5
	3-5	13	32.5

Most of the sample belong to the age group 31-40 years 52% followed by age group 21-30 years 30% and only 5% belong to the age group 51-60 years. Maximum participants were having GNM as educational background. Among them 37.5% of the nurses have more than 10 years of working experience followed by 32.5% of the nurses have 3-5 years of work experience and the rest 30% have 6-10 years working experience.

Table 2:-Comparison between pre test and post test knowledge scores of the nurses on Glasgow Coma Scale.

knowledge	Score range	Pre test		Post test	
		frequency	percentage	frequency	percentage
Inadequate knowledge	0 -7	7	17.5	1	2.5
Moderately adequate	8 -17	29	72.5	17	42.5
adequate	18 -21	4	10.0	22	55.0

The result revealed that in pre- test majority i.e 72.5% had moderately adequate knowledge and only 10% had adequate knowledge whereas in the post test majority i.e 55% had adequate knowledge and only 2.5% had inadequate knowledge. Thus, the finding suggested that Self Instructional Module enabled the nurses working in Gauhati Medical College and Hospital to increase their knowledge regarding Glasgow Coma Scale.

Table 3:-Analysis of knowledge enhancement by t test.

	Mean	SD	Standard error mean	T	df	p value	remarks
Pre test knowledge	12.6000	4.75449	0.752	-10.339	39	0.000	Highly significance
Post test knowledge	17.4250	3.47804	0.550				

Significant level is at $p < 0.05$

In order to establish the significance of difference between the mean of pre test and post test knowledge scores regarding the Glasgow Coma Scale among the nurses working in Gauhati Medical College and Hospital 't' value was computed, the result shows that 't (39) = -10.339, $p = 0.000$, $p < 0.05$. It indicates that post test knowledge scores due to intervention; the Self Instructional Module is significantly higher than that of the pre- intervention scores.

Association between pre-test level of knowledge and age:

Association of pre test knowledge on Glasgow Coma Scale with selected socio demographic variables such as age, professional qualification, working experience was computed by using person chi-square at $p < 0.05$ significant level. The data shows that Chi square = 14.311, at $p = 0.26$ which infers that there is a significant relationship between pre test level of knowledge and the age of the nurses. There is no significant relationship between pre test level of knowledge and the professional qualification. The data shows that Chi square = 15.645, significant (2 tailed) $p = 0.0004$ which infers that there is relationship between pre test level of knowledge and working experience.

Discussion:-

The GCS is a tool that, with education, is simple to use, highlights changes in the patient's condition and allows nurses and doctors working in different hospitals to communicate the patient's state of consciousness in a clear and objective way'. Addison and Crawford (1999) recommend that all new staff to be taught how to apply the GCS tool in clinical practice. This should be extended to all healthcare practitioners involved in the care and management of potentially vulnerable and unconscious patients, and should apply to all neurological observations. (Addison and Crawford 1999)¹⁸

The present study was conducted to assess the effectiveness of Self Instructional Module on Glasgow Coma Scale among the nurses working in Gauhati Medical College and Hospital, Guwahati, Assam. Before administration of SIM the nurses were given knowledge questionnaire in order to assess their existing knowledge. The overall knowledge score revealed that 7 (17.5 %) had inadequate knowledge, 29 (72.5%) had moderate knowledge and 4 (10%) had adequate knowledge. The mean score obtained to be 12.60, which showed that the nurses had moderately adequate knowledge regarding the Glasgow Coma Scale. The study has been supported by studies like Batool A. Jaddoua (2013), Shoquirat. N (2006), Waterhouse. C (2008). Batool A. Jaddoua (2013)²⁰ conducted a descriptive study on the assessment of nurses knowledge concerning Glasgow Coma Scale in Neurosurgical Wards of Singapore and the study showed that nurses have inadequate knowledge about Glasgow coma Scale. Shoquirat. N (2006)⁴⁵ conducted a study by using an exploratory survey method with an aim to explore 3rd year nursing students understanding the Glasgow Coma Scale. A convenient sample of 65 students was selected from university faculty of nursing in Scotland. The study revealed that most respondent ($n = 24$, 62 %) were not confident in practical use of the Glasgow Coma Scale. However, they wanted to improve their theoretical knowledge as well as their practical skill.

Catherine Waterhouse (2008)¹⁷ conducted an observational study to assess and evaluate registered nurses baseline knowledge to review the recording of Glasgow Coma Scale in neuroscience areas compared with non-specific units. Study was concluded that though several areas for improvement were identified but still nurses were failed to give response to the path, physiological understanding the 3 components that makes the scale. This study also recommended that a basic knowledge of physiology through local training might enable the practitioner to identify more suitable signs of altered level of consciousness.³

It was observed that majority of the nurses have inadequate knowledge. This shows that educational intervention is required for the improvement of knowledge of the nurses.

Conclusion:-

It was observed from the study findings that majority of the participant's pre-test was moderately adequate and only 10% had adequate knowledge. But the knowledge of the nurses have significantly improved after the administration of Self Instructional Module as evident from the obtained 't' value ($p = 0.000 < 0.05$). So it can be concluded that the present study participants benefited by Self Instructional Module. It was also found statistically that there is a significant association between nurses' pre-test knowledge and age and working experience. To produce competent and knowledgeable nurse, emphasis should be made on in-service education program and frequent evaluation of nurses' performances which will help in proper assessment and

management of clients through monitoring and formulating early diagnosis. Nursing supervisors and in-charges should take the initiation to continue staff development program in the unit.

Source of Funding:

Nil.

Conflict of Interest:

Nil.

References:-

1. Ahamed N, Dutta S. Effectiveness of Planned Teaching Program on Nurses Knowledge and Practice Regarding Glasgow Coma Scale for Neurological Clients of a Selected Hospital, Kolkata. *SMU Medical Journal*. 2016;3(1):712-722.
2. Fins J.J, N. D. Schiff N.D, and K. M. Foley K.M. Late recovery from the minimally conscious state. Ethical and policy implications *Neurology*. 2007;68(4):304-307
3. Ellis A, Cavanagh SJ. Aspects of neurological assessment using the Glasgow coma scale. *Intensive Crit Care Nurs*. 1992;8(2):94-99.
4. Nguyen Thi, Sun-Mi Chae. The Accuracy of Glasgow Coma Scale Knowledge and performance among Vietnamese Nurses. *Perspectives in Nursing Sciences*. 2011;8(1):54-61
5. Teasdale G, Jennett B. Assessment of coma and impaired consciousness: A practical scale. *The Lancet*. 1974;2:81-4. doi:10.1016/S0140-6736(74)91639-PMID 4136544
6. Teasdale G, Murray G, Parker L, Jennett B. "Adding up the Glasgow Coma Score". *Acta Neurochir Suppl (Wien)*. 1979;28(1):13-6. PMID 290137
7. Emejulu J, Nkwerem S, Ekweogwu OC. Assessment of physicians' knowledge of Glasgow coma score. *Niger J Clin Pract* [serial online] 2014;17:729-34. Available from: <http://www.njponline.com/text.asp?2014/17/6/729/144386>
8. Green S.M, Cheerio L, Laddie B. Bidding Farewell to the Glasgow Coma Scale. *Annals of emergency medicine*. 2011;58(5):427-430. Elsevier Inc. doi:10.1016/j.annemergmed.2011.06.009
9. "The Glasgow Coma Scale: clinical application in Emergency Departments". *Emergency Nurse*. 14(8): 30-5. 2006. doi:10.7748/en2006.12.14.8.30.c4221
10. Ghaffar pasand F, Razmkon A, Dehghankhalili M. Glasgow Coma Scale Score in Pediatric Patients with Traumatic Brain Injury; Limitations and Reliability. *Bull Emerg Trauma*. 2013;1(4):135-136.
11. Atihcy B.S. - WHO collaborating centre of Trauma and fire disasters, Geneva Switzerland *Annals of burns and fire disasters*. vol -XVII n-1 March 2005.
12. Ritadutta. American Association of physician of Indian origin to standardize Trauma care in India Mumbai. *The Nursing journal of India* vol No. 9-June-2009.
13. Kaue J. Smith G, Prytherch D, Parr M, Flabouris A, Hillman K. A comparison of antecedents to cardiac arrest, deaths and emergency intensive care admissions in Australia and New Zealand, and the United Kingdom - the ACADEMIA study. *Resuscitation*. 2004;62:275-282
14. Weir, C. J., Bradford, A. P. J., & Lees, K. R. The prognostic value of the components of the Glasgow Coma Scale following acute stroke. *The Quarterly Journal of Medicine*. 2003;96:67-74.
15. Juarez, V. J., & Lyons, M. Interrater reliability of the Glasgow Coma Scale. *Journal of Neuroscience Nursing*. 1995;27:283-286.
16. Ingram N. Knowledge and level of conscious: Application to nursing practice. *Journal of advanced Nursing*. 2008;20:881-884.
17. Waterhouse C. A audit of nurses' conduct and recording of observations using the Glasgow Coma Scale. *British Journal of Neuroscience Nursing*; 2008;4(10):492-499.
18. Addison C, Crawford B. Not Bad. Just Misunderstood Nursing Times. 1999;95:52-53 available from [pubmed][CAS].
19. Fielding K, Rowley G. Reliability of Assessments by Skilled Observers using the Glasgow Coma Scale. *The Australian Journal of Advanced Nursing*. 1990;7:13-17. Available from pubmed.
20. Batool A. Jaddoua, Widad K Mohammed, Ali D. Abbas. Assessment of Nurse's Knowledge Concerning Glasgow Coma Scale in Neurosurgical Wards. *Journal of Kufa for Nursing Science*. 2013; 3(2): 133-142.