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Research Article

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Assessment of Nurse's Knowledge About Glasgow Coma Scale at al Dhafra Hospitals, Abu Dhabi, United Arab Emirates 2018

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Abstract

Background: *The most important assessment in the neurological examination is to assess the level of consciousness (LOC), which is considered as the first step in neurological examination. Detecting the changes in level of consciousness depends on the accuracy of nursing assessment. The nurses should be knowledgeable, confident, and quick in performing this task.*

Purpose: *of this study is to assess UAE nurses' knowledge about GCS working in Al Dhafer Hospitals, Abu Dhabi, United Arab Emirates.*

Methodology: *This study was carried out in the Dhafra hospitals, Abu Dhabi, United Arab Emirates in April 2018. It is a cross-sectional, descriptive study. Eighty-five nurses met the inclusion criteria, the survey was sent to 165 nurses (Respondent rate 51%). Data collection was carried out using a survey monkey instru¬ment called "Glasgow Coma Scale". Data coding, entry and analysis has been conducted using SPSS 20 software. The difference has been tested at 95% level of significance, and the difference that has P-value < 0.05 was considered significant.*

Results: *The study revealed that the knowledge percentages mean of correct answers about GCS is 56.1 % {SD: ±11.7; 95% CI: [26.67-100]}. On the other hand, it revealed also that the percentages of nurses who have a good knowledge about GCS were 50.6% and staffs whom have poor knowledge were 49.4 %. Moreover, the results revealed significant relation between gender and GCS training with level of GCS knowledge.*

Conclusion and recommendations: *The present study showed that the nurses in Al-Dhafra hospitals reflect inadequate knowledge. This finding raises concerns about the importance of knowledge and skill in assessing GCS. Continuing education and practice on the use of the GCS tool are important. A Brochure and booklet should be designated and distributed to all nurses who working in critical care units and dealing with an unconscious patient. Specific and advanced courses about GCS should be conducted in Al-Dhafra hospitals.*

Keywords: Nursing Assessment; Knowledge; Nurses; Glasgow Coma Scale, Al Dhafra Hospitals

Introduction

Nurses form the first line of primary care for patients. They are responsible to assess patients systemically and as a whole. One of the major challenges that nurses face during assessment is the neurological dysfunctions, especially for patients with coma. The most important assessment in the neurological examination is to assess the level of consciousness (LOC), which is considered as the first step in neurological examination [1].

Detecting the changes in level of consciousness depends on the accuracy of nursing assessment. Therefore, the nurses should be knowledgeable, confident, and quick in performing this task. Based on this assessment a change in the interventions and clinical decisions for patient's condition and treatment might be [2,3]. Rapid and correct assessment will minimize the neurological complications, unnecessary and incorrect diagnostic procedures, mortality and morbidity. The basic requirement for any assessment to be effective is the availability of an objective, valid, reliable and accurate tool.

The first neurological tool used to assess patients' level of

consciousness was the Glasgow Coma Scale (GCS) is considered as the most common less subjective gold standard coma assessment tool [4].

The objective finding of this scale makes the communication between the health care providers easier [2-6]. The validity, reliability, and objectivity of the GCS lend credence to its wide range use over the world The GCS is currently used with numerous situations such as cerebrovascular accident, meningitis, head injuries, and other neurological conditions [3,7]. Moreover, the health care providers, including nurses, are using the GCS in different clinical settings such as intensive care units (ICU), emergency room (ER), telemetry units and trauma centers [8].

There was inconsistency between the health care providers in assessing the level of consciousness. Therefore, one of the major goals for developing the GCS was to standardize the way to assess LOC. GCS is defined as a neurological scale which gives a reliable, objective way of recording the conscious state of a person, for initial as well as subsequent assessment [9]. GCS consists of three components (eye opening, best verbal response, and best motor response) (table 1). The scale uses the numeric system with a total score ranging from 3 to 15. Patient is considered in coma if he/she has GCS score of ≤ 8. If GCS score ≥ 13, then the patient has mild head injury. If GCS score is (9-12), then the patient has moderate head injury [5,10].

Even though the GCS is an easy, objective and reliable instrument to assess LOC, it has some own limitations. One of the factors that might affect the accuracy of GCS scoring is the knowledge of nurses about how to use/score GCS [3]. Self – confidence of health care providers, including nurses, during performing the assessment is another important factor that might affect the results of the GCS scoring [2]. One of the factors that might alter the objectivity of the GCS is the inter-rater reliability among examiners. The inter-rater reliability among examiners means that if different examiners used the same instrument to assess the same patient under the same conditions, then they will obtain the same results [11]. Therefore, there should be a consistency pattern among the examiners. To enhance the consistency among the examiners and increase the objectivity of the GCS, examiner should be knowledgeable and confident in performing the assessment.

No previous studies in the United Arab Emirates (UAE) assessed nurses' knowledge about GCS. Therefore, the main purpose of this study is to assess UAE nurses' knowledge about GCS.

Objectives

To measure the mean of the percentage of total correct answers. To assess levels of knowledge toward Glasgow Coma Scale.

Methodology

This study was carried out in the Al-Dhafra hospitals, Abu Dhabi, United Arab Emirates in May 2018. It is a cross-sectional, descriptive study. A survey monkey was sent to 168 nurses in (ER. CCU, ICU, Telemetry, and Neuroscience ward). 85 nurses replied to the survey (Respondent rate 51%). Inclusion criteria has been sent with the survey, the nurses who were selected to participate in this study have more than one year of experience in the mentioned units, and fully understand and speak English.

Data collection was carried out by standardized tool called "Glasgow Coma Scale", it is consisted of 15 multiple choice questions, and 5 questions on Likert scale to measure the self-confidence. Another tool was developed by the authors of this study to collect Socio-Demographical data (age, gender, educational level, working hospital, working area, years of experience in nursing and in specialty, and if the nurse has training about GCS). The permission has been granted from the author by email to use the tool.

The total score that the participant can get range from 0-15. Higher scores indicated higher levels of knowledge. This instrument was used before by different studies [2,8]. The authors developed this instrument as the following. Ten of the fifteen questions were adapted from questionnaire developed by and water-house .Five questions (6, 8, 13, 14, and 15) were added based on a critical review of the literature [7]. The validity and reliability of this instrument was granted by, three experts in neuroscience with at least ten years of experience examined the instrument for its validity [8]. The experts asked for correction since the tool was not met the standards and the required purpose of the study; content validity index was 0.73. After the amendment was implemented, the content validity index increased to 0.80. The stability and internal consistency was tested by test-retest method. Seventeen nurses performed the test twice one week a part. The correlation coefficient between the scores was 0.71 indicting that the instrument has a satisfactory reliability).

The study was reviewed by the research committee at AL-Dhafra hospital. Institutional Review Board (IRB) approval has been obtained in order to start data collection. The nurses assured that the confidentiality and privacy of the answers are maintained. No names, phone numbers, and identification are required. Data coding, data entry and data analysis has been conducted by using SPSS 20 software. The data has been tested at 95% level of significance, and the difference that has P-value < 0.05 was considered significant.

Results

As mentioned in methodology part, the survey consisted of two parts. Part one; contains 15 multiple choice. Part two; contains 5 Likert scale questions, where each part was analyzed separately. Moreover, the authors divided and analyzed the variables into two parts (continuous and nominal). Firstly;

Continuous variables

The Study sample consisted of 85 participants. Age ranged between 27 and 54 years with a mean of 36.88 (SD ± 6.361). In term of nursing experience ranged between 1 and 23 years with a mean of 9.59 (SD ± 5.067). Regarding the specialty experience ranged between 2 and 33 years with a mean of 13.16 (SD ± 5.910), see Table No. 1.

Table No1: Descriptive statistics of continuous variables

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Age	85	27	54	36.88	6.361
Nursing Experience	85	1	23	9.59	5.067
Specialty Experience	85	2	33	13.16	5.910

Secondly; nominal variables. The study sample consisted of 63.5 % female's participants and 36.5 % males. Qualifications were bachelor's degree in 96.5 %, Master in 3.8% and master's degree in 3.5 %. Regarding GCS training 56.5 % have received formal GCS training while 43.5 % did not. The sample was taken from different hospitals; the majority was from Madinat Zayed Hospital 42.4 %, Ghayathi Hospital 20.0 %, and Liwa Hospital 5.9 %, Silla hospital 21.2 %, Marfa hospital 9.4 %, and (DFMC) 1.2 %. In the light of the working area, the vast majority were from ER 74.1 %, ICU 22.4 %, CCU 1.2 %, Neuroscience ICU 1.2 %, and 1.2 % from Telemetry Unit (See table 2).

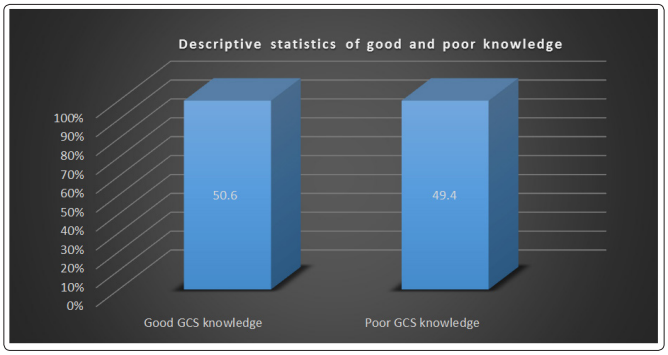
Table No.2: Descriptive statistics of nominal variables

Characteristic	Group	Frequency (N)	Percentage (%)
Gender	Male	31	36.5 %
	Female	54	63.5 %
GCS training	Yes	48	56.5 %
	No	37	43.5 %
Hospital	Madinat Zayed Hospital	36	42.4 %
	Ghayathi Hospital	17	20.0 %
	Liwa Hospital	5	5.9 %
	Silla Hospital	18	21.2 %
	Marfa Hospital	8	9.4 %
	(DFMC)	1	1.2 %
Level of Education	Bachelor	82	96.5 %
	Master	3	3.5 %
Working area	ICU	19	22.4 %
	CCU	1	1.2 %
	ER	63	74.1 %
	Neuroscience ICU	1	1.2 %
	Telemetry	1	1.2 %

The study revealed that the knowledge percentages mean of correct answers about GCS is 56.1 % {SD: ±11.7; 95% CI: [26.67-100]}. On the other hand, it revealed also that the percentages of nurses who have a good knowledge about GCS were 50.6% and staffs whom have poor knowledge were 49.4 % (See Table No. 3 and Graph No. 1). The cut point of poor and knowledge was determine based on the mean score of correct answers, where the staff whom got more 56.1 % consider as good knowledge, while whom got less than 56 % they were considered as poor knowledge.

Table No. 3: Mean score of correct answers

N	Confidence	Interval	Mean	Std. Deviation
	Lower	Upper		
85	26.67	100	56.1	11.700



Graph No.1: percentages of nurses who have good and poor knowledge about GCS

Survey part one analysis

Chi-Square test showed that (Nursing experience, level of education, age, and working area) have no significant differences in knowledge. While Gender showed statistically significant results with P-value equal to 0.42 similarly, to GCS training has showed statistically significant level with P-value equal to 0.32.

Table 4: Association between nurses "Knowledge and Demographical data"

	GCS Knowledge	Questions		
Variable	Group	Good Knowledge	Poor Knowledge	Sig.
Gender	Male	64.5 %	35.5 %	.042
	Female	42.6 %	57.4 %	
Nursing Exp.	Less than 5	20.0	80.0	.079
	5-10	60	40	
	11-15	54.5	45.5	
	16-20	53.8	46.2	
	More than 20	0	100	
Level of Education	BSN	50.0	50.0	.509
	Master	66.7	33.3	
GCS training	Yes	60.4	39.6	.032
	No	37.8	62.2	
Age	25-34	56.1	43.9	.614
	34-44	44.8	55.2	
	45-54	46.7	53.3	
Working area	ICU	42.1	57.9	.425
	CCU	00	100	
	ER	54.0	46.0	
	Neuroscience ICU	0	100	
	Telemetry	100	0	

Survey part two analysis

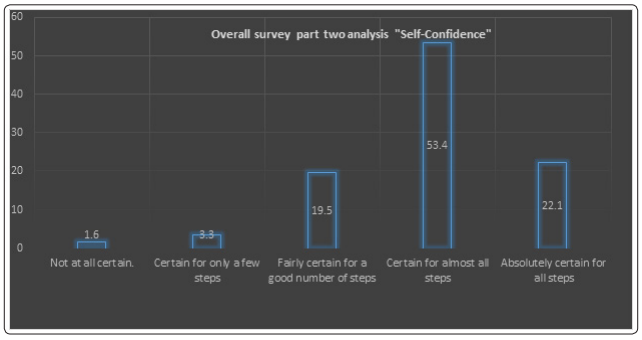
The second part consisted of 5 questions on Likert scale for self-assessment of GCS knowledge, where the question as the following: (1) "I am certain that my performance is correct ", (2) "I feel that I perform that task without hesitations", (3) "My performance

would convince the observer (s) that I'm competent", (4) "I feel sure of myself as I perform the task", and (5) "I feel satisfied with my "performance".

Most of the participants were "certain for almost all steps" 53.4%, and 22.1 % were "absolutely certain for all steps", 19.5 % were "fairly certain for a good number of steps", 3.3 % "certain for only a few steps", and 1.6 % "Not at all certain". (See Table 5 and Graph 5)

Table 5: Percentage of second part survey "Self-Confidence"

	Item	Not at all certain.	Certain for only a few steps	Fairly certain for a good number of steps	Certain for almost all steps	Absolutely certain for all steps
1	I am certain that my performance is correct	1.2 %	3.5 %	20.0 %	62.4 %	12.9 %
2	I feel that I perform that task without hesitations	3.5 %	3.5 %	16.5 %	45.9 %	30.6 %
3	My performance would convince the observer(s) that I'm competent.	0 %	2.4 %	22.4 %	47.1 %	28.2 %
4	I feel sure of myself as I perform the task	1.2 %	4.7 %	17.6 %	54.1 %	22.4 %
5	I feel satisfied with my performance	2.4 %	2.4 %	21.2 %	57.6%	16.5 %



Graph No 2: overall survey part two analyses (Self-Confidence)

Discussion part

Glasgow Coma Scale (GCS) is a tool can be used in most healthcare organization to assess nurse's knowledge toward GCS. It is important for the nurses to have skills and knowledge when assessing the critical patients, which is a significant indicator of the patient's conditions.

The main purpose of the current study was to assess nurse's knowledge about Glasgow Coma Scale (GCS). As mentioned in the result part that the mentioned survey consisted of knowledge part consisted of 15 multiple choice questions, while the other part consisted of 5 questions on Likert Scale to assess nurse's self-confidence toward GCS.

The result of this study revealed that the mean score of correct answers is 56.1%, whereas the same study was conducted by, the result showed that the mean score of correct answers 41.48%, as noticed that the nurses in the United Arab Emirates has better knowledge than Malaysian nurses [12].

In the light of the nurses who had a good knowledge were 50.6%, and the nurses who had a poor knowledge were 49.4 %. In contrast, results were found in a study conducted by in Nigeria, The result showed that (41.7%) of the respondents had good knowledge [13].

Despite the majority of the current study were females 63.5 %, but the percentage of the good knowledge toward GCS was found among males 64.5 % which the *(p< .042)* shown statistical significance. Contrary results found in a study conducted by in Bagdad. The study showed that most of the nurses (56.0%) were male and (28.0%) were female [1].

In term of the group age, the results reflected good knowledge among 24-35 years (56.1%), the same results were found in another study 38 (42.2%) conducted [12]. The same study has shown the Post basic nursing certificates have a good knowledge (57.9%), while the present study has shown the good knowledge among (50%) of BSN nurses, found a significant relationship between physicians' GCS training and GCS knowledge as more than half (53%) of the respondents who had training, the same finding was proofed in the current study (60.4 %) had a good knowledge with GCS training *(p< .032)* [14].

Results from the study revealed that respondents from the Telemetry were highest in number (100 %) among those with good knowledge score, followed by ER (54.0%) and ICU (42.1 %). Similar results were also documented by, who reported that nurses working in critical unit recorded higher scores for knowledge than others [15]. This is so because patients with *critical* conditions that needed to be monitored using the GCS were always admitted in these wards this frequent encounter with neurological patients made them familiar with the GCS.

Found that length of time (years of experience) (*p = 0.004*) were significant factors determining nurses' knowledge of GCS. Unlike the result of the current study years of experience were not a significant factor as a co-determinant of nurses' knowledge of GCS *(p= .079)* [16].

By the same token, the second part of self-confidence was analyzed. Descriptive statistics were used. The vast majority (53.4 %) were certain about their performance is correct, and the (1.6 %) not certain at all. The results of this study showed that most nurses had high levels of self-confidence when performing the GCS for patients with altered LOC. The same result was found in a study conducted by *in Jordan* Nurses showed high levels of self-confidence when performing the GCS for patients with altered LOC [17-19].

Conclusion

The nurses in the United Arab Emirates have a better knowledge than the compared studies worldwide. Although, it is apparent from the current study that the nurses' knowledge toward GCS in Al-Dhafra hospitals is generally poor. It is worthy to note that the cut point of determining the "Good knowledge' and "Poor knowledge" is 56.1 %, but stills this percentage is not reached the acceptable level of knowledge among nurses. The results of this study showed that most nurses had high levels of self-confidence when performing the GCS for patients with altered LOC, which could be a wrong assumption and inaccurate self-evaluation.

In conclusion, gender and GCS training were significant with the level of nurses' knowledge. This finding raises concerns about the importance of knowledge and skill in assessing GCS. Continuing education and practice on the use of the GCS tool are important. A Brochure and booklet should be designated and distributed to all nurses who working in critical care units and dealing with an unconscious patient. Specific and advanced courses about GCS should be conducted in Al-Dhafra hospitals.

Limitations

This is a cross-sectional study at one point of the time, which could decrease the generalization of the current conclusion, as well as, the participants were 85 nurses (Respondent rate 51%), which is under the required sample size. Finally, this study was conducted in Al-Dhafra hospitals in the United Arab Emirates; it could not be compared with international studies.

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