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A Study to Assess the Effectiveness of Interpretive Educative Session in Improving the Knowledge on Interpretation Regarding Arterial Blood Gas Values among Critical Care Nurses in Selected Hospitals at Gwalior

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ABSTRACT

Arterial blood gas (ABG) analysis is one of the most basic tests of pulmonary function, performed routinely in hospitals throughout the world. The proper application of the concepts of acid base imbalance will help the health care provider not only to follow the progress of the patient but also to evaluate the effectiveness of care being provided. Accurate assessment of the relationship between abnormal blood gas findings and a patient's overall clinical condition is a common challenge for critical care nurses. To meet this challenge, nurses must understand the mechanisms underlying acid-base balance and the common causes of acid-base imbalance. Considering this major problem, a study was carried out with a purpose of identifying the effectiveness of interpretive educative session in improving the knowledge on interpretation regarding arterial blood gas values among critical care nurses in a selected hospital at Gwalior.

KEYWORDS: *Knowledge on interpretation; arterial blood gas values; Interpretive educative session; In-service education; Continuing Nursing Education(CNE); Respiratory acidosis; respiratory alkalosis; metabolic acidosis; metabolic alkalosis; compensation*

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INTRODUCTION

Normal function of the body cells depends on regulation of the hydrogen ion concentration within very narrow limits. Acid base imbalances may be caused by disorders of any body system and are seen in increasing numbers of acutely ill clients in clinical settings. If hydrogen ion (H +) levels exceed these normal limits, acid base imbalances results and are clinically recognized as abnormalities of serum pH. Three systems work together in the body to maintain the pH despite the continuous production of acids through the metabolic processes; the buffers, the respiratory system and the renal system. The partial pressure of carbon dioxide is considered as the respiratory component of the ABG and bicarbonate as the metabolic or renal content of ABG. An arterial blood gas (ABG) is a blood test that is performed using blood from an artery. It involves puncturing an artery with a thin needle and syringe and drawing a small volume of blood. The most common puncture site is the radial artery at the wrist, but sometimes the femoral artery in the groin or brachial artery is also used. The blood can also be drawn from an arterial catheter. An ABG is a test that measures the arterial oxygen tension (PaO2), carbon dioxide tension (PaCO2), and acidity (pH). In addition, arterial oxy-hemoglobin saturation (SaO2) can be determined. Such information is vital when caring for patients with critical illness or respiratory disease. As a result, the ABG is one of the most common tests performed on patients in intensive care units (ICUs). The test is

used to determine the pH of the blood, the partial pressure of carbon dioxide and oxygen, and the bicarbonate level. ABG testing is mainly used in pulmonology and critical care medicine to determine gas exchange which reflect gasexchange across the alveolar-capillary membrane. 4 Blood gas analysis is used to diagnose and evaluate respiratory diseases and conditions that influence how effectively the lungs deliver oxygen to and eliminate carbon dioxide from the blood. The acid-base component of the test is used to diagnose and evaluate metabolic conditions that cause abnormal blood pH. Understanding the significance of the findings for the arterial blood gases (ABG) is the first step in interpretation of them. Without this understanding, the nurse cannot be expected to realize the implication of the results. Whatever the underlying cause for the acid-base disturbance, one must gain knowledge for interpretation of the ABG to establish the best course of treatment. Therefore, the health care provider will determine the limitations of therapy based on the results of the ABG. An interpretive educative session consists of a series of objective items based on a common set of stimuli. The stimuli may be in the form of written materials, tables, charts, graphs, maps, or pictures. The student is then asked a series of questions based on the set of stimuli. There are a number of uses for interpretive educative session. These include: ability to recognize inferences, ability to recognize warranted and unwarranted generalizations, ability to recognize assumptions, ability to recognize the relevance of information, ability to apply principles and use of pictorial materials. There are a number of advantages for using interpretive educative session. Perhaps the greatest advantage is that interpretive educative session assesses the student's ability to use "real life" materials such as maps, graphs, and tables. It also enables the assessment of connected and complex learning outcomes rather than singular behaviors or lower level objectives that might be assessed in isolation. Because it uses a common set of stimuli, it allows for a wider breadth of informational assessment. Finally, the interpretive educative session minimizes the influence of irrelevant factual information on the measurement of complex learning outcomes.

Need for the study

ABG sampling represents the gold standard method for acquiring patient's acid- base status. Arterial blood gas analysis has become an essential skill for all health care practitioners. It provides important information with regard to adequacy of ventilation, oxygen delivery to the tissues and acid base balance. Although each patient's clinical presentation will be judged individually, situations that warrant analysis of a blood gas sample include respiratory compromise, post-cardio respiratory arrest, evaluation of interventions such as oxygen therapy, respiratory support and as a baseline before surgery.

The process of analysis and monitoring of arterial blood gas is an essential part of diagnosing and managing the oxygenation status and acid base balance of high risk patients, as well as in the care of critically ill patients in the intensive care units. The proper application of the concepts of acid base imbalance will help the health care provider not only to follow the progress of the patient but also to evaluate the effectiveness of care being provided.

Nurses play an important role in early detection of high risk clients with acid base imbalance in critical care units. The nurse collaborates in the administration of drug therapy, oxygen therapy and mechanical ventilation when indicated. In extreme circumstances in which therapeutic compensation is required, the nurse should be knowledgeable about potential risks of this therapy and able to carefully monitor administration rates and therapeutic responses.

Nursing as a profession is now responsible to account for its competence and performance. This has seen the birth of the language of outcome. Outcome is mechanism to evaluate quality, improve effectiveness and link practices to professional accountability. ABG analysis requires skillful observations and careful analysis by competent nurses, which can prevent fatal complication in ill patients. The nurse plays an important role in monitoring the patient's progresses. A nurse has to be competent and skillful in handling situations that will result in effecting the ABG analysis of the patients. A nurse has to make a decision which is beneficial to the client life. By carefully analyzing, the nurse is able to recognize early causes and

manage problems before they arise. When the ABG analysis is done properly, the patient experience more rapid positive outcomes.

A prospective observational study was conducted in Saudi Arabia to find out the appropriateness of ABG measurements in acute care general wards and the study showed that medical wards were the most frequent areas requesting ABG (48%). The total number of ABG requested from all medical wards were 59 (60.2%). Acute and chronic respiratory diseases were the most frequent diagnoses (34.6%) requiring ABG measurements, followed by 17 measurements (17.4%) for chronic airway obstruction, five for asthma (5.1%), three for

pulmonary fibrosis (3.1%), three for sleep apnea (3.1%), three for pulmonary embolism (3.1%), and three for pneumonia (3.1%).

The researcher's clinical experience found that the nurses take an active part in collecting ABG samples, but their ability to interpret ABG reports were lacking. This motivated the investigator to select the present study. And the researcher felt that interpretive educative session may improve their knowledge on interpretation regarding arterial blood gas values

Objectives of the study –

The objectives of the study are to:

1. assess the knowledge on interpretation regarding arterial blood gas values among critical care nurses using an interpretive questionnaire.
2. assess the effectiveness of interpretive educative session in improving the knowledge on interpretation regarding arterial blood gas values among critical care nurses.
3. find the association between knowledge on interpretation regarding arterial blood gas values among critical care nurses and selected base line variables.

Hypotheses –

All hypotheses will be tested at 0.05 level of significance.

H1: There will be a significant difference between the knowledge on interpretation regarding arterial blood gas values among critical care nurses before and after the interpretive educative session.

H2: There will be a significant association between the knowledge on interpretation regarding arterial blood gas values among critical care nurses and the selected baseline variables.

Operational definitions –

Effectiveness:-

In this study the effectiveness refers to the extent to which the interpretive exercise session has achieved its desired effect in improving the knowledge on interpretation of critical care nurses as denoted by gain in the knowledge score on interpretation in the post test.

Interpretive educative session:-

In this study, interpretive educative session refers to an educative session in which the critical care nurses are given a brief lecture regarding ABG and a set of questions based on the arterial blood gas values and the participants are instructed to analyze the clinical situation and identify the answers to the given questions.

Knowledge on interpretation: -

In this study knowledge on interpretation refers to the correct responses given by critical care nurses regarding arterial blood gas values which will be assessed using structured interpretive questionnaire.

Arterial blood gas values:-

In this study arterial blood gas values refers to the various values of partial pressure of oxygen (PaO2), partial pressure of carbon dioxide (PaCO2), bicarbonate level (HCO3 -) and pH level.

Critical care nurses:-

In this study critical care nurses refers to the registered nurses with a Basic B.Sc, PBB.Sc degree or diploma in nursing working in the critical care units of selected hospitals.

Assumptions-

The study assumes that:

- critical care nurses may have inadequate knowledge on interpretation regarding arterial blood gas values.
- interpretive educative session may be an effective method to improve the knowledge on interpretation regarding arterial blood gas values among critical care nurses.

Delimitations –

The study is delimited to critical care nurses who are:

- available during the data collection period.
- willing to participate in the study.
- working in the intensive care units of selected hospitals.

Setting of the study –

The setting is where the population or a portion of it that is being studied is located and where the study is carried out.

The study was conducted in the critical care units of Maheshwari. Hospital, Gwalior. It is a well known government hospital with 300 number of bed strength. The hospital is well established with a minimum of 80-100 critical care unit inpatient admissions every month. The present study was conducted among the critical care nurses working in the critical care units of Maheswari Hospital, Gwalior.

Population –

A population is any group of individuals that have one or more characteristics in common that are of interest to the researcher. In this study, population include the critical care nurses working in the various critical care units of Maheswari Hospital, Gwalior.

Sample and Sampling Technique –

Sample –

Sample consists of a subset of the units that compose the population. In this study, sample comprised of 30 critical care nurses working in the various critical care units of Maheswari Hospital, and who fulfilled the sampling criteria.

Sampling Technique-

The samples were selected using a non-probability purposive sampling technique. Critical care nurses who fulfilled the inclusion criteria and those who were working in the various critical care units during data collection period were included in the study.

Sample Size-

The study consisted of 30 critical care nurses, working in the various critical care units of Maheswari Hospital, Gwalior.

Criteria for sampling selection Inclusion criteria-

- Critical care nurses irrespective of their gender and years of experience working in critical care units of Maheswari Hospital, Gwalior.
- Nurses who are present during data collection period.
- Nurses who can communicate in English.
- Nurses who have consented to participate.

Exclusion criteria –

- Critical care nurses who are on leave during data collection period.

RESULTS

This chapter deals with the analysis and interpretation of the data collected from

30 critical care nurses through structured interpretive questionnaire to evaluate the effectiveness of interpretive educative session on arterial blood gas values among critical care nurses working in Maheswari Hospital, Gwalior. The data was analyzed according to the objectives of the study.

Organization of findings

The data is analyzed and presented under the following headings.

1. **Section I:** Description of the baseline data of the critical care nurses working in Unity Health Complex, Gwalior.
2. **Section II:** Pre-test knowledge score on interpretation of the critical care nurses regarding arterial blood gas values.
3. **Section III:** Post test knowledge score on interpretation of the critical care nurses regarding arterial blood gas values.
4. **Section IV**: Effectiveness of interpretive educative session in improving the knowledge on interpretation regarding arterial blood gas values among critical care nurses.
5. **Section V:** Find the association between the pre-test knowledge score on interpretation with selected baseline variables.

Section I: Description of the baseline pro-forma of the critical care nurses

Table 1: **Frequency and percentage distribution of base-line pro-forma of the critical care nurses working in a selected hospital at Gwalior.**

n =30

Sl. No	Variable	Frequency(f)	Percentage (%)	
1. Age (in yrs)				
	a)	21 – 25	29	96.7
	b)	26-30	1	3.3
	c)	31-35	0	0
	d)	Above 35	0	0
2. Gender				
	a) Male		1	3.3
	b) Female		29	96.7
3. Professional qualification				
	a) GNM		14	46.7
	b) B.Sc(N)		15	50.0
	c) PBBSc(N)		1	3.3
4. Duration of clinical experience(in yrs)				
	a) <1		19	63.3
	b) 2-3		9	30.0
	c) >4		2	6.7

5. Area of clinical experience			
	a) MICU	15	50.0
	b) NICU	14	46.7
	c) SICU	0	0
	d) HDU	1	3.3
6. Attended any in-service education or CNE on ABG analysis:			
	Yes	5	16.7
	No	25	83.3

Data presented in the Table 1 and figure 4 to 9 shows that out of 30 samples majority (96.7%) belongs to an age group of 20-25 years and also majority (96.7%) of the samples were females. The professional qualification was found to be B.Sc nursing for majority (50%) of the samples. 63.3% of the samples have a duration of clinical experience of less than 1 year. The area of clinical experience of the majority (50%) of the samples were from medical ICU (MICU). A total of 83.3% of the samples had not attended any in-service education or CNE on ABG analysis.

Section II Pre-test knowledge score on interpretation of the critical care nurses regarding arterial blood gas values.

Table 2: Distribution of overall pre-test knowledge score on interpretation of the critical care nurses regarding arterial blood gas values in terms of frequency and percentage.

n = 30

Level of knowledge on interpretation	Frequency(f)	Percentage(%)
Inadequate	20	66.7
Moderate	10	33.3
Adequate	0	0

The data presented in the table 2 and figure 10 shows that in the pre-test, majority (66.7%) of the respondents had inadequate knowledge on interpretation and 33.3% of them had moderate knowledge on interpretation. None of the participant had adequate knowledge on interpretation. This shows the real need for an interpretive educative session on the selected aspect.

Table 3: Mean, median and standard deviation of pre-test knowledge score on interpretation of the critical care nurses regarding arterial blood gas values

n=30

	Mean	Median	SD
Pretest	9	7.50	4.339

The data presented in Table 3 shows that the pre-test knowledge scores ranges between 2-17. The mean pre-test knowledge score was 9.0± 4.339.

Table 4: Area-wise distribution of pre-test mean knowledge score on interpretation, standard deviation and mean percentage of the critical care nurses regarding arterial blood gas values

n=30

Area	Maximum score	Mean score	Standard deviation	Percentage mean(%)
Respiratory acidosis	4	1.83	1.177	45.83
Respiratory alkalosis	4	1.57	1.040	39.17
Metabolic acidosis	4	1.27	1.285	31.67
Metabolic alkalosis	4	1.20	0.761	30.00
Compensation	9	3.00	1.742	33.33

The data presented in the Table 4 shows that the pre-test knowledge score on interpretation was higher in the area of respiratory acidosis with mean percentage of

45.83 % and standard deviation as 1.83 ± 1.177. The mean percentage of knowledge score on interpretation was found to be lower in the area of metabolic alkalosis with a mean percentage of 30.00% and standard deviation as 1.20 ± 0.761.

Section III Post-test knowledge score on interpretation of the critical care nurses regarding arterial blood gas values.

Table 5: Distribution of overall post-test knowledge score on interpretation of the critical care nurses regarding arterial blood gas values in terms of frequency and percentage .

n= 30

Level of knowledge on interpretation	Frequency(f)	Percentage(%)
Inadequate	0	0
Moderate	4	13.3
Adequate	26	86.7

The data presented in the Table 5 and figure 11 shows that in the post-test, majority (86.7%) of the samples had adequate knowledge on interpretation, 13.3% had moderate knowledge on interpretation and none of the sample had inadequate knowledge on interpretation.

Table 6: Mean, median and standard deviation of post-test knowledge score on interpretation of the critical care nurses regarding arterial blood gas values.

n=30

Post-test		
Mean	Median	SD
21.30	21	3.164

The data presented in Table 6 shows that the post-test knowledge score on interpretation ranges between 15-25. The mean post-test knowledge score on interpretation was 21.30 ± 3.164.

Table 7: Area-wise distribution of post-test mean knowledge score on interpretation, standard deviation and mean percentage of the critical care nurses regarding arterial blood gas values.

n=30

Area	Maximum score	Mean score	Standard deviation	Percentage mean(%)
Respiratory acidosis	4	3.80	0.407	95
Respiratory alkalosis	4	3.23	0.898	80.83
Metabolic acidosis	4	3.43	0.728	85.83
Metabolic alkalosis	4	3.37	0.615	84.17
Compensation	9	7.47	1.655	82.96

The data presented in the Table 7 shows that the post-test knowledge score on interpretation was higher in the area of respiratory acidosis with mean percentage of 95 % and standard deviation as 3.80 ± 0.407. The mean percentage of knowledge score on interpretation was found to be lower in the area of respiratory alkalosis (80.83%) and standard deviation as 3.23 ± 0.898. However the mean percentage reveals that the knowledge on interpretation of the critical care nurses regarding ABG values was adequate in all the areas.

Section IV Effectiveness of interpretive educative session on knowledge on interpretation regarding arterial blood gas values among critical care nurses

Table 8: Pre and post test frequency and percentage distribution of knowledge score on interpretation of the critical care nurses regarding arterial blood gas values

n=30

	Pre test		Post test	
Level of knowledge on interpretation	Frequency (pre test)	Percentage (%) (pre test)	Frequency (post test)	Percentage (%) (post test)
Inadequate	20	66.7	0	0
Moderate	10	33.3	4	13.3
Adequate	0	0	26	86.7

The data presented in Table 8 shows that majority of the samples (66.7%) had inadequate knowledge score on interpretation in the pre-test and 33.3% had moderate knowledge score on interpretation. In the post-test 86.7%

of the samples had adequate knowledge score on interpretation and 13.3% had moderate knowledge score on interpretation. None of the samples had poor knowledge score on interpretation in the post test. This data shows that the interpretive educative session was effective in increasing the knowledge score on interpretation of the samples regarding arterial blood gas values.

Table 9: Over all mean, standard deviations, standard error, percentage mean and "t" value of pre-test and post-test knowledge score on interpretation of the critical care nurses regarding ABG values.

n = 30

	Mean	Mean difference Standard	SD	error	' t' value
Pre test	9.00	12.30	4.339	0.792	14.20*
Post test	21.30		3.164		

"t29" =1.70, at 0.05 level. Highly significant ($p < 0.05$)

Data in table 9 depicts that the mean post-test knowledge score on interpretation (21.30±3.164) is higher than the mean pre-test knowledge score on interpretation (9.00±4.339). The obtained "t" value ($t_{29}=14.20$, $p<0.05$) was found to be greater than the table value ($t_{29}=1.70$) at 0.05 level of significance. Hence the null hypothesis (H_{01}) was rejected and the research hypothesis (H_1) was accepted

Table 10: Area-wise mean, standard deviation and "t" value and standard error mean of pre-test and post-test knowledge score on interpretation of the critical care nurses

n = 30

Area	Maximum possible	Pre test	Post test	Mean difference	Pre test	Post test	SEM	't' value
	score	**mean**	**mean**		**SD**	**SD**		
Respiratory acidosis	4	1.83	3.80	1.97	1.177	0.407	1.10	9.81
Respiratory alkalosis	4	1.57	3.23	1.67	1.040	0.898	1.27	7.20
Metabolic acidosis	4	1.27	3.43	2.17	1.285	0.728	1.37	8.68
Metabolic alkalosis	4	1.20	3.37	2.17	0.761	0.615	1.02	11.64
Compensation	9	3.00	7.47	4.47	1.742	1.655	2.42	10.12

$p<0.05$,*= significant, df =29, table value=1.70

Section V The association of the pre-test knowledge score on interpretation with selected baseline variables.

Table 11: Chi square test showing the association between pre-test mean knowledge score on interpretation and selected baseline variables

n=30

Sl. No	Variables	Chi square value	P value	Inference
1.	Age (in years)	0.00	0.500	NS
2.	Gender	0.00	0.500	NS
3.	Professional qualification	0.53	0.46	NS
4.	Duration of clinical	0.14	0.7	NS
5.	experience Area of clinical	3.34	0.67	NS
6.	experience attended any in service education or CNE on ABG values	0	1	NS

$P < 0.05$, table value = 3. 84,NS-Not significant.

DISCUSSION-

Major findings of the study and discussion**:**

1. **Section I:** Description of the baseline data of the critical care nurses working in Maheswari Hospital, Gwalior.

- Most of the samples (96.7%) were in the age group of 20-25 years.
- Most of the samples (96.7%) were females.
- Majority of the samples (50%) had BSc nursing as their professional qualification.
- Majority of the samples (63.3%) had a duration of clinical experience of less than 1 year.
- Among the samples, 50% were from medical ICU (MICU).
- Among the samples 83.3% had not attended any in-service education or CNE on ABG.

Section II: Pre-test knowledge score on interpretation of the critical care nurses regarding arterial blood gas values.

Data collected prior to the administration of interpretive educative session reflected that majority of the critical care nurses (66.7%) had inadequate knowledge on interpretation regarding arterial blood gas values. The remaining 33.3% of critical care nurses had moderate knowledge on interpretation.

Section III: Post-test knowledge score on interpretation of the critical care nurses regarding arterial blood gas values.

Data collected after the administration of interpretive educative sessio n reflected that majority (86.7%) of the samples had adequate knowledge on interpretation, 13.3% had moderate knowledge on interpretation. None of the sample had inadequate knowledge on interpretation.

And the post-test knowledge score on interpretation was higher in the area of respiratory acidosis with mean percentage of 95%. The mean percentage of knowledge score on interpretation was found to be lower in the area of respiratory alkalosis (80.83%). However the mean percentage of knowledge score on interpretation reveals that the knowledge on interpretation of the critical care nurses regarding arterial blood gas values was adequate in all the other areas like metabolic acidosis (85.83%), metabolic alkalosis (84.17%), compensation (82.96%).

Section IV: Effectiveness of interpretive educative session on knowledge on interpretation regarding arterial blood gas values among critical care nurses in a selected hospital at Gwalior.

- The mean post-test knowledge score on interpretation (21.30) was higher than the mean pre-test knowledge score on interpretation (9.00) after the interpretive educative session. There was an increase in knowledge score on interpretation in all the area compared to the pre-test knowledge score on interpretation. The calculated values were greater than the table value which shows that there was significant improvement in post test knowledge score on interpretation compared to pre test knowledge score on interpretation.
- The difference between the mean post-test and the mean pre-test knowledge score was found to be statistically significant (t29 = 14.20) at 0.05 level of significance, which showed that the interpretive educative session was effective in improving the knowledge on interpretation regarding arterial blood gas values among critical care nurses.

Section V: The association of pre-test knowledge score on interpretation with selected baseline variables.

The findings of the study reveal that there is no significant associat ion between pre-test knowledge score on interpretation and selected baseline variables such as age, gender, professional qualificat ion, years of clinical experience, area of clinical experience and attended any in-service education or CNE on ABG analysis at 0.05 level of significance.

CONCLUSION-

The following conclusio ns were drawn on the basis of the findings of the study:

- Majority of the samples had inadequate knowledge score on interpretation in the pre- test.
- The mean post-test knowledge score on interpretation was significantly higher than the mean pre-test knowledge score on interpretation.
- It was also found that the area of respiratory acidosis had maximum score in pre-test and in the post-test.
- Findings showed that interpretive educative session was an effective method to improve the knowledge on interpretation regarding arterial blood gas values among critical care nurses.

There was no association between pre-test knowledge scores on interpretation and selected baseline variables.

Nursing implications

The findings of the present study have implications in the field of nursing education, nursing practice, nursing administration and nursing research.

The finding of the study has shown that critical care nurses have inadequate knowledge on interpretation regarding arterial blood gas values. The interpretive educative session could be used as an illustrative informational aid to staff, student nurses, nurse educators and patients.

Nursing practice

Interpretive educative session is one of the cost effective interventions used for educating the nurses on various aspects. The nurse should take init iative for arranging educative sessions and seminars by gathering all the persons in the hospital based on their felt needs. The knowledge and practice which they receive will help to prevent various misunderstandings. This acquired knowledge will be disseminated to others by interaction. The present study revealed that the interpretive educative session regarding arterial blood gas values was an effective method to improve the knowledge on interpretation of

critical care nurses. The nurse can take the role of a facilitator and educator and can educate the colleagues and the patients they care for, during their practice.

Nursing Administration

Nurse administrators are the backbone of providing effective nursing care. They should make provisio n for nurses to devote time for planning and organizing nursing care activities for the improvement of knowledge and practice of staff nurses who are undergoing interpretive educative session. The findings of the study can be used by the nurse administrator to assess the need for educating the staff nurses regarding the interpretation of arterial blood gas values. The administrator, based on the felt needs, can plan the education program and also encourage staff nurses to do their duties in a better way.

Nursing education

As a nurse educator, there are ample opportunities, for the nursing professional to educate the staff nurses on interpretation of arterial blood gas values in the clinical setting. The study emphasizes the significance of the short term courses or in- service education for nurses in advanced knowledge on interpretation regarding arterial blood gas values and in making use of facilities available in the management of patients in day to day care activities.

Nursing research

Nurses play a key role in providing health care to patients and being close to the patients they can conduct projects and research studies in the hospital. The present study also gives various recommend at ions, which can be considered and taken up as researches or project in different settings and population. The findings of this study can be used by the future researchers and it can be disseminated as to improve the knowledge level of staff nurses who are undergoing interpretive education and add to their overall quality of life.

Limitations

1. The study was confined to a small sample selected by purposive sampling technique which restricts the generalizat ion.
2. The study was confined to only thirty crit ical nurses who were working in Maheswari Hospital, Gwalior.
3. The study was limited to only one hospital.
4. The study did not use a control group. The investigator had no control of the events that took place between pre test and post test.

Recommendations

On the basis of findings of the study, the following recommendations are being made:

1. A similar study can be replicated on a large sample to generalize the findings.
2. A similar study can be conducted amongst all the critical care nurses who are working in all areas of hospital
3. An experimental study can be undertaken with control group for effective comparison.
4. A comparative study can be conducted between critical care nurses and staff nurses.
5. A comparative study can be undertaken to compare the knowledge and practice of critical care nurses
6. Effectiveness of protocol implementation to improve the knowledge on interpretation of the critical care nurses on selected topic
7. Planned teaching programme to improve the knowledge on interpretation of critical care nurses on selected topic
8. A similar kind of study can be conducted using true experimental design so that generalization could be made.

BIBLIOGRAPHY

[1] Black MJ, Hawk HJ. Medical surgical nursing. 8th ed. Missouri: Elsevier; 2009.

[2] Lemone P, Burke K. Medical surgical nursing critical thinking in client care. 4thed.New Delhi: Pearson; 2008.

[3] Cooper N. Acute care: Arterial blood gases. BMJ. 2004;20(4)105-7.

[4] Wikipedia the free encyclopedia [Internet].Edinburgh Wikipedia Foundation, Inc; [cited 2013 jan]. Available from URL:www.en.Wikipedia.org/wiki/Arterial_blood_gas

[5] Bounds LP. Gale encyclopedia for nursing and allied health. Blood gas analysis [online]. 2002 [cited 2011 Nov 15]. Available from: URL:www.healthline.com/gale content /blood gas analysis-1

[6] Dugle P. ABG interpretation. Continuing Nursing Education. [online]. Available from: URL:www.ceufast.com/courses/viewcourse.asp

[7] Miller DM, Linn LR, Groundland EN. Measuring complex achievement: The interpretive exercise in measurement and assessment in teaching. [online]. Available from: URL:www.wps.prenhall.com/chet-miller. measurement

[8] Marlene R, Shirley T, Jose EV. Arterial Blood Gases. MSN. Aug 2008 ;17(4)268-9.

[9] Allen K. Four step method of interpreting arterial blood gas analysis. Nurs Times. 2005; 101(1):42-5

[10] Sood P, Paul G, Puri S. Interpretation of arterial blood gases. IJCCM. 2010; 1 (2)57- 64.

[11] Jone BM. Basic interpretation of metabolic acidosis. CCN. 2010 Oct;30(5):63-9.

[12] Lewis LS, Heitkemper MM, Dirksen SR, O'Brien PG. Medical Surgical Nursing: Assessment and Management Of Clinical Problems. 7th ed. Philadelphia: Elsevier's; 2011.

[13] Dodds S, Williamson GR. Nurse-led arterial blood gas sampling for patients requiring long term oxygen therapy. Nurs Times.2007 Feb; 103(8):44-5

[14] Moamary AM, Daniel DB, Jahadali AH, Shimeri AA. Appropriateness of ABG measurement in acute care general wards. Ann Saudi Med. 1999; 19(2)153-5.

[15] Christensen M, Chen F. Advanced arterial blood gas analysis in septic shock: A Singaporean nursing case review. Intensive Crit Care Nurs. 2012 [cited 2005 Oct 15]. Available from:www.ncbi.nlm.nih.gov/pubmed/2299949