

A Pre-Experimental Study to Assess the Effect of Structured Teaching Programme on Knowledge Regarding ABG Analysis among Staff Nurses at Selected Hospitals of Bhilai (C.G)

Habeeb Khan¹, Arvind Kumar Shekhar²

¹Assistant Professor, GCRG College of Nursing, Lucknow, Uttar Pradesh, India

²Assistant Professor, B.S.M. College of Nursing, Lucknow, Uttar Pradesh, India

ABSTRACT

Blood gas studies are concerned with repatriation of the exchange gases between the lungs and blood and between blood and tissues. The term blood gas strictly refers to the measurement of the tension or partial pressure of oxygen, CO₂ and the estimation of H⁺ ion concentration or PH is an integral part of blood gas measurement. performed routinely in hospital inpatient floors and in intensive care units, pulmonary clinics, emergency departments, surgical suites, and pulmonary function laboratories throughout the world³. The measurement of arterial blood gases (ABG) has assumed an increasingly important role in the process of clinical evaluation, and has been widely used during the past three decades⁴. Title of the study was “A pre-experimental study to assess the effect of structured teaching programme on knowledge regarding ABG analysis among staff nurses at selected hospitals of Bhilai (C.G). Objectives of the study was to To assess the level of knowledge regarding ABG analysis among staff nurses before intervention. To evaluate the effect of structured teaching programme on knowledge regarding ABG analysis among staff nurses. To associate the pre test knowledge score regarding ABG analysis among staff nurses with their selected socio demographic variables. Methodology adopted for the study was quantitative research approach with a pre-experimental one group pretest and posttest was adopted. In this study, the sample consists of 60 staff nurses who fulfilled the inclusion criteria for the study. The convenience sampling technique was used for this study. Data collection tools consist of 2 parts they are section A: It will be used to assess the demographic data such Age, gender, area of residence, religion, year of experience, educational qualification, previous knowledge, and source of information. section B: Administered self structured questionnaire to assess the existing knowledge of staff nurses regarding ABG analysis. Validity of the tool was established with experts. For the main study A formal written permission was obtained from the authorities to conduct the study. Final data collection was done from Apollo Hospital Nehru Nagar Bhilai (C.G). The investigator first introduced himself to the respondent and explained the purpose of gathering information. convenient sampling technique was used for data collection. On first day half of the subjects were selected to assess the knowledge regarding ABG analysis was assessed. On other day, remaining samples were selected to assess the knowledge regarding ABG analysis. The collected data was tabulated according to various parameters and the complete analysis was done with descriptive and inferential statistics. The study concluded that shows the comparison of overall pretest and posttest of knowledge score. The posttest knowledge mean score (2.8), SD (2.0) is higher than the pretest knowledge mean score is (3.5), SD(0.7) and t value = 7.5 obtained, which is highly significant at P=0.05 so the null hypothesis (H₀) is rejected and alternative hypothesis (H₁) is accepted. The effectiveness of the structured teaching programme. In pre-test mean percentage knowledge score were 65.2%, and after providing structured teaching programme the post-test mean percentage knowledge score were 78.1%. Considering knowledge, staff nurses were gained 12.9% of more knowledge than pre-test. Hence the difference between of the pre test and post test in overall percentage of knowledge gain was 12.9%. hence STP was effective to improve the knowledge of staff nurses regarding ABG.

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KEYWORDS: Pre Experimental Study, ABG Analysis in Staff

Need for the study: -

Nurses are integral part to health care delivery and it is important that they have a clear understanding of the nature of the procedures that they would have to perform for the patients. The critical care nurse serves as a catalyst in the healing process, making complex and timely judgments and decisions and taking actions for which the nurse remains accountable. The rationale of such decision is based upon the thorough knowledge of the health and life saving procedures. The knowledge base is upgraded continuously by new clinical and educational experiences that reinforce the critical care nurses' professional practice and autonomy.

According to an article published by Simpson, he views that interpretation of arterial blood gas analysis values has become an essential skill for all healthcare 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, and evaluation of interventions such as oxygen therapy, respiratory support and as a baseline before surgery.

In order to understand and interpret ABGs one has to have a clear knowledge regarding the nomenclature, physiology and types of acid base disorders. Disorders of acid base balance can complicate many disease states and occasionally the abnormality may be so severe as to be life threatening. Monitoring of ABGs is an essential part in the anaesthetic management of the high-risk patients as well as in the care of critically ill patients in the ICU. Since both areas manifest sudden and life threatening changes in all systems concerned, a thorough understanding of acid base balance is mandatory for any physician, the anesthesiologist and the nurse is no exception.³

OBJECTIVES

1. To assess the level of knowledge regarding ABG analysis among staff nurses before intervention.
2. To evaluate the effect of structured teaching programme on knowledge regarding ABG analysis among staff nurses.
3. To associate the pre test knowledge score regarding ABG analysis among staff nurses with their selected socio demographic variables.

Material and method:-

Research approach and design: - Quantitative approach with pre experimental one group pretest post-test design was adopted.

Setting of the study: -Selected hospital Bhilai (C.G).

Study population: - Staff nurses.

Accessible population: - Staff nurses working in Apollo hospitals of Bhilai (C.G)

Sample size: - 60

Sampling technique: - Non probability convenient sampling technique.

Inclusive criteria:

1. Staff nurses who are present at the time of data collection
2. Staff nurses who are willing to participate in the study.

Exclusion criteria

1. Who was not available at the time of data collection.
2. Who have already attended this type of study.

Variables under study

Independent variable: The structured teaching programme regarding ABG analysis is the independent variable.

Dependent variable: The knowledge among staff nurses regarding ABG analysis is the dependent variable.

Demographic variables: - The demographic variables are age in year, gender, area of residence, religion, year of experience, educational qualifications, previous knowledge regarding ABG, sources of information.

Description of Tools

A Socio demographic variables and Knowledge questionnaire on Anemia was constructed by the investigator which contains items in the following aspects.

SECTION A: It will be used to assess the demographic data such Age, gender, area of residence, religion, year of experience, educational qualification, previous knowledge, and source of information

SECTION B: Administered self structured questionnaire to assess the existing knowledge of staff nurses regarding ABG analysis.

Scoring for Knowledge questionnaire onABG.

Minimum score = 0

Maximum score = 30

Data collection procedure: -

A formal written permission was obtained from the authorities to conduct the study. Final data collection was done from Apollo Hospital Nehru Nagar Bhilai (C.G). The investigator first introduced himself to the respondent and explained the purpose of gathering

information. It was planned to collect the information from staff nurses at Apollo hospitals of Bhilai (C.G), in order to get information regarding ABG analysis. On first day half of the subjects were selected to assess the knowledge regarding ABG analysis was assessed. On other day, remaining samples were

selected to assess the knowledge regarding ABG analysis.

Limitations of the study

1. Only 60 samples are used for this study.
2. Only samples form selected schools from Kanpur

Analysis and interpretations

Section I:- Base line characteristics of participants.

Table 1: - Baseline characteristics of the participants

Sl.no	Demographic variables	frequency	percentage
1.	Age in years		
	21-25 years	12	20
	26-30 years	16	26.6
	31-35 years	20	33.3
	Above 35 years	12	20
2.	Sex		
	Male	22	36.6
	Female	38	63.4
3.	Religion		
	Hindu	12	20
	Muslim	9	15
	Christian	34	56.6
	Others	5	8.34
4.	Residential area		
	Urban	40	66.6
	Rural	20	33.4
5.	Educational qualifications		
	G.N.M	18	30
	B.sc nursing	22	36.6
	Msc. nursing	20	33.4
6.	Area of working		
	Cardiac ward	20	33.4
	Cardiac ICU	22	36.6
	Critical care unit	18	30
7.	Year of experience		
	0-5 year	19	31.6
	5-10 years	10	16.6
	10-15 years	10	16.6
	More than 15 years	21	35
8.	Previous knowledge regarding ABG		
	Yes	21	35
	No	39	65
9.	Sources of information		
	Seminar, conference	13	21.7
	Magazines, Articles	10	16.7
	Doctors/ Staff	15	25
	Internet	6	10

Section II: - Effectiveness of STP on knowledge regarding ABG

Table no 2: - Effectiveness of STP on knowledge regarding ABG.

Knowledge level	Poor	Average	Good
Pre test	06	11	43
Post test	00	00	60

Paired t test used to assess the effectiveness of STP on knowledge regarding ABG and the obtained value was 7.5 and the table value was 2.0 at 0.05 level of confidence. Since the obtained value greater than the table value STP was effective So, the H1 hypothesis was accepted. The investigator concluded the structured teaching programme was effective to improve the knowledge regarding ABG analysis among the staff nurses..

Assess the association between pre test knowledge score with selected demographic variables.

Table no: - 3 Chi square showing association between pre test knowledge with selected demographic variables.

Sl. no	Demographic variables	Knowledge level			Obtained value	Table value	inference
		Good	Average	Poor			
1.	Age in years				30.0	12.5	significant
	21-25 years	02	08	02			
	26-30 years	01	12	03			
	31-35 years	01	15	04			
	Above 35 years	02	08	02			
2.	Sex				2.14	5.39	Not significant
	Male	04	25	09			
	Female	02	18	02			
3.	Religion				7.27	12.5	Not significant
	Hindu	02	09	01			
	Muslim	02	06	01			
	Christian	01	25	08			
	Others	01	03	01			
4.	Residential area				1.36	5.39	Not significant
	Urban	04	28	08			
	Rural	02	15	03			
5.	Educational qualifications				3.3	5.39	Not significant
	G.N.M	01	12	05			
	B.sc nursing	02	16	04			
	Msc. nursing	03	15	02			
6.	Year of experience				3.9	5.39	Not significant
	0-5 year	01	12	06			
	5-10 years	01	08	01			
	10-15 years	01	05	04			
	More than 15 years	03	16	02			
7.	Previous knowledge regarding ABG				3.14	5.39	Not significant
	Yes	01	18	02			
	No	05	25	09			
8.	Sources of information				18.5	12.5	Significant
	Seminar, conference	01	06	02			
	Magazines, Articles	01	08	04			
	Doctors/ Staff	02	19	04			
	Internet	02	10	01			

The chi-square calculation explains that there was a significant association between pre test knowledge level and the sociodemographic variables such as age in year, sources of information as the chi-square value was greater than the table value at 0.05 level of significance.

Conclusion: -

The study revealed that structured teaching program on ABG was effective to improve the knowledge level of staff nurses regarding ABG analysis.

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