# A study of assess the knowledge on ABG estimation among III year B.Sc Nursing students at Narayana College of Nursing, Nellore, A.P.

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**Abstract:** ABG estimation gives information about the acid base balance ventilator ability and oxygenation status of the individual. Partial pressure of $O_2$ [80-100mmHg] and partial pressure of $CO_2$ [35-45mmHg] is provided in ABG determination $O_2$ saturation and excess in base any severe illness lead to metabolic acidosis. **Objectives:** To assess the level of knowledge regarding ABG estimation among III year B.Sc Nursing students and to find out association between the level of knowledge regarding ABG estimation among III year B.Sc Nursing students with selected socio-demographic variables. **Methodology:** 60 participants were selected by using non probability convenience sampling techniques who fulfill the inclusion criteria. The data was collected by structured questionnaire. The data was analyzed by using descriptive and inferential statistics based on the objectives of the study. **Results:** The results shows that, knowledge on ABG estimation among III year B.Sc Nursing students on Narayana college of nursing 4(7%) had A+ grade, 24(40%) had A grade, 15(25%) had B+ grade, 10(16%) had B grade, 3(5%) had C grade, 4(7%) had D grade knowledge on ABG estimation. **Keywords: Knowledge, ABG estimation, Nursing student**

**Introduction:** Circulatory system is a group of organ. It carries blood and the substance to and from all parts of the body. Circulatory system has two parts - systematic circulatory, pulmonary circulation. Systematic circulatory serves the body has a whole except for the lungs. Pulmonary circulation carries the blood to and from the lungs. Red blood cells are the cells that transport oxygen and carbon dioxide gases through the blood. Kidney disorders and cardiac lungs are present in such certain medical condition which indicates when the oxygen and carbon dioxide level of our blood and PH imbalance of blood. It also effect other such critical conditions such as uncontrolled hemorrhage drug over dose, shock physician order. It is a test known as article blood gas [ABG] test. This test are used to determine the levels that collections a small amount of blood from an artery and it reading within 10 minutes as results.

The indication of ABG estimation gives information about the acid base balance ventilator ability and oxygenation status of the individual. Partial pressure of $O_2$ [80-100mmHg] and partial pressure of $CO_2$ [35-45mmHg] is provided in ABG determination $O_2$ saturation and excess in base any severe illness lead to metabolic acidosis. Some are the example - liver failure, cardiac failure, multi organ failure, diabetic mellitus, renal failure. The acid base states to access the degrees of oxygenations of blood. The management of client of mechanical ventilation used ABG determination.

A bubble oxygenater is a method has was invented by Leland clerk in 1952. It is a test that commonly used the patient in ICU [intensive care unit] arterial blood gas in a estimation is done by performing and an arterial puncture. So, the determine the level of blood gases, we collect blood sample for estimation. Arterial blood gas is commonly used to refer the collection of parameters and also indicates an individual's ability to maintain an eternal environment that allows normal cell function. The body's ability indicates a twin balance between acid and alkalis known as acid base status. Respiratory and renal mechanism are controlled the acid base status.

**Background of the Study:** Cardiovascular disease emergencies, it is affect the majority of the adult past the age of 60 years. Acute coronary syndrome, pulmonary embolism, acute infective endocarditis, arrhythmia, cardiogenic shock, acute aortic dissection, and so forth are medical emergencies with high mortality rate.

In 2021 state that cardiovascular disease critical illness heart disease is the leading cause of death for men, women, and people of most racial and ethnic groups in the United States. One person dies every 36 seconds in the United States from cardiovascular disease. About 655,000 America die from heart disease each year that 1 in every 4 deaths.

A statistics analysis conducted by World Health Organization on 2021 shows that cardiovascular disease are the leading cause of death globally. An estimated of all global deaths of these deaths, 85% were due to heart attack and stroke. Over three quarters of CV deaths take place in low and middle income countries. Heart attacks and strokes are usually acute event and are mainly caused by a blockage that prevents blood from flowing to the heart or brain. The most common reason for this is a build -up of fatty deposits on the inner walls of the blood vessels that supply the heart or brain. Strokes can be caused by bleeding from a blood vessels in the brain or from clots.

**Statement of the Problems:**

**A study of assess the knowledge on ABG estimation among III year B.Sc Nursing students at Narayana College of Nursing, Nellore, A.P.**

**Objectives:**

1. To assess the level of knowledge regarding ABG estimation among III year B.Sc Nursing students.

2. To find out association between the level of knowledge regarding ABG estimation among III year B.Sc Nursing students with selected socio-demographic variables.

**Operational Definitions:**

**Knowledge:** Refers to the understanding of the subject or attention to gain knowledge through experience regarding ABG estimation.

**ABG Estimation:** Arterial blood gas estimation is done by performing an arterial puncture there by blood sample is collected for estimation.

**Third Year B.Sc Nursing Students:**

It refers to the nursing students studying III year B.Sc Nursing at Narayana College of Nursing, Nellore, A.P.

**MATERIAL AND METHODS**

**Research Approach:** The quantitative research approach.

**Research Design:** A descriptive research design.

**Settings of the study:** The study was conducted in Narayana College of Nursing, Nellore, A.P.

**Population:** B.Sc. (N) students

**Target Population:** Target population of the study includes B.Sc.(N) students in Narayana College of Nursing, Nellore.

**Accessible Population:**

The accessible population of present study includes III year B.Sc.(N) students who are in Narayana College of Nursing, Nellore.

**Sample:** Sample consists of III year B.Sc.(N) students in Narayana College of Nursing.

**Sample size:** The sample size consist of 60 III year B.Sc.(N) students in Narayana college of Nursing, Nellore.

**Sampling Techniques:** Non probability purposive sampling technique was adopted for this study.

**Criteria for Sample Selection:**

**Inclusion Criteria:**

• III year B.Sc.(N) students who were present in Narayana College of Nursing, Nellore.

• Students who were willing to participate in the study

**Exclusion Criteria:**

• III year B.Sc.(N) students who were in leave at the time of data collection.

**Description of the tool**

**Part - I:** Socio demographic variables of students nurse includes Age, religion, type of family, parent occupation, monthly income, source of information, whether attend any CNE programme.

**Part - II:** This consist of semi structured questionnaire determine the knowledge on ABG estimation.

**Scoring key and interpretation:**

The questionnaire consists of 26 questions, each correct answers was awarded by '1' mark and wrong answered by '0' mark based on the score, the knowledge level was assessed.

**Interpretation knowledge**

| GRADE | PERCENTAGE (%) |
|---|---|
| A+ | 91%-100% |
| A | 81%-90% |
| B+ | 71%-80% |
| B | 61%-70% |
| C | 51%-60% |
| D | <50% |

**Data collection Procedure:**

After obtaining formal permission from Principal, Narayana College of Nursing, Nellore.

The data was collected for a period of four weeks. 60 students was selected by non probability convenience sampling techniques. The participants was seated comfortably either at classroom or auditorium. Nature and purpose of study was explained. Confidentiality of information was assured by taking informed consent from the participants. Demographic data was collected and semi structured questionnaire was administered to participants and asked to tick the responses, which they feel appropriate. Each participants took 10-15 minutes to collect the data, 5 days in a week, 3 participants in a day and 15 participants in a week The collected data was analyzed with descriptive and inferential statistics.

**Plan for data analysis:** The data was analyzed in terms of the study using descriptive and inferential statistics.

**Results and Discussion:**

**Table No-1: Frequency and percentage distribution of III year B.Sc Nursing students based on age.** (N=60)

| Age of years | Frequency (F) | Percentage% |
|---|---|---|
| a. 20-21 years | 41 | 69 |
| b. 22-23 years | 18 | 28 |
| c. >23 years | 2 | 3 |
| Total | 60 | 100 |

**Table no.1:** Pertains to III year B.Sc Nursing students age in year 41 (69%) were between 20-21 years, 18(28%) were between 22-23 years and 2 (3%) were between >23 years.
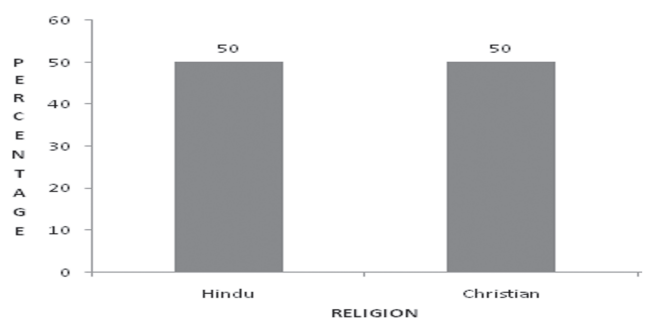
**Figure-1: Percentage distribution of III year B.Sc Nursing students based on religion.**

**Table no -2: Frequency and percentage distribution of III year B.Sc Nursing students based on type a family.          (N=60)**

| Type of family | Frequency (F) | Percentage% |
|---|---|---|
| a. Joint family | 17 | 29 |
| b. Nuclear family | 37 | 61 |
| c. Extended family | 6 | 10 |
| Total | 60 | 100 |

**Table no - 2:** Reveals to III year B.Sc Nursing students type of family 17(29%) belong to joint family, 27(61%) belong to Nuclear family, 6(10%) belong to extended family.

**Table no - 3: Frequency and percentage distribution of III year B.Sc Nursing students based on parent occupation.          (N=60)**

| Parent occupation | Frequency (F) | Percentage% |
|---|---|---|
| a. Farmer | 10 | 17 |
| b. Govt. employee | 27 | 45 |
| c. Self employee | 15 | 30 |
| d. Private employee | 5 | 8 |
| Total | 60 | 100 |

**Table no.3:** Pertains to III year B.Sc Nursing students parents occupation 10(17%) were farmer, 27(45%) govt. employee, 15(30%) self employee and 5(8%) were private employee group.

**Table no-4 Frequency and percentage distribution of III year B.Sc Nursing students based on family monthly income.          (N=60)**

| Family monthly income | Fre (F) | Per (%) |
|---|---|---|
| a. Rs.<5000 | 9 | 15 |
| b. 5001-7000 | 18 | 30 |
| c. 7000-9000 | 15 | 25 |
| d. Rs.> 9001 | 18 | 30 |
| Total | 60 | 100 |

**Table no.4:** illustrate to III B.Sc Nursing students family monthly income 9(15%) were belong to Rs.

<5000, 18(30%) were earning Rs. 5001-7000, 15(25%) were earning 7000-9001, 18(30%) were earning >9000.
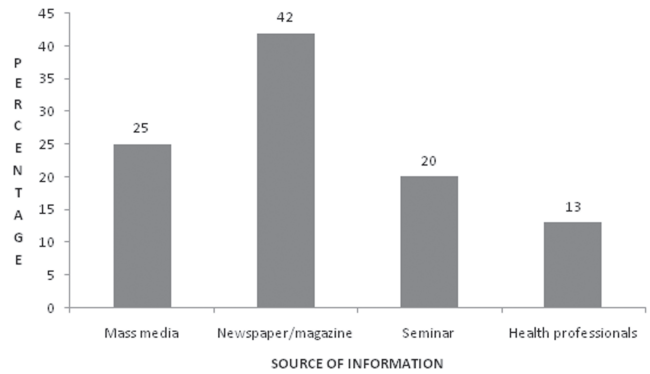


**Figure-2: Percentage distribution of III year B.Sc Nursing students based on   source of information.**
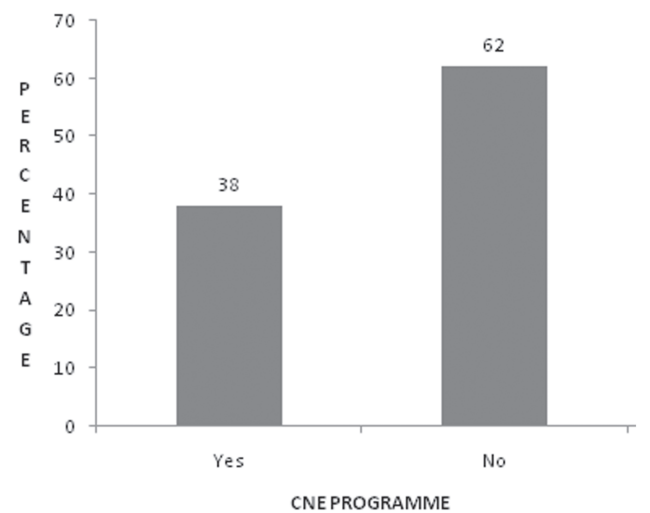


**Figure-3: Percentage distribution of III year B.Sc Nursing students based on CNE programme.**

**Table no -5: Frequency and percentage distribution of assess the Level of knowledge on ABG estimation among III year B.Sc Nursing students.          (N=60)**

| Level of knowledge | III year B.Sc (N) students | |
|---|---|---|
| | Fre (F) | Per (%) |
| A+ (Excellent) | 4 | 7 |
| A (Very good) | 24 | 40 |
| B+ (Good) | 15 | 25 |

| | | |
|---|---|---|
| B (Fair) | 10 | 16 |
| C (Poor) | 3 | 5 |
| D (very poor) | 4 | 7 |
| Total | 60 | 100 |

| Category | Mean | SD |
|---|---|---|
| Assess the knowledge on ABG estimation among III year B.Sc Nursing students | 19.43 | 2.89 |

**Table no - 5** shows that with regard to the knowledge on ABG estimation among III year B.Sc Nursing students on Narayana college of nursing 4(7%) had A+ grade, 24(40%) had A grade, 15(25%) had B+ grade, 10(16%) had B grade, 3(5%) had C grade, 4(7%) had D grade knowledge on ABG estimation.

**Table no -6: Mean and standard deviation of level of knowledge on ABG estimation among III year B.Sc Nursing students.** (N=60)

**Table no-6:** It shows that the mean and standard deviation of knowledge on ABG estimation among III year B.Sc Nursing students, the mean score was 19.43 and with standard deviation was 2.89.

**Table no.7: Association between the level of knowledge on case of ABG estimation among III year B.Sc Nursing students with their selected demographic variable.**

| Socio demographic variables | A+ | | A | | B+ | | B | | C | | D | | Chi square ($x^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | F | % | F | % | F | % | F | % | F | % | F | % | |
| Age<br>a. 20-21 years<br>b. 22-23 years<br>a. >23 years | 1<br>3<br>- | 2<br>5<br>- | 17<br>7<br>- | 28<br>12<br>- | 9<br>6<br>- | 15<br>10<br>- | 7<br>1<br>2 | 12<br>2<br>3 | 3<br>-<br>- | 5<br>-<br>- | 4<br>-<br>- | 7<br>-<br>- | Cv=9.6<br>Tv=18.31<br>Df=10<br>P=0.05<br>NS |
| Religion<br>a. Hindu<br>b. Christian | 1<br>3 | 2<br>5 | 12<br>12 | 20<br>20 | 8<br>7 | 13<br>12 | 4<br>6 | 7<br>10 | 2<br>1 | 3<br>2 | 3<br>1 | 5<br>2 | Cv=2.58<br>Tv=11.07<br>Df=5<br>P=0.05<br>NS |
| Type of family<br>a. Joint family<br>b. Nuclear family<br>c. Extended family | 3<br>1<br>- | 5<br>2<br>- | 6<br>17<br>1 | 10<br>28<br>2 | 3<br>11<br>1 | 5<br>18<br>2 | 4<br>3<br>3 | 7<br>5<br>5 | 1<br>2<br>- | 2<br>3<br>- | -<br>3<br>1 | -<br>5<br>2 | Cv=21.32<br>Tv=18.31<br>Df=10<br>P=0.05<br>S |
| Parent occupation<br>a. Farmer<br>b. Govt. employee<br>c. Self employed<br>d. Private employed | 2<br>-<br>1<br>1 | 3<br>-<br>2<br>2 | 4<br>9<br>9<br>2 | 7<br>15<br>15<br>3 | 2<br>9<br>3<br>1 | 3<br>15<br>5<br>2 | 1<br>5<br>3<br>1 | 2<br>8<br>5<br>2 | -<br>2<br>1<br>- | -<br>3<br>2<br>- | 1<br>2<br>1<br>- | 2<br>3<br>2<br>- | Cv=5.76<br>Tv=24.99<br>Df=15<br>P=0.05<br>NS |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Family monthly Income | | | | | | | | | | | | | Cv=10.5 |
| a. Rs.<5,000/- | 1 | 2 | 4 | 7 | 3 | 5 | 1 | 2 | - | - | - | - | Tv=24.99 |
| b. Rs.5,001-7,000/- | 2 | 3 | 9 | 15 | 2 | 3 | 3 | 5 | - | - | 2 | 3 | Df=15 |
| c. Rs.7,001-9,000/- | 1 | 2 | 6 | 10 | 3 | 5 | 3 | 5 | 1 | 2 | 1 | 2 | P=0.05 |
| d. Rs.>9,001/- | - | - | 5 | 8 | 7 | 12 | 3 | 5 | 2 | 3 | 1 | 2 | NS |
| Source of information | | | | | | | | | | | | | Cv=9.22 |
| a. Mass media | 1 | 2 | 8 | 13 | 3 | 5 | 1 | 2 | 1 | 2 | 1 | 2 | Tv=24.99 |
| b. Newspaper/magazine | 2 | 3 | 10 | 17 | 5 | 8 | 3 | 5 | 2 | 3 | 3 | 5 | Df=15 |
| c. Seminar | - | - | 4 | 7 | 5 | 8 | 3 | 5 | - | - | - | - | P=0.05 |
| d. Health professional | 1 | 2 | 2 | 3 | 2 | 3 | 3 | 5 | - | - | - | - | NS |
| CNE programme | | | | | | | | | | | | | Cv=3.74 |
| a. Yes | 1 | 2 | 6 | 10 | 7 | 12 | 4 | 7 | 2 | 3 | 3 | 5 | Tv=11.07 |
| b. No | 3 | 5 | 18 | 30 | 8 | 13 | 6 | 10 | 1 | 2 | 1 | 2 | Df=5 |
| | | | | | | | | | | | | | P=0.05 |
| | | | | | | | | | | | | | NS |

Association between the level of knowledge on ABG estimation among III year B.Sc nursing students, there was significantly associated with type of family and were not significantly associated with, religion, parent occupation, family monthly income, source of information and CNE programme.

**Conclusion**

The study findings concluded that majority of 24(40%) Nursing students had A grade good knowledge on ABG estimation, more opportunities to be given to all nursing students to enhance the knowledge, skills and practice on ABG estimation by clinical practice, attending seminar, workshop, and conferences on ABG estimation.

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