

# A Comparative Study to Assess Knowledge and Practice of Allen's Test to Perform Arterial Sampling among the Second Year and Third Year B.Sc Nursing Students at MINS College of Nursing Latur

**Kumarasamy A.P.\*, Chinnasamy Azhagesan\*, B. Venkatesan\*, Jayavelmani\*, Padmavathi R.\***

## Abstract

Nurse has the responsibility of practicing prior before doing the procedure Phlebotomy is the common procedure an incision or puncture to obtain a sample for analysis and diagnosis so it is very important to protect the vein/artery to normal functioning. The Allen test is a worldwide used test to determine whether the patency of the radial or ulnar artery is normal. It is performed prior to radial Cannulations or catheterization or obtains arterial blood sampling because placement of such a catheter often results in thrombosis. Therefore the test is used to reduce the risk of ischemia to the hand. This study was done to comparative study to assess the knowledge and practice regarding allen's test among II and III year B.Sc Nursing student a quantitate descriptive method used to collect the sample from II year 30 subjects were selected and III year Basic B.Sc Nursing by using convenient sampling technique. The results shows that half of the II year students 15 (50%) of them had inadequate knowledge, 8 are them adequate knowledge (26.6%), Mean score 16.2, and Standard deviation of 2.73. Regarding III year students majority of them 14 (47%) of them adequate knowledge 9 (30%) of them had inadequate knowledge mean score of 20.1 SD of 3.4. t value 4.89 ( $p < 0.001$ ). The study result shows that there is significant different in knowledge & practice between II and III year students ( $p < 0.001$ ). So it shows that hypothesis ( $H_1$ ) was accepted.

**Keywords:** Allen's Test; Procedure Phlebotomy; Diagnosis.

## Introduction

Phlebotomy is the common procedure an incision or puncture to obtain a sample for analysis and diagnosis so it is very important to protect the vein/artery to normal functioning.

The Allen test is a worldwide used test to determine whether the patency of the radial or ulnar artery is normal. It is performed prior to radial Cannulations or catheterization or obtains arterial blood sampling because placement of such a catheter often results in thrombosis. Therefore the test is used to reduce the risk of ischemia to the hand. The Allen's

test can also be used to gather information preceding removal of the radial artery for a coronary bypass graft.

First described by Edgar van Nuys Allen, M.D. in 1929 The hand of the recumbent (conscious or unconscious) patient is raised to a vertical position to drain blood away from the hand/forearm prior to external occlusion of the radial/ulnar arteries at the wrist alternatively, the (conscious) patient refrains from raising his/her arm, and expresses blood from the hand/palm by "making a fist" several times in succession after external radial/ulnar compression is applied this is the so-called "Modified Allen's Test"

The examination of the patient is asked to open and close the hand several times as quickly as possible and then squeeze the hand tightly. The examiner's thumb and index finger are placed over the radial and ulnar arteries, compressing them. As an alternative technique, the examiner may use hands, placing one thumb over each artery to compress the artery and placing the fingers on the posterior aspect of the arm for stability. The patient

**Author Affiliation:** \*Tutor/Clinical Instructor, Nursing College, All India Institute of Medical Sciences, (AIIMS), Bhopal-462020, Madhya Pradesh, India.

**Correspondance:** A.P. Kumarasamy, Tutor/Clinical Instructor, Nursing College, All India Institute of Medical Sciences, (AIIMS), Bhopal-462020, Madhya Pradesh, India.  
E-mail: [apkmsn@gmail.com](mailto:apkmsn@gmail.com)

Received on 08.03.2017, Accepted on 17.03.2017

then opens the hand while pressure is maintained over the arteries. One artery is tested by releasing the pressure over that artery to see if the hand flushes. The other artery is then tested in a similar fashion. Both hands should be tested for comparison.

The result of normal your hand quickly becomes warm and returns to its normal color. This means that one artery alone will be enough to supply blood to your hand and fingers. If its abnormal/negative your hand remains pale and cold. This means that one artery is not enough to supply blood to your hand and fingers. Blood will not be collected from an artery in this hand

The researcher focus on the topic because of less knowledge on this topic among the student nurses about the Allen's test so the researcher taken interest to do research.

#### *Statement of the Problem*

A comparative Study to assess the knowledge and practice of Allen's test to perform Arterial sampling among the II year and III year B.B.Sc Nursing Students at MINS College of Nursing Latur.

#### *Objectives of the Study*

1. To assess the knowledge and practice of Allen's test among II year and III year B.Sc nursing students.
2. To evaluate the effectiveness of demonstration on Allen's test among II year and III year B.Sc nursing students.
3. To associate the knowledge and practice with selected demographic variables such Age, Sex, Income, Domicile, Religion. Birth order and Number of siblings etc.

#### *Research Hypothesis*

$H_1$ -There is significant difference between mean score of study skills among B.Sc nursing II and III year students.

$H_2$ -There is significant association between the level of Study Skills among B.Sc Nursing II and III year Students with their selected demographic variables

### **Material and Methods**

#### *Source of Data*

The data was collected B.B.Sc Nursing II and III

year Nursing students in selected nursing college Latur.

#### ***Method of Data Collection***

##### *Research Approach*

Quantitative Descriptive evaluative approach.

##### *Research Design*

Descriptive approach.

##### *Research Variables*

##### **Study Variables**

In this study the level of Knowledge and Practice of B.Sc Nursing II and III year Students.

##### *Demographic Variables*

It includes nursing students Age, Sex, Income, Domicile, and Religion. Birth order and Number of siblings.

##### *Setting*

The study was conducted in Maharashtra Institute of Nursing Sciences, Latur.

##### *Population*

The population of the study was comprise II and III year B.Sc nursing students in Maharashtra Institute of Nursing Sciences, Latur.

##### *Sample and Sample Size*

The nursing students who fulfill the certain inclusion criteria were selected for the study. The sample size was 30 in II year and 30 in III year.

##### *Sampling Technique*

Simple random sampling technique by using lottery method

##### *Tool for Data Collection*

The tool consists of the following sections

*Section A:* Demographic data includes nursing students Age, Sex, Income, Domicile, and Religion. Birth order and Number of siblings.

*Section B:* The standardized Knowledge of Allen's

test that has 25 items and total score is 25, it is dichotomous question.

Section C: It consist of practice question about Allen's test that has 4 items and total score of it is check list.

*Plan for Data Analysis*

The data collected was analyzed by means of descriptive and inferential statistics.

*Descriptive Statistics*

- Frequency and percentage distribution was used to describe demographic variables.
- Mean, Standard deviation and mean score

percentage was used to assess the level of study skills among B.B. Sc nursing students in selected nursing college.

*Inferential Statistics*

- Unpaired ' t ' test used to compare the level of study skills between II year and III year nursing students
- Chi - square test was used to analyze the association between the levels of study skills of B.Sc nursing students II & III year with their selected demographic variables.

*Data Analysis*

**Table 1:** Frequency and Percentage distribution of the demographic variables of B.Sc nursing II and III year students.

N = 60

S. No.	Demographic Variables	II Year students		III Year students	
		Frequency	Percentage	Frequency	Percentage
1.	<b>Age ( in years</b>				
	18 years	7	23.3	1	3.3
	19 years	13	43.3	4	13.3
	20 years	6	20	18	60
	21 years and above	4	13.3	7	23.4
2.	<b>Sex</b>				
	Male	4	13.3	4	13.3
	Female	26	86.7	26	86.7
3.	<b>Family Monthly income</b>				
	5000 to 10000	7	23.3	4	13.3
	10001 to 20000	5	16.6	5	16.7
	20001 to 30000	11	36.	4	13.3
	above 30000	7	23.3	17	56.7
4.	<b>Domicile</b>				
	Rural	3	10	3	10
	Urban	18	60	19	63.3
	Semi Urban	9	30	8	26.7
5.	<b>Religion</b>				
	Hindu	22	73.3	21	70
	Christian	4	13.3	6	20
	Muslim	0	0	0	0
	Any Other	4	13.3	3	10
6.	<b>Birth order</b>				
	First	17	56.6	16	53.3
	Second	6	20	7	23.3
	Third	6	20	6	20
	Fourth	0	0	1	3.3
	Fifth	1	3.3	0	0
7.	<b>Number of siblings</b>				
	No	1	3.3	0	0
	One	9	30	11	36.7
	Two	12	40	4	13.3
	Three	7	23.3	11	36.7
	Four and above	1	3.3	4	13.3

**Table 2:** Frequency and percentage distribution of Level of Knowledge regarding Allen's test among B.Sc nursing II year and III year students N=60

Level of Knowledge	II year students		III year students	
	Frequency	Percentage	Frequency	Percentage
Inadequate	15	50	9	30
Moderately adequate	7	23.3	7	23.3
Adequate	8	26.6	14	46.6

**Table 3:** Range, mean standard deviation and mean score percentage of practice regarding allen's test among B.B.Sc Nursing II and III year Students N=60

S. No.	Study skills domains	Max score	Respondents of Practice skills					
			II Year students			III Year students		
			Range	Mean	SD	Range	Mean	SD
1.	Regarding Identifying radial artery	7	3-7	6.7	0.94	3-7	6.8	0.9
2.	Regarding Instruction during Allen's test	4	0-3	1.83	0.87	2-3	2.27	0.82
3.	Regarding Interpretation of Result	3	0-3	0.9	0.84	1--3	2.01	0.7
4.	Regarding after procedure	6	1-6	2	1.17	4-6	3.91	1.10
	Over all Practice skills	20	6-19	11.43	4.09	10-19	14.99	3.2

**Table 4:** Comparison of knowledge and Practice of B.Sc nursing students between II and III year N=60

Sample	Knowledge			Practice		
	Mean	SD	Unpaired 't' test	Mean	SD	Unpaired 't' test
II year students	16.2	2.73	4.89*	11.43	3.0	4.44 *
III year students	20.1	3.4		14.99	3.2	

Note :\* - significant at 5% level for df 58 ( i.e p<0.05)

*Major Findings of the Study*

- Regarding demographic variables of B.Sc nursing II year students the maximum number students age 19 years, 13 (43.3%). Majority of them were female 26 (86.7%). Regarding family monthly income majority of them between 20001-30000 11, (36). Regarding Domicile most of them belongs to Urban 18 ( 60%). In relation to religion majority of them Hindu 22 (73.3). With regard to birth order most of them first order 17(56.6%). In context Number of siblings majority of them were had Two Siblings, 12 (40%)
- Regarding demographic variables of B.Sc nursing III year students the maximum number student's age 20 years, 18 (60%). Majority of them were female 26 (86.6%). Regarding family monthly income majority of them between above 30000 17, (56.7). Regarding Domicile most of them belongs to Urban 19 (63.3%). In relation to religion majority of them Hindu 21(70%). With regard birth order most of them first order 16(53.3%). in context number of siblings majority of them were had one and Three Siblings 11(36.7% )
- The results shows that half of the II year students 15 (50%) of them had inadequate knowledge, 8(27%) of them adequate knowledge (26.6%),

Mean score 16.2, and Standard deviation of 2.73. Regarding III year students majority of them 14 (47%) of them adequate knowledge 9(30%) of them had inadequate knowledge mean score of 20.1 SD of 3.4 . t value 4.89 (p<0.001)

- In practice, II year students Mean score 10.43, and Standard deviation 3.0, III year students mean score of 14.9 SD of 3.2 un paired 't' value 4.44 (p<0.001)
- The study result shows that there is significant different in knowledge & practice between II and III year students (p<0.001). So it shows that hypothesis (H<sub>1</sub>) was accepted.
- The results stated that there is significance association between the levels of study skills among B.Sc nursing II year students with their Domicile variables and in III year students shows that there is significance association with sex, income, Domicile, religion rest of the variables there is no significant association. It shows statistically hypothesis H<sub>2</sub> was accepted.

*Recommendations*

1. A similar study can be conducted with a large sample size.
2. A quasi experimental study can be conducted to

determine the effectiveness practice Regarding Allen's test.

### Conclusion

The present study was attempted to assess the level of knowledge regarding allen test among B.Sc Nursing II and III year students, in that the majority of III year students had adequate knowledge and practice than the II year students. And also it shows that there was statistical significant difference in the level of knowledge between II and III nursing students and there was significant association between the level of practice of II and II Year students with selected demographic variables.

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