



# **“EFFECT OF STRUCTURED TEACHING PROGRAM ON KNOWLEDGE REGARDING ELECTROCARDIOGRAM AND ITS INTERPRETATION AMONG SECOND YEAR BSc NURSING STUDENTS IN SELECTED COLLEGE, PERINTHALMANNA”**

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**Abstract :** The present study entitled “Effect of structured teaching program on knowledge regarding Electrocardiogram and its interpretation among second year BSc nursing students in selected college, Perinthalmanna” is based on following Objectives: Assess the level of knowledge of second year BSc nursing students regarding Electrocardiogram and its interpretation ; Evaluate the effect of structured teaching program on knowledge regarding Electrocardiogram and its interpretation among second year BSc nursing students; Find out the association between pretest knowledge scores of second year BSc nursing students with their selected socio demographic variables. **Methodology:** Quantitative approach was used for the study and Quasi experimental pretest posttest one group design was selected. This study was based on J.W Kenny’s Open System Model. The study was conducted in Al Shifa college of nursing, Perinthalmanna among 60 second year BSc nursing students using non-probability convenient sampling technique. Structured knowledge questionnaire was used to assess the knowledge regarding Electrocardiogram and its interpretation. Structured teaching program was given on the same day and after 7 days the posttest was done, **Analysis:** Data were analyzed by using descriptive and inferential statistics. **Results:** the mean pretest knowledge score was 11.75 and mean posttest knowledge score was 18.75. The difference in the level of knowledge in pretest and posttest was analyzed using paired t test. The calculated t value of 7.76 was statistically highly significant at 0.05 level with a P value 2. These findings implied that structured teaching program was effective in improving the knowledge of second year BSc nursing students regarding Electrocardiogram and its interpretation. The study also revealed that there is no significant association between age in years, gender, occupation of father, occupation of mother, special training program attended on ECG with pretest level of knowledge regarding Electrocardiogram and its interpretation. **Conclusion:** The study concluded that structured teaching program was effective in improving the knowledge of second year BSc nursing students regarding Electrocardiogram and its interpretation.

## **KEY WORDS:**

Effect, Knowledge, Second year BSc nursing students, Electrocardiogram and its interpretation.

## **INTRODUCTION**

Heart is the major organ of cardiovascular system, a network of blood vessels that pumps blood throughout the body. Cardiovascular disorders are a group of disorders of heart and blood vessels. It is the leading cause of death in many regions worldwide, accounting for nearly one third of global deaths. Obesity, high blood pressure, dyslipidemia, diabetes and unhealthy dietary patterns are the major risk factors for the occurrence of cardiovascular disease. The burden of cardiac diseases around the world is increasing with great rate. Other than coronary artery diseases and

myocardial infarction, arrhythmias are also the leading cause of a cardiac event. There are several different types of heart health tests. Doctor will decide which test or tests needed, based on the symptoms, risk factors, and medical history. The common tests used for diagnosing the cardiac diseases are the Electrocardiogram, Cardiac Catheterization, Cardiac Computed Tomography (CT), Cardiac Magnetic Resonance Imaging (MRI), Coronary Angiography, Chest x-ray, Echocardiogram and Treadmill test. Among them Electrocardiogram is the commonest and cheapest. Electrocardiogram is commonly used in diagnosis of heart diseases, including many life threatening disorders. The first practical ECG was introduced by William Einthoven in 1901. Electrocardiography, which is widely popular as ECG, is a medical process of recording the heart's electrical activity, over a span of time with the help of electrodes positioned on the skin, and assessing the muscular and electrical functions of the heart. Electrocardiogram is a non-invasive procedure. If properly interpreted, it contributes significantly to the diagnosis and management of patients with cardiac disorders. It is essential to the diagnosis of cardiac arrhythmias and the acute myocardial ischemic syndromes as these two conditions account for the majority of cardiac catastrophes. It is appropriately used as a screening test in many circumstances. ECG interpretation competency involves familiarity with ECG interpretation, being skilled in lead placement, continuous monitoring, and having a proper attitude toward ECG interpretation. The ability to accurately interpret electrocardiogram (ECG) abnormalities is a core competency for under graduating nursing students. Incorrect interpretation of ECG findings can result in adverse patient outcomes. Competency in cardiac rhythm is beneficial to identify changes in cardiac status, assess response to treatment, diagnosis and postsurgical monitoring. Nurses watch for the readings for every component of heart rhythm and interpret which area of the heart are normal and which area suffer damage. They use a systematic approach to determine whether heart's rhythm is regular or irregular and fast or slow. All nurses should be able to recognize basic ECG rhythms. Basic knowledge of the ECG is usually the most difficult to assimilate, as it implies learning the basis of interpretation. The competency of nurses to record and interpret ECGs for the diagnosis of pathological disorders can help prevent heart disorders and reduce mortalities. Shortcomings in ECG interpretation proficiency are not only due to the failure of individual learners but also due to the short time allotted for formal education. Given that nurses are the health team specialists who are constantly present at the patient's bedside, their ability to detect normal and pathological ECGs is of fundamental importance.

Every nursing student must be aware of the importance of correlating clinical finding after a complete examination with the ECG finding. If we strengthen the knowledge base of under graduate student nurses regarding knowledge on ECG and its interpretation during student life, we can create more efficient nurses for the society. Considering the severity of the life threatening condition this was selected to impart knowledge to the nursing students to become competent to obtain and interpret ECG.

#### **NEED AND SIGNIFICANCE:**

Cardiovascular diseases are the world leading killer disease. An estimated 17.9 million people died from CVD's in 2019, representing 32% of all global deaths. As per WHO, Coronary artery disease death rates are 3 times higher than Coronary vascular diseases. The mortality due to cardiac disorders is projected to increase to 23.4 million in 2030. The Global Burden of Disease study estimated that Cardiovascular disease death rate in India is 272 per 1,00,000 population which is higher than the global average of 235 per 1,00,000 population. The current status of heart diseases in India is alarming. About 29 seconds, an Indian dies with heart problems. As many as 20,000 new heart patients develop every day in India. In Kerala, the prevalence of lifestyle diseases is high and it result in very high mortality and morbidity from malignant heart disease. 14% of all deaths in Kerala are caused by Coronary Heart Disease. In Kerala mortality rates for CAD per 1,00,000 are 382 for men and 128 for women which is actually 3 to 6 times higher than other industrialized countries. In view of the importance of Cardiac disease as a cause of chronic disability, the development of Electrocardiograph might be of value for the recognition of heart abnormalities. An electrocardiogram is one of the simplest and fastest tests used to evaluate the heart. The knowledge regarding ECG interpretation is crucial for the student nurses. Electrocardiography is the simplest noninvasive procedure which has no side effects. It records even slightest variations in the conduction mechanism of the heart that helps the care givers to identify the abnormalities. If nurses are able to interpret Electrocardiogram not only their knowledge base increases, but the detection and treatment of chronic or acute cardiac problems will also improve. Interpretation of ECG is the determination of normal and abnormal findings among cardiovascular diseases with the help of measurements, rhythm analysis, conduction analysis and wave form description. Nurses are taking care of the patients in all the departments and they monitor these conditions every time. ECG is one of the main component to monitor the function of heart. Nurses should be able to interpret ECG and implement the acquired knowledge which helps in saving the life of the patient. The knowledge regarding ECG interpretation is crucial for the student nurses. This study was therefore assessing the effect of structured teaching program on knowledge regarding Electrocardiogram and its interpretation among second year BSc Nursing students.

#### **POPULATION:**

Population is the entire set of individuals or objects having some common characteristics.<sup>36</sup> The population selected for present study was second year BSc nursing students. The target population of the study was second year BSc nursing students Al Shifa College of Nursing

**SAMPLE:** Second year BSc nursing students studying in Al Shifa college of nursing Perinthalmanna were the sample for the study.

### **SAMPLE SIZE:**

Total of 60 students given responses in pretest. among them 41 students have Average knowledge and remaining 19 students have poor knowledge.

### **SAMPLING TECHNIQUES:**

Quasi experimental, one group pretest posttest design.

### **SETTING OF THE STUDY :**

Settings are the physical location and condition in which data collection take place in a study.<sup>36</sup> The study was conducted in Al Shifa college of nursing, Perinthalmanna. The setting of the study were conveniently selected in terms of feasibility and availability of subjects.

### **THEORETICAL FRAMEWORK :**

The conceptual framework for the present study was developed on the basis of JW Kenny's open system model.

### **CRITERIA FOR SAMPLE SELECTION:**

Criteria for sample selection

Inclusion Criteria

It includes students who are:-

- Willing to participate in the study
- Available during the time of study

Exclusion Criteria

It includes students who:-

- Are not available during the time of study.
- Have already undergone special training program on Electrocardiogram

### **TOOLS OR INSTRUMENTS**

Section A

Baseline assessment of socio demographic data with questionnaire. Demographic data includes age, gender, occupation of father, occupation of mother, special training program attended on Electrocardiogram.

Section B

Structured knowledge questionnaire regarding Electrocardiogram and its interpretation consisted of 30 items. All these items are multiple choice questions, which had 4 alternative responses. Each correct answer carries one mark. The level of knowledge was categorized as poor, average and good based on knowledge scores.

### **DESCRIPTIVE STATISTICS**

- Frequency and percentage were used to study the socio demographic variables of subjects like age, gender, occupation of father, occupation of mother, special training attended on ECG.
- Mean and Standard deviation was used to assess the pretest and posttest level of knowledge regarding electrocardiogram and its interpretation among second year BSc nursing students.

### **INFERENCE STATISTICS**

- Paired" t" test was used to evaluate effect of structured teaching program.
- Chi square test was used to find out the association between the level of knowledge and selected demographic variable
- The findings of the study were presented in the form of tables and graphs.

### **THE RESULTS ARE PRESENTED IN**

Section A: Distribution of socio demographic data of second year BSc nursing students.

Section B: Assesment of level of knowledge of second year BSc nursing students regarding Electrocardiogram and its interpretation.

Section C: Effect of structured teaching program on knowledge regarding Electrocardiogram and its interpretation among second year BSc nursing students.

Section D: Association between pretest knowledge of second year BSc nursing students with their selected socio demographic variables.

### **SECTION A**

Distribution of socio demographic data of second year BSc nursing students Among 60 samples, 21.7% belonged to

18-19 years of age, 78.3% belonged to 20-21 years category. With regard to gender, 88.3% were female and 11.7% were male. With respect to occupation of father, majority of samples 65% were non-professionals, 32% were non-medical professionals and only 3% were medical professionals. With respect to occupation of mother, majority of samples 76.7% were nonprofessionals, 15% were non-medical profession and only 8.3% were medical professionals. Among 60 samples, the entire samples 100% have not attended any special training program regarding Electrocardiogram and its interpretation.

#### SECTION B

Assessment of level of knowledge regarding Electrocardiogram and its interpretation among second year BSc Nursing students Assessment of pretest level of knowledge revealed that, majority of samples 68.33% had average knowledge, 31.66% had poor knowledge and on the other hand none of the samples had good knowledge regarding Electrocardiogram and its interpretation. In the posttest majority of samples 75% had average knowledge, 25% had good knowledge and on the other hand none of the samples had poor knowledge regarding Electrocardiogram and its interpretation.

#### SECTION C

Effect of structured teaching program on knowledge regarding Electrocardiogram and its interpretation among second year BSc nursing students. The mean pretest knowledge score was 11.75 with a standard deviation of 3.16 and mean posttest knowledge score was 18.75 with a standard deviation of 3.188 The difference in the level of knowledge in pretest and posttest was analyzed using paired t test. The calculated t value of 7.76 was statistically highly significant at 0.05 level with a P value of 2. Hence H1 is accepted this implies that structured teaching program was effective in improving the knowledge of second year BSc nursing students regarding Electrocardiogram and its interpretation.

#### SECTION D

Association between pretest knowledge score of second year BSc nursing students regarding Electrocardiogram and its interpretation with their selected socio demographic variables. This section shows that there was no significant association between age, gender, occupation of father, occupation of mother, special training program attended on ECG with their pretest level of knowledge regarding Electrocardiogram and its interpretation.

#### DISCUSSION

The present study evaluated the effect of structured teaching program on knowledge regarding Electrocardiogram and its interpretation among second year BSc nursing students in selected college, Perinthalmanna. The study findings revealed that the mean posttest knowledge score (18.75) of samples is significantly greater than their mean pretest knowledge score (11.75) (paired  $t = 7.76$ ,  $p < 0.001$ ). It implies that structured teaching program is effective in improving the knowledge of samples regarding Electrocardiogram and its interpretation. The study also revealed that there is no significant association between age in years, gender, occupation of father, occupation of mother, special training program on ECG with their pretest level of knowledge regarding Electrocardiogram and its interpretation.

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