



## “Assess Knowledge on ECG Interpretation Among UG Students.”

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### Abstract

**Aim:** The aim of the study was to assess knowledge on ECG interpretation among UG Students.

**Introduction:** Electrocardiogram (ECG) is commonly used in diagnosis of heart diseases, including many life-threatening disorders. The aim is to assess skills in ECG interpretation among UG students and to analyse the determinants of these skills. The ability to accurately interpret electrocardiogram (ECG) abnormalities is a core competency for under graduating medical students. Incorrect interpretation of ECG findings can result in adverse patient outcomes. Electrocardiography (ECG) is the graphical display of electrical potential differences of an electric field originating in the heart. Interpretation of ECG is a core clinical skill in the department of emergency medicine. One of the important critical care nursing skills is monitoring ECG. It can provide evidence to support a diagnosis, and it is crucial for patient management by helping in diagnosing the abnormal cardiac rhythm. In potentially life-threatening situations, the nurse is expected to interpret the rhythm accurately and respond appropriately. To do this the nurse must be well educated in rhythm interpretation. **Objectives:** To assess the knowledge regarding ECG interpretation among UG students. **Methods:** Quantitative research approach was used with Non – probability Purposive sampling technique with 49 samples, undergraduate final year nursing students. **Results:** The result revealed that majority of the students has good score in the knowledge regarding ECG interpretation among UG students with total percentage of 133.02% (Good) whereas there was average the knowledge regarding ECG interpretation among UG students is 44.34% (Excellent) and only 88.68% (poor) has the knowledge regarding ECG interpretation among UG students and total 96.07% (Average) knowledge regarding ECG interpretation among UG students. **Conclusion:** There is need to teach the students and work on their level of knowledge on ECG Interpretation.

**Key words:** Knowledge, ECG, Interpretation

## Introduction

Electrocardiogram (ECG) is commonly used in diagnosis of heart diseases, including many life-threatening disorders. The aim is to assess skills in ECG interpretation among UG students and to analyse the determinants of these skills. The ability to accurately interpret electrocardiogram (ECG) abnormalities is a core competency for under graduating medical students. Incorrect interpretation of ECG findings can result in adverse patient outcomes. Electrocardiography (ECG) is the graphical display of electrical potential differences of an electric field originating in the heart. Interpretation of ECG is a core clinical skill in the department of emergency medicine. 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. And, nurses play a crucial role in helping ECG done appropriately. Qualified nurses assess the patient by noting his pulse rate, breathing difficulties if any, the chest pain if any, and many other factors and determine whether the heart rhythm is stable or unstable. Nurses determine heart rate, note heart rhythm, and figure out whether client have heart blocks or not. They play a vital role in identifying the lethal heart rhythms by studying ECG. Besides this, nurses listen to client's complaints and discomfort, learn what medications client is taking, and co-relate all these factors with ECG. The researcher during her work experience observed that many nurses especially the under graduates have minimal knowledge about ECG interpretation. Therefore, in the light of the above facts & experience of the researcher, she felt that if we strengthen the knowledge base of under graduate student nurses regarding knowledge on ECG interpretation during student life, we can create more efficient nurses for the society. This prompted the researcher to take the study.

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. Electrocardiogram (ECG) is a diagnostic tool that is routinely used non-invasively to assess the electrical and muscular functions of the heart. All nurses should be able to recognize basic ECG rhythms. Electrocardiography is the most commonly used diagnostic testing cardiology. If properly interpreted, it contributes significantly to the diagnosis and management of patients with cardiac disorders. Importantly, it is essential to the diagnosis of cardiac arrhythmias and the acute myocardial ischemic syndromes. Basic knowledge of the ECG is usually the most difficult to assimilate, as it implies learning the basis of interpretation.

## Materials and methods

This study was conducted to assess the knowledge regarding ECG interpretation among UG students.

Quantitative research approach was used with Non – probability Purposive sampling technique with 49 samples, undergraduate final year nursing students. The study adopted survey method design to collect data from 49 participants. Non – probability Purposive sampling technique was used; structured questionnaires tool had been used to collect data. Data was analysed by using measurements of unelaborate and bivariate descriptive statistics. Self-instructed questionnaire was used to collect the data from Undergraduates nursing students of 4<sup>th</sup> year nursing college and analysed by using measurements of unilabiate and bivariate descriptive statistics.

## Results

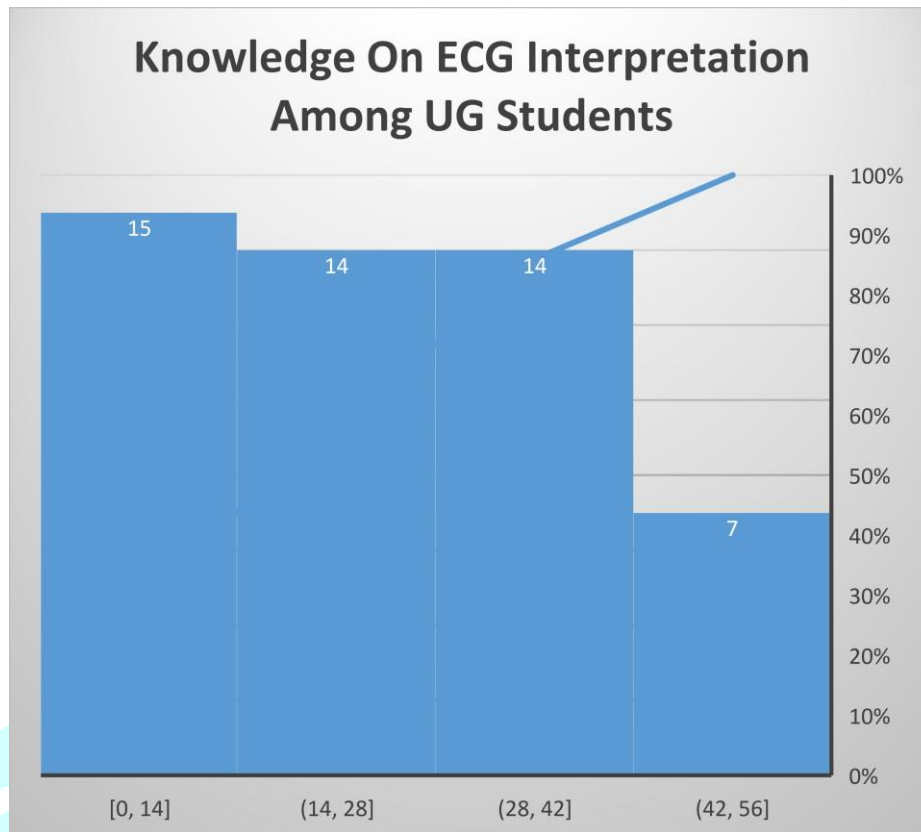
### Analysis and Interpretation

**Table 1 : Distribution of item wise opinions towards ECG interpretation**

**N=49**

Sr.no	Item Analysis	f	%
1	ECG (Electrocardiogram) developed first by	3	7
2	ECG report consist of information	23	57
3	Classic ECG change in MI (myocardial infarction)	8	20
4	Conditions which widen QRS and Tall-tented T waves	3	7
5	ECG change in Hypokalemia	8	20
6	Normal heartbeat, depolarization stimulus originates	23	57
7	P wave indicates	19	47
8	Ventricular muscle depolarization indication	17	42
9	Heart leads V1 and V2 represent view	10	25
10	Heart leads II, III and aVF represent view	11	27
11	Heart rate if 3 large squares in an R-R interval	23	57
12	Common cause of right axis deviation	15	37
13	View of heart do leads V3 and V4 represent	10	25
14	Suggestion of ST-elevation	19	47
15	Normal duration of a QRS complex	2	5

A. Knowledge on ECG Interpretation Among UG Students



B. Sum of Student Score

Row Labels	Sum of STUDENT SCORE
<b>Average</b>	<b>13</b>
6 to 8	13
<b>Excellent</b>	<b>6</b>
12 to 15	6
<b>Good</b>	<b>18</b>
9 to 11	18
<b>Poor</b>	<b>12</b>
1 to 5	12
<b>Grand Total</b>	<b>49</b>

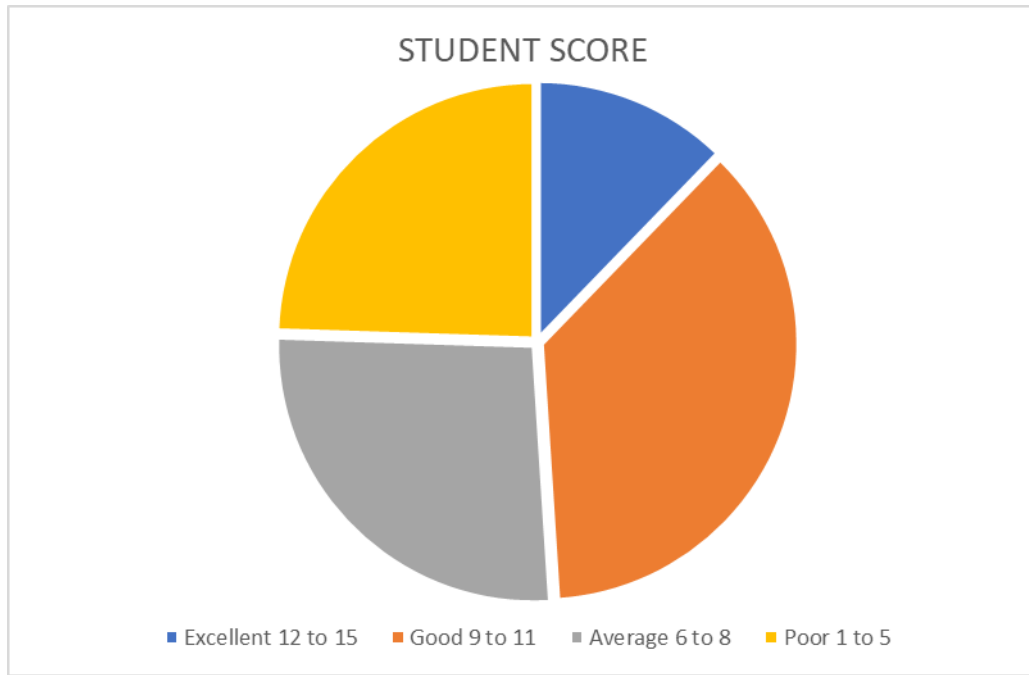
The above table depicts that from total of 49 students 13 students fall into average category, and 6 students fall into excellent category there are very less students who fall into excellent category, and there were total 18 students who fall into good category, where as there were total number who fall into poor category.

### C. Analysis of Student data

There was total 15 items to calculate knowledge of ECG among UG students. Each item carries one mark each.

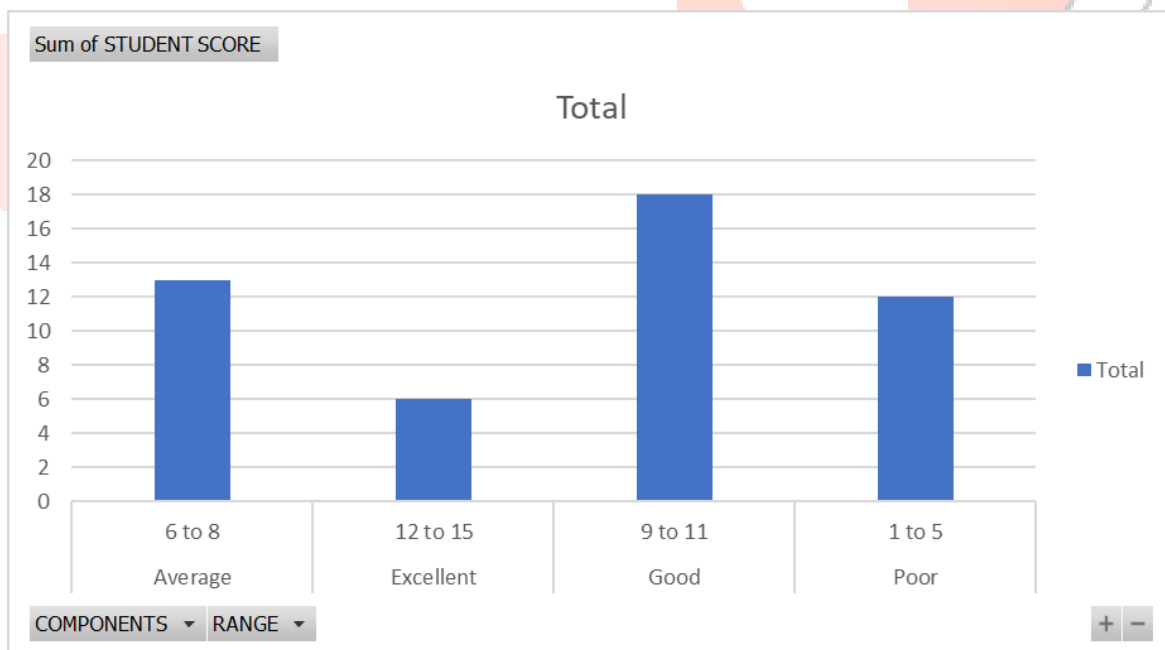
STUDENT	MARKS OUT OF 15	AVERAGE
1	8	53%
2	10	67%
3	11	73%
4	8	53%
5	7	47%
6	4	27%
7	8	53%
8	8	53%
9	10	67%
10	10	67%
11	5	33%
12	7	47%
13	7	47%
14	9	60%
15	10	67%
16	5	33%
17	7	47%
18	3	20%
19	7	47%
20	10	67%
21	5	33%
22	9	60%
23	13	87%
24	9	60%
25	7	47%
26	10	67%
27	3	20%
28	5	33%
29	9	60%
30	7	47%
31	8	53%
32	12	80%
33	5	33%
34	4	27%
35	10	67%
36	9	60%
37	13	87%
38	12	80%
39	3	20%
40	10	67%
41	9	60%
42	4	27%
43	6	40%
44	10	67%
45	9	60%
46	12	80%
47	4	27%
48	10	67%
49	12	80%
<b>TOTAL MARKS</b>	<b>15</b>	<b>100%</b>

**D. Score of students' knowledge regarding ECG interpretation**



The above pie chart depicts that total 12 – 15 students got excellent marks and there were total 9 -11 students got good marks whereas 6 – 8 students got average and 1 – 5 students got poor marks

**E. Score of students' knowledge regarding ECG interpretation**



**F. Students score on knowledge regarding ECG interpretation out of 15.****Discussion**

The result revealed that majority of the students has good score in the knowledge regarding ECG interpretation among UG students with total percentage of 36.73% (Good) whereas there was average knowledge regarding ECG interpretation among UG students is 26.53% and Excellent were only 12.24%. Poor has the knowledge regarding ECG interpretation among UG students and total 24.48 % knowledge regarding ECG interpretation among UG students. The above score has been depicted in the pie diagram and also in histogram. There is a calculation done according to the percentage of the 49 students. Hence, there is need to teach the students and work on their level of knowledge on ECG Interpretation.

**Conclusion**

Self-instructed questionnaire was used to collect the data from Undergraduates nursing students of 4<sup>th</sup> year nursing college and analysed by using measurements of unilabiate and bivariate descriptive statistics.

A 15-item ECG examination was developed, piloted, and demonstrated to have construct validity. Graduating Medical Student had a limited level of competency in ECG interpretation which was correlated with reported self-confidence and degree of ECG exposure in Years 3-4

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