

Nurses' knowledge about electrocardiogram interpretation: A cross-sectional study

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Objective: To determine the level of nurses' knowledge about electrocardiograms.

Methodology: This cross-sectional design study was conducted from November 2022 and March 2023. It included 100 nurses who were working in Al-Fayhaa Hospital and the Basrah Teaching Hospital. The competence of nurses was assessed using a standardized questionnaire that was developed and distributed to the respondents involved. The data

collected were analyzed using SPSS version 26.

Results: Nearly to half of nurses had fair understanding regarding ECG interpretation, while one third of study participants had good knowledge.

Conclusion: Most nurses have a solid understanding of ECG interpretation.

Keywords: Nurses, knowledge, electrocardiogram interpretation.

INTRODUCTION

Cardiovascular disease (CVD) was the main cause of 32% fatalities in 2016.¹ The right step to reduce the death rate is early detection of heart disease.² The electrical and muscular activities of the heart are assessed using an electrocardiogram (ECG). This allows professionals to evaluate risks and symptoms and is the initial diagnostic tool for chest discomfort. It gives information on diagnosis of acute coronary syndromes and arrhythmias.^{3,4} All hospital departments must record ECGs because they aid in the diagnosis of cardiac diseases.⁵

Since nurses make up most the hospital's medical staff and deal with patients often, their expertise in applying and interpreting ECGs is highly valued in their capacity as members of the emergency services team.⁴ Analysis, interpretation, and mastery of clinical symptoms and diagnostic techniques in the setting of CVD require significant emphasis in nursing education.⁶ The nurse must be knowledgeable about ECG equipment and record important and life-threatening arrhythmias, and respond properly.⁷

Studying ECG in the nursing is extremely challenging due to a lack of study time, complex instructional material, and inadequate fundamental understanding of ECG theory. Nurse practitioners who had received adequate training were proficient at interpreting ECGs and potentially dangerous problems.⁸ The aim of this study was to determine the level of nurses' knowledge about ECG.

METHODOLOGY

This descriptive study took place from November 2022

and March 2023 at Al-Fayhaa and Al-Basrah Teaching Hospitals, Iraq. Official approval was acquired from the Basrah Health Office administration and all participants gave an informed consent.

The study included 100 nurses from these hospitals. Inclusion criteria include male and female nurses, nurses from the age of 20 years and over, and all nurses who agree to participate in the study.

We used a questionnaire consisting of two parts. Part one: socio-demographic data (gender, age, years of work experience, level of education, previous ECG training course, unit of work, and source of ECG information) and Part two: (nurses' knowledge of ECG). This part included 18 items representing nurses' information related to ECG.

Statistical Analysis: The data were analyzed through descriptive data analysis and inferential data analysis using SPSS version 26. $p < 0.05$ was considered significant.

RESULTS

Most nurses (65.0%) were between the ages of 20 and 25 years. There were 55.0% males, 63.0% had bachelor's degrees, and 90.0% had experience of between one and five years (Table 1). Most nurses (37.0%) worked in the emergency unit, and 83.0% had previously completed an ECG training course.

The nurse's understanding of the ECG is displayed in Table 2. According to the mean score, the study sample's findings indicated that nurses possess a high level of knowledge.

Table 1: Relationship between Nurses' knowledge and socio-demographic data.

Socio-Demographic Data	Rating	Knowledge			p value
		Poor	Moderate	Good	
Age	20-25	18	26	21	0.076
	26-30	4	17	5	
	31-35	1	0	3	
	> 35	1	1	3	
Gender	Male	12	19	24	0.019
	Female	12	25	8	
Experience	1-5	8	23	7	0.040
	6-10	12	11	18	
	> 10	4	10	7	
Level of Education	Preparatory	7	7	6	0.390
	Diploma	2	7	8	
	Bachelor degree	15	30	18	
	Master degree	0	0	0	

DISCUSSION

Out of 100 nurses, 55.0% were men. A study from northwest Iran showed that 64.8% nurses in their study were female.⁹ In our study, 90.0% nurses had one year of work experience. These results are consistent with a study,¹⁰ which reported that 44.1% of the sample had experience ranging from 1-4 years. In current study, 63.0% nurses had bachelor's degrees, which is the highest educational level for nurses. This is similar to an earlier study.¹¹ We found that 37.0% nurses worked in emergency rooms. These results contradict with a study of 3013 nurses, which found that 46.0% nurses were working in intensive care units.¹¹ The current study's findings differ from a study,¹ on 96 nurses which showed that 83.0% had an ECG training course. In current study, 53.0% nurses had access to university information. These results are in line with a study,¹² which found that 42.0% nurses had knowledge gained from classroom learning. Our study found that nurses had a good level of knowledge of ECG. This is similar to another study.³ There are no statistically significant variations in the average ages or levels of experience of the samples.

Table 2: Nurses' knowledge regarding electrocardiogram.

Classification	Frequency	%	Mean of Score	SD	Assessment
Poor	24	24	0.82	0.748	Good
Fair	44	44			
Good	32	32			
Total	100	100			

(A.D.): Assessment Degree, M. s=mean of score Poor = 0– 0.33, Fair = 0.34 – 0.67. Good 0.68-1

Across-sectional study on 102 nurses who worked in emergency, coronary, and critical care units showed that there was no statistically significant variation in the ages or levels of knowledge of the nurses.¹⁰

A statistical relationship between the gender and their degree of knowledge has been reported.¹³ This study found no association between a nurse's gender and their expertise in nursing care for patients with bundle branch and third-degree blockages. These results contrast with another study.¹⁴ These results concur with a study by Ali et al.¹⁵

The results of this study show that there was no statistically significant relationship between the nurses' knowledge and their prior ECG instruction. This disagrees with a study which found a link between the nurses' experience and their training session.¹⁰ There is

no statistically significant relationship between nurses' clinical knowledge and their availability of ECG data. These results are in contrast with those of other studies,^{16,17} carried out in India, which found no statistically significant correlation between third year GNM students' awareness of the source of student information and their comprehension of the treatment of pregnancy-induced hypertension.

We found that there was no statistically significant relationship between nurses' expertise and the work unit in which they are employed. A study conducted from India,¹⁸ found a statistically significant association between nurses' knowledge and the work unit, which contrasts with the findings of the present study.

CONCLUSION

Most nurses were young, male, and bachelor's degree holders with an average of one to five years of experience. Most had prior ECG training, and the university was the source of ECG data. There was a substantial association between gender and years of practical experience. With regard to understanding ECG interpretation, there was no statistically significant relationship between age, work unit, degree of education, prior ECG training course, and source of ECG information.

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