



FEAR OF ELECTROCARDIOGRAM INTERPRETATION (ECG PHOBIA) AMONG MEDICAL STUDENTS IN KONASEEMA INSTITUTE OF MEDICAL SCIENCES, AMALAPURAM.

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ABSTRACT

Background: Electrocardiogram (ECG) interpretation is an essential skill for medical professionals, yet many medical students experience significant anxiety, often termed ECGphobia. This study aims to assess the prevalence of ECG interpretation fear among medical students, identify contributing factors, and explore strategies to improve confidence and competency. **Methods:** A cross-sectional study was conducted among medical students, utilizing a structured questionnaire to evaluate their anxiety levels, confidence, and perceived challenges in ECG interpretation. Responses were analyzed to determine the relationship between training exposure and fear levels. **Results:** The study revealed that 79% of students reported anxiety while interpreting ECGs, and 63% lacked confidence in their abilities. Key challenges included difficulty recognizing ECG abnormalities, fear of making mistakes, and inadequate formal training. A significant number of students relied on computer-generated interpretations (28.8%) or sought validation from senior colleagues (97.1%), indicating a lack of independent competency. **Conclusion:** The findings highlight the need for structured ECG education, increased supervised training, and competency-based learning approaches to reduce fear and improve proficiency. Integrating hands-on practice, simulation-based learning, and repeated ECG exposure into medical curricula can enhance students' confidence and diagnostic accuracy, ultimately improving patient care outcomes.

KEYWORDS : Anxiety in ECG Reading Confidence in ECG Interpretation Competency-Based Training Clinical Decision-Making Electrocardiogram Education Structured Medical Training

INTRODUCTION:

Electrocardiogram (ECG) interpretation is a crucial skill for medical professionals, yet many medical students experience significant anxiety, often referred to as "ECG phobia." This fear stems from the complexity of ECG patterns, inadequate training, and limited hands-on practice, leading to a lack of confidence in identifying critical cardiac abnormalities. If not addressed, this anxiety can hinder clinical decision-making and patient care. Enhancing ECG education through repeated exposure, interactive learning, and competency-based training can help students overcome this fear and develop essential diagnostic skills.

Aim:

To assess the fear of Electrocardiogram (ECG) interpretation among medical students, identify its causes, and explore strategies to improve competency and confidence in ECG interpretation.

Objectives:

- To determine how common ECG interpretation fear is among medical students.
- To identify the main reasons behind this fear.
- To assess how lack of confidence affects clinical decision-making.
- To explore effective teaching methods to improve ECG skills.

MATERIALS AND METHODS:

Place Of Study : The study was carried out among medical students in andhra pradesh and telangana.

Study Design : This was a cross-sectional study done in private and government hospitals.

Study Period: The study was carried out for 2 months (January & February 2025)

Study Participants : Medical students of all years

Sample Size: 110 samples collected on the basis of a questionnaire.

Data Collection Procedure: Data was collected through an online pre designed questionnaire.

Data Analysis And Interpretation: Data was entered using Microsoft Excel sheet Summarisation and analysis of data was carried out by using IBM SPSS Software version 20(licensed).

Inclusion Criteria : Medical students of all years.

Exclusion Criteria: Those who are not willing to participate in semi structured questionnaire.

Confidentiality: Particulars and details of all the participants were kept confidential throughout the study only summary of the details was used for declaring the result.

Ethical Consideration: Institutional ethics committee approval and informed consent was taken.

RESULTS:

Out of 110 medical students surveyed their ages ranging from 21 to 25 years old with mean age of 23 years. The study reveals a significant fear of ECG interpretation among medical students, with 79% reporting anxiety and 88% expressing fear of making mistakes. Confidence levels were notably low, as only 20% felt assured in their ECG skills, while the majority remained neutral or lacked confidence. Training gaps were evident, with many students reporting inadequate formal ECG education and reliance on self-study materials.

1. Anxiety and Confidence Levels in ECG Interpretation

Response Category	Anxiety (%)	Confidence (%)	Fear of Mistakes (%)	Overwhelmed by Complexity (%)	Avoid ECGs Due to Fear (%)
Strongly Agree (5)	35	2	42	56	33
Somewhat Agree (4)	44	11	46	26	35
Neutral (3)	18	34	17	23	25
Somewhat Disagree (2)	7	43	3	4	14
Strongly Disagree (1)	6	20	2	1	3

2. Training And Education On Ecg Interpretation

Training Response	Number of Students
No	38
Yes	21
Not Adequate Clinically	34
Briefly Taught in MBBS	14
Self-Study	3

DISCUSSION:

The study highlights several key challenges perceived by medical students in ECG interpretation. Many students struggle with interlinking leads, recognizing arrhythmias, and identifying conduction blocks, which makes ECG analysis overwhelming. A significant number find standardization issues and complex waveform patterns difficult to interpret, leading to hesitation and fear of making errors. The identification of life-threatening conditions like myocardial infarction, ventricular tachycardia adds to their anxiety, as misinterpretation could have serious clinical consequences. Overall, these challenges indicate the need for structured, hands-on training with repeated exposure to ECG cases to build confidence and competency.

Review Of Literature:

The fear of ECG interpretation (ECGphobia) is a prevalent issue among medical students, with 57.5% reporting anxiety in the Singapore Medical Journal (SMJ) study. Similarly, our study found that 79% of students experience anxiety and 63% lack confidence in ECG interpretation. Key contributing factors include insufficient knowledge, nervousness in acute settings, and difficulty interpreting ECGs consistently. Students also reported fear of making mistakes (98.1%) and inadequate supervised practice (97.1%), leading to over-reliance on computer interpretations (28.8%) or senior validation (97.1%).

The impact of ECGphobia extends to clinical practice, potentially resulting in misdiagnosis and poor medical decision-making. To address this, both studies emphasize the need for increased practical exposure, structured ECG training, and competency-based education. The SMJ study suggests strategies such as more clinical practice (87.2%), supervised training (75.8%), and access to interactive learning tools (53.9%). Implementing longitudinal ECG education, case-based learning, and hands-on training is essential to build confidence and reduce fear, ultimately improving patient outcomes.

CONCLUSION:

This study highlights the significant fear of ECG interpretation (ECGphobia) among medical students, with high anxiety levels and low confidence in accurately reading ECGs. Key challenges identified include difficulty recognizing ECG patterns, fear of making mistakes, and inadequate training exposure. The lack of structured ECG education and limited hands-on practice further contribute to this fear, potentially impacting clinical decision-making and patient care.

To address this issue, competency-based training, increased supervised practice, and interactive learning approaches should be integrated into medical curricula. Repeated exposure to ECG interpretation in both undergraduate and postgraduate settings is essential to build confidence and proficiency. Strengthening ECG education will not only enhance students' diagnostic accuracy but also improve patient outcomes by ensuring timely and effective cardiac assessments.

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