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A Comprehensive Study To Assess The Knowledge Of Cardiopulmonary Resuscitation (CPR) Among Selected Staff Nurses At Synod Hospital, Durtlang.

Mary VL Duhsaki, Eliseeba Chhetri, Lalzikpuii Pachuau, R.Lalrinawmi
Tutor, College Of Nursing, Synod Hospital, Durtlang, Aizawl
VIII Semester, Bachelor Of Science In Nursing, College Of Nursing, Synod Hospital, Durtlang, Aizawl
VIII Semester, Bachelor Of Science In Nursing, College Of Nursing, Synod Hospital, Durtlang, Aizawl
VIII Semester, Bachelor Of Science In Nursing, College Of Nursing, Synod Hospital, Durtlang, Aizawl

Abstract:
Background*: Cardiopulmonary Resuscitation (CPR) is the cornerstone of emergency cardiac care. The proficiency of nursing staff in executing CPR is a primary determinant of survival rates for in-hospital cardiac arrests. This study aimed to evaluate the baseline knowledge of CPR among staff nurses at Synod Hospital, Durtlang, and to correlate these findings with professional demographic variables.*
Materials and Methods*: A quantitative research approach using a cross-sectional descriptive design was employed. Sixty (60) staff nurses were recruited via non-probability purposive sampling. Data were collected using a validated structured knowledge questionnaire comprising 30 items covering basic and advanced life support protocols. Data were analyzed using descriptive and inferential statistics (Chi-square test).*
Results*: The study revealed a mean knowledge score of 29.47. Demographic analysis indicated a senior workforce (45% >40 years) with 76.67% having >10 years of experience. Knowledge distribution was: 20% Proficient, 45% Adequate, 25% Moderate, and 10% Poor. Statistically significant associations ($p < 0.01$) were found between knowledge levels and years of experience, age, and previous training. Notably, 63.33% of the sample lacked formal CPR training.*
Conclusion: *While clinical experience contributes to knowledge, there is a distinct gap in formal certification. Mandatory periodic simulation-based training is essential to optimize emergency response.*
Key Word*: CPR, Knowledge Assessment, Staff Nurses, Nursing Education, Cardiac Arrest.*

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I. Introduction

Cardiopulmonary Resuscitation (CPR) is a life-saving emergency procedure designed to maintain circulatory flow and oxygenation during cardiac arrest. As Dr. Gordon Ewy famously stated, *"CPR is a bridge – not a cure,"* providing a vital window for survival until definitive medical intervention is available.

Global health statistics from the World Health Organization (WHO) indicate that cardiovascular diseases remain the leading cause of death, claiming 17.9 million lives annually. In the hospital setting, the "Chain of Survival" depends heavily on the first responder. Nurses, being at the bedside 24/7, are typically the first to identify a cardiac arrest. Their ability to initiate high-quality chest compressions and early defibrillation is the most significant factor in reducing morbidity and mortality.

Problem Statement: Despite the critical nature of the procedure, CPR guidelines are updated frequently. Without regular training, nursing staff may rely on outdated techniques. This study investigates the current knowledge status at Synod Hospital to identify specific educational needs.

II. Material And Methods

Study Design: A quantitative research approach using a cross-sectional descriptive design was employed.
Study Location: This study was conducted at Synod Hospital Durtlang, Aizawl (Emergency, General, and Critical Care Wards).
Study Duration: 1st -6th September 2025 on selected staff nurses at Sonod Hospital,Durtlang.
Sample size: Sixty (60) staff nurses were recruited via non-probability purposive sampling.
Sample size calculation: Sixty (60) staff nurses were recruited via non-probability purposive sampling. Data were collected using a validated structured knowledge questionnaire comprising 30 items covering basic and advanced life support protocols. Data were analyzed using descriptive and inferential statistics (Chi-square test).
Subjects & selection method: Non-probability purposive sampling technique was used for selection of participants.

Data Collection:
Part A: Demographic Proforma (Age, Gender, Experience, Education, Training History).
Part B: Structured Knowledge Questionnaire (30 items).

Inclusion criteria:
1. Staff nurses currently employed at Synod Hospital
2. Minimum 6 months of clinical experience
3. Willing to participate

Exclusion criteria:
1. Nurses on long-term leave
2. Non-nursing staff
3. Nurses with <6 months of experience

Procedure methodology

The study adopted a cross-sectional descriptive research design to assess the knowledge of Cardio-Pulmonary Resuscitation (CPR) among staff nurses at Synod Hospital, Durtlang. The research was conducted across different wards of the hospital.A total of 60 staff nurses were selected using a purposive sampling technique based on specific inclusion and exclusion criteria. Nurses with at least six months of experience and willingness to participate were included in the study.Data were collected using a structured questionnaire consisting of two parts:

- Part I: Demographic variables such as age, gender, experience, education, department, employment status, and previous CPR training.
- Part II: A set of 30 objective-type questions assessing knowledge of CPR.

The tool was validated by experts, achieving a Content Validity Index (CVI) of 0.85, indicating good validity. Reliability was confirmed through a pilot study conducted among 10 staff nurses, which showed the tool was consistent and feasible for the main study.Ethical approval was obtained from the concerned authorities, and verbal consent was taken from all participants after explaining the purpose of the study.Data collection was carried out over a period of six days (01.09.2025 to 06.09.2025) across various wards. The collected data were analyzed using descriptive statistics, focusing on demographic characteristics and variations in CPR knowledge, particularly in relation to years of nursing experience.

Statistical analysis

To test the research hypothesis—that there is a statistically significant association between demographic variables and knowledge scores—the Chi-square test was applied. The results show a highly significant association ($p < 0.01$) across all major demographic categories. This confirms the research hypothesis. Specifically, nurses with higher educational qualifications and those who had undergone previous training scored significantly higher than their counterparts. Interestingly, while "Years of Experience" showed a significant association, the lack of "Proficient" scores indicates that clinical longevity alone does not substitute for updated, formal CPR training.

III. Result

The results of this study are organized into three primary sections: the demographic profile of the participants, the assessment of CPR knowledge levels, and the inferential analysis of the association between knowledge and professional variables.

Section I: Demographic Characteristics of the Subjects

The study included a total of 60 staff nurses. The demographic distribution indicates a highly experienced but senior workforce at Synod Hospital.

Table 1: Frequency and Percentage Distribution of Demographic Variables (n=60)

Variable	Category	Frequency (f)	Percentage (%)
Age (Years)	25-29	5	8.33%
	30-34	10	16.67%
	35-40	18	30.00%
	>40	27	45.00%
Experience	1-5 years	3	5.00%
	6-10 years	11	18.33%

Variable	Category	Frequency (f)	Percentage (%)
	>10 years	46	76.67%
Training	No Previous CPR Training	38	63.33%
	Previous CPR Training	22	36.67%

Key Findings: The majority of respondents were over 40 years old (45%) and possessed extensive clinical experience, with 76.67% having worked for more than a decade. However, a significant gap in formal education was identified, as 63.33% of the nurses had never received structured CPR training.

Section II: Assessment of CPR Knowledge Levels

The primary objective was to categorize the depth of CPR understanding among the participants based on their scores from the 30-item questionnaire. The mean knowledge score for the group was 29.47.

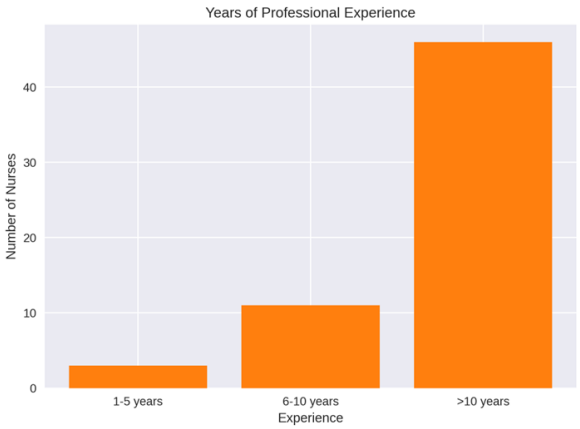

Figure 2. Years of professional experience among staff nurses (n=60).

The mean knowledge score was 29.47. The distribution below highlights that while nearly half have "Adequate" knowledge, very few reach "Proficiency."

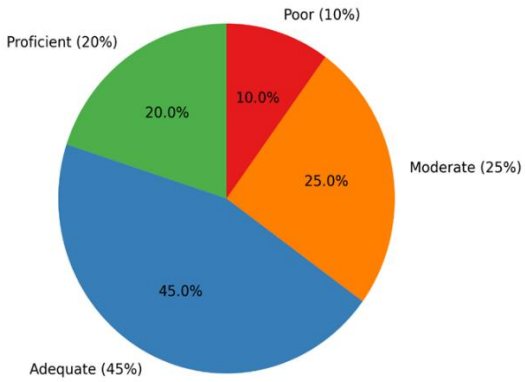

Figure 3: Knowledge Score Categorization.

As illustrated above, while 45% of the staff possess an adequate baseline, only 20% demonstrate proficiency in the latest life-saving protocols. A concerning 10% of respondents exhibited poor knowledge, posing a potential risk in emergency cardiac scenarios.

Section III: Inferential Statistics and Hypothesis Testing

To test the research hypothesis—that there is a statistically significant association between demographic variables and knowledge scores—the Chi-square test was applied.

Table 2: Association Between Knowledge Scores and Demographic Variables

Demographic Variable	Chi-Square Value	d.f.	p-value	Significance
Age	501.3	9	< 0.01	Significant
Years of Experience	604.9	9	< 0.01	Significant
Educational Level	636.13	9	< 0.01	Significant
Previous Training	660.17	3	< 0.01	Significant

Interpretation: The results show a highly significant association ($p < 0.01$) across all major demographic categories. This confirms the research hypothesis. Specifically, nurses with higher educational qualifications and those who had undergone previous training scored significantly higher than their counterparts. Interestingly, while "Years of Experience" showed a significant association, the lack of "Proficient" scores indicates that clinical longevity alone does not substitute for updated, formal CPR training.

Figure 4. Chi-square values for associations between knowledge scores and demographic variables.

IV. Discussion

The findings demonstrate that the majority of staff nurses possess an "Adequate" level of knowledge (45%). However, the significant association ($p < 0.01$) between knowledge and previous training is concerning, given that 63.33% had never received formal training. The high prevalence of nurses with >10 years of experience (76.67%) corresponds with higher baseline scores, but only 20% reached "Proficient" levels. This suggests that while experience provides a foundation, it does not guarantee mastery of technical protocols. This is consistent with Kaur (2016), who found that years of experience significantly correlate with knowledge, but Maier (2015) noted that without "refresher" courses, even experienced staff fall behind current standards.

V. Conclusion

There is a substantial need for structured, ongoing education. Experience alone is not a substitute for formal, evidence-based CPR training.

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