"A STUDY TO ASSESS THE KNOWLEDGE REGARDING CARDIO PULMONARY RESUSCITATION AMONG PARAMEDICAL STAFF WORKING AT RURAL TERTIARY CARE MEDICAL TEACHING HOSPITAL KOLAR, KARNATAKA".

By

MISS. RESHMA B

Research Project submitted to the

Sri Devaraj Urs College of Nursing, Tamaka, Kolar

In partial fulfillment of the requirement for the degree of

MASTER OF SCIENCE IN NURSING

In

MEDICAL SURGICAL NURSING SPECIALITY

Under the guidance of

DR. ZEANATH CARIENA JOSEPH

Prof.& HOD Dept. of Medical Surgical Nursing.

Sri Devaraj Urs College of Nursing

Chief Nursing Officer of RLJH &RC

Tamaka, Kolar -563103

Under the Co-guidance of

Mrs. GEETHA S

Nursing Tutor

Dept. of Medical Surgical Nursing

Sri Devaraj Urs College of Nursing

Tamaka, Kolar -563103

2024

DECLARATION BY THE CANDIDATE

I hereby declare that this Research project entitled **"A study to assess the Knowledge regarding Cardiopulmonary Resuscitation among Paramedical staff working at Rural Tertiary Care Medical Teaching Hospital Kolar, Karnataka",** is a bonafide and genuine research work carried out by me under the guidance of **Dr.Zeanath Cariena. J,** Prof & HOD, Dept. of Medical Surgical Nursing, Sri Devaraj Urs College of Nursing and Chief Nursing Officer at RLJH&RC Tamaka, Kolar.

Signature of the Candidate
(Miss.Reshma B)

Date :

Place : Tamaka ,Kolar

CERTIFICATE BY THE GUIDE

This is to certify that the Research project entitled **"A study to assess the Knowledge regarding Cardiopulmonary Resuscitation among Paramedical staff working at Rural Tertiary Care Medical Teaching Hospital Kolar, Karnataka"**, is a bonafide research work done by **Miss. Reshma B** in partial fulfilment of the requirement for the degree of Master of Science in Medical Surgical Nursing.

Signature of the Guide

Dr. Zeanath Cariena.J.
Prof & HOD of Medical Surgical Nursing,
Sri Devaraj Urs College of Nursing,
Chief Nursing Officer of RLJH &RC,
Tamaka, Kolar-563103.

Date:

Place: Kolar

ENDORSEMENT BY THE HEAD OF THE DEPARTMENT/ PRINCIPAL/HEAD OF THE INSITITUTION

This is to certify that the Research project entitled, **"A study to assess the Knowledge regarding Cardiopulmonary Resuscitation among Paramedical staff working at Rural Tertiary Care Medical Teaching Hospital Kolar, Karnataka."** is a Bonafede research work done by **Miss. Reshma B** is under the guidance of **Dr.Zeanath Cariena.J,** in partial fulfilment of the requirement for the degree of Master of Science in Medical Surgical Nursing.

Signature of the HOD

Dr. Zeanath Cariena. J
Prof. & HOD Medical Surgical Nursing
Sri Devaraj Urs College of Nursing
Chief Nursing officer RLJH &RC
Tamaka, Kolar

Date :

Place : Kolar

Signature of the Principal

Dr. G Vijayalakshmi
Professor and Principal
Sri Devaraj Urs College of Nursing
Tamaka, Kolar

Date :

Place : Kolar

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of this Research project.

Signature of the candidate

(Ms Reshma B)

Date :

Place : Kolar

ABSTRACT

BACKGROUND AND OBJECTIVES

INTRODUCTION :

Hospitals are one of the essential institutions that must continue to function when an emergency event occurs. In spite of its importance, health facilities are themselves vulnerable to Cardiopulmonary Resuscitation and can get damaged, risking the lives of patients and health workers.

A study was undertaken to **"A study to assess the Knowledge regarding Cardiopulmonary Resuscitation among Paramedical staff working at Rural Tertiary Care Medical Teaching Hospital Kolar, Karnataka".**

The study aimed to assess the Knowledge regarding Cardiopulmonary Resuscitation among Paramedical staff and to determine the association between the knowledge scores with Socio demographic Variables.

Methods and Materials

A Descriptive survey design was adopted by using Purposive Sampling techniques among 55 Paramedical staff and collected data using Structured Knowledge Questionnaire based on expert's validation and inclusion criteria of the study.

Major Findings

The major findings of the study highlighted that majority 56% (31) of the samples belongs to Adequate knowledge and 40% (22) samples belongs to Moderately adequate Knowledge, 04% (02) samples belong to Inadequate Knowledge, there are many studies conducted which supporting the present study.

CONCLUSION

Finally, the researchers concluded the findings of the study clearly showed that there was Adequate Knowledge on Cardiopulmonary Resuscitation among Paramedical staff, thus study recommended to conduct regular refresher course or simulation training to keep on upskilling the Paramedical staff on current practice to save the lives of the nation through implementation of Cardiopulmonary Resuscitation in times of crisis.

LIST OF ABREVATIONS

SI.NO.	ABREVATIONS	EXPANSIONS
01.	CPR	Cardio Pulmonary Resuscitation
02.	HCPs	Health care Professionals
03.	IHCA	In-hospital Cardiac Arrest
04.	AHA	American Heart Association
05.	CAB	Compression Airway Breathing
06.	BLS	Basic Life Support
07.	AHP	Allied Health Professionals
08.	HCPs	Health care Professionals
09.	CCR	Chest – Compression only Resuscitation
10.	HCWs	Health Care Workers
11.	EMS	Emergency Medical Services
12.	OHCA	Out-of- Hospital Cardiac Arrest
13.	TMU	Teerthankar Mahaveer University

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CHAPTER - I

INTRODUCTION

Cardiopulmonary Resuscitation (CPR) is an important life-saving medical intervention employed in response to cardiac arrest. It is designed to restore vital functions and maintain adequate blood flow to the essential organs when the heart suddenly stops beating effectively by chest compressions, ventilation and defibrillation. In general, research has demonstrated that when appropriately trained Health Care Professionals (HCPs) administer CPR, it can lead to a decrease in In-hospital cardiac fatalities and related deaths[1].

In-Hospital Cardiac Arrest (IHCA) is the most urgent medical emergency and may lead to death when not recognized and treated with prompt initiation and appropriate interventions by competent provider. Generally, hospitals in the United States have been estimated to treat approximately 200,000 cardiac arrests annually (Bradley et al., 2019). This is an unpredictable event that often occurs without any prior warning, mandating quick and competent intervention[2].

The American Heart Association (AHA) plays a pivotal role in advancing the knowledge and practices related to cardiac resuscitation. As a prominent organization in the realm of heart health, AHA has a rich history of conducting research, developing guidelines, disseminating critical information pertaining to cardiac resuscitation science, and preparing HCPs to have the knowledge, skills, and self-efficacy necessary to activate immediately in CPR[3]. However, although the 2020 AHA guidelines recommend renewing certification every two years, HCPs have expressed anxiety about their required knowledge and CPR skills if they are exposed only in frequently to real CPR situations[4].

Cardiopulmonary arrest can occur unexpectedly and has a high mortality. Health care professionals are often the first responders to in-hospital arrest and are expected to initiate cardiopulmonary resuscitation (CPR). It has been identified in the literature that Health care professionals lack the knowledge and the skills of resuscitation. The aim of the study was to assess the knowledge regarding Cardiopulmonary Resuscitation among Paramedical staff working at Rural Tertiary Care Medical Teaching Hospital in Kolar, Karnataka[5].

Individuals in the community at least the Health Care Professionals should know how to perform Cardiopulmonary Resuscitation as they encounter such situation very often. Health care professionals are expected to be competent to resuscitate from their first posting. In the United States, BLS training has been recommended for all Health Care Professionals since 1966, especially for those who are involved in resuscitation. Demand for courses of BLS is ever-increasing worldwide[6]. Paramedical staff are expected to know about it, as they are frequently facing life threatening situations and the knowledge of BLS will be definitely useful[7].

A successful resuscitation requires an integrated set of coordinated actions, including the immediate recognition of cardiac arrest, the activation of an emergency response system, early chest compressions, rapid defibrillation, effective advanced life support, and integrated post- cardiac arrest care. In resource-limited settings, responding promptly to a cardiac arrest poses considerable challenges due to lack of capacity to roll out trainings of healthcare providers; however even developed countries experience challenges with knowledge of, attitudes toward, and practice relating to CPR Possessing the fundamental knowledge and skills, as well as the right mindset, is crucial for healthcare professionals if they are to deliver effective medical care[8].

NEED FOR THE STUDY

Cardiac arrest is defined as a sudden and unexpected stop of cardiac activity, resulting in a decrease in perfusion of blood to the vital organs, leading to an unresponsive victim with abnormal breathing and absence of signs of circulation. IHCA is the most urgent medical emergency and may lead to death when not recognized and treated with prompt initiation and appropriate interventions by competent providers. Generally, hospitals in the United States have been estimated to treat approximately 200,000 cardiac arrests annually. This is an unpredictable event that often occurs without any prior warning, mandating quick and competent intervention[2].

Cardiopulmonary Resuscitation (CPR) is an important life-saving medical intervention employed in response to cardiac arrest. It is designed to restore vital functions and maintain adequate blood flow to the essential organs when the heart suddenly stops beating effectively by chest compressions, ventilation and defibrillation. In general, research has demonstrated that when appropriately trained Healthcare Professionals (HCPs) administer CPR, it can lead to a decrease in in-hospital cardiac fatalities and related deaths[1].

Cardiopulmonary Resuscitation (CPR) training is important to acquire and maintain CPR knowledge and skills and to remain up to date with the latest CPR guidelines. The American Heart Association (AHA) and European Resuscitation Council Guidelines have been regarded as a "goldstandard" for the treatment of cardiac arrest and other life threatening emergencies. The 2005 AHA guidelines for CPR were changed in 2010. These changes included changes in the sequence A-B-C (Airway,

Breathing and Compression) to C-A-B for adults. It also emphasizes the need for high quality CPR and includes compressions at a rate of at least 100 per minute and compression depth of at least 5cm in adults (change from a range of 4cm - 5cm) allowing complete chest recoil after each compression and minimizing interruptions between compressions. The "look, listen and feel for breathing" step was eliminated, routine use of cricoid pressure is not recommended and there is a de-emphasis on checking for a pulse[9].

Cardiopulmonary Resuscitation (CPR) cases depend on whether they work in critical care units or general care units. Critical care units typically have a higher frequency of CPR incidence due to the characteristics of their patients. Limited research has been conducted on the deterioration of CPR skills and knowledge among Paramedical staff in critical care and general care units. Hence it is necessary to train the professional and Non -professional such as Paramedical staff[10].

As reported Internationally Pakistan in 2019 to compare hospital wide code rates and mortality before and after the implementation of a Rapid Response Team (RRT). The study was conducted at Shifa International Hospital, Islamabad, from January 21,2016, to January 20, 2018.The triggers for the rapid response team were displayed on each floor. Staffs was trained on when and how to activate the Rapid Response Team. The study concluded that the total number of mortality events before the implementation of the RRT was 1470 (3.725%) and after the implementation of the RRTwas 1529(3.805%) which was not significantly different (P =0.929)[11].

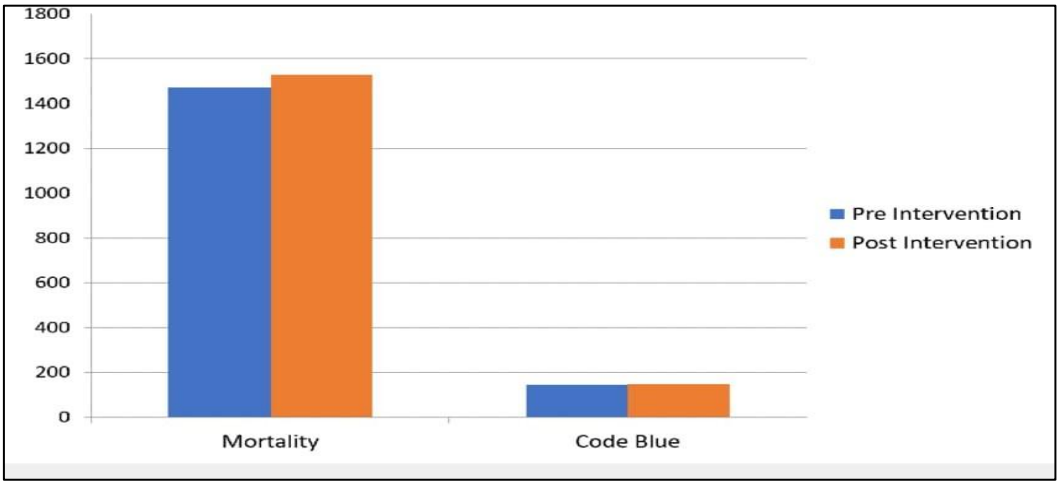


Fig .1 Mortality and Code blue before and after the implementation of the rapid response team

Based on the available literature with gap identified and the personal experiences. The investigator strongly felt the need to conduct study to assess the knowledge regarding Cardiopulmonary Resuscitation among Paramedical staff along with creating awareness and motivation on initiating CPR as a one of the means of reducing mortality as per the revised AHA Guidelines at various clinical settings[12].

STATEMENT OF THE PROBLEM

"A STUDY TO ASSESS THE KNOWLEDGE REGARDING CARDIO PULMONARY RESUSCITATION AMONG PARAMEDICAL STAFF WORKING AT RURAL TERTIARY CARE MEDICAL TEACHING HOSPITAL KOLAR, KARNATAKA".

OBJECTIVES OF THE STUDY

1.To assess the level of knowledge regarding Cardiopulmonary Resuscitation (CPR) among Paramedical staff by using Structured Knowledge Questionnaire.

2.To determine the association between knowledge scores with selected Socio demographic Variables.

ASSUMPTIONS

Paramedical staff will have some knowledge regarding Cardiopulmonary Resuscitation.

OPERATIONAL DEFINITION

1. **KNOWLEDGE**: In this study, it refers to the level of understanding of Paramedical staff regarding Cardiopulmonary Resuscitation as measured by Structured Knowledge Questionnaire.
2. **PARAMEDICAL STAFF**: In this study, Paramedical staff refers to all the personnel working at support service departments as the Pharmacy, Central diagnostic Laboratory, Radiology, CSSD, Radiotherapy, Laundry, Dialysis and Blood center.
3. **Cardiopulmonary Resuscitation (CPR):** In this study, Cardiopulmonary Resuscitation is a technique of Basic life support for the purpose of Oxygenation to the Heart, Lungs and the Brain until and unless the appropriate medical treatment can come and restore the normal Cardiopulmonary function[13].

CONCEPTUAL FRAME WORK

Conceptual Framework deals with abstractions that are assembled by virtue of their relevance to a common theme. Conceptualization is a process of forming ideas, which is utilized and forms conceptual framework for development of research design. It helps the researcher by giving direction to go about entire research process.

The present study aimed to assess the knowledge regarding Cardiopulmonary Resuscitation among Paramedical staff working at Rural Tertiary Care Medical Teaching Hospital Kolar, Karnataka.

The framework of the present study was developed by investigator based on General SystemTheory which consists of 4 major components as Input, Throughput, Output and Feedback.

General system theory was first introduced by Von Bertalanffy in 1968. He defines a systemas an organized whole unit that produces an effect or product when interdependent component parts interact with environment. All living systems are open systems, which promote the exchanged matter, energy and information with other system (subsystem), and environment (supra-system), the exchange within open system, between the system, the subsystem and supra- system is continuous. The dynamic balance within and between the system, the subsystem and supra-systems helps to creates and maintain internal stability. The change in one part of the system creates change in other parts.

INPUT: Input refers to the information, energy or matter, which enters the system.

In this study, Cardiopulmonary Resuscitation is a system and has input with the system itself (subsystem) which is acquired from the environment (supra system). These inputs include Paramedical staff background like Age, Gender, Qualification, Year of experience, Specific department allotted, Designation and Previous training programme related to Cardiopulmonary Resuscitation which may influence the Paramedical staff knowledge.

THROUGHPUT: Throughput refers to the action needed to accomplish the desired task to achieve the desired output.

In this study it refers to development of validated Structured Knowledge Questionnaire and its administration to assess the knowledge level of Cardiopulmonary Resuscitation by using Structured Knowledge Questionnaire.

OUTPUT: Output refers to the end result or product of the system.

In this study it refers to the result outcome of care received by Paramedical staff based on Cardiopulmonary Resuscitation showing their knowledge level as inadequate, Moderate, Adequate knowledge in relation to Cardiopulmonary Resuscitation. If the knowledge level is found inadequate, rectification can be done by strengthening the existing knowledge through continuous monitoring, which is not under the preview of the study.

SUMMARY

This chapter dealt with the statement of problem, objectives of the study, operational definitions, assumptions and Conceptual framework.

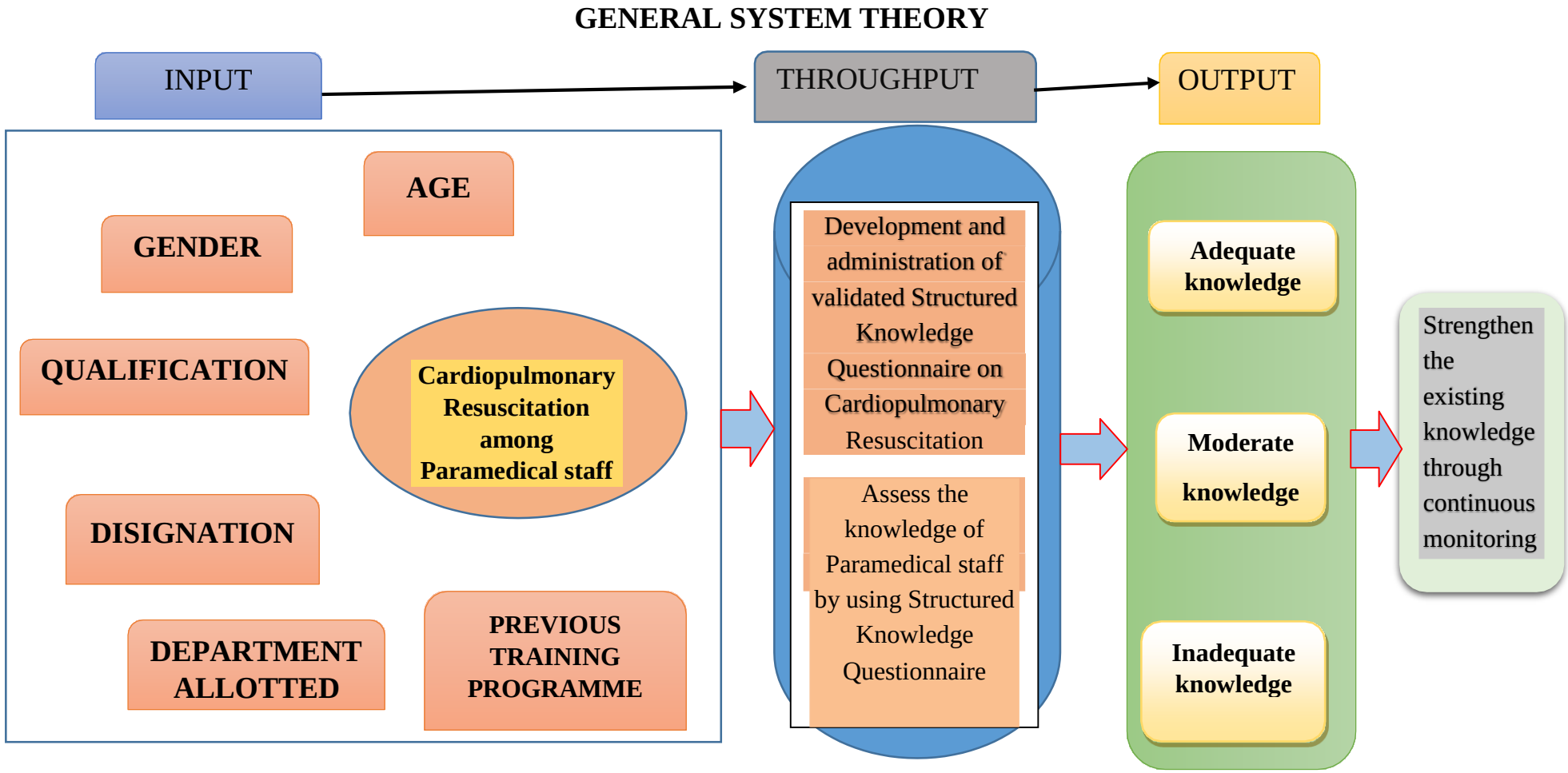


Fig no 2. Conceptual frame work, adopted from Von Bertalanffy (1968)

CHAPTER II

REVIEW OF LITERATURE

Review of Literature is a broad, comprehensive, in depth, systematic and Critical reviewof scholarly publications. It is essential to understand what is known about the topic. A thorough Review of Literature provides a foundation upon which the new knowledge can be based and built on.

This chapter deals with a review of published research studies and related materials for the study and for building the foundation of the study. The literature for the present study are reviewed from the textbooks, journals, electronic resources, and are presented as below:

The studies related to knowledge regarding Cardiopulmonary Resuscitation among Paramedical staff.

A Descriptive study conducted to assess the Cardiopulmonary Resuscitation knowledge among Nursing students in 2016 in Manipal, Karnataka, India. The questionnaire method was used with selected 401 professional nursing students. The study revealed that only 11% of them were completely aware about the universal compression ventilation ratio,16.2% were aware of the current compression depth,21.8% of participants have only indicated in order to CPR being Compression, Airway and Breathing. The study concluded that the Knowledge of Cardiopulmonary Resuscitation (CPR) is good among the nursing students. However, skills of CPRhave to be improved by current training programs at regular intervals. Their knowledge and practicalapproach have to be updated with the current guidelines in Cardiopulmonary Resuscitation(CPR)[14].

A Cross – sectional study was conducted to assess the Cardiopulmonary resuscitation level of knowledge among allied health university students in Jordan,2019. A total of 883 students wereincluded in the study. A total of 693 (78.5%) students did not receive previous CPR training and the top barriers to receiving CPR training were unawareness of training opportunities and a lack of time. The study concluded that there is poor knowledge of CPR among AHP students includingtrained individuals. Efforts to increase the awareness of CPR should target students and professionals who are highly likely to encounter patients requiring CPR. The study recommended that Compulsory training courses, shorter training periods as well as recurrent and regular refreshing courses and use of various media devices[15].

A Cross-sectional study was conducted to assess the Knowledge and Attitude towards Cardiopulmonary Resuscitation among Doctors of a Tertiary Care Hospital in Karachi in 2019. Cluster sampling was selected as the study design and 285 samples were selected. The study results that a majority of the doctors were unaware of the revised rate and depth of chest compressions (65.6% and 75.8% respectively). While many know the abbreviations of BLS and CPR (96.55% and 95.4%, respectively), 56.5% did not know what Automated External Defibrillator (AED) stoodfor. CPR was preferred over Chest Compression-only Resuscitation (CCR) by 91.6% of the doctors. Half of the participants rated their knowledge as average. The study concluded that here is an evident lack of knowledge of CPR among healthcare professionals, particularly regarding the updates made in the 2015 American Heart Association (AHA) guidelines. However, an overall positive attitude was observed[16].

A Questionnaire based Cross sectional study was conducted to assess the knowledge about CPR among the paramedical students was carried out in college of Paramedical sciences at Teerthanker Mahaveer University, Moradabad, (TMU) Uttar Pradesh, India in 2019. Total 263 participants were included in the study. were 51% students of radiological imaging techniques and 27% students of medical lab techniques and 22% students of Optometry Department. The ratio of radiological imaging techniques in the collage of paramedical sciences was more than double of the same in the Optometry and Medical lab techniques. The study concluded that guaranteed programs preparing essential abilities of CPR ought to be a required part in health care professional's related field like clinical, nursing & paramedical universities and resources[17].

A Quantitative research approach with descriptive study used to assess the Level of Knowledge Regarding Adult and Child Cardiopulmonary Resuscitation among Paramedical Students in 2024. The study was conducted on 60 Paramedical students by using stratified probability sampling technique in selected college of Greater Noida. Data showed that the majority of Paramedical students scored average marks i.e., 37(61.66%) whereas the minority scored excellent i.e., 2(3.33%). Hence, it was interpreted that the most of the Paramedical students had got average score with the mean value of 77.7 and Standard Deviation was 22.15. The survey revealed an average knowledge about cardiopulmonary Resuscitation among paramedical students. Even though majority of students had average knowledge but still perfection is requiredto practice it whenever needed in emergency[18].

A Cross-sectional study was conducted to assess the Cardiopulmonary Resuscitation: Knowledge and Attitude of Doctors from Lahore, 2021. Cluster sampling technique was adopted among Out of 792 participants, 68 refused to take part in the study. The total respondents were 724 with the response rate of 91%. The knowledge regarding Cardiopulmonary Resuscitation of 601(83%) respondents was poor with only 123(17%) doctors having good knowledge. The Doctors who received formal CPR training had better knowledge (20.17%) than the Doctors who didn't get any training regarding CPR (4.69%). Anesthesiologists scored better among all specialties. The overall attitude of the doctors towards CPR was positive with 93.8% of the respondents willing to do CPR. Study concluded that the overall knowledge of the Doctors regarding CPR is not satisfactory. A practical and functional approach is needed to improve this situation. However, the attitude of the doctors towards CPR is positive[19].

A Descriptive study conducted to assess the Nurses' knowledge and skills concerning Cardiopulmonary Resuscitation in 2022. In this study, the Descriptive and Exploratory Cross- sectional study will be conducted at Al-Najaf city in the southern region of Iraq in Al-Najaf teaching hospital to assess the nurses' knowledge concerning Cardiopulmonary Resuscitation. The Nursing staffs 250 samples were adopted and used Semi Structured Knowledge Questionnaire for this study. They accepted results that to know how CPR is performed and to check whether the actions taken differ from the knowledge and practice approved by nurses in their professional activities[20].

A Cross-sectional study was conducted to assess the Knowledge and attitudes towards Cardiopulmonary Resuscitation among junior doctors and medical students in Upper Egypt in 2020. Total of 205 participants (60 junior doctors and 145 medical students) responded to a self-administered questionnaire assessing their knowledge regarding Basic Life Support (BLS) and CPR techniques in neonates, children, and adults, in addition to attitudes towards the importance and necessity of CPR and CPR training. By adopting self- administered questionnaire method. The study results that 31.7% had adequate knowledge of CPR, but up to 95% reported positive attitudes towards CPR training. Among the 145 medical student participants, only 6.2% had adequate knowledge of CPR, while 91% reportedpositive attitudes towards training. The study concluded that participants reported overwhelmingly positive attitudes and eagerness towards the implementation of CPR training[21].

A Pre-experimental study is evaluated the effectiveness of Structured Teaching Programme on knowledge and skill regarding basic cardiac life support among Ist Basic B.Sc. (N) Students atDehradun, Uttarakhand in 2020. A sample of 50 students was selected through convenient non-probability sampling technique. The data was collected through self-structured knowledge questionnaire and skill checklist on basic cardiac life support. The tool was developed in three parts, the first part deal with the 7 demographic variable, the part two consist of 32 knowledge questions on 212 basic cardiac life support and the third part consist of 18 steps of skill checklist.This study concludes that the structured teaching program was effective in significant improvement of knowledge level and skill score regarding basic cardiac life support among study participants. Findings stress the need for such teaching and skill programs, which in turn may enhance the overall health standard and save the life of victims[22].

A study on the impact of Cardiopulmonary Resuscitation (CPR) training on school children and their CPR knowledge, attitudes towards CPR, and willingness to help others and to perform CPR: mixed method research design in 2020. Research was conducted in 15 Slovenian public elementary schools offering Cardiopulmonary Resuscitation training. Data was collected with a structured questionnaire among 764 school children aged 12.5–14.5 years before Cardiopulmonary Resuscitation training and 566 school children after training. Results of study was Significant progress in cardiopulmonary Resuscitation knowledge was noted after training implementation, with the greatest progress seen in the youngest age group (mean age 12.5). The survey had two sections, including demographics and knowledge questions. A total of 883 students completed the surveys and were included in the study. Trained participants had a higher mean score compared with the untrained (4.6 (±1.6) vs 3.8 (±1.6), p nursing students) had good knowledge but still perfection is required to practice it whenever needed in emergency[23].

A Quasi-interventional study conducted to assess the Knowledge and Skills in Cardiopulmonary Resuscitation and Effect of Simulation Training at Tertiary Care Center, India in 2024 among resident Doctors and Nurses. A total of 82 Health care workers (54 doctors and 28 nurses) were enrolled. The study concluded that there is a progressive decrease in baseline knowledge of Health care workers with the further steps in the adult chain of survival. The simulation training program had a positive impact on the knowledge of HCWs. The training programs should focus on defibrillation, advanced life support, post-cardiac arrest care, and leadership roles[24].

A Descriptive cross sectional study conducted on "Assessment of Cardiopulmonary Resuscitation knowledge and skills among healthcare providers at an urban tertiary referral hospital in Tanzania" in 2018. A Random Sample Technique is used of 350 Health care Professionals from all cadres and departments. Each participant completed with 25 questions multiple choice and fill-in-the-blank. CPR test and a practical test using a CPR manikin where the participant was videotaped for 1-2 min. The study concluded that the level of CPR knowledgeand skills displayed by all cadres and in all departments was poor despite the fact that most providers reported having performed CPR in the past. Staff should be certified and assessed regularly to ensure retention of Resuscitation knowledge and skills [25].

An Exploratory Descriptive research design conducted to assess the Knowledge and Perspective on Cardiopulmonary Resuscitation (CPR) among Staff Nurses in 2018. To collect the data Self-administered questionnaires were used who all are willingly responded as total of 89 staff nurses. The study revealed that only 3.4% had very good knowledge and 32.5% had good knowledge level. The study was concluded that the about 82% had undergone 1-2 times training among which 77.5% subjects underwent training with self interest. About 14.6% nurseshad an opportunity to carry out Chest compression and CPR. The knowledge on current CPR guidelines shows 3.4% had very good knowledge and 32.5% had good knowledge level. Therefore it's necessary to update their knowledge regarding the CPR through in-service education programmes and training on Cardiopulmonary Resuscitation to improve the knowledge, confidence and skills of the staff nurses in general care settings[26].

SUMMARY

This chapter has provided a review of literature relevant to the problem stated. The literature presented was extracted through hand search and electronic search. It includes primary and secondary sources. It has helped the investigator in understanding the impact of the problem.

CHAPTER - III

METHODOLOGY

This chapter deals with the methodology adopted for the proposed study and the different steps under taken. It includes research approach, research design, setting, sample and sampling techniques, sampling criteria development and description of the tool, procedure of data collection and data analysis.

Methodology of the research indicates the general pattern of organizing the procedure for empirical study together with the method of obtaining valid and reliable data for problem under investigation.

RESEARCH APPROACH

The term "research approach" refers to a group of strategies that determine the entire course of research. The researcher has chosen the strategy and process for gathering, analyzing, and interpreting the data. It is mostly dependent on the nature of the study problem that was chosen and on providing the most precise and effective solution possible[27].

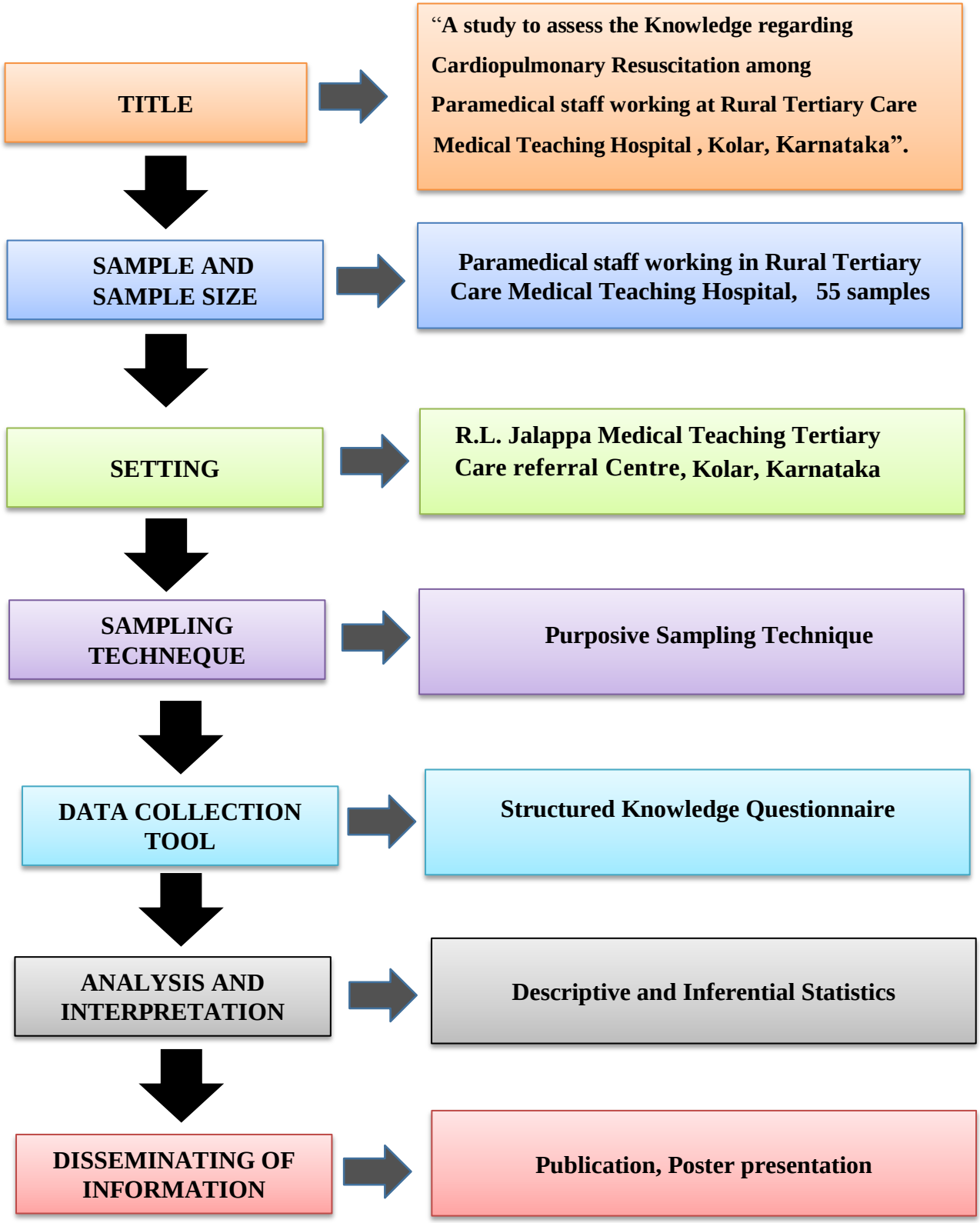
The research approach used for this study is **Quantitative survey approach**.

RESEARCH DESIGN

Research design is an investigator overall plan for obtaining answers for the research questions. A Researcher’s structural framework to combine several research methodologies and procedures. It is a method for answering the research question that aids in choosing the study's goals and guarantees that the research methods are appropriate for the job and employ the right method of data analysis[28].

The research design, adopted for this study is **Descriptive design**

(Fig .2) SCHEMATIC REPRESENTATION OF RESEARCH METHODOLOGY



SETTING OF THE STUDY

Setting refers to the area where the study is conducted[26].

The study will be conducted among Paramedical staff working in R.L.Jalappa Rural Tertiary Care Medical Teaching Hospital, Tamaka, Kolar is a 1200 beds with consist of departments as the Pharmacy, Central diagnostic Laboratory, Radiology, CSSD, Radiotherapy, Laundry, Dialysis and Blood center.

POPULATION

The population for the study refers to the group which represents the entire group or all the elements like individuals that meet inclusion criteria in the study[27].

All the Paramedical staff working at Rural Tertiary Care Medical Teaching Hospital.

SAMPLE

Sample refers to subset of the population that is selected to participate in a particular study[27].

The sample for the study consists of Paramedical staff working at Rural Tertiary Care Medical Teaching Hospital.

SAMPLE SIZE

The sample size consists of 55 Paramedical staff

SAMPLE SIZE DETERMINATION

$$n = \frac{(Z\alpha/2)^2 + \sigma^2}{E^2}$$

The Sample size estimated is based on variance estimated in the knowledge score. ∑ (Sigma) of 1.73 with 95%, Confidence level of 1.96 with an Absolute error of 0.05 in a mean the required, calculated sample size will be 49. By considering 10% of attrition the sample for the present study isrounded to 55 number.

SAMPLING TECHNIQUE

Sampling technique defines the process of selecting a group of people or other elements with which to conduct a study[27].

For the present study **Purposive sampling technique** was adopted to collect the data.

VARIABLES OF THE STUDY

In research, a Variable is any quality of a participant, location, event, or phenomenon that the researcher attempts to quantify in some way[29].

Study Variable: Knowledge

Attribute Variable:

A Variable is a measurable quality or trait of a study subject that the researcher cannot alter; instead, they can only measure or characterize the variable in accordance with the established system for measurement or categorization[29].

In this study, "Attribute Variables "describes the typical personal and professional traits of Paramedical staff, such as Age, Gender, Qualification, Year of experience, Previous training on Cardiopulmonary Resuscitation, Specific department allotted and Designation.

SAMPLING CRITERIA

INCLUSION CRIETERIA

Paramedical staff who are

- Willing to participate in the study.
- Those who are Available during the time of data collection.

SELECTION AND DEVELOPMENT OF TOOL

An instrument is a device or technique that a researcher used to collect data based on the research problem and the objectives of the study[30].

The following steps were undertaken for selection and development of the tool.

Structured Knowledge Questionnaire is developed to collect data which consists of the following sections.

Section A: Socio demographic Performa

It consists of Socio demographic Variable as Age, Gender, Previous Training on Cardiopulmonary Resuscitation, Qualification, Year of experience, Specific department allotted and Designation.

Section B: It consists of Structure Knowledge Questionnaire on Cardiopulmonary Resuscitation(CPR) includes

- Questions related to information specific on General information about Cardiopulmonary Resuscitation (CPR).
- Questions related to information specific to Primary assessment, Circulation Management, Use of Defibrillator and promotion of safety of the individual.

Scoring

The Structure Knowledge Questionnaire had 55 items . Each correct response had a score of “ONE”. Wrong response was scored with “ZERO”.

Each Multiple – choice question has four possible options as answered.

The interpretation of the level of knowledge was graded as:

SI. NO	Knowledge scores	Score Range
1.	Inadequate knowledge	≤ 50 % (≤ 13)
2.	Moderately adequate knowledge	51 – 75% (14- 26)
3.	Adequate knowledge	≥ 76% (27 -40)

ESTABLISHING CONTENT VALIDITY AND RELIABILITY OF THE TOOL:

VALIDITY:

Drafted data collection tools /instruments with a Competency based Training program were submitted to around seven experts for validation, along with the statement of the problem, objectives, operational definitions, blueprint and criteria rating scale. Experts suggested modifications in a few of the items in the questionnaire. Based on the expert’s suggestions tool and competency – based training program were modified and finalized.

RELIABILITY:

The Reliability defined as the degree of consistency or dependability with which an instrument measures the attribute it is designed to measure[30] .

The tool was administered to 10 Paramedical staff. Items in order to establish reliability of the tool, the split half technique using Spearman's Brown Prophecy formula was used. The obtained values of Reliability by using Spearman's Brown Prophecy formula is r =0.89. So the Structure Knowledge Questionnaire found to be reliable.

ITEM ANALYSIS:

To determine the effectiveness of each test item by examining the subject's response to the item, item analysis was done for the Structured Knowledge Questionnaire on Cardiopulmonary Resuscitation along with the reliability test. The difficulty value index (D.V) was estimated for all the questions and interpreted appropriately. Only a small number of questions were determined to be challenging, and those questions were changed. For those items to have the necessary level difficulty and discrimination index, the language has to be streamlined[30].

ETHICAL CONSIDERATION:

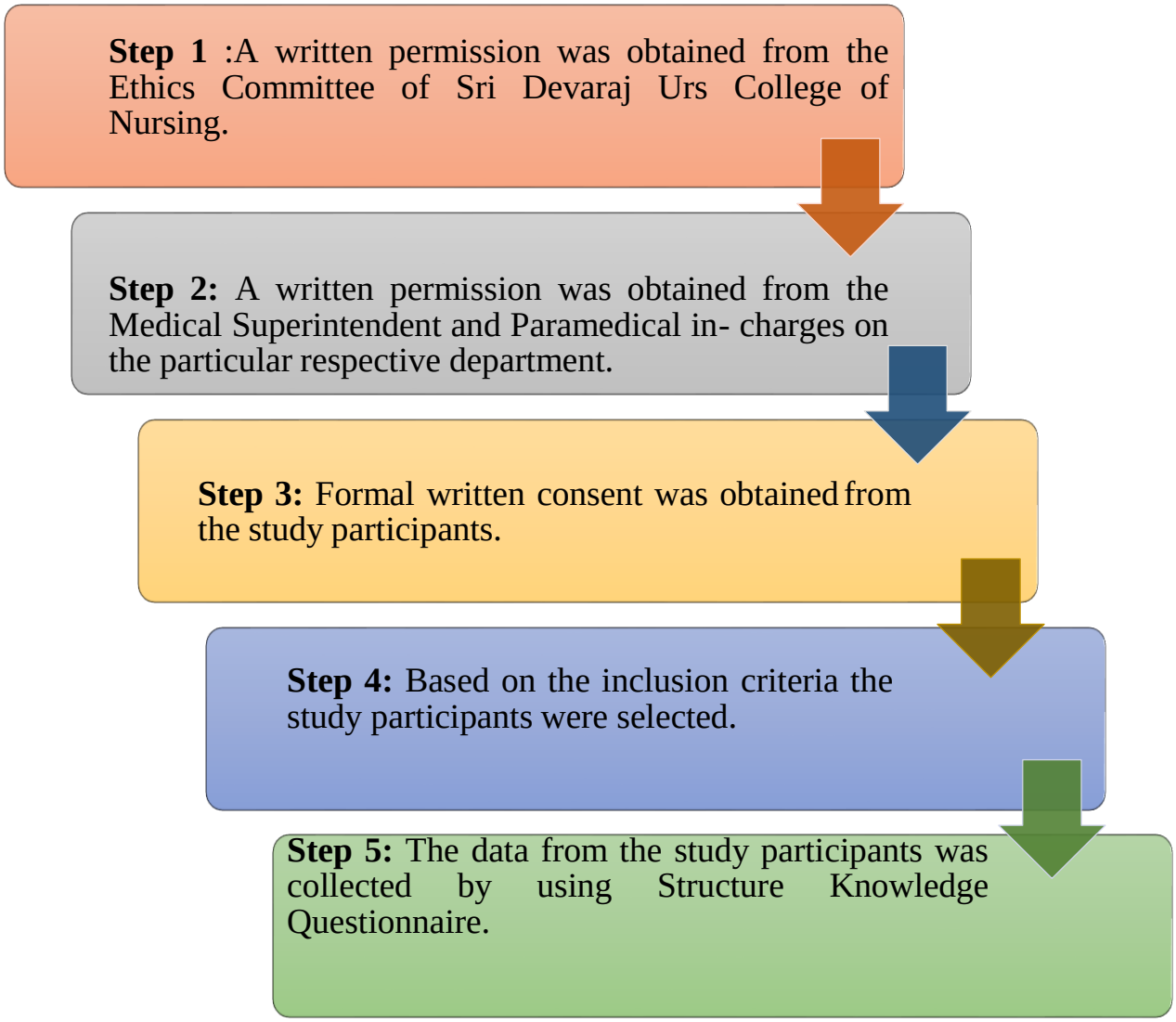
The formal ethical permission was obtained from the institutional Ethics Committee and HOD's of concerned Department. The permission for conducting the research was obtained from Medical Superintendent of Rural Tertiary Care Medical Teaching Hospital. Written informed consent was obtained from the study subjects and reassurance of confidentiality of information was given to the study participants[31].

PILOT STUDY

The pilot study, which had a sample size requirement of 10% of total population among Paramedical staff, was carried out in the month of July 2024. The concerned authorities gave the investigator official written consent .By guaranteeing the participants' privacy, informed consent was achieved. Participants' answers to Structured questionnaires on knowledge were used tocompile the data[32].

METHODS OF DATA COLLECTION

The data was collected in the month of August -2024 by using the following steps.



(Fig No.4) Schematic representation of method of Data collection

PLAN FOR DATA ANALYSIS

Data analysis is the schematic organization of research data based on the objectives and assumptions of the data[29].

The following steps are planned:

1. Data was organized on Master sheet.
2. Socio-demographic data were analyzed in terms of Frequency and Percentage.
3. Calculation of Mean, Standard Deviation and mean percentage of knowledge scores weredone.
4. Association of selected demographic variables with knowledge scores was analyzed byChi-square test.

SUMMARY:

This chapter dealt with the methodology adopted for the present study. It included research approach, research design, variables under study, research setting, population, sample, sampling technique, development of the data collection tools, description of tools, determining validity andreliability, pilot study, procedure of data collection and the plan for data analysis. The coming chapter deals with analysis of data using above statistical methods.

CHAPTER IV

ANALYSIS AND INTERPRETATION

This chapter highlights on the analysis and interpretation of data collected from the 55 Paramedical staff working at Rural Tertiary Care Medical Teaching Hospital Kolar, Karnataka in order to assessthe knowledge regarding Cardiopulmonary Resuscitation. The data collected from the Paramedical staff, was distubuted analyzed and interpreted by using Descriptive and Inferential statistics.

The data collected was analyzed based on the following objectives of the study:

1. To assess the level of knowledge regarding Cardiopulmonary Resuscitation (CPR) amongParamedical staff by using Structured Knowledge Questionnaire.
2. To determine the association between knowledge scores with selected socio-demographicvariables.

ORGANIZATION OF FINDINGS

The analyzed data is organized and presented under the following sections based on objectives.

Section 1: Description of frequency and percentage distribution of the Paramedical staff according to the Demographic Variables.

Section 2: Deals with the pertaining to the first objective of the study, which is assess the level of knowledge regarding Cardiopulmonary Resuscitation among Paramedical staff by using Structured Knowledge Questionnaire.

- Overall level of knowledge
- Area wise level of knowledge

Section 3: This section deals with the finding related to the second objective association between the knowledge scores with selected Demographic Variables of Paramedical staff.

Section –I

SOCIO DEMOGRAPHIC CHARACTERISTICS OF PARAMEDICAL STAFF

This section deals with data pertaining to Socio-demographic characteristics of Paramedical staff with Cardiopulmonary Resuscitation. Paramedical staff were assessed for Socio- Demographic Variables before collecting the data regarding knowledge on Cardiopulmonary Resuscitation presented.

Section A : Socio Demographic Performa

Table 1: Distribution of baseline characteristics in terms of frequency and percentage.

n = 55

SI.no (%)	Sample Characteristic	Frequency (f)	Percentage
1.	**Age (in years)**		
	< 30 years	30	**54%**
	31- 40 years	18	33%
	41 -50 years	07	13%
2.	**Gender**		
	Male	40	**73 %**
	Female	15	27 %
3.	**Qualification**		
	MSc	14	25 %
	BSc	24	**44 %**
	Diploma	10	18 %
	Others	7	13 %
4.	**Year of experience**		
	<1 year	12	22%
	1 -2 years	13	24%
	2-3 years	6	11%
	>3 years	24	**43%**

5.	**Specific department allotted**		
	Laboratory department	17	**31%**
	Pharmacy department	17	**31%**
	Radiology department	05	09 %
	CSSD department	11	20 %
	Radiotherapy department	03	05%
	Laundry department	02	04%
6.	**Designation**		
	Lab technician	17	**31%**
	Pharmacist	17	**31%**
	Radiologist	03	05%
	Radiographers	05	09%
	Laundry staff	02	04%
	CSSD staff	11	20%
7.	**Previous training programme related to Cardiopulmonary Resuscitation within 6 months of duration**		
	Yes	21	39%
	No	34	**61%**

1. AGE

With regards to age majority 54% (30) of the study sample were between the age group of <30 years ,33% (18) the age group of 31-40 years and 13% (07) of them belongs to the age group of 41 -50 years.

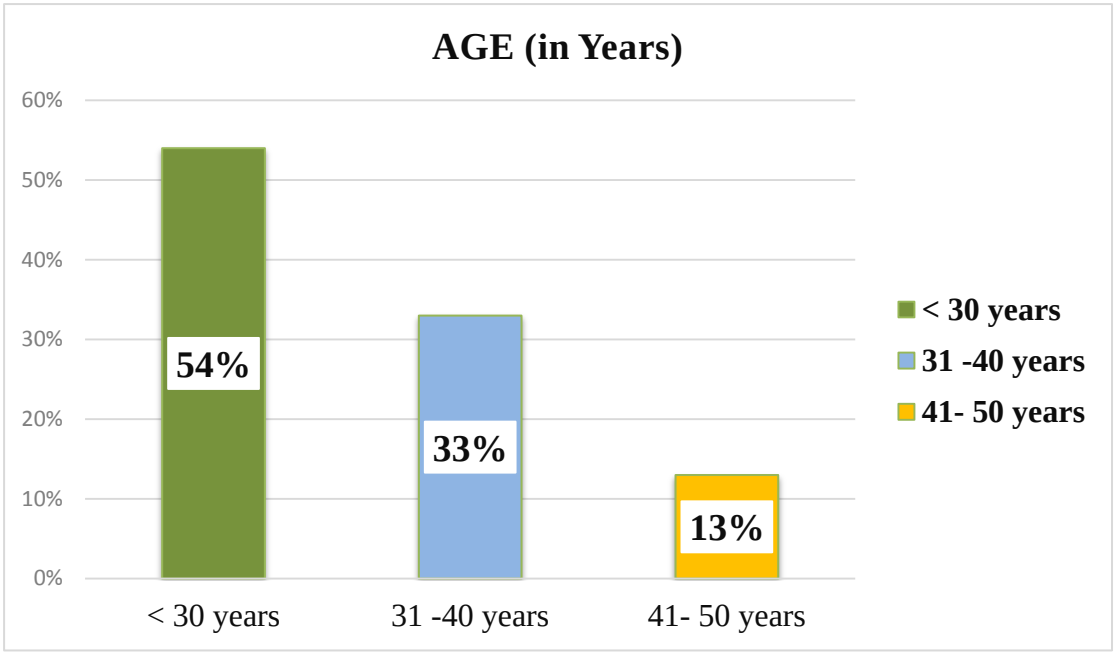


Fig.5 Distribution of Paramedical staff according to the Age in year.

2. GENDER

With regards to the gender Majority 73% (40) of the samples were Females and 27% (15) of were Males.

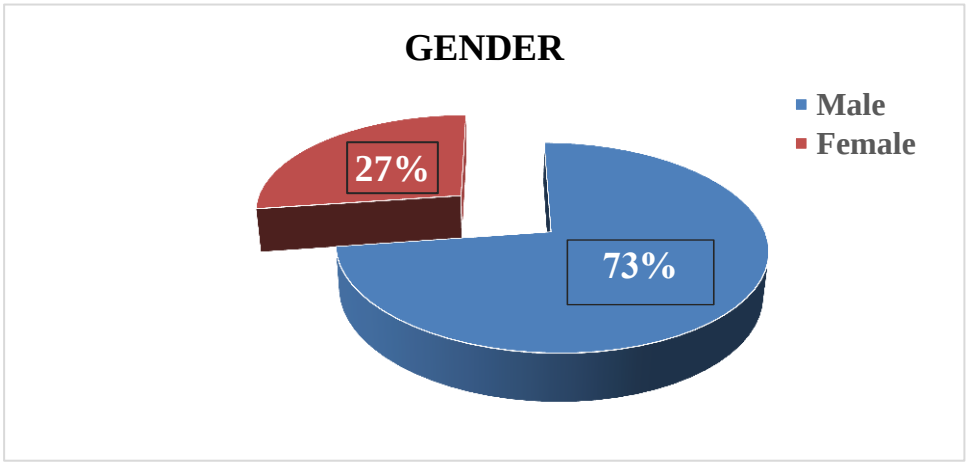


Fig.6 Distribution of Paramedical staff to Gender

3.QUALIFICATION

With regards to the qualification Majority B.SC (44%) and MSc (25%), Diploma (18%) and others are only (13%) samples are selected to this study.

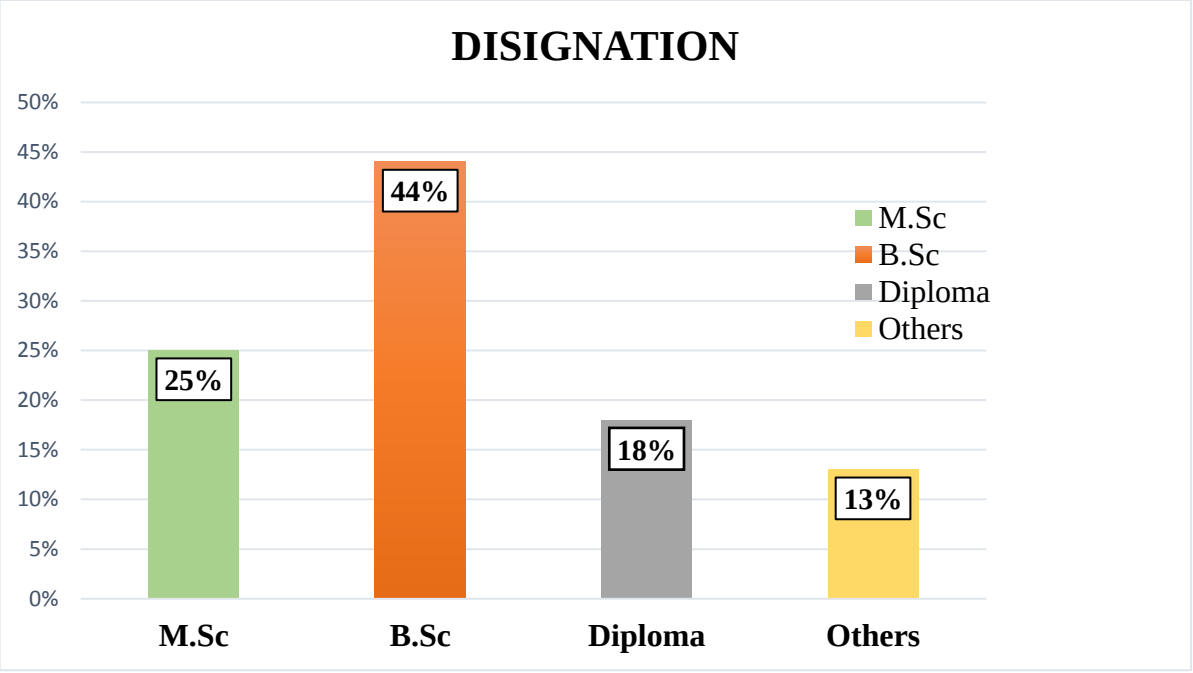


FIG 7. Distribution of Paramedical staff according to Designation.

4.YEAR OF EXPERIENCE

With regards to the year of experience the majority of samples are experienced >3 years (43%) and the samples are 1- 2 years (24%) , <1 year (22%) and 11% are 2 -3 years of experience.

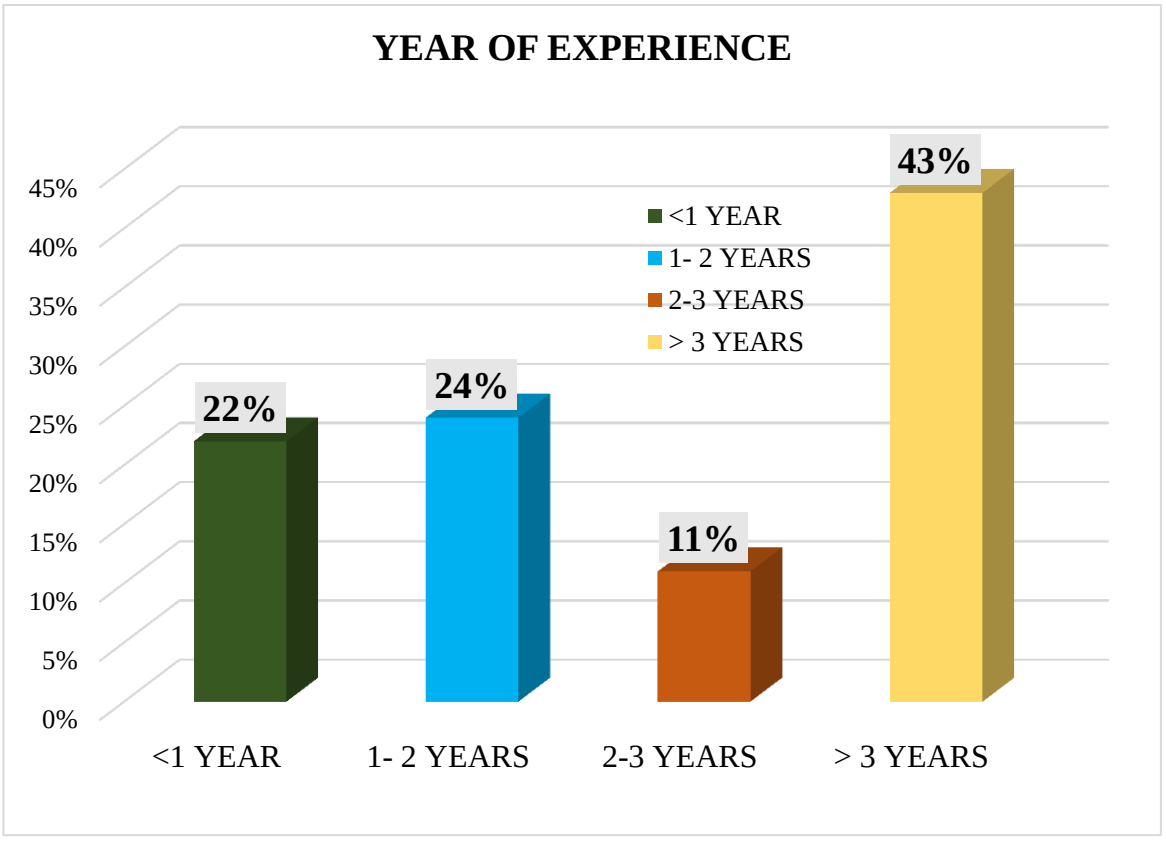


FIG 8. Distribution of Paramedical staff according to Year of Experience

5. **SPECIFIC DEPARTMENT ALLOTTED**

With regards to the specific department samples are majority from Department of Laboratory 31 %(17) and pharmacy 31% (17), CSSD staffs 20%(11), Radiology Department staffs are 9% (05), Radiotherapy department samples are 5% (03), Laundry department samples are only 4% (02) are allotted.

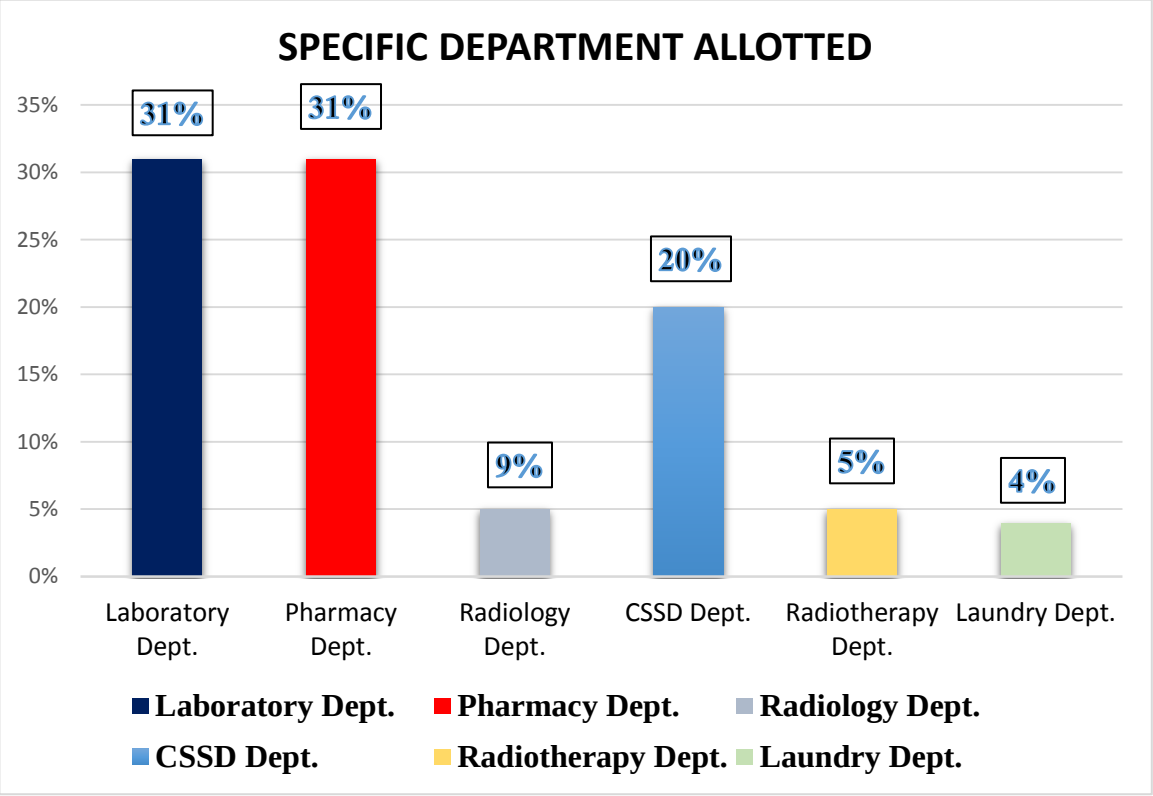


Fig .9 Distribution of Paramedical staff according to Specific Department allotted

6.DISIGNATION

With regards to the designation samples are majority from Department of Lab technicians 31 %(17) and pharmacists 31% (17), CSSD staffs 20%(11), Radiologists are 9% (05), Radiographers are 5% (03) and Laundry staffs samples are only 4 % (02) are allotted.

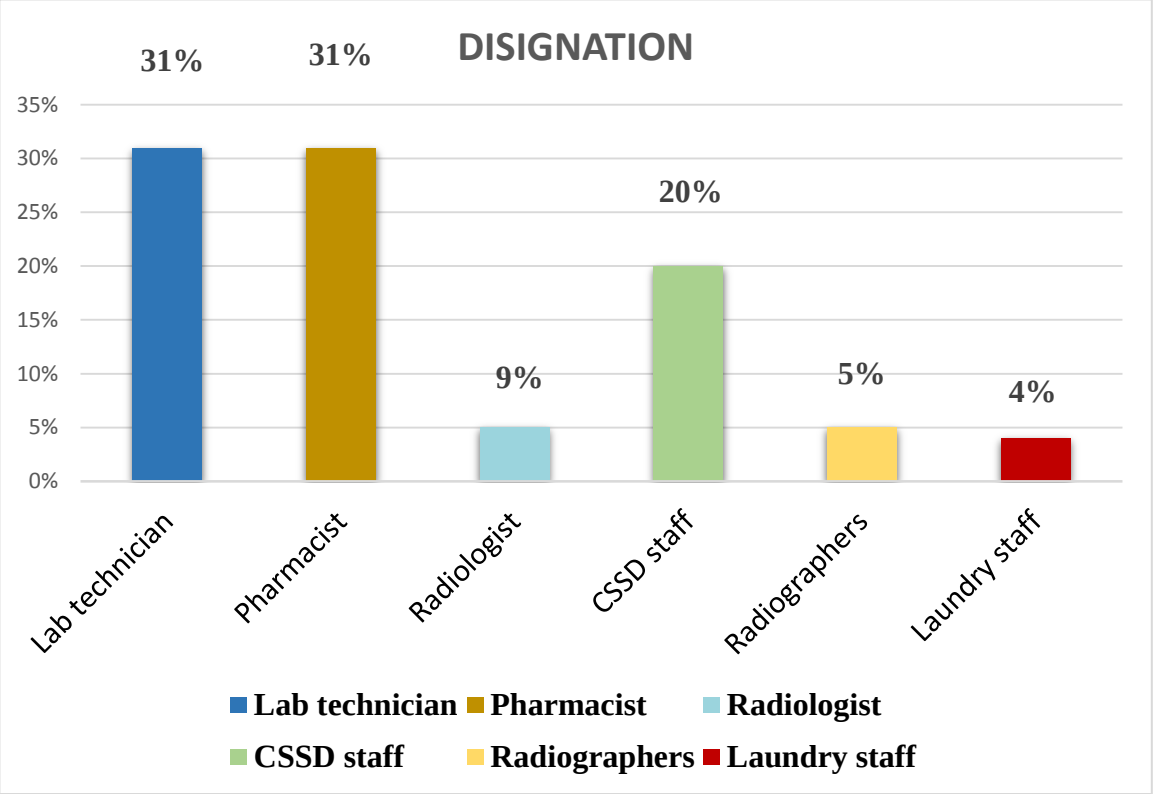


Fig .10 Distribution of Paramedical staff according to Designation

7. PREVIOUS TRAINING PROGRAMME RELATED TO CARDIOPULMONARY RESUSCITATION WITHIN 6 MONTHS OF DURATION

With regards to the previous training programme samples of 62 % (34) are trained within the 6months of duration and 38% (21) are not trained within the 6months of duration.

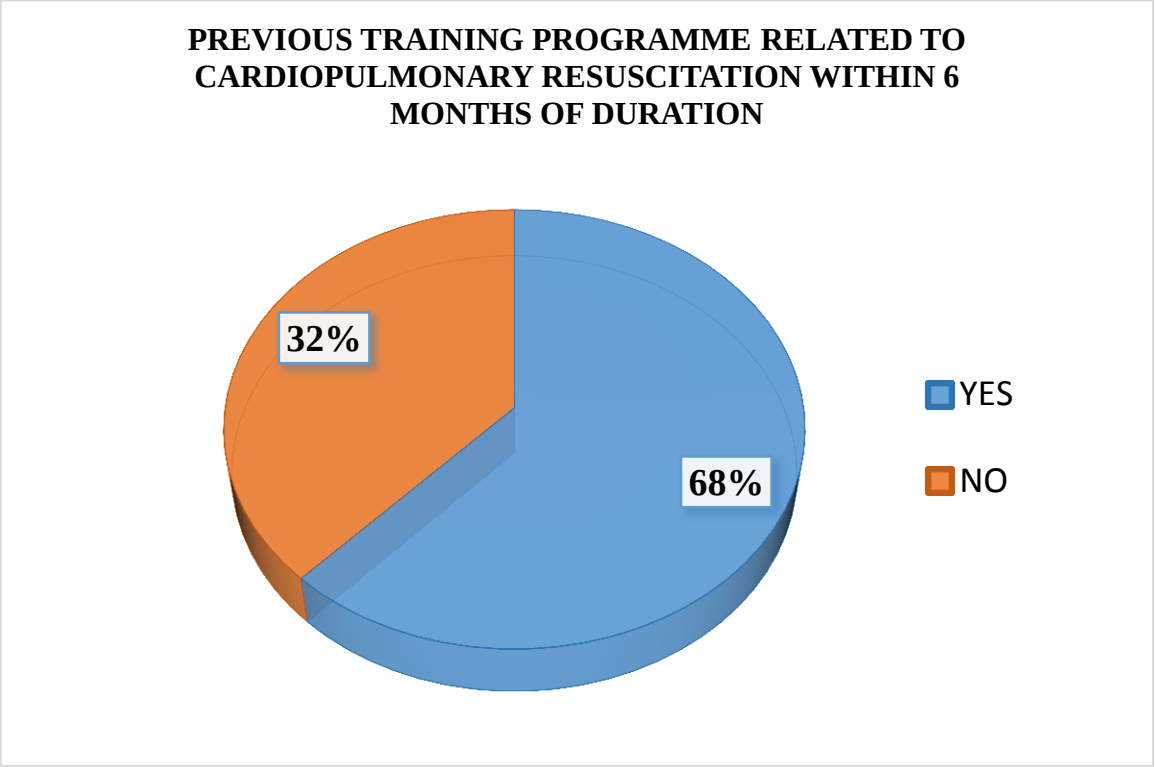


Fig .11 Distribution of paramedical staffs according to previous training programme

Section II : This Section deals with the data pertaining to the first objective of the study.

Table2: - Distribution of samples according to overall level of knowledge on Cardiopulmonary Resuscitation among Paramedical staffs.

n=55

Aspect	Knowledge scores	Score range	Frequency	**Percentage**
Knowledge Level	Inadequate knowledge	≤50% (≤15)	02	04 %
	Moderately adequate knowledge	51-75% (16-25)	22	40 %
	Adequate knowledge	>76% (26-40)	31	**56 %**

Table 2 : Shows distribution of sample overall knowledge on Cardiopulmonary Resuscitation.

The above table and the below diagram show that majority 56.36% (31) of the samples belongs to Adequate knowledge and 40% (22) samples belongs to Moderately adequate Knowledge, 3.63% (02) samples belong to Inadequate Knowledge.

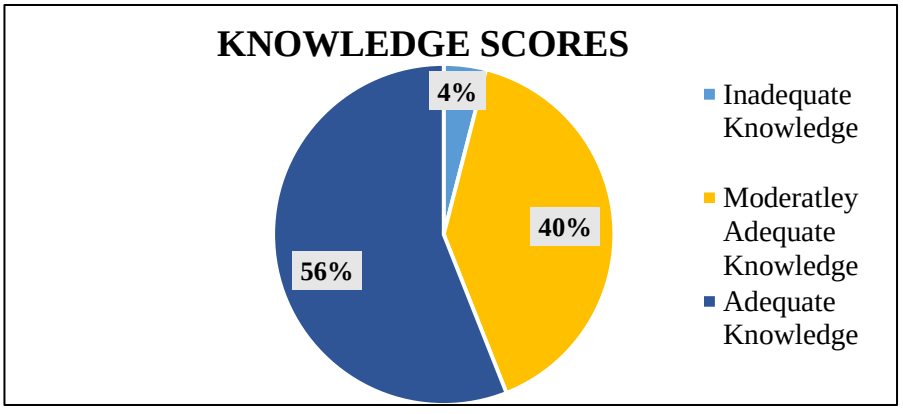


FIG.12 Distribution of Paramedical staffs according to overall knowledge on Cardiopulmonary Resuscitation

Table.3 Area distribution of knowledge scores of Cardiopulmonary Resuscitation among Paramedical staff.

SI. No	Variables	No. of items	Max. score	Range	Mean	SD	Mean%
1	General Information	12	12	3-12	8.65	2.41	30%
2	Primary Assessment	08	08	0 -8	6.07	1.52	20%
3	Circulation management	4	4	3 -11	7.20	2.32	28%
4.	Use of Defibrillation and promotion of safety	4	4	1 -11	6.10	2.30	22%

Represents that knowledge about the general information regarding Cardiopulmonary Resuscitation mean score was 8.65(SD±2.41), primary assessment scores was 6.07 (SD±1.52), Circulation management mean score was 7.20(SD+2.32), Use of Defibrillation and promotion of safety mean score was 6.10(SD± 2.30).

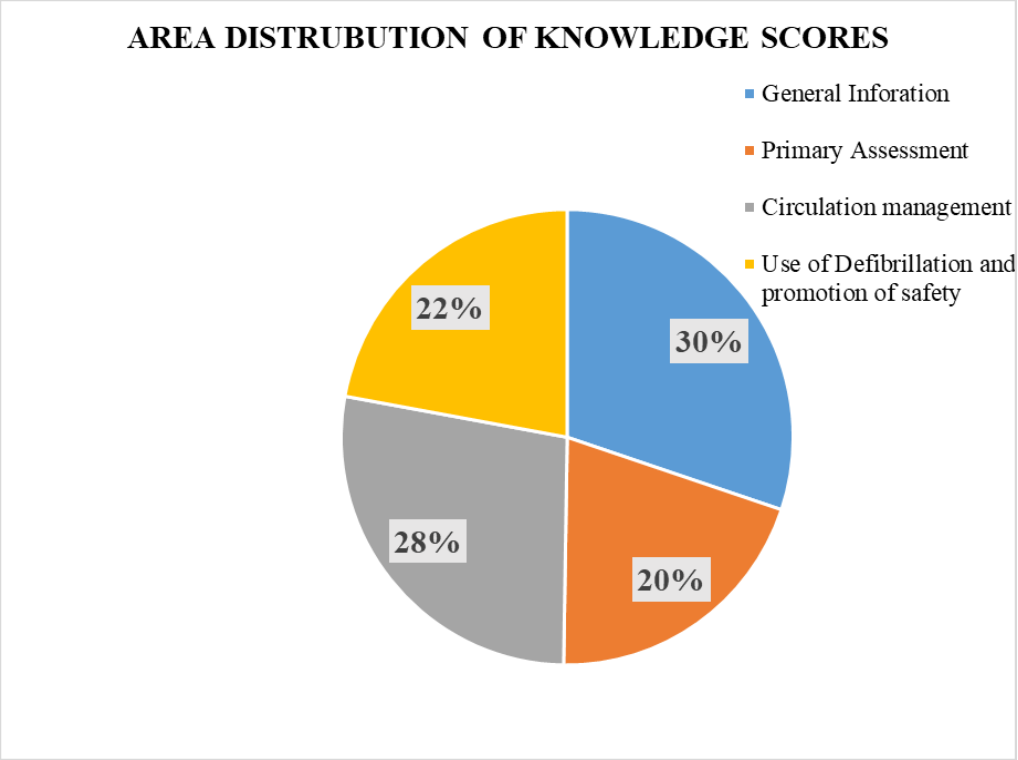


Fig 13. Distribution on area wise Knowledge scores of Paramedical Staff

SECTION: 3

Table 4: ASSOCIATION OF KNOWLEDGE SCORES OF PARAMEDICAL STAFF OF WITH SELECTED DEMOGRAPHIC VARIABLES.

Sl. No	Variables	Below Median <23.5	Median and above >23.5	Chi square	Df	P Value -0.05	Inference
1	**Age (in Years)**						
	a) 20-30	13	18	0.953	1	0.32	**NS**
	b) 31-50	7	17				
2	**Gender**						
	a) Male	15	25	0.08	1	0.47	**NS**
	b) Female	5	10				
3	**Qualification**						
	a) Diploma, Undergraduate	14	24	0.51	1	0.47	**NS**
	b) Postgraduate	8	9				
4	**Year of experience**						
	a) < 1- 2 Year	14	11	6.16	1	0.01	*SS
	b) 2 - >3 years	7	23				
5	**Specific department allotted**						
	a) Laboratory . Pharmacy, Radiology department	10	26	0.14	1	0.14	**NS**
	b)CSSD, Radiotherapy, Laundry department	9	10				

6	**Designation**						
	a) Lab technician, Pharmacist, Radiologist	10	26	2.11	1	0.14	**NS**
	b) Laundry staffs, Radiographers, CSSD staffs	9	10				
7	**Undergone previous training programme related to CPR**						
	a) Yes	6	15	0.89	1	0.34	**NS**
	b) NO	14	20				

Note: - P<0.05, NS-Not significant, SS-statistically significant, df-degree of freedom,1(3.841).

Table- 4 Reveled that there was no statistically significant association between the knowledge score and Socio demographic Variables for Age (0.953) Chi square test ,p value (0.32),01) at df (1).Regarding Gender with Chi square value (0.08) and p value (0.47), regarding Qualification with Chi square test is (0.51) and p value (0.47),revealed that there was Statistically Significant association between the Knowledge score and Socio demographic variables for Year of experience Chi square value (6.16) and p value (0.01).Regarding Specific Department allotted with Chi square value (0.14) and p value (0.14) ,regarding designation was not statistically significant with Chi square value (2.11) and p value (0.14) .Undergone Previous training programme regarding Cardiopulmonary Resuscitation is not statistically significant with Chi square value (0.89) and p value (0.34) at df-1. Thus, the stated assumption was accepted which states that there will be no significant association between the knowledge scores with selected Socio demographic variables.

SUMMARY

This chapter was dealt with the data analysis and interpretation of the data collected from the Paramedical staff. The results of the analysis showed that majority 56% (31) of the samples belongs to moderately adequate knowledge 40% (22) and 04% (02) samples belongs to inadequate knowledge. The association between knowledge scores with selected socio-demographic variable were assessed and its results revealed that variable like, Age, Gender, Designation, specific departments allotted, Designation, undergone Previous training regarding Cardiopulmonary Resuscitation are not statistically significant, were year of Experience is statistically significant.

CHAPTER – 5

SUMMARY AND CONCLUSIONS

The two main components of conventional Cardiopulmonary Resuscitation (CPR) are chest compression to make the heart pump and mouth- to-mouth ventilation to breath for the victim. The emergency substitution of heart and lung action to restore life to someone who appears dead.

This chapter deals with conclusion drawn, implication, limitations, and recommendations.

This study aimed to assess the knowledge regarding Cardiopulmonary Resuscitation among Paramedical staff with a view to develop information. A Descriptive design was used for the study. The data was collected from 55 Paramedical staff by using Structure Knowledge Questionnaire approximately 30 minutes was taken for each Paramedical staff to fill questionnaire.

The study was based on the Von Bartalanffy (1968) General system theory. It provides a schematic representation of conceptual framework for General system theory of Paramedical staff by discussing three functions of client, that were input factors (individual perception), throughput factors (Structured Knowledge Questionnaires), Participation in health behavior and the major concepts that strengthen the existing knowledge through continuous monitoring.

Major findings of the study

Description of socio-demographic variables

Results revealed that majority 54% (30) of the study sample were between the age group of <30 years , 33% (7) of them belongs to the age group of 31-40years and 13%(07) of them belongs to the age group of 41-50 years. Majority 73% (40)

of the samples were Males and 27% (15) of them were Females, majority 44% (24) of the sample were B.Sc,25 %(14) of the samples were M.Sc,18 % (10) of the samples were Diploma and 13% (07) of the samples were others (ITI, SSLC). Majority 43% (24) of the samples were >3 years ,<1 year of the samples were 21.8%(12), 1-2 years of the samples were 24 % (13),11% of the samples were 2-3 years. Specific department allotted in majority 31% (17) of Laboratory and Pharmacy department,9% (09) of Radiology Department,20% (11) of CSSD department, 5% (03)of Radiotherapy department ,4% (02) were Laundry department. Majority 31%(17) were Lab technician and pharmacist, 5% (03) were Radiologists , 9% (05) were Radiographers ,4% (02) were Laundry staff and 20% (11) were CSSD staffs .Majority 62% (34) samples were not having Previous training programme and 38% of samples attended previous training programme related to Cardiopulmonary Resuscitation within 6 months of duration .

This section deals with the data pertaining to the first objective of the study assess Knowledge on Cardiopulmonary Resuscitation among Paramedical staff.

Distribution of samples according to overall level of Knowledge.

The Over all Knowledge score was assessed out of Paramedical staff. Majority 56% (31) of the samples belongs to Adequate knowledge, 40% (22) of the samples belongs to Moderately Adequate Knowledge and 04% (02) of the samples belongs to Inadequate knowledge. There are many studies conducted which supporting to the study.

Area wise knowledge score was assessed general information regarding Cardiopulmonary Resuscitation mean score was 8.65 (SD± 2.41), primary assessment scores was 6.07 (SD±1.52), Circulation management mean score was 7.20(SD+2.32), Use of Defibrillation and promotion of safety mean score was 6.10(SD± 2.30).

This section deals with the data penetrating to the second objective of the study on association between Structured Knowledge Questionnaire scores with socio demographic variables of samples.

Conclusion

This present study focused on assess the knowledge regarding Cardiopulmonary Resuscitation among Paramedical staff working at Rural Tertiary Care Medical Teaching Hospital, Kolar, based on the findings the conclusions are presented under the following.

Based on the objectives of the study conclusion are presented under the following points.

As per the first objective of the study, findings regarding assessment of knowledge regarding Cardiopulmonary Resuscitation among Paramedical staff. The Knowledge scores assessed out of Paramedical staff majority 56% (31) of the samples belongs to Adequate knowledge , 40%(22)of the samples belongs to Moderately Adequate Knowledge and 04% (02) of the samples belongs to Inadequate knowledge.

Second objective reveals that, With regard to association: It is found to be non-significant with all the socio demographic variables for Age (0.953), Regarding Gender with Chi square value (0.08), qualification (0.51) , specific department allotted Chi square value (0.14),Designation (2.11), undergone Previous training programme related to CPR (0.89). Year of experience found to be statistically significant, at df -1 ,Residence (3.841) .

IMPLICATIONS

Sudden cardiac death is an epidemic with an extremely high mortality rate and continues to challenge emergency medical services (EMS) systems. Hands –off time, pre –shock pause ,and chest compression fraction are key modifiable aspects of high quality CPR. Ongoing attention to improving the quality of CPR provides hope that further increases in survival from OHCA are possible.

Therefore, it is crucial for health administrators to provide front-line personnel, such as emergency and Paramedical staff, with Cardiopulmonary Resuscitation – related education and training to advance their understanding and application of Cardiopulmonary Resuscitation . Learning CPR can save lives because it helps keep oxygen flowing to the brain and other vital organs when the heart stops beating or isn't circulating blood properly. It increases the likelihood of surviving cardiac arrest.

LIMITATIONS OF THE STUDY

1. The study was limited to the Paramedical staff only in Rural Tertiary Care Medical Teaching Hospital, Kolar.
2. The study did not use any control group.
3. The generalization of the study findings is not possible for small number of study sample.
4. The study does not have any intervention and assessment of its effectiveness.

RECOMMENDATIONS

- A similar study can be replicated on a large sample in different types of setting.
- A similar study can replicate with a control group.
- A similar study can replicate with True Experimental Study design.
- A similar study can replicate with a study participants as clerical ,security and other support staff involved in Health care facility.

Summary

This chapter highlighted on overall study findings, implications, limitations and recommendation of the present study. The present study clearly indicated its importance in the field of Health care provider, administration, education, and research. The researcher had strongly emphasized the necessity to meet with information needs of the Paramedical staff which will provide the better outcome of the Paramedical staff through gaining knowledge and performance.

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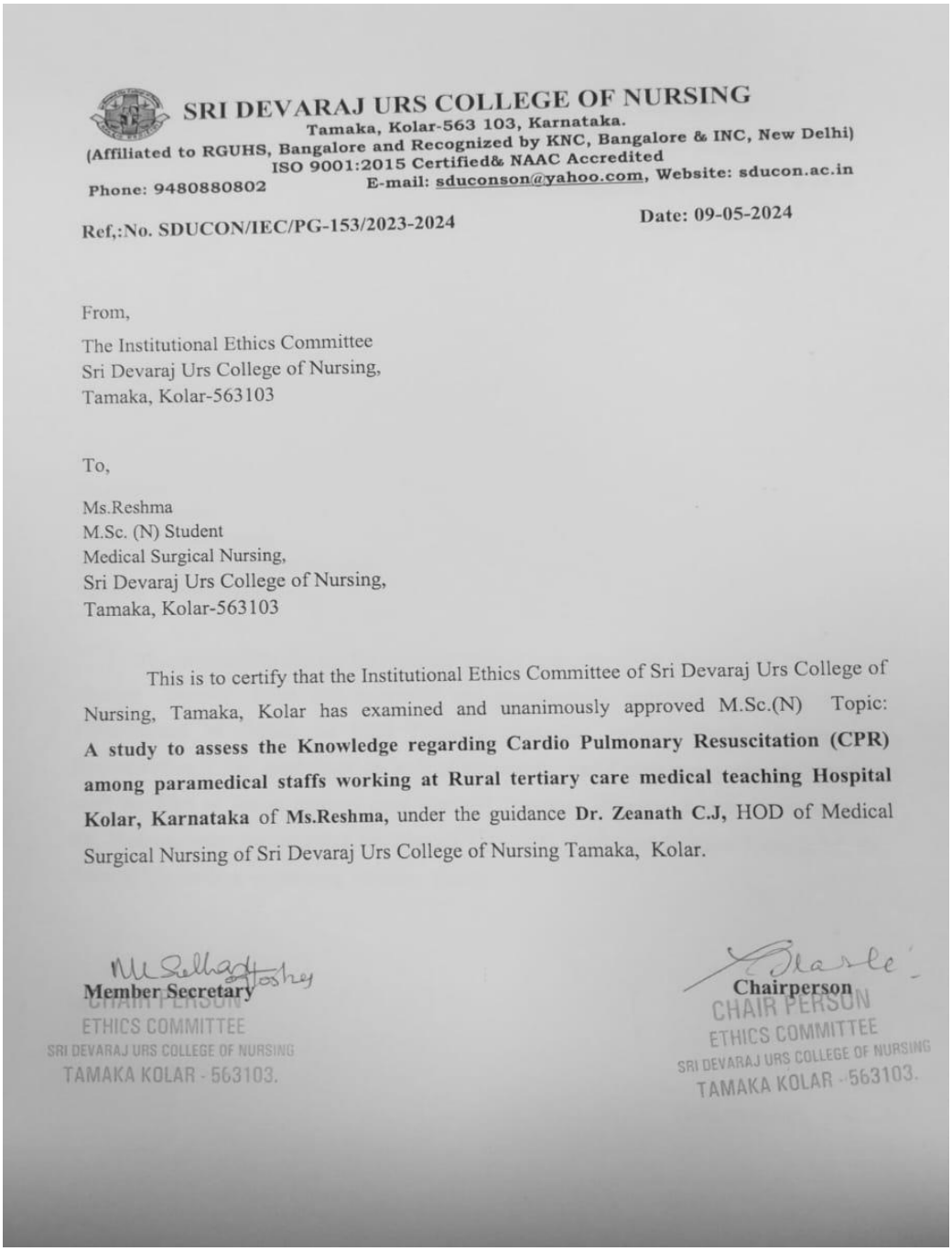
ANNAXURE-A

ETHICAL CLEARANCE COMMITTEE CERTIFICATE



SRI DEVARAJ URS COLLEGE OF NURSING
Tamaka, Kolar-563 103, Karnataka.
(Affiliated to RGUHS, Bangalore and Recognized by KNC, Bangalore & INC, New Delhi)
ISO 9001:2015 Certified& NAAC Accredited
Phone: 9480880802 E-mail: sduconson@yahoo.com, Website: sducon.ac.in

Ref,:No. SDUCON/IEC/PG-153/2023-2024 Date: 09-05-2024

From,

The Institutional Ethics Committee
Sri Devaraj Urs College of Nursing,
Tamaka, Kolar-563103

To,

Ms.Reshma
M.Sc. (N) Student
Medical Surgical Nursing,
Sri Devaraj Urs College of Nursing,
Tamaka, Kolar-563103

This is to certify that the Institutional Ethics Committee of Sri Devaraj Urs College of Nursing, Tamaka, Kolar has examined and unanimously approved M.Sc.(N) Topic: **A study to assess the Knowledge regarding Cardio Pulmonary Resuscitation (CPR) among paramedical staffs working at Rural tertiary care medical teaching Hospital Kolar, Karnataka** of **Ms.Reshma,** under the guidance **Dr. Zeanath C.J,** HOD of Medical Surgical Nursing of Sri Devaraj Urs College of Nursing Tamaka, Kolar.

Member Secretary

CHAIR PERSON
ETHICS COMMITTEE
SRI DEVARAJ URS COLLEGE OF NURSING
TAMAKA KOLAR - 563103.

Chairperson

CHAIR PERSON
ETHICS COMMITTEE
SRI DEVARAJ URS COLLEGE OF NURSING
TAMAKA KOLAR - 563103.

ANNEXURE-B

LETTER REQUESTING PERMISSION FOR CONDUCTING RESEARCH STUDY

PERMISSION TO CONDUCT STUDY

From,
Ms. Reshma B
I year M.Sc. (Nursing)
Sri Devaraj Urs College of Nursing
Tamaka, Kolar – 563101.

Date: 16/07/2024
Place: Kolar.

To,
The Medical Superintendent,
R L Jalappa Hospital and Research Centre,
Tamaka, Kolar- 563101.

Respected Madam / Sir,

Through the Guide and Principal, SDUCON, Kolar.

Sub: Requesting permission to collect data from Paramedical staffs about Cardiopulmonary Resuscitation.

With the subject to the above, I the under signed student of I year MSc Nursing under the Department of Medical-Surgical Nursing specialty would like to collect data for the mini research study on "A study to assess the Knowledge regarding Cardiopulmonary Resuscitation among Paramedical staffs working at Rural Tertiary Care Medical Teaching Hospital Kolar, Karnataka" as a partial fulfilment of my MSc Nursing curricular requirement.

Hence I request you to grant permission to collect data from Paramedical staffs (Departments of Pharmacy, Central Laboratory, Radiology, Radiotherapy, CSSD and Laundry) of RLJH and RC and do the needful. Here with I am enclosing my research objectives, tool and ethical clearance for your kind consideration.

Thanking you

Yours faithfully,
Ms. Reshma B

Enclosure:
- **Synopsis**
- **Tool**

Copy to:
- The Lab Director, Central Laboratory, RLJH &RC, Tamaka, Kolar
- The Hod of Pharmacy, RLJH &RC, Tamaka, Kolar
- The Hod of Radiology, RLJH &RC, Tamaka, Kolar
- The Hod of Radiation Oncology, RLJH &RC, Tamaka, Kolar
- The Incharge, CSSD, RLJH &RC, Tamaka, Kolar
- The Incharge Laundry section, RLJH &RC, Tamaka, Kolar

Permitted

Sir, kindly consider for needful permission from various section heads of support services. 16/07/2024.

Medical Superintendent
R.L. Jalappa Hospital & Research Centre
Tamaka, Kolar-563103.

Prof. & HOD
Dept. of Radio-diagnosis
Sri Devaraj Urs Medical College
Tamaka, Kolar-563101.

HEAD PHARMACIST
CENTRAL STORE

C.S.S.D. Supervisor
R.L.J. Hospital & Research Centre
Tamaka, Kolar-563 101.

ANNEXURE –C

LETTER REQUESTING OPINIONS AND SUGGESTIONS OF EXPERTS FOR ESTABLISHING CONTENT VALIDITY OF RESEARCH TOOL

From,

Miss. Reshma B
I year M.Sc. (N) Student
Sri Devaraj Urs College of Nursing
Tamaka, Kolar

TO,

(Through the proper channel)

Respected Sir/ Madam,
Sub: Request for opinion and suggestions of experts for establishing content validity of research

Tool -reg.

I **Miss. Reshma B** postgraduate student (Medical Surgical Nursing Specialty) of Sri Devaraj Urs College of Nursing, Tamaka, Kolar has selected the below mentioned topic for my project, for the fulfillment of Masters of Nursing Degree.

TITLE OF THE TOPIC: **"A study to assess the Knowledge regarding Cardiopulmonary Resuscitation among Paramedical staff working at Rural Tertiary Care Medical Teaching Hospital Kolar, Karnataka**". With regards to the above may I kindly request you to validate the tool (Structured Interview schedule) for its appropriateness and relevancy. I am, here with enclosing the objectives of the study, criteria rating scale for your reference. I would be highly obliged and remain thankful for your great help.

Thanking You

Yours Sincerely,
(Miss.Reshma B)

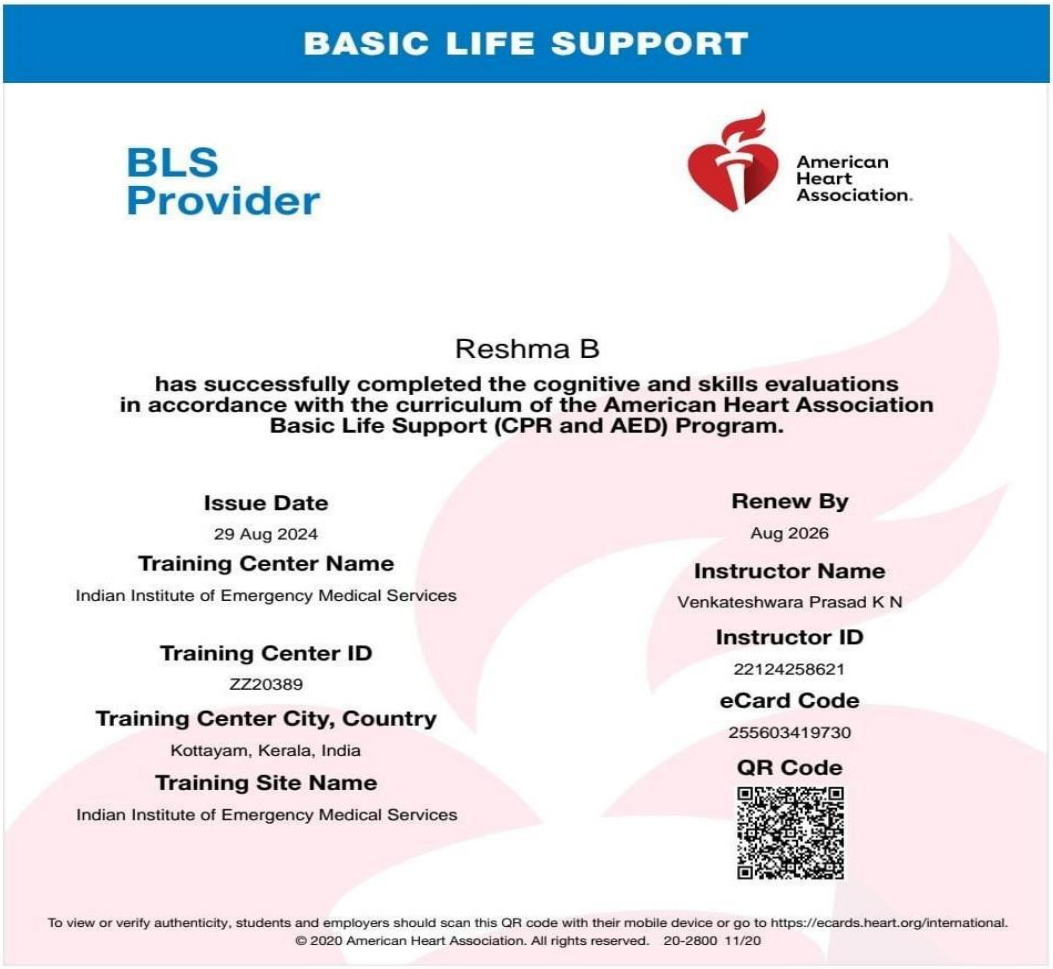
Enclosures:
1) Structured interview schedule.
2) Criteria rating scale.
3) Content validity certificate.
4) Self addressed envelope.

Date:
Place:

Signature of Expert with Designation

ANNEXURE - D

BASIC LIFE SUPPORT CERTIFICATE



BASIC LIFE SUPPORT

BLS Provider

American Heart Association.

Reshma B

has successfully completed the cognitive and skills evaluations in accordance with the curriculum of the American Heart Association Basic Life Support (CPR and AED) Program.

Issue Date
29 Aug 2024

Training Center Name
Indian Institute of Emergency Medical Services

Training Center ID
ZZ20389

Training Center City, Country
Kottayam, Kerala, India

Training Site Name
Indian Institute of Emergency Medical Services

Renew By
Aug 2026

Instructor Name
Venkateshwara Prasad K N

Instructor ID
22124258621

eCard Code
255603419730

QR Code

To view or verify authenticity, students and employers should scan this QR code with their mobile device or go to https://ecards.heart.org/international.
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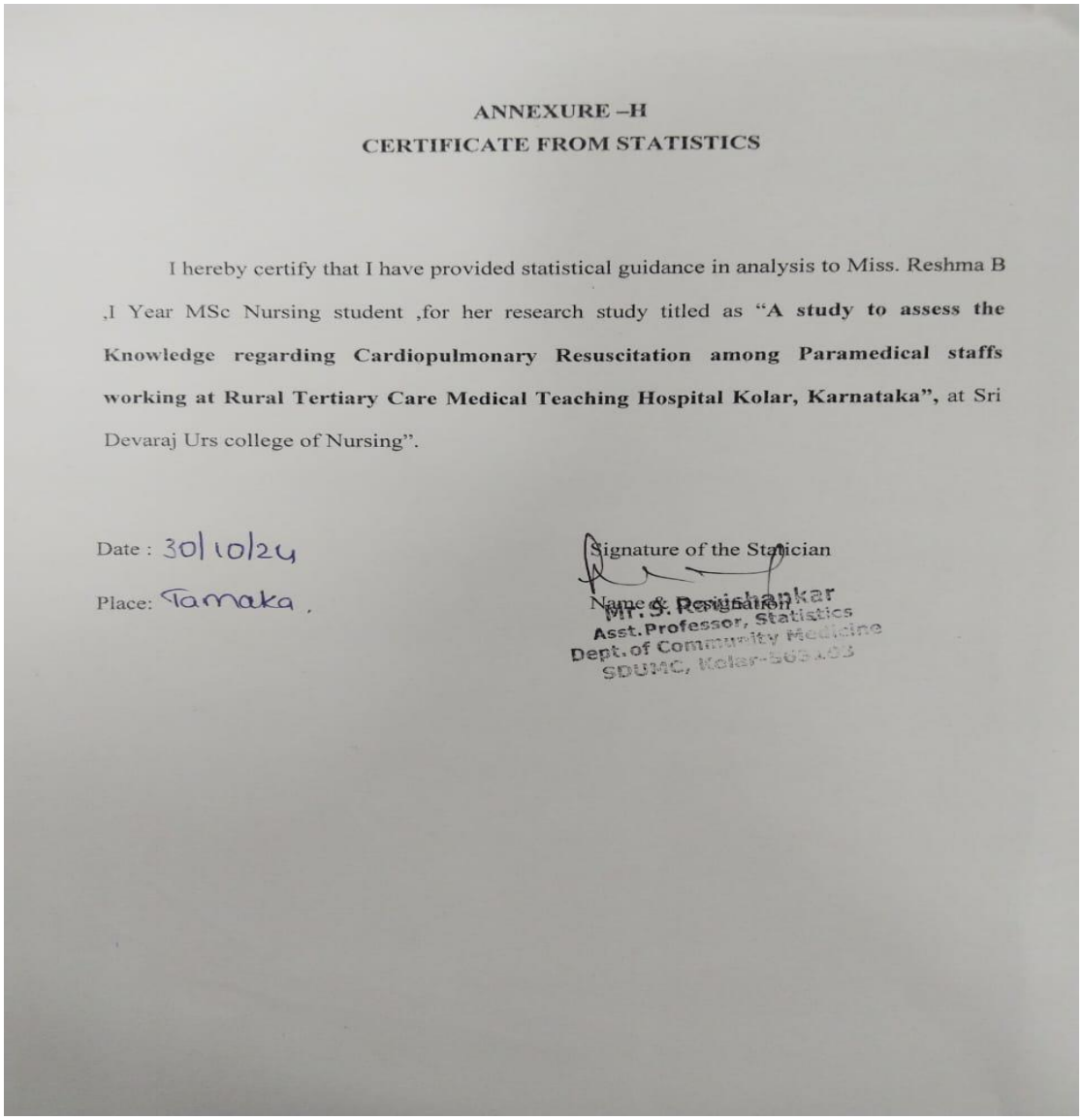
ANNEXURE – E

CERTIFICATE FROM STATISTICS



ANNEXURE –H

CERTIFICATE FROM STATISTICS

I hereby certify that I have provided statistical guidance in analysis to Miss. Reshma B ,I Year MSc Nursing student ,for her research study titled as **"A study to assess the Knowledge regarding Cardiopulmonary Resuscitation among Paramedical staffs working at Rural Tertiary Care Medical Teaching Hospital Kolar, Karnataka",** at Sri Devaraj Urs college of Nursing".

Date : 30/10/24

Place: Tamaka.

Signature of the Statician

Name & Designation

Mr. S. Ravishankar
Asst. Professor, Statistics
Dept. of Community Medicine
SDUMC, Kolar-563103

STRUCTURE KNOWLEDGE QUESTIONNAIRES ARE RELATED TO CARDIOPULMONARY RESUSCITATION AMONG PARAMEDICAL STAFF

There researcher introduces herself and explains the purpose of the study.

Kindly answer to all questions and select appropriate answer to all questions of your choice.

- Your answer will be kept confidential.
- Please be free and frank in answering the questions.
- Each correct answer carries one score.
- Each wrong answer carries zero score.

SECTION–A: SOCIO-DEMOGRAPHIC DATA

1.**Age in years**

A. 20 - 30 years
B. 31-40years
C. 41-50 years

2.Gender

A. Male
B. Female

3.Qualification

A. Diploma
B. Under graduate
C. Post graduate
D. Others

4.**Year of experience**

A. < 1 years
B. 1-2 years
C. 2-3 years
D. > 3years

5. **Specific department allotted**

A. Laboratory department
B. Pharmacy department
C. Radiology department
D. CSSD department
E. Radiotherapy department
F. Laundry department

6.Designation

A. Lab technician
B. Pharmacist
C. Radiologist
D. Laundry staff
E. Radiographers
F. CSSD staff

7.**Have you undergone previous training programme related to Cardiopulmonary Resuscitation within 6 months of duration.**

A. Yes
B. No

If yes, specify your previous training _____.

SECTION B:

STRUCTURED KNOWLEDGE QUESTIONNAIRES

Questions related to General information on Cardiopulmonary Resuscitation (CPR).

1.A technique used in emergency when a person's heart beat and breathing have stopped is called as_____.

A. Cardio pulse Resuscitation

B. Cardiopulmonary Resuscitation

C. Cardiopulmonary Rescue

D. Compression pulse Resuscitation

2.Purpose of performing CPR is _____.

A. To Circulate oxygenated blood to the vital organs

B. To Circulate deoxygenated blood to the vital organs

C. To relax the body organs

D. To wake up the victim

3.In CPR, the CAB sequence stands for_____.

A. Chest Compression, Arrest, Breathing

B. Cardiac, Airway, Breathing

C. Chest Compression, Airway, Breathing

D. Carotid pulse, Airway, Breathing

4.If there is no chest rise, no carotid pulse and unconscious, then the patient is in ___

A. Cardiac arrest

B. Respiratory failure

C. Kidney failure

D. Stroke

5.The indication to perform CPR is_____.

A. Choking

B. Cardiac arrest

C. Dizziness

D. Heart burn

6.The first link in the adult chain of survival is _____. .

A. Preventing heart disease

B. Early CPR

C. Avoiding tobacco use

D. Early recognition

7.The Carotid artery is located at _____.

A. Elbow joint

B. Below the sternum

C. The groin

D. Either side of neck

8.The effective CPR indicates _____.

A. Respiratory rate improves

B. Chest rise

C. Pulse improves

D. None of these

9. The sequence of performing CPR helps to _____.

A. Patient will die

B. Improve a victim's chances of survival

C. Improves the respiratory rate

D. Improves the pulse rate

10. The contraindication to CPR, except _____.

A. Do - not – resuscitate (DNR) order

B. Airway obstruction

C. Dead body

D. Trauma to chest wall

11. A possible complication of performing CPR is _____.

A. Broken ribs

B. Improved blood circulation

C. Increased heart rate

D. Decreased oxygen levels

12. The following sign would indicate that CPR was effective by _____.

A. The appearance of mottling

B. Dilation of pupils

C. Palpable peripheral pulses

D. Cool, dry skin

Questions related to Primary assessment on Cardiopulmonary Resuscitation (CPR).

13. The first step in performing CPR is .

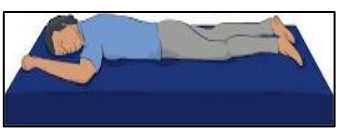
A. Call 108

B. Check for breathing

C. Provide chest compressions

D. Check the scene safety

14. If the victim is found face down, the rescuer should be _____.



A. Grab a stretcher and move the victim to a more secure area

B. Turn the victim's head so it is face up

C. Tap the victim and shout "Are you Ok?"

D. Roll face up supporting the head, neck and back in a straight line

15. If a man doesn't respond when you touch his shoulder and shout "Are you alright" what should be your next action ___.

A. Check his pulse

B. Start high quality CPR

C. Start providing Rescue breath

D. Call for help

16. The duration of checking Carotid pulse in CPR is_____.

A. 2 - 4 seconds

B. 5-10seconds

C. < 2seconds

D. >10 seconds

17.The emergency medical number in case of out of hospital cardiac arrest and to communicate clearly to get an AED .

A. 116

B. 108

C. 101

D. 109

18. The following helpline number for the activation of any Cardiac emergency in hospital is .

A. 999

B. 555

C. 444

D. 108

19. During Cardiac arrest, the following code will be activated .

A. Code Blue

B. Code Red

C. Code Pink

D. Code Brown

20. During performing CPR procedure, the victims should be lies on _____.

A. Rocky surface

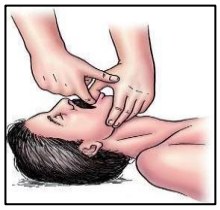
B. Soft Curved surface

C. Flat and firm surface

D. Wet surface

Questions related to Circulation Management on Cardiopulmonary Resuscitation (CPR).

21. The best way to open an airway of an unresponsive victim with no suspected neck injury .

A. 

B. 

C. 

D. 

22. A victim probably has a neck injury, the correct way to open the airway is _____.

A. Head tilt chin lift.

B. Jaw thrust.

C. Open mouth with tongue depressor.

D. None of the above

23. The best location for giving chest compressions _____.

A. Lower half of the sternum

B. Middle of the sternum

C. Upper half of the sternum

D. Over the ribs

24. While performing CPR your chest compressions should be .

A. Gentle and slow

B. Hard and fast, with as few interruptions as possible

C. Gentle but fast

D. Hard but slow with frequent interruptions to check for a pulse

25. The compression rate and rescue breath ratio recommended for performing CPR is .

A. 60 :3

B. 30 :2

C. 100:2

D. 50 :2

26. The chest compressions to be most effective the rescuer as to _____.

A. Allow the chest on release to return to its normal position

B. Use a compression/ release series of 1/2down stroke and 1/2upstroke

C. Maintain proper hand position

D. All of the above

27. The recommended depth for chest compressions for an average adult is _____.

A. One – third of the chest wall

B. Two -third of the chest wall

C. No any recommendations

D. Depends on rescuer strength

28. The rate of chest compressions should be given per minute is _____.

A. 30-50 chest compressions

B. 50-80 chest compressions

C. 100 -120 chest compressions

D. 120-150 chest compressions

29. Each of the rescue breaths should be _____.

A. 1 second

B. 2 second

C. 4 second

D. 5 second

30. The complete chest recoil contribution to effective CPR is to _____.

A. Allows maximum blood return to the heart

B. Reduces rescuer fatigue

C. Reduces the risk of rib fractures

D. Increases the rate of chest compressions

31. The placement of bag valve mask during CPR is _____.

A. C and E technique and Head tilt

B. C technique and jaw thrust

C. Head tilt technique

D. Jaw thrust technique

Questions related to use of Defibrillator and promotion of safety of the individual.

32. A portable medical device that delivers a shock to the heart through the chest wall in order to restore normal heart rhythm is called as ___.

A. ECG machine

B. AED machine

C. Ventilator

D. Glucometer

33. The abbreviation for AED is _____.

A. Airway External Defibrillator

B. Automated Electrical Defibrillator

C. Automated External Defibrillator

D. Automated effective Defibrillator

34. AED can be used for _____

A. Children

B. Adult

C. Pregnant woman

D. All of the above

35. As the AED arrives, the rescuer need to _____.

A. Place the AED pads on the chest

B. Deliver 2 rescue breaths before using the AED

C. Turn on the AED

D. Complete 5 cycles of chest compressions

36. The proper placement of AED pads is _____.

A. Chest and stomach

B. Upper left and lower right side of the chest.

C. Upper right and lower left side of the chest.

D. Upper right and upper left side of the chest.

37. AED analyzing the heart rhythm ensure that _____.

A. no one, including you, is not touching the victim

B. the victim's airway is open

C. the victim is breathing

D. only rescuer can touch the person

38. The immediate action to be taken after delivering a shock with an AED is to _____.

A. Start CPR again with chest compressions.

B. Check the victim for a pulse.

C. Wait for the AED's instructions.

D. Deliver two rescue breaths.

39. The compressions should be stopped during the CPR , .

A. When we are checking pulse

B. When AED analyzing rhythm

C. When AED delivering shock

D. When patient is retrieved

E. All of the above

40. When the patient pulse felt, drooling of secretions, during compressions, after patient is retrieved, the next step is ___.

A. Supine position

B. Lateral position

C. Prone position

D. Recovery position Criteria rating scale for validating the content of the Knowledge

Questionnaire on Knowledge regarding disaster preparedness.

Respected Sir/Madam,

Kindly go through the content and rate the content in the appropriate columns given and your expert opinion in the remarks column.

SL. NO	Item	Very Relevant	Relevant	Needs Modification	Not Relevant
Section – A Demographic Data					
1	Age				
2	Gender				
3	Qualification				
4	Year of experience				
5	Specific department allotted				
6	Designation				
7	Undergone previous training Programme				
Section – B Structured Knowledge Questionnaire on Cardiopulmonary Resuscitation					
SL NO	**Item**	**Very Relevant**	**Relevant**	**Need Modification**	**Not Relevant**
1.					
2.					
3.					
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34.					
35.					

ANNEXURE –F

CONTENT VALIDITY CERTIFICATE

I hereby certify that I have validated the tool of Miss. Reshma B, I year MSC (Nursing) student of Sri Devaraj Urs College of Nursing , Tamaka ,Kolar, who is undertaking a research project as a fulfillment of Master of Science in nursing degree on:

"A study to assess the Knowledge regarding Cardiopulmonary Resuscitation among Paramedical staff working at Rural Tertiary Care Medical Teaching Hospital Kolar, Karnataka".

Signature of Expert with Designation

Date :

Place :

ANNEXURE –G

WRITTEN INFORMED CONSENT FORM

Study Title: "A study to assess the Knowledge regarding Cardiopulmonary Resuscitation among Paramedical staff working at Rural Tertiary Care Medical Teaching Hospital Kolar, Karnataka".

Code Number: I confirm that I have read and understood the information given to me about this study and my role in it. I had opportunities to ask questions and questions have been answered to my satisfaction. (Or)

I confirm that all information about this study and my role in it has been read / explained to me by a member of the investigating team in a language that I understand. I had opportunities to ask questions and questions have been answered to my satisfaction.

b) I understand that my participation in this study is voluntary and that I am free to withdraw from the study at any time, without giving any reason and legal rights being affected.

c) I understand that my identity will not be revealed in any document or publication.

d) I agree not to restrict the use/publication of any data or results that arise from this study provided such use is only for scientific purposes.

e) I am aware that by agreeing to my participation in this investigation, I will have to give time for learning and assessment by the investigating team and that these assessments will not interfere with the benefits that I am entitled to or my daily routine.

f) I give my consent, voluntarily to take part in this study. I also agree for the investigator to record my score of assessment done in the classroom whenever they are held.

Signature (or thumb impression) of the study participants /Legally Acceptable Representative:

Study participant signature/Thumb impression: _____

Signature/Thumb impression of Witnesses: _____

Study Investigator's Signature: _____

For any clarification you are free to contact the investigator: _____

ANNEXURE –H

LIST OF EXPERTS

Dr.G.Vijayalakshmi
Principal of SDUCON.
Tamaka, kolar-563103.

Dr. Lavanya Subhashini.
Vice principal of SDUCON
Tamaka,kolar-563103.

Mrs. Jairakini Aruna
Prof & HOD
Dept. Mental Health Nursing,
SDUCON,Tamaka, Kolar

Mrs . Punitha
Prof & HOD of OBG,
SDUCON
Tamaka,Kolar

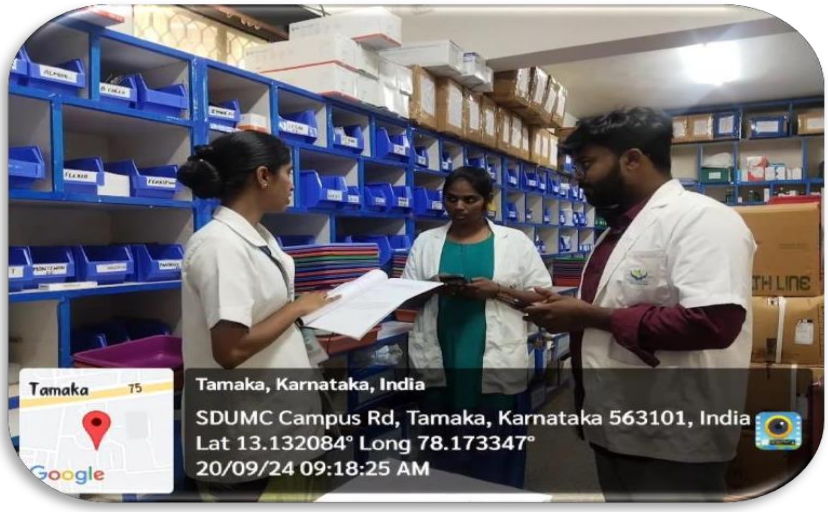
Dr.Malathi.K.V
Prof & HOD
Dept. Community Health Nursing,
SDUCON, Tamaka ,Kolar

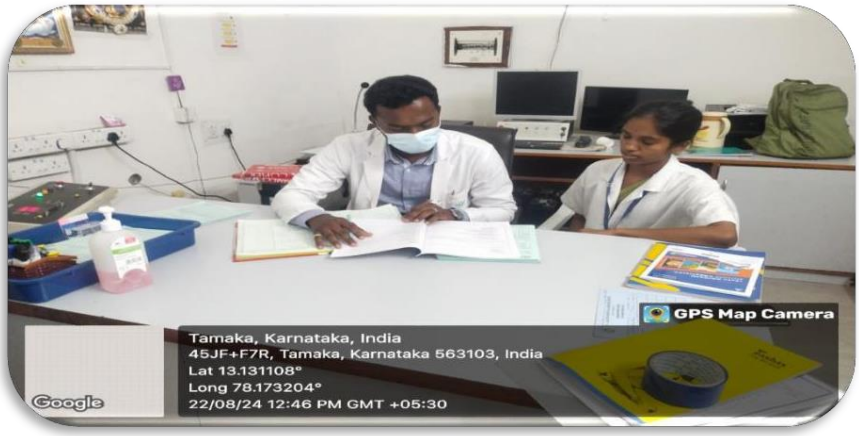
Mrs Gayathri K V
Associate professor
Dept. of OBG,
SDUCON
Tamaka, Kolar

Mrs .Vani R
Assistant professor
Dept. of Community Health Nursing,
SDUCON, Tamaka, Kolar

Mrs.Umadevi
Assistant professor
Dept. of MSN, SDUCON
Tamaka, Kolar

PHOTOS ON DATA COLLECTION






Tamaka, Karnataka, India
SDUMC Campus Rd, Tamaka, Karnataka 563101, India
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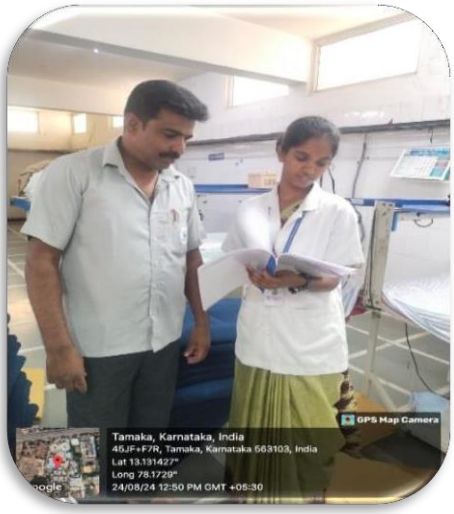
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45JF+F7R, Tamaka, Karnataka 563103, India
Lat 13.131427°
Long 78.1729°
24/08/24 12:50 PM GMT +05:30


GPS Map Camera
Tamaka, Karnataka, India
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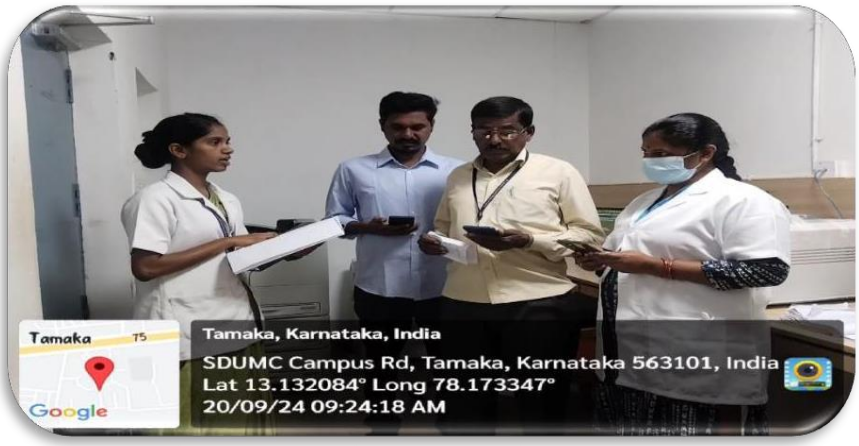
Tamaka
Google
Tamaka, Karnataka, India
SDUMC Campus Rd, Tamaka, Karnataka 563101, India
Lat 13.132084° Long 78.173347°
20/09/24 09:24:18 AM

STRUCTURED KNOWLEDGE QUESTIONNAIRES

ANSWER KEYS

Q.NO.	ANSWERS	Q.NO.	ANSWERS
1.	B	2.	A
3.	C	4.	A
5.	B	6.	B
7.	D	8.	B
9.	B	10.	B
11.	A	12.	C
13.	D	14.	D
15.	A	16.	B
17.	B	18.	C
19.	A	20.	C
21.	B	22.	B
23.	B	24.	D
25.	B	26.	D
27.	A	28.	C
29.	A	30.	A
31.	A	32.	B
33.	C	34.	D
35.	C	36.	C
37.	A	38.	A
39.	E	40.	D

Master Coding Sheet

DEMOGRAPHIC VARIABLES							STRUCTURAL KNOWLEDGE QUESTIONNAIRE																																									
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33	Q34	Q35	Q36	Q37	Q38	Q39	Q40	total
a	b	c	a	b	b	a	1	1	1	1	1	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	15
a	b	b	b	a	a	b	1	1	0	1	1	0	1	0	0	1	0	0	1	0	0	1	1	1	0	1	1	0	1	0	1	1	0	1	0	1	1	0	0	0	1	0	0	1	1	0	21
a	b	c	a	b	b	b	1	0	1	1	1	0	1	1	0	1	0	1	1	0	1	1	1	1	0	1	1	0	1	1	1	0	0	1	0	1	1	1	0	1	0	0	1	0	0	0	24
a	a	b	a	a	a	a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	0	1	1	0	1	0	0	0	1	1	0	0	1	31
a	a	b	b	b	b	b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	30
a	a	b	b	b	b	b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23
a	a	b	d	e	c	b	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	1	0	0	0	1	1	0	0	1	1	1	0	1	1	1	1	1	1	0	0	1	0	1	27
a	a	b	a	e	c	b	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	0	0	0	1	1	0	0	1	1	1	0	1	1	1	1	1	1	0	0	1	0	1	28
c	a	b	d	e	d	b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	26
a	a	a	a	a	a	a	1	1	1	0	1	0	1	1	1	0	0	0	0	1	0	1	1	0	0	1	1	1	1	0	1	0	0	1	0	1	0	1	1	1	0	0	1	0	0	0	21
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b	b	b	b	a	a	a	1	1	0	0	0	1	1	1	1	0	1	0	1	1	1	1	1	0	0	0	1	0	1	0	1	0	0	0	1	1	0	0	1	0	1	0	0	1	0	1	21
a	a	b	b	a	a	a	1	1	1	1	1	0	1	1	1	0	1	0	1	1	1	1	1	0	1	1	1	1	1	0	0	1	0	1	1	1	1	1	0	0	1	1	1	1	1	1	31
a	b	a	b	a	a	a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	28
b	a	a	d	a	a	a	1	1	1	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	31
b	a	a	d	a	a	a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	39
b	b	a	d	a	a	a	1	1	1	1	0	1	1	1	0	1	1	1	1	1	0	1	1	0	1	1	1	1	0	0	1	1	0	1	1	1	0	1	0	1	1	0	1	1	1	1	30
b	b	a	d	a	a	a	1	1	1	1	1	1	1	0	0	1	0	0	1	1	0	1	1	0	1	1	1	1	0	0	0	1	0	0	1	1	0	1	1	1	1	0	0	1	0	1	25
b	b	b	d	a	a	a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	39
a	a	c	c	a	a	a	1	1	0	1	1	0	0	1	1	0	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	1	0	1	0	1	1	1	1	0	0	1	1	0	28
c	a	b	d	d	f	a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	38
b	a	b	d	b	b	b	0	1	1	1	1	1	1	1	1	1	0	0	1	1	0	1	0	1	0	1	0	1	0	0	1	1	0	0	1	1	1	0	1	1	0	0	0	1	0	1	24
b	b	b	d	b	b	b	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	39
b	a	b	d	b	b	b	1	1	1	0	0	1	1	0	0	1	0	0	1	1	1	1	1	0	1	1	0	1	0	0	1	1	0	1	1	1	1	1	1	1	1	0	1	0	0	1	26
b	a	b	d	b	b	b	1	1	1	1	1	1	1	1	0	1	0	0	1	1	0	1	1	1	1	1	1	1	0	0	1	1	0	1	1	1	0	0	1	0	1	0	1	1	0	1	28
b	a	b	d	b	b	b	1	1	1	1	1	1	1	1	0	1	0	0	1	1	0	1	1	0	1	1	1	1	0	0	1	1	0	1	1	1	0	1	1	1	1	1	1	1	0	1	30
b	a	b	d	b	b	b	1	1	1	1	1	1	1	1	0	1	0	0	1	1	0	1	1	0	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	0	1	1	0	1	31
b	a	b	d	b	b	b	1	1	1	1	1	1	1	1	0	1	0	0	0	1	0	1	1	0	1	1	1	1	1	0	1	1	0	1	1	1	0	0	1	1	1	0	1	1	0	1	28
a	b	b	c	b	b	b	1	1	1	1	1	1	1	1	0	1	0	0	1	1	0	1	1	0	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	32
a	b	b	b	a	a	a	1	1	0	1	1	0	0	1	0	0	1	1	1	1	0	1	1	0	0	1	0	0	1	0	1	0	0	0	0	1	1	1	0	1	1	1	1	1	0	0	22
b	a	d	d	f	e	a	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	0	0	0	0	1	0	1	0	0	1	0	1	0	1	0	1	0	0	1	0	1	0	0	0	21
c	a	a	d	f	e	a	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	0	0	1	0	0	1	0	1	1	0	1	0	1	1	1	1	1	1	1	1	0	0	1	29
a	a	b	a	d	f	a	1	1	1	0	1	1	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	15
a	b	c	b	b	b	b	1	0	0	1	1	0	0	1	0	0	0	1	1	1	1	1	1	0	0	1	0	1	1	0	0	1	0	0	0	1	0	1	1	1	1	0	0	1	0	0	20
a	a	c	b	b	b	b	1	1	0	1	1	1	0	1	0	0	0	0	1	1	0	1	1	1	0	0	0	1	1	0	1	1	0	0	0	1	0	1	1	1	1	0	1	1	1	0	23
b	a	c	d	b	b	b	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	0	1	0	1	1	1	0	0	0	1	0	1	1	0	1	0	0	0	1	0	1	1	1	27
a	a	c	c	b	b	b	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	35
b	b	a	c	a	d	a	1	0	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	0	1	0	1	0	30
a	a	c	b	c	d	a	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	0	0	0	0	0	31
a	b	a	a	a	a	a	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	30
a	b	c	b	a	a	a	1	1	0	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	31
a	a	c	b	e	e	b	1	1	0	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	27
b	a	d	d	d	f	b	1	1	1	1	1	0	1	0	0	1	0	0	1	1	1	1	1	0	1	0	1	0	1	0	0	0	0	0	1	1	0	1	1	1	1	0	0	0	0	1	22
c	a	b	c	d	f	b	1	1	1	1	1	0	1	0	0	1	0	0	1	1	1	1	1	0	1	0	1	0	1	0	0	0	0	0	1	1	0	1	1	1	1	0	0	0	0	1	22
a	a	b	a	d	f	b	1	1	1	1	1	1	0	0	0	1	0	0	1	1	1	1	1	0	1	0	1	0	1	0	0	0	0	0	1	1	0	1	1	1	1	0	0	0	0	1	22
c	a	a	d	d	f	b	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	0	1	0	1	0	1	0	1	0	0	0	0	0	1	1	0	1	1	1	1	0	0	0	0	1	20
a	a	d	a	d	f	b	1	1	1	1	1	0	1	0	0	1	0	0	1	1	1	1	1	0	1	0	1	0	1	0	0	0	1	0	1	1	0	1	1	1	1	0	0	0	0	1	23
a	a	d	a	d	f	b	1	1	1	1	1	0	1	0	0	1	0	0	1	1	1	1	1	0	1	0	1	0	1	0	0	0	0	0	1	1	0	1	1	1	1	0	1	0	0	1	23
a	a	b	a	d	f	b	1	0	0	1	0	1	1	0	0	0	0	0	0	1	0	0	0	1	1	0	1	0	1	0	0	0	0	0	1	1	0	1	1	1	1	0	1	0	0	1	17
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a	a	d	a	d	f	b	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	37
b	a	a	d	c	d	b	1	1	1	1	0	1	1	1	0	1	0	0	0	0	1	0	0	1	1	0	0	1	1	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	1	1	19
c	a	a	d	c	d	b	1	0	1	0	1	0	1	0	0	0	0	1	0	1	0	1	0	0	1	1	0	1	1	0	1	1	0	1	1	1	0	0	0	1	0	0	0	0	0	1	18
c	a	a	d	c	d	b	1	1	1	1	1	1	1	1	0	0	0	1	1	1	0	1	1	0	1	1	1	1	1	0	1	0	0	0	1	0	0	0	0	1	1	1	1	1	0	1	26