

## **Report on the Online Workshop on Research Methodology and Biostatistics**

**Organized by the Department of Epidemiology,**

**Tamil Nadu Dr. MGR Medical University, Guindy**

**Date: April 25, 2025**

The Department of Epidemiology, Tamil Nadu Dr. MGR Medical University, Guindy, successfully organized an **online workshop on Research Methodology and Biostatistics** for **third-year MBBS Part-I undergraduate students** on **April 25, 2025**.

This session marked the first in a series of workshops scheduled from March to September 2025.

The primary aim of the workshop was to enhance under graduate medical students' understanding of **Research Methodology** and **Biostatistics**, enabling them to confidently apply these principles in their academic research and future medical practice.

The event followed a structured schedule:

- Pre-test via QR code to assess baseline knowledge
- Lectures combined with interactive sessions
- Post-test and feedback collection via QR code

### **Participated Institutions and Participated Numbers:**

- Kanyakumari Government Medical College-150
- Panimalar Medical college Hospital & Research Institute-139
- Government Erode Medical College & Hospital-63
- Karpaga Vinayaga Institute of Medical Sciences & Research Centre-118
- Tagore Medical College & Hospital-115
- Government Dharmapuri Medical College-99
- Government Villupuram Medical College-90

**Total :774**

### **3. Sessions and Key Discussions**

The workshop was structured around **five expert-led sessions**:

#### **1. Framing Research Ideas/ Objectives**

**Speaker:** Dr. T.S. Gugapriya, Professor, Department of Anatomy, AIIMS, Nagpur

- Explained the research process, difference between a research idea and research question.
- Discussed types and components of research questions, formulating research objectives.
- Conducted an interactive exercise where participants developed research questions based on the topic of "depression."

#### **2. Searching and Organizing Literature**

**Speaker:** Dr. Senthil Kumar, National Institute of Epidemiology (NIE), ICMR, Chennai

- Demonstrated efficient literature search strategies using **PubMed**.
- Introduced **Zotero** software for organizing references and managing citations.

#### **3. Research Designs**

**Speaker:** Dr. A. Balaji, Vice Principal and HOD, Community Medicine, Arunai Medical College and Hospital

- Covered various study designs:
  - Descriptive studies (case reports, case series, cross-sectional studies)
  - Analytical studies (case-control, cohort studies)
  - Experimental studies (randomized controlled trials)
- Explained advantages, limitations, biases, confounding, and ethical issues in research design.
- **4. Basic Biostatistics in Health Research**

**Speaker:** Dr. L. Pari Dayal, Assistant Professor, Department of Statistics, Madras Christian College, Chennai

- Explained types of data (qualitative, quantitative, continuous, categorical).
- Introduced measures of central tendency and dispersion.
- Covered probability distributions, hypothesis testing, errors (Type I and II), p-values, and selecting appropriate statistical tests.

## 5. Research Protocols

**Speaker:** Dr. K. Ilavenil, Assistant Professor, Karpagam Faculty of Medical Sciences and Research, Coimbatore

- Discussed the structure and importance of a research protocol.
- Explained components: title, background, objectives, methodology, data collection, statistical analysis plan.

# The TN Dr. M.G.R Medical University Kanyakumari Government Medical College & Hospital *Department of Community Medicine* **Research Methodology & Biostatistics Workshop**

Date : 25/04/2025





Govt Erode Medical College & Hospital



Government Dharmapuri Medical College & Hospital



Government Villupuram Tagore Medical College & Hospital

### INTERACTIVE SESSIONS BY THE EXPERTS

RESEARCH PROCESS

- 01 Formulating a research Question
- 02 Research designs
- 03 Instruments for data collection
- 04 Selecting sample
- 05 Protocol writing
- 06 Data collection
- 07 Data processing
- 08 Research Report

11:20 | DoE-UG RMBS WORKSHOP

Accepted: DoE-UG RMBS WOR | Inbox (1,221) - dhiyagrace28@ | (2) WhatsApp | Meet - asr-vnet-acm

meet.google.com/asr-vnet-acm?pli=1&authuser=1

Balaji Arumugam (Presenting, annotating)

## CASE - CONTROL STUDIES

Three **distinct features** of case control studies

- both exposure and outcome have occurred before start of the study
- the study proceeds backwards from effect to cause
- it uses a control or comparison group to support or refute an inference

- Merits:** least expensive; least time-consuming; suitable for study of rare diseases (especially NCDs)
- Limitations:** not suitable for rare exposures; liable to selection bias and recall bias; not suitable for calculation of frequency measures.
- Effect measure:** Odds Ratio

Case-Control Study

Time

onset of study

Govt Erode Medical College

Accepted: DoE-UG RMBS WOR | Inbox (1,221) - dhiyagrace28@ | (2) WhatsApp | Meet - asr-vnet-acm

meet.google.com/asr-vnet-acm?pli=1&authuser=1

Ila Karun (Presenting, annotating)

Active poll 107

**What should be part of a research protocol?**

Join at **slido.com** #8520 286

Option	Percentage
Title	71%
Duration of study	67%
Expected outcome	60%
Introduction	58%
Results	52%
Discussion	41%
Institution	

2:47 AM | asr-vnet-acm

Govt Erode Medical College

PMCH&RI C...

MEETING TN...

7 others

dhiya grace

Meeting interface showing a presentation slide titled "Statistics can be broadly classified as". The slide content includes:

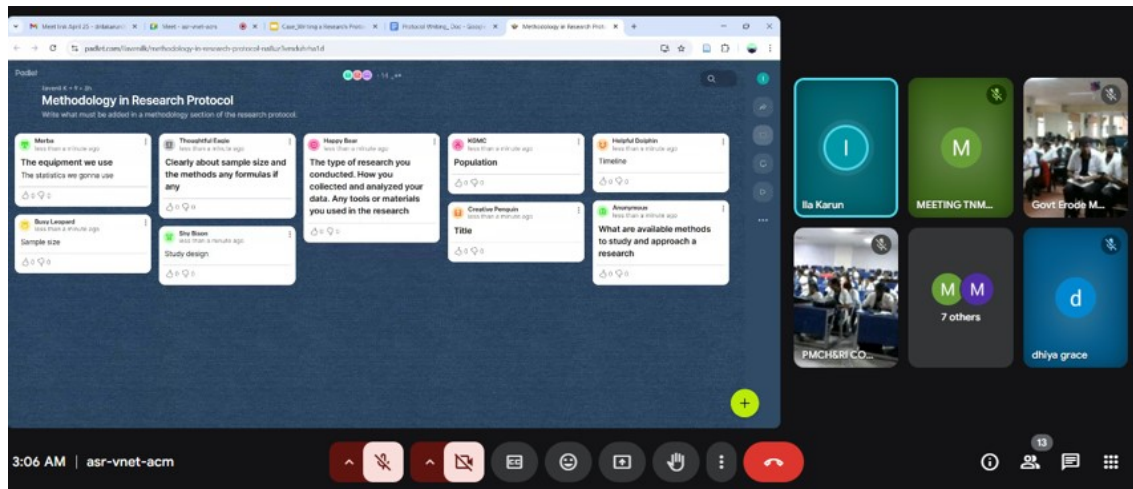
- Descriptive statistics** – Methods of organizing, summarizing, and presenting data in an informative way.
- Inferential statistics** – The methods used to determine something about a population on the basis of samples.

The meeting controls at the bottom show the time as 14:24 and the session as "DoE-UG RMBS WORKSHOP".

Meeting interface showing a presentation slide titled "Protocol checklists based on study design". The slide content includes:

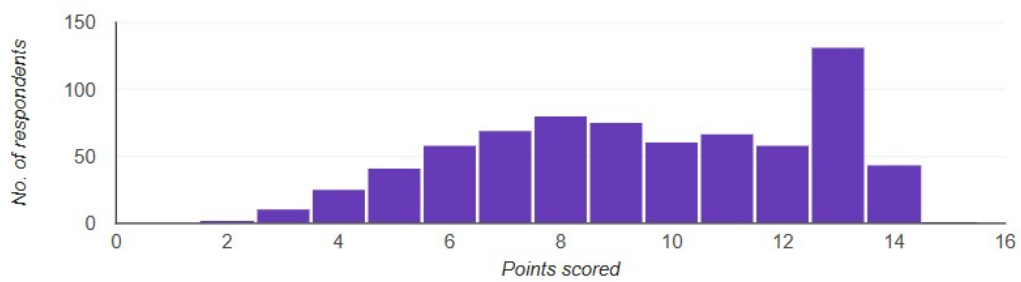
- equator network** Enhancing the QUALity and Transparency Of health Research
- Home About us Library Toolkits Courses & events News Blog Librarian Network Contact
- Your one-stop-shop for writing and publishing high-impact health research
- Library for health research reporting
- Reporting guidelines for main study types

The meeting controls at the bottom show the time as 3:13 AM and the session as "asr-vnet-acm".



<b>Average</b> 9.49/15 points	<b>Median</b> 9/15 points	<b>Range</b> 2-15 points
----------------------------------	------------------------------	-----------------------------

Total points distribution



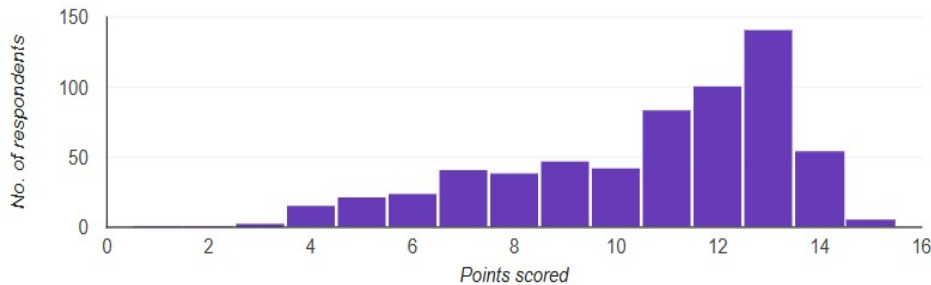
PRE-TEST ( n=940)

**Average**  
10.59/15 points

**Median**  
11/15 points

**Range**  
1-15 points

Total points distribution



POST-TEST (n=854)

## Overall Feedback

**Students highly appreciated** the workshop's content, structure, and delivery.

### Key areas that impressed participants:

- **Quality** and clarity of lectures
- Practical relevance of research methodology topics
- Systematic explanation of research process, especially forming research questions
- Organized flow of sessions from basic to advanced topics

Several participants mentioned that the **way of explaining** complex topics made the learning experience very engaging.

### Topics Found Clear

- Students found the following topics **most clearly explained**:
  - **Research methodology and research questions**
  - **Research design and its types**
  - **Searching and organizing literature** using PubMed and Zotero
- Some students appreciated that **statistical concepts** (though challenging) were made understandable through simple explanations.