



**ESIC Medical College & PGIMSR,
KK Nagar, Chennai 600078**

Department of Community Medicine

& Medical Education Unit

Applied Medical Statistics Workshop

Dates: 9 – 11 August 2017

Time: 2.00 PM to 4.00 PM

Organizing Team and Facilitators

S.No	Name	Designation
1	Dr. Deivasigamani Kuberan	Associate Professor & Head
2	Dr. Devidas Tondare	Associate Professor
3	Dr. Anuradha R.	Assistant Professor
4	Dr. Aruna B Patil	Assistant Professor and Statistician
5	Dr. Vijayaprasad G	Assistant Professor
6	Dr. Madhanraj K.	Assistant Professor
7	Dr. Abdul Khader	Tutor
8	Dr. Prithikaa GRC	Tutor
9	Dr. Praveena P.	Tutor

Lead Facilitator: Dr. Aruna B Patil

Group Facilitators: Dr. Devidas Tondare, Dr. Anuradha R, Dr. Madhanraj K,
Dr. Vijayaprasad G, Dr. Aruna B Patil.

Introduction

Biostatistics is an essential application of statistical methods to biological phenomena. Medical statistics is an important subset of the larger biostatistics discipline. Given the importance of research, evidence and interpretation of evidence in the practice of medicine, it has become essential for every medical professional to understand and apply the basic statistical methods. However, very little emphasis is given in the medical curriculum as well as during post graduate dissertation on the importance of statistics. Many clinicians find it difficult to meaningfully interpret study results which are described with the help of statistical tests and inferences. The practice of medicine is becoming more and more evidence based and it is becoming impossible to practice the skill without a sound grasp of medical statistics. This workshop is aimed at creating a sense of comfort among medical professionals in reading the statistical portions of journal articles and to effectively look for and interpret the meaning of these statistical analyses.

Objectives

At the end of this workshop, the participants will be able to:

- a. Understand, apply and critically evaluate various sampling methods and sample size calculations
- b. Understand, apply and critically evaluate descriptive statistics, estimates and precision
- c. Understand, apply and critically evaluate hypothesis testing using basic statistical tests

Workshop Day 1 – 09.08.2017

The workshop began with a formal inaugural function. Dr. Devidas Tondare, Associate Professor, Community Medicine, delivered the welcome address. Following this Prof. Sowmya Sampath, Coordinator, Medical Education Unit and Prof. Shanmugasundaram, Medical Superintendent and Prof. Rajalakshmi, Registrar felicitated the workshop. The Dean, Prof. Srikumari Damodaram, gave her inaugural address in which she highlighted the importance of statistics in medicine and medical research.



Welcome Address by Dr. Devidas Tondare



Inaugural Address by Dean

The workshop started with a lecture by Dr. Aruna B. Patil, Assistant Professor and Statistician, on Descriptive Statistics. She covered the following topics:

1. Introduction to statistics
2. Why is statistics important for medical research?
3. Types of data – qualitative and quantitative
4. Representation of qualitative and quantitative data



Dr. Aruna Patil delivering her lecture

Following the lecture by Dr. Patil, the participants were grouped into 5 groups (6-7 participants in each group). Each group had a facilitator from the Department of Community Medicine. The groups were given two manuscripts – both of these had descriptive statistics in them. One was a study on Concentric and Eccentric exercise and changes in cardiac physiology following the exercise. The other study was on prevalence of low serum Vitamin D levels among patients in Norway. The groups reflected on the various descriptive statistics like mean, median, standard deviations etc. in the data.



Participants engaged in group work

Workshop Day 2 – 10.08.2017

On the second day of the workshop Dr. Aruna Patil continued her lecture on Descriptive Statistics. During her 2 hour lecture, she covered the following concepts:

1. Mean, Median and Mode – measures of central tendency
2. Standard Deviation, Mean Deviation and Coefficient of Variation – measures of dispersion
3. Calculation of Standard Deviation and importance of Standard Deviation
4. Using Standard Deviation to calculate the Confidence Limits
5. Central Limit Theorem
6. Normal Distribution
7. Z statistic and Standard Normal Curve

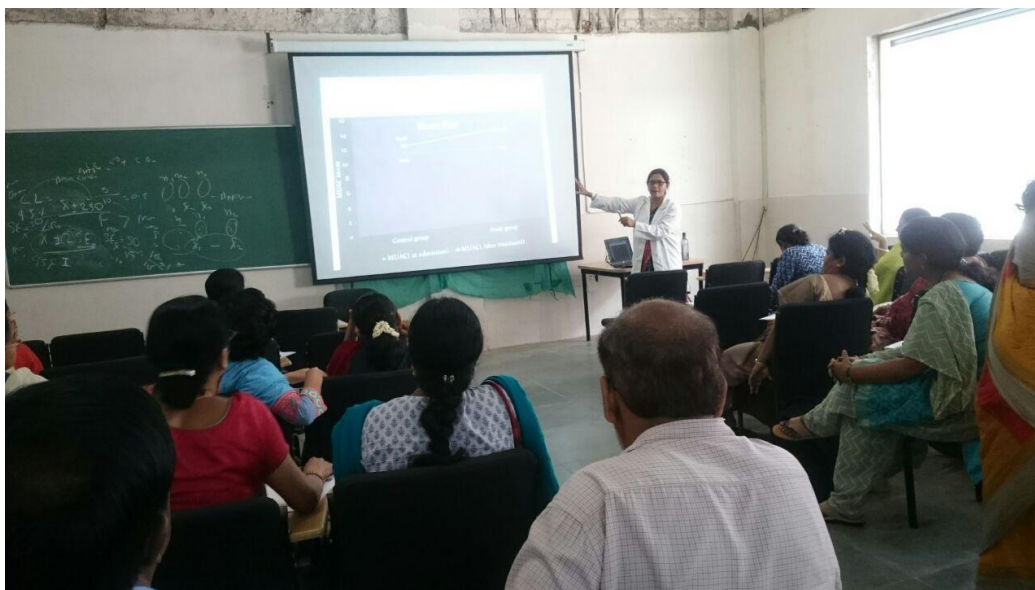
She explained all the concepts with detailed examples and theoretical concepts. The participants were interactive and asked her several doubts and got their questions answered and doubts clarified.

Workshop Day 3 – 11.08.2017

On the third day of the workshop, the program started by a lecture by Dr. Aruna B Patil, on inferential statistics. She covered the following concepts during her lecture:

1. Inferential statistics and hypothesis
2. Null hypothesis
3. Statistical Tests
4. P value
5. Standard Error
6. Confidence Intervals and Confidence Limits
7. T test
8. ANOVA
9. Chi Square Test
10. Strengths and Limitations of p value

This lecture was followed by a group activity, in which all the groups read a paper on medical teachers' attitude towards psychiatry as a specialty. They reflected on the various statistical tests such as T test and Chi Square test to understand the concepts of null hypothesis and statistical testing. This hands on exposure to reading and interpreting a paper helped them understand the various concepts clearly.



Lecture by Dr. Aruna Patil on inferential statistics



Group activity by the four groups reading a paper on inferential statistics

List of Participants

1. Dr. Uday Shamrao Kumbhar, Professor, Department of Surgery
2. Dr. Jayanthi Mohan, Professor and Head, Department of OG
3. Dr. Mohanavalli, Professor and Head, Dentistry
4. Dr. Shree Vijaya Bala, Assistant Professor, Dentistry
5. Dr. Rajesh Kumar, SR, Dentistry
6. Dr. Logarani, SR, Dentistry
7. Dr. Bhanumathi Giridharan, Associate Professor, Department of Surgery
8. Dr. Shirish Kumar Chavan, Professor and Head, Anaesthesiology
9. Dr. Muthiah P., Associate Professor, Radiology
10. Dr. Saraswathy M.P, Assistant Professor, Department of Microbiology
11. Dr. Manisha Mane, Associate Professor, Department of Microbiology
12. Dr. Suma Elangovan, Associate Professor, Ophthalmology
13. Dr. Malathi V.K, Assistant Professor, Ophthalmology
14. Dr. Veerendra Kumar Arumalla, Assistant Professor, Biochemistry
15. Dr. Maya Menon, Associate Professor, Department of OG
16. Dr. Ramya, Assistant Professor, Paediatrics
17. Dr. Deepak R, Assistant Professor, Anaesthesiology
18. Dr. Faias Siddiqui, JR, Anaesthesiology
19. Dr. Praveen Kumar, JR, Anaesthesiology
20. Dr. Tharikeshwari, SR, Radiology
21. Dr. Mallikarjun Adibatti, Assistant Professor, Department of Anatomy
22. Dr. Asha, Associate Professor, Department of Anatomy
23. Dr. Uma, Associate Professor, Department of Anaesthesiology
24. Dr. Madhubala, Associate Professor, Department of Biochemistry
25. Dr. Gnanadesigan, Tutor, Department of Physiology
26. Dr. Shanmugasundaram, Professor and Head, Department of Surgery
27. Dr. Anandhi L, Assistant Professor, Department of Microbiology
28. Dr. Srinivasaraghavan, Professor and Head, Department of Forensic Medicine
29. Dr. Thuthi Mohan, Professor, Department of Biochemistry
30. Dr. Radhika, Associate Professor, Anaesthesiology
31. Dr. Shanthini, Assitant Professor, Anaesthesiology
32. Dr. Sudha, JR, Anaesthesiology
33. Dr. Sujitha S, JR, Anaesthesiology
34. Dr. John Peter, JR, Anaesthesiology
35. Dr. Sowmya Shanmugam, JR, Anaesthesiology