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Biostatistical measures and their application in analysis and interpretation of scientific data

Irfan Ali Khan

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Abstract

The study of "Biostatistics" has assumed enormous importance with the tremendous pace of progress in different disciplines of agricultural, biological and medical sciences. Application of biostatistical measures is constantly increasing in sciences which are touching newer horizons every day. In fact, greatest victory of mankind of 20th century, that of landing of Apollo 11 on the moon, would not have been a success in the absence of statistical help. It was once known as "Science of Kings" and its scope was extremely limited, fortunately today this has become an all-importance science, without which no other science can progress. It has become indispensable from every phase of human endeavour, so much so, that one can easily say that modern culture and life have become statistical culture. This is well reflected from the fact that it has got a place in curricula of almost every discipline.

I would like to highlight the methods of instruction in the basics of biostatistical measures and theirapplication in various aspects of analysis and interpretation of scientific data. This lecture is designed for students and staff who need to learn/review the basics of biostastistics. Our discussion will depend on the following fundamental principles:

- Fundamental understanding of the nature of biostatistical data at the level of measurement and distribution.
- To understand a clinical trial in an experiment that seeks to determine the effectiveness of a new drug or treatment which involves a comparison of two or more comparable group of patients (control and treatment).
- To find out an average and then measures of spread about an average, besides consistency of two or more samples.
- To understand the appropriate application of basic biostatistical tests and their computation.
- Methods to display data and biostatistical findings.

THEMATIC MAP

- Introduction
- Measures of central tendency and dispersion.
- Mean, Variance, Standard Deviation, Standard Error and Coefficient of Variation
- The test of significance : The "t" test
- The least significance difference : The LSD test.
- Concluding remarks.

Biography

Dr. Irfan Ali Khan obtained his M.Sc. from Aligarh Muslim University and Ph.D. in Botany from Osmania University, Hyderabad, specializing in 'Genetics and Plant Breeding'. Dr. Khan is the Former Director of Nawab Shah Alam Khan Centre For Post Graduate Studies and Research (Affiliated to the Osmania University), Anwarul Uloom College Campus, Mallepally, Hyderabad. He has published 163 research papers in the reputed National and International Journals and is now on the panel of 'Experts on Mungbean' for all countries of the South-East Asia and the Middle East. Dr. Khan has been the editor of "Frontiers in Plant Science", has edited Seventy Four reference books and has coauthored three text books with his wife, Dr. Atiya Khanum. He is a Fellow of the Indian Society of Genetics (F.I.S.G.). Besides this, He is the Editor-in-Chief of "Annals of Phytomedicine" - AnInternational Journal.