

Two days Training program on " Research Methodology and Biostatistics"

Word 'Research' is comprises of two words , Re+Search. It means to search again, so the research means systematic investigations or activity to gain new knowledge of the already existing facts.

Research is an intellectual activity and it is responsible for bringing to light new knowledge. It is also responsible for correcting the present mistakes, removing existing misconceptions, and adding new learning to new fund of knowledge. Researches are considered as a combination of many activities in day today life and are those pursued by those persons gifted in intellect and sincere in pursuit of knowledge. Thus, the research is not at all mysterious and is carried on by hundreds of thousands of average individuals.

Research is considered as the application of scientific method in solving the problems, it is systematic formal and intensive process of carrying on the scientific method of data generation and analysis. There are many ways of obtaining knowledge. They are intuition, revelation, and authority, logical manipulation of basic assumptions, informed guesses, observation, and reasoning by analogy. One of the branches of research is known as empirical research is highly goal-oriented technique.

Clifford Woody USA educationist stated that " Research comprises defining and redefining problems, formulating hypothesis or suggested solutions, collecting, organising and evaluating data, making deductions and reaching conclusions, and at last careful testing the conclusions to determine whether they fit the formulated hypothesis.

The purpose of the training program to sensitize the research workers on statistical aspect of research methodology namely protocol writing, sample size estimation, study design and its relation to objectives defined, inclusion & exclusion criteria, hypothesis development and testing, sampling schemes and their role their role in unbiased estimation, randomization in interventional studies, analysis methods like per-protocol and intent to treat principal, statistical techniques and interpretation of results based on Probability value etc.,

Duration of training program will be 2 days with practical demo and cost of training program was Rs.3000 for faculty and Rs.2500.00 for students (approved earlier during 2013).

Expected participants around 80-100

Eligibility : Post graduate students, Ph.D Scholars, Medical professionals, Teachers, research scientists.

Contents of Two day training program on Research Methodology and Biostatistics

1. Research: a way of thinking
 1. An integral part of practice
 2. Way to gather evidence for practice
 3. Applications of research
 4. Characteristics and requirement of research process
 5. Types of research, application perspective, objective perspective and enquiry perspective
 6. Paradigms of research
 7. summary
2. Research process-an overview
 1. Deciding what to do research

2. Formulating a research problem- steps in formulating research problems, formulation of research objectives, study population, review of literature, formulating research problems for qualitative and quantitative research.
 3. Conceptualizing a research design: establishing a operational definitions
 4. Constructing an instrument for data collection
 5. Estimating the sample size requirement
 6. Selecting a sample for the study
 7. Writing a research proposal
 8. Collecting data
 9. Processing and displaying data
 10. Writing research report
 11. summary
3. Identifying variables
 1. Difference between a concept and a variable
 2. Types of variables from viewpoint of causal relationship, study design and unit of measurement
 3. Type of measurement scale: Nominal, ordinal, Interval and ratio scale
 4. Constructing hypothesis
 1. The definitions of hypothesis
 2. The functions of hypothesis
 3. The characteristics of hypothesis
 4. Types of hypothesis
 5. Errors in testing hypothesis
 6. Hypothesis in qualitative, quantitative and epidemiological research
 5. Conceptualising research design
 1. Functions of research design, theory of causality and research design
 2. Study designs for qualitative, quantitative and epidemiological research
 6. Constructing an instrument for data collection
 1. Difference in the methods of data collection in quantitative and qualitative research
 2. Collecting data using primary sources
 3. Collecting data using secondary sources
 4. Collecting data using attitudinal scales, Likert scale, Thurstone scale and Guttman scale
 5. Establishing the validity and reliability of a research instrument : Face validity & Content validity, External & Internal Consistency
 7. Sample size estimation
 1. Factors that affect the sample size,
 2. Alpha level and Power of the study
 3. Minimum detectable difference
 4. Sample size estimation for proportion in survey type of studies
 5. Sample size estimation with single group mean, two group means
 6. Sample size estimation with two proportions
 7. Sample size estimation with odds ratio, risk ratio, correlation co-efficient
 8. Selecting sample
 1. Concept of sampling and principles of sampling
 2. Probability and non-probability sampling methods

9. Collecting data
 1. Considering ethical issues in data collection, concepts, stakeholders in research
 2. Ethical issues to consider concerning research participants: collecting information, seeking consent, providing incentives, seeking sensitive information, the possibility of causing harm to participants, maintaining confidentiality.
 3. Ethical issues to consider relating to the researcher: Avoiding bias, provision or deprivation of a treatment, using inappropriate research methodology, incorrect reporting, inappropriate use of information etc.
 4. Ethical issues regarding the sponsoring organisation: Restrictions imposed, misuse of information.
10. Processing and displaying of data
 1. Data processing in quantitative studies
 2. Data processing in qualitative studies
 3. Statistical methods used to test the hypothesis
 4. Display data using tables, charts graphs
11. Writing a research report/article