

OPERATION RESEARCH IN REPRODUCTIVE HEALTH

- I. Introduction:** What is Operations Research: History, OR in Social Sciences and Health Sciences, Need; Focus and Objective of Operations Research; Types and Recent examples of Operations Research; Successful Examples in Developing and Developed world-(Presentations)
- II. Researchers and Managers-Interface and Roles:** Managers at Different Level (who are those managers); Researchable and Non-researchable problems, Researchers' Role and Responsibilities.
- III. Components of OR Proposal:** Problem statement, Strategies selection, operation definition, Intervention description and design, Sampling, Ethical issues, Data collection and analysis, Utilization, Dissemination and Up-scaling possibilities.
- IV. Identification of Problem and Solution:** Identification and definition, Justification, Alternative Solution, Indicators-Input, Process, Outputs, Outcomes and Impacts, Exercises based on actual situation, Contemporary OR problems
- V. Causality (Randomize Experimental Design):** Random assignment, Matching, Validity, Threat to Validity, Reliability, Pretest-Post test Control Group Design, Post test-only Control Group Design, Multiple Treatment Design, RBD, LBD and Treatment Effects, Preparing a Report on Design used in a few contemporary OR studies
- VI. Quasi/Non-Experimental Design:** Non-Experimental Control Design; Time Series, and Before and After Design, Examples in Different real Situations)
- VII. Inferential Statistics in Operations Research:** X^2 , t, F, z-tests, ANOVA and MANOVA, Deciding Sample Size in case of Different Experimental Design, Linking Different, Design and Statistical Test

VIII. Monitoring and Evaluation in Operation Research: Monitoring and Evaluation in OR (Baseline, Concurrent and Endline), Logical Framework Approach, Results Based Management, Examples.

IX. Study Design Exercises: Example of different OR studies and discussion on them

X. Ethics in Operations Research: Principles of Research of Ethics, ICMR Guidelines, International Perspectives, NIH-Study Material Case Studies

XI. Utilization and Dissemination: Conceptual Framework of Utilization, Identifying audience, Developing Media Kit and Policy Brief, Dissemination-Academic and Non-academic activities, Conducting Mock Disseminations Interaction with managers (local Mumbai or peripheral areas), Field Report Preparation and submission

Reading List

Essential Readings :

1. Brandeau L. Margaret et. al. 2004. Operation Research and Health Care: A Handbook of Methods and Applications, Kulwer Academic Press.
2. Fisher, Andrew A., James R. Foreit, J. Laing, J. Stoeckel and J. Townsend 2002: Designing HIV/AIDS Intervention Studies-An Operations Research Handbook, Population Council, New York.
3. Foreit, James R. and Tomas Frejka 1998: Family Planning Operations Research- A Book of Reading, Population Council, New York
4. Rossi, P.H. et.al. (1993). Evaluation: A Systematic Approach, Sage Publications, London
5. Kish, Leslie 1965: Survey Sampling, New York, John Wiley and Sons.