



**Research for Social Action:
Yasser Arafat Hall, Administrative Building, Jamia Millia Islamia
(17th April- 22nd April 2009)**

PHRN in collaboration with Centre for Jawaharlal Nehru Studies, Jamia Millia Islamia

Agenda:

To introduce basic concepts of research to research to our Community Health Fellows

Resource Persons:

1. Dr Archana Prasad (Centre for Jawaharlal Nehru Studies, Jamia Millia Islamia)
2. Professor Aslam Mahmood (Centre for Social and Regional Development, Jawaharlal Nehru University)
3. Dr Bhrigu Kapuria (National AIDS Control Organisation) and Dr. Ganapathy (Public Health Resource Network)
4. Dr Ganapathy (Public Health Resource Network)
5. Dr. Prachin (Centre of Social Medicine and Community Health, Jawaharlal Nehru University)
6. Dr Rajib Dasgupta (Centre of Social Medicine and Community Health, Jawaharlal Nehru University)
7. Mr Rahul Sarwate (ICICI Centre for Child Health and Nutrition)
8. Professor Shakti Kak (Centre for Jawaharlal Nehru Studies, Jamia Millia Islamia)
9. Dr Sundaraman (National Health Systems Resource Centre)
10. Dr Vandana Prasad (Public Health Resource Network)

Academic Mentors:

1. Dr Antony Kollanur (President, PHRN)
2. Dr Archana Prasad
3. Ms Dipa Sinha (Commissioners to the Supreme Court: Right to Food)
4. Dr Ganapathy
5. Mr Rafay Khan (Covenor, PHRN, Bihar)
6. Dr Rajib Dasgupta
7. Dr Ramila Bhist (CSMCH - JNU)
8. Prof Shakti Kak
9. Ms Shilpa Despande (ICCHN)
10. Dr Vandana Prasad
11. Mr V R Raman (ICCHN)

Participants

Community Health Fellows:

1. Annie Kurian
2. Arup Abhisek



3. Arun Kumar Singh
4. Chandan Behera
5. Dr. Saroj Kant Choudhary
6. Enem Pravin
7. Farhat Yasmin
8. Gajendra
9. Govind Dalai
10. Jay Krishna
11. Jyotsna Tirkey
12. Md. Jalaluddin Khan
13. Manas Behera
14. Manower
15. Manir Ahmed
16. Nazis
17. Pooja
18. Rajeev Ranjan Singh
19. Sandip Mitra
20. Seema Kumari
21. Shah Nawaz
22. Shefali Kuntal
23. Shveta Kumari
24. Trishna Pani
25. Indu Gupta
26. Prem Singh
27. Shivacharya
28. Anwar Hussian
29. Munmun Pandey

Programme Coordinators

1. Mr Alexander Kerkatta
2. Mr Haldhar Mahto
3. Mr S.N. Patnaik
4. Dr. Soumya Ranjan Mishra
5. Mr Subhashis Panda
6. Mr Tanwir Ahmad
7. Mr Rajeev Kumar Singh
8. Ms Shampa Roy
9. Ms Haripriya
10. Mr Dinesh Bhatt
11. Mr. Arun Kumar Singh

Date: 17.04.2009

The 'Research for Social Action' workshop was briefly introduced by Dr. Ganapathy who thanked the Centre for Jawaharlal Nehru Studies, Jamia Millia Islamia for working in partnership with PHRN. He also thanked the Jawaharlal Nehru University for continued help and guidance in the Community Health Fellowship Programme (CHF). Prof. Shakti Kak introduced the Centre for Jawaharlal Studies and the



various programmes of the centre. She looked forward for more engagement to instill a desire amongst students of the institute to be involved in research on health issues. Dr Vandana Prasad formally introduced the aim of the workshop which was to guide the community health fellows in action research for the period spanning over two years and to provide continued support and guidance to the fellows by allocating mentors according to the area of action research chosen. She also acknowledged the efforts of institutes like Jawaharlal Nehru University and Jamia Millia Islamia to place health as a social issue and also the close involvement of JNU with the People's Health Movement. She pointed to the disjunction between academic and field work and placed the fellowship programme in the context of a small attempt to remedy this by analyzing our own work and presenting it in a way that others can learn about it, fully utilizing the support of institutions and government officials, network and institutional partners.

Session-I: Concepts And Basic Tools In Social Epidemiology

Resource person: Dr.Rajib Dasgupta, Centre of Social Medicine and Community Health, JNU

(Annexure II: Concepts and basic tools in Social Epidemiology)

Dr.Dasgupta in his initial remarks defined research and stated that research is primarily focused on adding something of value to the existing body of knowledge. He further highlighted that tools and concepts are the two major areas to be focused in research. He defined epidemiology by quoting the definition of James Last as “The study of the distribution and determinants of health related states or events in specified population and the application of this study to control health problems”. The scope of epidemiology was explained by stating its use for understanding the cause of disease, explaining local patterns and natural history of the diseases and something that can be applied for solving administrative and health programme problems. Further he also emphasized that epidemiology can address issues like diseases, mortality, hospitalization, disability and quality of life.

While explaining the broad categories of epidemiology he defined descriptive epidemiology as the process of examining the distribution of the disease in a population and observing the basic features of this distribution and analytical epidemiology as the process of testing hypotheses about the cause of diseases by studying how exposure relates to the disease. The three major aspects of the epidemiological triad –host, environment and the agent were discussed. In his discussion he clarified the various factors affecting the host which influences the chance for disease or its severity including personal behaviour, immunological factor, genetic predisposition; the various factors affecting the environment including external conditions, physical ,biological and social; the various factors affecting the agent that are necessary for disease to occur including biological, physical and chemical.

At the end of the initial discussion on broad aspects of research and epidemiology he emphasized that public health should look into the following aspects of a person, place and time. In a person -age, gender, ethnicity, socio economic status, concurrent disease, genetic predisposition and risk taking behaviour should be looked into while in case of place and time climate, geology, population density, economic development, nutritional practices, presence of agents and vectors ,calendar time ,time since an event, age, seasonality and temporal trends should be focused.

Dr. Dasgupta in the next part of his presentation focused on various terminologies relating to epidemiological research and their significance.



Emphasizing on prevalence and incidence of diseases he stated that prevalence includes both old and new cases and is usually expressed in percentages while incidence includes only new cases and is expressed as the no of cases per population per year. Explaining to the queries put by the participants on how to calculate the incidence and prevalence of short term diseases he clarified that incidence rates are generally calculated for short term diseases.

Differentiating between risk and causation he stated that risk is about probability or likelihood and causation is about certainty. He also further clarified that identifying a risk may be the first step of identifying causation.

He explained rates as another means of expressing measurement and classified it into crude rates, specific rates and standardized rates. He clarified that specific rates give us more details by looking at the occurrence of events in a sub group of the population. He further explained as to why standardization is used. He stated that standardization is used primarily to estimate the levels of mortality across population, is free from demographic influences of varying age and sex structures and standardized rates have an advantage over age sex specific death rates(ASDR).

In the last phase of his presentation he gave an overview of the history and evolution of social epidemiology. In his presentation he broadly divided the evolution of social epidemiology into 3 major phases including a)early epidemiology (5th century BC-1830's), classical epidemiology(1830's-1930's) and modern epidemiology (1940's till present).He stated that the early epidemiology started with Hippocrates and the aim was to explain epidemics. The emphasis was laid on environment and communicable diseases were the core problems. Germs were also not discovered during this phase. The MIASMA theory was propounded during this period in which it was believed that filth deposited due to industrialization resulted in epidemics. In 19th century various land mark theories were developed from 1830's to 1850's Mr. Snow had the land mark work on Cholera. The cholera germ was not discovered but how ever he was right in theorizing and also having the right action. By 1880's Pasteur and Robert Koch propounded the Germ theory. The germ theory states that there is a specific biological agent which if controlled the disease can also be controlled simultaneously. Following the World War II the non communicable diseases were on the rise. In 1950's there were extensive studies on cancer and cardiovascular diseases. He concluded by stressing on the importance of social epidemiology and explains it as study of the link between social environment and the development and distribution of diseases in a population.

Session –II: Research Methods

Resource person: Dr. Rajib Dasgupta

(Annexure III: Research Methods: An Introduction)

At the beginning of the session –II, Dr. Rajib Dasgupta highlighted the basics of public health ethics. He stated that public health ethics is a systematic process to clarify, prioritize and justify possible health actions based on ethical principles. He further put forth various best practices for public health ethics which are open, honest and transparent; involves affected, informed, experienced and neutral individuals and representatives of the communities; address the economic, political and organizational constraints to actions; articulate the critical thinking and analysis leading to a decision or action.



He further discussed on the various logical sequence of a research model. He stated that it starts with designing research questions, followed by evidence collection, evidence processing, analyzing test and interpretation, forming new extended theory and guidelines and then publishing the research findings.

While emphasizing on the classification of research methodologies he clarified the difference between qualitative and quantitative research methodologies. He stated that qualitative methods investigates the why and how of decision making as compared to what, where and when of quantitative research.

Lastly he highlighted the basics of ethnographic field work where he clarified that in this case researcher attempts to learn about the subject of the research question and understanding the situation by acquiring an intimate familiarity with that experience and the scene of its operation.

Session III: Introduction to Study Designs

Resource Person: Dr. Prachin, Centre of Social Medicine and Community Health, JNU

(Annexure IV: Study Designs)

Dr.Prachin's session was on 'Introduction to study designs and research methods'. Observational studies include descriptive studies and analytical studies. Analytical studies include ecological studies, cross sectional studies, case control studies and cohort studies. Descriptive studies are usually the first phase of epidemiological investigation and involve defining disease problem and observing distribution of disease problem.

He discussed population as the unit of analysis in ecological study. The study usually involves comparison of two countries or groups of population are compared. However it becomes difficult to interpret such comparisons are socio economic factors are different for different countries/ groups of population. An ecological fallacy or bias results if inappropriate conclusions are drawn on the basis of ecological data. In cross sectional studies the unit of analysis is individual. In this case the exposure and outcome are measured at one point of time. In case of sudden outbreak of disease one can measure several exposures, beginning firstly with investigating the cause of outbreak.

He further explained confounding factors. He stated that confounding factor is associated with both exposure and outcome and is distributed unequally in study and control groups. Though it is associated with exposure under investigation, it is capable in itself to cause the disease independent of exposure under study. So confounder is an independent risk factor which has not been duly acknowledged.

Highlighting the details of cohort studies he explained that cohort refers to a group of people having similar characteristics. This group is divided into two groups depending upon the presence or absence of exposure variables under study. Definition of what constitutes exposure and outcome or disease are decided upon before the beginning of the study i.e. both exposure and out come variables are specified and measured. As the data is collected at different points of time so it is called a longitudinal study. These studies are done to ascertain strength of association. After the two groups are followed over a period of time, then the two groups are compared for the presence or absence of disease.

Discussing on experimental studies he stated that it involves changing a variable i.e. some action, intervention or manipulation such as deliberate application or withdrawal of suspected cause(or changing one variable in the causation chain) while making no changes in the control group.



Date: 18.04.2009

Session IV: Programme Evaluation Studies

Resource Person: Dr. Sundararaman

(Annexure V: Programme evaluation)

Dr Sundararaman described the various types of evaluation, the differences between evaluation and monitoring and the methods of both. The difference between internal evaluation and monitoring was also discussed in detail. The finer nuances of monitoring and evaluation wherein one analyses in what situation and circumstances a certain theory and practice would work or would not was discussed. He suggested that it was better to ask 'in what circumstances what would work and why' rather than why things do or do not work.

He gave a comparison of the two models of evaluation the OXO (Situation O changes to O1 due to a programme X: *See Annexure V*) model of evidence based enquiry and the CMO (Context-Mechanism-Outcome) model of realist enquiry. As opposed to the OXO the C-M-O model shows what process leads to what outcome and what the interventions that can change the outcome are. He illustrated the OXO and C-M-O model through the following example of VHSC. Evidence oriented evaluation would question- *Does VHSC work? A realist enquiry would ask- Where does VHSC work, Where does it not work and Why? In what circumstances/ situations does it/ does it not work?*

He left the following points with the participants

- The learnings from evaluation could be used to develop the next programme.
- Evidence based flexibility is possible though negotiation is required.

During the informal discussion for determining the research topics he gave the following checklist for the Community Health Fellows

- How does one theory give rise to another
- The theory should be able to predict.
- It should be able to do better than a rival theory.

One is allowed to use one's initial theory to figure out the configuration of the C-M-O model but an ideological perspective is required in the interpretation of it. Unintended outcomes and the different motives of the people involved should be kept in mind.

Participatory exercise I

(Annexure VI: Informal discussion for determining the research topics)

The session was followed by an exercise/plenary session facilitated by Dr Vandana. The session began with each fellow sharing the area of action research they would be undertaking. The following were the broad areas of study

- Communitisation programme: Role of PRI and RKS.
- Community monitoring of ASHA, RKS, VHSCs
- RCH



- Communicable diseases
- Non- Communicable diseases

Some other study were also taken up which were outside the above programme but pertinent to public health (for instance, verbal autopsies)

Dr. Sundar commenting on those topics and correspondingly he shared his views on the research topics arising out NRHM.

Session V: Qualitative Research Methods

Resource Person/s: Dr Archana Prasad, Mr Rahul Sarwate

The session covered the introduction scope and uses of qualitative research. Dr Archana discussed her experience of qualitative research and the methods she has used for her anthropological research in northern India. Along with examples she discussed the methods of qualitative research. She discussed the methods of data collection – the various methods of it, Case Studies, Focus Group Discussions, Ethnography, and Participatory Research Methods. She placed research on a theoretical as well as an ideological context through the route of empowering, consciousness, respect, being aware of own bias and discussed research as a two way process with an equal place between the researcher and the participant. She discussed the following steps in designing and implementing a qualitative research

- Firstly the vision of the research project itself
 - The statement of the problem and the objective should be stated
 - A literature survey and locate the research gaps both in qualitative as well as quantitative methods. (In the survey one is to read the broadest possible and prepare the bibliography and remember to insert footnotes)
- Secondly ‘the way the researchers present themselves’
 - Social distance –one’s interaction should try to lessen social distance rather than aggravate it
 - Whom do we study? Who are our target group?
 - One needs a quick appraisal through filed visits. (One will be influenced by the organization already working in the area)
 - Make a target of the processes, one is already provided with a mandate in the fellowship programme thus reducing time in deciding what process to follow.
- Thirdly the research outline and proposal
 - Time, accessibility and resources should inform the above.

She then listed out the methods to be used in the field visits which one is already familiar with-Focus Group Discussion, In-depth interview, Case studies, Participatory Rural Appraisal, Unstructured/ Open ended interview and Participant Observation. She also discussed in detail on ‘Ethnography’ which is a study/ recording in terms of its community parameters (ethnos- culturally/ ethnically defined group of people). One individual is a representation of particular group and culture. Thick description was also explained as- mapping and recording everything about the community. In case study one profiles the area

and the people, methodology, information on why we have chosen the area, a description of themes and also highlight future possibilities of research. She concluded with the following steps writing a report.

- Broad literature survey
- Area Description



- Sociological description
- Methodology
- Description of in-depth cases/ areas
- Case studies
- Broad conclusions

Mr Rahul presented a case study on the Community Health Worker scheme and also discussed analysis of qualitative data by his research on Sahiyya programme. He also discussed a tool that he has used extensively for his study- In-depth interview. He described it as a process where knowledge of the respondent flows to the researcher through a one-to-one interaction. He explained that even though the interview is open ended one should be aware of what one wants to know from the conversation and that it should be theme based and the fact that the researcher needs to exercise some control to the direction of the interaction. He described the respondent's need for privacy as a non-negotiable and hence the need to build a rapport before proceeding with questions. He cautioned on the specific context of words and that each word gets operationalised differently in a particular context.

Date: 19.04.2009

Session VI: Quantitative Research Methods

Resource Person: Professor Aslam Mahmood

(Annexure VII: Quantitative Research Methods)

Prof Mahmood discussed the various Quantitative Research Methods: the mathematical and statistical methods which are suitable for natural sciences and social sciences respectively. He explained the mathematical method as not requiring a larger body of repeated responses (data) due to accuracy in response. The statistical one on the other hand needs data through repeated trials, the data which can be collected either through primary source or through secondary source. This is due to less accuracy of responses. He also explained in detail the data collection both census and sample survey. The census enumeration was described as full enumeration of the units i.e. the universe of the study as opposed to the sample surveys which serves in case of limited time and resources wherein the 'statistical shortcut' serves the purpose as in sample enumeration one collect a small part of the study units which are best representative of the universe and derive conclusions about the universe. Complete enumeration of the universe is large and more expensive and time consuming. It is, therefore, conducted only when permitted by time and resources. Conclusion about the universe can only be drawn only when the sample is the best representative of the universe which can be ensured by different methods of sampling under different situations. He also introduced the commonly used methods of sampling-

- Simple Random Sampling,
- Stratified Random Sampling,
- Systematic Sampling,
- Arial Random Sampling and
- Multi Stage Sampling.

Once the data is collected either through primary or secondary source it can be subjected to the following methods for raising the basic question of what, when, where, how about any phenomena which can be done through descriptive methods or analytical methods. Descriptive methods consist of the following tools and techniques of describing a field situation with the help of data:



- Frequency Tabulation: Equal and Unequal Class intervals
- Graphical Representation of data: Bar diagrams of different types, Pie Charts, Histogram and frequency curves.
- Measures of central tendency: Mean, median and mode, mean deviation, standard deviation and co-efficient of variation.

Analytical method consist the following tools and techniques of describing a field situation with the help of data

- Probability theory: Elementary theory of probability and probability distribution functions like normal, binominal and Poisson distribution.
- Inferential Statistics: Theory of sampling, test of significance, F and chi square test.
- Causal Analysis: Correlation, simple regression and Logit regression.

He concluded the session given examples of the above methods.

Session VII: Introducing Literature Survey and Critical Review with Examples and Exercises

Resource Person/s: Dr. Bhriku Kapuria and Dr. Ganapathy

Dr Bhriku Kapuria gave a detailed session on literature survey, the various websites to get materials and also many formats for referencing. He presented the importance of literature survey through the following checklist that it serves:

- Is it a valid question?
- Places one's question into a theoretical perspective and gives validity to it,
- Gives clarity to the methodology and outputs through reading similar studies

He explained on the importance of getting familiar with similar research studies as one can overrule a lot of things from the earlier research publications. He also advised on the importance of acknowledging while quoting from a particular author/ paper.

Participatory Exercise II

Dr. Ganapathy introduced review of literature and gave exercises on reviewing two research articles- "Living with Hunger: Deprivation among the Aged, Single Women and People with Disability"¹ by Harsh Mander, a qualitative study on experience of living with hunger and another The fellows formed in to groups and presented their respective reviews on the articles. The following points were discussed and presented on:

- 1) What is the main purpose of the paper?
- 2) What are the methods of study employed?
- 3) How was the research team constituted?
- 4) Who were the main informants of the study? Who were the principal research persons for the study? What are the strength and limitations of this arrangement?
- 5) What are the main issues highlighted in the paper?
- 6) How will you categorize this study?

¹ Harsh Mander. 2008. Living with Hunger- Deprivation among the Aged, Single Women and People with Disability, Economic & Political Weekly EPW, April 26, 2008 87



The second paper was ‘Dynamic of People’s Health in People’s Hand’² by Imrana Qadeer, the following points were discussed on the article.

1. What is the hypothesis of the paper/study?
2. What are the tools employed for the study?
3. What are the operational definitions used in the study/survey?
4. What is the conclusion of the study?
5. Does this study have a theory?

The participants were formed into two groups and each selected one article to be presented while the other group discussed and enquired into the questions.

Date: 20.04.2009

Session VIII: Research Spiral
Resource Person: Dr. Ganapathy

Dr. Ganapathy discussed the various steps of research –

- Research Spiral,
- Framing a Research Question,
- Reviewing and Refining the Research Question,
- Drafting a Model Hypothesis,
- Reviewing and Refining the Hypothesis,
- Drafting a Model Research Design and
- Reviewing and Refining the Research Design.

Participatory Exercise III

This was followed by an exercise where each CHF had to work on the above for their own research topic, each fellow presented the steps and there were discussions through feedbacks and questions.

Participatory Exercise IV: Feedback and Evaluation

(Annexure VIII: Feedback and Evaluation Report)

The evaluation of the research workshop took place after the last technical session.

² Qadeer, I. 1984. Dynamic of People’s Health in People’s Hand-A Study of the CHW Scheme in Madhya Pradesh, Socialist Health Review.



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Date: 21.04.2009

The academic mentoring process took place on the remaining two days where each CHF were under the mentoring of the mentors selected according to the action research topic they has selected. Dr Antony, Mr. Raman and Ms Shilpa participated in the one to one sessions, they briefly addressed the CHFs on Research and also mentored the CHFs. Dr Vandana summed up the workshop putting into perspective the need to be involved in action research and the need to document such work. Dr Ganapathy closed the workshop with a vote of thanks.

The following day after the workshop Dr Ganapathy facilitated a trip to CSMCH library, JNU and NHSRC, Mr. Arun Srivastav from NHSRC coordinated the introduction to NHSRC and invited his colleagues to participate in the meeting to introduce NHSRC, its activities and its various units.

Annexure I

Programme Schedule

Date/Day	Time	Theme	Resource Persons
Friday (17-04-09)	10:00-13:00	1. Concepts and basic tools in Social Epidemiology	Dr. Rajib Dasgupta (Centre of Social Medicine and Community Health, Jawaharlal Nehru University)
	13:00-14:00	2. History and Evolution of Social Epidemiology	Dr. Rajib Dasgupta
Lunch Break			
	14:00-18:00	1. Introduction to Research: Theories and Concepts 2. Introduction to Study Designs & Research methods 3. Contrasting Quantitative and Qualitative Research Methods 4. Ethics in Research	Dr. Rajib Dasgupta and Dr. Prachin (Centre of Social Medicine and Community Health, Jawaharlal Nehru University)
Saturday (18-04-09)	9:30-12:00	Programme Evaluation Studies	Dr. Sunderaraman (National Health Systems Resource Centre)
	12:00-13:00	Informal Discussion on Research Topics from NRHM	Dr. Vandana Prasad and Dr. Sunderaraman
Lunch Break			
	14:00-18:00	Qualitative Research Methods 1. Qualitative Research: Introduction, Scope and Uses, 2. Theoretical Basis and Nature of Qualitative Research Methods, 3. Qualitative Research Methods with Examples and Exercises,	Dr. Archana Prasad (Centre for Jawaharlal Nehru Studies, Jamia Millia Islamia) Mr. Rahul (ICICI Centre for Child Health



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		4. Introducing Methods of Data Collection: Case Studies, Focus Group Discussions, Participatory Research Methods 5. Introduction to Analysis of Qualitative Data	and Nutrition)
Sunday (19-04-09)	9:30-13:00	Quantitative Research Methods 1. Quantitative Research: Introduction and Uses, 2. Theoretical Basis and Nature of Quantitative Research Methods, 3. Quantitative Research Methods with Examples and Exercises, 4. Introducing Methods of Data Collection: Statistical Surveys, Structured Interviews and Questionnaires 5. Introduction to Sources of Data Collection, Analysis and Presentation of Data	Professor Aslam Mahmood (Centre for Social and Regional Development, Jawaharlal Nehru University)
		13:00-14:00 Lunch Break	
	14:00-18:00	Introducing Literature Survey and Critical Review with Examples and Exercises	Dr. Bhriгу Kapuria (National AIDS Control Organisation) and Dr. Ganapathy (Public Health Resource Network)
Monday (20-04-09)	9:30-13:00	1. Research Spiral 2. Framing a Research Question 3. Reviewing and Refining the Research Question 4. Drafting a Model Hypothesis 5. Reviewing and Refining the Hypothesis 6. Drafting a Model Research Design 7. Reviewing and Refining the Research Design	Dr. Ganapathy
Lunch Break			
	14:00-15:00	Concluding Session: Research action plan for next three months	
	15:00-18:00	One-to-One meeting: Fellows working with Academic Mentors	
Tuesday (21-04-09)	9:30-13:00	List of academic mentors will be announced during the workshop	
Lunch Break			
		One-to-One meeting: Fellows working with Academic Mentors	List of academic mentors will be announced during the



			workshop
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Annexure II

Presentation I: Concepts and basic tools in Social Epidemiology

What is epidemiology

Slide 1

Definitions:

“The study of the distribution and determinants of health related states or events in specified populations and the application of this study to control health problems”

- James Last, A Dictionary of Epidemiology

“The study of the distribution and determinants of disease frequency in human populations”

- Mac Mahon and Pugh

Slide 2

Unpacking the Definition

- Study: Observing, recording, experimenting
- Distribution : Who, where, when?
- Determinants: Why?
- Health related states
- Specified populations
- Application

Slide 3

Scope

Understanding the cause of disease/health event

- Explaining local patterns
- Describing the natural history of diseases, and,
- Applying this knowledge for solving administrative and health services solutions



Slide 4

Epidemiology Can Address . . .

- Disease
- Mortality
- Hospitalisation
- Disability
- Quality of Life
- Health Status

It's Not Just Disease !

Slide 5

- Epidemiology weighs and balances
- Epidemiology contrasts and compares
- Epidemiologists use RATES
- Epidemiologists study sick and healthy people to determine the crucial difference between those who get disease and those who get spared

Slide 6

Two Broad Types of Epidemiology

- Descriptive Epidemiology ~ examining the distribution of disease in a population, and, observing the basic features of this distribution
- Analytical Epidemiology ~ testing a hypothesis about the cause of the disease by studying how exposure relates to the disease

Slide 7

- Descriptive Epidemiology is the antecedent to Analytical Epidemiology
- Analytical Epidemiology requires information to
 - Know where to look
 - Know what to control for
 - Develop viable hypotheses

Slide 8

Descriptive Epidemiology

- Person, Place and Time
 - Demographic distribution
 - Geographic distribution
 - Seasonal patterns
 - Frequency of disease patterns
- Useful for



- Allocating resources
- Planning programmes
- Develop hypotheses

Slide 9

Analytical Epidemiology

- Built around the analysis of the relationship between two items
 - Exposures
 - Effects (Disease)
 - Looking for determinants or possible causes of disease
- Useful for
 - Hypothesis testing

Slide 10

Epidemiology asks or uses

- Person- Who?
- Place- Where?
- Time- When?
- Helps us to understand: Why?

Slide 11

Person

- Age, gender, ethnicity
- SES, education, occupation
- Concurrent disease
- Diet, exercise, smoking
- Genetic predisposition
- Risk taking behaviour

Slide 12

Place

- Climate
- Geology
- Population density
- Economic development
- Nutritional practices
- Presence of agents or vectors
- Health practices

Slide 13

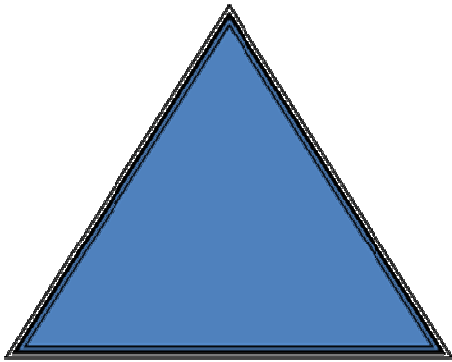


Time

- Calendar time
- Time since an event
- Age [time since birth]
- Seasonality
- Temporal trends

Slide 14

Host



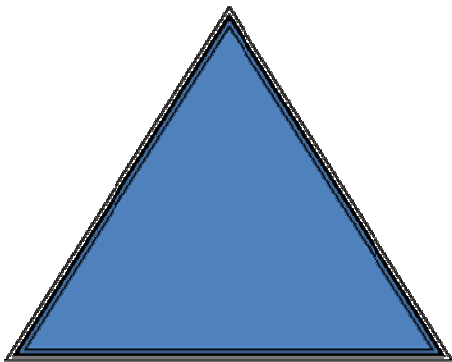
- **Host Factors**
 - **Personal factors**
 - Behaviours
 - Immunological factors
 - Genetic **predisposition**
- Influence the chance for disease or its severity**

Agent

Environment

Slide 15

Host



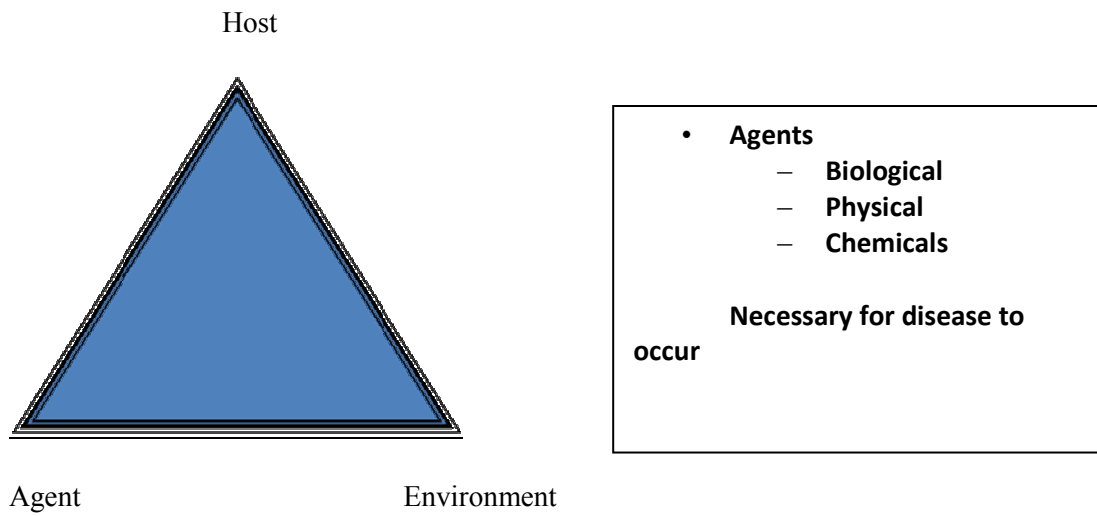
- **Environment**
 - **External conditions**
 - **Physical**
 - **Biological**
 - **Social**
- Contribute to the disease process**

Agent

Environment



Slide 16



Slide 17

Why specify the population?

- In order to be able to compare between two populations, we need to define the population
- For example, if 5 people in this room have the infection compared with 10 people in the next room, does it mean that infections are less common in this room?

Slide 18

Numerators and Denominators

- There may be fewer people in this room than in the next room
- Assume that there are 20 people in this room and 100 people in the next room



- 5 people with infections out of 20 people in this room means 25% of the people in this room have infections
- 10 people with infections out of 100 in the next room means only 10% of that population have the infection

Slide 19

Prevalence and Incidence

- Prevalence - the number of people with a particular condition/habit, at a specified time within a defined population; e.g. prevalence of colds or smoking
- Incidence - the number of NEW cases of a condition/habit in a defined population over a specified period of time

Slide 20

- Prevalence includes both OLD and NEW cases and is usually expressed as a percentage
- Incidence includes only NEW cases and is expressed as the number of cases per population per year
- Time period and population must be specified

Slide 21

- Prevalence of common cold in this room:
 - Number of cases (people with colds) = 5
 - Population of the Room = 20
 - Prevalence = $5/20$
 - Expressed as a percentage = $5/20 \times 100 = 25\%$

Slide 22

- Number of cases of *newly diagnosed* HIV infection in 'X' District, Manipur in 2003 is 900
- Population of 'X' is 300 000
- Incidence rate of HIV is 300 per 100 000 in 2003

Slide 23

- Probability that an event will occur
- Different from causation
- Chance that if exposed to certain risk factors → will develop condition

Slide 24

- Risk factors are factors that increase the probability that a disease will occur
- Risk factors could be
 - Environmental (physical + social)
 - behavioural/lifestyle
 - genetic



Slide 25

- Risk is about probability or likelihood
- Causation is about “certainty”
- Identifying a risk may be the first step to understanding causation e.g. smoking and lung cancer

Slide 26

- Absence of exposure to RF should prevent or significantly reduce D
[disease specific association]
- Association between RF and D should be explainable
[biological plausibility]
- Association should be clearly demonstrable in different populations or groups of people
[consistency of association]
- Quantitative proof of association with disease in terms of relative risk
[strength of association]
- Risk of D is greater with more exposure to the RF
[dose-response relationship]

Slide 27

Rates

- Rates are another means of expressing measurement
- Three broad types of rates are commonly used in epidemiology
 - Crude rates
 - Specific rates
 - Standardized rates

Slide 28

Crude Rates

- Looking at the death records of 2005 in Population A (50,000), we find that 760 people died
- In Population B (600 000), there were 5940 deaths in 2005

Slide 29

- Pop. A had a Crude Death Rate [CDR] of
 $(760/50,000) \times 1000 = 15.2/1000 \text{ pop}$
- Pop. B had a Crude Death Rate [CDR] of
 $(5940/600,000) \times 1000 = 9.9/1000 \text{ pop}$



- Pop A has a higher CDR than Pop B
- Do crude rates tell the whole story?

Slide 30

	<u>Pop A</u>	<u>Pop B</u>
<u>Age group (yrs.)</u>	<u>Age Specific Death Rates (per 1000)</u>	
≤1	13.5	22.6
1-5	0.6	1.0
6-18	0.4	0.5
19-25	1.5	3.6
26-44	10.7	18.8
≥65	59.7	61.1
Total	15.2	9.9

Slide 31

- Specific rates give us more detail by looking at the occurrence of events in a subgroup of the population
- In the example, we used age groups, but could have used gender, ethnicity, occupation and so on

Slide 32

- Going back to the example, we know that there were different patterns in the deaths recorded in the two populations
- But we may find it difficult to compare rates between the two populations
- Why?

Slide 33

Why standardization?

- To estimate levels of mortality across populations
- Standardized estimate is comparable over various populations
- Is free from demographic influences of varying age and sex structure
- Standardized rates (SR) have an advantage over Age Sex specific death rates (ASDR)
 - ASDRs – too detailed to allow a convenient comparison
 - SRs give a single index

Annexure III

Research Methods: An Introduction: Dr. Rajib Dasgupta

Slide 1

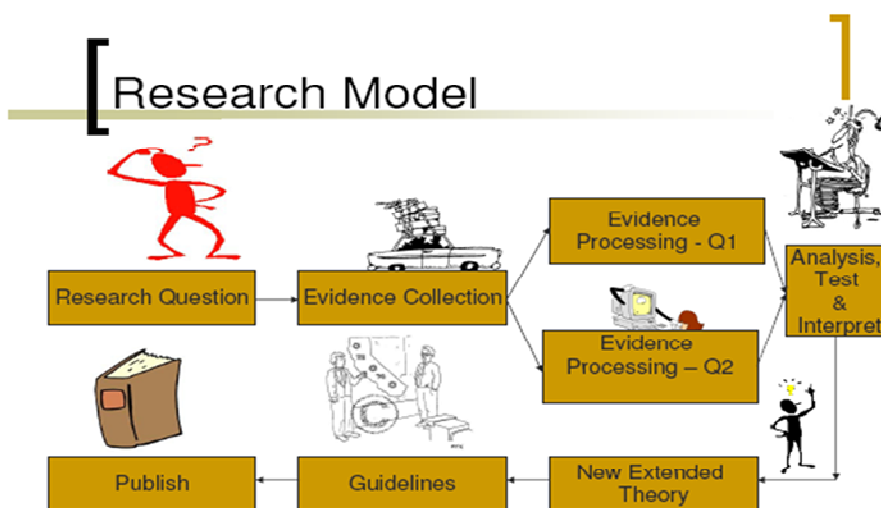


- Research is focussed on adding something of value to the body of knowledge, on being a skilled scholar and demonstrating your ability to be an independent researcher
- “If it doesn't happen in the lab, it is not science” . . . a non-useful way of looking at science
- First step → *understanding the language*

Slide 2

- Data or Evidence can be qualitative or quantitative; *research itself* is neither quantitative nor qualitative
- Research → question, evidence, assessment, findings – deduction and induction; lot to do reflection and conceptualisations
- ‘Interpretivist Research’ → used synonymously with qualitative research
- All research relies on interpretation
- Lean your chosen research tradition; understand its vocabulary

Slide 3

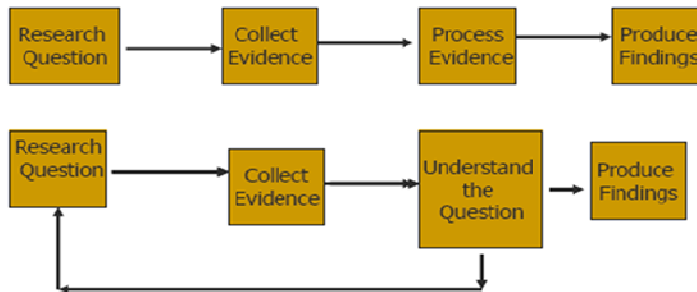


Rajib Dasgupta, JNU

4

Slide 4

Research Processes



Rajib Dasgupta, JNU

5

Slide 5

- Research traditions are not entirely unlike religious traditions; religious traditions generally try to help their followers find God
- Research traditions try to help their followers add something of value to theoretical knowledge; sometimes the word 'truth' is even used
- There is a wide range of research traditions; useful to understand them under two major heads:
 - Positivism → Quantitative Research
 - Post-positivism → Qualitative / Interpretivist / Naturalistic Research

Slide 6

Positivist Paradigm

- Emphasises that human reason is supreme and that there is a single objective truth that can be discovered by science
- Encourages us to stress the function of objects, celebrate technology and to regard the world as a rational, ordered place with a clearly defined past, present and future

Slide 7

Non-Positivist Paradigm

- Questions the assumptions of the positivist paradigm
- Argues that our society places too much emphasis on science and technology
- Argues that this ordered, rational view denies the complexity of the social and cultural world we live in
- Stresses the importance of symbolic, subjective experience

Slide 8



Theory and Fact

- *Theory* is often confused with speculation
- Theory remains a speculation, unless it is *proved*
- *Facts* are thought to be definite, certain, without question and their meaning to be self evident; *an empirically verifiable observation*
- Theory refers to the relationship between facts; often, the ordering of them in some meaningful way

Slide 9

Theory is a tool of science . . .

- Defines the major orientation of a science, by defining the kinds of data that are to be abstracted
- Offers a conceptual scheme by which the relevant phenomena are systematised, classified and inter-related
- Summarises facts into:
 - Empirical generalisations
 - Systems of generalisations
- Predicts facts
- Points to gaps in knowledge

Slide 10

Facts are also productive of Theory. . .

- Facts help to initiate theory
- Lead to re-formulation of existing theory
- Cause rejection of theories that do not fit the facts
- Change the focus and orientation of theory
- Clarify and redefine theory

Slide 11

- A fact is not a random observation; embodies both scientific observations and a known theoretical framework into which observations are fitted
- Observations themselves are systematically guided by the existing structure of knowledge
- *Concepts* are logical constructs created from sense impressions, percepts, or even fairly complex experience

Slide 12

Classification of research methodologies

- *Quantitative Methods*: Answers questions about relationships among measured variables with the purpose of explaining, predicting and controlling phenomena. Also called traditional, experimental, or positivist approach.



- *Qualitative Methods*: Answers questions about the complex nature of phenomena, often with the purpose of describing and understanding the phenomena from the participants' point of view. Also referred to as interpretative, constructivist, post-positivist.
- *Mixed Method Design*

Qualitative and Quantitative are not mutually exclusive.

Slide 13

Unlike quantitative research, qualitative research relies on reasons behind various aspects of behaviour.

Simply put, it investigates the why and how of decision making, as compared to what, where, and when of quantitative research.

Hence, the need is for smaller but focused samples rather than large random samples, which qualitative research categorizes data into patterns as the primary basis for organizing and reporting results.

Slide 14

	Qualitative	Quantitative
Purpose	Seeks a better understanding of complex situations.	Seeks explanations and predictions to develop generalizations.
Research process	Unknown variables, flexible guidelines, emergent methods, subjective	Known variables, established guidelines, predetermined methods, objective
Data gathering	Textual/image data, small sample, loosely structured observations and interviews	Numeric data, representative large sample, standardized instruments
Data analysis	Search for themes and categories, subjective and potentially biased analysis, inductive reasoning	Statistical analysis, objectivity, deductive reasoning
Findings	Words, narratives, quotes, literary style	Numbers, statistics, aggregated data, scientific style

Slide 15



	Qualitative	Quantitative
Types of Questions	Probing	Limited probing
Sample size	Small	Large
Info per respondent	Much	Varies
Human resource for data collection	Requires skilled researcher	Fewer specialist skills
Type of research	Exploratory	Descriptive or causal

Slide 16

Different and Apart		
	Qualitative	Quantitative
<u>Goal</u>	To understand (what, how, why?)	<u>To predict and control</u>
Treatment of Data	# defines general concepts # searches for patterns # wide lens (inductive) # applied & theoretical	# isolates and defines variables # tests hypotheses # narrow lens (deductive) # measure & evaluate
Toolbox	# observation # in-depth interviews # focus groups	# surveys # questionnaires # RCTs



	# document analysis	# meta analysis
Focus	# rich ('thick') descriptions # naturalistic enquiry # similarities & contrasts # processes & contexts	# predictions # outcomes # generalisability # controlled & experimental

Slide 17

Criticisms	Solutions
Not replicable	Different ways to address validity / reliability; systematic / rigorous / focus on 'value'
Cannot generalise	# Different purpose # Explain purpose (meaning / interpretation) # Can, via theory; theoretical verification
Subjective	# Disciplined researcher; rapport; trust # Details in methods # Training, structured methods, subject to verification # Multiple coders

Slide 18

- Theory
- Method
- Analysis
- All three interconnect to define the research process

Slide 19



Obtrusive Methods	Unobtrusive Methods
<ul style="list-style-type: none"> ❖ semi-structured interviews ❖ in-depth interviews ❖ focus group discussions ❖ ethnography ❖ participatory action research ❖ narrative and life history ❖ participant observation 	<ul style="list-style-type: none"> ❖ simple observation ❖ document analysis (written records) ❖ audio-visual ❖ text analysis / discourse analysis ❖ material culture ❖ auto-ethnography (object, subject and researcher)

Slide 20

- Interviews represent opportunities to hold conversations with knowledgeable informants
 - One-to-one interviews
 - Structured and semi-structured interviews
 - Group interviews
 - Structured and semi-structured interviews
 - Focus groups
 - Private conversations
- Interviews need to be carefully planned and meticulously recorded

Slide 21

- Ethnography field work
 - Researcher attempts to learn about the subject of the research questions and understand the situation by acquiring an *intimate familiarity with that experience and the scene of its operation*.
 - Ethnography requires a long time to develop this ‘intimate familiarity’ with the situation.
 - What is required is a human life experience. The quality and the precision of the account of the experience is a central issue.
 -

Slide 22

- Discourse analysis
 - No simple definition



- Used to refer to the linguistic analysis of naturally occurring connected speech or written exchanges
- Refers to the study of the organisation of language above the simple sentence level and thus to understand larger linguistic units
- Applies to both conversational exchanges and written texts
- Addresses language use in social contexts; in particular, with interaction or dialogue between speakers

Slide 23

- Collecting evidence
 - Action research
 - Case studies (qualitative / quantitative)
 - Ethnographic
 - Focus groups
 - Game or role playing
 - In-depth surveys (semi or un-structured)
 - Participant observation
 - Scenario discussions

Slide 24

- Quantitative data is coded and entered in a computer and a statistical package is generally used to do analysis
- Qualitative data may be either
 - coded if a grounded theory type technique is being employed
 - Used holistically if a hermeneutic type technique is being employed

Annexure IV

Study Designs

Slide 1

- Observational study
 - Descriptive studies
 - Analytical studies
- 1) Ecological studies (co-relational studies)
 - 2) Cross- sectional studies (prevalence studies)
 - 3) Case – control studies (case reference studies)
 - 4) Cohort studies

- Experimental studies
- Randomised controlled trials
- Field trials
- Community trial



Slide 2

Descriptive studies

- Descriptive studies are usually first phase of epidemiological investigation.
- It involves defining disease
- It is concerned with observing distribution of disease or health related state in human population
- It also involves identifying and describing characteristics with which disease in question seem to be associated
- It involves describing disease in terms of time, place and person

Slide 3

Analytical studies

- 1) Ecological studies (co-relational studies)
- 2) Cross- sectional studies (prevalence studies)
- 3) Case – control studies (case reference studies)
- 4) Cohort studies

Slide 4

1) Ecological studies

- Example:
- Unit of analysis is population
- Exposure- outcome relationship is studied by comparing population in different places or countries or same population at different times
- Rely on data collected for other purpose
- Usually initiate the epidemiological process.
- Simple to conduct and attractive
- Difficult to interpret – confounding by socio-economic factors, many potential explanations for observed relationships
- An ecological fallacy or bias results if inappropriate conclusions are drawn on the basis of ecological data.
- The bias occurs because the association observed between variables at the group level does not necessarily represent the association that exists at the individual level.



Slide 5

Cross-sectional studies

- Examples: census, NFHS, all surveys
- Unit of analysis is individual
- Exposure and outcome are measured at one point of time
- So do not help in establishing causality (whether exposure precedes or follows the outcome i. e. temporality)
- In case of sudden out-break of disease helps in measuring several exposures, so convenient first step in investigating cause.
- Useful for investigating exposures having fixed characteristics of individual e.g. sex, ethnicity, blood group
- Measures the prevalence of disease (prevalence studies).
- Collects data on personal and demographic characteristics, illnesses and health related behaviors.
- So helpful In assessing health care needs of the population.
- Simple and economical to conduct.

Slide 6

Case-control studies

- Usually conducted to investigate cause of disease
- It starts with people with the disease (outcome variable) i.e. selection of cases (cases should be representative of all cases in population.
- Suitable control group of people who are not affected by disease (outcome variable).
- It is also called as comparison or reference group.
- This group should be matched with cases i.e. it should be similar and comparable to cases except the presence of disease (outcome variable)
- Selecting controls is a difficult task
- Choice of both the cases and control should not be influenced by exposure status.

Slide 7

- Occurrence of possible cause (exposure) is investigated in both the group and then compared.
- Its possible to investigate multiple exposures (causes).
- Data concerning more than one points of time are collected, so it is a longitudinal study
- Investigator is looking backward from disease to possible cause so it is usually called as retrospective study.
- Measurement of exposure is an important issue, usually ascertained by direct questioning. so it can be influenced by recall or/and interviewers bias.
- This can be avoided if accurate exposure data are available e.g. employment records in industry.
- Exposure is some time measured by biochemical tests (lead in blood, cadmium in urine).

Slide 8

- Case group and control group are compared for the presence or absence of exposure variable.



- After doing comparison, association between exposure variable (cause) and outcome variable (disease) is established and measured with the help of odds ratio.
- Odds ratio is ratio of odds of exposure among cases to the odds in favour of exposure among controls
- odds ratio measures strength of association between exposure and outcome
- These studies are relatively simple and economical to conduct.
- Suitable for rare diseases.
- It studies associations among two variables

Slide 9

	Out-come / Disease/ cases			Total
	<u>(enteritis necroticans)</u>			
Exposure		Yes	No	
(recent meat	Yes	50 (a)	16 (b)	61
Consumption)	No	11 (c)	41 (d)	57
	Total	66	52	118

Slide 10

- Odds ratio = Ratio/odds of exposure among diseased / Ratio/odds of exposure among controls
- Odds ratio = (a/c) / (b/d)
- Odds ratio = (50/11) / 16/41)
- Odds ratio = 15*41
- 11*46
- Odds ratio = 11.6
- This indicates that cases were 11.6 times more likely than control to have recently consumed meat.

Slide 11



- **Table**

	Cases (with lung cancer)	Controls (without lung cancer)
Smokers (≥ 5 cigarettes a day)	33 (a)	55 (b)
Non-smokers	2 (c)	27 (d)
Total	35	82

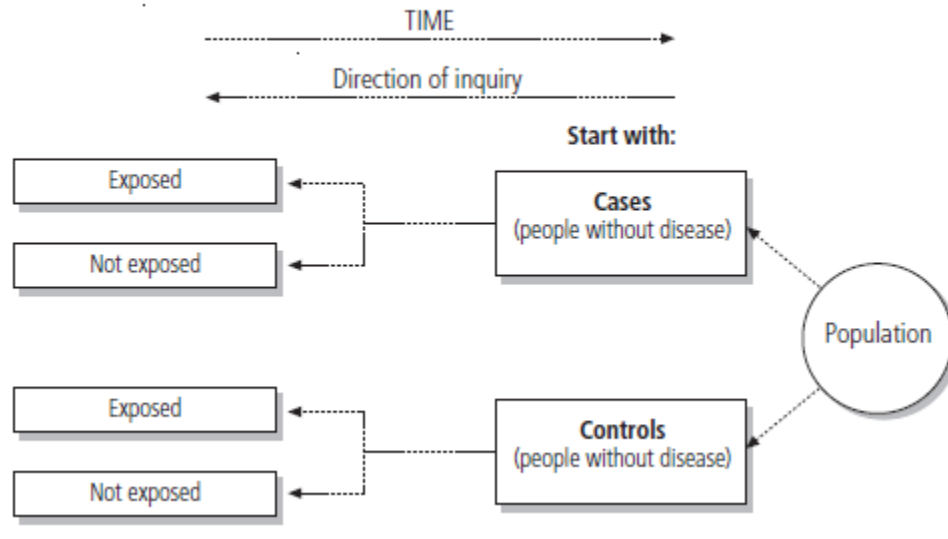
Slide 12

- Odds ratio = $(a/c) / (b/d)$
- Odds ratio = ad / bc
- Odds ratio = $33 \cdot 27 / 55 \cdot 2$
- Odds ratio = 8.1
- Smokers of less than 5 cigarettes per day showed a risk of having lung cancer 8.1 times than that of non-smokers.

Slide 13



Figure 3.5. Design of a case-control study



Slide 14

Matching

- It is important to ensure comparability between case and controls.
- It is a process by which we select controls in such a way that they are similar to cases with regard to certain pertinent selected variables. (eg. Age, sex, economic status, occupation) which are known to influence the outcome and disease.
- If these groups are not adequately matched for comparability, one will get distorted or confounded results.
- Matching is done so as to ensure that potential confounding factors are evenly distributed.

Slide 15

Confounding factors

- A factor which is associated with both exposure and outcome and is distributed unequally in study and control group.
- Though it is associated with 'exposure' under investigation, it is capable in itself to cause the disease independent of "exposure" under study.
- So confounder is an independent risk factor.
- For example, in a study of the role of alcohol on oesophageal cancer, smoking is a confounding factor.
- Here, smoking is associated with the consumption of alcohol.
- It is an independent risk factor for esophageal cancer.
- The effect of alcohol on esophageal cancer development can be determined only if the effect of smoking is neutralized by matching.

Slide 16



Cohort study

- It starts with group of people who don't have disease (outcome variable).
- Cohort is a group of people sharing similar characteristics.
- This group is then subdivided into two depending upon presence or absence of exposure variable under study.
- Definition of what constitutes "exposure" and "outcome" or "disease" are decided upon before the beginning of the study i.e. both exposure and outcome variable are specified and measured.

Slide 17

- These two groups are then followed over a time to see subsequent development of disease or outcome.
- Data collected is at different points of time; so it is a longitudinal study.
- As the data collected is progressing over time, so it is usually called prospective study.
- (there can be prospective or retrospective cohort study)

Slide 18

- It is possible to study multiple outcome relation with one exposure variable.
- These studies are done to ascertain causality.
- After the two groups are followed over a period of time, then the two groups are compared for the presence or absence of disease or outcome variable.
- It gives us an idea about incidence of disease. So it is also called incidence study or follow up studies.
- It provides the direct measurement of risk of developing disease (relative risk)
- Relative risk:

Slide 19

	Cigarette smoking		Total	
	Yes	No		
Lung cancer	Yes	70 (a)	3 (b)	73
	No	6930 (c)	2997 (d)	9927
Total		7000 (a+c)	3000 (b+d)	

Slide 20

- Incidence rate among smokers = $70 / 7000 = 10$ per thousand
- Incidence rate among non-smokers = $3 / 3000 = 1$ per thousand
- Relative risk = $\frac{\text{Incidence rate among smokers}}{\text{Incidence rate among non-smokers}}$
- Relative risk = $10 / 1 = 10$



- Incidence rates of lung cancer are 10 times higher among smokers as compared to non-smokers
- Relative risk of one indicates no association, relative risk of more than one indicates positive association, relative risk of less than one indicates protective exposure.

Slide 21

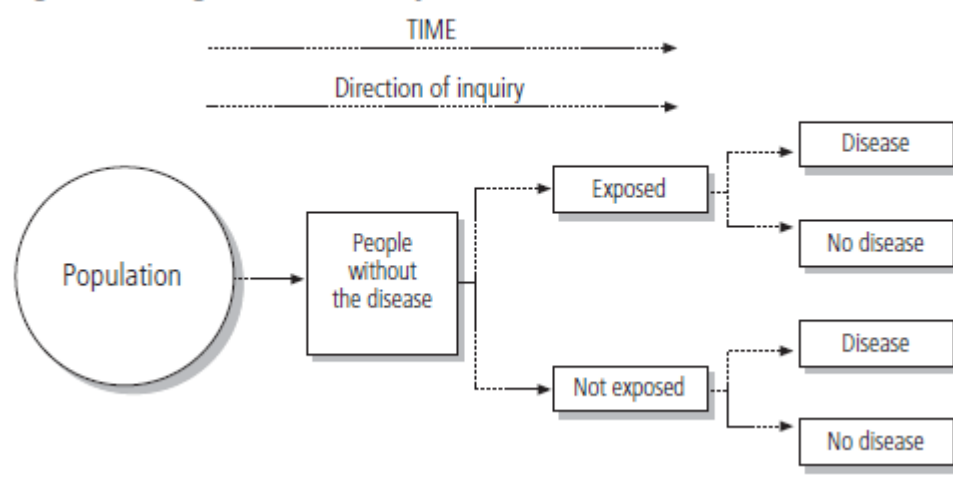
- Though conceptually simple, these studies are difficult to conduct and are major undertakings.
- Many exposures are long term in nature and can change over time. So it is necessary to have accurate information about exposure over long periods of time.
- There are difficulties in measuring exposure.
- After exposure, it might require a long time to develop disease or outcomes. So it is necessary to do follow up for a long time.

Slide 22

- Costs involved are very high.
- Chances of losing patient out of the study are high.
- Suitable for studying rare exposure or causes.
- If disease is rare in exposed group, then large sample size will have to be chosen.

Slide 23

Figure 3.6. Design of a cohort study



Slide 24

Experimental studies

- In observational studies, the epidemiologist does not take any action but observes the natural course of events or outcomes.
- Experimental or intervention studies are similar in approach to cohort studies excepting that the condition under which the study is carried out are under the direct control of the investigator.



- It involves changing a variable i.e. some action, intervention or manipulation such as deliberate application or withdrawal of suspected cause. (or changing one variable in the causation chain) while making no changes in the control group.
- Both the groups are followed up and observed for outcomes and then compared. Effects of intervention are measured by comparing the outcome in experimental group with that in a control group.

Slide 25

- It involves changing a variable i.e. some action, intervention or manipulation such as deliberate application or withdrawal of suspected cause. (or changing one variable in the causation chain) while making no changes in the control group.
- Both the groups are followed up and observed for outcomes and then compared. Effects of intervention are measured by comparing the outcome in experimental group with that in a control group.

Slide 26

- These studies are done to give a proof of etiological or risk factor while studying causality.
- These studies are done to measure effectiveness and efficiency of preventive or therapeutic measure.
- Advantages and disadvantages are similar to cohort studies.
- In addition, experimental studies involves problems of cost, ethics and feasibility.

Slide 27

Types of Experimental studies

- Animal studies

- Human experiments
- Randomized control trails
- Field trails
- Community trails

Slide 28

Animal studies

- Animal studies: have contributed to our knowledge of anatomy, physiology, pathology, microbiology, immunology, genetics, chemotherapy and many others.
- These studies are done to confirm etiological hypothesis and pathogenesis by experimental reproduction of human diseases in animals.
- Testing efficacy and of preventive and therapeutic measures such as vaccines and drugs.
- Advantages:
- Can be bred in laboratories.
- Can be manipulated easily according to the wishes of the investigator.



- They multiply rapidly. So they enable the investigator to carry certain experiments eg. Genetic experiments.

Slide 29

- Limitations:
- All human diseases can not be reproduced in animals.
- Conclusions derived from animal experiments may not be strictly applicable to human beings.

Slide 30

- Randomized controlled trails:
- The basic steps in conducting RCT include
 1. Drawing up a protocol.
 2. Selecting suitable sample (reference or target people)
 3. Selecting experimental population(by excluding those who are not eligible and those who do not wish to give consent)
 4. Randomization.
 5. Manipulation or intervention
 6. Follow up
 7. Assessment of outcome

Slide 31

- It involves epidemiological experiments done to study a new preventive or therapeutic regimen.
- Subjects in the study are randomly allocated to groups, usually called treatment and control group.

Slide 32

Randomization

- To ensure that the groups i.e. Treatment group and control group being compared are comparable (equivalent or similar), patient are allocated to them randomly- by chance.
- Randomization ensures that investigator has no control over allocation of participants to either treatment (study) group or control group. Thus eliminates selection bias
- Every individual in the study gets an equal chance of being allocated in to either group.
- Randomization is done only after participant has entered the study that is after having being qualified for the trial and has given informed consent to participate in the study.

Slide 33

- Intervention under test may be a new drug vaccine or can be new regimen such as early mobilization after myocardial infarction or domiciliary vs sanatorium treatment.
- There may be few losses to follow up due to factors such as death, migration, and loss of interest. They are known as attrition.
- Finally results are assessed in terms of positive and negative results in both the group.
- Incidence of positive and negative results is rigorously assessed and compared in both the groups



- The difference in both groups is assessed by using statistical tests of significance.

Slide 34

- Bias in these studies can arise due to the investigator measuring the outcome ie. Observers bias. Or bias may arise at the level of evaluation.
- These biases can be controlled by blinding.

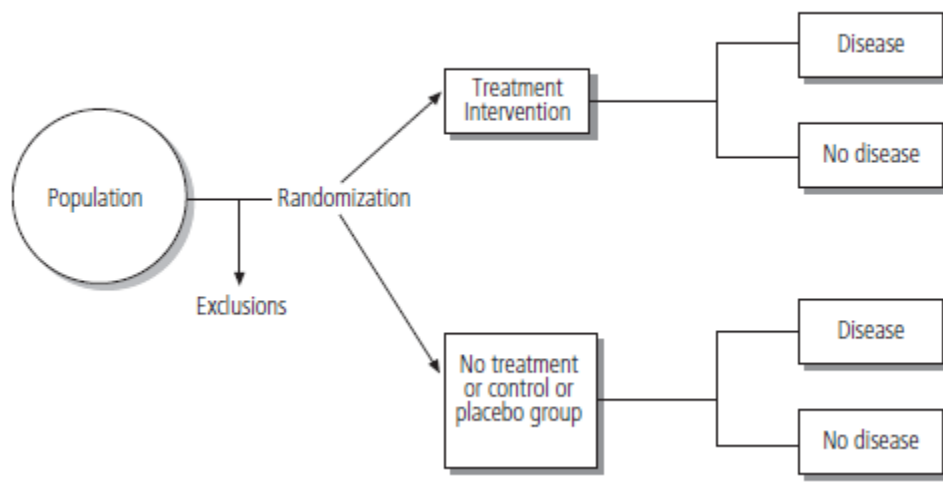
Slide 35

Blinding

- Blinding can be done in three ways.
- A) single blind trial: trial is so planned that the participant is not aware whether he belongs to the study group or control group.
- Double blind: neither the investigator nor the participant is aware of the group allocation and the treatment received.
- Triple blind: here participants, investigator and the person analyzing the data are all blind ie. Unaware about group allocation and treatment received.
- Ideally triple blinding should be done.
- But double blinding is the most frequently used method when blind trial is used.

Slide 36

Figure 3.8. Design of a randomized controlled trial



Slide 37

Field trials

- Field trials in contrast to clinical trials involves people who are disease free but are presumed to be at risk.



- Data collection takes place in the field, usually among non institutionalized people in the general population.
- Objective is to prevent occurrence of disease with the help of intervention.
- Field trials are usually huge undertaking involving major logistic and financial considerations.

Slide 38

- Eg. Field trials of salk vaccine for the prevention of poliomyelitis in children.
- Prevention of coronary heart disease in high risk middle aged males involving screening 360,000 men identify 12,866 people eligible for the trial.
- Randomization is used here to allocate participant treatment (study) or control group.

Slide 39

- It can also be used to evaluate interventions aimed at reducing exposures without necessarily measuring the occurrence of health effect.
- Eg. Personal protection measure for pesticide exposure can be tested by measuring blood levels of pesticides.

Slide 40

Community trials

- Here treatment and control groups are communities rather than individuals.
- Intervention is directed at both diseased as well as healthy.
- E.g. Fluoridization of water, iodization of salt, pollution control measures.
- This is particularly appropriate for diseases that have their origins in social conditions.
- Limitation of such study is that only a small number of communities can be included and random allocation of communities is not practicable.

Slide 41

- This is particularly appropriate for diseases that have their origins in social conditions.
- Limitation of such study is that only a small number of communities can be included and random allocation of communities is not practicable.
- Other methods are required to ensure that any difference found at the end of the study can be attributed to the intervention rather than to inherent differences in community or general social changes that are occurring.

Slide 42

Natural experiments

- Epidemiologist seeks to identify 'natural circumstances; that mimic an experiment.
- Circumstances produced by events like famine, earthquake (bombing of Japan, bhopal gas tragedy) can be used to study exposure variable in relation to outcome variable.



- E.g. John Snow's study on cholera made use of circumstances created by a changed source of water supply of one water company.

Annexure V

Programme evaluation: Dr Sundararaman

Slide 1

WHAT IS MONITORING?

“ *Monitoring is the systematic collection and analysis of information as a project progresses aimed at improving the efficiency and effectiveness of a project or department* ”

- Efficiency tells you that the input into the work is appropriate in terms of the output. This could be input in terms of money, time, staff, equipment and so on.
- Effectiveness is a measure of the extent to which a development programme or project achieves the specific objectives it set. If, for example, we set out to improve the skills of birth attendants in a particular area, did we succeed?
- Impact tells you whether or not the specific objectives you addressed made any difference to the main goals you were trying to address. In other words, was your strategy useful?

Slide 2

MONITORING PLAN:- FIRST STEPS

- Defining what are the indicators of efficiency, effectiveness and impact- of outputs, outcomes and impact.
- Getting the base line done. It may be better done during the planning stage. Or if the systems were not already in place the first set of information would act as the base line.
- Defining what information to collect – which has two aspects
 - what indicators to use : OVI
 - where to get the data from: MOV

Slide 3

MONITORING IN THE PLAN

- Information collection and analysis may be seen as acting at three levels:
 - Level 1
 - Deciding on the persons who will provide/collect the information?:
 - Deciding on the persons to whom they will provide information (immediate supervisors);
 - Level 2
 - Decide what analysis / information processing would take place at the supervisor level
 - What action would be triggered at that level



- What information would be passed on to the next higher level (the middle manager level).
- Level 3
 - Deciding on the middle level managers to whom the immediate supervisors pass on the information and
 - what action they would need to take on it and
 - what information they would pass on to the Programme Manager.
- *Also what action the programme manager would take.*
- Deciding the frequency of collection of information at each level.
- Recording/documenting the reports at each level and what action was taken in response.

Slide 4

EVALUATION AS GOVERNANCE

1. Did it work .. To achieve the change needed.?
2. Are we getting our money's worth? Is it well spent- or should we have invested it differently? Was there an efficient use of resources? What were the opportunity costs.. of the way it chose to work?
3. How does one improve design- so that it works and we get our money's worth
4. What are people saying about the programme? What are the implications for the various stakeholders in the way it works?..
5. How Sustainable/Replicable/Scalable is the way in which it works?

Slide 5

INTERNAL EVALUATION

- Are we doing the right things?
- Are we doing them in the most effective way?
- Are we doing them on a scale that makes a measurable difference?

Internal Evaluation is seen more as a management tool. Focus is on processes and relationship to outcomes. Usually it gives more valuable and actionable information. And it can be objective and fair too. Its bias is obvious.

External Evaluation is seen more of a governance/planners tool. The choice of the programme design itself is in question. Its bias is more subtle.

Slide 6

- Impact Evaluation: The impact of the programme on the societal goal. It is the sum of changes wrought by the programme plus the changes brought about by about by other societal processes



taken together. Did achieving the programme outcome- to 'x' degree- have an impact on the problem?

- Programme Evaluation: It is the study of how far the programme achieved the objectives it set itself. And how this relates to processes: Process evaluation + outcome evaluation= Programme evaluation.
- Process Evaluation: studies the integrity of processes and to how far desired/designed processes were achieved.
- Outcome Evaluation: studies how far outcomes aimed for were achieved.

Slide 7

OTHER CATEGORIES

- Concurrent Evaluation: the same questions asked-- but interim and periodic, ways. Differs from monitoring in the nature of questions asked?
- End of the Programme Evaluation:

By Method:

- Quantitative Evaluation
- Qualitative Evaluation.
- Participatory Evaluation.

Slide 8

PROGRAMME EVALUATION- THE EXPERIMENTAL DESIGN;

A: O →→→→ X →→→→ O1

B: O' →→→→ →→→→ O2

Did programme X contribute to a change?

Does O2 differ from O1

1. Do a baseline- get the situation O and O' in place A and place B respectively
2. Do the programme in Place A; Do not do the programme in Place B.
3. After programme is done measure situation again in both places and compare. The difference has to be statistically different.

If it is then X made a difference.

Repeat this process in many places- if it works in all then programme X works!!

Slide 9

STEPS IN EXPERIMENTAL DESIGN



- Identify a place B: a control place:
 - In case of no control being present; model a counterfactual position to account for B.
- Develop tools to study baseline- questionnaire
 - usually a sample survey.
- Choose size of sample:
- Train team of researchers and conduct survey in both place A and in Place B.
- Let programme be implemented.
- Repeat process of survey and then analyse.
- Qualitative study- before to design tools and after to interpret results- makes for a much better understanding.

Slide 10

PROBLEMS OF EXPERIMENTAL METHOD

- Are controls possible.. Ethical?
- Can the effectiveness of the programme be measured free of the context?
 - Does its proof in A- mean replicability in B?
 - Does it mean that it can be scaled up?
 - Does its non effectiveness mean the converse.
- Programmes do not work- people do!!! How does this design.. study that?
- Does it tell us why it did not work? What was the problems with processes?
- All programmes are composites of many components- does one land up throwing out the baby with the bathwater

Slide 11

WHAT COULD BE THE PROBLEMS

- Difficult to get baseline – as programme is already ongoing. How could we estimate the baseline?
- Difficult to get a control place- that is not contaminated...
- Difficult to construct a counter-factual...
- Difficult to measure outcomes- sample sizes needed may be too large to show significance. Thus to comment on neonatal mortality- of 1000 live birth, 60 die and of these 30 in neonatal period and expected change in deaths would be down to 20 in one year. – so to know whether a change of 7 is significant or not – one has to have almost 30,000 live births..
- Difficult to measure with accuracy and quality once the sample sizes are large. And it is expensive too.

Slide 12

THE POLITICS OF EVIDENCE

- There is no evidence that evidence based decision making is the main form of decision making or even that it could become the main form...
- We know that WHO does not make its guidelines such?
- But what would constitute evidence?



- But what would show that it applies to contexts different from where it was generated?
- How would one read and interpret varied evidences?

Slide 13

BUT BOTTOM- LINE- DO WE NOT NEED TO KNOW- WHAT WORKS AND WHAT DOES NOT?

- The Pragmatic Approach (the boss is right): Only evaluate if there is an audience/client for it and only to meet his objectives: only on terms of cost effectiveness and practicality and if it can be done fairly and ethically; if all above are satisfied – then work out the technical adequacy. The results – enlighten the decision maker- and is successful to the extent that it is accepted/influences choices.
- The Constructivist approach(its just a conversation): Truth is always attached to some standpoint instead of being external to the beliefs of any group. Programmes are amalgams of a range of stakeholder interests: research each stakeholders’ meanings, expectations. Open ended goal- enlarge collaboration- empower and educate all stakeholders.

Slide 14

TWO WAYS OF LOOKING AT PROGRAMME EVALUATION

- Experimental Design: Let us identify to best practice innovation- let us evaluate it to ensure its claims are true- let us then replicate it – and scale it up – to achieve the impact.
- *Realist Design*: “Show me the options and explain the main considerations I should take into account in choosing between them” (Pawson et al, 2004:12)

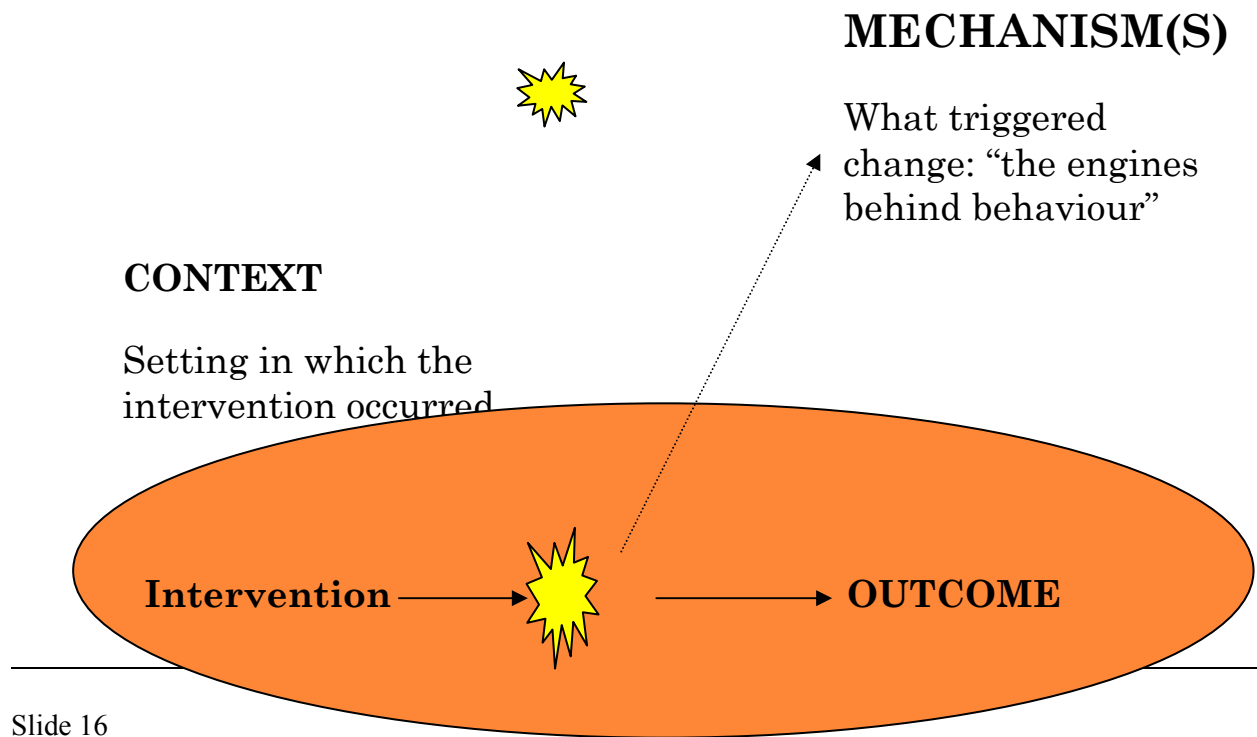
Research question:

- “what is it about this program that works for whom in what circumstances”
- instead of: “what works”

Slide 15



C-M-O



Slide 16

MAIN ELEMENTS IN REALIST REVIEW

- Outcome
Changes in target group behaviour:
Result of the interaction of the intervention within its context
- Context
Settings within which the intervention occurred
 - the organizational, socio-economic, cultural and political conditions, and the stakeholders involved, their interests and convictions and the process of implementation
- Mechanisms

What triggered change: “the engines behind behaviour” (van der Knaap et al, 2008)

Slide 17



REALIST INQUIRY

- Interventions are complex social and behavioural set of activities, that need to be described and understood
- Same intervention is implemented differently in different settings and with different stakeholders
- Aim for a better understanding of interventions working “sometimes” or “to some extent”
- Use of quantitative and qualitative data collection methods

Slide 18

<u>Evidence-oriented</u>	<u>Realist inquiry</u>
Measuring effects: What works?	Investigating black boxes: Why does it work sometimes? Exploring complexity...How did this work here?
No use of policy theory- to keep the study ideology free-unbiased-	Use of policy or program theories- policy making is dynamic and interactive
Results chain-	Programs are black boxes- but they are adaptive systems
Input-output-outcome-impact-	Mechanisms+ context= outcome (Outcomes are emerging and quite unpredictable)
One-way and single cause-effect relationship	two-way and multiple cause-effect relationships

Slide 19

GROUND RULES OF REALIST PROGRAMME EVALUATION;

- Assess conditions needed for change being present or absent
- Assess readiness of key players to undertake change.- their differing perceptions on what change is needed and the effects of the changes seen.
- How existing mechanisms are altered by the introduction of new mechanisms
- Varying contexts of introduction of these mechanisms._ see the variation of success between groups and within groups.
- See outcomes as multiple and processes as multiple and see what is the process outcome relationships- the mechanisms



- conclude on CMO – what seems to be working for whom under what circumstances.- configuration focus.

Slide 20

BUILDING A TEACHING – LEARNING RELATIONSHIP

- Stakeholders have insider understanding of programmes and therefore are key informants:
- Programmes are embedded in diversity of individual and institutional forces and therefore there is a limitation to any stakeholder understanding: neither treat them as the privileged view nor as the respondent
- Need to look at unintended consequences and un- acknowledged conditions of their decisions.
- Learn stakeholder theories, formalise them, teach them back- let him clarify, further refine- and repeat to wider circles of enlightenment.
- That many changes affect decision and evidence and study generated insights shall be only one amongst them

Annexure VI

INFORMAL DISCUSSION FOR DETERMINING THE RESEARCH TOPICS

ASHA/ Sahiyya related

- What is ASHA doing?
- Why is she working ?Is it because of Incentives, support, skills, motivation or people's need
- What do we do? What changes occur?

VHC /VHSC

- Effect of Untied Fund in VHC.
- How can VHC influence health seeking behaviour
- VHC to make Village Health Plans.
- Health departments perception of VHC. Attitudes and potential of VHSC.
- Communities access to public health.
- What are the VHCs in , their present performance ?What capacities they can work in if their capacities are build.
- How PRIs have been involved in the District Planning(one has to figure out the action)

Health seeking behaviour &health financing

District Level BCC Strategy of for Kalazaar

Adolescent health – Status of RTI , STI within the framework of DHP.

Community participation in TB



Increase in outreach of malaria programme within the district

Annexure VII

Quantitative Research Methods

Slide 1

Mathematical

Suitable for the sciences which are more accurate like natural sciences and engineering etc

Due to accuracy in responses no need of larger body of repeated responses known as data.

Statistical

Suitable for the sciences which are like social sciences, behavioral and agricultural sciences.

Due to less accuracy in responses we need data through repeated trials. The data can be collected either through primary source or through secondary source.

Slide 2

Census Enumeration

In some cases we need full enumeration of the units be studied which is known as universe of the study.

Complete enumeration of the universe known as census enumeration. It is large and more expensive and time consuming. It is, therefore, conducted only when permitted by time and resources.

Sample surveys

Due to lack of time and resources sometimes we cannot conduct census enumeration, in such cases we adopt a statistical short cut known as sample enumeration.

In sample enumeration we collect a small part of the study units which are best representative of the universe and derive conclusions about the universe.

Slide 3

Conclusion about the universe can only be drawn only when the sample is the best representative of the universe which can be ensured by different methods of sampling under different situations.



Methods of sampling

Following are the commonly used methods

- Simple Random Sampling
- Stratified Random Sampling
- Systematic Sampling
- Arial Random Sampling
- Multi Stage Sampling

Slide 4

Statistical Method

Once the data is collected either through primary or secondary source it can be subjected to the following methods for raising the basic question of What, when, where, how about any phenomena :

Descriptive Methods

It consist of the following tools and techniques of describing a field situation with the help of data

Frequency Tabulation: Equal and Unequal Class intervals

Graphical Representation of data: Bar diagrams of different types, Pie Charts, Histogram and frequency curves.

Measures of central tendency: Mean, median and mode, mean deviation, standard deviation and co-efficient of variation.

Analytical Methods

It consist of the following tools and techniques of describing a field situation with the help of data

Probability theory: Elementary theory of probability and probability distribution functions like normal, binominal and Poisson distribution.

Inferential Statistics: Theory of sampling, test of significance, F and chi square test.

Causal Analysis: Correlation, simple regression and Logit regression.

Annexure VIII: Feedback and Evaluation Report

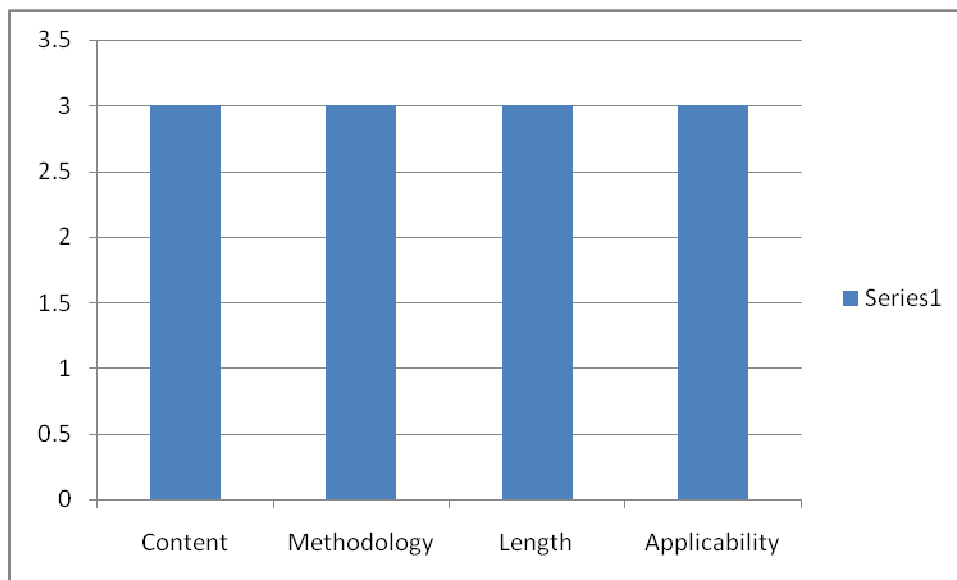
Evaluation and Feedback Report on the April Workshop



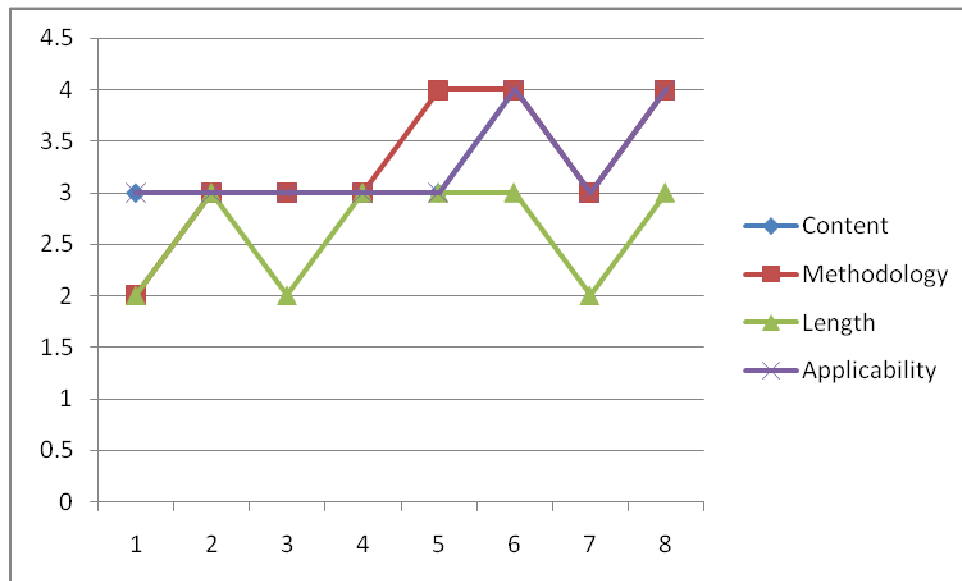
Evaluation and feedback of training on “Research for Social Action” held at Yasser Arafat Hall, Administrative Building, Jamia Millia Islamia (17th April- 22nd April 2009): PHRS in collaboration with Centre for Jawaharlal Nehru Studies, Jamia Millia Islamia.

The evaluation and feedback format was applied after all the technical sessions were over on 20th of April, duration of half an hour was given to each participant. The evaluation was applied to 24 CHF's from 4 states. The one to one meeting of the CHF's with the academic mentors is not included in the evaluation as it was an individual exercise.

The evaluation consists of feedback from participants on the contents, methodology, length and applicability of the various sessions. The feedback on the sessions is illustrated by the bar graph below:



From a range of a scale of 1-4 the participants responded positively on the contents, methodology and applicability; however the cluster of responses can be seen below; both the feedback and the responses of the participants suggested the need for a longer duration of the programme that would enable more exercises to be included in the programme.

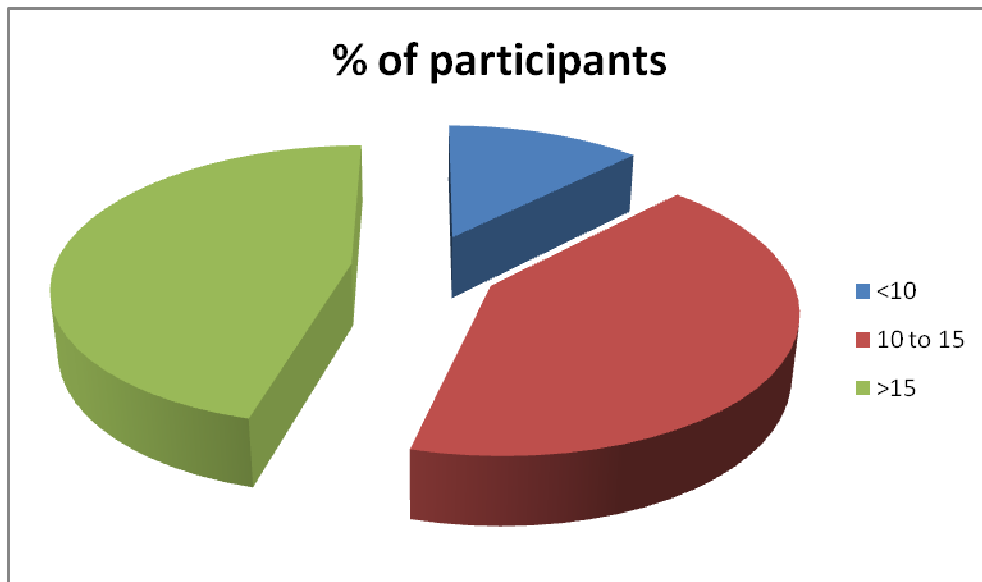


- 1- Concepts and basic tools in Social Epidemiology & History and Evolution of Social Epidemiology
- 2- Introduction to Research: Theories and Concepts
- 3- Introduction to Study Designs & Research methods
- 4- Contrasting Quantitative and Qualitative Research Methods & Ethics in Research
- 5- Programme Evaluation Studies
- 6- Qualitative Research Methods
- 7- Quantitative Methods
- 8- Introducing Literature Survey and Critical Review with Examples and Exercises

The scatter diagram show the cluster of responses before consolidation, the methodology and applicability of themes 5th, 6th and 8th were ranked the highest by the participants. Overall the content was appreciated by the participants, however most participants responded on the need for lengthier sessions.

The evaluation also included a set of questions to assess the skills of the participants and to enquire into the tools they will be most comfortable on using in the field.

The pie chart below illustrates the result of the review questions.



Out of a total number of 24 CHF , 46% (11/17) of the participants scored more than 15 out of a total score of 17 points, 42% scored between 10 to 15 points(10/17) and 12% scored below 10 points (3/17).

The open ended question on feedback drew a number of responses, the most common being the suggestion for a need for longer sessions and also a request for more usage of Hindi. There was a request for training on use of SPSS. The participants also responded that the training has increased the skills of the CHF to look at a paper critically; these has aided in thinking about a research topic critically and formulate for themselves certain steps to be taken toward investigating on the topic and select tools for research. There was a positive response on the logistics of the workshop including food and accommodation.

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Directory: C:\Documents and Settings\office\My Documents
Template: C:\Documents and Settings\office\Application
Data\Microsoft\Templates\Normal.dotm
Title: Research for Social Action: Yasser Arafat Hall, Administrative Building,
Jamia Millia Islamia
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Author: rtfc
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