Background, Problem Statement, Literature Review ,Justification & objectives of the study

Wondwosen Teshager(MPH)

Learning objectives

By the end of this session, students will be expected to:

- Outline information that should be included in the Background of the study
- Describe the reasons for including a statement of the problem
- Outline information that should be included in the statement of the problem
- Prepare the statement of the problem for your own proposal

Background of the study

- Describe the terminology, definition, nature and extent of the problem under study
- Sufficient background information so the reader can understand the context and significance of the problem addressed

Background of the study

- It serves the purpose of leading the reader from a general subject area to a particular field of research
- It is intended to provide the reader with critical information about the topic being studied
- Highlighting and expanding upon foundational studies conducted in the past and an important historical events

Analysis and Statement of Problem

Analyzing the problem

- A systematic analysis of the problem, completed jointly by the researchers, health workers, managers, and community representatives is a very crucial step in designing the research because it:
  - Enables those concerned to bring together their knowledge of the problem,
  - Clarifies the problem and the possible factors that may be contributing to it,
  - Facilitates decisions concerning the focus and scope of the research.

Statement of the problem

- A problem is defined as any deviation from a norm or expected standard
- Problem identification is an objective process.
- It requires a review of the routine data and ascertaining what contributes to the problem identified.

Statement of the problem...

- The problem is most often identified from routinely collected data and used to formulate a scientific question.
- It is important to have an adequate knowledge of the local data sources and their strengths and limitations.

Statement of the Problem...

- After identifying, selecting and analyzing the problem, the next major section in a research proposal is "statement of the problem"
- The first step in the development of a research project is to state the research problem in precise and clear terms

Statement of the Problem...

- Definition of the research problem is a prerequisite to clarifying and focusing the investigator's chosen topic
- The formulation of a general topic into a specific research problem, thus, constitutes the first step in a scientific enquiry

Statement of the problem:

- is an integral part of selecting a research topic
- is the essential basis for the construction of a research proposal (research objectives, hypotheses, methodology etc.);
- will guide and put into sharper focus the research design being considered for solving the problem
- facilitates a peer review of the research proposal by funding agencies, scientific and ethical review committee

Stating the problem allows the investigator:

- to describe the problem systematically

o to reflect on its importance and priority in the country and the local area

o to point out why the proposed research on the problem should be undertaken

Statement of the problem…

- Describe how the results of the study will be useful for policymakers, health administrators or health scientists
- How the results will be transmitted to the appropriate audiences
- The writing should be precise and concise but should include essential points
- Information about the problem should be summarized to the point

Statement of the problem...

- Effective problem statement answers the question "Why does the proposed research need to be conducted"
- It describes the problem to be investigated and the questions that will guide the research process
- However, while problems are the initiating force behind research, not all problems require research

What information should be included in the problem statement?

- A brief description of socio-economic and cultural characteristics of the study population
- An overview of health status, healthcare system and health service program of the study setting. (Include a few illustrative statistics, if available)
- The size, distribution and severity of the problem

What information…

- A concise description of the nature of the problem (the discrepancy between what is and what should be)
- Analysis of the major factors that may influence the problem
- A brief description of any solutions to the problem that have been tried in the past by other researchers

What information…

- Why further research is needed (justification of the study)
- A description of the type of information expected to result from the proposed study and how this information will help solving the problem

Describing the context

- Context refers to the set of conditions or circumstances around a particular situation through which that situation can be more fully understood.
  - The population and their demographics
  - Environmental factors (geographic, social, economic, cultural etc) that influence both the health of people and the health system.

Describing the context

- The burden of disease
- This is best described by starting with a broad perspective (international or national) and then honing in to a regional and local level
- Part of putting research into context is in ensuring that the research is a priority for the health services.

Why important to state the problem?

- Because a clear statement of the problem:

  - Is the foundation for further development of the research proposal (research objectives, methods, work plan, etc.)
  - Makes it easier to find information and reports of similar studies

Why important to state the problem?

- Enables you to systematically point out why the proposed research on the problem should be undertaken and what you hope to achieve with the study results
- This is important to highlight when you present your research project to stakeholders

Summary: Statement of the problem

- Magnitude, frequency and distribution: Affected geographical areas & population groups affected by the problem
- Causes of the problem: What is the current knowledge of the problem and its causes? Is there consensus? controversy? conclusive evidence?

Summary: Statement of the problem

- Possible solutions: In what ways have solutions to the problem been attempted? What has been proposed? What are the results?
- Unanswered questions: What remains to be answered? What areas have not been possible to understand, determine, verify, or test?

“A question well-stated is a question half-answered”

Do you agree?

Example: Statement of the problem

Factors Contributing to Unattended Delivery among ANC Attendants at Government-owned Health Centers in Addis Ababa.

Addis Ababa is the capital city of Ethiopia with an area of 530 km^2 and a total population of 3 Million. It has 10 sub- cities. The health service coverage of Addis Ababa is 71%. There are 5 hospital, 24 health centers, 32 health posts & more than 500 private health institutions providing health services including ANC and Delivery.

ANC coverage of the city is estimated at 86%. Despite this high coverage of ANC only 56% of pregnant women give birth in health institutions, while the remaining 44% deliver elsewhere, including unattended home deliveries. Unattended deliveries are known to be associated with maternal and perinatal morbidity and mortality, such as antepartum hemorrhage (APH), postpartum hemorrhage (PPH), birth trauma, infection, and fistula.

There are no studies that have examined the factors contributing to unattended delivery despite high overall service coverage and antenatal care coverage in Addis Ababa. Many health institutions attempt to improve the situation through the training of traditional birth attendants, expanding health education and community mobilization activities. However, these efforts are not based on systematic evidence into possible determinants of the prevailing practice. The present study is intended to contribute to bridging the information gap, and subsequently the coverage of institutional deliveries in the city.

Literature Review (LR)

Learning objectives

By the end of this session, student will be able to:

- Describe the reasons for reviewing available literature
- Describe the steps of literature searching
- Search for literature from different sources
- Write literature review for your own research proposal

Definition of LR

- Literature review is an account of what has been published on a topic by accredited scholars and researchers
- A literature review is a systematic and thorough search of the literature to identify as many relevant items as possible related to the subject being studied

Literature Review (LR)...

- It is the process of reviewing the works of others before commencing on your own research work
- Literature review asks how similar and related questions have been answered before by others
- It can help in identifying the relevance of the present research

Literature Review (LR)...

- It helps to identify the study variables and conceptualize their relationships

- It helps in the formulation of research hypotheses and research questions

What are the purpose of literature review

- Avoids duplication (prevents “re-inventing the wheel”)
- It helps further understanding and refining of the statement of the problem
- It helps to find out what others have learnt and reported on the present topic in the past
- It helps to justify the present study

Purpose of literature review

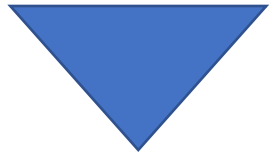
- It should provide you with convincing arguments for why your particular research proposal is needed
- It helps to become more familiar with the various research approaches and processes
- It helps to identify indicators for study variables (operational definitions for the study variables)

What are the possible sources of information?

- Individuals, groups, and organizations;
- Published information (books, articles, indexes, abstract journals); and
- Unpublished information? (other research proposals in related fields, reports, records, computer data bases) etc…

Organization of literature review

- After the required information is identified, literature review should be written in the form of inverted triangle:
  - From global to local
  - From broader to specific
  - From past to current



Literature review must do the following things:

- Be organized around and related directly to the present research problem
- Synthesize results into a summary of what is known and is not known
- Identify areas of controversy in the existing knowledge
- Formulate questions/hypothesis that need further research

Literature review

- Summarize and discuss the most recent (≤5 years) and most relevant publications related to your research project
- It means that you have read and summarized the literatures by yourself
- Summaries copied from other sources together with the references (called cross-referencing) is considered as a plagiarism

Literature review

- The summaries of the important information in each of the references should be recorded on separate index cards or as computer entries.

- What If there is no literature discovered/available for your problem?

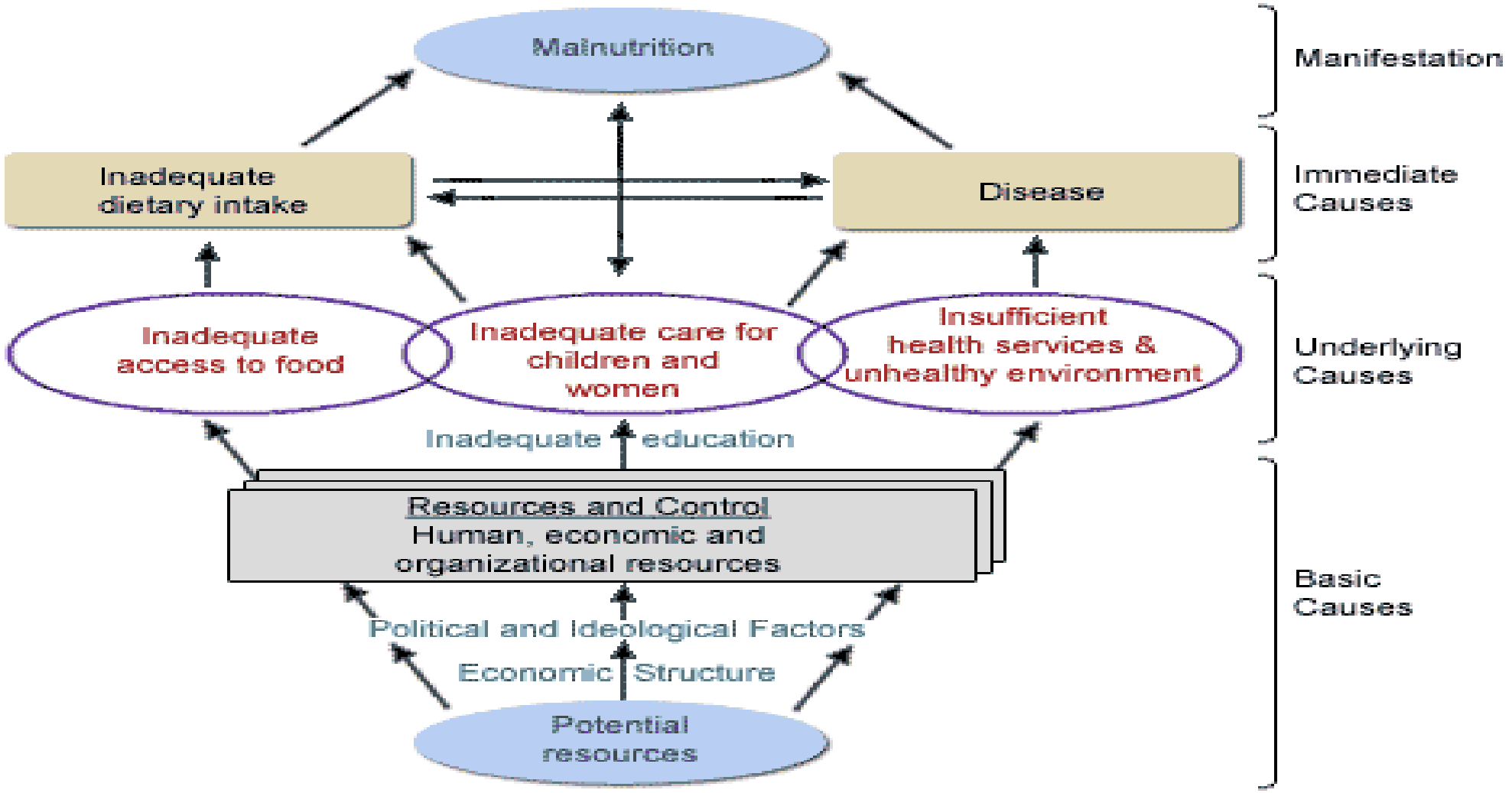
Tips on literature review

- A literature review is not only done at the start of a proposal development, but throughout the proposal writing process, during implementation of the study, and when analyzing and writing the study findings up to publication.

Conceptual framework

- It is a set of broad ideas and principles used to structure a subsequent presentation.
- Every research activity is conceptualized and will be carried out within some contextual framework.
- Conceptual frameworks represent ways of thinking about a problem or a study, or ways of representing how complex things work.

Example: Conceptual framework on malnutrition



Justification of the study

- It is also called significant of the study, purpose of the study and rationale of the study

- Why the present research need to be conducted? Examples:
  - Others not large enough (small sample size)
  - Different segment of study populations
  - Different study settings
  - Different intervention strategies
  - Different study designs/methods
  - The first of its kind etc…

Rationale of the study/Justification

- State the knowledge/practice gap the research will try to fill/minimize and usefulness of the end results

Why your research is needed to be carried out?

- Knowledge/practice gap (research gap)
- Expected results of the proposed research
- Implications and uses of the research output to solve the current problem

Formulating research objectives, questions & hypothesis

Learning objectives

By the end of this session, students will be able to:

- Describe why a research objectives should be developed
- Discuss the research hypothesis and question
- Describe the difference between general and specific objectives
- Discuss the characteristics of a good research objectives
- Formulate research objectives for your own research proposal

Research question and hypothesis

- To develop the research design, the research topic has to be changed to a research question or hypothesis

- Research questions can be formulated when insight into the problem being studied is not sufficient

Research question…

- Research question should be:
  - Focused each covering a single point
  - Ordered in a logical sequence
  - Realistic and feasible to answer
  - Measureable outcomes at the end of the research

Research questions…

- A good research question includes the following elements (PICO)
  - The Patient in question (the problem)
  - The Intervention (or exposure) being considered
  - A Comparison – an alternative intervention or group
  - The Outcome of interest

Research questions: Examples

- Is nutritional status at initiation of ART has an effect on survival of children with HIV?

- Is nutritional status at initiation of ART has an effect on CD4 response of children with HIV?

Research hypothesis…

- Hypothesis is a prediction of a relationship between one or more factors/ variables and the problem
- It requires sufficient knowledge of the problem to be able to predict relationships among factors which then can be explicitly tested
- If researchers know enough to make predictions concerning what they are studying, hypotheses may be formulated

Research question and hypothesis…

- Research hypothesis is relevant to theoretical research and typically used in quantitative inquiry
- Research question is most often used in qualitative inquiry
- A research question poses a relationship between two or more dependent and independent variables but phrases the relationship as a question

Research hypothesis…

- The research hypothesis may be stated in a directional or non directional form

  - A directional hypothesis statement indicates the expected direction of results

  - A non directional hypothesis indicates no difference or no relationship between study variables

A well-written hypothesis focuses the attention of the researcher on specific variables

Research hypothesis…

- Hypothesis should be very specific and limited to the piece of research in hand because it has to be tested

Example: A directional hypothesis

There has been significant change in the decline of underweight among children over the past 15 years in Ethiopia.

Research hypothesis: Examples

- There is no significant change in the decline of underweight among children over the past 15 years in Ethiopia
- Health education involving active participation by mothers will produce more positive changes in child feeding than health education based on lectures.”

Formulating research objectives

- Research objectives are the goal to be achieved by a research project
- The objectives of a research project summarize what is to be achieved by the study

Type of research objectives…

- Research objectives are classified into
  - ❑ general objective and specific objectives
- It is important to ascertain that the general objective is closely related to the statement of the problem

General objective

- The general objective of research is what is to be accomplished by the research project
- General statements specifying the desired outcomes of the proposed research project

  - It should be clearly related to the statement of the problem
  - It indicates what exactly will be studied
  - It summarizes what is to be achieved by the study

Specific objectives

- It is the specific aims of the research project
- It indicates measurable statements on the specific questions to be answered
- The first specific objective usually focuses on quantifying magnitude of the problem
- It indicates the variable to be examined and measured

Specific objectives…

- Are logically connected parts of the general objective
- There should be logical sequence of the specific objectives
- It is recommended that not to have more than three specific objectives in academic research
- Use action verbs specific enough to be measured

Specific objectives…

- Use operational action verbs such as:
  - To determine
  - To describe
  - To calculate
  - To estimate
  - To explore
  - To formulate
  - To verify
  - To assess
  - To establish
  - To identify
  - To test
  - To compare etc…
- Do not use non-action verbs such as:
  - To appreciate
  - To understand
  - To believe
  - To study
  - To see
  - To show
  - To know etc..

Forms of research objectives

Research objectives can be stated as:

Question:

"The objectives of this study are to answer the following questions …"

Positive sentence:

"The objectives of this study are to determine …"

Hypothesis:

"The objective of this study is to verify the following hypothesis..."

Forms of research objectives…

- The format chosen depends on the type of study:

o If the study is descriptive or exploratory in nature, then the objectives are stated in the form of questions or positive sentences

o If the researcher knows enough to make predictions concerning what the researcher is studying, then the hypotheses may be proposed

Why should research objectives be developed?

- Focus the study (narrowing it down to essentials);
- Avoid the collection of unnecessary data
- Organize the study in clearly defined phases/parts
- Helps for evaluating the research project

❑ Properly formulated objectives will facilitate the development of research methods and will help to orient the collection, analysis, interpretation and utilization of data

How should you state the objectives?

Take care that the objectives of the study:

- Cover the different aspects of the problem and contributing factors in a coherent way with a logical sequence
- Are clearly phrased in operational terms
- Are feasible and realistic considering local resources
- Are phrased to clearly meet the purpose of the study

Research objectives should be:

- Simple (not complex)
- Specific (not vague)
- Stated in advance (not after the research is done)
- Stated using "action verbs" that are specific enough to be measured

Characteristics of good research objectives

- Logical and coherent
- Feasible
- Realistic, considering local conditions
- Defined in operational terms that can be measured
- Phrased to clearly meet the purpose of the study