Literature Review and Research Hypothesis

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Introduction

Review of literature is a key step in research process. Nursing research may be considered a continuous process in which knowledge gained from earlier studies is an integral part of research in general. Before any research can be started, literature reviews of previous studies and experiences related to the proposed investigations should be done.

- **Definition of Literature Review:**

Review of literature is defined as a broad, comprehensive in depth, systematic and critical review of scholarly publications, unpublished scholarly print materials, audiovisual materials and personal communications.

Purpose of Literature Review

The typical purposes for reviewing existing literature are:

1- To generate research questions.

2- To identify what is known and not known about a topic.

3- To describe methods of enquiry used in earlier work including their success and shortcomings.

4- Determine gaps, consistencies and inconsistencies in the literature about a subject, concepts or problem.

5- Discover unanswered questions about a subject, concepts or problem.

6- Describe the strength and weakness of designs/methods of inquiry/ and instruments used in earlier works.

7- Determine the appropriate research design/method for answering research question.

8- Determine the need for replication of well-designed study.

9- Promote development of protocols and policies related to nursing practice.

On research process, the literature review is essential to:

1- Determine how well theory and research are developed in the study.

2- Define concepts.

3- Examine research design, methods, instruments, measures and techniques of data collection and analysis used by others.

4- Identify study for replications or comparisons.

5- Examine difficulties reported by others.

6- Identify a guide to use in writing the research report.

Criteria of Literature Review :

Good literature review should satisfy the following criteria:

1- Objectives of literature review are met.

2- Quality studies that were relevant are included.

3- Study purpose, sample size, design and specific findings are presented succinctly.

4- The study strength and weakness are critiqued briefly.

5- Adequate primary sources are reviewed.

6- Sources are paraphrased and summarized rather than directly quoting the ideas.

7- There is logical flow of content.

8- Honesty of information and ethical considerations are considered.

- **Sources of Literature Review:**

The sources of literature review can be primary or secondary.

- **Primary Source:**

It is written by the person who originally responsible for the published ideas, developed a theory or conducted a research.

- **Secondary Sources**

It is the summary of content of primary source. The authors of the secondary source paraphrase and describe the study or studies of the original researcher.

The useful sources are:

- Journals.

- Books.

- Conference proceedings.

- Government reports.

- Newspapers.

- Internet.
- CD-ROM.
- Magazines.
- Guide to library.
- Research reports.
- New letters, pamphlets.

Sources of literature:

- **Print sources:**

Two types:

- Indexes – contain reference materials on periodicals and some books.
- Abstract – contain brief summaries of articles which includes purpose, methods and major study findings.
- **Electronic sources:**

Online data bases

- CINAHL(Cumulative index to Nursing & Allied health Literature)
- Registry of Nursing Research.
- MEDLINE Databases.
- Cochrane Database of Sytesmatic Review.

- **Steps of Literature Review:**

Literature review is a systematic search for information, which follows the following steps:

1- Search for sources.

2- Locate the sources.

3- Review the selected literature.

4- Synthesize/ paraphrasing the reviewed literature.

5- Organize the reviewed literature.

6- Write the literature review.

Variables:

A characteristic, attribute of a person or object that differs among the persons or object being studied (eg. Age, sex, blood type etc.)

- **Classification of research variables:**
- **1- One variable study/ univariate study:**
- Ex. "what sources of work stress are identified by thoracic care unit nurses?"
- **2- Two variables study/bivariate study:**

One is dependent and the other is independent.

Ex. Is there a correlation between the number of sources of stress reported by nurses in a thoracic intensive care. The independent variable is " the number of reported sources of stress." and the dependent variable is the desire to leave to leave employment in the thoracic intensive care unit.".

- **3- Multi-variables study/ multivariate study:**

more than two variables are examined in a study

Ex. Why clients do not take their medications as directed after they are discharged?

- Why do nursing students pass/fail the examination?

Types of variables:

- **Independent variable:**

The "cause" or the variable thought to influence the dependent variable in experimental research it is the variable manipulated by the researcher.

- **Dependent variable:**

The "effect" a response or behavior that is influenced by the independent variable; sometimes called criterion variable.

❖ **Hypothesis definition:** A statement of predicted relationship between the independent and dependent variables .

- **Example: Cigarette smoking is related to lung cancer.**
- **Hypothesis Allows theoretical propositions to be tested.**

-Suggests an answer to the research question .

-Provides the reader with an understanding of the researcher's expectations.

-Guides the research design

-Dictates the type of statistical analysis to be used.

- **Types of Research Hypotheses:**
- **H1**

1-Directional

2-Nondirectional

- **Types of Hypotheses:**

- Simple
- Complex
- Null Hypothesis (H0).

- **Simple Hypothesis:**

- The relationship between one independent and one dependent variable.
- Independent variable: cause, first
- Dependent variable: effect
- **Example: Birth weight is lower among infants of alcoholic mothers than among infants of nonalcoholic mothers.**

- **Complex Hypothesis:**

Relationship between Two or more independent variables, two or more dependent variables, or both.

- **Example: More postpartum depression and feelings of inadequacy are reported by women who give birth by cesarean section than those who deliver vaginally.**

- **Null Hypothesis ;**

- May read as “H0” Predicts **no** relationship Is statistically analyzed.

- **Non directional Research Hypotheses:**

- Predicts relationship between variables.
- Does not predict direction of relationship.
- **Example: There Is a Relationship Between blood pressure Levels and headache.**

- **Directional Research Hypotheses:**

✓ Predicts the direction of the relationship

✓ **Example: People Who Smoke Are More Likely to Develop Lung Cancer Than Those Who Do Not.**

Advantages of Directions Research Hypotheses:

✓ Researcher's expectations clear.

✓ More precise testing of theoretical propositions.

✓ One-tailed statistical tests.

Reasons to Use Non directional Research Hypotheses:

- No theory to base prediction on.
- Previous research findings contradictory.

❖ **A Hypothesis Should:**

- Be written in a declarative sentence.
- Be written in the present tense.
- Contain the population.
- Contain the variables.
- Reflect the problem statement, purpose statement, and research question.
- Be empirically testable.
- **Hypothesis Format:**
- A correlational statement
- A comparative statement
- Statistical analysis
- Predictive Terms:
- Examples:
- -Less
- -Greater
- -Decrease in
- -Negative correlation

When Are Hypotheses Not Needed?

-Qualitative studies.

-Single-variable descriptive studies.

❖ **Preference for Research Hypothesis:**

1-Clarify study's framework.

2-Demonstrate researcher's critical thinking.

3-Based on theoretical framework.

❖ **Critiquing Hypotheses and Research Questions:**

- Does the study contain a hypothesis or hypotheses?
- Is each hypothesis clearly worded and concise?
- Is it written in a declarative sentence?
- Is each hypothesis directly tied to the study problem?
- Is the study framework clearly defined with each hypothesis derived from it?
- Does each hypothesis contain the population and at least two variables?
- Is it apparent that each hypothesis can be empirically tested?
- Does each hypothesis contain only one prediction?

❖ **Data Collection:**

- **Before Data Collection:**
- -Be sure to obtain necessary permission and clearance.
- -Institutional Research approval of studies with Human Subjects.
- -Consent from participants.
- -Be sensitive to the needs of participants.
- -Confidentiality of personal information.
- -Be sure that the data is handled and analyzed. by an adequately trained, objective and unbiased individual.
- **Data Collection Methods:**
- Data collection is a process of collecting information from all the relevant sources to find answers to the research problem, test the hypothesis and evaluate the outcomes.

- **Data collection methods can be divided into two categories:**

1-primary methods of data collection.

2- Secondary methods of data collection.

❖ **Primary Data Collection Methods:**

- **Primary data collection methods can be divided into two groups: quantitative and qualitative.**

1-Quantative data collection :

- are based on mathematical calculations in various formats.
- Methods of quantitative data collection and analysis include questionnaires with closed-ended questions, methods of correlation and regression, mean, mode and median and others.
- Quantitative methods are cheaper to apply and they can be applied within shorter duration of time compared to qualitative methods.
- Moreover, due to a high level of standardisation of quantitative methods, it is easy to make comparisons of findings.
- **The Quantitative data collection methods:**
- rely on random sampling and structured data collection instruments that fit diverse experiences into predetermined response categories. They produce results that are easy to summarize, compare, and generalize.

2- Qualitative research methods:

- on the contrary, do not involve numbers or mathematical calculations. Qualitative research is closely associated with words, sounds, feeling, emotions, colours and other elements that are non-quantifiable.
- Qualitative studies aim to ensure greater level of depth of understanding and qualitative data collection methods include interviews, questionnaires with open-ended questions, focus groups, observation, game or role-playing, case studies etc.
- The choice between quantitative or qualitative methods of data collection depends on the area of the research and the nature of research aims and objectives.

❖ **Secondary Data Collection Methods:**

- Secondary data is a type of data that has already been published in books, newspapers, magazines, journals and online portals .
- secondary data to be used in the study plays an important role in terms of increasing the levels of research validity and reliability.

➢ **Interviews:**

- Collecting data through interviews with participants is a characteristic of many qualitative studies.
- Interviews give the most direct and straightforward approach to gathering detailed and rich data regarding a particular phenomenon.
- Interviews are most often carried out face to- face, though the use of telephone interviews to overcome geographical barriers to participant recruitment is becoming more prevalent.
- Interview types relates to the degree of structure.

1-An open or unstructured interview.

- It based on a single question, with the interviewer and interviewee that shaping the conversation.
- 2-A prewritten schedule interview **.** This can be particularly suited to methods in which participants are being encouraged to tell a story of their life or experiences, such as narrative enquiry.
- An example of the type of study in which these open, conversational interviews are well suited was an exploration of the impact of time on the work of Registered Nurses.
- Interviews challenges to researchers.

1-Most interviews are recorded and will need transcribing before analysing. This can be extremely time-consuming,

- with 1 hour of interview requiring 5–6 hours to transcribe.
- The analysis itself is also time-consuming, requiring transcriptions to be pored over word-for-word and line-by-line.

2-Interviews also present the problem of Bias.

- the researcher needs to take care to avoid leading questions or providing non-verbal signals that might influence the responses of participants.
- **Example of an interview question:**

►► What do you think is the most effective way of assessing a child's pain?

- **Focus groups:**
- The focus group is a method of data collection in which a moderator/facilitator (usually a co-researcher) speaks with a group of 6–12 participants about issues related to the research question.
- -the focus group offers qualitative researchers an efficient method of gathering the views of many participants at one time.
- This provides an opportunity to gather rich data from a specific population about a particular area of interest, such as barriers perceived by student nurses when trying to communicate with patients with cancer.
- The focus group may provide a more relaxing environment than a one-to-one interview; they will not need to be involved with every part of the discussion and may feel more comfortable expressing views when they are shared by others in the group.
- -Focus groups provide a vast amount of data to be transcribed and analyzed, with discussions often lasting 1–2 hours.
- Moderators also need to be highly skilled to ensure that the discussion can flow while remaining focused and that all participants are encouraged to speak, while ensuring that no individuals dominate the discussion.

➢ **Observation:**

- Participant and non-participant observation are powerful tools for collecting qualitative data, as they give nurse researchers an opportunity to capture a wide range of information. such as verbal and non-verbal communication, actions (eg, techniques of providing care) and environmental factors—within a care setting.
- Another advantage of observation is that the researcher gains a first-hand picture of what actually happens in clinical practice.

- **Observation challenges:**
- It provides the researcher with some unique methodological and ethical challenges.
- Methodologically, the act of being observed may change the behaviour of the participant (often referred to as the 'Hawthorne effect'), impacting on the value of findings.

➢ However, most researchers report a process of habitation taking place where, after a relatively short period of time, those being observed revert to their normal behaviour.

- Ethically, the researcher will need to consider when and how they should intervene if they view poor practice that could put patients at risk.