

Research process

This is a systematic and organized process aimed at acquiring valid knowledge about issues of importance in any discipline. It involves a systematic steps involved in carrying out research. In quantitative research, researchers move from beginning of a study (posing a question) to the end point (obtaining an answer) in a reasonably linear sequence of steps that are broadly similar across studies (Polit & Beck, 2012). In some studies, the steps overlap, in others, certain steps are unnecessary. Different authors have enumerated the steps in different ways. Akpabio and Ebong (2010) enumerated the steps as follows

- ✓ Problem definition
- ✓ Stating general and specific objectives
- ✓ Stating research questions/ hypothesis
- ✓ The scope of the study
- ✓ Significance of the study
- ✓ Operational definition of terms
- ✓ Literature review and identification of theoretical/conceptual framework
- ✓ Methodology, which includes
 - Study design
 - Study setting
 - Research population
 - Sample and sampling techniques
 - Method of data collection
- ✓ Data presentation and analysis
- ✓ Presentation of result
- ✓ Discussion of findings and recommendations

Polit and Beck (2017) listed the steps into five phases as follows

- ✓ Conceptual phase
- ✓ Design and planning phase
- ✓ Empirical phase
- ✓ Analytical phase and
- ✓ Desimination phase

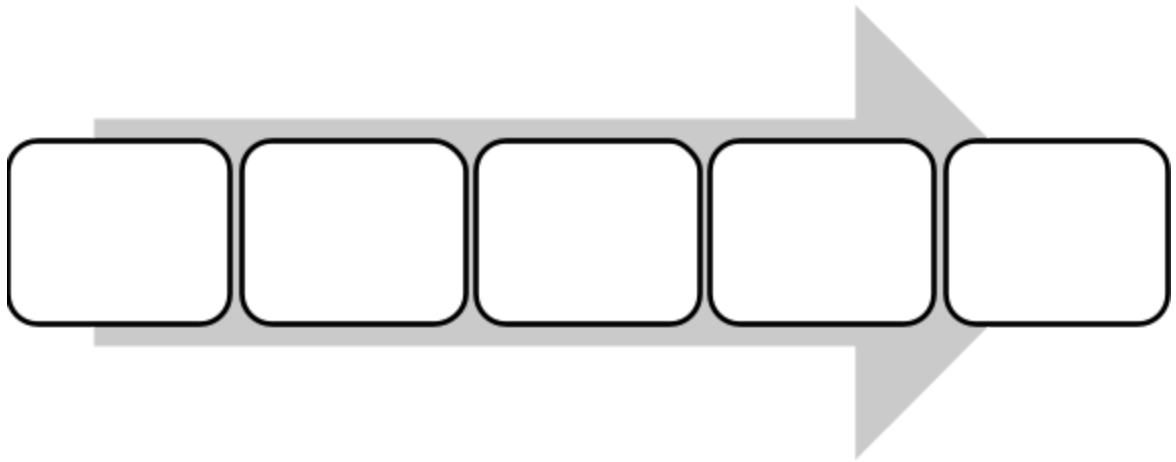


Fig.1: Phases of the research process adapted from Polit and Beck (2012)

PHASE 1: CONCEPTUAL PHASE

Conceptual phase involves activities like reading, conceptualizing, theorizing and reviewing ideas with colleagues or advisers. In this phase, the researcher calls on such skills as creativity, deductive reasoning and a firm grounding in previous research topic of interest. The steps here include;

- **Step 1; Identification of the research problem**

Quantitative research begins with by identification of interesting, significant research problem and formulating research questions. Sources of research problems include

clinical experience, nursing literature, social issues, ideas from external source and theories etc

- **Step 2; Review of literature**

Quantitative research is typically conducted in the context of previous knowledge. A thorough literature review provides a foundation on which to base new evidence and usually is done before data are collected.

- **Step 3; Identification of variables**

The independent and dependent variables in the topic should be identified. It will enable the researcher to develop conceptual framework for the study if applicable. The researcher should have a conceptual definition of the key variables

- **Step 4; Formulate hypothesis**

A hypothesis is the statement of the researcher's expectation or predictions about relationships among variables (Polit & Beck, 2012). Hypothesis is the predicted answer to research question example research question might be: Is preeclampsia toxemia related to Puerperal Psychosis in Okoko Item. It can be translated into the following hypothesis; women with high level of preeclampsia toxemia during pregnancy will be more likely than women with lower level of preeclampsia toxemia to experience Puerperal Psychosis in Okoko Item.

- **PHASE 2: THE DESIGN AND PLANNING PHASE**

In the second phase of quantitative research study, researchers make decisions about the methods they will use to address the research question. If the methods used to collect and analyse research data are flawed, the evidence from the study may have little value

- **Step 5: selecting the research design, identifying the population to be studied, choose a sample, and specifying methods to measure variables**

The research design is the overall plan for obtaining answers to the research questions (Akpabio & Ebong, 2006). In designing the study, researchers select a specific design and identify strategies to minimize bias (Polit & Beck, 2012). Research design indicate how often data will be collected .what types of comparisons will be made and where the study will take place. It is the architectural backbone of the study.

- Quantitative researchers need to clarify the group to whom study results can be generalized. In order word, researchers must identify the population to be studied. A population is all the individuals or objects with common, defining characteristics example the population of interest might be all diabetic patients attending clinic in a particular community health centre.
- Researcher collects data from a sample which is a subset of the population. Using sample is more practical than collecting data from an entire population but the risk is that the sample might not reflect the population's traits. The quality of the sample depends on how typical or representative, the sample is of the population (Burns & Grove, 2005). The sampling plan specifies how the sample will be selected and recruited and how many people will be selected

- Quantitative research also will develop methods to measure the research variable accurately. The primary methods of data collection are self reports (example interview), observation and bio physiologic measurements.

- **PHASE 3: THE EMPIRICAL PHASE**

The empirical phase of quantitative studies involves collecting data and preparing the data for analysis. It is often the most time consuming part of the investigation

- **Step 6: collect and reduce data**

The actual collection of data in quantitative studies often proceeds according to the pre-established plan (Akpabio & Ebong, 2006). The plan specifies where and when the data will be gathered, procedures for describing the study to participant and methods for recording information

- Data collected undergo coding which helps to translate verbal data into numeric form.

- **PHASE 4: THE ANALYTIC PHASE**

Quantitative data are not presented in raw form (i.e. as a mass of numbers). They are subjected to analysis and interpretation which occurs in the fourth major phase of project

- **Step 7: Analyzing the data**

Quantitative researchers analyze the data through statistical analysis which include simple procedures example computing an average as well as ones that are complex.

- **Step 8: Interpreting the result**

Interpretation involved making sense of study results and examining their implication. Researchers attempt to explain the findings in light of prior evidence. Interpretation also involves envisioning how the new evidence can best be used in clinical practice and what further research is needed.

PHASE 5: THE DISSEMINATION PHASE

Researcher responsibilities are not completed until study results are disseminated

- **Step 9: Report findings**

A study cannot contribute evidence to nursing practice if the results are not shared. Report findings can be disseminated in various ways like conference presentation, publications in journals. The information gotten can then be used as evidence for practice.