Project: Ghana Emergency Medicine Collaborative

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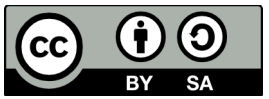

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What would you do?

- A Philanthropist puts a notice on the bulletin board in the A&E. She wrote that she is willing to fund a GHC200,000 nursing study in honor of her mother who was an A&E nurse.
- She is asking for suggestions. What study would you suggest?

Importance of Nursing Research

- Nursing research empowers every nurse's clinical practice.
- Nurses can ask questions aimed at gaining new knowledge to improve patient care, the nursing profession and health care overall.
- Research-based (evidence based) practice = integrating research findings into clinical decision making

Importance of Nursing Research

- Accountability for care-related decisions
- Research expands nursing practice
- Reinforce the identity of nursing as a profession – knowing/ understanding our patients and the health care experience

How Does this Affect Our Work in the A&E?

- How can nurses improve their credibility in the health sciences?
  - By showing credible findings that demonstrate their impact on health.

- Do you know certain aspects of patient care in the A&E that aren't working? Or certain ways that work better than others?
  - Research on these topics can help to change problems or reinforce positive solutions.

History of Nursing Research

- Began with Nightingale and the Crimean War- mid 1800s
- Early 1900s – problems in nursing: education, staffing issues
- 1960s Practice oriented research; first nursing research journals
- 1983 - ANA Center for Research for Nursing

Biswajyotim, OCAL

Research- fun and exciting?

- "The essence of all research originates in curiosity - a desire to find out how and why things happen"

- How can…?
- Why is…?
- What is the best way to…?
- What causes…?
- What are the effects of…?

I wonder...

Scientific Inquiry

- Observable, verifiable data is collected in order to:
  - Describe
  - Explain
  - Predict events

Scientific Method

- Select/define a problem
- Formulate a research question/ hypothesis
- Collect data
- Analyze data
- Report results

Scientific Method

- Objectivity – distance research from personal beliefs, values, attitudes Why???

- Empirical Data – documenting objective data through direct observation = reality

Research Questions

- Cannot be answered by Yes or No.

- Should ask:
  - What happens when…..?
  - What is going on here?
  - How does this happen?
  - Why does on thing work better than another?

Nursing Research

- Application of scientific method to areas of interest to nursing

- Primarily involves studying people – People do not behave consistently as do objects/ chemicals in a laboratory!

This poses special challenges!

Evidence-Based Nursing Practice

- EBNP is the process by which nurses make clinical decisions based on the best available research evidence, their clinical practice and patient preferences, in the context of available resources.

- Practice based on evidence from nursing research is an approach that enables clinicians to provide the highest quality of care in meeting the multifaceted needs of patients and families.

Budin, 2008

The Research Idea: Where does it come from?

- Professional experience
- Burning questions
  - Yours
  - Others
- Literature
- Professional meetings
- Discussions

Research Topics

- Observations
- Behaviors
- Concepts
- Theories
- Testing of assessment and intervention strategies

A Research Question Must Identify

1. The variables under study
2. The population being studied
3. The testability of the question

Criteria for developing a good research question: FINER

- Feasibility
- Interesting
- Novel
- Ethical
- Relevant

Cummings et al. 2001

FINER

Feasible

- Subjects
- Resources
- Manageable
- Data Available

Interesting

Novel

- New idea, untested idea

Ethical

- Social or Scientific Value
- Safe

Relevant

- Advance scientific knowledge
- Influence clinical practice

Research Design: the basics

- Qualitative
- Quantitative
- Descriptive
- Correlational
- Quasi-Experimental
- True Experimental – Randomized Controlled Trial (RCT)
- Meta-Analyses and Systematic Reviews

Quantitative Research

- Formal, objective, systematic process using
  - measurement
  - hypothesis testing
  - data analysis

- Traditional approaches such as experiments, questionnaires, surveys

jean_victor_balin, OCAL

Quantitative Process

1. Identify the research problem.
2. Review related literature.
3. Frame the problem conceptually.
4. Formulate hypotheses.
5. Select a design.
6. Identify population, sampling plan.
7. Select and test methods to measure variables.

Quantitative Process (Continued)

9. Protect human rights.
10. Review and finalize the research plan.
10. Collect the data.
11. Analyze the data.
12. Interpret the findings.
13. Communicate the findings.
14. Participate in the process of disseminating the findings.

Qualitative Research

- Evaluate subjective life experiences and give meaning to them
- Focuses on understanding phenomena from an individual's perspective
- Approaches: observation, in-depth interviews, case studies, narrative analyses

Qualitative Process

1. Identify a research problem.
2. Do a literature review.
3. Select and gain entrée into research sites.
4. Utilize a design that emerges as data is collected. May be ethnographic, phenomenological, grounded theory, historical.

Qualitative Process (Continued)

5. Address ethical issues.
6. Collect the data.
7. Analyze the data.
8. Interpret the findings.
9. Communicate the findings.
10. Participate in the process of disseminating the findings.

The Research Language - Some Terminology

- Variable
- Data
- Rigor
- Control
- Sampling
- Setting

juliobahar, OCAL

Concept of a Variable

- Measurable characteristic that varies among subjects
- Research is conducted because this variance occurs!
- Types:
  - Independent – presumed cause
    - Example: Salt intake
  - Dependent – presumed effect
    - Example: Blood pressure reading

Variables

- **Have 2 or more properties or qualities**
  - Age, sex, weight, height
- **Is one variable related to another?**
  - " Is X related to Y? What is the effect of X on Y?" etc.

Data

- Pieces of information obtained in a study
- Are the actual "values" of the study variables
  - Quantitative - numeric values
  - Qualitative - narrative descriptions

Concept of RIGOR

- Striving for excellence in research. Involves:
  - Discipline
  - Adherence to detail
  - Strict accuracy!
  - Uses precise measurement tools

sarxos, OCAL

Concept of CONTROL

- Using "rules" to decrease error and increase probability that study findings are an accurate reflection of reality
- Ensure results that reflect true relationship among variables
- Reduction of the influence of unwanted "extraneous" variables
- Example: A control group of test subjects left untreated or unexposed to some procedure in order to provide a standard of comparison to the experimental group.

Concept of SAMPLING

- Who/what do you want to study?
- Choosing subjects who are "representative" of the study population
- Random & Non-Random Sampling- when to use?

josephluis, OCAL

Concept of SETTING

- Location of the study - can affect results
- Natural Setting: Uncontrolled, real life situation
- Partially Controlled: Manipulated or modified in some way
- Highly Controlled: Artificial environment for sole purpose of doing research. Decreases effects of outside influences.

Some Myths About Research

- The purpose of research is to "prove" or "confirm" a theory.
- Research findings are presented as complete and conclusive answers.
- There is a hierarchy of research methodology that places true "experimental" research at the top.

Intro to the Research Process

- Involves decision making
  - What methods will help to answer a research question/test a hypothesis?
- Is flexible - multiple possibilities, each with its own strengths/weaknesses
- Is a circular process

JoBrad, OCAL

The Research Process

- What do I want to know?
- Does anyone else know anything about this?
- I'll make an educated guess about what I think the answer to my question will be.
- Here's what I'm going to do to try to answer my question.

The Research Process

- I'll try to make sense out of all this info I've collected.
- What did I find? Was my hunch supported?
- What do I want to know now???

Major Phases in the Research Process

- 1. Selecting and defining the problem in need of investigation
- 2. Selecting a research design
- 3. Collecting data
- 4. Analyzing data
- 5. Utilizing the Findings

Background

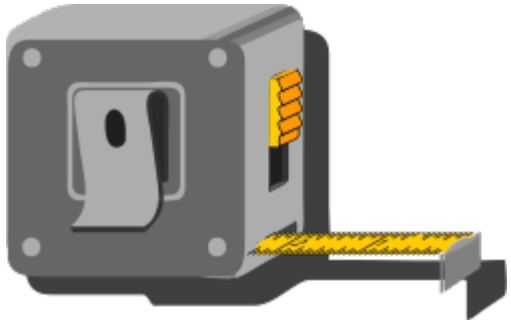
- Selecting and defining the problem (area of research)
- Identify a question or area where knowledge can be advanced
- Review related literature for rationale to do study
- Identify a theoretical framework to guide the study.
- Propose a research question and/or hypothesis

Design, Variables and Sample

- Choose study or research design
- Identify a Study Population
- Design Sampling Plan
- Define how will variables be measured
  - Setting
  - How data will be collected - tools
- Pilot Study - Revisions

Gathering the Data

- Data Collection - according to pre-established plan (implements the plans designed in Phase I & II)
  - recruiting
  - obtaining consent
  - training staff
  - collecting data



- Organization of the data
  - How do you analyze the data?
  - (must be appropriate form)

- May be the longest phase of the research process

Analyze and Interpret

- Data Analysis
- Interpret findings
  - Draw conclusions
  - Hypothesis is supported or rejected (chap 10)
  - How best to utilize findings?
  - New question formulated? (can lead to new questions that can stimulate further study)

Dissemination

- Disseminate findings - Share findings with colleagues
  - May report findings in journal articles, oral presentations, poster presentations
- Utilize findings - use in nursing practice

Types of Research: Basic Vs. Applied

- Basic or "Pure" Research:
  - Pursuit of knowledge or finding truth
  - Generates, refines or tests theory
  - Often uses laboratory setting
  - Findings may not be directly useful in practice
  - May be used later in development of treatment/drug/theory

johnny_automatic, OCAL

Basic Vs. Applied

- Applied or "Practical" Research
  - Knowledge intended to directly influence clinical practice
  - Conducted in actual practice conditions
  - Solve problems, make decisions, predict/control outcomes
  - Evaluate interventions
  - Test/validate theories
  - Evaluate "Basic" research knowledge for usefulness

Experimental vs. non-experimental

- **Experimental:** Researcher manipulates or controls variable(s) and observes effect in other variable(s)
- Evaluates cause and effect relationship
- Ex: Does a pre-op intervention program to ↑ self efficacy affect self care measures post-op?

- **Non-experimental:** Describes or looks at relationships(s) or correlation between variables.
- Variables are not manipulated by the researcher
- Ex: Correlation between HRT use and breast CA

Descriptive Research

- Uses questionnaires, surveys, interviews or observations to collect data

Correlation Research

- Relationships between and among variables
- Collection of data on at least 2 variables for the same group of individuals
- Calculator-the correlation between the measurer
- Highest number of research studies in nursing are classified as description correlation design

Time dimension: Retrospective vs. Prospective

- Retrospective: Examines data already collected in the past
- Ex: Review of medical records to examine previous history in of cholesterol levels in s/p MI patients

- Prospective: examines data being collected in the present
- Ex: Study describing social support and coping mechanisms of women with ovarian CA

Time Dimension: Cross-Sectional vs. Longitudinal

- Cross-sectional: Collects data at **one point in time**
- What exists today?
- Longitudinal: Studies examines variables of interest **over a period of time**
- **Advantages –ability to collect data on the same individual over time**