

Nursing Research Framework

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To further understand the relationship between theory and research in nursing, it might be helpful to first consider theories and research with which you are more familiar.

Contemporary Theories

First, think about the Big Bang Theory (BBT), which is a speculation about the beginnings of the universe billions of years ago. A few of the core ideas of the BBT are:

- Before *The Beginning*, if you will, a state of dense, gaseous, hot, elementary particles existed
- Conditions occurred that brought these particles together in a unique way
- Over billions of years, the material formed became complex enough to produce galaxies
- From the moment of the initial coming together, there has been a continued expansion of the universe.

This theory is not just the product of someone's imagination; rather it came about as a way of making sense of scientifically collected data indicating that the universe has been expanding since its inception. The main ideas proposed by the BBT have been tested in research by cosmologists and by physicists using particle accelerators. These studies have produced considerable scientific support for the BBT, but that support does not fully confirm that matter and the universe began as proposed by the theory. Over time, the BBT will be modified by new research findings; eventually it will be either confirmed or rejected.

Then there is the theory of evolution. This theory has been around since proposed by Charles Darwin in the mid 1800s. Its main ideas, i.e., propositions, include:

- A species' genetic material i.e., DNA, can change over time, and thus produce different biological traits in its offspring
- These changes occur incrementally over millions of years
- Some trait changes serve the adaptation of the species (Think of bacteria that change to become resistant to antibiotics.)

- Competition and cooperation within a species promote certain traits over others
- Traits that promote adaptation become more common in the species
- Changes in traits can eventually lead to a new species that is different from its predecessor in an important way

There is strong scientific evidence to support these propositions, which together outline how the evolution of new species occurs and others die out. Paleontologists continue to study when and how transitions from one species to another occurred. When Darwin's ideas about the evolution of species first came out, they were a very speculative theory. Today, they are still a theory, albeit widely accepted by scientists, and provide a knowledge context for delving further into genetics and biology.

In contrast to evolution is the theory about human actions contributing to global warming. This theory has been around just since the 1950s, so less research has been conducted on it than has been done regarding evolution. There is difference of opinion among scientists regarding the propositions that the effects of human action are significantly contributing to increasing global temperature. Some would argue that there is sound scientific evidence showing that the warming of our planet is in part man-made; others say, "Yes, the world is warming, but this is just a normal fluctuation that occurs periodically." A 2009 poll by the Pew Research Center found that 84% of scientists say the earth is getting warmer because of human activity.

Still, the proposition is theoretical, not a certainty. Considerable research is underway looking into the effects of coal burning plants, wide use of fossil-fuels, de-forestation, sources of methane, and transportation emissions—among other issues. Thus, the various theoretical propositions that state a relationship between human activity and global warming continue to be tested by scientific observations, data analysis, and experimentation.

Nursing Theories

The theories just discussed are broad theories in that they propose explanations for the dynamics of big phenomena. Within nursing, there are broad theories, although not as broad as the ones just discussed. There are also nursing theories of less broad range, that is, more narrowly focused; they are called middle-range theories.

Grand Theories

A broad nursing theory explains in terms applicable across an array of situations how nursing actions influence patient health and health outcomes. A broad nursing theory includes assumptions, concepts, definitions, and propositions about the relationships between concepts that explain wellness, illness, what nurses do for patients, and how nursing care contributes to client well-being. Sometimes, these broad theories are referred to as grand theories because of their broad scope. Grand theories with which you might be familiar include:

- Myra Levine—Conservation Model
- Meleis, Afaf –Transitions Theory.
- Roy, Callista –Adaptation Theory
- Orem, Dorothy—Self Care Deficit Theory
- Roper, Logan and Tierney—A model for nursing based on a model of living

Researchers may use one of these theories as a context for their study. This can be done in one of several ways:

- a) Concepts from the theory may be used to determine what aspects of a situation the study examines;
- b) Definitions from the theory may be used to define terms in the study;
- c) The propositions from the theory, which are typically quite general, may be reformulated into more specific, testable research questions or hypotheses.

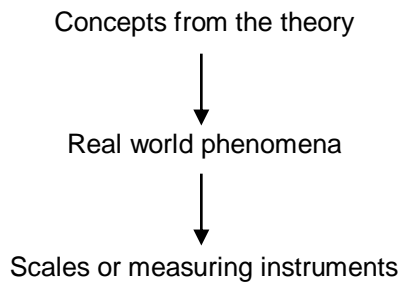
Thus a researcher may use theory to design a study, but at the same time the study challenges some aspect of the theory by testing—whether its components exist as the theory says they do, and whether the propositions stated by the theory work in reality. The components of a grand theory are abstract so as to be applicable across situations. In contrast, the research testing a theory asks very specific questions, which are derived from the more abstract components and propositions of the theory. Thus, the theory is challenged to prove itself under real world conditions--in a specific setting, with a particular population, and under specified conditions. From a different point of view, the research questions or hypothesis are derivations of the theory.

Consider this example. Researchers at the Johns Hopkins University School of Nursing wanted to study fatigue in cancer patients and the effects of an exercise program on fatigue (Mock et al., 2007). They decided the Levin Conservation Model provided a useful framework because cancer and its treatment produce a threat to the well being and quality of life of an individual. Note that the clinical question came first, not the theory; this is most often the way a theory becomes a theoretical framework for a research study—not the reverse.

A main proposition of this theory is that nurses support adaptation by helping the patient conserve energy, structural integrity, personal integrity, and social integrity. Therefore, the researchers used these four areas of conservation as outcomes the exercise program was expected/hoped to produce.

- Conservation of energy was represented by fatigue, symptom distress, and sleep; each patient experiences was measured using questionnaire scales at various times during the exercise program.
- Conservation of structural integrity was represented by ability to perform activities of daily living and a physical functioning scale
- Conservation of personal integrity was represented by a mood, anxiety and depression scale
- Conservation of social integrity was represented by a social functioning scale

Thus, the four somewhat abstract areas of conservation from the theory were translated into more specific clinical outcomes (fatigue, sleep, physical functioning, mood, depression, and social functioning). Further these outcomes were made even more concrete by the scales, or instruments, used to measure them. This two-step translation enabled the researchers to test the hypothesis that cancer patients receiving therapy who participated in an exercise program would have higher level of physical functioning and quality of life compared to similar patients who do not participate in regular exercise. Thus, measurable clinical states stood in for the un-measurable abstractions of the theory, and this provided a test of the theory—in proxy, if you will.



As importantly, the theory guided the outcomes that were studied, and will provide a coherent explanation for why the exercise program worked—IF it proves to be effective. Unfortunately, Dr. Mock, the lead investigator died in 2007, and the findings of this study have not been reported. However, Mock and colleagues did report in the 2007 article that the Levine Conservation Model provided a useful framework for designing their study; they also reported some difficulties and limitation in doing so.

Middle-Range Theories

These theories are more restricted in scope than the grand theories. Narrower scope is not a bad characteristic—in fact, it can be a good thing. Their narrower scope makes the concepts, definitions, definitions, and propositional statements of mid-range theories more concrete (i.e., less abstract) and more specific than those of grand theories. As a result mid-range theories are often easier to relate to real world situations and applications than grand theories are. The greater specificity also makes it easier to test mid-range theories under research conditions.

Examples of mid-range theories include:

- Choi's theory of marginality (Choi, 2008)
- UCSF School of Nursing Symptoms Management Faculty Group's theory of the symptom management (Humphreys et al., 2008)
- William's theory of care giving dynamics (Williams, 2008)

To illustrate one of these, the major concepts in Choi's theory of marginality are across culture conflict recognition, marginal living, and easing cultural tensions (Choi, 2008). One

proposition of this theory is that responses to marginal living include assimilation, return, poise, and integration. Poise is defined as the response whereby an individual remains on the margins of both cultures even though this response creates many conflicts and stresses. Integration is defined as the response by which an individual creates a new third culture by combining the old and new cultures. Can you see how this theory would be helpful if you wanted to study the stresses involved in being a Mexican-American immigrant in a rural Canadian farm community? Importantly, this theory is based to some extent on research.

The Health Belief Model is a mid-range theory developed outside nursing that has been used as a guide to studying nursing issues (Spector, 2007). A main proposal of this theory is that an individual considering adopting a new health-related behavior takes into account, at varying levels of awareness:

- a) the threats posed by the health problem;
- b) the benefits of avoiding the threats; and
- c) the barriers to performing the behavior, cues to action, and self-efficacy for performing the behavior.

Another proposal of the theory is that whether an individual actually performs a change in health behavior is determined by whether they believe they can successfully make the change; this is known as self efficacy. The Health Belief Model has served as the theoretical framework for many nursing studies.

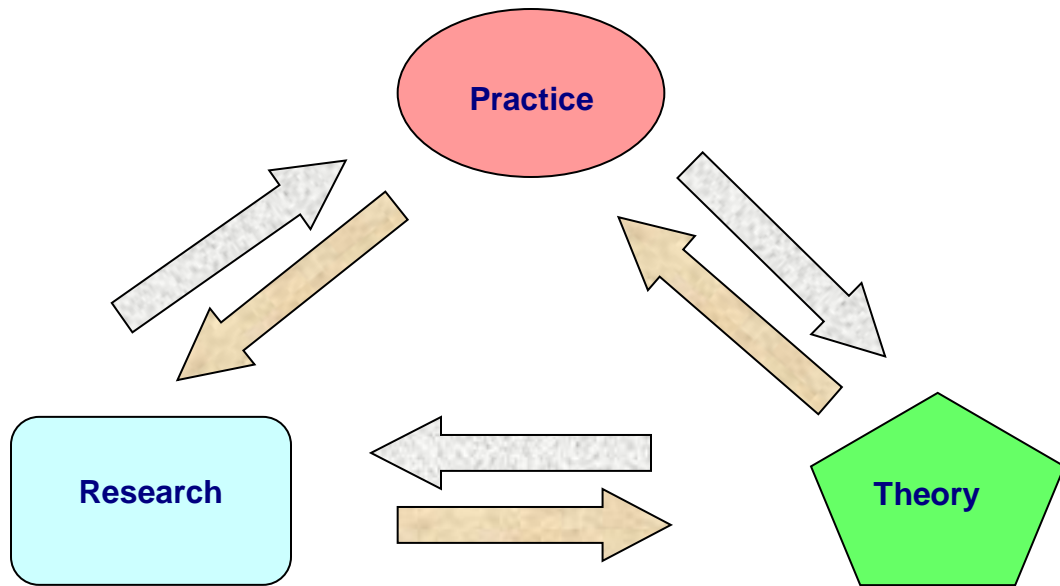
A personal aside is that the first time I was exposed to the Health Belief Model, I realized that the post myocardial infarction teaching I was providing was overly fact-based and did not take into account: a) what the patient thought he might gain by adopting the life style modifications I was suggesting; b) what barriers existed in his daily life to prevent him from adopting the behaviors; or c) whether he had any confidence that he could integrate them into his life. Subsequently, I changed how I engaged in teaching patients about how to reduce their risk of future heart attacks. This anecdote reveals how theory can affect practice.

Theory-Practice-Research Relationships

Some theories have their origins in the findings of studies that were conducted about the particular clinical issue. As you will learn in Chapter 4, the main purpose of some types of qualitative research is to uncover and shed light on complex social processes and formulate theories about them. Other times, enough quantitative studies about a clinical issue have been done to consider their findings as a body of related findings. A synthesis of these findings can shed light on the dynamics of phenomenon and be used to produce a theory.

Other theories arise directly out of the experiences and observations of clinical practice. A nurse may notice that shortly after removal of their breathing tube many patients display signs of a particular emotional response; this may lead this nurse to talk to some patients about her observation and formulate a theory about post-extubation emotional responses.

Importantly, all theories need to be tested to determine if they accurately portray the real world and how it works. They start out as proposals about reality; the next step is to determine if the proposed theory is an accurate representation of reality. Testing occurs when researchers either use the theory as a framework for a study or test a hypothesis derived from the theory. As studies using the theory accrue, the adequacy and accuracy of a theory is either confirmed or refuted. If the theory comes up short in these research tests of it, it will eventually be abandoned and a more useful theory will be adopted. Thus, the relationship between theory, research, and practice is a dynamic one with bi-directional flow between all three components of nursing knowledge.



Theory in Research Reports

If a study does use a theoretical framework, you will see it in several ways in the research report:

- The theory will be mentioned in the introduction
- The concepts and propositions of the theory will determine what is studied
- The definitions of the theory will guide the way the variable of the study are viewed
- The findings of the study will be considered in relation to the theory

Having said all this about the relationship between theory and research, it must be recognized that not all research is conducted within the context of a recognized theory. Thus, some introductions may contain no mention of a theoretical framework. This is particularly true of physiological research, which often uses what is known about the issue from previous research and what still needs to be examined as the context for the study. Unfortunately, some research articles claim that the study was designed using a particular theoretical framework, but the connection between the theory and the study purposes, design, and methods is very loose or not evident at all (other than the general topic).

Lastly, there is considerable difference of opinion regarding whether it is important to use theoretical frameworks as guides to conducting nursing research. Your instructor may have views

about this issue that are somewhat different from what I have presented. As you read research articles with theoretical frameworks, you will undoubtedly develop an opinion about whether the use of a theoretical framework made the design of a particular study stronger and the findings more useful to practice.

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