

## Strategies of Middle-range Theory Development in Nursing

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### Introduction

Theory development in nursing can be viewed to have progressed during the last 50 years in three periods: (a) the era of specifying theoretical orientations for nursing that occurred during the period of 1950s and 1960s, (b) the era of grand theorizing during the 1970s and 1980s, and (c) the era of middle-range theory development in the last two decades. The first era was characterized by the attempts of several nursing leaders and scholars to identify specific nursing orientations in an effort to disassociate and differentiate nursing from medicine. There were two distinct directions with which theoretical orientations for nursing were specified: one was the specification of what the focus of nursing is in relation to clients, namely what has been identified as the patients' needs orientation advanced by Henderson, Abdellah, and others, and the other was the focus on nursing's unique nature from the interaction perspective as was done by such scholars as Peplau, Orlando, Travelbee, and Widenbach. By specifying the theoretical and professional ori-

entation of nursing in terms of patients' needs as with the 14 basic needs of patients by Henderson and the system of 21 nursing problems by Abdellah, nursing leaders and scholars were attempting to shift from disease-orientation to nursing-specific problem orientation. On the other hand, the interaction perspective was an attempt to provide theoretical approaches regarding how nursing is done rather than what sorts of problems in patients nursing is oriented to solving. These two groups of theoretical work in nursing during this initial period were oriented to providing general frameworks and systems of terminologies rather than in advancing specific theoretical systems. However, these proposals and developments were the impetus and foundation from which the second era of theoretical efforts emerged.

The second era of grand theorizing was a critical development for nursing in several respects: (a) it provided unique nursing perspectives and frameworks; (b) it placed the idea of theory firmly into the nursing culture especially in relation to education and research, and

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(c) it motivated nursing scholars to examine epistemological philosophies critically in order to understand the directions with which nursing was developing theories and examine the philosophical foundations for nursing theory development. During this era, the integration of holism into theoretical and conceptual frameworks became evident in different forms, and the theoretical attempts were oriented to address all aspects of nursing's concerns such as clients, nursing strategies, and processes of nursing practice. The grand theories and conceptual frameworks developed during this period such as the science of unitary human beings by Rogers, the adaptation model of Roy, the Neuman Systems model, Orem's self-care model, and Human becoming theory of Parse provided general frameworks for conceptualizing and sometimes explaining phenomena in clients from the nursing perspective, and had been most instrumental in advancing ways of assessing clients and their problems. Although some of these models specify theoretically rigorous formulations, in general these models, being too abstract or too general, were often thought to be conceptual frameworks rather than theories as they were limited in providing specific theoretical grounds for research and practice. This shortcoming in a way paved the way for nursing's more recent attempts to develop middle-range theories.

Hence, the third era emerged with a focus on developing middle-range theories not only because of the failure of grand theories in providing satisfactory explanations of nursing phenomena but also because of other developments such as the surge of empirical research drawing from middle-range level propositions and test-

ing theories developed in other disciplines, advances in concept development in nursing, and an increase in systematic research programming by many researchers that resulted in progressive knowledge developments in various substantive areas (e.g., women's health, chronic illness, and infant care). There also was an increased interest in developing intervention theories, which was found to be difficult to do within the frameworks of grand theories. In addition, the exposure and training in various theory development strategies of nursing researchers and scholars added to the interest in developing middle-range theories during these decades. Lier and Smith (1999) identified 22 middle-range theories in the nursing literature, and Benoliel (1996) in her review of grounded theory work in nursing from 1980 to 1994 identified a list of about 100 grounded theory research by nurse-researchers. In addition, there were 12 publications since 1999 in which the authors claimed to have developed middle-range theories in nursing.

While the fervor and interest with which nursing has put its efforts in developing middle-range theories are evident in the number of such theories being published in the literature, there is a paucity of discussion regarding strategies of middle-range theory development. Walker and Avant (1995) have proposed the strategies of theory derivation and theory synthesis as approaches to theory development in nursing, although without eluding these to be specifically appropriate for middle-range theory development. Otherwise, there is no compendium that provides a comprehensive discussion of middle-range theory development strategies. This paper thus provides a review and compila-

tion of strategies thought to be appropriate for developing middle-range theories.

Approaches to middle-range theory development appropriate to nursing may be classified into four groups: (a) inductive, (b) deductive/analytic, (c) reconstructive, and (d) interpretive. This grouping reorganizes the approaches identified by Lenz (1998) that included inductive theory building, deductive theory building, combining nursing and non-nursing theories, deriving theories from other disciplines, synthesizing theories from published research findings, and developing theories from clinical practice guidelines.

## **Inductive Approaches**

Inductive theory development approaches include strategies of theory-discovery in line with the philosophical assumptions of induction. The concept of induction is based on the belief that empirical data or actual occurrences of phenomena are the basis from which we can draw and discover general patterns and regularities. Such discovered patterns and regularities can lead to logical formulations of generalizations and theories. Although scientists and philosophers have not been able to settle the issue regarding the fallacy of induction raised by Hume, inductive approaches have been developed and applied in various scientific fields by incorporating rigorous sampling techniques, logical arguments, and philosophical assumptions. In nursing four specific strategies applying various levels of commitment to induction are thought to be important and appropriate: (a) analytic induction, (b) grounded theory, (c) fieldwork/ethnography, and (d) epi-

demiological approach.

### **1. Analytic Induction**

Analytic induction is an approach that is based on strategic induction rather than enumerative induction. Postpositivism is its philosophical foundation, and the basic assumption of this approach is in the belief that it is possible to generate a theory by strategically setting up an inductive discovery that depends on seeking disconfirmation of an initial hypothesis through an emergent analysis. Lofland (1995) suggests that the most critical aspect of analytic induction is the researcher's neutral and dispassionate attitude in discovery and observation. The approach begins with a formulation of an initial hypothesis (or hypotheses) through preliminary observations of phenomena, which is then exposed to emergent analysis for disconfirmation and/or revision carried out through depth-discovery and penetration into data (see Musson, 1998, and Becker, 2001). Data for this approach can come from various direct methods of observation and interviews.

In nursing, most researchers using fieldwork to generate theories seem to rely on analytic induction as a strategy to analyze data; however do not specify this as a specific approach separate from general qualitative, inductive methods. Kang's work (2002) advances a theory of suffering derived from this approach.

### **2. Grounded Theory**

Grounded theory developed by Glaser and Strauss (1967) framed within symbolic interactionism has been applied in nursing by many scholars during the past 30 years. The original

intent was the discovery of theory regarding social processes embedded in people's experiences in social life viewed from the perspective of symbolic interactionism. However, with the publication of a book by Strauss and Corbin (1990) in proposing grounded theory procedure as a strategy in qualitative research devoid of its original orientations in symbolic interactionism and social processes, it became necessary to consider grounded theory encompassing two separate strategies as suggested by Benoliel (1996): grounded theory research and grounded theory "approach".

The basic tenets of grounded theory research are its commitment to symbolic interactionism with which social processes and people's experiences are understood and explained, and direct exposure to on-going social processes and experiences. In grounded theory research, various sorts of data from direct exposure of researchers to on-going social life, including those from participant observation and interviews, are used. Hence, discovered grounded theories emerge through interpretations of social data from this theoretical perspective, and are derived from meanings of social life as it is experienced by people. Benoliel (1996) thus insists that grounded theory research should be thought of as an interpretive theory discovery method rather than as an inductive process. On the other hand, research applying the grounded theory procedures is usually from the postpositivistic orientation. Theories resulting from the application of grounded theory "approach" as suggested by Strauss and Corbin are not committed to symbolic interactionism and are basically open to various theoretical orientations. Sometimes, researchers applying

grounded theory procedures in qualitative research do not present theory as results of studies. When theories are the products of such research, they usually confirm only to the form of theory consisting of antecedents and consequences.

In both modes of application of grounded theory the major processes originally identified by Glaser and Strauss are used: namely, theoretical sampling, various levels of coding, constant comparison, and theoretical memoing. Among many grounded theories that have been developed and published (see Benoliel, 1996), the most recent ones are by Wuest (2001) and Kearney (2001).

### 3. Fieldwork/Ethnography

The fieldwork approach, as a version of ethnography without the ethnographic (i.e., anthropological) focus on discovering a culture theory as its aim, has been popular as a method of theory generation in nursing. However, a specific fieldwork approach in clinical nursing has not been well illustrated in the literature, thus most nurse-researchers rely on the method as described and discussed in sociology and anthropology (for example, Emerson, 2001; Atkinson, 2001; Hammersley & Atkinson, 1995; and Polkinghorne, 1983). The approach in general begins with a commitment to a theoretical framework, a worldview, or an explanatory model, which provides a framework for determining a direction of investigation and scope of data collection and analysis. The analytic orientation is ampliative induction, and the approach relies on various data sources through participant observation, various forms of interviews, and records. Since the method is ori-

ented to ampliative induction, data collection and analysis occur concurrently for a continuing and emergent interplay between data and analysis, which results in theory generation. The common orientation in fieldwork is an integration of emic and etic perspectives (see Emerson, 2001).

In nursing, Schwartz-Barcott (1998) gives an illustration of three fieldwork studies for theory development. The concept differentiation approach (Kim, 1992) drawing from the hybrid model of concept development (Schwartz-Barcott and Kim, 2000) is based on the fieldwork approach, emphasizing clinical practice as the beginning step in theory generation in nursing.

#### 4. Epidemiological Approach

Epidemiological approach of theory generation relies on an analysis of quantitative data from the perspective of open induction for theory generation. It is based on the assumption of enumerative induction. The starting point for this approach is a selection or determination of a phenomenon for explanation, that is, a determination of a dependent variable for which an explanation is sought. The model of explanation adopted for this approach is a multi-cause, structural model, with an aim for identifying as complete a list of causal factors as possible from a comprehensive set of data. Most commonly the theoretical model is a bio-behavioral-psycho-socio-ecological explanation of human phenomena. This approach relies on statistical procedures for theoretical conclusions, thus calls for a collection of various sorts of quantitative data thought to be relevant to the phenomenon of concern. Ryan (1982) suggests this method as consisting of several steps with

an orientation for causal inference. The theoretical explanations advanced for low-birth weight infants and patients' fall have relied on this approach. Lunney and colleagues (2003) developed an explanation for functional decline at the end of life through this approach.

### **Deductive/Analytic Approaches**

The basis of deductive/analytic approaches for middle-range theory development is the reliance on analytic arguments, most often with the application of deductive logic, rather than on data as the primary source for generation of theoretical ideas. However, there must be empirical relevance in applying any of the approaches in this category, and theories developed through these approaches should have heuristic values in their explanations. There are six approaches found to be useful in developing middle-range theories in nursing: (a) deductive derivation, (b) systematic inventorying and analytic derivation, (c) theory synthesis, (d) theoretical modeling, (e) qualitative synthesis, and (f) prescriptive theory derivation. These approaches are not purely deductive in the philosophical definition of deduction, but rely on analytical procedures as the primary method for arriving at theoretical conclusions. In this sense, theories that are developed through these approaches may be called "deductive/analytic" theories.

#### 1. Deductive Derivation

The deductive derivation as a method begins with an assumption that it is possible to extract sub-theories from a general theory by applying appropriate deductive logic. Thus, the

starting point of this approach is an existence of a well-formed, logically rigorous general theory that consists of a system of general propositions regarding well-delineated concepts. Sub-theories from a general theory are derived by applying either propositional calculus or set theory in order to arrive at logical relationships between general concepts to sub-concepts and/or between general propositions and specific propositions. Sub-theories are concerned with limited scopes and contain concepts that are less abstract than those in general theories.

In nursing, there are sub-theories such as the urine control theory (Jirovex, et al., 1999), the psychological adaptation theory (Levesque, et al., 1998), and the post-traumatic stress model (Woods & Isenberg, 2001) derived from the Roy Adaptation Model, and theories derived from Rogerian Science of Unitary Human Beings. Since it is necessary to have well-formed, logical general theories, and apply logical arguments to derive theories through this method, there have not been many sub-theories developed by this method in nursing. Even those sub-theories that are based on grand theories in nursing, the application of logical arguments and logical derivation has not been stated clearly in the presentation of such sub-theories.

## 2. Systematic Inventorying and Analytic Derivation

Systematic inventorying is an approach suggested by Blalock (1964, 1969, and 1984) that is deemed most appropriate when there is an evidence of rich empirical research regarding a phenomenon that points to several micro-theoretical ideas but is not based on a systematic (or comprehensive) theory that ties the existing

empirical findings together. The motivation for this approach is also in developing a theory that provides as comprehensive an explanation as possible given the evidence. This approach has been elaborated in nursing by Walker and Avant (1995) and Fawcett (1999). This approach involves inventorying of research evidences in terms of causes and effects regarding a phenomenon of interest, and then processing a systematic selection in order to build a system of relationships. A system of relationships constructed through an analytic process of selection, clustering, and streamlining results as a middle-range theory. Since this is only possible when there is a rich empirical base for the phenomenon of interest and since the results of empirical research should exhibit a high degree of internal and external validity, an application of this approach often poses a practical problem. Colling's work on the development of taxonomy of passive behaviors in people with Alzheimer's disease (2003) is an example of theory development applying this approach.

## 3. Theory Synthesis

Walker and Avant (1995) proposed this approach of theory synthesis modifying the Blalokian inventorying approach. This method is an approach for theory development by integrating and synthesizing information from empirical evidence, one's own fieldwork, and theoretical literature into a theoretical network. The authors suggest that this approach is most appropriate when there are evidences that relationships among at least three factors exist that need to be synthesized. This approach has been applied for the development of theories of unpleasant symptoms (Lenz, et al., 1995 & 1997),

transitions (Meleis, et al., 2000), resilience (Polk, 1997), and uncertainty (Mishel, 1988).

#### 4. Theoretical Modeling

Theoretical modeling is an approach used often in social sciences to arrive at a refinement and consolidation of theoretical ideas that are loosely formed and are used as guides for empirical research. It is a method of theoretical representation of elements, characteristics, structures, and processes of a set of factual entity. Models developed are to include "hypotheses" about the underlying and inaccessible structure of reality, often in a casual structure. In this approach theoretical models are considered to be sets of instructions for generating behavioral or structural data that can represent the behaviors or the structures of a real system. Therefore, a theoretical model results from an analytical thinking that systematizes understandings about a given phenomenon revealed from a comprehensive review of the literature, an exposure to various theoretical explanations, and personal knowledge gained from research and clinical experiences. Theoretical modeling includes several steps: an identification of the patterns of behavior of the concerned phenomena, clarification of one's own "world" model, derivation of assumptions and premises from known theories and empirical findings, identification of the phenomena for explanation, identification of entities that will provide explanations, specification of descriptive variables for each component, identification of relationships (form and nature), and formalization of the model (Asher, 1976; Blalock, 1985; & Dwyer, 1983). Theoretical modeling has been used in constructing and testing models, for ex-

ample, for perimenstrual syndrome, menopause, compliance, and coping with chronic illness.

#### 5. Qualitative Synthesis

A growing body of literature in nursing from various qualitative methods has provided an impetus for a development of an approach to synthesize findings from such studies for theory development. Because often qualitative studies represent results that are limited by small sample sizes and study subjects' contexts, researchers have been reluctant to specify theory generation as outcomes of their studies. Qualitative synthesis as a method of theory generation is an approach for an integration of findings into a system of generalizations about specific phenomena (see Morse, 1997; and Morse, et al., 2002). Estabrooks and colleagues (1994) suggest one approach, while other researchers have presented theories developed applying various methods of qualitative synthesis, such as the theory of chronic sorrow (Eakes, et al., 1998), Finfgeld's work (1999) on "courage as a process of pushing beyond the struggle", the model of caring and comfort developed by Jenny and Logan (1996), and the model of epileptic stigma specified by Scambler and Hopkins (1990). The major problems with this approach are: (a) Often various qualitative research reports on a given phenomenon are likely to have adopted different philosophical orientations regarding the nature of reality and interpretation, meaning that such diverse philosophies may not be coherent with each other; and (b) Theory-generating researchers applying qualitative synthesis are likely not to have an access to original qualitative data, making theoretical efforts to rely only on original re-

searchers' interpretations and analyses of data. One solution to these criticisms has been to encourage qualitative researchers to synthesize their own works or work in teams. There is a need to identify specific analytic procedures that are appropriate for qualitative synthesis, addressing the issues of selective integration, clustering, and expansion.

## 6. Prescriptive Theory Derivation

Nursing's interest in developing intervention theories has spurred proposals for various techniques of prescriptive theory derivation, such as the method proposed by Moore and colleagues for the use of practice guidelines to delineate middle-range theories (Good & Moore, 1996; Ruland & Moore, 1998; and Huth & Moore, 1998), and the method proposed by Blegen and Tripp-Reimer (1997) for the use of NANDA, NIC, and NOC to make linkages among these three components into theories. These procedures need to be examined further as they rely on conclusions that have been drawn from the literature and represent many theories rather than a single theory of prescription.

These are approaches identified as having inductive or deductive perspectives, that is, within the two main perspectives of theory development. Some of these represent responses to and innovations based on the changing philosophies, attitudes, and scholarly culture. The movement from positivism to postpositivism and relativism has been responsible for the loosening of ideas regarding what is the nature and structure of scientific theories.

## Reconstructive Approaches

Theory development has flourished from the perspective of reconstruction in the recent decades because of various reasons: (a) many researchers and theoreticians have to find ways to deal with rich evidential bases of theoretical and empirical work in a given substantive area, which are sometimes complementary, competitive, or conflictive; (b) there has been a great deal of discussion regarding paradigm shift and paradigm integration; and (c) pluralism has to be addressed in relation to heuristic consequences and practice implications. There are three forms of reconstruction in theory building appropriate for nursing.

### 1. Theory Integration

Approaches to theory integration are based on the assumption that synthesizing two or more theories or aspects of theories can result in more comprehensive or heuristically superior theories. There are three distinct theory integration methods: complementary synthesis, selective integration, and additive integration. An approach of complementary synthesis has been proposed by Turner (1989) in which two or more theories can be coalesced to clarify and elucidate processes that are embedded and not well-articulated in an original theory. The method of selective integration refers to a process of theory reconstruction in which certain aspects of given theories are selected for integration and reconciliation, specified as theory-knitting by Kalmar and Sternberg (1988) for example. The aspects selected for integration are those considered to be theoretically strong and confirmed parts of given theories and which are



thought to be coherent together. The additive integration approach has been advanced by Clagget (1989), Burr (1973), and Kim (1983) by which two or more theories are added together in order to expand theoretical explanation for a given phenomenon. This approach is used mostly when complex phenomena are the foci for theory development, such as the concept of collaborative decision-making in nursing practice in Kim's model.

These theory integration approaches have in common an assumption that well-developed theories as wholes or parts can be brought together into integrated systems of theoretical explanations. The key aspects of integration are expanding or clarifying theoretical explanations further from what is possible with a single theory.

## 2. Paradigm Mapping

Pluralism in theory development and an existence of diverse paradigm orientations in an area of study have stimulated many scholars to consider theory integration as a process involving assessment, consolidation, and synthesis. Gioia and Pitre (1990) and Dluhy (1995) have advanced specific procedures for this approach. Dluhy (1995) suggests a method of paradigm mapping as the starting point for theory integration for areas of study that constitute diverse conceptual formulations and theoretical advances, by illustrating the process for the substantive area of chronic illness. This process is most appropriate when there are active research interests and theory development regarding phenomena within substantive areas of study, such as chronic illness, women's health, health behaviors, and client-nurse interaction.

The first step involves a comprehensive review of the literature for a compilation of theoretical and empirical evidence identifying diverse conceptualizations of key phenomena of interests in the area of study. It is followed by a mapping process in which the literature is categorized into clusters according to ontological, epistemological, and theoretical orientations. Identified clusters are then considered for possible theory integration. From this, several middle-range theories within a substantive field can emerge for further examination.

## 3. Retroductive Reconstruction

Retroduction is a concept expanded by Hanson (1958) for advancing theoretical work. The concept of retroduction incorporates the idea of abduction from Aristotle, and is oriented to specifying the process of theory revision in a systematic and logical fashion. The first step in retroduction is a theory that has been developed by a deductive/analytic formulation. A theory is used as the basis for empirical observations in order to confirm or disconfirm its propositions. The assumption is that if theories have been well-thought out and developed with a rigorous application of logical arguments, they are rarely disputed (or disconfirmed) in entirety. However, when empirical observations show a partial disparity from the proposed predictions by the theory, then it becomes necessary to reconstruct the original theory. Therefore, a theory given the evidence of disparity is reformulated using deductive logic in light of new findings. Such reconstruction allows a retaining of the confirmed aspects of the theory with an addition or revision that is based on the evidence. While there is no literature in nursing specifically

identifying this approach for theory reconstruction, many researchers have applied a relaxed version of this in their proposals for theory revision in dealing with findings that are contrary to the predictions by theoretical propositions. Retroductive reconstruction is thus a method that can be specified as analytically rigorous approach for theory revision in nursing, especially in dealing with aberrant findings.

### **Interpretive Approaches for Theory Building**

The concept of scientific theories has gone through a vast revision during the past three decades from one that was strictly oriented to explanation and prediction within the positivistic philosophy (especially in logical positivism) to ones that embrace the notions of understanding and description. Acceptance of pure descriptions and contextually based understandings as legitimate orientations for scientific theories have also expanded the ideas regarding how theories can be developed in sciences in general and more particularly in the human sciences. From this shift in thinking and philosophy, many forms of theories such as theories of description, understanding, meaning, critique, and emancipation are accepted, and different approaches to developing these sorts of theories have been advanced. Most of these approaches apply interpretation as the method of analysis. There are four somewhat distinct approaches within this orientation: (a) phenomenological approaches, (b) hermeneutic approaches, (c) critical approaches, and (d) poststructuralist approaches (see Denzin & Lincoln, 2000 for oth-

er approaches). The starting points for these approaches are the philosophical assumptions undergirding them, and because of the differences in the philosophical assumptions for them the nature of theories emerging from these are different.

The starting point for the phenomenological approaches is in the philosophic assumption of "essences" of phenomena and the primacy of subjectivity in terms of consciousness, perception, and meaning. Hence, theories emerging from phenomenology are theories of description regarding phenomenal essences as revealed through consciousness and meaning. Although there are various procedural proposals from phenomenologists such as by Giorgi, Collazzi, and VanMannen, which have been applied in nursing studies, the variations in the phenomenological methods are not critical. What is critical is the conception of the nature of theories emerging from this perspective.

Hermeneutic approaches based within the works especially by Gadamer, Ricouer, and Heidegger have been applied in nursing. The starting point for hermeneutic approaches is the assumption of historicity, contextuality, and meaning constructions regarding both subjects' experiences and researchers' interpretation. Hence the results of hermeneutic research are theories of understanding and meaning through interpretation of human experiences. Given this, theories developed through hermeneutic approaches are contextually bound. Theories of meaning and understanding from hermeneutic approaches are therefore non-absolute, but enlightening.

Critical philosophy and poststructuralism as two variant philosophical positions within the

postmodernism orient us to different sorts of theories in human sciences. Critical philosophy is based on a general theory that identifies systematic domination in social life and proposes a project of emancipation. Theories from this philosophical perspective developed through such methods as critical action research or critical ethnography are theories of domination and emancipation for specific forms of social life. On the other hand, poststructuralism assumes the principal role of investigation to be in revealing and examining the nature and forms of systematic distortions brought on by language and power, and is oriented to developing knowledge through critique. Hence, the orientation is a theory of critique.

As revealed in the preceding discussions, there are many approaches to middle-range theory development applicable to nursing. Which method or approach to adopt in theoretical work has to be determined both by the nature of phenomena and the philosophical assumptions held by researchers (Kim, 1993). It is also important to realize how critical a researcher's model of explanation (or form of theoretical understanding) is in influencing a type of theory that is developed (Kim, 2000). In applying a specific strategy of theory development the nurse-researcher must understand the assumptions and procedural requirements of the selected method so that there is no misconstrual both in the process and productions.

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