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*Self-Care, Dependent-Care, & Nursing* is the official journal of the International Orem Society for Nursing Science and Scholarship. The editor welcomes manuscripts that address the mission of the Journal.

**MANUSCRIPT PREPARATION**

Use standard English. The cover page must include the author’s full name, title, mailing address, telephone number, and eMail address. So that we may use masked peer review, no identifying information is to be found on subsequent pages. Include a brief abstract (purpose, methods, results, discussion) followed by MeSH key words to facilitate indexing.

The use of metric and International Units is encouraged. Titles should be descriptive but short. Full-length articles should not exceed 15 double-spaced pages. Use of the *Publication Manual of the American Psychological Association* (5th ed.) is strongly encouraged but not mandatory. When required by national legal or ethical regulations, research-based manuscripts should contain a statement regarding protection of human subjects.

**M i s s i o n:**
To disseminate information related to the development of nursing science and its articulation with the science of self-care.

**V i s i o n:**
To be the venue of choice for interdisciplinary scholarship regarding self-care.

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We value scholarly debate, the exchange of ideas, knowledge utilization, and development of health policy that supports self- and dependent-care.

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Manuscripts are reviewed anonymously. One author must be clearly identified as the lead, or contact, author who must have eMail access. The lead author will be notified by eMail of the editor’s decision regarding publication.

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WHO OWNS, WHO DEFENDS, SCDNT?

The issues of intellectual property and intellectual integrity are, as I see them, inextricably intertwined. As scholars and seekers of truth and understanding, we have chosen a framework within which we define, describe, apply, research, debate, and develop nursing as a discipline. Much of what we read in the professional literature is supposed to have met the test of peer review. Peer review is supposed to uphold intellectual integrity. However, what should we do—what are we obligated to do—when we are faced with threats to intellectual property and intellectual integrity?

There are those who believe that Self-Care Deficit Nursing Theory is a theory of the middle range, and that there is a grander theory that might seek to explain all manners of self care. There are those who argued at the inception of this journal that SCDCN should be a forum for presentation and discussion of all theory related to self care. I argued then as I do now, "Such as...?" The International Orem Society for Nursing Science and Scholarship (which publishes this journal) focuses on the ideas and work of Dorothea Orem and Self-Care Deficit Nursing Theory. However, the decision was made to be open to as broad an interpretation of "self-care theory" as possible.

Whose responsibility is it to debate questionable scholarship that, at least on its face, seems to expropriate SDCNT without giving Orem proper credit? I refer readers to Kreulen and Braden’s work (2004) and encourage feedback. The authors give a different name to a group of variables we all know as Basic Conditioning Factors. Similarly, SCDNT scholars might wonder why Kreulen and Braden made up a new name for what we might readily identify as Health Deviation Self-Care Requisites. There is no discussion as to why the authors took two well-described concepts and revised them slightly and renamed them. Where was the peer review expertise? Or am I overstating what might not be a problem at all?

In a recent issue of the American Journal of Public Health, Becker, Gates, and Newsom (2004) discussed Orem’s contribution to self-care theory, but sided with Dill, Brown, Ciabrone, and Rakowski’s conclusion (after employing a qualitative design, no less) that empirical research based on Orem’s work was "characterized by a pervasive tendency to examine questions of self-care from a biomedical perspective that is ahistorical and devoid of context (p. 2067)" and therefore too limiting. As a footnote, Dill and colleagues proposed a "synchronic model"—whatever that is—to make up for this deficiency.

What is going on here, and who is supposed to take the lead in establishing a dialogue about self-care theory? We are. Send your thoughts.

Best wishes for a blessed holiday season and a happy, healthy, and productive New Year.

Michael J. Morgan, MPH, PhD, NP
Editor


Reflections on Nursing Practice Science: The Nature, the Structure and the Foundation of Nursing Sciences

Dorothea E. Orem

Abstract:
This is a retrospective examination of efforts to clarify the nature, the form and structure of nursing science. This accounting is a sample of the work done by me and my colleagues to understand nursing science. This sample may serve as a guide to nurses who seek to understand nursing science and the nature of work required in its development.

Key words:
- Nurses and Nursing Science
- Kinds of Science
- A Beginning Development of Nursing Sciences
- A General Theory of Nursing and its Broad Conceptual Structure
- Conceptual Elements and Theories
- Continuing Development of Nursing Sciences

Nurses and Nursing Science
Professional nurses have been concerned with and have attended to the development and improvement of nursing research including relationships to nursing theory. However, the relationship of nursing to nursing science has not been adequately addressed by the nursing profession. The nature of nursing science and its subject areas and content must be clarified before these relationships can be properly identified and understood. Nursing research and its results, when not associated with nursing science, often stand in isolation of the question studied. Even in the beginning stages of development, nursing science identifies its subject areas with organized content as well as unanswered questions that researchers should investigate in order to develop the content of nursing science. The formalization of criteria for nurses’ selection of valid methods of assistance given the nature, the number, and extent of persons’ self-care limitations is one example of this.

In the beginning stages of our work, we sought to understand nursing as a practical science and sets of applied science, for example, the physiology of the universal self-care requisite for maintenance of physiologica intake of air, water, and food. Research method in the early stages included natural history method and hypothetical deductive method, (NDCG, p.135). Expressed premises about nursing as a discipline of knowledge and practice helped us in overcoming problems we encountered (NDCG, p. 156, p. 162). The chapter ‘Dynamics of Concept Development’ by Joan Backsheider, (NDCG, 1979) is a scholarly accounting of our efforts.

Nurses who have or are achieving professional status have responsibility for the development of nursing science. Becoming and being professional requires understanding of the focus, the nature, the structure, the content, and the domain of nursing science in relationship to the focus of and the realities that define the domain of nursing practice. "Wallace (1996) states that “science is intellectual knowledge as opposed to sense knowledge” (p. 171). Sense knowledge enables human beings to perceive what things are, for example objects such as a chair, a table, an automobile, an apple, and to know their characterizing features, such as shape, size, and color. Intellectual knowledge, in contrast, is concerned with the nature of things with their meaning and content. Some scholars recognize that intellectual knowledge is achieved through the human intellectual process of abstraction; the grasping of ideas and forming concepts about things that are universal, such as all apples, and these transcend any concrete instance of what is perceived, such as this apple on this table. See Wallace, pp. 131-135.

Kinds of Science
Every developed or developing science has a focus, a proper object that specifies what the science is about, what scientists in particular fields investigate and study, and thus sets forth the domain and boundaries of the science. Wallace states that sciences are broadly grouped into speculative science and practical sciences. Speculative sciences are pursued to increase knowledge in particular fields. The speculative sciences that are concerned with entities found in the world of nature are identified as physical sciences such as chemistry and physics, life sciences such as biology, and the human sciences of anthropology and sociology. Practical sciences are developed to describe and explain areas of knowledge necessary for use in understanding and achieving some practical
result, for example, the design of a building that has some designated use or for designing and making, i.e. producing, some human health service. See Wallace, pp. 170-172.

According to Wallace, a practical science seeks causal knowledge of what a person can do or make. To the extent that a practical science engages in causal analysis it can speculate and use analytical procedures similar to those of speculative sciences. A practical science aims to produce knowledge that can be used to produce a concrete instantiation of the subject addressed and its results sought; for example, knowledge enabling for the design and production of a nursing system for this person, at this time and place that ensures that the persons' self care requisites are known and met and the persons' powers of self-care agency are protected and developed.

A practical science is supplemented by an art or technique that enables practitioners - e.g., nurses, physicians, engineers- to deal with singular instances of their practice. This accounts for the frequently heard statement that nursing is both a science and an art. See Wallace, pp. 171-172. Nurses' mastery of the practical science knowledge and their development of the art of nursing is named or referred to by the term nursing agency.

Wallace gives four examples of practical sciences.

1. moral science concerned with human action
2. health sciences, for example medical sciences
3. engineering sciences, concerned with mechanical and other artifacts
4. political sciences concerned with human welfare and happiness recognizing that human beings are free and capable of governing themselves but are limited in self-government (Wallace, p. 188).

Some philosophers and academics do not accept the idea of the named practical sciences but refer to such fields as applied sciences. This naming no doubt is based on the need for and the practice of using facts and principles from already developed sciences in the development of specific practical sciences each with its own proper object and its own domain and boundaries not only for its practice field but also for engagement in scholarly endeavor, investigations, theorizing and research. For example, facts and principles from the sciences of human anatomy and physiology, biochemistry, growth and development are used in development of various health sciences.

My own efforts and those of my colleagues in the formalization of nursing science were guided by a philosophy of moderate realism and by the acceptance that nursing science would have the form and structure of practical science with attached sets of applied sciences. In taking the position about nursing science as practical science, we followed the works of Maritain, J. and Wallace, W.A. Maritain's work of setting forth the degrees of universality and specificity of knowledge, including the practical sciences, was helpful. This included his use of the terms theoretically practical knowledge and practically practical knowledge.

**A Beginning Development of Nursing Sciences**

I recognized early in my work that the mind’s search for knowledge, intellectual knowledge about nursing, proceeds without understanding of the path being taken. The course followed is understood retrospectively. One uses one's accumulated common sense knowledge of nursing and nursing cases, one's unorganized intellectual knowledge about the field of nursing, as well as facts and principles from the developed sciences that contribute to the understanding of and formalization of areas of nursing science. Understandings of science achieved through pursuit of the full sequence of academic courses of one or more developed speculative sciences is helpful, as well as examination of the form and structure of a developed practical science. For example, I was helped by my study of biology and by my explorations of the nature, form and the proper objects of the various medical sciences, both the practice sciences and the sciences foundational to the practice sciences.

An essential step in the development of any science, speculative or practical, is the identification and acceptance of the proper object of the science, what the science is about, what the science describes and explains. The proper object specifies the place of the science in the world of nature or its place in the world of man and human affairs. Failures of nurses to understand and to accept the importance of nursing's proper object is in large measure accountable for failures to formalize and validate the structure of nursing as a discipline of knowledge.

My recognition of the need for understanding and stating the proper object of nursing came from works in philosophy that differentiated between material objects and proper object. For example, all human health services have as their object or focus, human beings, i.e., their material object. Each service, however, has a proper object that defines what features in human beings they focus their concern and attention on.
My expression and acceptance of nursing’s proper object occurred in my beginning and later effort to define nursing. Beginning efforts in the 1950’s were associated with answering the question: What is nursing? Later efforts were responsive to the critical question: What human and environmental conditions exist when valid judgments can be made that individuals are in need of nursing as distinguished from other forms of health care?

Basic to answering this question was the acceptance of two premises. The first premise expressed the idea that nursing is a social institution established and maintained by societies for the purpose of meeting the needs of people for the specialized health service named nursing. The second premise expresses the needs of people for specific human health services are associated with their requirements for bringing about and maintaining or regulating specific human or environmental conditions. The identification and expression of those conditions and their validation in concrete life situations specifies the proper object of the health service under consideration.

The following is a 1958 adjusted expression of nursing’s proper object.

Nursing’s proper object or focus is individuals in society affected by human or environmental conditions associated with their states of health or their requirements for health care that result in inability to provide continuously for themselves the amount and quality of self-care they require. With children, it is the inability of parents or guardians to know and meet the child self-care requirements because of the child’s health situation (Orem, p. 20).

Using the language of self-care deficit nursing theory (SCDNT), a simple expression of nursing’s proper object is “the presence of a self-care deficit in persons that is associated with their health states or the nature of their health care requirements.” A self-care deficit is expressive of a relationship between person’s therapeutic self-care demands and their powers of self-care agency in which agency is not equal to knowing and meeting their therapeutic self-care demand. The factors associated with the inadequacy are named self-care limitations.

These statements about the proper object of nursing specifies that the proper object of nursing is that segment of society that has legitimate needs for and can benefit from nursing. This is the population within societies for which nurses design and produce individualized systems of nursing, the population that is the focus of their scholarly endeavors and research. It is the population that nurses study in their work as nursing scientists.

The proper object of nursing is a descriptive explanation of why individuals require nursing. It is not a definition of nursing. Understanding the nature and meaning of any formulation of nursing’s proper object requires understanding of the terms and concepts used to express the realities of nursing’s reason for existence. The terms used to express the concepts, e.g., the terms self-care and self-care agency, represent the beginning development of a nursing language.

Isolation or specification of the proper object of nursing was taken from definitions of nursing that I formulated during the 1950s, 60s and 70s. Some of these definitions were descriptive, others were descriptively explanatory. These definitions were accepted by my colleagues in the Nursing Development Conference Group as a starting base for our work to understand nursing as a practical science, to discover its structure and its subject matter, both theoretical and practical.

During this beginning period of study, my personal focus was on defining nursing and in the formalizing and naming the concepts that formed its conceptual structure. This led to development of models to show the relationships among conceptual elements. My early work culminated in development and expression of a general theory (or a general concept) of nursing expressed as a word model.

My colleagues and I recognized and sought to understand the complexity of nursing. We found as our work progressed that a definitive definition or an expressed general theory of nursing were the intellectual instruments that were enabling for recognizing and dealing with realities of nursing and its complexity in the world of nurses and their patients.

As my colleagues and I worked to develop, formalize and express a general theory of nursing and later to refine it, build upon it, validate its conceptual parts and use it in nursing practice, we found it necessary to identify and seek understanding of the concepts of a general nature that were the underpinnings of our work, for example, the idea of deliberate action. It is not possible to understand the realities of self-care or nursing without a working understanding of deliberate goal seeking action including the schema of and the process components of a complete human act (Orem, 2001, p. 61-66). Understanding of the capabilities and limitations of people to engage in self-care conceptualized and named self-care agency was enhanced by Louis Hartnett’s models of the physiological and psychological features of deliberate action.
including sociological and cultural features (NDCG, pp. 135-141).

Other general concepts explored included organization, order, relation, process and system. We explored ways of viewing humankind and later the various meanings attached to the idea of good. These concepts in a sense were working tools that provided a foundation for our cognitive structuring of the subject matter of nursing. See Orem pp. 129-134 and pp. 150-157. The efforts to seek a working understanding of these concepts included: a search for authoritative sources and study of identified sources; study of the nature of models and model building; development of models, or acceptance of already developed models.

A General Theory of Nursing and its Broad Conceptual Structure

The general theory of nursing developed by me and my colleagues is named the self-care deficit theory of nursing. It is a theory that expresses the dominant features of any one as well as all situations that are nursing practice situations. The general theory brings together and unifies a theory of self-care and a theory of self-care deficits with the subsuming theory of nursing systems.

According to Wallace, the term theory “has no precise meaning that is universally accepted by the various branches of science” (p. 244). Theory, as the term is used here, means an overarching explanation of conceptualized features of nursing practice situations and relations among them that are common to all instances of nursing. Theory formation begins with the search for dominant features of nursing practice situations with their isolation and search for understanding their meaning and, finally, their conceptualization and naming. Theory formation from its beginning stages is based on premises about nursing that are self-evident. One such premise is that nursing is a form or type of human assistance (NDCG, p. 156). This premise gives rise to questions that require answers:

1. When and why do persons need nursing?
2. Do people vary and how do they vary in their qualitative and quantitative requirements for assistance from nurses?
3. What are valid forms of assistance given the conditions that are associated with persons' needs for nursing?
4. What is the form, the structure and the content elements of nursing assistance?

In retrospect, it can be stated the self-care deficit theory of nursing was formed from answers to these questions. The theories of self-care and self-care deficits are based on answers to questions 1 and 2 and the theory of nursing system is based on answers to the questions 3 and 4.

The theory of nursing systems subsumes and unifies the theory of self-care and self-care deficits. It identifies and brings into relationship two patient variables, therapeutic self-care demands and self-care agency, and relates these variables to the nurse variable, nursing agency, in the nurses' design and production of systems of nursing (care). Basic to understanding S-CDNT is understanding nursing as a helping service which is basic to answering the four stated questions (Orem, pp. 55-51). In the real world of nurses and their patients, the qualitative and quantitative values of each of the three variables must be determined. This is done by determining the conditioning effects of personal and environmental factors on the values of the variables. These factors have been named basic conditioning factors. Factors include the patient’s and the nurse’s age, gender, developmental state, sociocultural orientation, family system factors, health state, health care system factors, patterns of living, environmental factors, resource availability and adequacy (Orem, pp. 325-329). For example, if one accepts that self-care is a human regulatory function that must be performed by persons for themselves in interest of life, health and wellbeing or be performed for them, one must know persons' regulatory requirements, their self-care requisites.

In the development of self-care deficit nursing theory, we identified and classified these requirements through study of the life sciences, human sciences, and the medical sciences (Orem, pp. 47-49). All persons, for example, must meet the self-care requisites for a physiologically adequate intake of air, water and food. What is physiologically adequate and the means that are valid and reliable for meeting individual persons’ requisites are determined through use of basic conditioning factors, for example, in determining the nutritional requirements of infants and how infants can consume food and water, as well as the form, the consistency of their nutritional intake and precautions to be taken in feeding infants. Scientific theories in nursing or in any other discipline of knowledge are of value only if they are useful. The utility of S-CDNT has been demonstrated by nurses who understand and
use it in their thinking and in their work (Orem, pp. 136 -142).

**Conceptual Elements and Theories**

Theories are expressed through the use of concepts that identify and attach meaning to the realities with which the theory deals. Formalized and expressed concepts that describe and explain the nursing relevant features of nurses and patients and the relations between and among them form the structure of nursing theories. Formalization and naming of concepts and their validation may precede the development of the understandings needed in order to formulate and express a theory. The work done by me and my colleagues to formalize and validate and determine the reliability of the concept self-care is a good example of this (NDCG, pp. 136-155 and Orem, pp.45-53).

Understanding and expressing the conceptual structure of a theory requires time and takes place in stages. Once initial understanding of a reality feature is developed and formalized, for example, the insight that self-care is conduct, action deliberately performed by self for the sake of self, one can reason that if self-care is goal seeking action; and then that the persons engaged in self-care must have the powers and capabilities to know and meet his or her self-care requirements. This gives rise to a need to conceptualize and name these powers and capabilities, hence the term self-care agency to stand for these realities.

At least eight terms were used as referents for the concepts that in relationships described and explained the theory of self-care. These included the concept self-care and three concepts about the requirements for self-care, namely, self-care requisites, therapeutic self-care demands of individuals, and self-care system, the action system formed by meeting specific requisites in time and over time for individuals. Four concepts related to persons engaged in self-care, namely, self-care agent, self-care agency, self-care limitations and the concept of self as self-care agent. The source of the terms used to refer to the concepts was the literature on action theory (Orem, pp. 61-66). One relations term, self-care deficit (self-care agency is not adequate for knowing and meeting the therapeutic self-care demands) moves thinking from the theory of self-care to consider a theory of self-care deficit.

The search for intellectual knowledge about these named concepts as well as other conceptual elements forming the conceptual structure of the theories of self-care deficits and nursing systems took place over time and sometimes in stages. For example, the knowledge formalized about the element self-care requisite included the following.

1. the human and environmental conditions (requisites) that must be maintained or brought about as specified by the various life science and human sciences
2. classification of requisites by types and meaning of types
3. valid ways of formulating and expressing self-care requisites to express the origin of the requisites and the results sought
4. variation of self-care requisites by culture groups
5. valid and reliable means for meeting requisites and the related process features (Orem, pp. 45-53).

Another example of the work of development of intellectual knowledge about a conceptual element of the theory of self-care is the work related to the element self-care agency. Self-care agency was hypothesized to be a human power with acquired capability of individuals to meet their personal requirements for self-care. This expression was based on our knowledge that, in concrete life situations, persons do engage in self-care including its judgment and decision making features. It was recognized that persons must learn how to perform the action operations of self-care with their content elements and develop the skills and the habits necessary for continuing engagement in self-care. The concept self-care agency was understood to have a three part structure, each part with its own content, making a specific contribution to enabling persons to engage in self-care. The structure of self-care agency was conceptualized and understood as:

1. capabilities to perform the estimative, decision-making and productive operations through which the results of meeting self-care requisites are sought and brought about
2. specific enabling capabilities, power components, necessary for the performance of self-care operations and not for the performance of other result seeking operations.
3. human capabilities and dispositions foundational to the performance of any and all types of deliberate goal seeking actions
including those of self-care (NDCG, p. 188-200).

This three part conceptualization of self-care agency was formalized in stages. Understanding and expressions of the operational capabilities for persons' deliberate engagement in self care (1) and of the foundational capabilities and dispositions needed for the engagement in any and all forms of deliberate action (3) preceded the identification of the powers and capabilities needed by persons to engage in self-care (2). Reasoning leads to the insight that given 1 and 3 there is necessarily sets of enabling powers and capabilities (2). Limitations for engagement in self-care can have their origins in any one of these areas.

These examples of intellectual knowledge about self-care requisites and self-care agency are parts of and demonstrate the early and basic development of the content of nursing science. Development begins with the common sense knowledge that persons do engage in regulating their own functioning, then to investigation to determine what they do and why they do it, to identify specific actions performed and the results sought. It is a slow, time consuming but rewarding process.

It is important to note that the articulation with other fields of knowledge do not arise from the main conceptual element of the theory of self-care, namely the concept of self-care, but from the secondary concepts of self-care requisite and self-care agency. The meaning of a main conceptual element such as self-care is understood from the terms used to express it. For example, care is deliberate action, care is beneficial action; it is performed by the self for the self. The importance of uncovering the structure of the main conceptual elements of a theory is revealed and emphasized in our work.

**Continuing Development of Nursing Science**

The foregoing is an overview of efforts made by me and my colleagues to understand and to express and formalize rudimentary intellectual knowledge about the nature, the structure and the subject matter of the practical science nursing. This knowledge describes and at least descriptively explains the entities in the world of nurses and their patients that nurses deal with as they design and produce nursing for individual persons or groups. The general theory of nursing, named self-care deficit nursing theory with its constituent theories self-care, self-care deficits and nursing system continue to provide the bases for scholarly investigation and questions to be asked and answered. This is made possible in part by the refined and comprehensive manner in which the three theories are now expresses and related (Orem, pp. 141-149).

The three theories had their conceptual origins in the concepts expressed in definitions of nursing and in early graphic and word models of nursing (Orem, p. 491 and pp. 22-25). Their refinement resulted in part from the insights derived from the 1970 development and expression of a theory of nursing system, the theory that made explicit the relationship between nurses and their patient and the actions of nurses in designing and producing nursing systems through their regulation of patient variables therapeutic self-care demand (TS-CD) and Self-care agency and the nursing variable nursing agency.

The concept and theory of nursing system made clear the nature of nursing as a helping service. This assisting focus of the nature of nursing brought into nursing subject matter or content about the means and forms of human assistance, criteria for nurses' selection and use of specific forms of human assistance in relation to the nature and extent of patients' self-care agency limitations, and a classification of nursing systems based on the relationship of specific forms of human assistance to self-care agency limitations of patients, for example, the wholly compensatory nursing system in which nurses do for and act for patients.

The developing concept and theory of self-care included acceptance and validation of self-care as a human regulatory function. This places self-care firmly in its position as an essential form of health care (Orem, pp. 45-53). The health results sought through meeting self-care requisites within the three categories of requisites (universal, developmental and health-deviation) range from primary prevention to rehabilitation. The health focus of nursing is also made explicit in the nursing results sought in relation to patients' powers and capabilities of self-care agency. These powers and capabilities that are developed must be protected and their use and development must be regulated to prevent harm and to foster personal development and self-management of individuals.

The concept of and the theory of self-care deficit develops the deliberate action features of self-care and conditions, existent or emerging, that are indicators of persons need for nursing and of what nurses should do to meet this need. The tri-dimensional conceptual structure of self-care agency bring into nursing science's subject matter the following:
1. The operations, *estimative, transitional and productive*, that must be performed to know and meet persons’ therapeutic self-care demands; these operations must be performed for each specific requisite (Orem, pp. 259-260).

2. The capabilities that persons must have and exercise in order to perform the three types of self-care operations (Orem, pp. 264-265).

3. The human powers and capabilities and dispositions foundational for persons’ performance of self-care operations or operations specific to any other form of deliberate action (Orem, pp. 262-263).

The theory of self-care deficit also introduces the subject matter of self-care limitations (Orem, pp. 279-284). Limitations are expressed in terms of restrictive influences on the operations of self-care, for example, limitations of knowing. There are, of course, other ways of classifying self-care limitation.

The areas of subject matter with their specific content introduced into nursing science by the three theories can and should be subjected to continuing investigations, with adjustments and developments. The three theories are presently expressed in terms of their central idea, presuppositions that are supportive of the theory, and propositions that may provide foundation for formulation and testing of hypotheses or serve as principles and guides for further development of subject matter areas. The propositions are not logically related and are not developed to serve as a basis for reasoning from one proposition to the next.

Several guides are offered to aid in understanding the practical science of nursing and its development. See Orem pp. 166-174 and 174-179 including Figure 8.3 Stages of Understanding Nursing, p. 171. Development in its initial and later stages is dependent on nurses’ observations of existent nursing practice situations and populations requiring nursing. These nurses must be thinking nursing and functioning as theorists or nursing scientists, not as practitioners who are nursing this or that particular person. How to describe a nursing case is an essential feature of the development of the practical science of nursing. A nursing case is a specification of a person requiring nursing who is under nursing care.

In nursing, nursing cases and specialized areas of nursing practice and knowledge have been described over the years in terms of physicians’ modes of treatment or the age of persons nursed. Nursing cases are so diverse and complex that any one or a combination of basic conditioning factors can be used as organizing principles. See Orem pp. 203-217 for a classification based on persons’ health situations and the foci of health care in these situations including the health foci of nursing in these situations. It is suggested that a nursing focus or rationale be used as the primary descriptor and organizer of nursing cases and hence of nursing practice sciences.

It is suggested that the speculatively practical component of nursing would be constituted from (1) nursing practice sciences and (2) foundational nursing sciences. The nursing practice sciences would describe and explain nursing modes of treatment and care. The foundational sciences would be explanatory of features of the nursing practice sciences and include foundations for diagnostic and treatment technologies. See Orem pp. 174-179 for the suggested nursing practice sciences based on the nature and form of required nursing systems and foundational sciences explanatory of self-care, self-care agency and self-care deficits with the required degrees and types of assistance. This division of nursing practice sciences and foundational nursing sciences is analogous in the medical sciences to the medical practice of internal medicine or surgery and to the foundational medical science of pathology.

In using this approach, nurses would identify, for example, in the development of the nursing practice science of Wholly Compensatory Nursing, the features of nursing cases treated with this form of nursing and cases that should be treated in this fashion. These cases would provide the bases for identification of sub-specialties of practice. Cases would be first identified on the basis of the nature and degree of persons’ self-care deficits and on its duration, if predictable. Persons’ ability to attend to themselves and to manage themselves at specific times and over periods of time are critical features of such cases. The developing science would include diagnostic as well as regulatory (treatment) modalities.

The continuing development of practical nursing sciences moving from the foundations for the science established by nurses’ use of self-care deficit nursing theory is dependent upon nurses’ ability to think nursing. Nurses who know that what they do to add and validate nursing knowledge in developing subject areas of nursing science help nursing practitioners. Above all, it contributes to students of nursing what is so sadly lacking, a science to be studied and mastered and continuously developed.
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References


The effectiveness of fatigue-related self-care methods and strategies used by radiation oncology patients

Morris A. Magnan

ABSTRACT

Purpose/Objectives: The threefold purpose of this study was to: (1) classify the fatigue-related self-care actions of radiation oncology patients into a meaningful structure of methods and strategies; (2) determine to what extent the fatigue-related self-care subsystems of radiation oncology patients, including their component methods and strategies, were perceived to be effective; and (3) evaluate the relative effectiveness of different fatigue-related self-care methods and strategies.

Design: Descriptive

Setting: Two university-affiliated, outpatient radiation oncology clinics located within the metropolitan area of a large, Midwestern city in the United States.

Sample: 374 fatigued, adult radiation oncology patients

Method: Secondary data analysis

Main Research Variables: Fatigue-related self-care methods and fatigue-related self-care strategies

Findings: Among the four self-care methods studied, the method used most often to relieve fatigue was the energy conserving method followed by the energy restoring method, the energy using method, and other methods. The most effective fatigue-related self-care method was the energy restoring method. Among the seven fatigue-related self-care strategies studied, limiting the expenditure of energy was the most frequently used self-care strategy, it was deemed relatively easy to sustain but ranked fifth out of seven in effectiveness in relieving fatigue. Napping, the second most commonly used fatigue-related self-care strategy, ranked second in effectiveness in relieving fatigue, and was relatively easy to sustain. Exercise was perceived to be the most effective self-care strategy for relieving fatigue but it was the strategy used by the smallest number of subjects and was the most difficult strategy to sustain.

Conclusions: The most commonly used self-selected approaches to managing fatigue included fatigue-related self-care methods and strategies that were only marginally effective in relieving fatigue and often were difficult to sustain.

Implications for Practice: Patients need nursing guidance in choosing effective fatigue-related self-care methods and strategies as well as nursing support to sustain their commitment to chosen courses of action. [Key words: Self-Care, Fatigue, Radiation oncology]

Fatigue is a commonly reported and distressing side-effect of cancer and its treatment. Self-care, the most basic form of health care, is critical to the management of this pervasive and distressing symptom. Research has shown that subjects use a wide variety of self-care actions to manage cancer-related fatigue (Dodd, 1988; Richardson & Ream, 1997). At present, there is only ambiguous agreement about how to organize and think about these diverse self-care actions (Rhodes, Watson, & Hanson, 1988, Piper, 1989; Richardson & Ream, 1997). Organizing fatigue-related self-care actions within the substantive structure of the concept of self-care might improve communication across studies and aid nurses in their efforts to guide patients in the selection and use of fatigue-related self-care methods and strategies.

Orem (2001, p. 43) defines self-care as the “practice of activities that individuals initiate and perform on their own behalf in maintaining life, health, and well-being”. From Orem’s perspective, self-care is a human regulatory function that takes the form of deliberate action. Like all deliberate action, self-care has a purpose, which is to meet self-care requisites. In persons with cancer-related fatigue, one requirement for self-care action is “to manage the experience of cancer-related fatigue.” This self-care requisite identifies two elements. One is “to manage”, which is the general nature of the action to be taken, and the other is “fatigue” which is the factor to be managed or controlled. Factors named in self-care requisites need to be managed or controlled because they affect (beneficially or adversely) aspects of human functioning or development. These, in turn, affect life, health, and well-being. Thus, a self-care requisite can be understood as signifying a need for regulation of some specific aspect of human functioning or development.

In earlier work (Magnan, 2001), it was theorized that energy regulation was a specific aspect of human functioning affected by cancer-related fatigue. There was empirical support for the hypotheses that: (1) energy level mediates the relationship between fatigue and health, and (2) maintaining energetic capacity within a normative range maximizes health-related outcomes in patients experiencing cancer-related fatigue. Encouraged by these findings, it was concluded that the self-care requisite “to manage the experience of cancer-related fatigue” signifies a specific need for energy regulation.

The term, “regulate,” means to maintain or change (Orem, 1979). If the regulatory goal of fatigue-related self-care includes maintaining or changing one’s
energetic capacity, then the ways (methods) and means (strategies) of accomplishing this goal and the relative effectiveness of each need to be determined. The aims of this study were: (1) to classify the self-reported fatigue-related self-care actions of radiation oncology patients into a meaningful structure of energy regulating methods and strategies, (2) to determine to what extent the fatigue-related self-care subsystems used by radiation oncology patients, including their component methods and strategies, were perceived to be effective, and (3) to evaluate the relative effectiveness of different fatigue-related self-care methods and strategies.

REVIEW OF RELATED LITERATURE

Explicating the substantive structure of self-care for symptom management has received little attention in the literature. Dodd (1984) was perhaps the first to study self-care actions for symptom management in cancer patients. In a series of studies, Dodd (1984, 1987, 1988) reported that patients treated by chemo- or radiation therapy did little to manage the side effects of cancer treatment. This early work provided important information about the patterns and range of effectiveness of self-care actions used to manage a variety of symptoms, but made no attempt to organize self-care actions beyond listing them under various symptoms.

One way to further one’s understanding of a concept is to locate it in a hierarchy of more general and less general concepts (Orem, 1979). The need to understand the fatigue-related self-care actions of cancer patients within a broader structure is evident in the work of various researchers (e.g., Rhodes, Watson, & Hanson, 1988; Piper, 1989; Richardson & Ream, 1997; Ream & Richardson, 1999). Rhodes, Watson, & Hanson (1988) were the first researchers to attempt to organize the fatigue-related self-care actions of cancer patients into a structure of more general and less general concepts. Working inductively, these researchers classified the self-care actions of fatigued, chemotherapy patients according to their effects on energy expenditure. In that study, thematic analysis showed that two more general concepts, limiting the expenditure of energy and decreased energy expenditure, could be used to organize more discrete actions. The concept of limiting the expenditure of energy included actions such as planning/scheduling activities and/or decreasing nonessential activities. The concept of decreased energy expenditure included actions related to increasing dependence on others for household tasks and grocery shopping. Although studied within the context of Orem’s Self-Care Framework (Orem, 1985), Rhodes et al (1988) did not explicitly link fatigue-related self-care actions to a regulatory function such as maintaining or changing one’s own energetic capacity.

In 1989, Piper organized patient-initiated fatigue-related self-care actions according to “patterns” of action. Although the conceptual base for Piper’s classification was not identified, the structure appears to be inductively derived and based on patient responses to an open-ended question about what patients did to relieve their fatigue. Self-initiated fatigue-related self-care actions were categorized under four patterns: activity/rest, psychological, sleep/wake, and other. The category of activity-rest included the more discrete and less general actions of resting, napping, altering activities, sitting/lying down, reading, and walking or exercising. Psychological patterns included actions such as distraction and relaxation. Sleep wake patterns included sleeping only. Under the category of other patterns, Piper included actions related to nutritional, environmental, social, and symptoms management activities.

Richardson and Ream (1997) adapted and extended Piper’s classification system to record self-care behaviours of fatigued chemotherapy patients under seven common categories: (1) modification/alteration in patterns of activity and rest; (2) alteration of sleep-wake patterns; (3) psychological strategies; (4) social interventions, (5) attempting to preserve normality; (6) nutritional interventions; and (7) relief of symptoms and comfort measures. Modification/alteration of activity and rest included actions such as resting and napping, taking things easy, modifying activities, walking and gardening. Altering sleep-wake pattern included going to bed early and sleeping most of the day. Psychological strategies were diverse and included actions related to listening to relaxation tapes or music, reading or watching TV, counseling, homeopathic remedies, acupuncture, and relaxation. Social interventions included actions such as engaging in hobbies, conversation, performing in amateur dramatics, having dinner and drinks, and attending the cinema or theatre. Adding liver to one’s diet, taking a soothing drink or altering timing of meals were actions classified under nutritional interventions. Finally, taking medications for chronic conditions, using anti-emetics, taking a hot bath, and calling the doctor were actions classified under the pattern of symptom relief and comfort measures.

To date, work to organize fatigue-related self-care actions into a hierarchy of more general and less general concepts has proceeded inductively from atheoretical perspectives. As a result, there is little agreement across studies regarding the substantive structure of fatigue-related self-care particularly with respect to identifying and
describing the more general methods that might subsume less general and more specific self-care strategies.

**CONCEPTUAL FRAMEWORK**

Orem (1979) and colleagues from the Nursing Development Conference Group proposed that the substantive structure of self-care could be conceptualized as an open structure with identifiable secondary concepts. Secondary concepts in the structure of self-care included self-care system and discrete actions. Because the substantive structure of self-care is an open one, further explication of the self-care concept is possible by elaborating on the structure of the secondary elements; self-care system and discrete actions. Explicating the structure of these secondary elements should lead to identification of their component phenomena and point to the kinds of data needed for observation and measurement (Orem, 1991).

Magnan (1994; 1999), elaborated on the secondary concept of self-care system (Figure 1). Recognizing that self-care is for a purpose - to meet self-care requisites - he proposed that the total self-care system was comprised of: (1) three self-care systems (universal, developmental, and health-deviation), (2) self-care subsystems which included actions directed at meeting specific self-care requisites, (3) self-care methods conceptualized as ways of meeting a specific self-care requisite, (4) self-care strategies which are the means by which one meets a self-care requisite, and (5) discrete self-care actions. The concept of self-care method refers to procedures and processes employed to maintain or change aspects of human functioning or development or the integrity of anatomical structures. The self-care method concept is considered more general than the concept of self-care strategies which refers to an action or complex of actions that serve or appears to serve an important function in achieving a goal.

The proposed structure suggests that discrete self-care actions are the basic unit of observation and measurement. Moreover, these discrete actions can

<table>
<thead>
<tr>
<th>Concept Rank</th>
<th>Conceptual Elements</th>
<th>Referent</th>
<th>Hierarchy of Concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Concept</td>
<td>Total Self-Care System</td>
<td>Self-care actions taken to meet all known requirements for self-care.</td>
<td>Self-Care</td>
</tr>
<tr>
<td>Secondary Concept</td>
<td>Self-Care System</td>
<td>Categories of action taken on a continuous (universal) or more episodic basis (developmental &amp; health-deviation)</td>
<td>Universal Self-Care System, Developmental Self-Care System, Health-Deviation Self-Care System</td>
</tr>
<tr>
<td></td>
<td>Self-Care Subsystems</td>
<td>Sets of actions taken to meet specific self-care requisites</td>
<td>U-SC Subsystems 1...k, D-SC Subsystems 1...k, HD-SC Subsystems 1...k</td>
</tr>
<tr>
<td></td>
<td>Self-Care Methods</td>
<td>Ways of meeting self-care requisites</td>
<td>U-SC Methods 1...k, D-SC Methods 1...k, HD-SC Methods 1...k</td>
</tr>
<tr>
<td></td>
<td>Self-Care Strategies</td>
<td>Means used to meet self-care requisites</td>
<td>U-SC Strategies 1...k, D-SC Strategies 1...k, HD-SC Strategies 1...k</td>
</tr>
<tr>
<td></td>
<td>Discrete Self-care Actions</td>
<td>Observable self-care actions as well as internally directed actions which may not be directly observable.</td>
<td>U-SC Actions 1...k, D-SC Actions 1...k, HD-SC Actions 1...k</td>
</tr>
</tbody>
</table>

*Figure 1. Magnan’s elaboration of the substantive structure of self-care system.*
be logically sorted into self-care strategies. Self-care strategies imply the use of a self-care method and a self-care method implies the existence of a self-care requisite, which, in turn, signifies a need to regulate (maintain or change) a specific aspect of human functioning or development. For the purposes of this study, Magnan’s elaboration of the substantive structure of the self-care system was used as the organizing structure to describe the content of the fatigue-related self-care subsystems of fatigued radiation oncology patients (Figure 2).

METHODS

Design, Setting, and Sample

The aims of this descriptive, corollary study were met through secondary analysis. The data source, referred to as the parent study, was a longitudinal, controlled clinical trial of nursing interventions designed to enhance self-care knowledge and performance. Data collection for the parent study started in March, 1996 and ended in December, 1999. During this time, trained data collectors obtained information from subjects treated at two university-affiliated, outpatient radiation oncology clinics located within the metropolitan area of a large, Midwestern city. Participants in the parent study were 18 or older, English speaking, and scheduled to receive a minimum of 20 treatments. Subjects were excluded from the parent study if irradiated to an extremity only or irradiated to the brain with anticipated cognitive compromise. These inclusion/exclusion criteria applied to this corollary study as well with the added stipulation that subjects: (1) reported fatigue onset during treatment, and (2) used self-care to manage fatigue.

The sample for this corollary study consisted of 374 fatigued, adult, radiation oncology patients. There were 169 (45%) men and 205 (55%) women ranging in age from 24 to 86 years, $M = 58.89$, $SD = 11.67$. The median for education was grade 12 indicating that half of the subjects were educated at or below this level. Otherwise, subjects were ethnically and economically diverse, treated to different areas of the body, and heterogeneous on stage of disease (Table 1).

![Figure 2. Proposed substantive structure for a fatigue-related self-care subsystem.](image-url)
subject respondent considered it to be. Subjects

defined fatigue. Thus, fatigue was whatever the
they were experiencing “fatigue”, but were offered no

Care actions at the second (T1) and final weeks of

obtain self-report information about fatigue-related self-

Measurement of Fatigue-Related Self-Care

= 2.41, $t(373) = 10.16$, than initial

significantly higher,


was based on the American Joint Committee on Cancer

lower socioeconomic status (Miller, 1991). Cancer staging

two factor index wherein higher class rankings reflect

the expenditure of energy, staying active, exercise,
diversion/distraction, and other. Discrete self-care

actions retrieved from archived self-care logs were

classified into one of these seven categories by a

master’s prepared nurse. Reliability of the

classification process was determined by inter-rater

agreement by having a second rater independently

classify self-care actions reported by 20% of the

cases. Inter-rater agreement by Cohen’s Kappa was

.84. An average effectiveness score was generated

for each self-care strategy.

Fatigue-related Self-Care Strategy refers to self-
care actions conceptualized as means by which

fatigued individuals attempted to regulate their own

energetic capacity. Based on an extensive review

of the literature and the data on hand seven recurring

strategies were identified: napping, sleeping, limiting

the expenditure of energy, staying active, exercise,
diversion/distraction, and other. Discrete self-care

methods were broader in scope – included a greater

set of strategies. Thus, the three identified self-care

methods, self-care strategies, self-care

variables — self-care strategies, self-care

methods, self-care system. A fourth variable, self-
care consistency, was measured as well.

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and energy restoring. The energy conserving method

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energetic capacity. The energy restoring method and

the energy using method were conceptualized as

ways of changing one’s energetic capacity. As

shown in Figure 2, each method was comprised of a

set of strategies. Thus, the three identified self-care

methods were broader in scope – included a greater

number of self-care actions – than the self-care strategies.

A fourth method, “other” was comprised of self-care

strategies that did not fit readily into any of the three

previously named methods. An average effectiveness

score was generated for each self-care method.

Fatigue-Related Self-Care Subsystem refers to all

actions taken by an individual to manage cancer-

related fatigue. An average effectiveness score was

generated for the fatigue-related self-care subsystem.

In theory (Orem, 1995), self-care engaged in to

meet a specific self-care requisite occurs over time.

In other words, the actions taken are used


<table>
<thead>
<tr>
<th>Characteristic</th>
<th>N</th>
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</tr>
</thead>
<tbody>
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<td>Ethnicity</td>
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<td></td>
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<tr>
<td>African-American</td>
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<tr>
<td>Anglo-American</td>
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<td>Marital status</td>
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<tr>
<td>Not partnered</td>
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<td>Income</td>
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<td>$15,000 to $30,000</td>
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<td>$30,000 to $50,000</td>
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<tr>
<td>$75,000</td>
<td>51</td>
<td>13.6</td>
</tr>
<tr>
<td>Unreported</td>
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</tr>
<tr>
<td>Treatment Site</td>
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<tr>
<td>Head Neck</td>
<td>53</td>
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<tr>
<td>Lung</td>
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<td>10.9</td>
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<tr>
<td>Breast</td>
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<tr>
<td>Prostate</td>
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<td>31.6</td>
</tr>
<tr>
<td>Gynecological</td>
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<tr>
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<td>6.7</td>
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<td>Stage I</td>
<td>105</td>
<td>28.1</td>
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<tr>
<td>Stage II</td>
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<td>Stage III</td>
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<td>Stage IV</td>
<td>46</td>
<td>12.3</td>
</tr>
<tr>
<td>Unreported</td>
<td>3</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Note. Socioeconomic status was based on Hollingshead’s

two factor index wherein higher class rankings reflect

lower socioeconomic status (Miller, 1991). Cancer staging

was based on the American Joint Committee on Cancer


On average, subjects reported fatigue starting near

the middle of the second week of treatment (in

treatment days for a 5 day week; $M = 7.69$, $SD =

6.62$). Self-reports of fatigue distress on a scale of 1 to

5 ($5 = $severe$) at the final week of therapy were

significantly higher, $M = 3.18$, $SD = 1.16$, than initial

reports obtained during the second week of therapy, $M

= 2.41$, $SD = 1.30$, $t(373) = 10.16$, $p < .001$.

Measurement of Fatigue-Related Self-Care

Data collectors used semi-structured interviews to

obtain self-report information about fatigue-related self-
care actions at the second (T1) and final weeks of

treatment (T2). Subjects were asked, first, whether

they were experiencing “fatigue”, but were offered no

definition of fatigue. Thus, fatigue was whatever the

subject respondent considered it to be. Subjects

reporting fatigue were then asked what they did to

manage their fatigue. Interviewers recorded subject’s

self-reported fatigue-related self-care actions on a

self-care log then asked subjects to provide a rating

(1 to 5; 5 = very) of how effective the action was in

relieving fatigue. These data were available in

computerized and archived raw data files. For the

study reported here, specific, detailed information about

self-care actions was extracted from the archived records and coded by a trained, master’s

prepared nurse research assistant. These self-care

actions and their effectiveness ratings were the

source for generating effectiveness scores for three

self-care variables — self-care strategies, self-care

methods, self-care system. A fourth variable, self-
care consistency, was measured as well.

Fatigue-related Self-Care Strategy refers to self-
care actions conceptualized as means by which

fatigued individuals attempted to regulate their own

energetic capacity. Based on an extensive review

of the literature and the data on hand seven recurring

strategies were identified: napping, sleeping, limiting

the expenditure of energy, staying active, exercise,
diversion/distraction, and other. Discrete self-care

actions retrieved from archived self-care logs were

classified into one of these seven categories by a

master’s prepared nurse. Reliability of the

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classify self-care actions reported by 20% of the

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shown in Figure 2, each method was comprised of a

set of strategies. Thus, the three identified self-care

methods were broader in scope – included a greater

number of self-care actions – than the self-care strategies.

A fourth method, “other” was comprised of self-care

strategies that did not fit readily into any of the three

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Fatigue-Related Self-Care Subsystem refers to all

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generated for the fatigue-related self-care subsystem.

In theory (Orem, 1995), self-care engaged in to

meet a specific self-care requisite occurs over time.

In other words, the actions taken are used
repeatedly until the intended result(s) is achieved. In order to capture this notion of consistency in using fatigue-related self-care actions, a fourth self-care variable, fatigue-related self-care consistency was calculated by ranking (1 to 3) persistence in the use of self-care strategies reported at the second (T1) and final week (T2) of therapy. The following rules applied: (1) highest and equal rank for persistence in using a moderately to highly effective (>3 on a scale of 1 to 5) strategy from T1 to T2 or for extinguishing a low effectiveness strategy (< 3 on a scale of 1 to 5); (2) second highest rank for adding a new self-care strategy at T2, and (3) lowest and equal rank for persistence in using a low effectiveness strategy from T1 to T2 or for extinguishing a moderately to highly effective strategy.

RESULTS

In total, 604 self-care actions were reported by 374 subjects. Subjects used from 1 to 9 self-care actions, \( M = 2.78, SD = 1.54 \), to manage fatigue, but three or fewer actions were used by nearly three-quarters of the sample \( (n = 274, 73.2\%) \). The average effectiveness rating for the fatigue-related self-care subsystem was 3.81 \( (SD = .99) \).

Self-Care Methods

Of the four self-care methods examined, the energy conserving method was used most frequently \( (n = 291, 49.4\%) \) (Table 2). Energy conserving also was the method used by the greatest percentage of patients \( (n = 291, 77.8\%) \). The energy restoring method \( (n = 210, 35.7\%) \) was the second most frequently occurring method followed by the energy using method \( (n = 54, 9.2\%) \). The category classified as "other" comprised less than 6% of the methods used.

Most subjects \( (n = 195, 52.1\%) \) used only one of the four self-care methods; two methods were used by 145 subjects \( (38.8\%) \); three methods were used by 32 \( (8.6\%) \); and all four methods were used by two subjects \( (0.5\%) \). Among the 195 subjects who reported using a single method only, the energy conserving method \( (63.5\%) \) was reported more often \( (63.5\%) \), than the energy restoring method \( (32.3\%) \), the energy using method \( (3\%) \), or "other" methods, \( (1\%) \). Among the 145 subjects who reported using two methods, the combination reported most often was the energy conserving/energy restoring combination \( (75\%) \).

Effectiveness ratings for self-care methods were, on average, in the high moderate (>3.5 but less than 4) range, but method effectiveness ratings and frequency of use did not follow the same rank order (Table 3). Energy conserving, the most frequently used self-care method, ranked third in use. The energy restoring method, perceived to be the most effective self-care method, was used by only 56.1% of the subjects and ranked second in use.

<table>
<thead>
<tr>
<th>Self-care Method</th>
<th>Subjects Using the Method</th>
<th>Percentage of Method</th>
<th>Percentage of Subjects*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Conserving</td>
<td>291</td>
<td>49.4</td>
<td>77.8</td>
</tr>
<tr>
<td>Restorative</td>
<td>210</td>
<td>35.7</td>
<td>56.1</td>
</tr>
<tr>
<td>Energy Using</td>
<td>54</td>
<td>9.2</td>
<td>14.4</td>
</tr>
<tr>
<td>Other</td>
<td>34</td>
<td>5.8</td>
<td>9.1</td>
</tr>
<tr>
<td>Totals</td>
<td>589</td>
<td>100.0%</td>
<td>157.4%</td>
</tr>
</tbody>
</table>

*Total percentage exceeds 100% due to multiple response format.

Self-Care Strategies

Each of the seven self-care strategies were perceived to be at least moderately effective (i.e., average rating greater than 3) (Table 4). However, the most frequently occurring self-care strategies and those used by the greatest percentage of patients were not always the most effective strategies (Table 5), nor were they the strategies used most consistently (Table 6). Limiting the expenditure of energy was the most frequently occurring strategy and the strategy used by the greatest percentage of patients \( (77.8\%) \), but it ranked third from the bottom \( (5\)th out of 7\) in its level of effectiveness. Still, subjects persisted in using this strategy as demonstrated by its second place ranking on consistency.

Napping was the second most frequently reported strategy. It ranked second in effectiveness, but first in consistency. This finding suggested that napping was a relatively effective strategy that could be sustained over time. Still, it was a behavior choice reported by less than half of the subjects \( (46\%) \). Sleep, the third most frequently reported self-care strategy, was used by 17.9% of the subjects. Although sleep was among the top three strategies in frequency of occurrence and usage, it ranked 4th in consistency in a field of 7 self-care strategies.
The three self-care strategies subjects reported to be most effective in relieving fatigue were: (1) exercise, (2) napping, and (3) diversion /distraction. It is notable that exercise and diversion, while among the top three self-care strategies in effectiveness, were among the strategies occurring least frequently. These two self-care strategies, exercise and diversion, were used by a very small percentage of subjects.

**DISCUSSION**

Findings of this study demonstrated that the fatigue-related self-care subsystems of radiation therapy patients were comprised of a fairly small number \( (M = 2.77) \) of moderately effective self-care actions \( (M = 3.81) \). However, the number of self-care actions used to manage fatigue was higher than the fractional number reported in the symptom self-management literature (Dodd, 1982; 1984; 1988). Also, the mean effectiveness of self-care ratings observed in this study was somewhat higher than the effectiveness ratings reported by other researchers (Dodd, 1987; Richardson & Ream, 1997).

Differences in the total number and effectiveness of self-care actions reported in this study compared to other studies may be related, in part, to errors of omission simply because patients failed to report all actions used. In an interview situation, trained researchers can reduce errors of omission by using probes and cues to stimulate memory and more detailed responses. Thus, subjects interviewed in the parent study may have reported more self-care actions in the interview situation simply because they were prompted to do so. Also, a greater number of self-care actions may have been reported because the interview procedure lends itself to social desirability response bias more so than data collection procedures in which anonymity is assured.

An exploration of the fatigue-related self-care methods demonstrated that the energy conserving method followed by the energy restoring (restorative) method were used most frequently. The energy restoring method, which included sleeping and napping, was rated as the most effective method followed by the energy using and energy conserving methods. However, in spite of its effectiveness, little more than half of the subjects (56.1%) in this study used the energy restoring method. Also, it should be noted that the distance between the lowest and the highest mean rankings on these different self-care methods was only about 1/10th of scale point (on a scale of 1 to 5). Therefore, it seems unlikely, based on these effectiveness rankings, that the use of a higher or lower ranking self-care method would result in a clinically significant difference in the level of fatigue control.

Most subjects limited themselves to one or two
distinct self-care methods to manage fatigue with less than 10% of the subjects using more than two methods. The reasons for this are not entirely clear. In theory (Orem, 1995), the production of a self-care system depends, in part, on the ability to attend to some things to the exclusion of others. Limiting oneself to one or two self-care methods may be a way of reducing the cognitive burden of attending to multiple methods, or it may reflect a propensity to choose one or two preferred zones of deliberate action to the exclusion of others when attempting to manage the experience of fatigue.

The three most commonly used fatigue-related self-care strategies were limiting the expenditure of energy, napping, and sleeping. These findings are comparable to those of other researchers who have reported reducing activity, sleeping, and napping as being among the top three strategies used to manage cancer-related fatigue (Dodd, 1984; Graydon et al., 1995; Irvine et al., 1998; Nail, et al., 1991; Richardson & Ream, 1997). The fact that these common-sense strategies appear repeatedly across studies is consistent with Orem’s (1995) assertion that the ways of meeting health-deviation self-care requisites often originate in common-sense approaches.

Table 5. Rank Ordering on Use and Effectiveness of Self-care Strategies

<table>
<thead>
<tr>
<th>Self-care Strategy</th>
<th>Subjects Using Strategy</th>
<th>Effectiveness of Strategy</th>
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<tr>
<td></td>
<td>Percentage</td>
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<tr>
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<td>Napping</td>
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<tr>
<td>Sleeping</td>
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<tr>
<td>Staying Active</td>
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<td>6</td>
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<tr>
<td>Other</td>
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<td>7</td>
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Note. Effectiveness ranked on a 1 to 5 scale (5 = most effective).

Table 6. Rank Ordering on Occurrence, Effectiveness, and Consistency of Self-Care Strategies

<table>
<thead>
<tr>
<th>Self-care Strategy</th>
<th>Subjects Using Strategy</th>
<th>Rankings on Strategy</th>
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<td>n</td>
<td>Percentage</td>
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<td>Napping</td>
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<td>Exercise</td>
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<td>Other</td>
<td>34</td>
<td>9.1</td>
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Although exercise was rated as the most effective self-care strategy, it also was the strategy used by the smallest number of subjects; a pattern reported by other researchers as well (Graydon et al., 1995). An examination of the consistency rankings for exercise showed that, of the seven strategies examined, it received the lowest consistency ranking suggesting that, while it was effective, it also was a difficult strategy to sustain.

Napping received the second highest ratings on effectiveness, was the second most frequently used strategy, and received the highest rankings on consistency. This suggested that the subjects who reported using this strategy found it moderately to highly effective ($M = 3.91$; on a 1 to 5 scale) and fairly easy to sustain. In other studies, where napping has been studied separately from sleeping, it has ranked consistently among the top three in both frequency of use and effectiveness (Dodd, 1984; Graydon, et al., 1995; Nail, et al., 1991; Richardson & Ream, 1997). However, in the current inquiry, only 171 (45.7%) subjects reported using napping to manage fatigue. This percentage is considerably lower than the percentages reported by other investigators which have ranged from 70% to 85.7% (Graydon et al., 1995).
It is not entirely clear why, in the current study, the percentage of subjects using napping was so much smaller than the percentages reported in other studies (Graydon, et al., 1995; Nail et al., 1991; Richardson & Ream, 1997). Misconceptions about napping and its alleged adverse effects on nighttime sleep may explain, in part, why more subjects in the current study did not use this method. Also, environmental circumstances may have played a role at one of the data collection sites. During the data collection period of this study, oncology nurses at the larger data collection site hosted annual fatigue awareness days. On these occasions, nutritional interventions, staying active, and exercising to manage fatigue were endorsed to the exclusion of more sedentary activities such as sitting, napping, and resting. Consequently, the low use of napping observed in this study may reflect carry over effects from these historical events.

Sleeping was the third most frequently reported strategy in this study but ranked fourth in effectiveness and consistency. These findings placed sleep somewhat lower in its effectiveness ranking compared to reports from the literature where it has ranked first or second on effectiveness (Graydon et al., 1995; Nail et al., 1991). It was interesting to note, in the current inquiry, that sleep ranked fourth in consistency suggesting that, compared to napping, it was a strategy that was more difficult to sustain.

**IMPLICATIONS FOR PRACTICE**

This study described the content and perceived levels of effectiveness of the fatigue-related self-care subsystems of radiation oncology patients in terms of its component methods and strategies. Nurses can use this descriptive level information to organize their thinking about the ways (methods) and means (strategies) of meeting the self-care requisite, to manage the experience of cancer-related fatigue. The courses of action associated with the self-care methods examined in this study were described as self-care strategies and discussed in terms of their effectiveness and consistency of use. It seems important to recognize that, regardless of perceived levels of effectiveness, some strategies were more difficult to sustain than others. Exercise, for example, while highly effective, was more difficult to sustain than a sleep strategy whereas sleep strategies were more difficult to sustain than napping. These findings suggest that even though patients may be committed to certain courses of action, some attention needs to be given to: (a) discerning the kind and level of nursing support needed to sustain the patient's commitment, and (b) providing the needed level of support.

One self-care strategy, napping, was observed to be highly effective but was used by less than half of the subjects. This low level of usage suggests that nurses may need to move beyond merely recommending napping as a fatigue-related self-care strategy to actually probing patient's views about napping in order to uncover and rectify any misconceptions patients might have about employing this strategy.

Research has shown that low impact exercise such as self-paced walking is an effective way of controlling fatigue (Mock et al., 1997). However, in the current inquiry, exercise, which was perceived to be highly effective, was difficult to sustain. It should be noted that the specific form of exercise used by subjects could not be ascertained from the available data. Still, findings from this study suggests that even when patients are willing and able to use some form of exercise as a means of controlling fatigue they may need more than ordinary levels of support to persevere in this activity. Enlisting support from an “exercise buddy”, exercising with a cohort group, and locating a personally appealing and comfortable exercise environment are approaches nurses might suggest to help patients sustain their commitment to exercise. In addition, exercise guidelines for cancer patients have been developed (see e.g., Winningham, MacVicar, & Burke, 1988) and can be used as a resource when designing a program of exercise to manage fatigue.

**CONCLUSION**

Organizing things into a meaningful structure is one component of the proper work of a discipline. When the thing being organized is self-care, it is recognized as the proper work of nursing (Orem, 1979). In this study, the substantive structure of Orem’s self-care concept was extended by explicating the structure of its secondary element, self-care system. The utility of the proposed structure comes from the organization it provides for thinking about and observing self-care phenomena; especially segments of the “productive type” self-care operations (see Orem, 2001, pp 258 – 259). The proposed structure was used as a model to develop the substantive structure of fatigue-related self-care and empirically to study fatigue-related self-care actions in relation to their regulatory function of maintaining or changing energetic capacity. Refinement and extension of the substantive structure of fatigue-related self-care through critique and evaluation is expected and encouraged. Rather the proposed structure achieves its intended purpose, to improve
communication about fatigue-related self-care for research and practice, remains to be seen.

Acknowledgement: The parent study for this project was funded by a grant from the National Cancer Institute to the second author (D. Mood, PhD, PI [NCI RO5 CA59013-11]). Direct support for this corollary study came through awards made to the first author from The Blue Cross Blue Shield of Michigan Foundation and the Wayne State University Lambda Chapter of SigmaTheta Tau International.

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References
From the President

The elections have been held. Thanks to the outgoing officers and welcome to the new officers. As I have only been president for less than 2 weeks, I have not yet gotten into the actual business of the IOS. My goal as president of the IOS is to facilitate the advancement of the Self-Care Deficit Nursing Theory. I strongly believe that this general theory of nursing offers great promise for the advancement of the discipline of nursing.

There is diversity of the membership in terms of areas of expertise. My area of interest is philosophical and theoretical issues related to the SCDNT. There are many avenues that can be pursued in order to advance the SCDNT. I would strongly encourage members to submit their ideas regarding approaches that the IOS can adopt to promote nursing research and scholarship related to the SCDNT. In addition to submitting ideas, please submit material for publication in the journal and encourage your colleagues to become members of IOS. It is through the involvement and contributions of the membership that the IOS will thrive and meet success in pursuing its mission.

The 8th World Congress of the Self-Care Deficit Nursing Theory held in Ulm, Germany was a fabulous success. The scholarship reflected in the papers and posters as well as the enthusiasm of the participants were exciting. In addition, the opportunities for intellectual exchange and the scheduled social activities made for a wonderful experience. A big thank you to Gerd Bekel and all who worked so hard to make the conference such a success.

The 2006 conference is scheduled to be held in South Africa. The dates and site have not yet been determined. However, it is not too early to begin thinking about possibilities for a paper or poster that you could present at that conference.

I look forward to working with you all as we strive to advance the SCDNT. May you all have a meaningful Holiday Season and a happy, healthy New Year.

Barbara Banfield
IOS Dues Structure Change

The IOS board received a request to consider adjusting the membership fee for those nurses in countries where wages are very low. The board met at the 8th IOS world congress in Ulm, Germany and voted to adopt a membership dues structure based on the three economic tiers of countries identified by the United Nations and the World Bank. This dues structure is similar to the model of the International Communication Association. This membership dues structure will be in effect with the 2005 fiscal year for membership beginning January 1, 2005. This information will be posted on the IOS web site, and current members will receive information on the new dues structure with their notice for renewal and payment that will be sent to each member in December of 2004. Membership dues beginning in 2005 are:

**MEMBERSHIP OPTIONS**
All categories to receive *Self-care, Dependent-care, & Nursing*

Choose ONE of the following IOS membership levels in your country tier as designated by the UN (see attached country tier list). IOS uses the country of residence (where you will receive your journals), not the country of origin as the criterion for tier selection. All prices are for a one year membership.

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For University Departments

**Country Tier List**
*This country tier list shows country designations by the United Nations. IOS uses the country of residence —*not the country of origin*— as the criterion for tier selection. Find that country in this chart to determine what tier you qualify for.*

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Nominations Report

President: Barbara Banfield
Secretary: Connie Dennis
At Large Board Members: Kathie Renpenning, Marcel Sailer
Nominating Committee: Jacqueline Fawcett, Jane Ransom

The ballots will be held for one year and destroyed at the time of the next election in 2006. They have been given to Sheila Jesek-Hale, a continuing member of the IOS Nominating Committee.

Donna L. Hartweg
Chairperson, IOS Nominating Committee

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