

### **Scholars Crossing**

**Faculty Publications and Presentations** 

School of Nursing

2007

## Nursing Theory and Knowledge Development: A Descriptive Review of Doctoral Dissertations, 2000-2004

Hila Spear Liberty University, hspear@liberty.edu

Follow this and additional works at: https://digitalcommons.liberty.edu/nurse\_grad\_fac\_pubs



Part of the Nursing Commons

#### **Recommended Citation**

Spear, Hila, "Nursing Theory and Knowledge Development: A Descriptive Review of Doctoral Dissertations, 2000-2004" (2007). Faculty Publications and Presentations. 13. https://digitalcommons.liberty.edu/nurse\_grad\_fac\_pubs/13

This Article is brought to you for free and open access by the School of Nursing at Scholars Crossing. It has been accepted for inclusion in Faculty Publications and Presentations by an authorized administrator of Scholars Crossing. For more information, please contact scholarlycommunications@liberty.edu.

Advances in Nursing Science
Vol. 30, No. 1, pp. E1–E14
Copyright © 2007 Wolters Kluwer Health | Lippincott Williams & Wilkins

# Nursing Theory and Knowledge Development

# A Descriptive Review of Doctoral Dissertations, 2000–2004

Hila J. Spear, PhD, RN

Within the profession of nursing, nursing theory, conceptual models, and knowledge development continue to be points of discussion and debate. Some suggest that nursing research must either test or develop nursing theory, whereas others believe that research germane to practice can legitimately incorporate what is commonly referred to as borrowed theory. This descriptive analysis of nursing doctoral dissertations (N=207) conducted from 2000 to 2004 focused primarily on the inclusion or exclusion of nursing theories. Almost half (45.4%) of the dissertations studied theories from fields other than nursing, 27.1% of the researchers studied nursing theories, and 27.5% of the dissertation studies engaged in theory generation. Implications for nursing knowledge development and research specific to practice are discussed. **Key words:** *knowledge development*, *doctoral education*, *nursing theory* 

ODAY, as in the past, the importance of knowledge development, utilization and application of nursing theory to practice, and related epistemological concerns are widely discussed among academicians and addressed in the nursing literature. 1-5 Beyond the philosophical and ontological arguments about a nursing specific versus a more eclectic theoretical approach to knowledge development, some nurse clinicians and researchers view theorizing as a pretentious activity.<sup>6</sup> Doane and Varcoe remarked that many nurses find theory to be an academic abstraction that is of no practical value. Furthermore, there are those who believe that nursing theory development is an exercise in futility that has created more conceptual confusion than clarity and has no relevance to practice.8 Nonetheless, those who disparage nursing theory and view theory development as a nonviable enterprise seem to represent a minority position.

In general, 2 prominent views emerge from the literature relevant to nursing knowledge development, related theory, and practice. On one hand, according to Mitchell, there are nurses who hold to the view that "nursing theory is essential to the development of a professional discipline with a unique and valuable service mandate."9(p310) Moreover, Barrett10 stated that nursing will continue to be perceived as an indistinct discipline unless it plainly defines itself in terms of science and unique knowledge. Other nurse scholars and scientists contend that research that does not test or develop nursing theory but studies theories from other disciplines serves to extend the knowledge bank of those disciplines and thereby shortchanges nursing knowledge development. 11,12 Although Northrup and colleagues<sup>4</sup> conceded that knowledge from other disciplinary fields is applicable to nursing, they emphasized the need for nurse scientists to concentrate on the development and generation of a distinct body of nursing knowledge that is specific to professional practice.

On the other hand, McKenna stated, "The fact that nursing knowledge is assimilated

From the Liberty University, Lynchburg, Va.

Corresponding author: Hila J. Spear, PhD, RN, Liberty University, 1971 University Blvd, Lynchburg, VA 24502 (e-mail: hspear@liberty.edu).

E2

from many fields can be viewed as one of nursing's greatest strengths in the provisions of patient care."13(p126) She also emphasized that other than physics or mathematics, most likely all professions borrow theory from other fields of study. To advance nursing knowledge development in the 21st century, Hinshaw<sup>14</sup> encouraged nurse scholars to embrace and integrate multiple theoretical perspectives and to expand nursing's knowledge via interdisciplinary inquiry. Congruent with Roy's<sup>15</sup> endorsement of a multidisciplinary approach to the generation of nursing knowledge, Giuliano et al<sup>16</sup> asserted that a unity of knowledge worldview that values an interdisciplinary mode for research and knowledge development facilitates an open, rather than a closed, system model regarding the development and explication of nursing knowledge.

While the overarching model of nursing practice should be founded on nursing theories, Villarruel et al acknowledged that "theories that are shared with, not blindly borrowed from, other disciplines should also be used."17(p162) Consistent with the American Nurses Association's code of ethics for nurses, 18 regardless of one's perspective relative to the composition or content of the theoretical underpinnings of nursing knowledge, ethically nursing must continue the work of knowledge development and refinement to facilitate the delivery of safe and appropriate care for all people groups across the lifespan. To access valuable information relevant to the assumptions pertaining to the construction of nursing knowledge refer to the classic works of Carper, Donaldson, and Crowley, and the more recent writings of Fawcett and others. 19-21

Considering the burgeoning number of nursing research studies produced over the past 30 years, a myriad of descriptive and integrative research reviews have been published. Descriptive assessments of research studies are informative and useful as they illuminate issues relevant to practice, professional and knowledge development, and direction for further research. For example, in the late 1970s, Barnard and Neal re-

viewed research relevant to the health of women and children, and Gortner and Nahm provided a historical review of nursing research emphasizing trends in nursing practice and the development of research support systems. 22,23 Other research reviews by selected areas of nursing practice included community health, psychiatric nursing, and medical surgical nursing.<sup>24-26</sup> Examples of more current reviews examined studies on cultural care, women's health, nursing advocacy, and adolescent health behavior. 27-30 Of the few reviews of doctoral dissertations that have been published, only 3 have studied nursing dissertation research.31-35 Several of the research study reviews included in this brief summary offered some information about theory or theoretical frameworks, but none made specific references to the inclusion or exclusion of theory, nursing, or otherwise.

Knowledge development and nursing science are undeniably intertwined; nursing science is predicated upon the evolution of a distinct body of nursing knowledge.<sup>36</sup> According to Fawcett's commentary on the state of nursing science, nursing must end its "romance with medical science and the conceptual frameworks, theories, and methodologies of nonnursing disciplines."37(p314) She also stressed the importance of disciplinespecific research to advance the science of nursing and to ensure the survival of the discipline. Parse, cited in Huch,<sup>38</sup> lamented the fact that most US nursing doctoral programs do not require students to use a nursing theories or conceptual frameworks for their dissertation theses. In a similar vein, Malinski voiced the following perspective, "If nursing doctoral students had steadily been focusing on nursing knowledge over the years, I can only imagine where the discipline might have advanced to by now; imagine, again, the potential if we all worked together to advance the development of this disciplinespecific knowledge."39(p13) However, no recent comprehensive reviews have been done regarding nursing knowledge development and theoretical focus of nursing inquiry at the foundational level of dissertation research.

Therefore, the main objective of this descriptive investigation was to review dissertation abstracts of research studies conducted by nurses over a 5-year period to determine references to nursing theory, nonnursing theory, or theory generation. Also, this basic inquiry sought to gain insight regarding types of doctorates obtained, topical areas of study, and research designs used to further nursing knowledge and knowledge development.

#### **METHODS**

#### Search strategy

The literature search was limited to one major computer database system. The researcher accessed the World Cat database, dissertation abstracts, and conducted a broad search of nursing dissertations written by students enrolled in schools located in the United States. The single word "nursing" resulted in the posting of 3326 dissertations. For the purposes of this study, the following 3 key word combinations were used to conduct the search—nursing, theory, and practice; nursing, theory, and application; and nursing, theory, knowledge, and development—which yielded 243, 30, and 59 dissertation studies, respectively.

#### **Inclusion criteria**

The inclusion criteria included nursing-focused doctoral dissertation study conducted in schools or universities located in the United States, written in English, academic degree of PhD, DNS, or EdD, references in abstract to theory or theory development, and published during 2000–2004 time frame. Duplicate studies cited in more than one of the individual key word searches and studies that did not meet the inclusion criteria were excluded which resulted in a final sample of 207 individual dissertation study abstracts.

#### Data assessment and analysis

Each abstract that met the inclusion criteria was assessed and evaluated on the basis of a researcher-developed data-collection matrix which included the following data points: year of completion, author's name, gender, academic degree, research design, and any references to theory development and identification of nursing and nonnursing theories. The more obscure theories were evaluated by researching the literature for discipline and origin to determine whether theories were nursing or nonnursing. Almost all of the dissertation authors identified a specific research design; although a few of the dissertation abstracts did not clearly state the designs of the studies, research designs were fairly evident on the basis of the report of the methods used and summary of the findings. To reveal patterns and trends, descriptive statistics across variables of interest were calculated. Using a qualitative, content analysis approach, titles and abstracts were read and reread to develop general categories of topics researched.

#### **RESULTS**

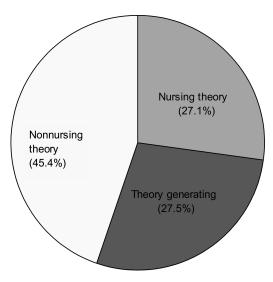
The majority (82.6%) of dissertation studies led to PhD degrees. Some (12.1%) of the researchers earned DNSc or DNS degrees, and only 11 (5.31%) earned EdDs. More than three fourths (86.9%) of the dissertations were conducted by women, 5.80% were written by men, and the gender of some authors (7.25%) was indeterminable on the basis of first names. Almost all (92.2%) of the dissertation studies were nonexperimental by design. Of the nonexperimental studies, 45.9% were qualitative employing such methods as grounded theory, phenomenology, and ethnography. The other descriptive studies were correlational, descriptive, or a combination of both. Table 1 provides a descriptive summary of all studies by research design.

In total, 56 (27.1%) researchers referred to nursing theories in their studies' abstracts. The nursing theories developed by Parse, Orem, Roy, Peplau, and Newman were studied most frequently followed by established

**Table 1.** Dissertations by research design (N = 207)

| Design                    | Number | Percent |
|---------------------------|--------|---------|
| Descriptive               | 46     | 22.22   |
| Qualitative               | 95     | 45.89   |
| Correlational             | 41     | 19.80   |
| Descriptive/correlational | 9      | 4.35    |
| Experimental              | 10     | 4.83    |
| Quasi-experimental        | 6      | 2.91    |

theories such as those developed by Leininger, Watson, and King; the remainder of the dissertations included more obscure nursing theories. Some (17.9%) of the dissertations that examined nursing theories also included nonnursing theories. Four (7.14%) of the dissertations that studied nursing theory employed an experimental design. Figure 1 illustrates the number of dissertations by use of nursing theory, nonnursing theory, or theory generation. Psychosocial theories were the most prominent nonnursing theories recorded (see Tables 2 and 3 for examples of nursing and nonnursing theories cited in dissertation abstracts). Selected characteristics of each dissertation study are displayed



**Figure 1.** Percentage of dissertations by type of theory studied or theory generation.

in Table 4. Abstracts may be accessed via the Dissertation Abstracts database by entering the last name and initials of each author. Full studies may be retrieved through the interlibrary loan system.

Content analysis of each of the dissertation abstracts revealed a variety of nursing- and health-related topics. For example, nursing education, professional practice issues and development, and public health/health behavior were studied. Two dissertations that primarily studied psychosocial and cultural elements also attended to some ethical aspects of nursing care. Topics represented by fewer than 8 studies (ranging from 3 to 5) included psychometric/instrument development, caring, death and dying, and pain and were assigned to the category of miscellaneous. Table 5 provides the number of dissertation studies based on topical category. Although categories are not mutually exclusive, each dissertation was assigned to the category deemed most representative of the aim of the study.

#### DISCUSSION

Most authors of the dissertations examined in this study earned the degree of PhD, followed by DNS, and the EdD. Although the vast majority of authors were graduates of PhD program, the number of nurses with PhDs in the United States is relatively low. 40 While the minimum of a baccalaureate degree for entry into nursing practice has been a contentious issue for many decades,41 a new nursing educational debate is brewing related to doctoral education for nurses. 42 This new issue relates to the possible transformation of the master of science in nursing (MSN) degree into the doctorate in nursing practice (DNP) designed to prepare nurses for advanced practice roles such as nurse practitioner, clinical nurse specialist, and nurse anesthetist. 43 However, the impact a move toward a doctorate in nursing practice may have on the types of doctoral degrees nurses pursue must be seriously considered. This change could affect the

LWWJ303-02

**Table 2.** Nursing theories studied by number and percent of dissertations (subsample, N = 56)

| Nursing theory                                     | Number | Percent |
|--|--------|---------|
| Parse's Theory of Human Becoming                   | 8      | 14.28   |
| Orem's Self-Care Deficit Theory                    | 7      | 12.50   |
| Roy's Adaptation Theory                            | 5      | 8.93    |
| Newman's Health as Expanding Consciousness         | 4      | 7.14    |
| Peplau's Interpersonal Model                       | 4      | 7.14    |
| Benner's Humanistic Model                          | 3      | 5.36    |
| Leininger's Transcultural Nursing Theory           | 3      | 5.36    |
| King's Conceptual Framework for Nursing            | 3      | 5.36    |
| Neuman's Theory of Optimal Client System Stability | 3      | 5.36    |
| Kim's Theory of Collaborative Decision-making      | 2      | 3.57    |
| Pender's Health Promotion Model                    | 2      | 3.57    |
| Watson's Theory of Transpersonal Caring*           | 1      | 1.78    |
| Roger's Science of Unitary Human Being Theory      | 1      | 1.78    |
| Swanson's Theory of Caring                         | 1      | 1.78    |
| Erickson's Modeling and Role-Modeling              | 1      | 1.78    |
| Meleis Transition Theory                           | 1      | 1.78    |
| Mishel's Theory of Uncertainty                     | 1      | 1.78    |
| Miscellaneous <sup>†</sup>                         | 6      | 10.71   |

<sup>\*</sup>Watson's theory was also cited as a secondary nursing theory in 2 of the dissertation studies.

**Table 3.** Selected examples of nonnursing theories cited in subsample of dissertation abstracts (N = 94)

| Nonnursing theory                                     | Number | Percent |
|---|--------|---------|
| Cognitive Theory                                      | 9      | 9.57    |
| Role Theory   | 8      | 8.51    |
| Bandura's Social Learning Theory                      | 7      | 7.45    |
| Ajzen and Fishbein's Theory of Reasoned Behavior      | 6      | 6.38    |
| Lazarus and Folkman's Stress and Coping Model         | 5      | 5.32    |
| General Systems Theory                                | 5      | 5.32    |
| Kanter's Structural Theory of Organizational Behavior | 5      | 5.32    |
| Family Systems Theory                                 | 4      | 4.26    |
| Self-Determination Theory                             | 3      | 3.19    |
| Health Belief Model                                   | 3      | 3.19    |
| Transtheoretical Model of Behavioral Change           | 3      | 3.19    |
| Rosenbaum's Learned Resourcefulness Theory            | 2      | 2.13    |
| Bolwby's Attachment Theory                            | 1      | 1.06    |
| Chaos Theory  | 1      | 1.06    |
| Human Capital Theory                                  | 1      | 1.06    |
| Kohlberg's Moral Development                          | 1      | 1.06    |
| Transformational Leadership                           | 1      | 1.06    |
| Psychosocial Theories*                                | 18     | 19.14   |
| Miscellaneous   | 11     | 11.70   |

<sup>\*</sup>All psychosocial theories were not listed.

<sup>&</sup>lt;sup>†</sup>More obscure nursing theories are not listed.

LWWJ303-02

#### ADVANCES IN NURSING SCIENCE/JANUARY-MARCH 2007 E6

**Table 4.** Chronological display of dissertations by type of or generation of theory, 2000-2004 (N = 207)

| Year | Author                  | Degree | Nursing<br>theory | Nonnursing<br>theory | Theory<br>generation |
|------|-------------------------|--------|-------------------|----------------------|----------------------|
| 2000 | Sauter, MK              | DNS    |                   | X                    |                      |
| 2000 | Moran, LM               | PhD    |                   |                      | X                    |
| 2000 | Thomlinson, EH          | PhD    |                   |                      | X                    |
| 2000 | Popoola, MM             | PhD    |                   |                      | X                    |
| 2000 | Kalman, MB              | PhD    |                   |                      | X                    |
| 2000 | Gregg, MF               | PhD    |                   |                      | $\mathbf{X}$         |
| 2000 | Bonadonna, JR           | PhD    |                   |                      | $\mathbf{X}$         |
| 2000 | Ruby, JP                | EdD    |                   |                      | $\mathbf{X}$         |
| 2000 | Morrison, B             | PhD    | $\mathbf{X}$      |                      |                      |
| 2000 | Brammer, SV             | PhD    |                   |                      | $\mathbf{X}$         |
| 2000 | Cameron, KD             | DSN    |                   |                      | X                    |
| 2000 | Rittmayer, JS           | PhD    |                   |                      | X                    |
| 2000 | Lawson, L               | PhD    |                   |                      | X                    |
| 2000 | Cadmus, E               | PhD    |                   | X                    |                      |
| 2000 | Tyler-Evans, ME         | PhD    |                   | X                    |                      |
| 2000 | DeLaurentis Schultz, DM | PhD    |                   |                      | $\mathbf{X}$         |
| 2000 | Goudreau, KA            | DSN    |                   | X                    |                      |
| 2000 | Coble, DB               | PhD    |                   | X                    |                      |
| 2000 | Spies, MAE              | PhD    |                   | X                    |                      |
| 2000 | Meyer, GL               | PhD    |                   |                      | X                    |
| 2000 | Wright, DJ              | DNSc   | X                 |                      |                      |
| 2000 | Durkin, AE              | PhD    | X                 |                      |                      |
| 2000 | Sumner, JF              | PhD    |                   | X                    |                      |
| 2000 | Bournes, DA             | PhD    | $\mathbf{X}$      |                      |                      |
| 2000 | Parker, RR              | PhD    |                   | X                    |                      |
| 2000 | Whittemore, R           | PhD    | X                 |                      |                      |
| 2000 | Tungpunkom, P           | PhD    |                   |                      | X                    |
| 2000 | Weber, NA               | PhD    | $\mathbf{X}$      |                      |                      |
| 2000 | Taggert, HM             | DSN    | $\mathbf{X}$      |                      |                      |
| 2000 | Ward, SL                | PhD    | $\mathbf{X}$      |                      |                      |
| 2000 | Callaghan, DM           | DNSc   | X                 |                      |                      |
| 2000 | Hanna, CA               | DNSc   |                   | X                    |                      |
| 2000 | Vahey, DC               | PhD    |                   | $\mathbf{X}$         |                      |
| 2000 | Leonhardy, KA           | PhD    |                   | X                    |                      |
| 2000 | Schlachta-Fairchild, L  | PhD    |                   | X                    |                      |
| 2000 | Moulton, RA             | PhD    |                   | $\mathbf{X}$         |                      |
| 2000 | Doherty, ME             | PhD    | X                 |                      |                      |
| 2000 | Walker, CA              | PhD    |                   | $\mathbf{X}$         |                      |
| 2000 | Bochain, SS             | PhD    | X                 |                      |                      |
| 2000 | Barron, AM              | PhD    | X                 |                      |                      |
| 2000 | Gammill, EB             | EdD    |                   | $\mathbf{X}$         |                      |
| 2000 | Golembeski, SM          | PhD    |                   |                      | X                    |
| 2000 | Barrett, R              | PhD    |                   | X                    |                      |
| 2000 | Ley, CD                 | PhD    |                   | X                    |                      |
| 2000 | Tanner, AB              | EdD    |                   | X                    |                      |
|      |                         |        |                   |                      | (continues           |

**Table 4.** Chronological display of dissertations by type of or generation of theory, 2000-2004 (N = 207) (Continued)

| 2000<br>2000<br>2000<br>2000 | Hall, AM<br>Bradley, KJ<br>Haines, SA<br>Sauls, JL<br>Jones, SM | PhD<br>PhD<br>PhD |              | X            |              |
|------------------------------|---|-------------------|--------------|--------------|--------------|
| 2000                         | Haines, SA<br>Sauls, JL   |                   |              |              |              |
|                              | Sauls, JL   | PhD               |              | X            |              |
| 2000                         |   |                   | $\mathbf{X}$ |              |              |
|                              | Jones, SM   | DSN               |              | $\mathbf{X}$ |              |
| 2001                         |   | PhD               |              |              | X            |
| 2001                         | McGuire, SA   | PhD               |              |              | $\mathbf{X}$ |
| 2001                         | Schmidt, LA   | PhD               |              |              | $\mathbf{X}$ |
| 2001                         | Pike, AW  | EdD               |              |              | $\mathbf{X}$ |
| 2001                         | Mowad, L  | PhD               |              | $\mathbf{X}$ |              |
| 2001                         | Teichler, ES  | PhD               |              |              | $\mathbf{X}$ |
| 2001                         | Hrabe, DP   | PhD               |              |              | $\mathbf{X}$ |
| 2001                         | Dragich, BM   | PhD               |              |              | $\mathbf{X}$ |
| 2001                         | Thompson, SJP   | PhD               |              |              | X            |
| 2001                         | Wheeler, EA   | PhD               |              |              | X            |
| 2001                         | Boren, DM   | PhD               |              |              | X            |
| 2001                         | Leger-Krall, S  | PhD               |              |              | X            |
| 2001                         | Crume, JC   | PhD               |              | $\mathbf{X}$ |              |
| 2001                         | Ulrich, CM  | PhD               |              | X            |              |
| 2001                         | McNaughton, D   | PhD               | X            |              |              |
| 2001                         | DeSimone, SD  | PhD               |              | $\mathbf{X}$ |              |
| 2001                         | Seymour Route, PA   | PhD               |              | X            |              |
| 2001                         | Hagman, LW  | PhD               | X            |              |              |
| 2001                         | Riley, ME   | PhD               |              | X            |              |
| 2001                         | Choi, J   | PhD               | X            |              |              |
| 2001                         | Payne, TB   | EdD               |              | $\mathbf{X}$ |              |
| 2001                         | Hess, JD  | PhD               | X            |              |              |
| 2001                         | Petpichetchian, W   | PhD               |              | X            |              |
| 2001                         | Gunther, ME   | PhD               | X            | 21           |              |
| 2001                         | Hamalis, PS   | PhD               | X            |              |              |
| 2001                         | Stenvig, TE   | PhD               | 21           | X            |              |
| 2001                         | Sarvey, SLI   | PhD               |              | X            |              |
| 2001                         | Combs, EW   | PhD               |              | X            |              |
| 2001                         | Dakin, CL   | PhD               |              | X            |              |
| 2001                         | Walker, KM  | PhD               | X            | 21           |              |
| 2001                         | Schoener, L   | DNSc              | 24           | X            |              |
| 2001                         | Cox, KR   | PhD               | X            | 4            |              |
| 2001                         | Berarducci, A   | PhD               | 23.          | X            |              |
| 2001                         | Dunn, KS  | PhD               | X            | 41           |              |
| 2001                         | Graf, CM  | PhD               | 23.          | X            |              |
| 2001                         | Hadwiger, SC  | PhD               |              | X            |              |
| 2001                         | Thomas, PA  | PhD               | X            | Λ            |              |
| 2001                         | Rea, GB   | PhD               | Λ            | X            |              |
| 2001                         | Tipton, EM  | PhD               |              | Λ            | X            |
| 2001                         | Gauthier, DM  | PhD               |              |              | X<br>X       |
| 2001                         | Thomas, TN  | PhD               |              |              | X<br>X       |
| 2001                         | 1110111a5, 11N  | FIID              |              |              | Λ            |
|                              |   |                   |              |              | (continues   |

LWWJ303-02

**Table 4.** Chronological display of dissertations by type of or generation of theory, 2000–2004 (N = 207) (*Continued*)

| Year         | Author                                | Degree     | Nursing<br>theory | Nonnursing<br>theory | Theory generation |
|--------------|---------------------------------------|------------|-------------------|----------------------|-------------------|
| 2001         | Proksch, MK                           | EdD        |                   | X                    |                   |
| 2001         | Crawforth, KL                         | PhD        |                   | X                    |                   |
| 2001         | Yauk, SP                              | PhD        | X                 |                      |                   |
| 2001         | Oweis, AI                             | DNSc       |                   | X                    |                   |
| 2001         | Buxton-Blake, PL                      | DNSc       | X                 |                      |                   |
| 2001         | Collins, SE                           | PhD        |                   |                      | X                 |
| 2001         | George, LE                            | PhD        |                   |                      | X                 |
| 2001         | Budd, GM                              | PhD        |                   |                      | X                 |
| 2001         | Katzenstein, J                        | PhD        |                   | X                    |                   |
| 2002         | Houser, BK                            | PhD        |                   |                      | X                 |
| 2002         | Mullen, CK                            | PhD        |                   | X                    |                   |
| 2002         | Gropelli, TM                          | PhD        |                   |                      | X                 |
| 2002         | Howard, EGF                           | PhD        |                   |                      | X                 |
| 2002         | Walsh, TJ                             | PhD        |                   |                      | X                 |
| 2002         | Klainin, P                            | PhD        | X                 |                      |                   |
| 2002         | Kordick, MF                           | PhD        |                   | X                    |                   |
| 2002         | Sawyer, SS                            | PhD        | X                 | 24                   |                   |
| 2002         | Huffman, DM                           | PhD        | X                 |                      |                   |
| 2002         | Putman, HP                            | DNSc       | 21                | X                    |                   |
| 2002         | Meiers, SJ                            | PhD        |                   | X                    |                   |
| 2002         | Duane, CG                             | PhD        |                   | X                    |                   |
| 2002         | Cheng, S                              | PhD        | X                 | Α                    |                   |
| 2002         | Ulbrich, SL                           | PhD        | X                 |                      |                   |
| 2002         | Casalenuovo, G                        | PhD        | X                 |                      |                   |
| 2002         | Shattell, MM                          | PhD        | X                 |                      |                   |
| 2002         | Flanagan, JM                          | PhD        | X                 |                      |                   |
| 2002         | Upenieks, VV                          | PhD        | Λ                 | X                    |                   |
| 2002         | Clark, EH                             | PhD        |                   | Λ                    | X                 |
| 2002         | Solari-Twadell, P                     | PhD        |                   | X                    | Λ                 |
| 2002         | Carroll, KA                           | PhD        | X                 | Λ                    |                   |
|              | · · · · · · · · · · · · · · · · · · · | PhD        | Λ                 | X                    |                   |
| 2002<br>2002 | Ihrke, BA<br>Kang, Y                  | PhD        | X                 | Λ                    |                   |
| 2002         | Sinsel-Phillips, P                    | PhD        | Λ                 | X                    |                   |
|              | El-sabagh, NE                         |            | v                 | Λ                    |                   |
| 2002<br>2002 | 0 /                                   | PhD<br>PhD | X<br>X            |                      |                   |
|              | Solem, SL<br>Al-Khasawneh, EM         |            | Λ                 | X                    |                   |
| 2002         | Kenny, D.J                            | DNS<br>PhD |                   | X<br>X               |                   |
| 2002         | • • •                                 |            |                   |                      |                   |
| 2002         | Steele, NM                            | PhD        | $\mathbf{v}$      | X                    |                   |
| 2002         | Fairfax, J<br>Covington, H            | PhD        | X<br>v            |                      |                   |
| 2002         |                                       | PhD        | X                 | v                    |                   |
| 2002         | Pennington, MS                        | PhD        |                   | X                    |                   |
| 2002         | Hausner, JA                           | PhD        |                   | X                    |                   |
| 2002         | Shapira, JS                           | PhD        |                   | X                    |                   |
| 2002<br>2002 | Brock, VB<br>Simmons, B               | DSN<br>PhD | X                 | X                    |                   |
| _002         | ommiono, b                            | 1 1117     | 28                |                      | , .               |
|              |                                       |            |                   |                      | (continues        |

**Table 4.** Chronological display of dissertations by type of or generation of theory, 2000–2004 (N=207) (*Continued*)

| Year | Author                 | Degree | Nursing<br>theory | Nonnursing<br>theory | Theory<br>generation |
|------|------------------------|--------|-------------------|----------------------|----------------------|
| 2002 | Stark, SLW             | DNSc   |                   | X                    |                      |
| 2002 | Dillon, PM             | DNSc   | X                 |                      |                      |
| 2002 | Plitnick, KR           | PhD    |                   | $\mathbf{X}$         |                      |
| 2002 | Lenz, BK               | PhD    | X                 |                      |                      |
| 2002 | Dellert, JC            | PhD    |                   | X                    |                      |
| 2002 | McManus-Gay, AM        | PhD    |                   |                      | X                    |
| 2002 | Zahourek, RP           | PhD    |                   |                      | X                    |
| 2002 | Tradewell, GM          | PhD    |                   |                      | X                    |
| 2003 | Feng, J                | DNS    |                   | $\mathbf{X}$         |                      |
| 2003 | Noone, J               | PhD    |                   |                      | X                    |
| 2003 | Fowler, BA             | DNSc   |                   |                      | X                    |
| 2003 | Butler, HA             | PhD    |                   | X                    |                      |
| 2003 | Hart, AM               | PhD    |                   |                      | X                    |
| 2003 | Trosclair, TA          | DNS    |                   |                      | X                    |
| 2003 | Brown, VS              | PhD    |                   | $\mathbf{X}$         |                      |
| 2003 | Bruley, DK             | PhD    |                   |                      | X                    |
| 2003 | Campesino-Flenniken, M | PhD    |                   |                      | X                    |
| 2003 | Morgan, BD             | PhD    |                   |                      | X                    |
| 2003 | Nash, KA               | PhD    |                   | $\mathbf{X}$         |                      |
| 2003 | Kraft, MR              | PhD    |                   | $\mathbf{X}$         |                      |
| 2003 | Baker, OG              | PhD    | X                 |                      |                      |
| 2003 | Campbell, LS           | PhD    | X                 |                      |                      |
| 2003 | Silverstein, CM        | EdD    | X                 |                      |                      |
| 2003 | Marnocha, SK           | PhD    |                   | $\mathbf{X}$         |                      |
| 2003 | Connelly, TW           | PhD    |                   | X                    |                      |
| 2003 | Falkenstern, SK        | PhD    | X                 |                      |                      |
| 2003 | Carlson, ED            | DSN    |                   | X                    |                      |
| 2003 | Whitlow, JF            | DSN    | X                 |                      |                      |
| 2003 | Beckman, JA            | PhD    |                   | X                    |                      |
| 2003 | Kamencik, J            | PhD    |                   | X                    |                      |
| 2003 | Bongiorno, AEW         | PhD    |                   | X                    |                      |
| 2003 | Schoonaert, KJ         | EdD    |                   | X                    |                      |
| 2003 | Fliszar, RS            | PhD    | X                 |                      |                      |
| 2003 | Harris, NC             | PhD    |                   | X                    |                      |
| 2003 | Gallagher, PA          | EdD    |                   | X                    |                      |
| 2003 | Hartung, SQ            | PhD    |                   |                      | X                    |
| 2003 | Kirdphon, W            | PhD    |                   |                      | X                    |
| 2003 | Penprase, BL           | PhD    |                   | $\mathbf{X}$         |                      |
| 2003 | LaCoursiere, SP        | PhD    |                   | X                    |                      |
| 2003 | Elliott, MCH           | DNSc   |                   |                      | X                    |
| 2003 | Sagara, M              | PhD    |                   | X                    |                      |
| 2004 | Aflague, JM            | PhD    |                   |                      | X                    |
| 2004 | Nichols, LM            | PhD    |                   | X                    |                      |
| 2004 | Williemsen-Dunlop, AM  | PhD    |                   | X                    |                      |
| 2004 | Lindgren, TG           | PhD    |                   | X                    |                      |
|      | -                      |        |                   |                      | (continues           |

#### E10 ADVANCES IN NURSING SCIENCE/JANUARY-MARCH 2007

**Table 4.** Chronological display of dissertations by type of or generation of theory, 2000-2004 (N = 207) (Continued)

| Year | Author               | Degree | Nursing<br>theory | Nonnursing<br>theory | Theory<br>generation |
|------|----------------------|--------|-------------------|----------------------|----------------------|
| 2004 | Drake, KB            | PhD    |                   |                      | X                    |
| 2004 | Davenport, DO        | PhD    |                   |                      | X                    |
| 2004 | McKnight, M          | PhD    |                   |                      | X                    |
| 2004 | Nielsen-Menicucci, K | PhD    |                   |                      | X                    |
| 2004 | Preechawong, S       | PhD    |                   | $\mathbf{X}$         |                      |
| 2004 | Lee, M               | PhD    |                   | $\mathbf{X}$         |                      |
| 2004 | Ryan, LA             | PhD    | $\mathbf{X}$      |                      |                      |
| 2004 | Fagan, KA            | DNSc   |                   | $\mathbf{X}$         |                      |
| 2004 | Stockmann, CI        | PhD    |                   | $\mathbf{X}$         |                      |
| 2004 | Rosa, KC             | PhD    | $\mathbf{X}$      |                      |                      |
| 2004 | Lauzon Clabo, LM     | PhD    |                   | X                    |                      |
| 2004 | Roche, JP            | PhD    |                   | X                    |                      |
| 2004 | Carroll, SM          | PhD    | $\mathbf{X}$      |                      |                      |
| 2004 | Lee, J               | PhD    |                   | $\mathbf{X}$         |                      |
| 2004 | McGee, EM            | PhD    | $\mathbf{X}$      |                      |                      |
| 2004 | Kagan, PN            | PhD    | $\mathbf{X}$      |                      |                      |
| 2004 | Owens, MN            | PhD    | $\mathbf{X}$      |                      |                      |
| 2004 | Hatler, CW           | PhD    |                   | X                    |                      |
| 2004 | Brock, TP            | EdD    |                   | $\mathbf{X}$         |                      |
| 2004 | Lawson, DB           | DSN    |                   | $\mathbf{X}$         |                      |
| 2004 | Silva-Smith, AL      | PhD    |                   |                      | $\mathbf{X}$         |
| 2004 | Zhang, W             | PhD    | $\mathbf{X}$      |                      |                      |
| 2004 | Bowers, S            | EdD    |                   | $\mathbf{X}$         |                      |
| 2004 | Paul, JM             | PhD    |                   |                      | X                    |
| 2004 | Cormier, E           | PhD    | $\mathbf{X}$      |                      |                      |
| 2004 | Sossong, AE          | DNSc   |                   | $\mathbf{X}$         |                      |
| 2004 | Carlson, SR          | PhD    |                   | X                    |                      |

doctoral education landscape in a dramatic way and reduce the already scant number of PhD-prepared nurses who traditionally have focused specifically on research and knowledge development and the advancement of nursing science.

The vast majority of the studies described in this study were nonexperimental and about half of the dissertations were qualitative by design. Since some (27.5%) of the dissertations centered on theory development, a nonexperimental, qualitative approach is appropriate. That many of the dissertation studies were qualitative supports the value of multiple ways of knowing and a shift from the logical positivistic approach to research employed by medical research and the adoption of a more open and naturalistic paradigm intrinsic to qualitative methodology. 44,45 Of the few dissertations that were experimental by design, 4 studied nursing theory, yet only 1 researcher clearly reported that the nursing theory was tested. Although experimental research studies such as randomized controlled trials are important, often experimental approaches are not well-suited for the study of nursing practice and related multidimensional components of care. Taking into account the current emphasis on evidencebased nursing practice predicated on a hierarchy of evidence that esteems experimental research above evidence gathered via other

Nursing Theory and Knowledge Development

**Table 5.** Dissertations by general topical categories (N = 207)

| Topic                                 | Number | Percent |
|---------------------------------------|--------|---------|
| Nursing education                     | 24     | 11.6    |
| Pediatrics/families                   | 16     | 7.7     |
| Obstetrics/gynecology                 | 14     | 6.8     |
| Gerontology                           | 14     | 6.8     |
| Acute/chronic care                    | 21     | 10.1    |
| Public health/health<br>behavior      | 25     | 12.0    |
| Psychosocial/cultural                 | 28     | 13.5    |
| Professional practice/<br>development | 35     | 17.0    |
| Mental health                         | 10     | 4.8     |
| Women's health                        | 8      | 3.9     |
| Miscellaneous                         | 12     | 5.8     |

approaches<sup>46</sup> raises questions as to how this schema might affect the furtherance of nursing knowledge generated by other research methods. Based on the findings of this present study, the concern about an overemphasis on experimental research at the expense of more qualitative approaches may be unfounded, at least at the level of seminal nursing research.

Less than one third (27.1%) of the dissertations reviewed referred to nursing theories, and of these 56 studies, 46 focused exclusively on nursing theory. The 3 nursing theories most frequently cited were Parse's Theory of Human Becoming, followed by Orem's Self-Care Deficit Theory and Roy's Adaptation Theory. A similar number of studies (27.5%) involved the generation of new nursing theories, and nonnursing theories guided a number (45.4%) of the dissertation studies, particularly theories from the psychosocial domain. Latham proclaimed, "Nursing research will not advance knowledge if it continues to hang on the coattails of other disciplines."47(p264) Although Fawcett<sup>3</sup> agreed with Latham, she pointed out that shared theories may be of value in the body of nursing knowledge. Rightfully so, nurse scholars are cautioned to systematically evaluate so-called borrowed theories before linking them to nursing and nursing practice.<sup>17</sup>

Even though 45.4% of the dissertation studies founded research on theories from other disciplines implies a somewhat multiple disciplinary perspective, more than half (54.6%) of the studies either examined nursing theories or aimed to generate new nursing theories, which is encouraging. Notwithstanding the emphasis on nursing theories, only 27.1 studied or tested established nursing theory. Careful assessment and evaluation of existing nursing theories to determine fit before venturing into the generation of yet another nursing theory may better promote the refinement and applicability of theories already developed and in turn strengthen and further develop a more succinct corpus of nursing knowledge.

From an epistemological perspective, nursing theory cannot be totally devoid of other theoretical concepts or models. Just as great composers develop unique symphonies, they still share common notes with other pieces of music. Moreover, the concept of holistic care precludes the notion of a "nursing only" theory and is congruent with the multidimensional reality of providing care for human beings across the lifespan from a variety of ethnic, cultural, and developmental backgrounds. Current trends as evidenced by the nursing literature<sup>13-17</sup> and this present study indicate some measure of acceptance for the integration of nonnursing theories into the work of nursing knowledge development; nevertheless, this does not negate the imperative and quest to differentiate nursing and its central dimensions from other disciplines by the testing of existing and ongoing exploration and development of nurse-specific theories.

A variety of topics were represented by the dissertations reviewed. Professional practice and development issues, psychosocial/cultural, public health/health behavior, nursing education, and acute/chronic care were the most frequently studied topics followed by pediatrics/family, gerontology, obstetrics/gynecology, mental health, and women's health. That many of the dissertation studies examined professional development and nursing education issues is more than

E12

mind-body connection. Parallel to the review by Loomis<sup>31</sup> which targeted clinical nursing research dissertations, the present study revealed lack of study on economics, politics, environment, and the testing of interventions. However, in contrast to the Loomis study,<sup>31</sup> this descriptive review yielded data indicative of a greater emphasis on family, social, and cultural oriented components of nursing care and practice. Also, unlike this present review, Hooker and Mayo<sup>32</sup> reported that 75% of the nurse practitioner-focused dissertation studies explored topics relevant to socioeconomic issues. It is interesting that 22 studies specifically addressed healthcare pertaining to women whereas none of the dissertations studied all-male populations. From an apolitical standpoint, perhaps since nurses, in general, and nurse researchers, in particular, continue to be predominantly female, nursing research may have a propensity to be skewed toward the study of female populations. But it is important to acknowledge that historically medical studies have included primarily male subjects.<sup>48</sup> Therefore, although the study of male populations from a nursing perspective merits some consideration, this observation is not intended to diminish the need to give voice to women's health issues through the vehicle of research. Granted, ethical concerns and complexities inherent in the study of male versus female subjects is worthy of attention but is beyond the scope and intent of this article.

#### **LIMITATIONS**

The findings of this basic survey must be interpreted with due caution. The relatively small size of the sample of convenience is not amenable to wide generalization, and a researcher-developed tool that has not been tested for reliability or validity was used. Only abstracts of the dissertations were read; therefore, pertinent information relevant to theoretical frameworks or models may not have been included in the abstracts. It is also important to underscore that although some of the abstracts contained references to nursing theory, this does not necessarily mean that nursing theories were actually tested. Too, data relevant to the topical content were not based on a predetermined framework and pertains to the study sample only. Nevertheless, the descriptive findings obtained provide a glimpse, albeit limited, of the types of studies and theoretical approaches used and may serve to guide future research study and nursing knowledge development.

#### **CONCLUSIONS**

This study provides concrete evidence of the status of knowledge development at its foundation. The findings of this descriptive review are somewhat suggestive of a broader view of nursing science and knowledge development that incorporates theory from other disciplines.

Furthermore, the findings of this survey suggest that some in positions of influence and who have mentoring relationships with doctoral students have a more inclusive view of knowledge development and do not tend to advocate the exclusive testing or development of nursing theories. Aside from the use or nonuse or development of nursing theories, in general, the dissertation studies covered the lifespan and a variety of topics and specialty areas of practice. However, no studies were done specific to male healthcare needs and few studies explored end of life, ethics, pain, or socioeconomic and political issues.

#### IMPLICATIONS/RECOMMENDATIONS

To fortify the extant nursing knowledge core by testing and revising established nursing theories along with the carefully justified generation of new nurse-specific theories as warranted because of the inherent complexities of the discipline and practice, it behooves those who guide and direct nursing doctoral dissertation studies to encourage research focused primarily on nursing theories. By doing so, it will increase the likelihood of developing future nurse scholars and researchers who will add substantively to the body of unique nursing knowledge. Although the primary aim of this descriptive survey was to identify and describe the types of theories studied by nurses engaged in doctoral dissertation research, other relevant issues warrant mention. If theory and related nursing knowledge are to be of value and actually used in everyday practice, how it is disseminated to and used by frontline nurses at the bedside is of paramount importance.

What value is there in developing a unique body of nursing knowledge if it is not translated into actual nursing practice and related patient outcomes? The key for those involved in scholarly pursuits and research endeavors is to continue academic discourse and the mission of knowledge and theory development specific and applicable to the discipline and praxis of nursing while acknowledging the merit of incorporating nonnursing concepts and theories that many consider to be complementary to nursing practice and instrumental in ensuring holistic care and better patient outcomes. In addition, although definitive recommendations about topical areas of research cannot be offered on the basis of the findings of this limited study, future dissertation research on male healthcare needs, end of life, ethics, pain, and socioeconomic and political issues deserves thoughtful consideration.

#### REFERENCES

- 1. Cody WK, Mitchell GJ. Theoretical concerns. Nursing knowledge and human science revisited: practical and political considerations. Nurs Sci Q. 2002;15(1):4-13.
- 2. Cody WK. Paternalism in nursing and healthcare: central issues and their relation to theory. Nurs Sci Q. 2003;16(4):288-296.
- 3. Fawcett J, Alligood MR. Influences on advancement of nursing knowledge. Nurs Sci Q. 2005;18(3):227-
- 4. Northrup DT, Tschanz CL, Olynyk VG, Szabo J, Biasio HA. Nursing: whose discipline is it anyway? Nurs Sci Q. 2004;17(1):55-62.
- 5. Meleis AF. ReVisions in knowledge development: a passion for substance. Schol Ing Nurs Pract. 1998;12(1):65-77.
- 6. Walker CA. More than semantic differences. J Theory Cons Test. 2004;8(1):5-6.
- 7. Seedhouse D. Practical Nursing Philosophy: The Universal Ethical Code. Chichester, NY: Wiley;
- 8. Doane GH, Varcoe C. Toward compassionate action: pragmatism and the inseparability of theory/ practice. Adv Nurs Sci. 2005;28(1):81-90.
- 9. Mitchell GJ. Abstractions and particulars: learning theory for practice. Nurs Sci Q. 2003;16(4):310-
- 10. Barrett EM. What is nursing science? Nurs Sci Q. 2002;15(1):51-60.

- 11. Parse RR. Language and the sow-reap rhythm. Nurs Sci Q. 2001;14(4):273.
- 12. Fawcett J. Analysis and Evaluation of Contemporary Nursing Knowledge: Nursing Models and Theories. Philadelphia: FA Davis; 2000.
- 13. McKenna G. Unique theory—is it essential in the development of a science of nursing? Nurse Educ Today. 1993;13(2):121-127.
- 14. Hinshaw A. Nursing knowledge for the 21st century: opportunities and challenges. J Nurs Scholarsh. 2000;32(2):117-123.
- 15. Roy SC. Knowledge as universal cosmic imperative. In: Jones DR, ed. Knowledge Impact 1996: Conference Proceedings. Chestnut Hill, Mass: Boston College Press; 1997:95-117.
- 16. Giuliano KK, Tyler-Viola L, Lopez RP. Unity of knowledge in the advancement of nursing knowledge. Nurs Sci Q. 2005;18(3):243-248.
- 17. Villarruel AM, Bishop TL, Simpson EM, Jemmott EM, Fawcett J. Borrowed theories, shared theories, and the advancement of nursing knowledge. Nurs Sci Q. 2001;14(2):158-163.
- 18. White G. The code of ethics for nurses: responding to new challenges in a new century. Am J Nurs. 2001;101(11):73-75.
- 19. Carper BA. Fundamental patterns of knowing in nursing. Adv Nurs Sci. 1978;1(1):13-23.
- 20. Donaldson SK, Crowley DM. The discipline of nursing. Nurs Outlook. 1978;26(2):113-120.

#### E14 ADVANCES IN NURSING SCIENCE/JANUARY-MARCH 2007

- 21. Fawcett J, Watson J, Neuman B, Walker P, Fitzpatrick JJ. On nursing theories and evidence. J Nurs Schol. 2001;33(2):115-119.
- 22. Barnard KE, Neal MV. Maternal-child nursing research: review of the past and strategies for the future. Nurs Res. 1977;26:193-2000.
- 23. Gortner S, Nahm H. An overview of nursing research in the United States. Nurs Res. 1977;26(1):10-33.
- 24. Highriter ME. The status of community health nursing research. Nurs Res. 1977;26(3):183-192.
- 25. Sills GM. Research in the field of psychiatric nursing: 1952-1977. Nurs Res. 1977;26(3):201-207.
- 26. Ellis R. Fallibilities, fragments and frames: contemplation on 25 years of research in medical-surgical nursing. Nurs Res. 1997;26:177-182.
- 27. Coffman MJ. Cultural caring in nursing practice: a meta-synthesis of qualitative research. J Cult Divers. 2004;11(3):100-109.
- 28. Killien MG. Women and employment: a decade review. Annu Rev Nurs Res. 2001;19:87-123.
- 29. Vaartio H, Leino-Kilpi H. Nursing advocacy-a review of the empirical research 1990-2003. Int J Nurs Stud. 2005;42(6):705-714.
- 30. Spear HJ, Kulbok P. Adolescent health behaviors and related factors: a review. Public Health Nurs. 2001;18(2):82-93.
- 31. Loomis ME. Emerging content in nursing: an analysis of dissertation abstracts and titles: 1976-1982. Nurs Res. 1985;34(2):113-119.
- 32. Hooker RS, Mayo HG. Doctorial dissertations on nurse practitioners: 1970-2000. J Am Acad Nurs Pract. 2002;14(6):276-284.
- 33. Haapaniemi H, Raouasalo P, Lauri S. Geriatric nursing research in Finland: an analysis of master's, licentiate and doctoral theses from 1979 to 2000. Hoitotiede. 2003;15(2):89-99.
- 34. Hooker RS, Mayo HG. Review of doctoral dissertations on physician assistants: 1972-2001. Phys Asst. 2003;27(2):28-34.
- 35. McIntosh JL. Doctoral dissertations on suicide from

- U.S. and Canadian institutions of higher learning, 1990-1995. Suicide Life Threat Behav. 1996;26(2): 198-214.
- 36. Phillip JR. What constitutes nursing science? Nurs Sci Q. 1996;9(2):48-49.
- 37. Fawcett J. The state of nursing science: hallmarks of the 20th and 21st centuries. Nurs Sci Q. 1999;12(4):311-315.
- 38. Huch MH. Nursing and the next millennium. In: Kenney JW, ed. Philosophical and Theoretical Perspectives for Advanced Nursing Practice. 3rd ed. Sudbury, Mass: Jones and Bartlett Publishers; 2002:103-113.
- 39. Malinski VM. Doctoral students and nursing research. Nurs Sci Q. 2005;18(1):13.
- 40. Robb WJ. The ABCs of nursing doctoral degrees. Dim Crit Care Nurs. 2005;24(2):89-96.
- 41. Spear HJ. The baccalaureate degree for entry into practice: it's time for nursing to take a stand. Nurs Ed Today. 2003;23(4):243-245.
- 42. Dracup K, Bryan-Brown CW. Doctor of nursing practice—MRI or total body scan? Am J Crit Care. 2005;14(4):278-281.
- 43. American Association of Collegiate Nursing Education (AACN). Position Statement on the Practice Doctorate in Nursing, October 2004. Available http://www.aacn.nche.edu/DNP/DNPPosition Statement.htm. Accessed January 10, 2007.
- 44. Chinn PL, Kramer M. Theory and Nursing: A Systematic Approach. 5th ed. St Louis, Mo: Mosby;
- 45. Monti EJ, Tingen MS. Multiple paradigms of nursing science. Adv Nurs Sci. 1999;21(4):64-80
- 46. Fulbrook P. Developing best practice in critical care nursing: knowledge, evidence and practice. Nurs Cri Care. 2003;8(3):96-102.
- 47. Latham L. Letter to the editor. Nurs Sci Q. 2002;15(3):264.
- 48. Schiebinger L. Women's health and clinical trials. J Clin Invest. 2003;112:973-977.