MODEL OF THE STRUCTURE OF NURSING KNOWLEDGE FOR RESEARCH AND PRACTICE

MODEL STRUKTURY WIEDZY PIELĘGNIARSKIEJ DLA BADAŃ NAUKOWYCH I PRAKTYKI ZAWODOWEJ

Ottillie Rung¹, Klaudia Cwiekala-Lewis², Michael Scarcello³

¹ PhD Nursing Student
The University of Arizona College of Nursing, USA

² Faculty at Health Sciences and Nursing
Phoenix University, USA

³ Faculty at School of Health and Community Service
Confederation College, Canada

DOI: <https://doi.org/10.20883/pielpol.2016.59>

ABSTRACT

This article represents the authors' collaborative vision for a proposed structure for nursing knowledge. The authors created a vision by examining key elements of nursing epistemology and proposing a model based on the scholarly inquiry. The authors' proposal is substantiated by current existing theoretical frameworks, which were evaluated and modified using deductive reasoning in supporting the creation of the proposed model. The authors provide three real life examples based on clinical experience to illustrate the connection of proposed concepts within the model to practice. In conclusion, the authors investigated the methods with which nurse theorists arrange recognized truths into a structure for nursing knowledge for research and practice.

KEYWORDS: model, structure, nursing knowledge, research, practice.

STRESZCZENIE

Artykuł przedstawia wariant modelu struktury wiedzy pielęgniarskiej. Autorzy opracowali wersję modelu w oparciu o analizę kluczowych elementów pielęgniarskiej epistemologii oraz na podstawie naukowego wnioskowania dedukcyjnego. Schemat ten jest zbudowany na podstawie aktualnie istniejących podstaw teoretycznych, które były oceniane i modyfikowane przez autorów podczas procesu interpretacji i syntezy. Artykuł zawiera również trzy kliniczne przykłady ilustrujące połączenie proponowanych koncepcji modelu z praktyką zawodową pielęgniarstwa. Podsumowując, autorzy badali metody i teorie obecnych teoretyków pielęgniarstwa, które te koncepcje uwzględniają fakty i przedmiotowość w kompleksowej aranżacji wiedzy pielęgniarskiej na podstawie badań naukowych, jak również aktualnej praktyki zawodowej.

SŁOWA KLUCZOWE: model, struktura, wiedza pielęgniarska, badania naukowe, praktyka zawodowa.

Introduction

Independent of educational preparation, but dependent on practical experiences, nursing knowledge is developed and nurtured on an individual level. It is through our practical experiences, which are founded in our research, that we, as nurses, sovereign to our practice environment, advance and mold new knowledge. Our practice demands that we ask questions, and it is the answers to these questions that propels the discipline forward. By questioning and hypothesizing, we formulate theories and concepts. It is here that one may argue, that nursing knowledge is structured through our practice, that research is conceived in our practice, and that practice would not exist without research. A gear mechanism representation supports us to recognize,

that in order for nursing knowledge to exist, both practice and research work in unison.

Creating Model of the Structure of Nursing Knowledge

During collaborative discussion, a model of the structure of nursing knowledge for research and practice was created to demonstrate how the authors believe the components of nursing knowledge should be arranged and how they are connected to each other. Our model depicts a gear mechanism, where the operation of the mechanism functions in unison with all components. Gears were utilized to illustrate the dynamic, flexible, evolving, and coordinated nature of knowledge development. The practice and knowledge gear is de-

picted larger, since we believe this forms the foundation of nursing. However, practice and knowledge are not more important than the other components. Practice cannot occur without knowledge, and knowledge cannot be verified without testing it in practice [1-4]. The terms directional flexibility, dynamic, and evolving underpin the model. Caring and competence are integral to the foundational philosophy of our model. We believe that nursing knowledge must include caring and competence [5], because nursing is both an art and a science. Within those spheres are found conscience and creativity [5,6], because true caring cannot occur without these elements. We note that both contribute to practice and knowledge because they support nursing intuition and guide our care. The authors emphasized the importance of four C's – caring, competence, conscience, and creativity as vital parts in development of the structure of nursing knowledge.

When articulating ideas regarding nursing philosophy, theory, and conceptual models, it is necessary to identify whether one adheres to the belief that there is little or no difference between the definitions of these terms, and therefore can be used interchangeably, or whether each has a distinct definition [3, 4]. Several nurse scientists recommend that these terms should be stratified [3] or clarified according to "substance" [4]. For our purposes, we believe that each has a distinct definition.

Theoretical Framework

The framework for theoretical thinking created by Kim [7] consists of five levels. In the first and highest level, she placed philosophy of science; the second is listed as the metaparadigm level; the third level contains nursing philosophy; the fourth is designated as the paradigm level; and the fifth is the theory level [7]. In defining the five levels, Kim states that the philosophy of science and nursing philosophy levels are intricately associated, in that nursing philosophy guides the formation of nursing theories, whereas philosophy of science dictates the methodology in the creation of nursing theory [7].

Reed [8] succinctly defined philosophy of science and practice as the foundational beliefs of a discipline and its approach in conducting science. She explains that nursing philosophy represents the epistemology and ontology that is distinct to nursing, as well as the methodological framework that is used in the conduction of nursing research and practice [8].

According to Fawcett [9] theories, conceptual models, and metaparadigms differ in their level of abstraction. She views the metaparadigm at the top of a hierarchy, describing them as encompassing the phenomena of interest to nursing [9]. Next in her hierarchy

are conceptual models, which she defines as broad beliefs about "...individuals, groups, situations, and events of interest" to the discipline. On the lowest tier of her hierarchy are theories, which provide particular ideas about phenomena [9]. Weaver and Olson [10] describe a paradigm as "beliefs and practices" that guide and provide structure for research within a discipline. They list among others, positivism and critical social theory as examples [10].

In our worldview nursing philosophies, theories, and conceptual models build upon one another, and are also dynamic and evolving. As new nursing knowledge is generated in the form of theories and conceptual models, nursing philosophy may undergo expansion. Likewise, nursing philosophy will influence the generation of new nursing knowledge. This view is supported by several nurse scientists [3, 4, 11].

Therefore, our model is not hierarchical, but rather one composed of active and interacting components. Hierarchical nursing knowledge models limit the generation of knowledge to at most two directions; up or down, or up and down only. Alternatively, some

models are depicted in a circular or spiral pattern. Circular and spiral models also limit the generation of knowledge to at most two directions. Hierarchical and circular or spiral models also do not demonstrate how ideas and knowledge are interconnected.

The metaparadigm provides the four basic concepts of nursing [12]. The nursing metaparadigm connects with the central mechanism as a conceptualization that should be brought into every aspect of theory design and knowledge generation, and as a practice element since it is integral to all areas of nursing practice. Paradigms create general and abstract concepts that apply to practice [8]. Nursing knowledge is formed from various sources, such as experience; introspection and insight; empirical evidence; and knowledge from other disciplines, and unified into cohesiveness with imagination and creativity [2, 3, 4, 11]. The nurse scholar uses the characteristics of conscience, competence, creativity, and caring to identify problems and to develop solutions to those problems. Furthermore, we view the structure of nursing knowledge to be based upon practice and practice to be based upon nursing knowledge, as has been exemplified by many nurse scientists [1-4]. All sources of knowledge are examined for their application to nursing and at times are modified or expanded upon in order to address nursing phenomena [1-4].

Model Description

The mechanism by which knowledge is generated in our model demonstrates how all these sources of knowledge interact. As the gears in the mechanism in-

teract and move with one another, each influences one another in the creation of new knowledge. This mechanism moves both forward and backward; at times faster or slower. The gears are not limited in the speed at which they can move, which explains how ideas and knowledge are generated at a faster pace at some times than at other times. In this process of movement forward and backward, at times faster or slower, ideas and knowledge move upward and downward, forward and backward, faster and slower, generating a flow of new ideas out into the surrounding realm of existing nursing knowledge.

Examples from Practice

To illustrate the connection of the proposed concepts, three examples will be provided within each author's specialty. Examples provided are real life experience applications of the proposed model. The first example is provided by a labor and delivery nurse. The second example is provided by a critical care nurse, and the third one by an emergency room nurse.

Labor and Delivery

An example of how practice can influence nursing knowledge is evident when a practicing nurse recognizes a problem with care delivery and decides to investigate how that problem can be rectified. She has noted that laboring mothers who wish to deliver naturally desire to have additional non-pharmacological options for managing labor, but her unit does not provide any. She does a literature review and chooses to examine the use of aromatherapy during labor. She learns how different essential oils are used to control anxiety, nausea, and pain, and proposes implementing their use on her unit. A pilot program is introduced, and is met with great enthusiasm by midwives and their patients. A follow-up survey demonstrates that both midwives and their patients found the aromatherapy helpful, so the program is expanded in the unit. The nurse then writes an article about the process, which motivates other labor and delivery nurses to try its use on their units.

Critical Care

At the beginning of her shift, a nurse was checking the schedule to determine her assignment. She noted that on that day her assigned patients were on two different sides of the hallway. Patient number one was recently admitted to the unit with a diagnosis of drug overdose. The patient was on a ventilator, sedated and restrained, as last night he self-extubated and had to be urgently intubated. Sedation was not effective because he had a high tolerance to any sedatives. Patient number two was an alert and oriented women admitted with ketoacidosis on an hourly insulin drip.

The nurse utilized her competence and application of critical thinking skills to assess her patients. She was concerned that both patients required closed monitoring and that the distance between her patients could prohibit her from responding to an emergency in a timely and effective manner. As she was a caring nurse, she approached the charge nurse with her concerns. However, her request to switch one of her patients was rejected because in this unit the same nurses were required to care for the same patients while working consecutive days.

A few hours in to her shift while she was checking the blood glucose level for patient two and changing the insulin drip according to the protocol, she heard her charge nurse call for her. Upon entering the room of patient one she discovered that the patient self-extubated once again, that the vent alarm failed, and did not signal outside of the room as expected. Due to the failure of the alarm, the nursing response was delayed. In addition to the technical issue with the dysfunctional vent alarm, the nurse was upset that she was not closer to the patient so that she could have monitored him more closely.

This incident prompted the nurse to reassess the scenario and to create a proposed solution to this avoidable event in the future. She examined the current literature that was addressing nursing assignments based on patient acuity. Then based upon her findings, she utilized her creativity and proposed a new acuity-based assignment model to her immediate manager. The unit manager agreed to try this new model for several weeks, and then to seek feedback from the nursing staff. A short survey was created by the manager to monitor potential improvement of nursing care throughout the implemented strategy. Survey results generated after four weeks of trial revealed that nurses were overall satisfied with the new model for patient assignments and felt more confident while providing safe patient care. The new and creative way of managing the patient assignment was noted by upper management, and the unit was approved to run a pilot study. The results obtained from this pilot study are currently in the process of publication. This scenario demonstrates that both practice and research work in harmony.

Emergency Room

A patient presents to the acute care setting with "flu like symptoms." Vital signs are within normal limits; skin color is consistent with race; a positive history for intravenous drug use is noted on the medical record. Throughout the day, the patient's cognition changes, although vital signs remain within normal limits. The competent, in-tune, nurse may query early septic shock based on the past medical history; identify risk for an inadequ-

ate fever response; and advocate for advanced serum laboratory testing and prophylactic antibiotic coverage. In this instance, the patient is at risk for being inappropriately labelled or judged due to his past medical history, which could potentially be thought of as behavioral or as having just abused drugs intravenously. Instead, by putting the pieces of the puzzle together, the expert nurse uses past experience, intuition and independent/shared theory to advocate for this patient and establish an appropriate plan of care.

The situation was observed by the emergency room (ER) unit manager. Based on that observation, the manager generated a research question: How do we support the expert nurse to role model behaviors consistent with practice, so that other, more novice nurses may also benefit from this knowledge? The ER manager then conducted a literature review to obtain the stated science on the above question. The manager found minimal data supporting the proposed hypothesis, so a decision was made by the management to support a research study that would explore the proposed hypothesis.

Conclusion

As new knowledge is generated, new questions will emerge. Supporting new learning and further questions are found in a practice environment keen on supporting solid nursing research. A gear mechanism model, which supports both practice and research as being synonymous with one another, as well as being no more important than the other, is a key to understanding the foundation of nursing knowledge, as well as the future of nursing knowledge. Caring and competence, and conscience and creativity are integral to both nursing practice and the generation of nursing knowledge, because these characteristics support a discipline whose foundation is based upon art and science. Furthermore, we view the structure of nursing knowledge based upon practice and practice, as has been exemplified by many nurse scientists [1–4].

Figure 1. Model of the Structure of Nursing Knowledge for Research and Practice
Source: author's own analysis

References

1. The practitioner as theorist. In: Reed PG & Shearer NB. (Eds.), *Perspectives on nursing theory* (6th Ed). Philadelphia, PA: Wolters Kluwer Health Lippincott Williams & Wilkins; 2012. 56–61.
2. In: Reed PG. & Shearer NB. (Eds.), *Perspectives on nursing theory* (6th ed.). Philadelphia, PA: Wolters Kluwer Health Lippincott Williams & Wilkins; 2012. 343–351.
3. Levels of theoretical thinking in nursing. In: Reed PG. & Shearer NB. (Eds.), *Perspectives on nursing theory* (6th ed.). Philadelphia, PA: Wolters Kluwer Health Lippincott Williams & Wilkins; 2012; 282–288.
4. Theory: Metaphors, symbols, definitions. In *Theoretical nursing: Development & progress* (5th ed.). Philadelphia, PA: Wolters Kluwer Health Lippincott Williams & Wilkins; 2012. 23–38.
5. *The human act of caring: A blueprint for the health professions* (Rev. ed.). Ottawa, Canada: Canadian Hospital Association Press; 1992.
6. Retrieved September 9, 2014, from <http://ctrtraining.co.uk/documents/The7CsofHumanCaring.pdf>
7. *Recent Advances in Nursing* 1989; 24: 106–122.
8. Reed PG. Pam's notes: Structure of nursing knowledge Tucson, AZ: University of Arizona College of Nursing 2014. (Unpublished document, pp. 1–16).
9. Contemporary conceptualizations of nursing: Philosophy or science. In: Kikuchi JF & Simmons H (Eds.), *Philosophic inquiry in nursing*. Newbury Park, CA: Sage. 1992. 64–70.
10. *Journal of Advanced Nursing* 2006; 53(4): 459–469.
11. Philosophy, science, theory: Interrelationships and implications for nursing research. In: Reed PG. & Shearer NB. (Eds.), *Perspectives on nursing theory* (6th ed.). Philadelphia, PA: Wolters Kluwer Health Lippincott Williams & Wilkins; 2012. 17–22.
12. *The Journal of Nursing Scholarship* 1984; 16(3): 84–87.

The manuscript accepted for editing: 02.08.2016

The manuscript accepted for publication: 12.09.2016

Funding Sources: This study was not supported.

Conflict of interest: The authors have no conflict of interest to declare.

Address for correspondence:

Klaudia J. Ćwiękała-Lewis
4035 S. Riverpoint Pkwy
Phoenix, AZ 85040, USA
phone: 610-297-2726
e-mail: klaudialewis@email.arizona.edu
Faculty at Health Sciences and Nursing
Phoenix University, USA