

Anne Boykin Institute for the Advancement of Caring in Nursing Use of Robots to Complement Caring Relationships in Nursing Position Paper

Susan Bulfin, DNP, FNP-BC

Christine E. Lynn College of Nursing, Florida Atlantic University

Claudia Grobbel, DNP, RN, CNL

School of Nursing, Oakland University, Rochester Hills, Michigan

Willa Fuller, BSN, RN

Florida Nurses Association

Abstract: This position paper expresses current and future concerns about the use of robots in nursing. This statement reflects integration of humanoid nurse robots (HNRs) in nursing education, practice, and research. It is imperative nurses be directly involved in decisions about the design, implementation, and evaluation of the use of HNRs in healthcare. As questions arise about the ethical use of robots in nursing situations, caring theories will inform the implementation of HNRs in nursing to ensure we protect the safety and the dignity of those entrusted to our care.

Keywords: robots; nursing care; caring relationships; nursing technology

Background

In the digital age, daily interaction with, use of, and dependence upon various forms of technology in society have been well established. Healthcare systems have embraced robotic technology; thus, new types of “caregivers” known as humanoid nurse robots (HNRs) will indelibly impact the practice of nursing. It is, therefore, a critical time

for nurses to ensure that HNRs used in patient care be developed within an explicit framework of caring. It is nursing’s professional duty to ensure that application of this technology protects the safety and the dignity of persons entrusted to our care. This responsibility requires collaborative efforts in designing and employing high quality, cost-effective technological products, and

processes which preserve the integrity of caring relationships.

It is vital for nurses to pause and consider whether HNRs can support nursing care, and if so, what effect they might have on the sacred nurse-patient relationship. Locsin and Ito (2018) have explored challenges in maintaining these vital relationships amidst threats to nursing practice from rapidly expanding technological advancements. Locsin's theory of Technological Competency as Caring in Nursing addresses technological knowing. Endowed with human characteristics, HNRs can participate in this knowing of the person through use of specific robotic capabilities. The theory promotes "knowing person as caring" in which mutual designing and engagement by persons as participants in their care as opposed to being objects of care is central. Locsin and Ito contend that the science of caring be "considered the main character in advancing, affirming, supporting, and legitimizing contemporary and future nursing practice of knowing persons as caring" (p. 5). This article calls for nurses to have the technological competence to define *how* these robots *will* and *should* be used in nursing education, practice, and research.

Implications for Nursing Education

Nursing education must focus on preparing nurses to practice in environments that use high quality technological products yet preserves the nurse-patient relationship. From the perspective of the theory of Nursing as Caring (Boykin & Schoenhofer, 2001), the central intention of nursing as a practiced discipline is nurturing persons living caring and growing in caring. Further, Boykin, Schoenhofer, and Linden (2010) warned that challenges will exist as technological advancements in healthcare can promote depersonalization on the part of the caregiver as well as the one seeking care. Nursing students will therefore need the knowledge, skill, and ability to integrate a caring-based perspective into decisions involving care robots.

Care Centered Value Sensitive Design (CCVSD; van Wynsberghe, 2015) provides an excellent grounding framework to inform the development of nursing curricula, addressing innovative technologies such as "care robots." Her general premise remains, just because something can be done does not mean it should be done. van Wynsberghe promotes "rigorous ethical reflection

to ensure the introduction and design of robots does not impede the promotion of values and the dignity of patients at such a vulnerable and sensitive time in their lives" (van Wynsberghe, 2016, p. 407). As nursing faculty develop curricula around robotic technology, these theories can assist to create coursework and assignments, which provide opportunities for students to reflect on decisions involving proper delegation and oversight of HNRs. Caring and value-based approaches, are necessary to inform education on robotic design, implementation, and evaluation.

Implications for Nursing Practice

Robots currently perform a variety of health-care activities such as; providing companionship for patients, assist in lifting and mobility, transporting supplies and specimens, and as personal avatars supporting communication between people. The acceptance of care robots in nursing practice was explored by Lee et al. (2018), who found that nurses responded positively when robots were involved in "measuring/monitoring," "safety care," "mobility/ activity," and "reduction in workload" (p. 2094). The authors reported that nurses agreed although robots may decrease their workload, robots must cooperate with and be controlled by nurses. Beyond cooperation and control; however, the notion of creation must be addressed. Barnard (2017) and van Wynsberghe (2016) recommend engineers and roboticists include nurses' concerns in the design, development, and implementation of HNRs.

The Transactive Relationship Theory of Nursing (Tanioka, Yasuhara, Osaka, Hirokazu, & Locsin, 2017) provides a guiding framework for participative engagement in which the human and machine interact. Tanioka envisions nurse scientists, roboticists, and computer scientists designing and developing HNRs capable of engaging in affective, emotive, and transactive relationships. If this or other forms of artificial intelligence is proposed to supplement nursing care, nurses need to be an integral member of a multidisciplinary design and development team. By collaborating in robotic design, nurses will be able to ensure that caring, the essence of nursing (Boykin & Schoenhofer, 2001), remains a vital component in developing, directing, and evaluating the innovation.

Implications for Nursing Research

The rapid proliferation of emerging technology into the workplace creates many avenues for new and unique research opportunities. As healthcare systems struggle to maintain and improve quality outcomes, inserting robot technology must be another variable to explore. Questions relating to how this technology will affect caring environments are ever present. Issues relating to efficacy, patient safety, ethical considerations, the preservation of human touch, and nursing interactions encompass just a few areas of interest as nurses navigate this new frontier. To assist those involved in HNR development and implementation, van Wynsberghe (2016) recommends the aforementioned CCVSD framework to guide the multiple and complex decisions regarding care robots. Nurses are poised to be an integral part of the ongoing development, utilization, scientific examination, and analysis around this technology to ensure that caring is a primary consideration now and in the future.

Mesquita, Zamarioli, and Carvalho, (2016) examined recent robotic patents to uncover the major functions robots currently perform. Stahl and Coeckelberg (2016) further promote exploring whether robots can deliver “warm” and “human” care because this technology should not be presented as something it is not. Answers to these questions give rise ethical considerations related to beneficence, veracity, and fidelity. Ethical concerns arise such as, are robotic pets for patients with dementia a form of deception; are patients being deceived or disrespected by this intervention; or are they merely being entertained in a therapeutic interaction?

Positions

The Anne Boykin Institute supports the following positions on use of robots to complement caring relationships in nursing:

1. Nurses must be directly involved in decisions about the design, implementation, and evaluation of the use of HNRs in healthcare.
2. The following theories be used as essential frameworks to guide decisions about the processes involved in creating and implementing HNRs (and other robotic assistants)
 - Nursing as Caring (Boykin & Schoenhofer, 2001)
 - Transactive Relationship Theory of Nursing (Tanioka et al., 2017)

- Technological Competency as Caring in Nursing (Locsin & Ito, 2018)
 - Care Centered Value Sensitive Design (van Wynsberghe, 2015)
3. As this field of nursing care complemented by robots evolves, practice-based evidence and research will drive the development of new theories to support this innovative type of care.

Concluding Thoughts

As robotic technology continues to be employed in healthcare, nurses must lead the charge in determining the role and functions robots can and will perform. At the same time, we must be mindful that nursing is more than a series of programmable functions. As nursing care unfolds, lived experiences are shared between the nurse and those being nursed. In these transformative times, it is our moral duty to engage with this technology to ensure robotic care complements not replaces nursing care.

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Correspondence regarding this article should be directed to Claudia Grobbel, DNP RN CNL, Associate Professor, School of Nursing, Oakland University, Rochester Hills, MI. E-mail: cgrobbel@oakland.edu