

Prospective of Robots in the Practice of Nursing: A Qualitative Descriptive Approach

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Abstract: *Performing quality nursing care for the patient is the job of the nurse. Healthcare have been relying on robotic technology in doing surgical activities for many years. However, because of recent issues indicate the emergence of robotic technology in primary health care, specifically in assisting the nurse in simple procedures such as lifting and moving patients, taking vital signs in order to lessen the fatigability of the nurse. This study utilized the qualitative descriptive perspective. Lambert & Lambert (2012), described qualitative descriptive studies as a comprehensive summarization, in everyday terms, of specific events and situations experienced by individuals. The participants of this study were American nurses assigned in the hospital with at least five-year experience of direct patient care. The principal data gathering tool is an open-ended question. The study revealed six major themes as follows: fear of losing job as a nurse, negative effects of robots, significance of the application of robots, unique view of nursing, the use of robots in specific areas and certain conditions must be put in place. Participants are lukewarm with the use of robots in nursing practice. There is a need to provide a comprehensive theoretical and philosophical view of the critical need of robots in nursing practice among nurses.*

1. Introduction

Performing quality nursing care for the patient is the job of the nurse. To do this duty, it requires the mastery of nursing skills and procedures. Furthermore, the use of modern technology is a primordial factor to carry out the best for the patient. Healthcare have been relying on robotic technology in doing surgical activities for many years. Technological competency, according to Locsin (2009) supports current high-tech nursing practices. This was demonstrated through the research of Tanioka (2017). The research introduced a robotic device to physically transport patients and performing simple tasks like taking vital signs.

Similar researches have been conducted that has common agenda, that is to show how effective are robots in health care. The study of Batavia & Casale (2013) on robotic surgery of the kidneys and ureters in pediatric patients; Kennigott, et al. (2012), on

minimally invasive procedures; Bodner, et al. (2010) on surgery in thoracic cancer; and Suematso & Del Nido (2004) on pediatric cardiac surgery all showed the promise of robots in health care.

2. Theoretical Framework

The research adopted the Technological Competency as Caring in Nursing by Locsin (2016). Technological competency as caring in nursing is a conceptual model that presents the link between technology and caring in nursing as co-existing harmoniously. According to Locsin (1995), the concept of technology and caring are within the context of competency illustrates the realities of advancing technologies in healthcare. This theory delineates the practice of nursing and the relatedness between technology, caring and nursing.

3. Methods

This study utilized the qualitative descriptive perspective. A descriptive research refers to research studies that have as their main objective the accurate portrayal of the characteristics of person, situations or groups (Polit & Hungler, 2004). Furthermore, Lambert & Lambert (2012), argued that qualitative descriptive studies is a comprehensive summarization, in everyday terms, of specific events and situations experienced by individuals..

4. Results and Discussion

Background information. Table 1 presents the profile of the participants which can be seen in table 1.

On age, majority or 78.84% of the participants are 31 year old and above and 11 or 21.15% are 30 year old and below. With respect to gender, most of them are females or 94.23% and 5.76% are males. Likewise, with respect to their education, majority or 82.69% BSN degree holders, 13.46% are MAN/MSN degree holders and 3.84% of the participants are PhD/DNS degree holders.

As to assignment, 21 or 40.38% are assigned in the ICU/NICU, 15 or 28.85% are assigned at the OR, 9 or 17.31% are assigned in the medical/surgery department, 5 or 9.62% are assigned in the telemetry unit and 2 or 3.84% are assigned at the ER. As to years of experience as a nurse, 50 or 96.15% have 11

years and above experience, 2 or 3.84% have 6 to 10 years of experience. As regards to the average work hour/week, 32 or 61.54% work for 61 and above hours, 18 or 34.62% worked for an average of 40-60 hours/week and 2 or 3.84% worked for less than 40 hour/week.

Table 1. Background Information about nurses.

Variable	Frequency	Percentage
Age		
30 & below	11	21.15%
31 & above	41	78.84%
Gender		
Male	3	5.76%
Female	49	94.23%
Education		
BSN	43	82.69%
MAN/MSN	7	13.46%
PhD/DNS	2	3.84%
Assignment		
Med-Surg	9	17.31%
ICU/NICU	21	40.38%
ER	2	3.84%
OR	15	28.85%
Telemetry	5	9.62%
Years of experience		
Less than 5	0	0%
6-10 years	2	3.84%
11 years up	50	96.15%
Average work hour/week		
Less than 40	2	3.84%
40-60 hours	18	34.62%
61 & above	32	61.54%

Major themes. For Table 2 presents the major themes on the use of robots in the practice of nursing. Respondents took time to answer the open-ended questions through the use Facebook Messenger app. The questions is: “If given a chance, would you allow robots to take some of your nursing skills in order to lessen fatigue that you experience after the end of your duty?”

On fear of losing jobs as a nurse

The first major theme revealed from the responses of the participants is fear of losing jobs as a nurse. When robots are developed for nursing practice, the respondents believed that their job of the nurse will end. Ford (2017) revealed that with the advent of robotic technology that can perform tasks of the employees, it can de-skill lower-skill job. This will eventually lead to the robots doing these skills with no cost for salaries and benefits. Consequently, this may result to the loss of jobs of employees, including nurses.

From this major theme emerged four sub-themes namely: inability to accept the future role of robots, robots cannot replace the human touch of nurses and

servicing patient with love and compassion is the mission of the nurse not robots.

Inability to accept the future role of robots. Participants believed that nurses alone can perform nursing roles. With this sub-theme, participants cannot accept the future role of nurses because eventually, they will lose their jobs as nurses. A participant said that, “Robots are just robots, I don’t believe that they can perform this roles of the nurse.” Another participant mentioned that, “As a nurse, who have extensive experience in actual patient care, is unable to accept this role to be given to robots. This will result to unemployment.” According to Qureshi & Syed (2014), replacing employees with robots is an inevitable choice for organizations in the service sector, more so in the health care sector because of the challenging and sometimes unhealthy working environments.

Robots cannot replace the human touch of nurses. Participants believed that nurses alone possess the skill on human touch. This can never be done by robots according to the participants. This suggests that nursing is unique and cannot be introduced by robots. One participants said that, “Replacing nursing with robots cannot happen because this robots do not possess the human touch that only a nurse can provide.” Nonetheless, Roach & Katende (2016) argued that innovations are the product of human mind and therefore, may have deficiencies thereby these machines can never replace humans.

Servicing patient with love and compassion is the mission of the nurse not robots. Repeatedly, participants mentioned the uniqueness of the nursing profession in providing the mission of nurses to serve with love and compassion. A participant said that, “Robots cannot show love and compassion, the nurse can.” Another participant has a more forceful answer when asked if they would allow robots to be part of nursing practice, “No! Never! I will not allow robots to work as nurses or even to perform skills, they do not possess the mission of the nurse that is to serve with compassion and love.” According to Feinberg (2014), nurses deliver clinical nursing skills that is coupled with humanitarian skill that comforts the men, women and children who are called patients with excellent medicine but most importantly respect and compassion. This suggest that nurses are the only one who can provide these to the patient and not robots. Likewise, robotic technology has limitations. Furthermore, Morris (2014) said that robotic surgical technology has not achieved its full potential owing to a few limitations, costs are prohibitive, it is only available to those who can afford it, diminished degree of freedom, its yearly maintenance is expensive and bulkiness of the robotic equipment.

Table 2. Major themes.

Major Themes	Summary of subthemes
Fear of losing jobs as a nurse	Inability to accept the future role of robots Robots cannot replace the human touch of nurses Serving patient with love and compassion is the mission of the nurse not robots
Negative effects of robots	Robots malfunction which can cause harm to the patient Nursing care is only done by humans not robots Robots are mere imaginary things Weird idea because robots in nursing is never acceptable Robots cannot replicate human to human interaction
Significance of the application of robots	Lessens the fatigue of the nurse after work. Nurses will be focused on doing direct human caring relationships and quality nursing care. Nurses need it for the sake of convenience and comfort. Save time to allow nurses to perform other duties
Unique view of nursing	Nurses can only do caring, not anybody or anyone Caring is learned not made through robots Robots cannot perform the human touch as a form of healing and caring Connecting with my patient is more essential than reducing fatigue and promoting comfort. Robots cannot intervene when something went wrong
The use of robots in specific areas	Robots can be used in the rehab units Doing dirty task that nurses do not want to perform Bring/carry things for the nurse Robots can do transporting of patient Transferring, lifting and turning patients
Certain conditions must be put in place	Meeting standards of nursing practice Patient safety and welfare is guaranteed Welfare of patient is not compromised

On negative effects of robots

The second major theme is the negative effects of robots in nursing practice. From this major theme emerged five sub-themes namely: robots malfunction which can cause harm to the patient, nursing care is only done by humans not robots, robots are mere imaginary things, weird idea because robots in nursing is never acceptable and robots cannot replicate human to human interaction.

Robots malfunction which can cause harm to the patient. Yes, it is true that robots malfunction. According to Alemzadeh, et al. (2016), despite widespread adoption of robotic systems for minimally invasive surgery in the U.S., a non-negligible number of technical difficulties and complications are still being experienced during procedures. The author recommended that there should be adoption of advanced techniques in design and operation of robotic surgical systems and enhanced mechanisms for adverse event reporting may reduce these preventable incidents in the future. Furthermore, Briggs & Scheutz (2017) said that robotic technology poses great immediate risk because of its disobedience wherein they can be autonomous.

The participants of this study have many reservations for the use of robots in actual nursing practice. One participant said, "I do not agree that robots will perform nursing skills because, the robot can malfunction and it can cause injury to the patient." Likewise, another participant said, "It is a nightmare to think that robots may malfunction and this can lead to an injury among clients." Another participant responded by saying, "Robots are products of man, and it can malfunction, therefore it can cause damage to the patient."

Nursing care is only done by humans not robots. Participants believed that nursing care is only exclusively performed by professional nurses who possessed the knowledge, skills and attitudes through training and education. A participant said, "Nursing is done only by nurses. They have the skill to do nursing skills. Robots cannot do it, because robots do not possess the qualities of a nurse such as authentic caring. Fuji, et al. (2014) identified specific issues relevant to the exclusivity of nursing care among human nurses and not robots. The authors said that robots are unable to convey empathy, involvement with both patient and family members and conversation senses of caring.

Robots are mere imaginary things. Some participants believed that robots are mere imaginary things that cannot be incorporated in actual nursing practice. These participants are probably traditionalists and is not yet open to the idea of robots in the mainstream nursing practice and

healthcare service. One participant said, "I believe robots are not real, they are fake, they are just a mere things that are part of the imagination of people, especially in the movies." Nonetheless, Calo (2016) provided an explanation for this view of the participants. He said that robots have been a part of the popular imagination since antiquity. And yet the idea of a robot which is a being that exists somehow in the twilight between machine and person continues to fascinate. He continues that even today, as robots help us build cars and wage war, and as household name companies invest billions of dollars in robotics, we still think of robots as heralds of the future.

Weird idea because robots in nursing is never acceptable. Some participants of the study believed that robots are not acceptable in the practice of nurse. One participant said, "Well, it is a weird idea because robots are not acceptable in the practice of nursing." Another participant mentioned that, "Nurses are nurses and robots are robots and they are not acceptable in the actual patient care." These responses of the participants signifies that they are not open to the use of robots in actual nursing practice.

Robots cannot replicate human to human interaction. As such, participants of this study still maintains that robots cannot duplicate the role of the nurse with regards to human to human interaction. A participant said, "The robots that are manufactured today cannot and will never perfect interaction to humans and their families." Another participant said, "Robots are unable to perform interaction with human with all the non-verbal cues and emotions related to it. According to Corti & Gillespie (2015), it is not possible to do this. The authors said that creating human-like interfaces that totally override people's awareness that they are interacting with something artificial remains a distant holy grail. This phenomenon is only expected in human beings. Understanding, rational thinking, decision making, compassion, love, emotional balance, reproduction, excitement and consciousness are the exclusive domain of human beings and not robots (Witz, 2015).

On significance of the application of robots

Robots are designed for a particular purpose which is to assist human nurses. The research of Molloy, (2016) for example, is testing robots as alternatives to human contact to diminish risks for health care providers especially those who are caring patients with infectious disease. From this major theme emerged four sub-themes namely: lessens the fatigue of the nurse after work, nurses will be focused on doing direct human caring relationships

and quality nursing care, nurses need it for the sake of convenience and comfort and save time to allow nurses to perform other duties.

Lessen the fatigue of the nurses after work. Participants believed that through the use of robots in nursing practice, it can lessen their fatigability after work. One participant averred that, "Robots can perform some skills such as carrying and lifting patients which can minimize the exhaustion of nurses." Another participant stated that, "Robots do not become tired, nurses on the other hand can experience fatigability, of which a robot can be the solution." Many participants, on the other hand, said, "The use of robots in nursing practice can reduce the fatigue of nurses because the robots can perform some roles of the nurse, it should therefore be allowed. The findings of the study is supported by the study of Wada, Shibata, Saito & Tanie (2014), which revealed that the stress levels of nursing staff decreased because the elderly patients required less supervision when interacting with robots. Furthermore, Khatib, Yokoi, Brock, Chang & Casal (2009) showed how robots provides assistance by performing various physical tasks. Likewise, King, Chen, Jain & Kemp (2010) developed a robot that can perform bed baths and patient hygiene which lessened the fatigue of nurses in the hospital ward.

Nurses will be focused on doing direct human caring relationship and quality nursing care. The very essence of caring is described by Watson (2009). Human Caring is part of the human condition and a way of Being Human. Watson's (2009) ten caritas processes as a core of caring is the big difference of human nurses and robot nurses. A participant said, "I think nurses are educated because they perform direct human care to their clients." Another participant said, "When robots do some simple tasks of nurse, then the nurse can focus more on pressing concerns or needs of the patient. This means the nurse can actually function as a nurse with rational decision-making and critical thinking."

Nurses need it for the sake of convenience and comfort. There are many useful application of robots in nursing practice. De Momi, Kranendonk, Valenti, Enayati & Ferrigno (2016) averred in their research that robotic nurse will allow human nurse to decrease workload and achieve better performance in several tasks from medicine to industrial applications. A participant said, "I would allow robots to do some of my work as a nurse because this will result to convenience." Similarly, another nurse said, "Oh robots who are programmed to do nursing skills and procedures must be allowed in nursing practice in order for the nurse to feel comfort and not discomfort."

Save time to allow nurses to perform other duties. Nurses no longer have to do functions which can be delegated to a nursing robots programmed to do the same. For example, delivery robots can handle fetch and deliver tasks that nurses do. Robots can also performs tasks done by other skilled personnel which will free these staff members to support nurses directly on care units. Furthermore, Turisco & Rhoads (2015) said that robots can readily deliver medications from the pharmacy unit as well as meals, linens, supplies and patient charts and deliver laboratory specimens to the lab.

A participant said, "Yes, to some extent I would allow robots to perform some nursing skills so long as this will save time for the nurse to actually perform other important duties." Another participant similarly said, "I will allow robots in nursing practice because doing this will save time so that nurse may work efficiently in other areas that are more importantly."

On unique view of nursing

Nursing is a unique profession that is trusted due to its high integrity and honesty where patients and their families can rely to (Olshansky, 2011). With these major themes, emerged five sub-themes namely: nurses can only do caring, caring is learned not made through robots, robots cannot perform the human touch as a form of healing and caring, connecting with my patient is more essential than reducing fatigue and promoting comfort, and robots cannot intervene when something went wrong.

Nurses can only do caring. Caring is the domain of nurses, not robots. Robots did not train to learn what is caring and loving of patients. This differentiates the human nurse and the nurse robot. One participant mentioned that, "Nurse are trained to do nursing care, so only nurse can do caring. Robots are not caring entity. Not even a human being, so it cannot perform what a human nurse can perform." This statement of the participants reflects the uniqueness of the nurse as a caring individual who is trained through education and practice.

Caring is learned not made through robots. One participant said, "My answer is no, basically robots does not have the tender, loving care factor to know and feel how the patient is and they do not have the clinical eye to assess the patients. This suggests that the nurse is the only one who possess the values, virtues and skills of caring which cannot be learned by robots themselves. In fact, according to Jaiprakash, Roberts & Crawford (2016), hospitals around the world have been slow on using robots into actual patient care, though this technology has been used in other industries such as aviation and

transportation. The reason behind, according to the authors, is that they are focused more of safety than modern technology.

Robots cannot perform the human touch as a form of healing and caring. Nursing is a profession that possess human touch, not robot touch. The touch can never be carried out by robots. The healing touch a human nurse applies when a patient is sick is a form of healing and caring. According to Gunderman & LeLand (2016), despite the advanced medical technology available to man, the nurse's touch is still the best and most valuable diagnostic tool. This is because touch creates a human bond that is particularly needed and that touch does a lot of things than any words to provide comfort and reassurance. On participant said, "Human touch is found wanting among robots, so they cannot perform that human touch. This is a form of healing and caring." This statement suggests that human nurse are the only one who possess human touch in caring for their clients. Furthermore, another participant continued by saying, "Robots are robots, they are not humans. Nurses are human, they possess the touch, the feeling and the instinct of being a human who feels better and think wisely than robots. They have human touch as a way to care and heal the clients of the hospital" Again this statement of the participant clearly implies the distinct characteristic of the human nurse involved in caring, that only them can perform.

Connecting with patient is essential than reducing fatigue and promoting comfort. Participants of the research believed that it is more important to connect with the patient and family members that their personal comfort such as reduced fatigability. A participant said, "As a nurse, I prioritize my patient's needs before my personal need." Another participant mentioned that, "I want to be free exhaustion and comfortable in doing my work as a nurse, but if this will reduce my connection with my patient, then I'd rather not accept robots anymore." These two statements clearly emphasized that the nurse values the human-to-human relationship. The love for the patient and her family members comes first before anything else. This is contrast to the research conducted by Matsumoto, et al. (2016), when healthcare workers experience musculoskeletal pain, lower back muscles injuries and physical strain caused by patient handling among nurses working in geriatric setting. Clearly, with this research finding, nurses would rather experience pain, injuries and strain while working closely with the patient than absence of these discomforts but never experience human relationships with the patient and their families.

Robots cannot intervene when something went wrong. Nursing is a profession that uses critical thinking and unique decision making. This cannot be done by the nurse robot. When something is wrong with the patient, the nurse can immediately intervene, that is how a nurse is prepared. One participant said, "Oh I will not allow a robot to decide for me because when something is wrong, I will immediately make a decision and the robot cannot do it, simply cannot do it." Still another participant said, "Robots cannot intervene when something very wrong happened to the client." The nurse on the other hand can respond immediately because, the human nurse has decision-making powers, rational thinking and critical thinking. That cannot be actualized by robots, I doubt." According to Robinson (2013), expressing human relationship that has an expected positive outcomes is the essence of theory-based practice. The nurse relates with the patient and his family and the nurse performs according to the needs of the patient.

On the use of robots in specific areas.

With this major theme, there emerged six sub-themes namely: robots can be used in the rehab units, doing dirty task that nurses do not want to perform, bring/carry things for the nurse, robots can do transporting, transferring, lifting and turning of patients and documentations of care which burdens most nurses.

Robots can be used in rehab units. Three research studies have showed that robots can in fact can be used in rehabilitation units. Poli, et al. (2013) developed new and easily transportable, wearable devices that could improve rehabilitation also after discharge for patients, in an outpatient or home-based setting. In addition, Qian & Bi (2014) develop rehabilitation robots as assistive technologies for elderly and disabled population. Likewise, Eriksson, Maja & Winstein (2005) developed an autonomous assistive mobile robot that aids stroke patient rehabilitation program.

A participant reflected and said that, "It may be feasible for robots to be used in areas such as rehab units, I think that would be fine." Furthermore, another participant affirmed this and said, "I have seen robots work in rehab centers. I think this is possible for these technology. But that, robots are no longer needed in areas that involved nursing care." These statements of the participants suggests that robots are now perfect. It can be used in areas outside of actual patient care.

Doing dirty task that nurses do not want to perform. Japan has built the Actroid-F, a robotic nurse that is intended to mimic real nurses and are capable of doing dirty tasks that nurses of today do

not want to perform (Feliciano, 2014). This sub-theme is supported by the participant's narration. One said, "Nurses are professionals, they perform highly demanding activities that requires high level thinking. On the other hand, robots may perform other things such as those that professional nurses think are dirty tasks that they do not want to carry out. Some of these are wiping client's buttocks, getting specimens and many more." Still another participant said, "There are tasks that can be performed by robots in place of the nurse. We call this dirty jobs. There are aplenty. This can be delegated among nursing robots. Robots can be programmed to do these tasks and leave the nurse performing other tasks that are more focused on direct patient care.

These statements of the patients suggests that there are tasks that can be performed by the robot which will reduce some of the stress felt by the professional nurse.

Bring/carry things for the nurse. Research on robots, such as RI-MAN and Cody robot, tries to provide more specialized support to assist nurses in physically handling patients in a way that is more intuitive and flexible than existing patient handling technologies (Dahl & Boulos, 2013). In addition, Bradley (2011) developed the Tug robot which is capable of navigating hospital corridors and has drug cabinet that can be opened only by authorized nurse through biometric scanner and a simple swipe of a patients' ID ensures that the right drugs go to the right person. This technology saved 1.5 million preventable drug-related injuries every year.

To support this sub-theme, several participants narrated their experiences and feelings about robots. One participant said, "As a nurse, I will delegate to nursing robots carrying my things, carrying charts, carrying or bringing important supplies for the nurse to use." Still another participant said, "I guess robots can help me bring some supplies for me. That would remove some of my functions wherein I can spend those times gathering those supplies to the nursing station to more important functions specifically in actual patient care." Likewise, one participant said, "The robot must be good at carrying, I have seen robots do that. So I guess, these robots can do some service for me that will help me in my work." These statements of the participants reflects the importance of nursing robots in manual activities such as carrying or bringing the things needed by the nurse.

Robots can do transporting, transferring, lifting and turning of patients. Japan is the current leader in robot nurse production. Mukai, et. al. (2010) developed RIBA is a robot, which means Robot for Interactive Body Assistance can lift a

person up to 135 pounds from a lying or sitting position and move them to another place.

A narration of participants said, "Nursing robots are very good at other areas of nursing tasks. These includes transporting and transferring patients in a ward where I work. They perform well." Still one participant have a positive answer toward nursing robots. "These technology can perform so many things for me, that I need not do it. These include turning of patients which before I have a hard time doing because it causes back pain. When robots were added to the workforce among nurses, they perform magnificently. This is the new wave of technology I believed." Furthermore, another participant said, "It is quite popular in our hospital, they are the ones transferring patients from one place to another and they don't feel any fatigue. I think that is good for us nurses."

Furthermore, another participant mentioned that, "I feel nursing robots are made to help nurses in other task such as carrying and lifting patients. They can also turn patients from one side to another side." All these narrations of the participants signifies that robots are also important in specific areas of nursing. This further suggests that nursing robots can be relevance in areas that nurses have a hard time performing.

On certain conditions must be put in place

Participants who are open-minded argued that robots can be used health care practice on certain conditions. The specific conditions are revealed in the three sub-themes. These are meeting standards of nursing practice, patient safety and welfare is guaranteed and welfare of patient is not compromised.

Meeting standards of nursing practice. The relevance of nursing practice is exemplified if it meets the standards of nursing practice. According to the participants, the use of robots in nursing practice must be able to meet the identified standards of nursing practice. According to Huston (2017), the development and advancement of robot technology must be balanced with the proactive nursing care that ensures improved nursing care that is dynamic, open-minded and assures that technology is ethical and meets the highest standards of nursing practice.

A narration by one participant said, "Yes, only if these robots are tested to ensure that they meet the standards of clinical nursing practice. If these are not met, then robots have no place in our hospital providing services to clients." Still another participant said, "The primary purpose of patient care is safety and standards. If these nursing robots will

meet these purpose, then I would agree that these technology can be used for nursing practice. Plus, these nursing robots should be rigorously tested for safety and standards." Moreover, another participant said, "I welcome nursing robots in clinical practice only if they comply with strict standards. Without these safety standards and policies, there is no way we can allow robots in nursing practice."

All of these narrations by the participants revealed that nurses are after safety, quality standards and love for their clients. With these standards of care, nurses may not accept nursing robots for actual clinical practice.

Patient safety and welfare is guaranteed. Safety is the primary concern of participants in the use of robots in nursing practice. This is articulated by Erikson & Salzman-Erikson (2016) when they declared that robots may not injure human being.

One participant maintained in her response that, "The guarantee for patient safety is of utmost importance. The life of clients are very sacred that is must be protected. If nursing robots can perform this guarantee, then I would agree for them to actually render some nursing services to clients." Furthermore, another participant said, "Of primary importance is safety and welfare of the beneficiaries of care – the clients and their family members. These must be met before nursing robots will ever perform some clinical services to clients." Another participant said, "Safety must be clearly defined to include no harm, no injury, respect of life and human rights. These must be reflected before nursing robots can be used in clinical practice especially with patients.

These participants' narration showed that nurses have high regard to life of human beings. Without these guarantees, nursing robots much not be used in some clinical nursing activities.

Welfare of patient is not compromised. Patient's needs are very important, therefore it must not be taken for granted. With this, Bekey (2012) identified ethical issues related to the use of robots in nursing practice. These includes loss of privacy for humans, ability of the robots to recognize commands, rights and responsibilities of robots, emotional relationships, multiple instructions from different humans and when robots' computers can be hacked.

One participants said that, "Patients must be treated well, cared well and their voices must be heard. Patients are human beings where the ultimate factor needed before nursing robots are used with them is their welfare. That they are well take care of whether humans or nursing robots." Still another

participant said, I believed that welfare of the patients is an important issue that must be put into place before robots are accepted in actual nursing practice." All these narrations of the participants reflects the importance of safety, welfare and the love of nurses to their clients under their care. However, Gupta & Bala (2013) in their research revealed that in many advanced countries, robots for welfare have received special attention and that major advances are done to ensure that robots are for the welfare of the society.

Conclusions

Participants are lukewarm with the use of robots in nursing practice. There is a need to provide a comprehensive theoretical and philosophical view of the critical need of robots in nursing practice among nurses.

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