Original Article

The Views of Nurses Related to Innovative Practices in Clinical Teaching

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Abstract

Background: Technological developments and innovative practices affect health care services and human life and quality of life. Nurses should be a role model in innovative applications in clinical teaching which gives students the opportunity to practice and apply their theoretical knowledge.

Aim: This study was conducted to determine nurses' innovative practices and views about innovative practices in clinical teaching.

Methodology: This cross-sectional study was conducted with 150 nurses in a research and application hospital and a state hospital. Data were collected by using the self-administered questionnaire.

Results: Nurses specified that tele-health/nursing services provide remote patient follow-up, increase professional satisfaction, and save time. Nurses in the research and application hospital stated that the use of electronic devices had a positive effect on the clinical teaching of the students and students should strive to learn in clinical teaching ($p < 0.05$). Health professionals working in the research and application hospitals expected students to actively use electronic registration tools ($p < 0.05$).

Conclusion: Since future nurses will work with technology, the correct and effective use of technological tools, and the integration of innovation into education and practice should take place in today's education system and nursing students should be prepared for the future.

Key Words: Clinical teaching, nurses, students, technology

Introduction

Nursing education includes both theory and practice through which students learn to understand society, individuals, and the environment in which individuals live; as well as how they influence, and are influenced by this environment. In becoming a nurse, students learn the knowledge, skills, and behaviors that are expected of a nursing professional. This requires that nursing education is appropriately structured and delivered so that it:

- Determines goals,
- Develops a curriculum that will achieve these goals,
- Uses effective/correct teaching methods,
- Establishes a teaching program in line with current information,

- Fosters an appropriate learning environment both in terms of theoretical and clinical application,
- Evaluates whether each step and goal has been achieved (Karaoz, 2013).

Clinical education is the setting where the students are presented with theoretical education, experience, and practice. The student transfers this theoretical training into practice, communicates directly with society, recognizes individuals with different expectations and needs, and seeks solutions to their health needs (Mannix et al., 2006). In clinical education, students encounter individuals admitted to the hospital with various problems due to health issues; they interact with different learning environments, other students, health personnel, and educators. They are also closely observed during their practice and any problems are addressed between

the educator and the student. To facilitate the resolution of problems and to reinforce the students' coping mechanisms, nurse educators should help them strengthen their knowledge, problem-solving, time management, and professional decision-making skills and guide them to discover their creative abilities (Akyuz et al., 2007). Structuring the clinical environment in line with these goals is important for the students' effective and quality education.

Worldwide, higher education programs, including nursing education programs, are expanding training capacities by implementing innovative strategies to meet future workforce needs and this is a necessity. In this direction, there have been developments such as the use of evidence based information in nursing education in recent years, the use of simulation system in vocational skills training of students, standardization in patient care and increase in accreditation studies, and the use of technology in nursing care and applications (Dil, Uzun & Aykanat, 2012).

Background

In recent years and with the rapid advancement of technology in the field of health, students need to become familiar with the use of technology in their field of application. Innovation is defined as "renewing science and technology to provide economic and social benefits, creating inventions, being different". In addition, there are also recent sustainable development goals stated by that cover a broad range of issues for the world such as ending poverty, hunger, improving health and education, combating climate change and so forth (International Council of Nurses [ICN], 2017). Developments and changes such as these cannot be implemented unless we have a healthy society. Health is the center of these goals and nursing is pivotal wherever health is mentioned. Health includes improving well-being for all age groups and ensuring a healthy life (Sustainable Developmental Goals [SDG] 3), with innovation and infrastructure (SDG 9) as additional important goals emphasizing the necessity of innovation in nursing (ICN, 2017).

Many innovative applications ranging from simulation-supported education to the use of electronic devices in the clinical area have come to the forefront in nursing education. Furthermore, nurses have become the pioneers of change and development by creating many innovative tools for use in health care (Kara,

2015). The number of mobile devices manufactured for clinical use is also increasing daily (Doswell et al., 2013; Kenny et al., 2009; Mather & Cummings, 2015a). Despite such advances, nurse educators may have difficulty integrating technology into the nursing curriculum (Mackay, Anderson & Harding, 2017; Risling, 2017).

The integration of innovation and nursing education has become important with the restructuring of nursing education curriculums towards the 2000s. In addition to this, theoretical training, simulation training is carried out in preparation for the clinical area (Dil et al., 2012). Although students learn theoretically the concept of innovation in all areas of nursing throughout their training and use simulations in their laboratuvary training, they can not make effective use of the technology in clinical application areas. At this point, school-hospital cooperation is crucial for the use of innovation by students in clinical teaching.

There are two key factors necessary to initiate and sustain the innovation that nurse educators should constantly consider. First, that nursing education institutions develop strategic plans within a common vision. Second, that integration of innovative strategies in the nursing curriculum supports the development of nursing students' professional knowledge and skills (Dil et al., 2012). There is currently no study reported in the literature exploring the innovation practices of nurses in clinical teaching. Innovation is a key to change and development and it is important for improving health care (ICN, 2017). Clinical nurses must keep pace with the requirements of the age of technology, integrate innovation into patient care, and be a role model for students by using innovations effectively. For this reason, this study was conducted to determine nurses' innovative practices and views about innovative practices in clinical teaching.

Methodology

Design

This cross-sectional study was conducted between December 2015 and March 2016 in a research and application hospital and a state hospital.

Setting and Sample

In the professionalization of nursing, the contribution made by research studies performed

with the cooperation of clinics and research institutions and the development of applications through research are very high. Studies conducted in the clinical setting are very important in terms of examining the students' education and clinical teaching, identifying incomplete and misinterpreted situations, and achieving quality learning outcomes by correcting them. There are differences between public, and practice and research hospitals, in terms of their structure, administrative and technological characteristics, and qualifications of health care professionals. This can lead to differences in student guidance during clinical teaching. Therefore, this study was conducted with nurses working in a public and a research hospital and their approaches were compared.

The study comprised all the nurses working in the hospitals was conducted the research. The sample consisted of 150 nurses who were working in the clinics where the students were practicing and who completed the data collection tools after being informed about the study by the researchers. In total, 75 nurses from each hospital were included in the study by using the disproportionate stratified sampling method. 75 nurses from each hospital were included in the study because the number of nurses working in the state hospital was low. According to the results of the post hoc test used to determine the power of the sample after the survey, the sample provided "95% reliability with 82% strength with 3% effect size".

χ^2 tests - Goodness-of-fit tests: Contingency tables

Analysis: Post hoc: Compute achieved power

Input: Effect size = 0.3

α err prob   = 0.05

Total sample size   = 150

Df   = 5

Output: Noncentrality parameter λ= 13.5000000

Critical χ^2 = 11.0704977

Power (1-β err prob)   = 0.8229446

Data Collection

As there was no standard measuring instrument suitable for data collection, a self-administered questionnaire form consisting of 36 questions prepared by the researchers, based on the literature, was used (Akyuz et al., 2007; Morrison & Brennaman, 2016).

Questionnaire form: Questions were asked about sociodemographic characteristics (age, gender, education, total working year, number of patients in charge per day, the reason for choosing a nursing profession, the contribution of nursing research to profession), opinions of individuals responsible for the students in clinical practice and teaching, students' expectations in clinical practice, information about innovative practices in nursing practice, views on effects of tele-health and nursing services on nursing practices, and opinions on student practices. The questionnaire form asked for responses with three options being "Agree", "Disagree", or "Neither". As the form was prepared for giving feedback ratings, scoring was not done. Before the pilot study, the questionnaire was evaluated by three experts in the field and the form was revised in accordance with their opinions. In a pilot study, the form was given to 16 nurses before the main study to determine its intelligibility and response time; it was revised according to views of nurses.

Multiple-choice and open-ended questions were used with the data collected during the participants' working hours.

Statistical Analysis

The nurses' responses to the open-ended questions in the questionnaires were grouped and data hand coded. The SPSS 20.0 program was used with the coded data and analyzed by using percentage, frequency, and chi-square test. Statistical significance was considered when the type 1 error level was below 5%.

Ethical Consideration

Prior to the administration of the questionnaire, nurses were individually informed about the purpose of the study and the time required. Furthermore, it was explained that their participation in the study was voluntary and they could terminate their participation at any point. Nurses were informed about the privacy policy and their verbal and written consents were also obtained. Nurses were asked not to write any identifying information on the data collection tools to ensure anonymity of their responses. Permission to conduct the study was obtained from the related institutions and Adnan Menderes University Medical Faculty Ethics Committee for Non-Invasive Clinical Researches (2015/736).

Results

The mean age of nurses surveyed was 30.55±8.93. Female participants comprised 88.7% of the sample, 40.3% had undergraduate and graduate degrees with 33.8% indicating they had been working between 1 and 5 years. There were 66.9% of participants who were working as a clinic nurse, 33.1% provided health care for 1 to 10 patients per day, and 42.5% (almost half) participated in scientific activities. In Table 1, the views of nurses about the profession and students are summarized.

The nurses working in both hospitals were compared to each other in terms of innovative practices and those working in the research and application hospital were found to be more knowledgeable about nursing innovations (x^2 = 11.183, p = .004). Moreover, there was no statistically significant difference between conducting an innovative work and areas of innovative work according to the institution where nurses were working ($p > 0.05$) (Table 2).

Table 1. Views of Nurses about Clinical Teaching and Innovation (n=150)

Characteristics	n	%
An individual responsible for the student during the clinical teaching		
Instructor of the course	97	64.2
Head nurse	17	11.3
Clinical nurse	36	24.5
Information about innovation in nursing		
Yes	77	51.3
No	50	33.3
I have previously heard	17	11.3
Performing an innovative study in nursing		
Yes	27	18.0
No	69	46.0
Innovative workspace		
Development of care material	6	4.0
Registration system development	6	4.0
A change in care environment	9	6.0
Others	6	4.0
Effect of tele-health services on nursing practices		
Reduces workload by providing remote patient tracking and control	63	41.7
Saves time	85	56.3
Increases professional satisfaction	26	17.2
Reduces communication problems between patient and nurse	41	27.2
Provides continuous training of health personnel	35	23.2
Provides easy access to patient information and lab results	68	45.0
Allows health-related data to be recorded in standard language and terminology	39	25.8
Electronic call systems enable patients' safety to be controlled in the clinical setting	34	22.5
I do not think it is effective because there is no contact and no communication with the patient	36	23.8

Table 2. **Comparison of Nurses' Practices for Innovation**

Practices	Research and Application Hospital	State Hospital	Test and Significance
	%	%	
Knowledge about innovation related to the nursing education and practices			$x^2 = 11.183$ p = 0.004
Yes, I have knowledge	52.0	34.7	
No, I do not have knowledge	29.3	56.0	
I have previously heard	18.7	9.3	
Performing an innovative study on nursing practices			$x^2 = 0.000$ p = 1.000
Yes	12.0	12.0	
No	88.0	88.0	
Innovative workspace			
Development of care material	30.0	11.1	
Registration system development	10.0	33.3	$x^2 = 4.245$ p = 0.236
A change in care environment	50.0	22.2	
Others	10.0	33.3	

Table 3. Comparison of Nurses' Views towards Innovative Practices in Clinical Teaching

Views	Research and Application Hospital			State Hospital			Test and Significance
	Agree	Disagree	Neither	Agree	Disagree	Neither	
	%	%	%	%	%	%	
1. I feel responsible for my students	62.7	28.0	9.3	53.3	44.0	2.7	$x^2 = 6.008$ p = 0.050
2. I do not think that the nurse has a role in clinical teaching	20.0	73.3	6.7	29.3	64.0	6.7	$x^2 = 1.800$ p = 0.407
3. Use of electronic devices in the clinic positively affects the clinical teaching of students	69.3	22.7	8.0	50.7	42.7	6.6	$x^2 = 6.861$ p = 0.032
4. Electronic records system provides a more holistic approach for students to create patient care plans	58.7	17.3	24.0	48.0	38.7	13.3	$x^2 = 9.181$ p = 0.010
5. To keep pace with the era of innovation, nursing education should definitely be at the university level	60.0	29.3	10.7	62.7	32.0	5.3	$x^2 = 1.464$ p = 0.481
6. Clinical nurses should guide students on topics they want to learn	84.0	9.3	6.7	66.7	32.0	1.3	$x^2 = 13.485$ p = 0.001

Views	Research and Application Hospital			State Hospital			Test and Significance
	Agree	Disagree	Neither	Agree	Disagree	Neither	
	%	%	%	%	%	%	
7. The student must make an effort for the subjects and skills to be learned in the clinic	86.6	6.7	6.7	62.7	33.3	4.0	$x^2 = 16.726$ p = 0.000
8. Students should register their applications in the electronic registration tools	42.7	32.0	25.3	25.3	66.7	8.0	$x^2 = 19.209$ p = 0.000
9. Not only applications in clinical teaching but also the use of electronic recording devices should be taught to students	65.3	22.7	12.0	61.3	30.7	8.0	$x^2 = 1.595$ p = 0.451
10. Students should register nursing care plans in the system by using electronic recording devices	45.3	37.3	17.4	32.0	60.0	8.0	$x^2 = 8.262$ p = 0.016
11. A common social network should be established so that nurses can share their clinical experiences interactively with students	56.0	33.3	10.7	50.7	44.0	5.3	$x^2 = 2.637$ p = 0.268
12. Continuous use of technology and information in the health care system reduces patient and nurse communication	36.0	50.7	13.3	36.0	58.7	5.3	$x^2 = 3.010$ p = 0.222

In Table 3, the nurses' views about innovative practice in clinical teaching between research and application hospital and state hospital are compared. Accordingly, nurses in the research and application hospital stated that the use of electronic devices had a positive effect on the clinical teaching of the students ($x^2 = 6.861$, $p = .032$) and students should strive to learn in clinical teaching ($x^2 = 16.726$, $p = .000$). In addition, health professionals working in the research and application hospitals expected students to actively use electronic registration tools (Item 16, 18), ($x^2 = 19.209$, $p = .000$) ($x^2 = 8.262$, $p = .016$).

The relationship of nurses with students is also important in ensuring a positive learning environment. This relationship provides close supervision, personal support, and guidance for students (Esenay, 2013). While the clinician was directed to the point of view of most students from studies examining the nurse-student relationship; several studies have examined nurses' views on clinical teaching (Hathorn, Machtmes & Tillman, 2009; Matsumura et al., 2004; Zisberg, Bar-Tal & Krulik, 2003; Slaughter-Smith, Helms & Burris, 2012); with the perceptions of clinical nurses about clinical teaching only noted in one study (Morrison & Brennaman, 2016). Hathorn et al. (2009) found that nurses had a negative attitude towards the students in a contemptuous and judicial manner. Zisberg et al. (2003) found that the presence of the students at the clinic had beneficial effects on the nurses, especially in terms of performance and quality of care. Nurse educators are important to lead a successful innovation development in nursing practice and education. They need to increase their knowledge and skills in innovation, because this knowledge and equipment is an opportunity for role modeling for students in clinical teaching (Jaimet, 2016).

In our study, we found that the clinical educator was the main person responsible for the student in clinical teaching. This was also the finding in a

study conducted by Akyuz et al. (2007), where nurses stated that the clinical educator should be the main person responsible for the clinical teaching of the students. Preparing a student for the profession is like offering a delicious meal—the instructors prepare the students for their professional life with the necessary professional and theoretical knowledge. In addition, a unique outcome emerges with the added contributions of clinical nurses and other members of the health team.

In this study, we found that more than half of the nurses were knowledgeable about innovation and some reported conducting innovative work in developing maintenance materials, development of the registry system, and making changes in the care environment. If nurses are unable to conduct research studies and use the outcomes they may be resistant to innovative approaches (Dil et al., 2012). Perhaps the most important condition for dissemination of innovative practices in nursing is to provide support for the interventions of nurses who try to fulfill the role of traditional nursing care with innovative initiatives (ICN, 2009). In addition, a positive work environment increases the communication of health care members, their creative thinking skills, and fosters the sense of belonging to a team. Therefore, it also facilitates innovation. A consistent attitude of the team leader who supports an innovation, and respects the professional identity of nurses plays an important role in implementation of innovative initiatives (Dil et al., 2012). Innovation in the health sector has different forms, such as research and development process, financial resources and incentives, and production oriented investments. Health associations should inform their employees about the health use of innovation and innovation, even if professional associations encourage members to innovate is a beginning for change (Cinar, Mert & Yılmaz Kusaklı, 2011).

It has been commonly believed that tele-health services save time, provide easy access to patient information and laboratory results, and reduce the workload due to the remote patient follow-up and control. It has also been suggested that they reduce the communication problems between the patient and the nurse, and provide an opportunity to record the health-related data with a standard language and terminology. However, some nurses do not believe that these innovative devices are efficient because there is no direct contact and face-to-face communication with patients. In addition to the usefulness of the technology used in nursing care and practice, there are also some drawbacks. Face-to-face communication are important in determining the social components that affect health. Technological equipment has the risk of reducing the face-to-face communication that can lead to many qualitative data affecting the health of the person. At the same time, there is a risk that patients may reveal confidential data that is stored for maintenance use. This can be detrimental to patient privacy and to the protection of confidentiality of patient information. It is a known fact that touch and contact, which is important in nursing care, is a positive contribution of the patients to the healing process.

The nursing profession, which has roles at all levels of health services (such as protection, development, treatment and care, rehabilitation of health), has to renew itself in parallel with scientific, technological, economic and social changes and developments (ICN, 2008a, 2008b; ICN, 2009). The use of innovative strategies in planning, presenting, and evaluating nursing services is an important factor that directly affects the quality of the service. Nurses should know the scientific basis of their practices, what they do and why they perform these applications when they provide a very important and complex service such as health care. Nurses should also question whether these health care systems are appropriate and effective by constantly observing the services. Furthermore, nurses should also be responsible for investigating how and in what ways the service can be provided more effectively and at less cost (ICN, 2009). The chronic aging of the population, the chronicity of acute illnesses, and thus the rapid change of treatment modalities have also changed ways of thinking about patient care and the quality of health care. In addition, changes in the student profile and expectations, and technological advances also indicate the need for innovation in education (Jurow, 2006).

In this study, nurses' views about innovative practices in clinical teaching were compared. Accordingly, nurses in the research and application hospital stated that the use of electronic devices had a positive effect on the clinical teaching of the students and that students should strive to learn in the clinical setting. In addition, health professionals working in the

research and application hospitals expected students to actively use electronic registration systems. The rapid development of innovation throughout the world and in the healthcare industry since 2000 has led nursing education schools to integrate their curricula into innovation (Bayik Temel, 2011). In this context, nursing education has to be in a system that is evidence-based, collaborative and harmonious with technology. For this reason, students, clinical educators and clinician nurses should use innovation in every process of education and encourage students to cooperate with innovative practices in order to meet future and current health care needs. Students active in technology in their social lives may have innovative and brilliant ideas for more innovative practices in theoretical and practical areas of nursing education. It will be useful to identify the opinions and recommendations of the students as well as the clinical educators.

Nowadays, smartphones and tablets used as Personal Digital Assistants (PDA) are actively found in clinical teaching. Smart devices in nursing are being used effectively for a variety of purposes, such as learning medication calculations, accessing current medical information, evaluating laboratory results, and guiding decisions about nursing management (Innocent, 2010). In contrast, nurse managers have reported in one of the studies (McNally, Frey & Crossan, 2017) that nurses and students do not need to use smart tools because they use the necessary equipments in clinical practice. Furthermore, they have stated that the use of smart devices, especially in clinical practice, is unprofessional and could lead to professional complaints (McNally et al., 2017).

The concept of innovation in the nursing literature was first introduced in the 1980s with the "American Nursing Association: Restructuring Nursing Curriculum" study. This study emphasized that nurse educators should support innovative initiatives in clinical education and develop students' skills of critical thinking, problem-solving, and research. It also encouraged giving more importance to contemporary education and training techniques by using evidence-based educational approaches (Bradshaw, 2001). In the late 1980s in the United States, the National Nursing Curriculum Revolution was in the process of reviewing the structure and processes of the nursing education curriculum. Since then, many schools offering nursing education have sought to integrate innovative programs into their curriculum (Bradshaw, 2001). Despite significant changes in nursing practice in the health care system, the reflection of these changes in nursing education have not reached the desired level. Therefore, a curriculum which can shape nursing education, practice and that supports innovation is needed. It should aim to cooperate and work in harmony with technology. For this reason, faculty members, students, consultants, and nurses working in the field need to cooperate in organizing innovative educational systems integrating theoretical and application aspects to meet the needs of the current and future health care system.

Limitations of the Study

Results obtained from the research are limited to the sample of the study.

Conclusion

In this study, the views of nurses regarding innovation practices in clinical teaching were explored. Results showed that nurses working in the research and application hospital were more supportive of students in terms of innovative practices than other nurses. This result may be due to technology being more closely followed in health institutions which have application and research status, and it may also be caused by working with students in applied disciplines. Access to technology and the use of digital tools will have an important effect in terms of protection and development of community health in the future. Since future nurses will work with technology, the correct and effective use of technological tools, and the integration of innovation into education and practice, should take a larger place in today's education system and nursing students should be prepared for the future.

Since nurses are role models for students in clinical teaching, they should be informed, trained and supported about technological developments in clinical practice. For standardization and internationalization in nursing education, the nursing curriculum should be revised in accordance with the technology of the future. Technological and digital skills will have a significant effect on the determinants of health for the future population. The existence of worries about care and human interaction will reach an extraordinary dimension in the coming

years and nurses will have to establish a balance between technological development and human needs.

Acknowledgments

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