The Use of Nursing Information Systems in Nursing Care

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Abstract

Improving the quality of health care is a major goal worldwide. Nowadays, effective and efficient use of information technology on health care is increasing. Use of new technologies and electronic record systems are important in developing the knowledge in nursing practices. Nursing informatics are within the scope of health ınformation systems. Nursing informatics, come out as a result of using information technology in specific nursing knowledge and nursing practice. Using informatics nurses can provide individualized nursing care, educationand counseling, and can perform more duties about health. Thus, the quality of nursing care and the quality of health care increase, and significant contributions, are provided to professionalisation.Educational and applicational studies carried out on nursing informatics have recently increased. This review was conducted in order to revealthe usage areas and usefulness of nursing informatics systems in nursing care.

Keywords: *nurse, informatics, nursing informatics, nursing care*

1. Introduction

Enhancement of healthcare quality is the primary goal of the world. Healthcare services become more complicated and computer-dependent with each passing day. The amount of medical data collected and stored for patients rapidly increases and incrementally grows every year. It becomes more and more difficult and important to regain, reuse and reprocess these data.

Today, there is a gradual increase in the effective and efficient use of information technologies in the healthcare field, which results in a great need and demand for systematic application of data processing methods; institutions and techniques to solve complex problems; and the use of computer and information technologies. Accurate and efficient use of

information and communication technologies has a great importance in nursing just like in all professions (Lee, 2014).

80% of those using health technology are nurses. In nursing practices, it is important to use new technologies and electronic record systems for the development of information. Nurses who collect data from patients and transfer these data into electronic health records are the greatest healthcare team group,which provides direct care to patients, determines their needs and decides on what materials should be used and where and when, and also the primary users of the computerized system. Due to all these reasons,there is a need for nurses who can make evidence-based decisions by using information technologies for professional healthcare today (Zayim, Akcan **&** Metreş, 2006; Softa, Akduran & Akyazı, 2014).

Technology in nursing education is accepted as the main component of nursing practices andthe fact that nurses effectively use technology and have knowledge, skills and attitudes is emphasized as characteristics required in nursing. Nurses are expected to have knowledge, skill, and critical thinking ability concerning information technologies and integrate nursing and information competences. Nurses who will fulfill a duty today where health information systems have become rapidly widespread and in future's healthcare organizations are required to be equipped with knowledge and skills of information technologies in order to fulfill their duty in these environments (Akcan, Keser, Sucu & Saka, 2007).

2. What is Nursing Informatics?

Studies on nursing informatics have started to develop in parallel with developments in the field of medical informatics. It is involved within the scope of health information systems. It has resulted from the use of information technologies in peculiar nursing knowledge and in nursing practices (Erdemir, Hanoğlu & Akman, 2005). Recognized as a new area of specialization by American Nurses Association (ANA) in 1992; nursing informaticsprovides possibility of data management and a decision support system to nurses in processes of evaluating and developing tools, practices, stages, and plans in patient care and other nursing practices. (Erdemir, Hanoğlu & Akman, 2005; Akcan, Keser, Sucu & Saka, 2007) Nursing information systems include nurse documentation system, nurse decision support systems, reminders, warning devicesand calling systems, patient follow-up and observation systems (Akcan, Keser, Sucu & Saka, 2007).

3. What are the usage areas of Information in Nursing Care?

Proceeding with gigantic steps; today's technology has the potential of creating a much better working environment for nurses by developing the activity, security and care quality and thus, increasing the occupational satisfaction. When all wireless communication systems, electronic drug delivery stations and barcodes, electronic patient records and interactive patient systems etc., are combined with alarm/warning systems and biomedical equipments, they add a unique value to the way nurses follow for the coordination and presentation of care. This is

because nurses work right in the center of a very complicated care network and their use of proved technological solutions creates a dramatic effect on the operational processes of hospitals (CNA, 2016).

Nursing Information Systems (NIS) are computer-based systems that realize the measurement and evaluation of the nursing process andprocessing and management of nursing data and provide the application of information and communication technologies in nursing-related fields and proceduresn (Güleş&Özata 2005). Nurses can provide individualized nursing care by using information andfulfill their functions like training and consultancy more healthily, which makes significant contributions to occupational professionalism by enhancing nursing care quality and healthcare service qualityn (Moody, Elaine, Berg &Jackson 2004; Joo, Mikyoung & Moorhead 2009; Ömürbek &Altın 2009; Bilgiç, Şendir 2014).

NIS is used in three fields as; clinical practices, management services and training/ research (Table-1). NIS is used in evaluating and following the patients, defining the aspects of diseases concerning nursing, preparing care plans, providing and evaluating care, and sharing information with other healthcare professionalsin the field of clinical practices (Mutluay&Özdemir, 2014). In the field of management services, on the other hand, NIS enables budgeting, preparing shift schedules, controlling and inspecting the personnel, measuring the productivity, forming statistics, and making the performance evaluation. In the field of education, it is used in preparing, applying, and evaluating the curriculums. (Jen, Chao, Hung, Li & Chi 2007).

The Usage Areas of Information Systems in Nursing	
Clinical application	Determining the care need, planning-applying-evaluating care, and sharing data with other healthcare professionals, etc.
Nursing management	Planning the personnel, measuring the productivity, forming statistics, etc.
Clinical management	Clinical control, risk management, evidence-based practices, patient inputs-outputs, clinical inspection, etc.
Nursing education	In-service and postgraduate trainings, distance education, presentations via media tools,conferences, e-mail, and web pages, etc.
Nursing researches	Internet, access to web-based information,access toon-line databases, etc.

Table-1 The Usage Areas of Information Systems in Nursing

4. Benefits of Using Information in Nursing Care

NIS has various benefits for healthcare professionals. NISallows a rapid access to the data required for healthcare and solves the clinical problems of patients rapidly and efficiently. Additionally, the records are used by healthcare team as a means of communication, education, identification, investigation, legal document, inspection and control.

In recent years, there has been a rapid increase in the number of studies conducted in the fields of education and application concerning nursing informatics worldwide. These studies have determined that the use of health information system has increased the communication between healthcare professionals, developed multidisciplinary coordination and decreased stationery works (Poissant, Pereira, Tamblyn & Kawasumi 2005; Vezyridis, Timmons & Wharrad 2011). As NIS allows recording and storing patient data, it provides a data source for the statistical evaluations and investigations of healthcare professionals. (Chau et.all. 2012; Mahler et.all. 2007). Nurses spend a lot of time for filling in various documents not related to patient care. Nursing informatics allows nurses to act more quickly in synthesizing the nursing knowledge that affects patient care and developing knowledge in nursing. Thus, it also makes important contributions to occupational professionalism by enhancing the nursing care quality and healthcare quality. (Moody, Elaine, Berg and Jackson, 2004). Nurse documentation system, nurse decision support systems, patient follow-up and observation systems, reminders, warning devices and calling systems involved within the scope ofNIS increase patient security, patient satisfaction, care and healthcare service quality, and data usability, provides early diagnosis and treatment, and decreases clinical errors and the cost of healthcare services (CNA,2016).

As a consequence;

Progresses in information technologiescreate important opportunities enabling nurses to be aware of up-to-date information to be used in the decision-making process. Information is a part of quality nursing care and has a key role in efficient decision-making. Nurses use the information, which are obtained from evaluating patient's healthcare needs, in developing patient care plan and obtaining and sharing patient information with other healthcare professionals. NIS supports information development supporting all nursing fields and the process and management related to the data for using information. Progresses in information technologies have brought new roles to nurses. Nurses should use the concepts of technology and health information in order to manage and process information. Today, nurses need to integrate nursing practices and nursing informatics.

In this regard; it is required for higher education institutions providing nursing education and non-governmental organizations to form common policies and strategies and standardize course contents, hours and classes within the consensus of institutions. It is recommended to involve nursing informatics more in scientific activities in order to develop required infrastructure and learning opportunities for the course of nursing informaticsand raise necessary awareness on this issue.

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