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The Influence of Informatics on Nursing Care and Professional Development

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Introduction

The role of nurses in health care is very important and their services in improving the physical and mental health of patients is very effective. Their role is so important that in developing countries with doctor's domination or shortage of physicians, to many people, nursing care is very effective in continuity of health care [1,2]. In general, it must be acknowledged that in nearly all countries of the world, both developing and developed, the demand for nursing services is remarkable.

In some of the developing countries, especially the low income, due to the small number of nurses, the workload for each nurse is comparable to two or three nurses in the developed countries. Additionally, due to doctor's dominance, the nurses in developing countries should undertake the responsibility of inadequate medical services [3]. Another common problem in offering effective nursing services, even in the developed countries, is the significant load of documentation left for the nurses to handle following their heavy workload [4]. The important point is that nurses, unlike physicians, are more committed to documenting their care, and therefore devote considerable time to documenting reports of care provided to patients [5]. Based on the above-mentioned points, it can be concluded that due to nurses heavy workload, compared to other health professionals, would find it extremely difficult to develop their profession through research. Therefore, compared to the global scales, approaches of nursing care do not manifest significant growth.

By the beginning of the 1980s and the production of personal computers, application of information technology expanded rapidly in the field of health [6]. Also, presenting various information theories such as Evolutionary Data to Information Cycle, Data to Knowledge Continuum, Data to Wisdom Continuum, and introducing various meta-models such as Functional, Organizational, Technical, Data model; Business process; and Enterprise, caused amazing changes in all medical sciences professions [7,8]. From the early sixties to today, Radiology is the first medical science profession that has undergone dramatic changes and extensive professional development under the influence of information technology and informatics [7]. Based on the process of influencing a tool in a career that includes the stages of replacement, Innovation, and transformation, the field of radiology is now undergoing transformation. Filmless radiography and PACs are examples of this extraordinary transformation. But in many developing countries the nursing profession due to the problems indicated, is still in the replacement phase; and in some of developed countries is at the stage of innovation. However, the impact of information technology and informatics on the professional development of nurses, especially in solving some of their problems, is undeniable [9].

It is 36 years since nursing Informatics was defined by Scholes & Barber in the1980's at the Tokyo Conference for the first time [10]. Although, this definition, similar to definition of Hannah, Ball and Edwards (1994) seemed to be imaginative, it opened up window to the Professional development of nurses. The definitions both recommended the use of computer or Information technology in carrying out nursing services or practices [10,11]. The developing of nursing information systems is one of the first nursing informatics activities. The role of these systems since the middle of 1980s began to facilitate patient monitoring, reducing nursing documentation, and the availability of information needed from the level of staff to nursing directors. Nursing information system plays a decision support system role for head nurses, supervisors, and matrons as well as application in the fields of education and research. Due to the nature of nursing profession, its practical aspects are more than its cognitive aspects. Therefore, the recent use of medical informatics in nursing has provided IT-based equipment and tools for nurses so that they can do some part of their physical works [12-15]. The availability of diagnostic and therapeutic point of care systems (PACs) in the nursing field is a tangible example of Scholes and Barber's claim, it is possible to carry out some physical activities of nurses with the help of electronic or IT based equipment. The design, manufactures, and supply of such devices as intelligent serum, digital manometer, injection pump, gluco-meter, pulse-oximeter, Capnoset, Colestech, as well as the production of patient carrier robot, are objective examples of the immense impact of medical informatics on the Professional development of nurses. The availability of point of

care systems that can be interconnected with the hospital and clinical information system provide nurses an opportunity to develop nursing care approaches [16]. The attraction of nursing informatics is more than its medical type, because the practical nature of nursing practice has a lot of potential for the production of digital tools, devices and equipment. These equipment and devices can serve as the information systems and cognitive tools for solving nursing issues; they are also reliable replacements for a large part of the critical activities of the profession [17-21].

The definition provided by Simpson in 1998 is a valid proof of this claim. He believes it is difficult to specify a precise definition for nursing informatics; thus we are facing with moving targets. This issue is due to technological changes, especially in the field of information technology, and because physical nursing practices are not fixed [22,23].

In general, the benefits of nursing informatics can be described as follows:

A. Relieving nurses from a lot of difficult writing task.

B. Improving effective communication between nurses and colleagues as well as patients.

C. Improving the safety of patients following high quality nursing care.

D. Providing effective support for nursing decisions.

E. Providing updated data for analysis.

F. Providing useful nursing data to quantify cognitive nursing care rather than pure work.

G. Providing information for nurses so that they can distinguish between things that can be done by the computer and the works that could be done by nurses.

H. Getting rid of the concern to do some hard and sensitive physical works that relates to the safety and health of patients.

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