IMPACT OF HEALTH INFORMATION MANAGEMENT ON BRAZILIAN NURSING PRACTICE FROM 2004 TO 2009

ABSTRACT

Health information management is an essential practice in the constant quest for quality patient care. In this context professional commitment is fundamental; the present study is an integrative literature review that aims at analysing the impact of health information management in nursing practice in Brazil from 2004 to 2009, identifying the consequences of system integration and the advances in information technology applied to nursing work process. The authors did a bibliographic survey based on data from the Health Virtual Library. Other twenty papers from the National Information Policy and the Health Informatics version 2.0 were selected and analysed using three different significance models. A total of 60% of the studies dealt with the empowering of the nursing professional; 25% revealed the professionals’ lack of training to deal with the National Information System; 15% identified the various hindrances to nursing practice. The research highlighted professionals’ commitment with knowledge generation and in the development of strategies to deal with health information management. However, nurses still do not have the appropriate means to carry out the process.

Keywords: Health Information Management; Nursing; Information Systems; Health Information Systems; Nursing Informatics; Automatic Data Processing.

RESUMO

A crescente busca de qualidade no atendimento à saúde abrange o gerenciamento da informação em saúde como elemento constituentce de realidades profissionais e assistenciais aprimoradas. Em face do engajamento profissional assumir papel tático nessa conjuntura, desenvolveu-se uma revisão integrativa da literatura com o objetivo de analisar os impactos do gerenciamento da informação em saúde que repercutiram os processos de trabalho da Enfermagem brasileira no período de 2004 a 2009. Identificaram-se os reflexos da integração de sistemas e tecnologias de informação no contexto da atuação do profissional enfermeiro. Efetuou-se levantamento bibliográfico na base de dados da Biblioteca Virtual em Saúde, sendo que 20 produções somadas à Política Nacional de Informação e Informática em Saúde versão 2.0 foram analisadas mediante três linhas de significado. Relevou-se o empoderamento da enfermagem brasileira em 60% dos estudos, em 25% ficaram expressas as desarticulações laborais da profissão frente aos Sistemas de Informação em Saúde nacionais e 15% das produções remeteram a um cenário caracterizado por percalços experimentados pela Enfermagem. Evidenciou-se o interesse da Enfermagem em gerar conhecimentos e programar estratégias consoantes os fenômenos gerenciais da informação em saúde. Todavia, o enfermeiro não se apoderou veementemente dos mecanismos mais acertados para tal processo.

Palavras-chave: Gestão da Informação em Saúde; Enfermagem; Sistemas de Informação; Sistemas de Informação em Saúde; Informática em Enfermagem; Processamento Automatizado de Dados.

RESUMEN

La búsqueda creciente de la calidad en la atención sanitaria incluye el manejo de la información como elemento constituyente de la realidad profesional y asistencial mejorada. Por ello, el compromiso profesional asume un rol táctico en esta conjuntura. El presente estudio es una revisión integradora de la literatura con miras a analizar el impacto del manejo de la información en salud sobre el proceso de trabajo de la enfermería brasileña entre 2004 y 2009. Se identificaron los reflejos de la integración de sistemas y tecnologías de la información dentro del contexto de la actuación del enfermero profesional. Se realizó un relevamiento bibliográfico en la base de datos de la Biblioteca Virtual en Salud (Brasil) y se analizaron 20 producciones vinculadas a la Política Nacional de Información e Informática en Salud, versión 2.0, en tres aspectos distintos. En 60% de los estudios se observa el empoderamiento de la enfermería brasileña, en 25% es evidente la desarticulación laboral de la profesión ante los sistemas de información en salud en Brasil y un 15% mostró el escenario de dificultades que enfrentan los enfermeros. Ha quedado evidente el interés de Enfermería en generar conocimientos y planificar estrategias relativas al manejo de la información en salud. Sin embargo, el enfermero todavía no se ha empoderado de forma vehemente de los mecanismos más acertados para tal proceso.

Palabras clave: Gestión de la Información en Salud; Enfermería; Sistemas de Información; Sistemas de Información en Salud; Informática Aplicada a la Enfermería; Procesamiento Automatizado de Datos.
INTRODUCTION

The building of a solution-focused and coherent health care model depends on the integrated use of information and related methodologies as key elements to the organization of contents and professional excellence. In this sense, health services need to consider information and knowledge as strategic inputs to achieve solvability, the new paradigm of the information society. The result of a long and promising process of democratic construction, information technology courses and health informatics are in constant demand worldwide. Regardless of the country, information management is intimately attached to advance in health care services and actions. In order to achieve more efficiency in the process of the various specialties, health information management is a strategic ally to improve health care services.

Brazil has been trying to develop a comprehensive and qualified information system which could improve its health policies. The Department of Health, in line with the international scenario, created the Information National Policy and the Health Information Technology (PNIIS) as sector priorities. The PNIIS aims at democratization of information and improvement of technology and integrative of information networks.

Health information management is an organizational aspiration prior to such government policy and to other national or international actions in the twentieth century. The objective to convey information to specific management actions or generation of health knowledge was already imperative in mid nineteenth century. Florence Nightingale, the precursor of modern nursing active during the Crimean War (1853-1856), made clear the need to control and share patient information. To Nightingale, effective decision-making could use proper recorded information and make it available to health care providers. The Nightingale’s timeless insight allows us to recognize how valuable and necessary systematic actions related to health work processes are.

Health information management focussed on strategy design and organized health care methods is in the process of being consolidated. Lacking in human, financial and organizational investment, it depends on multiple factors in order to meet the needs of users, health professionals, service providers and government managers.

The professionals’ commitment to handling information as an essential ingredient to the decision-making process is an essential aspect of the whole process. Such agents are strategically relevant players in the carrying out of actions for the institutionalization of the systematic management of information. Brazilian nurses’ ability to confront this context is of special interest to the present study.

Considering the health professionals’ engagement in the rational and renovating use of information and with a specific interest in the nurses’ performance against this setting the researchers propose the following question: what was the impact of health information management in Brazilian nursing processes between 2004 and 2009?

Brazilian Nursing professionals use strategies amongst which there is information management. The proper handling of such strategies overlaps regulations and norms and must be understood in order to be integrated as a potential improvement to the work process. The present study proposes an integrative literature review and this aims at analysing the impact of health information management in Brazilian nursing processes in the period, identifying the effects of system integration and information technology in the context of the nursing professional.

The goal is the improvement of health care services; therefore this research regards the nurse as potential agent in a systematic and computerized health care system. It is up to this professional to catch hold of the Health Information Systems (SIS) and endorse its innovative and transformative use in the health care field.

It should be emphasized the importance of analysing nurses’ resourcefulness in the management of tools and strategies that help to rescue nursing processes. Strategies embedded in the process of managing health information may represent potential allies to nursing decision-making or may be a complicating factor. This question will be elucidated in the course of this study.

METHODOLOGY

This is an integrative literature review. This methodological approach favours a systematic production of knowledge that fosters dialogue between the results of different studies on the same subject.

The integrative review depends on a question that will be developed in the course of the paper. The question is: “which was the impact that health information management promoted in Brazilian nursing processes between 2004 and 2009?”

This bibliographic and scientific summary relied upon the Virtual Library database in Health (BVS) and the BIREME exclusively. The latter is a decentralized tool of scientific health information on the internet operating from the gathering of various computerized data bases. Based on the BVS, significant data sources became part of this bibliographical survey: Latin American and Caribbean Health Sciences (LILACS); International Literature in Health Sciences (MEDLINE); and Nursing Database (BDENF). The authors defined specific search guidelines to identify the work process of professional nurses and the impact of health information management on their performance. The online bibliographical survey was carried out in March 2010 through the following descriptors: “information systems and nursing”; “information systems applied to nursing”; “informa-
The researchers analyzed eighteen articles, one thesis and one dissertation added to subsidized interpretations by the PNIIS. The research guiding question was “to examine the impact of health information management in the work processes of Brazilian nurses between 2004 and 2009”. As a result, only national scientific essays were selected as study sample.

RESULTS

The researchers also used the National Policy on Information and Health Information Technology version 2.0 (PNIIS), available on the Virtual Health Library of the Department of Health, because of the important role of such topic among political circles.

The publications selected as of interest for this study were available online (articles 17 and PNIIS) and printed in its entirety. Three articles were found in journals and acquired in libraries.

The sources of the articles were: 18 (90%) from LILACS; 1 (5%) from BDENF; and 1 (5%) from MEDLINE.

In summary, concerning the objectives of this research, the important contents and their quantitative path are illustrated in Figure 1.

As an integrative review lacks accurate method to extract information from the selected studies8, the contents in the study sample were slightly manipulated. Data collection encompassed an individualized categorization of productions through a simplified tool that clustered information about the article and its authors, location source, objectives and type of methodology, results and conclusions.

The presentation of results and data discussion synthesized the dialogue between the authors and promoted the convergence of knowledge produced on the subject. In order to interpret the meanings that emerged from the contents the discursive analysis followed guidelines defined by the authors.
However, as the determinant “Brazilian nurses” does not eliminate academic productions published in foreign journals, an article from a foreigner journal was included in the scientific essays. The authors found that 17% of articles came from scientific journals unrelated to nursing; 11% of the papers originated from dissertations developed in the area.

Other 20 studies were grouped according to their research area: 60% were carried out in a hospital; 25% in primary health care units; and 15% did not specify the setting.

Such distribution does not mean that the studies dealt strictly with a determined environment defined as hospital or primary care unit. The above percentages refer, for instance, to the highest amount (60%) of studies carried out in a hospital setting, and not that the study was limited to that environment. It is important to highlight that the percentage related to the hospital environment (60%) could be more significant if other topics, not only health information management, were discussed.

The PNIIS5 guidelines recommend that both health information data and the different contacts a person has with the health care system are equally important.

Regarding the type of research design the authors decided to combine the studies. Simplified aspects according to the objectives of the project were taken into account, e.g. seventeen studies (85%) registered instances in which nurses strived to incorporate health management to their work processes, while three studies (15%) prioritized the reflection on Nursing and health.

A total of 85% of the studies dealt with initiatives characteristic to specific demands or actions related to health care macro universe, where national health information systems contributed to rescale current approaches in Brazilian nursing. Some of these initiatives are not large-sized official policies but they set up mechanisms that enable the transforming use of health information technology.5

The second and final simplified aspect which brought together similar methodological approaches corresponds to studies that reflected on a determined topic. Such was the methodological design of three articles (15%). They used interviews or a theoretical framework to describe nurses’ perspectives about a specific item.

When the studies’ contents were analysed and the impact of health information management in Brazilian nursing was questioned, important meanings were found. The studies data essentially identified that successes, disjoints and mishaps had a strong impact in the work processes of Brazilian nursing.

In relation to the concrete representation of such meanings, the researchers came up with a strategy that measured three units of meaning, thoroughly interpreted according to the categories described below.

**Empowerment of Brazilian nurses**

The 12 studies (60%) included on the first thematic area pointed out the importance of information management for care practice. They were either clinical, epidemiological or management information originated from concrete interventions or from reflective studies under the nursing practice.

The contents display units of meaning related to the nurses’ opinions or specific projects that aimed at systematizing health information. They were practical initiatives for the improvement of nursing work processes or a reflection about the information management as decision-making process.

Regarding health information systems specifically designed for nursing practices, the researchers demonstrated to what extend they corroborated the professionals’ care planning. The experiences converged to the improvement of health care services and, consequently, of nursing practices. The need to manage health information rationally instigated the development of management tools and the instrumentalization of nurses in order to foster decision making processes.9-12

The optimization of time – with the systematic transmission of reliable information – requires that nursing daily tasks are rescaled for nurses to handle efficiently the large amount of information specific to their practice.9-12

The concept that, whatever their contents, health care improvements do reach the patient is agreed upon in many studies. With competent and organized nursing information management the nursing staff would be able to spend more time providing direct patient care.9,11

The development of instruments for health information management, requirement also expounded by Coelho,9 the concept that, whatever their contents, health care improvements do reach the patient can be demonstrated the tool that the nurses in producing new knowledge, to manage and plan autonomously their practice.”

Five studies agreed with the analysis of the nursing practices experienced here. Essentially, through similar situations, the studies explored the possibilities of organizing nursing practices using the SISs.7,13-16

This group of studies enabled the researchers to clip the basic features that guided the multiple contexts tied to nursing performance. Interpretative analysis of these contents revealed that a competent use of the SIS is a valuable ally in the redesign of nursing practices. Nursing professionals are unanimously called to fulfill the task of combining clinical, managerial and epidemiological information from the SISs and insert them in their activities.7,13-16

The planning of nursing decision making, the correct use and handling of the SISs are valuable elements in nursing processes.7,13-16 Its appropriation by the nursing professionals can reflect on the management of services, quality of care and perhaps contribute to public policies.13,14,16
Other studies using different methodological designs arrived to the same conclusion. When working in health information management and its fundamentals, such studies added that the organization of nursing information on work processes benefits of technological resources. Computing and technological developments applied to nursing were recognized as a source of strategies whose objective is to improve the quality of information managed by nurses.17-19

Technological devices provide a substantial help to nurses, nevertheless their use should not mean dehumanization of care.5,17-19

The debate about nursing information management increased considerably between 2004 and 2009.60% of the study sample emphasizes this line of thought. Scientific production revealed nurses’ empowerment regarding health information management and their attempts to improve practice by increasing the use of SIS in their workplace.

**DISARTICULATIONS OF WORK PROCESSES IN THE FACE OF THE NATIONAL INFORMATION SYSTEMS**

Studies in the second unit of meaning dealt with possibilities for nursing actions through the use of SIS information. Other researches that form part of the study sample also geared their investigative efforts towards such approach. The researchers found interesting to put together these five studies because categories “data reliability” and “health information data” were a constant presence.

The five studies analysed here (25%) dealt with national systems in place and in line with the analysis completed in the previous unit of meaning which reaffirmed the significance of the SIS in the Brazilian nursing context. 20-24

However, the reliability of their contents is questioned. The authors identified their flaws in managing SIS health information.20,24

Assessments dealt with hindrances to the interchange of information processed by national SIS and the slight advantage those health professionals take from the contents. The researchers demonstrated the level of fragmentation between information management – national SISs – and nursing decision making.20,22-24

Regarding quality and extensiveness of national SIS information which is widely used in Brazil, the studies unveiled the following characteristics: concealment or underreporting of data, inadequate form filling and consequent misinterpretations. This led to decision making dissociated from data that had been previously gathered in order to help in the decision making process about nursing practices.20,22-24

When investigating similar contexts it is worth to point out how difficult it is for primary health care professionals to avail themselves of data stored in public information systems. The studies highlighted their disjointed performance and their unpreparedness to use SISs, which stops them from using data that could have an impact on the implementation of health care programmes.20,22,24

One of the papers21 favoured a different analysis. It argued that concealment of data does not emerge from the SIH-SUS but is evidenced by it. The study unveiled to which extend nursing and healthcare professionals can retrieve epidemiological information.

The research in question defends that basing decisions on national SISs can improve work performance. The use of SIS in nursing consolidates an evidence-based practice which is accessible, free and able to redesign nursing health care performances.6,21

Nursing professionals need to be co-responsible for the use and management of health information: if they are not allowed to take ownership of the process, nurses will not be able to resort to such information to support their daily practice. Consequently, decision making process may be marred by costly programmes and impractical objectives.

**CHALLENGES TO INFORMATION MANAGEMENT**

The last unit of meaning highlights a development process. Nursing experiences identified obstacles emerging from health information management and the impact in practice. Three researches contributed particularly to this discussion.

The aforementioned papers examined computerization and related technologies, from the perspective of the nursing work process. Their objective was to identify the significance of information technology which is insufficiently apprehended by nursing professionals.25-27

These investigations25-27 detected the difficulty to reconcile the care and the management of health information. Nurses were obliged to juggle lack of time, bureaucratic records, difficulty in handling the computer and discontinuity of information contents.

Such aspects did not deal necessarily with the negative impacts of health information management in Brazilian nursing. In fact, the studies considered the supporting elements to information management in health that were earlier used by the nurses.

The need to incorporate and use technological devices was widely discussed in this latest analytical line. The manipulation of information technology is, however, secondary.25-27

In this perspective, the analysed literature exemplified the difficulty of Brazilian nursing to support their planning with computerized processes. One of the studies25 observed the nurses’ fragile involvement with computerized procedures. The professionals in question considered that only direct care gave meaning to their practice, what explains the slight interest in practices technologically systematised.
Santos and Santos agreed with Fonseca and Santos’ perspective. Information technology and related technologies were unconditionally valued in nursing theoretical models. However, in practice several obstacles hindered or limited the professionals’ initiatives. The arguments of nursing teams were focused on their non-agreement with investments in the area.

Given the above, the limited percentage of this category (15%) gained importance in the analysis, as the embedded meanings reveal the long course nursing will have to undertake to incorporate health information management in their practice.

Management of health information requires strategies to access, recover, retrieve and share information. Nurses and health professionals should master information technologies to be able to incorporate them in their work process.

**FINAL CONSIDERATIONS**

Given the interest in analysing the impact of information management in health on the nursing staff’s performance in Brazil, this study aimed at identifying the repercussions of the theme on daily nursing practices. The researchers observed the tendency to incorporate information management mechanisms. Most studies focused on the practical engagement and empowerment of the nursing profession.

It is evident, therefore, the nurses’ interest in generating knowledge and programming strategies consonants with health information management, without losing sight of caring. The analysed papers recorded the synergy between the studies. The nursing staff considers the practical and professional relevance of their duties and that procedural handling of health information would support their performance.

The present research revealed thus their relevance and triggered a reflection on nurse’s commitment to the process of health information management and the use of health information systems as essential tools for decision making and practice of care.

Regardless of the results of the research corpus professional nurses seemed to appreciate the significance of health information management in nursing processes. The researchers would like to emphasize the need for more investment in approaches that foster nurses’ ability to transform and embrace technological innovations. Professional commitment has been a defining force to overcome frustrations, challenges and disarticulations that marred multiple nursing contexts.

The nursing profession is also concerned with the modest and uncharacteristic task of feeding public sources of information and with the resistance to use technology tools in their work processes. The authors recognize that nurses still have not taken possession of the means available to manage health information. This is a gradual process.

**REFERENCES**