ABSTRACT

Objective: to identify the applicability of computers in different scenarios of nursing activities. Method: an integrative review, with search in the databases LILACS, IBRCS, BDENF, MEDLINE and virtual library SCIELO. The question that guided was << What is the applicability of computers in different scenarios of nursing? >> The instrument for data collection was conducted by means of descriptors, type, design and nature of the study. Results: from the 2,141 articles found, 16 were selected. It was found applicability of computing in three main areas: nursing care, research and distance education. Computing provides a subsidy for the training and qualification in nursing areas as tools for improving the care, training opportunities through distance learning and research with the universality and accessibility, contributing and encouraging research. Conclusion: the computer is in various forms in nursing, contributing to the growth of the professional and quality of care. Descriptors: Computing Applied to Nursing; Distance Education; Nursing Research.

RESUMO

Objetivo: identificar a aplicabilidade da informática nos diferentes cenários de atuação da enfermagem. Método: revisão integrativa, com busca nas bases de dados LILACS, IBRCS, BDENF, MEDLINE e biblioteca virtual SCIELO. A questão que a norteou foi << Qual a aplicabilidade da informática nos diferentes cenários de atuação da enfermagem? >> O instrumento de coleta de dados foi realizado por meio dos descritores, tipo, do delineamento e da natureza do estudo. Resultados: dos 2.141 artigos encontrados, 16 foram selecionados. Constatou-se aplicabilidade da informática em três principais eixos: assistência de enfermagem; pesquisa e educação à distância. A informática fornece subsídio para a capacitação e qualificação de área na enfermagem como ferramentas para aprimorar a assistência, possibilidades de capacitação através do ensino à distância e pesquisa com a universalidade e facilidade de acesso, contribuindo e incentivando a pesquisa. Conclusão: a informática está em diversas modalidades na enfermagem, contribuindo para o crescimento do profissional e qualificação da assistência. Descritores: Informática Aplicada a Enfermagem; Educação a Distância; Pesquisa em Enfermagem.

RESUMEN

Objetivo: identificar la aplicabilidad de las computadoras en los diferentes escenarios de las actividades de enfermería. Método: revisión integradora en las bases de datos LILACS, IBRCS, BDENF, MEDLINE y la biblioteca virtual SCIELO. La pregunta que la norteó fue << ¿Cuál es la aplicabilidad de las computadoras en los diferentes escenarios de enfermería? >> El instrumento para la recolección de los datos se llevó a cabo por medio de descritores, tipo, diseño y la naturaleza del estudio. Resultados: de los 2.141 artículos encontrados, se seleccionaron 16. Se comprobó la aplicabilidad de la información en tres áreas principales: la atención de enfermería, investigación y educación a distancia. La informática proporciona un subsidio para la formación y capacitación en las áreas de enfermería, como herramientas para la mejora de la atención, las oportunidades de formación a través del aprendizaje a distancia y la investigación con la universalidad y accesibilidad, contribuyendo y fomentando la investigación. Conclusión: la Informática está en diversas formas en la enfermería, contribuyendo al crecimiento del profesional y la calidad de la atención. Descriptores: Informática Aplicada a la Enfermería; Educación a Distancia; La Investigación en Enfermería.
INTRODUCTION

The present study arose from the interest of nursing students about the existence of unknown scenarios that the current job market available to the nurse. In this sense, it is a reflection on the precariousness of discussions during graduation that address the different fields of nursing work. This reflection led to finding that, during graduation, we have the opportunity to meet only the fields of care: hospital and outpatient care, the research, and education, the latter because the institution in question offers the degree.

Given the above, we performed a search for scenarios of operation that fit the nurse, revealing the existence of forty-four different specializations. In this context, according to the current resolution to repeal the resolutions COFEN-389/2011 COFEN-290/2004 COFEN-261/2001 and the competence of the nurse specialties are: Aerospace Nursing, Nursing Audit and Research; Nursing Cardiology; Nursing Surgical Center; Dermatology Nursing, Nursing diagnostic imaging; Nursing infectious and parasitic diseases; Nursing Education, Nursing Endocrinology, Nursing Pharmacology, Nursing Administration/Management, Nursing Leprosy; Nursing Hematology, Nursing Hematology; Nursing Infection; Nursing in Health Informatics, Nursing Legislation, Nursing Nephrology Nursing Neurology; Nursing Parenteral and Enteral Nutrition; Nursing Ophthalmology, Oncology Nursing, Nursing Otorhinolaryngology; Nursing Pulmonary Health, Nursing in Public Policy; Complementary Health Nursing, Nursing in Child and Adolescent; Nursing Family Health Women's Health Nursing, Adult Health Nursing, Nursing Men's Health, the Elderly Health Nursing, Mental Health Nursing, Public Health Nursing, Occupational Health Nursing, Nursing in Indigenous Health, Nursing Human Sexology; Holistic Complementary Therapies in Nursing, Intensive Care Nursing, Nursing Transplant, Trauma and Orthopedic Nursing, Nursing Emergency Department, Nursing Surveillance; Nursing offshore and waterways.

Among the specialties found in Nursing Health Informatics aroused the interest of the authors. This is an area of knowledge with over 30 years of operation and development, as computers were introduced in hospitals and began to be used by nurses in the decade of 50. For many the Nursing Informatics is a broad perspective of action and growth, using its resources and products, either through the benefits of its use in the day-to-day practice and direct patient care, whether in teaching, conducting research, or even as a strategy to stimulate students and patients in the pursuit of quality information. However, for many professionals in our reality, is still a challenge, an area known and feared.

The use of computers in nursing has allowed over the years, many scientific and technological advances that allow use information quickly and organized. These advances have brought changes for nursing, allowing professionals in this area to use resources that did not exist, a fact that led to meet new opportunities and challenges.

So, is the interactivity of computer communication mode, which is the core in the expression and release of one or more conscious ways of complex communicating as expressly provided in the message and the sender that the recipient opens the possibilities to respond to expression system and dialogue with it. This represents a qualitative leap in relation to the mode of mass communication that prevailed until the late twentieth century. The mode of interactive communication threatens univocal logic of mass media, such as overcoming the embarrassment of passive reception.

Given these considerations, the question that guided the study was that the applicability of computers in different scenarios of nursing?

From this question, this study aimed to identify the applicability of computers in different scenarios nursing activities.

It is considered that this work will expand knowledge of academics and nurses on the topic, and raise other issues that could be further developed to later.

METHOD

This is an integrative literature review, characterized as a synthesis of research on a particular subject, keeping interested the theme, updated and facilitating practice changes as a result of the research. This followed the following steps: selecting the topic; establishment of the research question and purpose, establishing the criteria for inclusion and exclusion of articles; selection of information to be removed from the selected articles, analysis and presentation of results and discussion.

The online survey of articles occurred in the Virtual Health Library in the following databases LILACS (Latin American and Caribbean Health Sciences), SciELO (Scientific Electronic Library Online), IBECS (Index
Library Español en Ciencias de la Salud), BDENF (database of Nursing) and MEDLINE (United States National Library of Medicine). The keywords used were: Nursing Informatics; Distance Education; Nursing Research. The data collection period was from August to November 2011.

The criteria for inclusion of articles were articles published in Portuguese, English and Spanish in the period 2001-2011; complete available online, that addressed the theme applied to nursing informatics and nursing or nurse that contained in the title or had the descriptor associated nursing. Exclusion criteria were published articles that were repeated in the databases, not published in full and/or content that is not relevant to the topic.

While studying with the descriptor applied informatics in nursing were found in all databases, 875 articles. With the association distance education AND nursing were found 811 and finally to pursue research with nursing informatics AND 496 articles were found. After you read these articles, we selected those that fit into the theme of our research, obtaining a total of 37 articles; as long as quantitative results had a final sample of 16 articles.

### RESULTS

After reading and interpretation of the results, the data were classified into three categories: Informatics in Nursing Care System; Computing research, and Informatics in Distance Education in Nursing. With the final sample of 16 items, assessed after the subject, the methodology and results of each article in an attempt to categorize the information for discussion: 8 items were used in category A computer in nursing care, 5 articles in the category Computer and research nursing and 3 in the category computing in nursing education.

To facilitate visualization was created two tables: Figure 1 demonstrates the quantitative found summaries according to the data bases used, and Figure 2 shows the quantity of items that have been selected according to the inclusion criteria, identifying the base data.

<table>
<thead>
<tr>
<th>Descriptors</th>
<th>IB ECS</th>
<th>MEDLINE</th>
<th>BDENF</th>
<th>LILACS</th>
<th>SCIELO</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied informatics to nursing</td>
<td>2</td>
<td>768</td>
<td>41</td>
<td>59</td>
<td>5</td>
<td>875</td>
</tr>
<tr>
<td>Distance education and nursing</td>
<td>4</td>
<td>650</td>
<td>40</td>
<td>117</td>
<td>27</td>
<td>811</td>
</tr>
<tr>
<td>Research in nursing and Informatics</td>
<td>3</td>
<td>405</td>
<td>32</td>
<td>56</td>
<td>3</td>
<td>496</td>
</tr>
</tbody>
</table>

Figure 1. Quantitative summaries found according to the databases used.

To delve a descriptor applied informatics nursing summaries were found in the database LILACS 59, 5 in SCIELO two in IB ECS, 768 in MEDLINE and 41 BDENF, with a total for all databases, 875 articles. With the association distance AND nursing as a result we had 117 abstracts in LILACS, SciELO in 27, four in IB ECS, 650 in MEDLINE, 40 BDENF, found 811 articles in total. And as a result of the search with the association nursing research nursing AND 56 abstracts were found in LILACS, SciELO three in three in IB ECS, 405 in MEDLINE and 32 BDENF, and found 496 articles with these descriptors.

<table>
<thead>
<tr>
<th>Descriptors</th>
<th>IB ECS</th>
<th>MEDLINE</th>
<th>BDENF</th>
<th>LILACS</th>
<th>SCIELO</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied informatics to nursing</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Distance education and nursing</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>8</td>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td>Research in nursing and Informatics</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>9</td>
</tr>
</tbody>
</table>

Figure 2. Number of selected references according to databases used.

Figure 2 shows that after reading the articles, we selected those that fit into the theme of our research. With the descriptor applied informatics nursing were selected five abstracts in the database LILACS three SCI ELO the virtual library, no IB ECS in two and two in MEDLINE BDENF, with a total for all bases of 12 articles. With the association distance AND nursing had as sample 8 summaries in LILACS, five in SCI ELO no IB ECS in a MEDLINE, two BDENF, selected 16 articles in total. And as a result of the search with the association nursing research nursing AND two abstracts were selected in LILACS, SCI ELO 3 in a IB ECS in a MEDLINE and two BDENF, nine selected articles with these descriptors, obtaining a total of 37 articles. However the 37 articles, 16 were selected due to the repetition of some databases.

In order to characterize the 16 articles selected as the final sample, Table 1 shows the characterization of articles on applied informatics in nursing on the type, design and nature of the study.
According to Figure 3, one can see the predominance of studies descriptive and exploratory, with 31.5% of the articles, while studies descriptive, historical-sociocultural, case study, literature review and observational study was equated with 12.5% of the articles. The study type least used was descriptive-observational representing only 6.25%. Regarding the study design, we emphasize that most of the studies reviewed did not specify the design that followed representing 37.5% of the articles, while the bibliographic and documentary studies were equivalent at 25%. Concerning the nature of the studies, there was a predominance of qualitative studies (56.25%) overlapping quantitative studies representing 37.5 qualitative and quantitative with 6.25% only.

**DISCUSSION**

**The informatics in nursing**

Throughout the literature, several studies have shown that the application of informatics in nursing care generates benefits in the development of nursing practice, assists in the organization of documentation and control of data, the use of computerized systems generates a time savings, which allows the reduction of time spent in the execution of certain tasks performed by nurses. And this allows these professionals to increase their time available for activities related to patient care, besides enabling an improvement in work flow, work performance and quality of care. Thus, the computer has entered as a facilitator for the patient care.

You know for a nursing effective care should be constituted and governed by the welfare system concomitant with the management system. Thus, the integration of technology via computers is an important strategy for this reality. Thus, the computer has been used as a tool for innovative work, providing the appearance of new proposals for the use of information technology and subject of many discussions about the changes in practice nursing care.

In this context, to meet the needs of the nursing record in a hospital with application assistance and nursing management was developed an information system via nursing software. The system was designed to support the administrative activities of nursing for transform data into information, and generate knowledge that allows decision support the head nurse on the nursing process and data management. Can be used to control the activities planned, i.e., the nursing care plan, as well as to replenish the cycle comprising administrative functions performed by the manager: sizing personal care system, control of personnel and material, statistical census unit, among others; besides also being developed for use in admission/hospitalization of patients in nursing process and service management.

Regarding records, view themselves in society movement of expectation in the implementation of Electronic Health Record (EHR) that is an important advancement in computer technology applied to nursing. The PEP is a proposal to unite all the different data produced in various formats, at different times, by different health professionals in different locations. It is understood then that PEP acts as an electronic structure for maintaining information about the health status and care received by an individual throughout their time life.

The implication of this instrument in nursing work reflects the increased integration of information and care management. So care as a whole described through integrated information allows you to manage and analyze successes and failures of care continuously. In addition, another implication of PEP in health care practice would be the integration and communication...
between professionals and establishments and organizational providers’ actions and health services.²

Also in the plan of care, a widely discussed by nurses is the Nursing Care System (NCS). Systematize is to organize standardized information in a set of questions and answers for making appropriate decisions. Thus, it takes into account the needs of patient care (diagnostics), the results they want to achieve (outcomes) and what the best care that must be established to meet those needs related and thus achieve desirable outcomes (interventions).⁷

This instrument used by nursing are organized into standardized systems of language, thus becoming the operating systems to achieve a goal. These systems need to be linked and dynamically active so that they can give and receive the support they need. It is in this context that an electronic system for nursing documentation can act, allowing the user to make clinical decisions, supporting the trials of diagnoses, expected outcomes and nursing interventions. Besides emphasizing decision making and clinical judgment of nurses in patient care, aiming to expand and sustain nurses’ clinical decision.⁷

The integration of the EPR SAE is one of the benefits that information technology brings nursing, patient and overall health. It is believed that this integration contributes to the practice of the nursing process and making the whole multidisciplinary team with access to prescriptions and provided information about patients. For such information contribute to other professionals are aware of the behaviors performed with the patient and the results being achieved.⁴

However the computerized work directly affects the process of working professionals, and this fact can trigger positive responses and negative against the imposition of new working methods, as applied to nursing informatics. This must be taken into consideration when you want to implement computer technology in nursing care for stroke that is the most promising way for these strategies has positive results.

In one study, we obtained an intense difficulty of nurses in dealing with this process, which was considered a problem for the nursing act freely, thus diminishing the freedom at work. When the research considered the perception of the introduction of computerization nurses interviewed, they highlighted some positives as quick access patient information and sectors, and the development of legible prescriptions.⁸

On the other hand, described the computerized work as "complicated" because claim to have received insufficient training of staff to operate using the computer, thus resulting in a lack of dexterity of professionals. Furthermore, nurses stated that the practice may deviate computerized nursing of patients due time they need to stay on the computer, thus believed that the manner previously performed, the manuscript is better. Thus, all these resistances reported by nurses reflected in the absence of evolution in electronic medical records, in many cases.⁸

Faced with this problem, it is worth mentioning the barriers in the use of computers in nursing. In this context, it has been the lack of use of a standard language in nursing, which hinders the development of appropriate systems, lack of coordination and integration between the different sectors, which often makes it impossible to share information, and mobilization the organization in support of information technology. Thus, the use of standardized terminologies, the use of information technology and organizational change favors with that computer becomes functional when used by nurses, reducing the time of adaptation and thus a better team interaction and computer science.⁹

Therefore, it is understood that the computerized instruments, (such as databases, which organize the information obtained, the development of decision support systems and production software, for example), are mechanisms that still require a constant process of improvement to occur its effective implementation in nursing. For this, it is understood that this strategy associated with nursing care, still needs a lot of improvement and guidance of professionals who will develop them, because the scientific and technological change are complex thus requiring a re-education of health professionals, as a whole so that they can be implemented successfully.

Like any change process and implementation of a new technology that reflects the care for the patient, such as the inclusion of informatics in nursing care practice, it is implied in need of some essential ethical attitudes. Some issues involving ethical use of information technology in health care should be considered: the computerized system should be used in practice only when it is appropriate and effective, to use any computerized strategy through actions, they should be preceded by training, prior instruction and assessment, prior to implementation,
security, privacy and patient confidentiality must be maintained and the use of information technology should not limit or impede the ability of health professionals, even the communication and trust these.9

Furthermore, it is understood that in any way the use of computers in nursing care practice should contribute to the dehumanization of care, health care and how to assist and communicate with the patient. Because the technologies do not replace human contact in health care, direct contact and touch the nurse. Finally, the use of computer technology should not lead to super-estimation machines and distancing from the patient, but contribute more as a tool that assists the nurse, and not a substitute of.9

♦ Informatics and nursing research

The use of resources and products of information technology is growing for both help in direct patient care, such as conducting research, whether in education, as a tool to encourage more students and patients, or in search of quality information. Creating media for electronic storage of information relevant to nurses is an important focus in nursing research.2

Scientific research is a way to search for answers or problems faced in everyday life. With educational changes arising in the 70s, and because of advances in nursing as academic project, some nurses are recognized as researchers.10 The scientific production comes from the production of master's and doctoral degrees.

The Internet contributes in several ways to nursing research. The uses are varied forms and include literature, recruitment of participants, audio-visual resources, data collection via Internet and resources for teaching and research considerations for ethical-legal aspects.11

Access, previously exclusively in libraries and archives, became easier and universal. Prior to conduct research was needed going to the place where that publication was in, complicating the research, making it laborious and often impossible to use certain products to be infeasible for distant location, for example. The creation of databases, a set of records, in the form of magazines and online virtual library came to change that. Today anyone can have access to publications from various countries through the same contributing to the advancement of research, education and assistance to qualifying.

Most work uses the Internet to collect data such as literature review, for the recruitment of participants, which can be done online, as well as sending and receiving forms, questionnaires, and / or other instruments for data collection accelerating the process of the research.11

Search and publish became common practices in nursing, from academia to professional life. This practical research offered by the advancement and integration of informatics in nursing contributed to this advance, thus increasing the number of nurse researchers and demystifying the relationship with the computer.

♦ Informatics technology in nursing education

The emergence of new technologies of information and communication technologies (ICTs) is changing the paradigm of teaching/learning and the relationships between the individual, work and society as we know them today. In the last decade has grown the use of ICTs in education making teaching more dynamic and interactive12. It is believed that ICTs also provide incentives and challenges to curiosity practice that can assist students in building and autonomy.13

In this context it is noted also the resumption of distance education using ICTs from the publication of the new Law of Guidelines and Bases (LDB n° 9,394 of December 20, 1996) which promotes the establishment and development of courses using this methodology for graduation, extension courses, postgraduate development of teachers and continuing education. This move also has intensified since 1998, when the Ministry of Education and Culture (MEC) began registering for higher education institutions offering distance courses using various media, such as CD-ROM, video conferencing, Internet and other.12

The distance learning (ODL) is characterized by the type of education that occurs through the physical separation of learner and educator. In this mode the teaching-learning process does not take place through formal education, allowing greater flexibility of study and different methods to be used for the construction of learning.

The EAD is present in Brazil since 1904 when it began offering correspondence courses, and later practiced by radio (1923) and television (1961). At this time the main focus of this type of education was the transmission of literacy courses and vocational.12

The Internet has proven to be appropriate and beneficial as a tool for teaching-learning not only for feature accessibility at any time and place, but mainly by the many features it
goals, the interactivity and diversity of stimuli, and the opportunity to integrate and of cooperative work can provide.\\n
The e-learning consists of a form of distance learning that allows self-learning, with the mediation of learning resources, systematically organized, presented in different technological supports information conveyed by internet.\\n
The evolution of distance education online has led to the creation of Virtual Learning Environments or Learning Management Systems (LMS - learning management systems), which are environments conducive to the development of educational activities. Some examples are TelEduc LMS, Moodle, Blackboard, WebCT and AulaNet, among others. These environments provide the user, teacher and student, several features that can be used as teaching strategies. Part of these resources chat, forums, email, mailing lists, blogs and teleconferencing.\\n
A digital communication tool useful for teaching nursing, which can be embedded in Learning Management Systems (LMS) or used independently, is virtual chat or educational. This tool is intended to allow discussion of a particular subject synchronously between students, instructors and tutors and teachers enabling a form of evaluation in ODL.\\n
For the implementation of EAD are some difficulties, which we highlight the resistance to the use of IT by teachers and the lack of exploiting resources such as electronic networks with online services (including virtual learning environments), video conferencing and teleconferencing, electronic mail, the chat rooms and software on CD-Rom. This new proposal of EAD through the use of new technologies is attractive, but also arouses a certain insecurity in students who lack fluency in information technology and eventually fear not monitor the activities and suffer some kind of exclusion.\\n
Another important issue is that this method requires students planning time for the study, goal setting, i.e., active participation in the learning process, which many cannot predict or meet during the courses.\\n
Nursing is considered by many people a profession essentially practical, however, this fact does not preclude the use of distance education as a way or means to facilitate continuing education by conducting free courses, extension and graduate online.\\n
We must consider that the EAD has organizational characteristics that facilitate adaptation of the Nurse to their educational structure as the lack of time and place fixed for the study and the lack of need for students to commute an educational institution to attend classes. We know that many professionals in this field work in long shifts of 12 hours and, in most cases, have more than one job. The extensive workload of 40 hours to the duties associated with family and children to induce fatigue and stress reducing watertight free time necessary to study and professional development.\\n
In this sense in health using the Internet search the opportunity to use the Web and get resources for professional development and constant quality through access to sites of universities and scientific journals, and can get in touch with other professionals to exchange information and conducting distance courses, became a fundamental condition for training personnel.\\n
In general technology education is a growing resource that provides support in the learning process. The most important feature of this feature is to consider a teaching job with different teaching references.\\n
Thus the distance education by providing greater flexibility in schedules, activities, and forms of education is a good possibility for this class professional education because it allows the nurse to remain enabled, insert it in a new virtual reality and discover new technologies.

CONCLUSION\\n
This study presented the main areas of Internet use within the field of nursing. Information technology in nursing is presented in an attempt to organize online data, standardization of protocols and electronic medical records, for example. The insertion of this strategy still requires the assistance of new studies and explanations, as they demonstrate that there is no satisfactory effect of this when there is a training team. This should be counseled about the use of computer technology for the benefit of the patient and the professional, so that in this way try to make computing one daily tool in nursing.

In the survey, information contributes to a less participatory, being useful for research through the online data collection and literature searches. Despite having a smaller share, the insertion of the internet in this field is vital to the expansion of research in nursing. In education the internet is mainly used for distance learning, which allows the growth of professional nursing through distance specializations such as graduate, for example. In the daily running and no regularities, which is the nurse, came to add...
this feature and to facilitate their growth within their profession.

In short, the informatization has contributed to the development of the profession, through the resources that facilitate and improve the assistance, which amplify and record findings in the area and the professional who qualify it. It is not intended with this study to exhaust the discussion of nursing informatics, making clear the need for further studies to improve and report new modes of computing in nursing.

REFERENCES


15. Alves RHK, Cogo ALP. Vivência de estudantes de Licenciatura em Enfermagem em disciplina na modalidade à distância. Rev. Gaúcha Enferm. [Internet]. 2008 [cited 2012...
Moreira APA, Amim EF, Souza TM et al. The applied informatics in nursing...