



RESEARCH ARTICLE

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THE VIEW OF NURSES ABOUT COMPUTERIZATION IN DAILY NURSING PRACTICE

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ABSTRACT

Computerization of health information applies technological resources in various areas of assistance and care and acts in the storage, processing, analysis and transmission of information so as to allow the solution of problems in the care context. This study aimed to know the nurses' view of computerization in the daily nursing practice in the municipality of Imperatriz-MA to identify the sociodemographic profile of the research participants. This is a descriptive, cross-sectional study with a quantitative approach, conducted in the Northeast of Brazil, in the municipality of Imperatriz, state of Maranhão. The study was carried out from April to June of 2019 in six hospitals in the city of Imperatriz, the second largest city in the state, and a reference in health care in the region. Ninety-eight nurses chosen based on the accessibility criterion participated in the survey. Data were collected through the application of a questionnaire to nurses from hospitals and Basic Health Units, who were approached in their workplaces. The results showed that the predominant age group was 31 to 40 years, and most participants (60.2%) worked in the public network. Among the participants, 94.9% said that computerization facilitates nursing care, 97.0% said that it benefits patient data documentation, and 98.0% said that computerization facilitates communication and decision making in nursing. Computerization of health information in several sectors is of fundamental importance for the full functioning of the care process.

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INTRODUCTION

Care provision and its periodic maintenance is the essence of the nursing work, being, in fact, among the most important tasks of this profession (Domingos *et al.*, 2017). Regarding the context of health care from the nursing service, the use of Information Technology (IT) in the professionals' daily routine has brought significant improvements to the quality of work life and patient care (Cavalcante *et al.*, 2011). Computerization of health information applies technological resources in various areas of assistance and care and acts in the storage, processing, analysis and transmission of information so as to allow the solution of problems in the care context. Nursing informatization has contributed to the Systematization of Nursing Care (SNC) in health services, being used in management processes. The SNC enables the organization and implementation of care and allows the operationalization of the Nursing Process (NP) (Domingos *et al.*, 2017). Information technology incorporated into health services provides greater dynamism in the communication between staff members, contributing to clinical decision making and standardization of actions and enabling greater quality and safety in patient care (Matsuda *et al.*, 2015). Moreover, computerized systems offer practicality in care and assistance, favoring their organization and administration. Computerization is present in clinical records, planning of schedules and activities, reduction of redundancies in the patient data notes, and it is an auxiliary tool in the supervision of services (Ribeiro *et al.*, 2014). Thus, computerization optimizes the professionals' time to provide care, and thus promotes a more humanized work. It is essential that the health system be up-to-date with the evolution of technologies, but this requires planning, a reform of systems, and updating of professionals (Santos *et al.*, 2017). In this perspective, the use of the SNC promotes individualized care and greater visibility to the actions of the nursing team. This is because the use of a scientific instrument ensures quality care management and the planning of activities for the professionals, and serve as a guide for their actions (Silva *et al.*, 2015). Therefore, research on computerization in the current health context is clearly important to identify the positive and negative points that innovative technologies bring to nursing care, whether in hospital or primary health care services. Furthermore, investigating the local reality regarding the structure of public and private services is also important. This study aimed to know the nurses' view of computerization in daily nursing in the municipality of Imperatriz-MA to identify the sociodemographic profile of the research participants.

MATERIALS AND METHODS

Thus is a descriptive, cross-sectional study with a quantitative approach, conducted in the Northeast of Brazil, in the municipality of Imperatriz, state of Maranhão. The study was carried out from April to June of 2019 in six hospitals in the city of Imperatriz, the second largest city in the state, and a reference in health care in the region. The hospitals where the research was conducted were two public and four private hospitals, in addition to four Basic Health Units (BHU). Ninety-eight nurses chosen based on the accessibility criterion participated in the research. Nurses working in the two public hospitals of the city, six private hospitals and four BHU selected for the research, of both sexes and age, and working in any sector, were included. Nurses who were on vacation or leave at the time of the survey, and those who did not work in the institutions surveyed were excluded. Data of nurses from the hospitals and UBS were collected through the application of a questionnaire. They were approached in their workplaces and after agreeing to participate in the research and signing an informed consent form, answered the questions on their own cell phones or those of the researchers. After collection, data

were grouped, organized and analyzed descriptively, expressing the absolute and relative values of the investigated variables. The research followed the ethical precepts and was approved by the Research Ethics Committee of the Federal University of Maranhão under protocol number 3.178.346.

RESULTS

The results showed the predominance of the age group of 31 to 40 years (52 participants, 53%), female sex (82 participants, 83.7%), married marital status (48 participants, 49%), 6 to 10 years of experience (45 participants, 45.9%), 1 to 10 years elapsed after graduation (70 participants, 71.3%), work in the public network (59 participants, 60.2%), worked in Intensive Care Unit (ICU) (26 participants, 26.6%), working only in the current job (51 participants, 52.0%), and monthly income of 3 to 4 minimum wages (49 participants, 50.0%) (Table 1).

Table 1. Distribution of characteristics of research participants. Healthcare workers. Imperatriz-MA, 2019

Sociodemographic characteristics	n	%
Age		
20 to 30 years	29	29.6
31 to 40 years	52	53.0
41 to 50 years	13	13.2
> 50 years	4	4.2
Sex		
Male	16	16.3
Female	82	83.7
Marital status		
Single	44	44.9
Married	48	49.0
Common-law married	6	6.1
Graduation time		
1 to 5 years	28	28.6
6 to 10 years	45	45.9
11 to 15 years	18	18.3
16 to 20 years	5	5.2
21 to 25 years	1	1.0
> 31 years	1	1.0
Experience		
< 1 year	11	11.3
1 to 10 years	70	71.3
11 to 20 years	16	16.4
21 to 30 years	1	1.0
Healthcare network		
Public network	59	60.2
Private network	39	39.8
Sector		
Surgical center	9	9.2
Emergency department	10	10.3
ICU*	26	26.6
FHS**	8	8.2
Inpatient/nursing wards	21	21.5
NEP	2	2.0
Reception and screening	3	3.0
Management/coordination	8	8.2
Others***	11	11.2
Work at another health facility		
Yes	47	48.0
No	51	52.0
Monthly income (current minimum wage****)		
1 to 2	5	5.1
3 to 4	49	50.0
5 to 6	32	32.6
7 to 10	11	11.3
> 10	1	1.0
Total	98	100

*Intensive Care Unit

**Family Health Strategy

***Others = Oncology, Milk Bank, Psychiatry, Patient Safety Nucleus, Urology/orthopedics, Follow up, Regulation Nucleus, SNC

**** R\$ 998.00

Regarding the computerization of health information, 96 nurses (98.0%) said they knew what it was, and 59 of them (60.2%)

had implanted it in their workplace. They said that computerization facilitates nursing care (93 participants, 94.9%) and that it benefits the documentation of patient data (95 participants, 97.0%). Among participants, 96 (98.0%) stated that computerization facilitates communication and decision making in nursing, and 96 (98.0%) said it streamlines the nursing process. On the other hand, 73 nurses (74.4%) said they often saw inconsistent, illegible, hard-to-understand notes throughout their practice (Table 2).

Table 2. Distribution of data on computerization of health information. Healthcare workers. Imperatriz-MA, 2019

Data on computerization of health information	n	%
Knowledge about computerization		
Yes	96	98.0
No	2	2.0
Computerization in the workplace		
Yes	59	60.2
No	39	39.8
Computerization facilitates nursing care		
Yes	93	94.8
No	5	5.2
Computerization benefits data documentation		
Yes	95	97.0
No	3	3.0
Computerization facilitates communication and decision making		
Yes	96	98.0
No	2	2.0
Computerization streamlines the nursing process		
Yes	96	98.0
No	2	2.0
Frequency of inconsistent, unreadable, and hard-to-understand notes throughout daily practice		
Often	73	74.4
Sometimes	23	23.6
Never	2	2.0
Total	98	100

DISCUSSION

Regarding the participants' profile, it was observed that most were between 31 and 40 years old, female, married, graduated six to ten years ago, had up to ten years of experience, worked in the public health network, and had monthly income between three and four minimum wages. These characteristics are similar to a study conducted in the countryside of Paraná where the participants were mostly women, aged 24 to 38 years and had graduated two to 17 years ago (Matsuda *et al.*, 2015). Another study on the use of computerization in health in the countryside of Minas Gerais showed that the majority of the participants (79%) were women, graduated (50.6%), and worked in the public network (45.2%) (Cavalcante *et al.*, 2018). In the present study, the time of experience of most participants ranged from one to ten years. A study conducted at the University Hospital of the University of São Paulo on the use of informatics in nursing showed a time of experience of 11 months to 19 years (Lima *et al.*, 2012).

Data from the International Labor Organization (ILO) show that 614.2 million workers, equivalent to about 22% of the world's workforce, work more than 48 hours per week. In Brazil, in 2008, 33.7 % of workers had a workweek of more than 44 hours, which represents a breach of the Consolidation of Labor Laws. In fact, 19.1% of Brazilian workers still have a 48-hour workweek (Lee *et al.*, 2009). Excessive workloads result in a number of factors that ultimately cause physiological reactions such as stress. Computerization in the

health field has provided and continues to provide many technological advances, however, it is important to emphasize that technology does not replace human care. It is important that the health care staff receive training in this area and incorporate technology in the preparation of electronic medical records and documents. In this research, 96% of the respondents demonstrated to have knowledge about computerization. About the positive aspects in the use of computers, 85% of the participants reported agility, practicality, readability, ease of consultation of patients' medical records, and better applicability of the SNC. One of the factors that stood out was the ease of accessing patient information through computers, because it does not depend on handprints and saves time of displacement between different sectors.

In addition, potential benefits include cost savings, rapid patient recruitment, generation of "real-life" data, and global patient follow-up. Computerization streamlines team work and contributes to resolve possible communication errors in the provision of care to users. It supports the development of research about the quality of service provided and points to improve, thus contributing to the creation of strategies aimed at excellence in health care (Queiroz *et al.*, 2019). The SNC, which represents a working instrument to nursing, aims to identify the patient's needs by presenting a proposal for their care, guiding the nursing team in the actions to be performed. The SNC is a dynamic process, a methodological instrument that favors care and enables nurses to organize patient care measures more efficiently (Cianciarullo *et al.*, 2001). The negative aspect reported by most respondents was the loss of patient information due to lack of computer maintenance and inadequate system protection. Hiring technical support to perform equipment maintenance and training of health professionals to prevent the loss of information is fundamental. First and foremost, Information Systems Management (ISM) needs to be recognized as indispensable for a hospital to develop and manage its information resources. This is an essential requirement for the efficient production of high quality health services (La Verde, 2010).

According to the research done by the team, for a portion of the interviewees, informatics is important to streamline the information and to improve professional performance and patient care. However, other nurses interviewed found computerization useless because there is a possibility of loss of patient data if no maintenance is made. Another aspect is that there is the feasibility of parallel research, because of the use of the internet. The lack of familiarization of nursing professionals with the computerization process is still present today. In all spheres of practice of these professionals, in nursing research, and the insertion of informatics in nursing education, technological resources play a very important role. If used correctly, technology offers the opportunity to save time and help provide quality nursing care, besides contributing to nurses' proficiency (Rezende *et al.*, 2016). For this reason it is important that nurses have access to accurate and real-time information in order to perform their care and manage activities efficiently. Technological advances, the use of computerization, new administrative demands, and the increase of health knowledge require greater competence from nurses. More training and constant updating is necessary in view of the complex situations that they face on a daily basis. Thus, the use informatics contributes to facilitate their work (Massad *et al.*, 2003).

The results pointed out that not every workplace had computers to allow nursing professionals to make notes about patients. In other places, there was no internet network. Some participants responded that computerization was of great importance as it helped in the fluidity and improvement of nursing care, optimizing the time available for care provision. Most participants stated that the use of computerization favors the improvement of nursing care, benefiting the preparation of documents. Computerization is beneficial because it reduces the use of time, contributes to the prescription and distribution of drugs to patients, and prevents errors in the transcription of prescriptions resulting from illegible medical prescriptions (Keers *et al.*, 2013). It also contributes to reducing the flow of workers in the hospital by reducing hospital infections (Brasil, 2013). The use of computers can facilitate the nursing practice because it allows that more time be dedicated to patient care, allowing the professionals to provide humanized care to patients, streamlining the nursing process (Correia *et al.*, 2012).

Regarding the negative aspects pointed out by the participants, the answers included the development of repetitive strain injury (RSI), data loss due to computer problems, risk of hacking attack, poor internet, and lack of agility of some employees in the use of computers. A study conducted in the countryside of Paraná also found difficulties similar to those reported in the present study, such as lack of adequate material and need for training for employees with less computer skills (Matsuda *et al.*, 2015). The participants were also asked about how often they saw inconsistent, illegible and hard-to-understand notes throughout their practice, and most of them answered that they already had seen notes like this. The quality of records on procedure reflects the quality of care and productivity (Fonseca *et al.*, 2005). Nursing notes are the most important tool in nursing communication and they are legal documents. The nursing staff must be responsible for making appropriate notes for each patient as part of their duties (Setz *et al.*, 2009). Nursing notes should describe all activities performed in patient care. These notes represent the only viable and safe way to know systematically what was done. This is made to prevent possible complications of professional and legal nature for nurses, the multidisciplinary team, and patients (Azevedo *et al.*, 2019).

Conclusions

The results found in the present study suggest that most professionals agree that computerization of health information is essential for good care provision; however, few units implemented such computerization. The technological precariousness in the municipality studied is great, and here are no projects or initiatives to change this reality. Another important detail to take into account in the case computerization were implemented in the units is the unpreparedness of professionals. It is clear, therefore, that computerization has positive aspects such as agility and practicality, but also negative points such as slowness in the functioning of the system, according to the participants. Implementation of computerization of health information is necessary in the municipality of Imperatriz-MA. In fact, this is a very present theme in health units, be it in primary or hospital care. In the present research, it was observed that although most respondents had access to computerization, there was still a portion who did not have access to a

computerized system that would facilitate the daily work of these professionals, when making notes about their patients. Some factors that make computerization often unwanted were also observed, as for example, slowness in the functioning of the system. Other associated factors were flaws in the structure and updating of the system, which can be a complication in the moment of data collection. In addition, the factors age and time elapsed after graduation usually become barriers to the acceptance of new methods. In this study, 50% of respondents had not been trained to work with the system. Thus, it is important to train these professionals to adapt to computer systems. However, factors that favor the installation of computerization in the sectors were mentioned, including the streamlining of care provision, followed by consistency of information, with emphasis to the importance of innovating with quality. Thus, the observed data showed that computerization of health data is of fundamental importance in various sectors for the comprehensive functioning of the care process, as it provides agility, data coherence, ease of communication within the health team, and access to health care patient data, and in first place, patient safety in the care received. However, failures in the system may lead to several problems, such as loss of patient data. Thus further research and discussion about this subject is necessary.

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