

A ENFERMAGEM NAS UNIDADES DE TERAPIA INTENSIVA: O APARATO TECNOLÓGICO *VERSUS* A HUMANIZAÇÃO DA ASSISTÊNCIA

ENFERMERÍA EN UNIDADES DE CUIDADOS INTENSIVOS: EL APARATO TECNOLÓGICO FRENTE A LA HUMANIZACIÓN DE LA ASISTENCIA

NURSING IN INTENSIVE CARE UNITS: THE TECHNOLOGICAL APPARATUS *VERSUS* CARE HUMANIZATION

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RESUMO

Objetivo: conhecer a percepção dos profissionais de enfermagem de unidade de terapia intensiva sobre as peculiaridades do avanço tecnológico. **Método:** trata-se de estudo de abordagem qualitativa. Foi realizado na unidade de terapia intensiva de hospital de grande porte de capital brasileira. A entrevista aberta foi utilizada como instrumento de coleta de dados. A população foi constituída por enfermeiros e técnicos de enfermagem que atuam neste setor. A amostra foi definida pelo critério da saturação, alcançada na 19ª entrevista. Os dados foram tratados conforme critérios da análise de conteúdo. **Resultados:** seis categorias emergiram à análise das entrevistas. Foram estas: A dinâmica da UTI como consequência da evolução do aparato tecnológico; as limitações do aparato tecnológico disponível; as vantagens do aparato tecnológico; A relação entre o cuidado e o aparato tecnológico; as dificuldades relacionadas ao domínio do aparato tecnológico e as dificuldades relacionadas ao prontuário informatizado. **Conclusão:** o cuidado deve ser assessorado por equipamentos, mas conduzido por pessoas. Além disso, o obsoleto é sentido como desvantagem: os profissionais reivindicam melhorias em detrimento do tradicional, na busca não só da qualidade da assistência, mas também do bem-estar dos profissionais. Pode-se harmonizar humanização do cuidado à evolução da tecnologia e da ciência.

Descritores: Unidade de terapia intensiva; Enfermagem; Tecnologia; Pesquisa qualitativa.

ABSTRACT

Objective: To know the healthcare professionals' perception on the peculiarities of technological advancement in intensive care unit. **Method:** A qualitative study carried out at the intensive care unit of a large hospital of Brazilian capital. The open interview was used as data collection instrument. The population consisted of nurses and nursing technicians working at that ICU. The sample was defined by saturation criteria, which was achieved with 19 interviews. The data were processed by content analysis. **Results:** Six categories emerged from the analysis: The ICU dynamics as a consequence of the evolution of technological apparatus; the limitations of the technological apparatus; the advantages of the technological apparatus; the relation between care and technological apparatus; the difficulties related to the field of technological apparatus, and the difficulties related to computerized medical records. **Conclusion:** Care should be aided by equipment, but directed by people. In addition, the obsolete is recognized as a disadvantage: professionals claim improvements over the tradition, seeking not only care quality, but also the personnel's welfare. It is possible to pair care humanization with the evolution of technology and science.

Descriptors: Intensive care unit; Nursing; Technology; Qualitative research.

RESUMEN

Objetivo: Conocer la percepción de los profesionales de enfermería de la unidad de cuidados intensivos sobre las peculiaridades de los avances tecnológicos. **Método:** se trata de un estudio cualitativo. Fue realizado en la unidad de cuidados intensivos de un hospital de grande porte de capital brasileña. Se utilizó la entrevista abierta como instrumento de obtención de datos. La población estuvo constituida por enfermeros y técnicos de enfermería que trabajan en este sector. La muestra fue definida por el criterio de saturación, alcanzado con 19 entrevistas. Los datos fueron tratados de acuerdo con criterios de análisis de contenido. **Resultados:** Seis categorías surgieron del análisis de las entrevistas. Estas fueron: La dinámica de la UCI como resultado de la evolución del aparato tecnológico; Las limitaciones del aparato tecnológico; Las ventajas del aparato tecnológico; La relación entre la atención y el aparato tecnológico; Las dificultades relacionadas con el campo de los aparatos tecnológicos y las dificultades relacionadas con la historia clínica informatizada. **Conclusión:** el cuidado debe ser asesorado por equipamientos, pero operado por personas. Además, obsoleto es visto como una desventaja: los profesionales demandan mejoras con respecto al tradicional, buscando no sólo la calidad de la asistencia, sino también el bienestar de los profesionales. Se puede armonizar la humanización del cuidado con la evolución de la tecnología y la ciencia.

Descriptores: Unidades de cuidados intensivos; Enfermería; Tecnología; Investigación cualitativa.

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INTRODUCTION

The first intensive care units (ICU) were installed in Brazil in the 1970, due to the need for scientific knowledge-related technologies for the care of high-complexity patients⁽¹⁾. The ICU is characterized as an innovation scenario and specialized health care to patients considered high complexity, requiring a professional profile that harmonize high technology assistance⁽²⁾. It can also be considered as a tense traumatizing and aggressive environment, which may generate stress in the health team⁽³⁾.

In hospitals, the ICU is an environment of innovation, and the specialized service imposes the need for constant scientific development of the professionals that work at that area, in order to harmonise the high-tech care⁽²⁾. It is a sector with its own physical structure and dynamics, which relate intense technology and streamlined practice to the need for multidisciplinary activities⁽⁴⁾. This structure includes life-support machines, mechanical respirators and complex monitors, among others, which set it apart from other units. The care provided in ICU requires skills, dexterity and skills, especially in the interaction between humans and machines.

Despite the constant and decisive use of technologies, this term has been used wrongly, because it has been assigned in daily practice only regarding the machine or the product. Thus, technologies should not be seen under a reductionist look, associated only to equipment⁽⁵⁾. The professional assists the individual, often using instruments and machines that aid and instrumentalize him/her in the care quality.

Currently, the ICU is a specialized environment of a hospital unit, which has peculiar characteristics, such as sector filled with state-of-the-art technology, impending emergencies and the need for agility in customer service, in addition to the performance of a multidisciplinary team. Therefore, it requires certain skills from the professional, in order to meet the requirements of the care, marked by the presence of technological apparatuses and teamworking. Such skills affect the nursing professionals' behaviors, reverberating in the quality of the provided assistance⁽⁶⁾.

The literature suggests that the humanization and health broke up due to the importance given to technological devices, widely spread in recent years, such as special displays and mechanical respirators, which meant health

advances, however, have promoted themselves as a distance factor among professionals, family and client⁽⁷⁾.

However, the dichotomy humanization *versus* technology represents a misconception in the care to humans, because they are not exclusive. This misconception was considered the problem of this research. In this way, it is necessary to understand how the caregivers perceive the technological advancement in intensive care units regarding the individuals that receive the care.

Thus, this work had the objective of knowing the perception of nursing professionals from the intensive care unit on the peculiarities of technological advancement. This study expects to contribute with reflections that guide the professionals in their practice, bringing together technology and subjectivity.

METHODS

The qualitative approach was chosen for this study. Qualitative approaches are those able to incorporate the meaning and intention issues as inherent to acts, relations, and social structures, being the latest ones involved in both their advent, as their transformation, representing significant human constructions⁽⁸⁾.

The study was conducted in a large hospital located in a Brazilian capital. The hospital was opened in 1947, being considered one of the leading healthcare institutions in the country, which employs highly specialized services and intensive treatment. In addition, it provides comprehensive, outpatient and hospitalization medical assistance. It attends the supplementary health providers, private clients and patients of the Unified Health System (UHS), which represent the health care service provided by agreement among the three spheres of government prevailing in the country: federal, state and municipal levels.

The Intensive Care Unit, scenario of this study, has 40 beds divided into three spaces. The occupancy rate varies between 88 to 98% and the average stay, from two to four days. At the unit, there are 150 nursing professionals, being 28 nurses and 122 nursing technicians.

The subjects of the research were nursing professionals (nurses and nursing technicians) who work at this sector. The inclusion criteria were professionals that provided direct assistance to patient and that agreed to

participate in the research. Since this is a qualitative research, there was no previous definition of the number of interviewees and the number has been defined in the course of the research according to the data saturation criterion, achieved with 19 interview. Saturation means the phenomenon that occurs when, after certain number of interviews, the interviewer begins to hear, from new subjects, reports very similar to those previously heard, occurring shortage of new ideas⁽⁹⁾.

The open interview was used as a data collection instrument. It was formed by the following statement: "Dear colleague, could you tell me about your relationship with the technological tools in ICU?" The interviews were recorded and fully transcribed.

The data were treated according to the content analysis criteria. The starting point of the content analysis is the message, which may be verbal, gestural, figurative, silent, documentary or directly caused. It expresses a meaning and a sense⁽¹⁰⁾. In this study, we sought to analyze the verbal message.

In the content analysis, the data obtained in the collection do not speak for themselves. They require a processing called categorization, which aims to give directions to the messages contained in these data⁽¹¹⁾.

The content analysis assumes some chronological steps aimed at ensuring the accuracy of the analysis: pre-analysis, exploitation of material or coding, processing of results through inference and interpretation⁽¹²⁾. The data categorization is used, which represents the division of the components of the analyzed speeches into categories⁽¹²⁾. Later, the data were categorized, which facilitates the process of interpretation.

The research was reviewed and approved by the Research Ethics National Committee (CONEP) - Opinion #12936313.0.00005125, in accordance with Resolution #466/12 of the National Health Council on researches involving humans. The completion of the study was also approved by the persons responsible for the discipline Workshop of Theses of the Master's Course in Bioethics from the University Del Museo Social Argentino. Furthermore, the subjects who had agreed to participate in the research signed the Informed Consent Form (ICF). All the information were clarified with respect to the objectives of the study and the guarantee to

anonymity of the respondents and the institution that served as the setting of this study.

RESULTS AND DISCUSSION

After exhaustive reading of the interviews, eleven categories were initially established. After re-reading, these were synthesized and reduced to six categories:

Category 1: The ICU dynamics as a consequence of the evolution of the technological apparatus

The dynamics of the ICU fits as a consequence of the development of technological tools, featuring "a one-way street". The apparatus in intensive care and, not only these, but also prostheses, orthoses, exoskeletons, machines and equipment for diagnosis and interventions, surgical robots, single and integrated national electronic health record for international access are examples of results of years of study and work of thousands of technicians and scientists⁽¹³⁾. However, the context of health care under influences of changes produced in the context of technology has raised several questions about the benefits, the risks and the relationships built between professionals, patients and family and the use of machines as instruments necessary to the service⁽¹⁴⁾. Interviewees below refer to technological advancement as fast and beneficial to the patient. The statements rescue the issue that technologies should help promote life and rescue human beings, facilitating professional routines without, however, replacing him/her:

"Technological advancement walks in a daunting speed. And while this advance is fast and constant, in a way it also increases patient safety." (E 4)

"I think the progress is visible, the material we use for work has evolved a lot, contributing to the patient's treatment and also for our work". (E 12)

"I think so, people research a lot so that, each day, they can provide a better quality service, seeking to diagnose disease faster. So, I think through the researches, this technological knowledge evolves every day." (E15)

"It has advanced a lot thanks to God, the materials, the monitoring of our patients has improved a lot." (E 19)

"The equipment that are used to assist in patient care are evolving every day, every week, every month we have something new." (E 11)

"I think that every day it (the technology) has been contributing to the patient's diagnosis and stabilization." (E 15)

Category 2: The limitations of the available technological apparatus

In contrast to previous statements, the limitations of technological tools represented a category of this study. This contradiction is interesting: the same group that voices working under technological developments state that their equipment arsenal, or at least part of it, is obsolete.

"I think it needs to be improved, you know, there's a lot of things that need to be improved, the beds, for example, even today, have crank." (E 2)

"I think there should be a bit more, like the beds, they should be all electronic, not with cranks as we still have. In some other hospitals, all beds have remote control, the mattress is different, you don't need to be putting the mattress. So I think some things could improve to help in our work process." (E6)

"I think in terms of technology, not that much (...). Because I don't think there's much of computerized stuff for the professional." (E 9)

Research on technology in nursing care pointed out that, with regard to equipment and technical devices, the presence of obsolete equipment and materials turn out to demand greater efforts (physical and mental) of the worker and a decrease in his/her work pace⁽¹⁵⁾. By analogy, the stress and the physical wear are related to the limitation of the technological apparatus at the health sector. This issue can bring major repercussions to nursing professionals. In integrative review about quality of life in the nursing work, the authors⁽¹⁶⁾ refer to the little concern of the service to protect, promote and maintain its employees' health. Thus, the hospital whose mission is to treat and cure people, may be favoring the illness of those who work in it.

Category 3: The advantages of the technological apparatus

The advantages of the technological apparatus, unveiled in category three, are recent health research themes. One cannot deny that the high-complexity hospitals, not only in their intensive care units, have equipment that facilitate their dynamics. Nursing professionals, in not-so-far times, controlled the serum drip with

watches and pulleys, measured central venous pressure in water columns or also verified the arterial pressure with the outdated pipes of mercury.

"Today we already have beds that make change of decubitus, tapotage in the patient. So the technology lessens my physical." (E 4)

"Because, before we measured the CVP on the ruler, not now, we turn the tree way and you can measure it (...). You can work with more security." (E 10)

"Every day there are new researches to improve patient care, seeking to diagnose disease faster. Then, through research, technological knowledge evolves more and more. (...). I think that the technology adds knowledge and helps you work better." (E15)

"I think the technology assists, streamlines our work. Today without the technology t would be more difficult because it allows us to do other things, you can write more, you can observe more." (E 6)

In a qualitative study on technique, technology and humanization in nursing, "technological language observation" emerged as category, as a requirement for the assessment and care of people with respect to the interface with the machinery⁽¹⁷⁾. This same study connects the subjectivity and objectivity, translated in interaction, dialogue, humanistic principles, surveillance, knowledge and finally, field of machinery.

In integrative review that aimed to trace the scientific literature on the influence of technological innovation in the workloads of healthcare professionals⁽¹⁸⁾, the authors inferred that, for nurses, technologies that contribute to greater proximity to the users generate satisfaction, easing the wear. The same work points out that the availability of modern equipment reduce workloads.

Category 4: The relation between care and the technological apparatus

The relation between care and technological apparatus emerged as a category. Even in the middle of the era of automation and control, the humanistic aspects of care appear tied to the development of science.

"I can tell you, even though there comes a very advanced mechanism, we will always need human strength, human attention, it doesn't matter if you have a high-tech display if you don't get up and verify the reason it is alarming. (E 2)

“Technology is important but it does not delete the nurse or nursing technician because it often needs him to be used.” (E 5)

“Technology comes to sum (...), not to replace anything, everything that comes is welcome.” (E 18)

“Even though technology is efficient, state of the art, it will never replace the human being because it will be showing data, some devices suffer interferences and then, who is going to say if it's right or wrong, is the human contact, is the technician.” (E 10)

Technological innovations are realities in nursing practice, and there is the challenge to keep up with the technological development without neglecting the ethical and humanitarian aspects intrinsic to the profession⁽¹⁹⁾, i.e., technological advancement evolves towards health, contributing directly and indirectly to the care quality, efficacy, effectiveness and safety.

The nursing care at the intensive care unit is intended to the treatment of people in serious condition, requiring complex care and continuous monitoring and that work increasingly with technological assistance. This question allows professionals: more control of risk situations, speed in decision-making and agility in the performance of actions in critical situations. The use of technologies in the health area needs to be expanded, not meaning, however, only the incorporation of equipment in the care⁽²⁰⁾.

Category 5: The difficulties related to the technological apparatus

A significant number of interviewees mentioned the difficulties related to the handling of apparatus, including the lack of adequate training. This question suggests the difficulties of incorporation of new technologies:

“It's a benefit, although they often do not provide adequate training to employees. Sometimes, they bring new equipment and we have to learn on a daily basis, alone.” (E 9)

“We have not received training when there comes a new equipment: a new respirator arrives, all you know is to silence it, and that's it. A new monitor, you will discover how to manipulate it often with your colleague.” (E 17)

“What is the difficulty that I see today? Trainings with equipment are insufficient, they put the equipment first to then provide the training. So there's a difficulty in this, I think first I should get trained and then use the equipment.” (E 16)

Regarding the difficulties intrinsic to the reality of the Brazilian nursing, the literature posits that the advantages thrown up with the technological developments justify the search for strategies to overcome them⁽¹⁹⁾. Professional preparation, through, for example, permanent education represents the cornerstone of the process of interaction with the technology. In health team, the permanent education highlights interdisciplinarity, focuses on the practice as a source of knowledge, and refers to the professional to work actively in the educational process⁽²¹⁾. Thus, the difficulties related to the handling of the apparatus are a question that deserves to be rethought.

Category 6: The difficulties related to computerized medical records

The difficulties related to the computerized record emerged in this study, keeping in mind that currently, state-of-the-art hospitals make use of this resource in patient care⁽²²⁾.

“When we started using the computerized medical records, it was a little strange at first, all computerized. But I think everything that is for the better has to be used, I think it's great, you have to evolve.” (E 10)

“I think the technician-patient relationship became distant. Because the time I have for patient, I have to split it with report, with computer, things that prevent me from getting in front of the patient as it was before. So, it cooled a little, improved the technical part, but the personal part, the relationship part, I think it cooled a little.” (E 11)

“When the computerized system was inserted here, everyone got traumatized, everyone was so shocked. Nobody was used to it, not today, I think it helps a lot. However, we got a little more distant from the patient because we have to request medication, evolve. Previously, since everything was manual, you were closer to the patient.” (E 16)

The implementation of electronic charts offers many advantages. Their wide use sets up a great step toward improving the quality of health assistance to people, either by generating facility, agility and mostly professional and safety patients⁽²³⁾. Adapting to this new form of record becomes necessary, since it is a current trend. Also in literature analysis⁽²⁴⁾ on the deployment of the electronic health record in Brazil, the authors noted that this tool has been implemented in various segments of the health services, with a

prevalence of positive aspects over the negative ones in the process of deployment.

FINAL THOUGHTS

The six categories set out, at the same time they point to the rapid evolution of technology and the advantages of its use in the hospital routine, they also suggest some difficulty in its follow-up. However, the intensive care professionals and other more complex units necessarily need to adapt to the reality of a new era, with ultra modern equipments and electronic medical records.

This work supports the idea that care should be advised by equipment, but conducted by caregivers: "people caring for people". In addition, there is another side: what is obsolete is felt as a disadvantage, that is, professionals claim improvements at the expense of tradition, in the search for not only the care quality, but also the professionals' well-being. One can harmonize care humanization with the development of technology and science.

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