



NURSES PERCEPTIONS ABOUT THE USE OF EQUIPMENT IN THE INTENSIVE CARE UNIT

PERCEPÇÕES DE ENFERMEIROS SOBRE O USO DE EQUIPAMENTOS EM UNIDADE DE TERAPIA INTENSIVA

PERCEPCIÓN DE LOS ENFERMEROS SOBRE EL USO DE LOS EQUIPAMIENTOS EN LA UNIDAD DE CUIDADOS INTENSIVOS

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ABSTRACT

Objective: to know the perception of intensive care nurses about the relationship between safety of care, humanity and the use of equipment in the work process. **Method:** exploratory and descriptive study, of qualitative approach, in Adult Intensive Care Unit. The study included six of the ten nurses located in the sector. Semi-structured interviews were used, individual and recorded treated by means of content analysis. The research project was approved by the Research Ethics Protocol 0003/240812. **Results:** positive and negative aspects of the use of equipments were identified. The correct handling showed dependent on previous educational experience, and preventive maintenance. The communication with the patient was critical for human assistance. **Conclusion:** to characterize and qualify the use of equipment in health is an important tool to ensure the safety and humanity of nursing care. **Descriptors:** Nursing; Intensive Care Units; Equipment.

RESUMO

Objetivo: conhecer a percepção de enfermeiros intensivistas acerca da relação entre segurança do cuidado, humanidade e o uso de equipamentos no processo de trabalho. **Método:** estudo exploratório e descritivo, de abordagem qualitativa, em Unidade de Terapia Intensiva Adulto. Participaram do estudo seis dos dez enfermeiros lotados no setor. Utilizou-se de entrevistas semiestruturadas, individuais e gravadas, tratadas por meio da análise de conteúdo. O projeto de pesquisa foi aprovado pelo Comitê de Ética em Pesquisa, Protocolo 0003/240812. **Resultados:** foram identificados aspectos positivos e negativos do uso dos equipamentos. O correto manuseio mostrou-se dependente de experiência educacional anterior e de manutenção preventiva. A comunicação com o paciente mostrou-se fundamental para uma assistência humana. **Conclusão:** caracterizar e qualificar o uso dos equipamentos em saúde é uma importante ferramenta para garantir a segurança e a humanidade da assistência de enfermagem. **Descritores:** Enfermagem; Unidades de Terapia Intensiva; Equipamento.

RESUMEN

Objetivo: conocer la percepción de los enfermeros de cuidados intensivos sobre la relación entre la seguridad de la atención, la humanidad y el uso de equipamientos en el proceso de trabajo. **Método:** estudio exploratorio y descriptivo, con enfoque cualitativo, en Unidad de Terapia Intensiva en Adultos. Participaron del estudio seis de los diez enfermeros localizados en el sector. Se utilizaron entrevistas semi-estructuradas, individuales y grabadas, tratadas por medio de análisis de contenido. El proyecto de investigación fue aprobado por el Comité de Ética e Investigación, Protocolo 0003/240812. **Resultados:** fueron identificados aspectos positivos y negativos de la utilización de los equipamientos. El manejo correcto dependía de la experiencia educativa previa, y del mantenimiento preventivo. La comunicación con el paciente se mostró fundamental para una asistencia humana. **Conclusión:** caracterizar y cualificar el uso de los equipamientos de salud es una herramienta importante para garantizar la seguridad y la humanidad de los cuidados de enfermería. **Descritores:** Enfermería; Unidades de Cuidados Intensivos; Equipamiento.

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INTRODUCTION

The health area, before simple, limited and somewhat safe, is complex, effective and potentially dangerous, due to the accumulation of knowledge and technology. Furthermore, it is perceptible that knowledge is produced fast, in an heterogeneous and unstructured manner, making Nursing to pass a difficult and constantly transition to ensure the safety and humanization of care, considering the growing *symbiotic* relationship between human cognition and informatics.¹⁻²

This demand for technology is more pronounced in Intensive Care Units (ICUs), which are critical care environments for the admission of the most serious patients and are also dependent on advanced techniques and materials necessary for the diagnosis, monitoring and therapy. Oftentimes, the equipment exceeds the monitoring of clinical signs, being necessary its use for the life support - as in the case of the mechanical ventilator. However, these units are recognized for providing care a relatively recent time, since they were initiated early in the second half of the twentieth century.³

This is a work environment that requires constant attention from nurses who are responsible, with a positive and realistic perception of themselves.⁴ It is observed that the work environment in ICUs, in the biomedical sense, is fragmented and tends to be overestimated, reflecting negatively about the human and holistic context of nursing care. And is not only so: the patients safety is also jeopardized when the confidence exacerbated in the machine becomes to overcome the human senses in the clinical judgment of the patient. This is because the comfort and saving time, enabled by the equipment, accommodate the professional.⁵

Discussions about the safety of care intensified after a publication of the *Institute of Medicine* (IOM) in Washington, a widespread internationally magazine, that estimated around 44 to 98 thousand annual deaths of Americans, as a result of errors in health. Since then, efforts to promote the safety of care were increasing. In Brazil, in 2010, the Brazilian Network of Nursing and Patient Safety (BRANETNPS) - implanted from an initiative of the Pan American Health Organization (PAHO) - in partnership with the Technical Board of the Regional Council of Nursing of São Paulo (RCONU SP) has published a booklet about the ten steps to patient safety and, among these, Safety in the Use of Technology.^{1, 6-8}

This man-machine relationship can now be considered as cultural in ICUs, because is not conceived a critical unit without the support of implements - and can also be cultural in other instances of assistance, because the technologies are increasingly developed and accessible in health services. No doubt, it will be a challenge to keep the care humane and effective and, especially safe with so many intermediaries.³⁻⁵ Therefore, the recent conviviality and increasingly intensified of nurses with the equipment in the care environment is constituted as a gap in nursing science, requiring the need for further discussions that measure and explore the impact of their use in productive relations of Nursing.

This study aims to understand the perception of intensive nurses about the relationship between safety of care, humanization and use of equipment in their work process.

METHOD

Qualitative study with an exploratory and descriptive approach. The strategy was chosen due to the nature of the subject being well elucidated in the national literature. The descriptive qualitative research observes, describes and classifies the dimensions, the variations, the importance and significance of the phenomena. Also, when the exploratory character is added, its complex nature is investigated and the other factors to which the phenomenon is related.⁹

The survey was performed in one Intensive Care Unit (Adult) of a teaching hospital, located in the Northeast region of Brazil, which has 17 beds registered in the National Registry of Health Establishments (NRHE). The sample was not previously defined, because the criterion for saturation content was used. Thus, from ten clinical nurses located in the unit, seven were randomly approached, and one was excluded for not meeting the inclusion criterion, that was to have at least six months of work in the ICU, so, the content was satisfied with six professional.

The production took place through semi-structured interviews, individual and recorded with the assistance of a equipment MP3 portable player, using a previously established itinerary to guide the main theme of the interviews. To guide the research, the survey included the following guiding question << *How intensive nurses perceive the relationship between the use of electronic*

equipment and safety and humanity of care?
>>.

The technique of Bardin was adopted, for content analysis of the interviews. The used technique involves that the analysis should observe some steps: pre-analysis - choice of analysis body; exploration of the material - which is the aggregation of data; and processing of data - which highlights the information provided by the analysis.¹⁰ The technique can be systematized in steps: fluctuating reading; definition of provisional hypotheses; determination of registration units - RU (words, phrases, news, etc.); marking of RU; definition of the meaning units (grouping of RU); thematic analysis of the RU; categorical analysis of the text; processing and presentation of the text; and discussion of results.¹⁰

The study was submitted to the Ethics Committee and Deontology in Studies and Research of the Federal University of Vale do São Francisco (ECDSR/UNIVASF), and was approved under the number 0003/240812.

The respondents were asked about the minimal risks of psychological nature and the interviews were carried out by voluntary agreement and acceptance of a Statement of Informed Consent.¹¹

RESULTS

The average age of surveyed nurses was approximately 30 years, average work time in the Intensive Care Unit of 3.08 years and mean duration of 6.4 years formed. Of the six nurses, only two had specialization course in ICU, but all had some kind of specialization.

All reported having participated in some type of training for handling equipment in the ICU, and two reported having been trained during graduation. All reported having more than one job. In addition, four stated they had witnessed some risk situation for the patient, arising from the use of ventilation equipment.

The reading and analysis of the interviews allowed the grouping of content that were repeated in the statements and culminated with the construction of three categories: *risks and benefits of using machines in the care environment; first contact with the machine and facilitator handling; and the machine and the humanization of care.*

◆ First category: Risks and benefits of the use of machines in the care environment

The respondents reported that in some instances the equipment may prove discordant data from real and even cause risks to

patients, as can be noted in the statements below:

Have had the case of the machine showing heart frequency of 180 and the patient was not with that heart frequency. (E 05)

The ventilator stopped cycling and was not giving ventilatory support to the patient, we had to change on time. (E 03)

It was a monitor that was left for maintenance and delayed. And it was a patient theoretically stable, he was discharge, and when the monitor returned, [the patient] was hypotension, bradycardia, stopped and almost we can not return this patient, then so, I think sometimes we get settled with the equipments, right? (E 01)

The nurses also brought positive aspects of using this type of equipment for care, demonstrating how optimizers the work process, since handled properly and associated with clinical knowledge:

If you know how to use as to be used - in your favor, I think everyone just has to win, staff, patient, all, because that thing is there to make our lives easier, to help quickly identify a complication. (E 01)

[...] I fully agree that these machines should be used, for the benefit of the patient, if it were created to this, then it must be used, I think it's a good alternative, I think it might not have another better but for those machines. (E 02)

It is safe if you have a good knowledge of the practice. (E 06)

The importance of the work of nurses was remembered, nevertheless, all said they felt dependent on machines to do their work, to a greater or lesser degree:

So well, this equipment is 50%, greatly facilitates our life, but the other 50% has to be the touch, to hold in the patient's, is to progress, is to talk with him, to those who interact with us, is to realize a respiratory effort when you take the blanket off him, realizing an edema, an ulcer that is emerging there in the calcaneus and nobody is looking. (E 01)

I think 70%, mainly ICU. [...] Does not exist you evaluate a patient without performing a physical exam. (E 05)

Look how I work in ICU, so I judge them, 99.9%, not in question of importance between the equipment and the patient. But the equipment today makes us much easier. (E 04)

The equipment is good, but not the principal. (E 06)

◆ Second Category: first contact with the machine and facilitator handling

The initial experience with the equipment is now remembered, sometimes not. But the times that were remembered, were

associated with feelings of apprehension. Still, it was noticeable that the greatest interaction with the equipment in the work process only occurred when admitted as a nurse in the Intensive Care Unit:

Look, I do not remember for sure, but I believe it was in academic life, right? In college, I do not remember when it was. But, it was recently that I began to have direct contact with these equipments, it was when I came to work in the ICU. (E 01)

The first time I came across with equipment I found very strange, I was scared and knew the responsibility would have to be able to handle that equipment correctly. (E 02)
I remember, it was an electrocardiograph. I did not know to do, nobody explained me, just explained that old bizu [...] nobody said it whistled, that it had problems, that the paper had a correct position to place. (E 04)

It were several experiments, as also were different the facilitators agents in the handling learning process, and there was a case in which there was not a facilitator subject. Several figures were pointed, such as: the coordinator of the sector, a teacher and co-workers:

Then, the coordinator, [...] he did with me, we divided the shift and he was guiding me with all equipments. (E 01)

Yes, it was a teacher who facilitated, even helped in the best way to understand that over time and with practice nurses would know handling the equipment. (E 02)

So, unfortunately I did not have the needed training to use those equipments right? Kinda got the knowledge living in the ICU with colleagues who have experience in the unit. (E 03)

[...] And there I did not had any training, so I had to learn doing it. Had no one. (E 05)

When asked about the first five electronic equipment that came to mind at that moment, some items appeared more frequently than others. It was observed that were the ventilator and heart monitor the most cited equipment:

Monitor, ventilator, oximeter, infusion pump, let me see.. I think in the gas-holder. (E 01)

Monitor, mechanical ventilator, [...] oximeter, the humidifier, [...] gasometer [...] infusion pump. (E 02)

Ventilator, the monitor that is always giving assistance [...] the gas-holder right, [...] the electrocardiogram equipment [...], the very important defibrillator. (E 03)

◆ Third category: the machine and humanity of care

The touch was perceived as one of the necessary factors for humanity to be

preserved when taking care of each other. In a broader way, to communicate with each other makes the human care, because is fundamental to understand itself as a welcomed and care being, as can be seen below:

And when we do that, all this care, we have to be picking up on the patient, must be talking, we have much the habit of talking to the patients, even those who are well comatose. (E01)

That has a window, a television, a DVD, a song. [...] A long-time hospital patient needs something to occupy his mind. (E 04)

The care, the touching, no nurse should miss it. (E 05)

The patient who is touched feels welcomed, he feels care. (E 06)

I think it depends on the professional [...]. Those who know less, distance themselves from the patient, cling to the equipment. (E 06)

It was also possible to notice that, from the moment it starts to interact with a machine, the nurse comes in contact with awakened feelings and they approach as how much the caregiver is also human:

Every day when I come here I'm afraid not to realize... Everyday, we think so. (E 01)

I have already felt fear, at the beginning of handling the mechanical ventilator. (E 03)

I was very uncomfortable [...], I was always wondering if it was right. (E 05)

DISCUSSION

The presence of the machine in the care environment triggers a recent relationship and also little elucidated in the literature. To measure the spent care time, for example, with the mounting of a circuit of mechanical ventilation or the operation of a continuous infusion pump, might be something to be considered in the working process. Anyway, many of the risk situations arising from the use of equipment could have been avoided with reserve machinery and preventive maintenance. The article 12, of the Ethics Code of Nursing Professionals, clearly describes that it is responsibility and obligation of the professional to ensure to the users a free care of damages resulting from incompetence, negligence and imprudence.¹²

To ignore the implications that the failure of these equipments causes, in reality, in relation to possible defects they may have - and when one is aware of it - can be interpreted as a form of negligence in care, thus, to improve the quality and safety of the patient in the use of equipment is complex and challenging, making it necessary to use methods of problem solving based on evidence

and conducting researches to elucidate the relationship machine versus professional, considering that equipment are essential in intensive care.¹³

ICUs are the places where the machines started and gained space in patient care, due to its character of monitoring, support and maintenance of vital signs. But advances are fast and costs of technologies have gradually become increasingly accessible, allowing the use of equipment in non-intensive care units.

Nurses should be prevented for the times that are coming, because as a product of this interaction, may arise adverse events - which can be understood as undesirable and avoidable occurrence of iatrogenic nature, that compromise the safety of the patient that is under the care of health professionals during the period of hospitalization.¹⁴

Importantly, in relation to adverse health care events, researchers conducted a study involving 58 hospitals in five Latin American countries, which showed that 10% of all hospitalized patients had suffered some damage due to medical care during hospitalization; that 59% of these damages were preventable; and 20% were considered serious damages, that caused disability, need for surgical intervention or death.¹⁵

It is important to make efforts to prevent the diversion of the objectives of care with quality, that permeate restoring the integrity of the subject in broad dimensions. In this context, the dependence of the nurses, in this study, reported having with the equipment in the implementation of care, showed clear and recognizes that it must be accepted as part of the work process and discussed to establish its limits.

As we observed, the equipment quickly remembered by the nurses surveyed were the mechanical ventilator and cardiac monitor, which suggests a greater viewing/manipulation of these. With quantified studies, could identify which appliances require primarily professional training of the respondents.

Is a great challenge to create an institutional culture of safe practices in an environment where this culture has not been properly established and that the occupation requires that nurses learn to handle the equipment which will deal. And it goes far beyond simply presenting the equipment, it is recommended that nurses learn to handle them so that both reach the objective of care.¹⁶

It is noteworthy that the importance of communication as enabler of the subject that

will handle the equipment, because communicating is a necessary practice for individuals to share ideas and exchange their differences in pursuit of a common goal.¹⁷ Thus, at some point in life and in varying degrees, the nurse is put in comparison with the machine in its working process. When handling the equipment, the subject starts to perceive the world around.¹⁸

One of the manifestations in the early cognitive development of humans is the mediated activity, i.e., the use of tools to perform an activity - an event accompanying the individual for the rest of their life. Therefore, the first contact with the technological equipments in health evokes an instinctive dialogue and interactive and discovery, between the human caregiver and the environment where he cares.¹⁹

Another study confirms that the nurse in charge of the management of the service or sector has the communicative role and enabler of the subject that is under his leadership⁽¹⁷⁾. So the importance of the person who teaches something goes beyond the content, implies to assist the others to think. Therefore, the handling, the practice and the interpretation of clinical signs enabled by machines in the care environment presuppose an interactional skill and an education act, that emancipates the subject, which provides guidelines and that instigates to reason.¹⁸

To ensure a safe Nursing care and human has become a challenging task, because much knowledge is produced, the technology advances rapidly and the volume of information is heterogeneous and unstructured⁽²⁾. Still, another author defend that is human, the ability to transform the everyday, seeking the quality of life and personal satisfaction.²⁰

The care has always been present in dimensions of different stages of human life, like be born, getting sick and dying. Thus, care can be understood as an active movement of promotion, maintenance and restoration of health, morals and whole of the subject.²⁰

When mentioned the Humanistic Theory of Jean Watson in another study, values were referred as reverence for life, autonomy and the possibility of choice of the individual as part of an effective human care.²¹ Moreover, detaches feelings as a product of that space of values. Thus, another connotation arises beyond existential dimension in the care, that is relational, the "I" with another and to another.²²⁻⁴

CONCLUSION

It was found that the equipments have a major influence on human care practice. This relationship is little studied, perhaps by its recent entry as a health care environment component, but it is crucial for completeness in understanding the process of nursing work in the twenty-first century. At the same time, the nurse, like all contemporary human being, is pressured by producers of goods and services systems to perform their work faster, quality and cost savings.

The presence of existing electronic equipment to facilitate the work can lead the professional to increasing amenity to delegate their attributions to the tools designed by man. In fact, the machine placed in the care foregoing responsibilities. Its correct use was dependent on a previous educational experience to show the ways to correctly interact with the equipment.

To provide knowledge to the team work is a managerial assignment, it is suggested that the knowledge about the handling of equipment, especially in Intensive Care Units, be part of the admission routes in institutions that provide health care. It is necessary the communicative skills of the nurse, becoming a pedagogical exercise.

Another finding of the research was that the professionals showed they were aware that they have some degree of dependence on the machine to execute their work but also recognized the importance of human sensory ability they possess and practice on nursing physical examination.

It is believed that the characterization and detailed handling of equipment are essential to provide a safe care environment. However, the use of equipment was not reported as completely reliable. The use of equipment in health, as the other artifacts of the same nature and present in society, have been reported as candidates for defects and malfunctions, requiring a professional able to perform an appropriate surveillance.

This study showed that besides taking care of users, the nurse needs to take care of the equipment that are under their supervision, as a fundamental element in ensuring the safety of care - almost like an extension of the subject-environment, of the the caregiver, or the careful being. So, more than ever, the professional should develop a critical and conscious posture of their final work product, which is the care provided. And for that, the human component must be remembered and

experienced in the sector, in the institution and in the world where one cares.

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