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RESEARCH

TRANSFORMATIONS IN THE AMBIENCE OF PEDIATRIC INTENSIVE CARE UNITS FROM THE PERSPECTIVE OF NURSES

TRANSFORMAÇÕES DA AMBIÊNCIA DE UNIDADES DE TERAPIA INTENSIVA PEDIÁTRICA NA PERSPECTIVA DOS ENFERMEIROS

TRANSFORMACIONES DEL AMBIENTE DE LAS UNIDADES DE CUIDADOS INTENSIVOS PEDIÁTRICOS DESDE LA PERSPECTIVA DE LOS ENFERMEROS

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ABSTRACT

Objective: to analyze the nurses' discourse about the environment of the Pediatric Intensive Care Unit (PICU) and its transformations with the presence of the family member/caregivers. **Method:** qualitative research, carried out through a questionnaire with 28 nurses from 3 (PICUs). Iramuteq software was used for data processing. For the analysis, the Descending Hierarchical Classification and the thematic analysis were carried out. **Results:** the nurses mentioned the importance of the ambience of the unit and the need for the family member to remain. However, they claim that the physical space is not appropriate for this permanence. In addition, the PICU was characterized as stressful, especially in relation to lighting, noise, temperature, and lack of spaces for rest and meals. **Conclusions:** the environment influences the care provided to children and their families in the PICU, as well as the nurses' interpersonal relationships, especially with family members. Therefore, it is essential for nurses to participate in the process of planning and building the unit, making the environment of the unit a tool that facilitates health production.

Keywords: Pediatric Nursing; Intensive Care Units; Health Facility Environment; Child, Hospitalized.

RESUMO

Objetivo: *analisar o discurso dos enfermeiros acerca da ambiência da Unidade de Terapia Intensiva Pediátrica - UTIP e suas transformações com a presença do familiar/acompanhante.* ***Método:*** *pesquisa qualitativa, realizada por meio de um questionário com 28 enfermeiros de 3 UTIPs. Foi utilizado o software Iramuteq para o processamento dos dados. Para a análise, realizaram-se a Classificação Hierárquica Descendente e a análise temática.* ***Resultados:*** *os enfermeiros mencionaram a importância da ambiência da unidade e a necessidade da permanência do familiar. Entretanto, eles afirmam que o espaço físico não é apropriado para essa permanência. Ademais, a UTIP foi caracterizada como estressante, principalmente em relação à iluminação, aos ruídos, à temperatura e à falta de espaços para descanso e refeições.* ***Conclusões:*** *a ambiência influencia na assistência prestada à criança e sua família na UTIP, assim como nas relações interpessoais dos enfermeiros, principalmente com os familiares. Por isso, é imprescindível a participação do enfermeiro no processo de planejamento e construção da unidade, tornando a ambiência da unidade uma ferramenta facilitadora de produção de saúde.*

Palavras-chave: *Enfermagem Pediátrica; Unidades de Terapia Intensiva; Ambiente de Instituições de Saúde; Criança Hospitalizada.*

RESUMEN

Objetivo: *analizar el discurso de los enfermeros sobre el ambiente de la Unidad de Cuidados Intensivos Pediátricos UCIP y sus transformaciones con la presencia del familiar/acompañante.* ***Método:*** *investigación cualitativa, realizada mediante un cuestionario con veintiocho enfermeros de tres unidades de cuidados intensivos pediátricos. Se utilizó el software Iramuteq para el procesamiento de datos. Para el análisis, se realizó la Clasificación Jerárquica Descendente y el análisis temático.* ***Resultados:*** *los enfermeros mencionaron la importancia del ambiente de la unidad y la necesidad de que el familiar permanezca allí. Sin embargo, afirman que el espacio físico no es el adecuado para esta permanencia. Además, la UCIP se caracterizó como estresante principalmente en relación con la iluminación, el ruido, la temperatura y la falta de espacios para el descanso y las comidas.* ***Conclusiones:*** *el ambiente influye en los cuidados prestados al niño y a su familia en la UCIP, así como en las relaciones interpersonales de los enfermeros, especialmente con los familiares. Por lo tanto, es esencial que el enfermero participen en el proceso de planificación y construcción de la unidad, haciendo del ambiente de la unidad una herramienta facilitadora para la salud.*

Palabras clave: *Enfermería Pediátrica; Unidades de Cuidados Intensivos; Ambiente de Instituciones de Salud; Niño Hospitalizado.*

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INTRODUCTION

The environment of the Pediatric Intensive Care Unit (PICU) can influence the care provided by professionals to children and their families. Considering the insertion of the family member/caregiver in this unit, it is believed that, over the years, changes have taken place in this environment.

The concern with the influence of the hospital environment on the patient's recovery process began with Florence Nightingale, in the 19th century. In her environmental theory, she highlighted some elements for the maintenance of a healthy environment, such as: ventilation and provision of fresh and pure air; lighting, clarity, and direct sunlight; heat, with regard to preventing patients from cooling down; cleaning, referring to the prevention of infections; noise and the need to observe silence; odors; and food.[1]

In addition, she highlighted that varieties of objects, shapes and colors also contributed positively to the patient's good mental and physical recovery during his/her hospitalization. However, to this day, these environmental elements are still not fully considered by health professionals.[1]

Florence Nightingale's thinking has a primordial influence on the professional performance of Modern Nursing, leading to reflection on professional action, especially with regard to the current ecological problem related to the binomial health and environment.[2]

With regard to current public policies, in 2003, the National Humanization Policy (*PNH, Política Nacional de Humanização*) was created, which presents as one of its guidelines the ambience, which is a method for the collective construction of health spaces, comprising the physical space, social, professional, and interpersonal relationships. This space must be related to a health project, focused on welcoming, resolute, and human care.[3]

In this sense, architecture can have a therapeutic and humanizing function in the hospital environment, as ventilation, lighting, colors, living spaces, etc. are essential to make a more welcoming environment, contributing to make it less hostile, involving the human being in a holistic way.[4] Furthermore, it is extremely necessary that nurses actively participate in the planning and construction process of health care establishment projects, since Nursing is the professional category that spends more time working within the units.

Nurses are essential in planning the physical structure of the ICU, as they have technical-scientific knowledge and skills that enable them to manage care and establish a humanized, safe, sustainable therapeutic environment with high levels of quality.[5]

This reflection on the environment should be intensified in units that serve the pediatric age group, as it is a priority to provide a stimulating and appropriate environment for the different stages of the child's growth and development, providing a more effective recovery and a less traumatic hospitalization for the child and his/her family. The issues of a PICU environment proved to be very relevant in a study related to the hospitalized child's perception of their experience in the intensive care environment. The study revealed that children want this unit to be more cheerful, with children's decor, windows to be able to see the outside, less noise and recreational activities of their preference.[6]

In this study, ambience is understood as the urban place plus all the sensations that emanate from it (thermal, light, sound and kinesthetic) combined also with the emotional and moral atmosphere produced by the subjectivities and cultures of its subjects. It is worth mentioning that, in the etymological dictionary, ambience and environment are defined as synonyms.[7]

Furthermore, the study aims to analyze the nurses' discourse about the environment of the Pediatric Intensive Care Unit (PICU) and its transformations with the presence of the family member/caregiver. This study is part of the doctoral thesis entitled "The Ambience of the Pediatric Intensive Care Unit and its Implications for Nursing".

METHOD

Qualitative research developed with 28 nurses working in the Pediatric Intensive Care Units (PICUs) of 3 public hospitals in the city of Rio de Janeiro, RJ, Brazil.

The inclusion criterion for the subjects was being a nurse working in the PICU for at least six months, since (based on the authors' experiences) from that period onwards, the professional is adapted to the unit's environment. Exclusion criteria were nurses who were on vacation, leave or service coverage in other sectors at the time of data collection.

Data collection took place from November 2020 to January 2021, through a semi-structured and self-administered questionnaire. The first part corresponded to the nurses' consideration, and the second consisted of open and closed questions referring to the study theme.

Due to the COVID-19 pandemic, the semi-structured questionnaire was organized in a model of the Google Forms platform, making it more accessible for nurses and avoiding going to and from hospitals in order to reduce exposure to the virus.

As a result, after talking to the heads of the hospitals, they got in touch with the nurses through a WhatsApp group used for work communications. They commented on the existence of the research and gave us the telephone contact of the nurses who agreed to participate. After receiving these contacts, a WhatsApp group was created for each hospital, adding potential subjects, sending a message explaining the research and making us available for any clarification.

From the data obtained by the questionnaires, a *corpus* was constituted, which was processed by the Iramuteq 7.2 software. Regarding the data provided by this software, the Descending Hierarchical Classification (DHC) was used in this study. For data analysis, thematic analysis was used, consisting of three stages: pre-analysis, exploration of the material and treatment of the data obtained and its interpretation.[8]

The pre-analysis comprised the organization of data and the constitution of the corpus after receiving the questionnaires. Then, for the exploration of the material, a floating reading was carried out for the thematic classification, seeking to find the thematic units and their respective subunits. In the interpretation stage, interpretations were established based on theoretical frameworks: characterization of the unit in child-centered care[9], Florence Nightingale's Environmental Theory[1] and Environmental Conditions of Architecture in Health Care Establishments, based on the legislation in force for ICU construction and planning.

In compliance with the ethical and legal aspects of research with human beings, the subjects signed a Free and Informed Consent Term, explaining their voluntary participation and the maintenance of anonymity. For this purpose, the initial letters of the words hospital (H) and nurses (E) were adopted, followed by a numeral, for example: (H1E2).

The study met the requirements of the resolution that provides the guidelines and regulatory standards for research involving human beings.[10] In addition, the study was approved by the Research Ethics Committee of the proposing institution by the Opinion Report No. 3,801,341 and in the 3 health institutions (co-participants) study scenarios, with the following [1]records of opinions: H2 – Opinion Report No. 3,962,885; and H3 – Opinion Report No. 3,963,014. It is worth mentioning that H1 did not have a Research Ethics Committee, and the research was authorized by the general management of the unit and by the Study Center and approved by the Research Ethics Committee of the proposing institution.

Regarding the limitation of the study, there was the period of the COVID-19 pandemic that, in part, hindered data collection, as we had limitations regarding visits to hospitals. In addition, it was not possible to reach the total number of potential nurses, since many justified their refusal to participate because they were in a period of physical and emotional overload.

RESULTS

Regarding the nurses' characterization data, we have that: 23 (82%) were female and 5 (18%) were male. Four (14%) were between 20 and 30 years old, 14 (50%) between 30 and 40 years old, 7 (25%) between 40 and 50 years old and 3 (11%) between 50 and 60 years old. Of the 28 participants, 21 (75%) had a *latu sensu* postgraduate course, with the majority 16 (76%) in pediatrics and neonatology.

Regarding the analysis of the *corpus*, the following quantitative data were obtained: 308 numbers of texts (answers), with 376 total number of text segments (TSs), with a retention/use rate of the *corpus* of 86.70% (326 STs of the 376). The total occurrence of single words was 8,217, with a Hapax index of 5.76%. In addition, 6 classes were generated in the Descending Hierarchical Classification (DHC).

Figure 1 shows the DHC phylogram showing the six generated classes, and their respective vocabularies (lexicon).

The highlighted words in the phylogram are based on the chi-square (chi^2) correlations performed by the software. The higher on the list and the larger the word size, the more influence on the category.

As for the six categories formed by the software, it can be seen that there are two major ramifications: one giving rise only to category 6 and the other being subdivided into two, in which one gives rise to categories 2 and 3 and the other giving rise to categories 1, 4 and 5. This formation is typical of a homogeneous *corpus*. There wasn't one category that stood out; they were equivalent, with less emphasis only on category 5. The lower percentage of category 5 was due to short answers from some nurses who answered "yes" or "no" and did not justify their answers.

For that analysis, the 20 segments with the highest score of each category were selected. Then, a floating reading was carried out for the thematic classification, emerging the thematic subunits in line with the themes of the classes, revealing two major thematic units: environmental conditions in care practice, which encompasses categories 1, 4 and 5; and context of the unit and its environmental elements, covering categories 2, 3 and 6.

[1]In this article, the expression "the nurses" is used, considering that the majority of the participants/nurses were female.

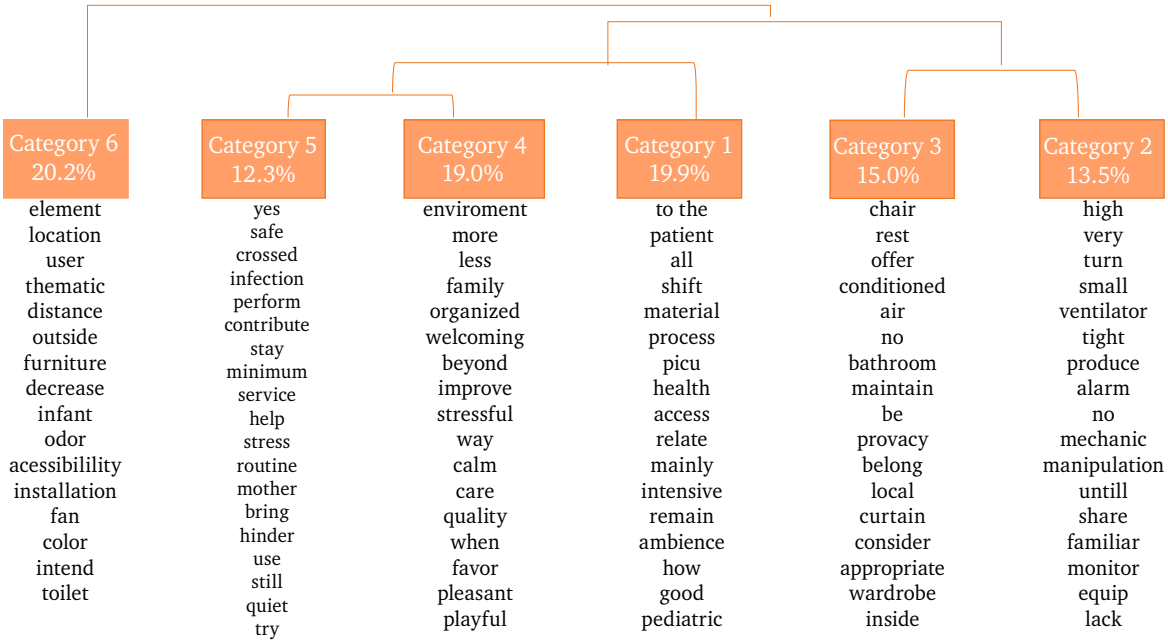

Figure 1 - Phylogram of DHC. Rio de Janeiro, RJ, Brazil, 2021 (em arquivo anexo)

Environmental conditions in care practice

In relation to this thematic unit, the conceptions of the environment, the environmental implications of care and the organization of the ICU were analyzed. The conceptions of the environment were described by the nurses of a hospital (H2):

> *It is everything that concerns the patient care environment, including physical space, the professionals involved in the care of this patient, material, and human resources.* (H2E2)

> *The ambience is related to the physical space, understood as a healthy place that should provide patients and professionals with welcoming and humanized care.* (H2E14)

The assistance provided to children and their families is influenced by environmental conditions. The organization of the unit with the identification of material resources and the minimization of stressful situations can directly facilitate the provision of care performed by the professional, providing benefits for him, for the child and for the family member.

> *The organization of the work environment influences assistance and its entire development. An organized, clean environment with well-defined flows corresponds to positive results, both for the teams and for the patients.* (H1E4)

> [...] *when the materials are organized by functionality and there is no shortage of material, the professional does not waste time "looking for things", which tires/stresses the professional less and leaves care freer from these damages.* (H2E12)

> [...] *the environment needs to be organized and identified in all its segments, so that the work flows less stressful.* (H2E14)

> [...] *the organization is fundamental for the planning and execution of the assistance. The Nursing/Health team, being aware of the space and its adjustments tend to facilitate the progress of care, and with that, bring more positive results, in less time.* (H3E1)

> [...] *every environment influences the quality of care offered by the health team, the environment needs to guarantee all the necessary inputs so that it is possible to meet all the patient's demands, but also, if it is necessary to guarantee a calm environment, that can provide comfort to the patient.* (H3E3)

Also, the organization of the unit is directly related to the extension of the physical area, the conservation and cleaning of the environment, infection control, among others. Thus, these aspects can also be a tool capable of providing greater security in child and family care.

> [...] *because a large ICU improves care, circulation, and risk of infection.* (H2E8)

> [...] a well-planned unit helps to avoid cross-infection, in the privacy of the child and caregiver, in the best distribution of all equipment used in care. (H3E6)

On the other hand, a nurse highlighted that an inadequate physical space could harm the organization of the unit, directly interfering with the care of the child and his/her family:

> [...] *when there is no minimum physical space, the organization of the environment becomes very difficult. That's what we currently live, we don't have space between the beds and what little there is, we still have to organize all the equipment that the child needs and the family's armchair.* (H2E7)

Distinct aspects related to the PICU environment, such as the existence of windows overlooking the outside, decoration, lighting, ventilation, distribution of beds, location of the Nursing station, among others, can contribute in a favorable way to Nursing care for children and their family.

> *The clear and thematic PICU environment favors a playful way, the window makes the environment clearer and gives the perception of day and night, space favors locomotion and distance from the beds, the central Nursing station favors the visualization of all beds.* (H1E5)

> *When we have an organized, air-conditioned, silent, and illuminated environment, we are able to focus and offer differentiated and quality assistance.* (H1E6)

> *Lighting, painting the walls, decoration, can collaborate by making the environment more pleasant and attractive, science also bringing greater comfort to families.* (H2E3)

> *Ventilation, physical space, playful environment, measures that can favor the well-being of the patient in general, making the environment less oppressive.* (H3E3)

On the other hand, the nurses highlighted that the PICU environment is noisy, the physical space is not adequate and that, although the unit has windows, they are covered with insulfilm, interfering with the comfort of the child:

> *The windows do not have a view to the outside and are covered by insulfilm, (which helps to protect materials and medications, but leaves a gap in relation to the comfort and well-being of the patient).* (H1E2)

> *The ICU is an environment surrounded by alarms, contributing to a noisy environment. The physical space becomes inadequate, as it has the caregiver's chair next to the bed, composing the bed, plus the caregiver's chair, more equipment needed for assistance.* (H2E14)

When it comes to the environment with regard to the permanence of the family member/caregiver, the nurses of the three hospitals mentioned that this permanence is beneficial for the child. A nurse also highlighted that the family member participated in childcare:

> *Yes, the child is calmer and safer.* (H1E7)

> *Permanence of the caregiver for 24 hours and a place next to the bed for the caregiver to rest and participate in all stages of the health-disease process.* (H2E14)

> *Yes, the child and the mother feel much safer, the service is more humanized.* (H3E4)

However, the nurses reported that the physical space is not always adequate for this practice, highlighting that the physical environment of the PICU does not favor the permanence of the family member/caregiver, especially in prolonged hospitalizations. In addition, they point out that the space destined to the care of the child reduced with the entry and stay of the family member in the unit:

> [...] *However, despite having an architecture that facilitates the work of the team, the physical environment of the PICU sometimes makes it difficult for family members to access the child's bed, as well as their stay for longer periods of time.* (H1E2)

> [...] *the permanence of the family member reduced the space for access to the patient.* (H2E6)

Unit context and environmental elements

In this thematic unit, the physical structure of the PICU and its repercussions, the environmental conditions of the unit and the elements of the environment that can facilitate or hinder the assistance provided by Nursing professionals to children and their families were addressed.

The nurses from H2 mentioned some questions about the physical structure of the unit. Among them, the multi-parameter monitor used by the child, located on a high shelf; narrow spacing between beds; non-centralized Nursing station, interfering with the visibility of all beds; and inadequate lighting, generating reflection on the monitors, which impairs the vision and recording of parameters.

> [...] *Nursing station with impaired visibility for beds 4 and 5, very high monitor shelves, making access and manipulation*

> *difficult..., generating a reflection on the monitors, cramped physical space to pass to the stretcher between the beds...* (H2E1)

> [...] *the physical space is not favorable, the space between the beds is narrow, the monitors are placed on very high furniture, making manipulation difficult...* (H2E4)

> [...] *we often have to adapt to the equipment... sockets with irregular inputs, too high a monitor layout, light reflection interferes with the reading of parameters...* (H2E9)

The lack of control of lighting at the bedside, the temperature of the environment and the noise generated by the equipment and the team were also mentioned by the nurses as elements that interfere in the performance of procedures, in the sleep and rest of the child, the family and the team:

> *The control of bedside lighting is limited, and sometimes makes it difficult to perform procedures or bothers the pediatric patient, the equipment has loud audible alarms, which also causes discomfort to patients.* (H1E2)

> [...] *a lot of noise from alarms from monitors and pumps, shared lighting between beds...* (H2E1)

> *Excessive noise, both from the equipment and the team, interferes with the sleep and rest of children, caregivers, and staff, the temperature is fixed in the thermostat and cannot be changed, generating very cold...* (H3E2)

On the other hand, the nurses mentioned the positive aspects of the units, such as the environment being air-conditioned, making it possible to adjust the temperature according to the sector's needs; and reduction of lighting in a period of the day, favoring sleep and rest:

> [...] *the environment is air-conditioned, we have lighting per bed, with the possibility of reducing this lighting when necessary.* (H1E7)

> *We always turn off the lights after lunch, to make it possible for the children to take a nap. The air conditioning usually has its temperature adjusted during the shower...* (H2E12)

The nurses highlighted that the PICU environment does not offer comfort, privacy, or well-being for the team, evidencing the lack of an adequate place for rest, meals and the number of chairs proportional to the number of professionals on the scale. Despite this, a nurse mentioned the existence of air conditioning as an element of comfort.

> *The ICU environment offers some comfort, such as air conditioning for example, but there are often no chairs to sit on, there is no pantry for meals, the rest space is not sealed off from noise...* (H2E12)

> [...] *we don't have privacy, most of the time, the voice of Nursing has no weight, our resting place, when it exists, is shared with several other things: storage, closets, a single bathroom for everyone, the manager's room Nursing, etc...* (H3E6)

Some elements were classified by the nurses as facilitating or hindering assistance to children and their families. Based on this, a table (Table 1) was created to better visualize the results. It is worth noting that, for the elaboration of this table, the 20 segments of category 6 with the highest scores were used, that is, the table does not cover, in its entirety, the responses of the 28 nurses participating in the study.

Table 1 - Elements of the environment that can facilitate or hinder Nursing care for children in the PICU according to the participating nurses. Rio de Janeiro, RJ, Brazil, 2021

Elements	Facilitates	Hinders	Total
Lighting	14	5	19
noises	0	12	12
Temperature	10	5	15
Physical space	9	6	15
Distance between beds	5	8	13
Colors	16	4	20
Children's themed decor	15	5	20
Space for personal objects	10	3	13
Location of the Nursing station	14	5	19
User accessibility	12	4	16
User security	11	3	14
Window overlooking the outside	14	4	18
Ventilation	13	3	16
Odors	1	10	11
Furniture	10	3	13
Equipment	11	6	17
Sanitary facilities	9	5	14

Fonte: Autora, 2021

DISCUSSION

For the nurses, the design of the environment involved, mainly, the physical space, which is a place that should promote a welcoming and pleasant care that meets the child and his/her family. In addition, this space also

included the structure, technological and human resources, as well as interpersonal relationships with a view to health promotion.

The National Humanization Policy (*PNH*) points out that the discussion of physical space can be used as something that brings people together, enabling the creation of collective spaces for the discussion of architectural projects and interventions in the ambience, interfering in the physical space beyond prescriptive architecture.[11]

Florence Nightingale mentioned that the patient's recovery is closely related to the environment in which he/she finds himself/herself. This environment encompasses the physical, social, and psychological components, which need to be interrelated.[1] The organization of the unit is of paramount importance for the assistance provided by professionals, especially when it comes to supplies, which must be stored in an easily accessible place. access and identification. This approach facilitates the pediatric intensive care professional, who almost always deals with the unexpected due to the severity of hospitalized children, which is why he/she must think and act quickly.

The issue of infection prevention related to the extension of the physical area was addressed by nurses from hospitals H2 and H3. Florence Nightingale establishes that the spacing between the beds could not allow the stagnation of air, being possible to carry out the movement of people for the concomitant execution of procedures. The suggested measurements were 4.5 meters for the right foot and 45.30 cubic meters between beds, with 3 to 3.5 meters between opposite beds.[2]

However, the current norm recommends a minimum area of 9 square meters per PICU bed, with at least 1 meter between beds and walls — except for the head of 2 meters between beds and the foot of the bed. If the unit opts for individual rooms and not for a collective treatment area, the minimum area becomes 10 square meters.[12] Therefore, these rules must be respected, providing comfort and practicality to users and workers, also helping to prevent infections.

Florence Nightingale prioritizes the issue of hygiene and highlights five essential components for optimal healing: pure air, pure water, sanitation, cleanliness, and light. All these components are vital for the prevention of nosocomial infection. The same author emphasizes that all utensils used in the assistance must be made of easy-to--clean material, and that the choice of material for covering the constructive elements (floors, walls, ceiling) must be waterproof, washable, and quick-drying materials.[1,2]

This orientation is still used today in health care establishments, recommending that the walls, floor, and ceiling of an ICU should be coated with smooth material, resistant to cleaning and the use of disinfectants, abrasives, and impacts.[12]

Regarding the Nursing station, Florence Nightingale emphasizes that the place should be in a position where it is possible to have a panoramic and privileged view of all spaces, with furniture for rest and provision of a place to store and control materials used in the procedures.[1]

In the current legislation, the Nursing station of a PICU must be centralized, at least one for every 12 beds and provide a comfortable area, of sufficient size to accommodate all the functions of the work team, with minimum dimensions of 6 square meters.[12]

Regarding natural lighting and views to the outside, it was highlighted that the three units had windows, but not all provided views to the outside, but some were positioned so that all children, regardless of the bed they were hospitalized, could contemplate the external view. In her environmentalist theory, Florence Nightingale highlights the need for sunlight to enter, stressing that, without sunlight, the body and mind degenerate, also pointing out that where there is sun, there is reflection. In this way, the patient's bed must be positioned so that he has a view of the window.[1]

Therefore, the controlled inclusion of natural lighting with an external view is recommended, which is an important aspect of sensory and perceptual orientation to the patient. In order not to disturb the patient lying down, indirect light is suggested. The recommended lighting level for a PICU is 100 to 200 lux - general and 150 to 300 lux - bed.[12]

Controlling the use of light and its intensity must be taken into account when designing hospital environments, since lighting should not be treated only as a visual resource, but also as a therapeutic one, as it is capable of providing a psychological sensation from the point from a chronological (circadian cycle) and climatic point of view, causing a reduction in the length of hospital stay.[13]

Another aspect addressed by the nurses/subjects was the decoration of the units, contributing to a playful environment. In terms of children's consideration, the three units studied lacked more colors and decorative elements. The concern with the color and decoration of the environment is also present in Florence's works. The author considers that the environment must have a variety of shapes and colors and that it must not be deprived of flowers.[1]

A study carried out with schoolchildren revealed that they would like the PICU to be more colorful and decorated with childish and abstract motifs. The environment with children's considerations becomes relevant when it is considered as a place of stimulation of the child and

the interaction between child, family, and team, strengthening care centered on the child and his/her family.[6,9]

Color is an essential item in the external or internal architectural composition. In the internal area, color acts directly and intensely on people, which is influenced by the age group, psychological structure, and cultural conditions of the individual. In the ICU, the colors of the walls should provide rest and a peaceful environment.[12]

The issue of noise was also addressed by nurses as an element that interferes with the quality of care. Florence Nightingale points to the need to observe silence, since intermittent or sudden and high-pitched noise affects the patient more than continuous noise. In addition, studies are unanimous in stating that the noise identified in the units exceeds the recommendations of national (35dBA to 45dBA) and international bodies (30dBA to 40dBA), and that the highest levels were detected during the day. It is also stated that the loudest noise in the units comes from health professionals, followed by alarms from the equipment used.[1,14]

This exposure to high levels of noise leaves nurses in critical care units susceptible to having their productivity affected, as such noise influences concentration and performance at work, and may even reduce adequate communication between the team. In addition, noise may be responsible for higher levels of stress, emotional exhaustion, and changes in cognitive functions, leading to anxiety and neurosis complaints.[15]

It is recommended to use walls and floors that absorb sound waves, since this element also interferes with the sleep and rest of hospitalized children, a fact found in a study that highlights those children wished the unit had less noise and was less clear, since these factors impair sleep and rest.[6,12]

The presence of parents in the PICU is essential for the maintenance of the child's social bonds, improving recovery and increasing the child's adherence to procedures and medications. In addition, the participation of family members in childcare at the PICU alleviates the family member's suffering during the child's hospitalization.[14,16,17]

The suitability of the unit for the care and permanence of the family meets the characteristics of the unit in the care centered on the child and his family, which is characterized by being a unit with flexible organization and functioning, with a view to favoring the performance of the team and of the family and should have a place of recreation and coexistence between family members, children, and staff.[9]

Intensive care units are caractherized by being highly complex and decorated with technological equipment capable of supplementing some vital and organic functions, with the presence of a multidisciplinary team interspersed and connected for the continuous monitoring of the patient.[18]

With regard to ventilation and air quality, Florence Nightingale emphasizes the need for pure and fresh air, windows always open and attention to the origin of ventilation in the environment when designing a unit.[2] Despite Florence Nightingale's studies and guidelines on keeping windows open allowing the entry of fresh air, which is a source of life, current legislation does not recommend natural ventilation in environments classified as critical, as is the case of the PICU. In this case, it is recommended to use artificial conditioning systems, with temperature control, which must be individually adjusted, with a variation between 21º C and 24º C and relative humidity maintained between 40% and 60%.[12]

In addition, the lack of convenience for professionals leads to frustration with the workplace, which can cause moments of stress, leaving the professional vulnerable, with a drop in the ability to think, remember and act, in addition to a drop in the system's response capacity. immunological.[19]

Based on Table 1, it is emphasized that the same element of the environment can facilitate or hinder assistance. This happens because each individual uses their own experiences to classify these elements, corroborating what is described in the literature: comfort is a subjective concept. Comfort is a holistic, subjective, and multidimensional concept, which is influenced by physical, environmental, social, and psycho-spiritual contexts, resulting from the interactions that the individual establishes with himself/herself, with those around him/her and with the coping process of illness and care in health.[20]

FINAL CONSIDERATIONS

Despite some transformations, such as the emergence of Intensive Care Units and the permanence of family members in these units, the Nursing team must maintain Florence Nightingale's concern regarding the influence of the environment on the health-disease process, promoting an adequate and welcoming ambiance for the care of the child and his/her family.

It is worth noting that elements such as lighting, noise, colors and varieties of objects, location of Nursing stations and odors follow Florence Nightingale's assumptions to the present day. However, elements such as ventilation, spacing between beds and furniture were adapted to fit the current structure of the PICU.

The healthcare team, with emphasis on Nursing, must be attentive to the adequacy of the PICU environment, establishing care centered on the child and their family as a goal, meeting the guidelines of the National Humanization Policy and meeting the current norms for the planning and construction of health facilities.

In addition, this study contributes to giving visibility to the crucial role of nurses in discussions about planning care spaces, since, among all healthcare professionals, this is the category that most remains and uses the spaces of the unit, which gives a different look at the issues addressed in this study.

Also, this research will serve as a subsidy for new configurations of PICU architectural projects, thus facilitating the implementation of the child-centered and family-centered approach. Still, it can provide a critical reflection of undergraduate and graduate students on the participation of nurses in the planning of the PICU environment, designing new ideas to promote care centered on children and their families.

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