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The nursing professional and creation of values in health

In Brazil and in the world, Health is “sick”: rising costs and poor quality have characterized health services in many countries. Despite their high and rising costs, a deterioration in the quality of services and a large mass of unassisted people are seen. The public services are not able to adequately serve the Brazilian population, which totaled about 208 million people in 2015.\(^1\)

This scenario highlights the pressing need for innovative solutions involving every aspect of health management - its delivery to the patient, its technology, and business model. The central contradiction of the health system is that medical knowledge and technologies have been improved, but in general medical care accessibility to the population has not increased.\(^2,3\) The little valuation of human capital, mainly of nursing professionals, exactly in an environment dedicated to care of people, is another major contradiction in the sector.

In the healthcare environment, both administration power decision and patient care are distributed among several professionals (including physicians, nurses, and nutritionists), and service quality results from cooperation between these several actors and team work.\(^4\) However, unfortunately, team work is still a rhetorical figure in many hospitals, and the various services are seen by each other as obstacles, not facilitators.\(^5,6\) Such work environment generates dissatisfaction among professionals involved in assistance, affecting quality perception by patients and families.

The nursing professionals, who are responsible for the daily care of patients, are the engine of continuous improvement in care quality. Any change in the health business model necessarily passes by rethinking the role of these professionals within the organization. The needs of patients and especially nursing professionals (who deliver the patient care), must be at the heart of innovation, business model, and health management.\(^7\)

Several expressions are found in the literature for the concern with the human element within organizations: quality of internal services, internal quality of services, quality of life at work, endomarketing, internal marketing, service climate, internal climate, etc. Each of these names arose in several knowledge areas, such as Service Management, Marketing, Human Resources, Organizational Behavior, and Social Sciences including Psychology and Sociology. Regardless of the name chosen for it, offering a good working environment is what is needed for professionals to feel happy and thus develop positive attitudes in relation to the organization where they work.

There is no consensus on the factors that determine satisfaction of nursing professionals. In the 80s, two lines of understanding emerged: the first emphasized psychological factors, such as perception that the work fills or allows that important values for persons are met; and the second highlight-
ed factors relative to the working environment, such as acknowledgement, appropriate team size, autonomy, and adequate facilities to care for patients. In the 90s, the satisfaction of nursing professionals came to be seen as a complex construct, composed of objective and subjective factors, such as the nature and level of autonomy, authority, and responsibility, as well as recognition, reward and personal satisfaction with the work performed, in addition to the perspective of growth in the career. Patient care was recognized as fundamental for nurses’ satisfaction.

Currently, it is believed that a good work environment for nursing professionals is characterized by a friendly relationship between colleagues and based on trust in their superiors. Trust is nourished by effective internal communication, clarity of hospital mission and objectives, and respect for the professionals, which is translated into avoiding physical and mental overload at work and offering safety at work. The work overload and stress are often pointed by studies as triggers of nursing professionals’ dissatisfaction with their jobs.

Thus, hospital managers should concern about establishing a clear communication with these professionals, investing in their training, fostering an environment guided by fairness and justice, and encouraging a good relationship among collaborators. With these actions, it is intended to ensure better health care results for patients, i.e., create values. Values should be the main goal of health systems, since it matters for both patients and other actors in the system. However, values are not created only with processes and technology, but mostly with people.

References

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Validation of a nursing care protocol for patients undergoing palliative care

Edilene Castro dos Santos1
Isabelle Christine Marinho de Oliveira1
Alexsandra Rodrigues Feijão1

Keywords
Nursing assessment; Palliative care; Hospice and palliative care nursing; Ethics, nursing; Nursing care

Abstract
Objective: To describe the validation process of the content of a nursing care protocol for patients undergoing palliative care and hospitalized in intensive care units.

Methods: This was a cross-sectional, descriptive, methodological study, resulting from the judgment by 11 experts involved in teaching and/or care. The operationalization occurred through the consistency among the answers of the experts obtained by the Content Validity Index in a round.

Results: Fifteen items were assessed: nine corresponding to the nursing history and six related to nursing interventions, presenting a content validity index of 0.9 to 1.0. Of the 165 answers, 67.27% were considered appropriate, 30.91% were appropriate with alterations, and only 1.82% were deemed inappropriate. Such results confirm the validity of content according to the assessment by the experts.

Conclusion: The nursing care protocol for patients undergoing palliative care, hospitalized in intensive care units, proved to be valid and applicable in the clinical practice.

Resumo
Objetivo: Descrever o processo de validação de conteúdo de protocolo assistencial de enfermagem para pacientes em cuidados paliativos internados em Unidades de Terapia Intensiva.

Métodos: Trata-se de um estudo transversal, descritivo, do tipo metodológico. Resultado do julgamento de 11 experts envolvidos na assistência e/ou docência. A operacionalização ocorreu por meio da concordância entre as respostas dos juízes obtidas pelo Índice de Validade de Conteúdo em uma rodada.

Resultados: Foram avaliados 15 itens, nove correspondentes ao histórico de enfermagem e seis referentes às intervenções de enfermagem, os quais apresentaram índice de validade de conteúdo de 0,9 a 1,0. Das 165 respostas, 67,27% mostraram-se adequados; 30,91% adequados com alterações e somente 1,82% foram considerados inadequados, resultados que atestam a validade de conteúdo segundo a avaliação dos juízes.

Conclusão: O protocolo assistencial de enfermagem para pacientes em cuidados paliativos internados em Unidades de Terapia Intensiva se mostrou válido e aplicável na prática clínica.
Introduction

Death and the process of dying permeates human life, especially the lives of care nurses working in intensive care units facing situations of coping with death in their professional practice routine. Although everyone is aware of its inevitability, the concept of death is a theme that is usually avoided, as it is not easily discussed in modern society. The awareness of their own finitude is experienced with affliction by those who work with the terminally ill. However, the theme has not always been seen that way; in the Middle Ages it was approached within the family sphere without any drama or eloquence. With therapeutic advances and the incorporation of healthcare technologies, death began to be seen as a taboo, favoring a detachment from the family environment in favor of the hospital environment.(1)

Increased survival has also generated a significant number of patients hospitalized in ICUs and, as a result, a higher experience of nursing professionals in the terminality process. Thus, palliative care, which uses advanced communication skills in order to ease the pain and the psychic and spiritual suffering, are implemented in order to individualize the provided care and organize the care in high complexity environments.(2)

From the need to establish criteria to guide the nursing care during the death and dying processes, the elaboration and validation of a nursing care protocol have been carried out to deal with patients undergoing palliative care.

The use of care protocols for patients in the final stage of life is of paramount importance, as these protocols systematize nursing care.(3) Thus this study approaches the development of an instrument that is capable of systematizing this care in order to get more effective results, with a view to the consistency of the actions at the final stage of life so that a more human, high quality care is provided. Furthermore, the scarcity of these valid protocols leads to a need for validation before implementation in order to imply the reliability of the items of the instrument, which become valuable resources for further studies on the theme.

Therefore, this study’s goal was to describe the validation process of nursing care protocol content for patients undergoing palliative care who were hospitalized in ICUs.

Methods

This was a cross-sectional, descriptive, methodological study with a quantitative approach to validate nursing care protocol content in order to optimize the nursing care to patients undergoing palliative care who were hospitalized in ICUs.

Content validation is a process consisting of two stages.(4) In the present study, the first stage consisted of the elaboration of the care protocol considering a nursing history and the interventions listed according to the human dimensions guided by the Nursing Interventions Classification (NIC) in order to standardize the terminology of the actions from the integrative review. The second stage is content validation, which was conducted through the protocol assessment by experts.

The items included in the nursing history were: identification; level of consciousness; ventilation and hydration; bladder elimination; hydrous balance; intestinal elimination; body hygiene; and dressings. In Nursing Interventions they are divided into the following dimensions: biological (control of pain and respiratory symptoms, nausea and vomiting, diarrhea and constipation, delirium, and dementia); psychological (identification of the Kübler-Ross stages and psychological care); social (support to patient and family members); and spiritual (spiritual support); as well as the interventions for terminal illnesses and postmortem care.

Expert assisting nurses from the ICUs of hospitals in the city of Natal-RN and professors from major Brazilian universities were selected. The identification of these experts occurred through the websites of the higher education institutions and the Plataforma Lattes of the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq).
The sampling was chosen by intentional method in accordance with the following adapted criteria based on the scoring system proposed by Fehring, namely: title of master of science in nursing; master’s thesis involving the terminality process; works published; and participation in groups and/or research projects involving the theme scoring 1 point. Also, the title of doctor of nursing practice; a doctoral dissertation; professor of the nursing course in the areas of bioethics and terminality; professional experience scoring 2 points; and nurses presenting scores equal to or higher than 5 points were considered to make up the sample.\(^{5,6}\)

After the selection, the experts were approached via e-mail. An invitation letter was sent, with emphasis on the justification and aim of the study, the legal opinions of a research ethics committee, and the free and informed consent form to be signed in case of acceptance. Upon delivery of the duly signed consent form, the care protocol and the protocol analysis instrument were also sent via e-mail. Twenty-eight expert nurses were located, including masters and doctors; 11 returned the protocol fully analyzed and assessed. The others were removed from the process of validation for not returning the instrument analyzed within the time limit (30 days) or due to incomplete analysis.

All 11 nurses assessed all of the items corresponding to the nursing history and nursing interventions. The experts analyzed the care protocol within the period from September to October 2014 considering relevance, consistency, clarity, objectivity, simplicity, practicality, modernity, and using an accurate vocabulary that prevents ambiguities.

The instrument was reformulated based on the following criteria: suggestions with more than 50% of the experts in the blocks Nursing History and Nursing Interventions; and corroboration with the literature through evidence from the integrative review.

Consistency between the answers of the experts was obtained through the Content Validity Index (IVC), which enables every item of the instrument to be assessed for a subsequent assessment of the entirety. As a widely used method in the area of health, the IVC points out that the main focus of the content validation is to determine whether the items listed in the protocol present adequacy of the content. A minimum of six experts is recommended for this calculation, as well as a concordance rate of not less than 0.78.\(^{4}\) The assessment by each expert was compared to the assessment by the others, calculating the IVC for each pair of experts (Expert 1 x Expert 2; Expert 1 x Expert 3; Expert 2 x Expert 3, and so on).\(^{7}\)

A database in .xlsx format was developed to statistically process the data, and Excel 2010 and the statistical software SPSS (Statistical Package for Social Science) version 20.0 were used to develop the tables and charts. In relation to the analysis of each eligible item to make up the care protocol throughout the study, it was possible to remove and/or change some items according to the adaptations suggested by the evaluators; therefore, a criterion of 50% of the observations among them was established in addition to the findings of the review.

The development of the study met the national and international standards for ethics in research involving human beings, and was approved by the Certificado de Apresentação e Apreciação Ética (CAAE): 33913514.9.0000.5537.

Results

Eleven nurses participated as experts. Most (81.82%) were female, with a mean age of 36.64 years (standard deviation of 8.51). In their variable training, most of them presented a maximum degree of expert (45.46%), a minimum working time of two years and a maximum of 35 years (mean of 11.91 and standard deviation of 8.95).

Of the 15 assessed items, table 1 shows the values obtained through the calculation of the IVC. The 11 experts are represented by numbers (1 to 11); the intersection of the abscissa with the ordered lines exposes the value corresponding to the index of agreement between them, in which a favorable correlation with the content validity is evidenced. Only Experts 1, 3, and 9 presented adverse answers to the validation of the item “state of consciousness.”
By applying the aforementioned IVC formula, the estimated value of 0.9 was obtained for this study.

Table 2 shows the percentage of agreement between the experts in relation to the classification and their respective absolute frequencies. Illustratively, the above table shows the percentage of answers provided by the experts. There were a total of 165 answers, of which 67.27% of the assessed items were deemed appropriate, and only 1.82% were assessed as inappropriate; the item “state of consciousness” was removed from the instrument.

Table 2. Classification in relation to the level of agreement between the experts in the study

<table>
<thead>
<tr>
<th>Classification</th>
<th>n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate</td>
<td>111(68.77)</td>
</tr>
<tr>
<td>Appropriate with change</td>
<td>51(30.91)</td>
</tr>
<tr>
<td>Inappropriate</td>
<td>3(1.82)</td>
</tr>
<tr>
<td>Total</td>
<td>165(100)</td>
</tr>
</tbody>
</table>

The content validity is represented by table 3 in order to view the classification of the protocol with its respective absolute frequencies in the nursing history and interventions.

In relation to the aspect of the nursing history, table 3 shows that the highest value of agreement was observed in the items level of consciousness, ventilation, feeding, and hydration, with a percentage of 81.82%. Despite a variation between the assessed items, it was observed that the minimum value was 54.55% for adequacy of the protocol, revealing the relevance of the material.

Table 3. Items of the care protocol assessed by the experts of the study

<table>
<thead>
<tr>
<th>Items</th>
<th>Appropriate n(%)</th>
<th>Appropriate with change n(%)</th>
<th>Inappropriate n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of consciousness</td>
<td>9(81.82)</td>
<td>2(18.18)</td>
<td>-</td>
</tr>
<tr>
<td>State of consciousness</td>
<td>7(63.64)</td>
<td>1(9.09)</td>
<td>3(27.27)</td>
</tr>
<tr>
<td>Ventilation</td>
<td>9(81.82)</td>
<td>2(18.18)</td>
<td>-</td>
</tr>
<tr>
<td>Venous access</td>
<td>7(63.64)</td>
<td>4(36.36)</td>
<td>-</td>
</tr>
<tr>
<td>Feeding and hydration</td>
<td>9(81.82)</td>
<td>2(18.18)</td>
<td>-</td>
</tr>
<tr>
<td>Bladder elimination and hydrous balance</td>
<td>6(54.55)</td>
<td>5(45.45)</td>
<td>-</td>
</tr>
<tr>
<td>Bowel elimination</td>
<td>8(72.73)</td>
<td>3(27.27)</td>
<td>-</td>
</tr>
<tr>
<td>Body hygiene</td>
<td>7(63.64)</td>
<td>4(36.36)</td>
<td>-</td>
</tr>
<tr>
<td>Dressings</td>
<td>6(54.55)</td>
<td>5(45.45)</td>
<td>-</td>
</tr>
<tr>
<td>Biological dimension</td>
<td>7(63.64)</td>
<td>4(36.36)</td>
<td>-</td>
</tr>
<tr>
<td>Psychological dimension</td>
<td>8(72.73)</td>
<td>3(27.27)</td>
<td>-</td>
</tr>
<tr>
<td>Social dimension</td>
<td>7(63.64)</td>
<td>4(36.36)</td>
<td>-</td>
</tr>
<tr>
<td>Spiritual dimension</td>
<td>7(63.64)</td>
<td>4(36.36)</td>
<td>-</td>
</tr>
<tr>
<td>Intervention in the terminality act</td>
<td>7(63.64)</td>
<td>4(36.36)</td>
<td>-</td>
</tr>
<tr>
<td>Postmortem intervention</td>
<td>7(63.64)</td>
<td>4(36.36)</td>
<td>-</td>
</tr>
</tbody>
</table>

During the reading of the protocol the nurses were instructed to record in their own material the corrections and recommendations they found necessary. From this instruction, the suggestions deemed pertinent were accepted with a view toward improving the proposed protocol. The main suggestions were related to the clarity of the items that could lead to confusion in their implementation by the nursing professional.
State of consciousness was deemed inappropriate by 27.27% of the experts. In terms of changes, this item was added to the item level of consciousness and added to the Palliative Performance Scale (PPS) widely used in palliative care, combined with the Glasgow Coma Scale and the Ramsay Sedation Scale. The other changes involved hydration and administration of drugs in patients in ICUs in the context of palliative care combined with the hypodermoclysis technique. In relation to bladder elimination, the addition of urinary derivations of the types “ureterostomy”, “Bricker”, “urostomy”, and “wet colostomy” were conducted.

In the items corresponding to intestinal elimination, the terms “absent” and “jejunostomy” were added. Following the analysis of observations, the item body hygiene was complemented with “assisted affusion bath”, “non-assisted affusion bath,” and “oral and intimate hygiene.”

Among the variables corresponding to the nursing history, the item “sleep and rest” was added as suggested by an expert based on the fact that this consists of one of the essential needs of patients under palliative care. In this item, characteristics such as “preserved” and “endangered” were added.

It is important to mention that in the aspect of the nursing interventions seven experts (corresponding to 63.64%) agreed that the protocol was appropriate to the biological, social, and spiritual dimensions, as well as the interventions in the terminality act and postmortem care. The psychological dimension presented 72.73% of agreement for adequacy of the instrument among eight experts.

Suggested changes include the need for a higher level of clarity and the exclusion of repeated activities and activities that had no relevance to the protocol. In interventions for pain control, the following items were excluded: “Observing the occurrence of non-verbal indicators of discomfort,” as it had already been covered in the previous number, and “Using measures for control before aggravation,” useless for the protocol.

In relation to the intervention “control of respiratory symptoms,” the need for further clarification in Item 9 was observed as it points out a measure to relieve cough. Similarly, more details in relation to the explanation of the non-pharmacological measure expressed in Item 10 was necessary in the intervention “control of nausea and vomiting.”

For the intervention “fatigue,” the types of activities that may be performed to minimize this discomfort, as well as the use of songs and stimulating massages expressed in Item 9, were added.

In relation to the psychological dimension in psychological care, the present study aimed to adjust the identification of the stages of Kübler-Ross in “signs of denial, anger, bargaining, depression, and acceptance,” registered within 24 hours instead of per shift as in the initial proposal.

In the same intervention the item “actively listening to the patient and requesting the psychological service” was removed from the stages of Kübler-Ross as it is not a component of this stage. Therefore, this item is now part of the first one of the sequences of this intervention.

In the spiritual dimension, there is a detailing of the spiritual resources listed in Item 7, such as “Eucharist”, “anointing of the sick”, “holy water”, “recitation of the rosary”, “prayer”, “anointing oil,” and “fluidic water.”

During the act of terminality only the terms “care with windows”, “surround sound”, and temperature” were added to Item 2. Regarding the intervention “postmortem care,” the inclusion of time of death was necessary, as death is a timely event. One nurse suggested to change Item 7 to “provide support and listening to family members during the period of hospitalization and after burial by means of telephone contact,” and finally an adjustment in the last item (“record the adopted measures in the medical records”) of this intervention proposed by the care protocol (Appendix 1).

Discussion

The results of the content validity analysis obtained through the calculation of the IVC were found to be valid for 67% of the answers analyzed by the experts, as the value of the level of agreement between them was of at least 0.9. This finding corroborates the rate of agreement of not less than 0.78. Thus,
Validation of a nursing care protocol for patients undergoing palliative care

it is observed that the cutting point was achieved through the verified value.

In relation to the interventions proposed to the protocol, there was a significant level of agreement in the biological, social, and spiritual dimensions, as well as the care in the terminality act and post-mortem care, completing the assessment of seven experts of the adequacy of the instrument.

The Palliative Performance Scale (PPS) was added for the adequacy of the care protocol in relation to the assessment of level of consciousness, as it is commonly used in palliative care. In addition to being an excellent instrument of communication between the multidisciplinary team and the patient, the scores of this scale enable the continuous assessment of the functional status of the patient. (8)

In relation to hydration and administration of drugs in patients hospitalized in ICUs in the context of palliative care, hypodermoclysis represents an alternative by subcutaneous means; it is safe, effective, and particularly comfortable. (9) This technique consists in the infusion of liquids into the hypoderma with a scalp or Jelco catheter of varied diameters ranging between 18G and 27G according to assessment and quantity of subcutaneous tissue in the following regions: scapular, outer thighs, anterolateral abdominal, anterior chest, and anterior arms. It is important to ensure that the volume of liquids does not exceed 3000 ml within the hours and that the solutions are isotonic. Catheter maintenance occurs every four hours, and it may remain in situ for up to 72 hours. (9,10)

The item “sleep and rest” represents an important aspect to be considered before the patient’s terminality, as the change in the sleep-wake pattern directly interferes in the quality of life and comfort of the patient; it is verified through a number of factors, such as environmental factors, that sleep interruptions for examination collections, anxiety, and use of sedatives and painkillers are disruptive. It was also observed that sleep maintenance must be highly stimulated in order to promote quality at the final stage of life, also minimizing stressing events. (11)

In relation to bladder elimination combined with urinary derivations of the types “ureterostomy”, “Bricker”, “urostomy,” and “wet colostomy” in the protocol, it is observed that the use of such ostomies is common, as their use improves the quality of life of patients undergoing palliative care. Wet colostomy, also known as ureterosigmoidostomy, enables the output of urine and feces in the same stoma. Ureteroileostomy or a derivation of Bricker consists in the implementation of ureters in an isolated terminal ileal segment. (12)

The presence of integrative and complementary therapies in palliative care is also common. These actions are corroborated by the modalities of acupressure, electroacupuncture, shiatsu, reflexology, aromatherapy, meditation, art therapy, flower therapy, reiki, and therapeutic touch. (13) These actions are non-invasive palliative actions that are accepted by patients during this process. A palliative care unit must rely on resources such as psychotherapy, acupuncture, massages, and body relaxation techniques, as well as music therapy. (10)

In this context the nurse as the professional that is closer to the patients must reflect on the possibilities of care and be able to identify alternatives to provide the best quality of life possible to terminal patients, aiming to improve the physical, mental, and emotional balance of the patient, as well as their well-being. (11)

Limitations of the study include the absence of answers and the devolution of incompletely filled and/or assessed protocols by some experts, as they lead to a reduction in the size of the sample (which was already limited due to the number of professionals who work in the area of palliative care). Furthermore, the short data collection period resulted in the impossibility of conducting other rounds in the validation process, also consisting in a limiting factor of the method.

Despite such difficulties, the importance of this protocol for palliative care nursing is highlighted. In this sense, further studies are necessary to continue the validation process of the instrument in the practice, such as the implementation of the Delphi technique and the clinical validation with the use of the instrument in the intended population.
Conclusion

The nursing care protocol for patients undergoing palliative care who are hospitalized in intensive care units was found to be valid in its content, with potential applicability in clinical practice after the conclusion of other validation studies in order to ensure a more human and high quality care.

Collaborations

Santos EC, Oliveira ICM and Feijão AR declare that they have collaborated in the conception of the project and data interpretation, wording of the article, relevant critical review of its intellectual content, and final approval of the version to be published.

References

Annex 1. Nursing care protocol for patients undergoing palliative care

**Part I. Nursing history**

<table>
<thead>
<tr>
<th>Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: <em><strong>/</strong></em>/____</td>
</tr>
<tr>
<td>Patient: ____________________________________________________________________________________________________________________________________________</td>
</tr>
<tr>
<td>Medical diagnosis: ____________________________________________________________________________________________________________________________________</td>
</tr>
</tbody>
</table>

**Level of consciousness**

1. Wake: 1.1 Conscious (   ) 1.2 Unconscious (   ) 2. Lethargy (   ) 3. Mental confusion (   ) 4. Stupor (   ) 5. Coma (   )
   - PPS: __________
   - ECG: __________
   - Ramsay: __________

**Ventilation**

- VNI: 1. Ambient air (   ) 2. Venturi mask (   ) at ______% 3. Catheter (   ) at ______ l/min 4. BIPAP (   ) 5. CPAP (   ) 6. Macromist (   ) at ______ l/min
- VI: 1. TQT (   ) 2. TOT (   )
- Modalities: C/A (   ) VSIO (   ) VSP (   ) VOP (   ) VLP A (   ) PGP (   )
- FiO2: __________
- SPO2: __________

**Venous access**

1. Peripheral (   ) in:_____ 2. Central: 2.1 Catheter totally implanted (   ) 2.2 Catheter semi-implanted (   )
   - 3. Phlebotomy (   ) 4. Subcutaneous (   ) 5. Hydrated Jelco (   ) 6. No access (   )

**Feeding**

1. Oral with help (   ) 2. Oral without help (   ) 3. Does not accept (   ) 4. SNG (   ) 5. SNE (   ) 6. GTM (   ) 7. JTM (   ) 8. NPT (   ) 9. Zero (   )

**Hydration**

1. Oral hydration (   ) 2. Venous hydration (   ) ______ ml/h 3. Both (   ) 4. Hypodermoclysis (   )

**Bladder elimination**

- Spontaneous: 1. Bathroom (   ) 2. Diaper (   ) 3. Urine bottle (   ) 4. Lifting hook (   ) 5. Anuria (   )

**Hydrous balance**

- Infused liquids: __________
- Eliminated liquids: __________
- BH: __________

**Bowel elimination**

- Spontaneous: 1. Bathroom (   ) 2. Diaper (   )
- Device: 1. Ileostomy (   ) 2. Colostomy (   ) 3. Jejunostomy (   )
   - 4. Absent for ______ days

**Body hygiene**

1. Assisted aspiration bath (   ) 2. Non-assisted aspiration bath (   ) 3. Bath in the bed (   ) 4. Oral hygiene (   ) 5. Intimate hygiene (   )

**Sleep and rest**

1. Preserved (   ) 2. Endangered (   )

**Dressings**

1. Central venous access (   )
   - Location:
   - Aspect:
2. Pressure ulcer (   )
   - Location:
   - Aspect:
3. Drain (   )
   - Location:
   - Aspect:
4. Surgical incision (   )
   - Location:
   - Aspect:
5. Others (   )
   - Specify/Location:
   - Aspect:

**Remarks:**

________________________________________________________________________________________________________________________________________
_______________________________________________________________________________________________
_______________________________________________________________________________________________
_______________________________________________________________________________________________
_______________________________________________________________________________________________
_______________________________________________________________________________________________

_______________________             __________________________                 ______________________
Nurse-Morning                                                                       Nurse-Afternoon                                                                         Nurse-Night
**Part II. Nursing interventions during terminality**

### Biological dimension

**Intervention-pain control**

<table>
<thead>
<tr>
<th>Morning</th>
<th>Afternoon</th>
<th>Night</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Assess pain intensity.</td>
<td></td>
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</tr>
<tr>
<td>2. Ensure that patient receives accurate analgesia care as prescribed.</td>
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<tr>
<td>3. Investigate the knowledge of the patient on the pain according to their belief.</td>
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<tr>
<td>4. Promote measures that enable the reduction or elimination of factors that trigger pain (fear, fatigue, lack of information).</td>
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<tr>
<td>5. Choose non-pharmacological strategies (massage, music) to relieve pain. Specify</td>
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<tr>
<td>6. Encourage the patient to talk about their pain experience.</td>
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<tr>
<td>7. Use multidisciplinary approach for pain control.</td>
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</tr>
</tbody>
</table>

**VAS - VISUAL ANALOG SCALE**

<table>
<thead>
<tr>
<th>MILD</th>
<th>MODERATE</th>
<th>INTENSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>5</td>
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<td>6</td>
<td>7</td>
<td>8</td>
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<tr>
<td>9</td>
<td>10</td>
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</tbody>
</table>

### Intervention-control of respiratory symptoms

<table>
<thead>
<tr>
<th>Morning</th>
<th>Afternoon</th>
<th>Night</th>
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</thead>
<tbody>
<tr>
<td>1. Assess the intensity of dyspnea and cough.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Assess triggering factors of dyspnea.</td>
<td></td>
<td></td>
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<tr>
<td>3. Assess the need of aspiration.</td>
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<tr>
<td>5. Viablize a comfortable positioning in bed in semi Fowler.</td>
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<tr>
<td>6. Promote serenity.</td>
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<tr>
<td>7. Offer SN supplemental oxygen as prescribed.</td>
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<tr>
<td>8. Monitor the flow of oxygen according to the used device.</td>
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<tr>
<td>9. In case of cough: compress patient’s abdomen below the xiphoid process with flattened hands while helping them to bend forward while coughing.</td>
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</tbody>
</table>

### Intervention-control of nausea and vomiting

<table>
<thead>
<tr>
<th>Morning</th>
<th>Afternoon</th>
<th>Night</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Identify triggering factors of nausea and vomiting.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Control environmental factors that may trigger nausea and vomiting.</td>
<td></td>
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</tr>
<tr>
<td>3. Reduce personal factors that precipitate nausea and vomiting (anxiety, fear, lack of knowledge).</td>
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<tr>
<td>5. Keep airways penetrable.</td>
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<tr>
<td>6. Hygiene process of oral cavity with chlorhexidine 2%.</td>
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<tr>
<td>7. Offer ice 40 minutes before meals in order to minimize the symptoms.</td>
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<tr>
<td>9. Stimulate rest.</td>
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<tr>
<td>10. Teach non-pharmacological measures to control nausea and vomiting as follows: Measure three fingers from the wrist flexion crease and press between the tendons of the palmaris longus muscle and flexor carpi radialis muscle for two minutes. Measure four fingers below the patella and lateral to the tibial tuberosity pressing for two minutes.</td>
<td></td>
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<tr>
<td>11. Offer liquids as appropriate.</td>
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<tr>
<td>12. Perform gastric catheterization for relief in case of fecal vomiting.</td>
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</tbody>
</table>

### Intervention-control of diarrhea and constipation

<table>
<thead>
<tr>
<th>Morning</th>
<th>Afternoon</th>
<th>Night</th>
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</thead>
<tbody>
<tr>
<td>1. Assess the episodes of diarrhea in relation to color, volume, frequency, and stool consistency.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Assess the absence of bowel elimination on a daily basis.</td>
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</tr>
<tr>
<td>3. Assess triggering factors of constipation (opiates, diet).</td>
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<tr>
<td>6. Offer isotonic liquids.</td>
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<tr>
<td>7. Offer meals 6-8 times every day according to nutritional prescriptions.</td>
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<tr>
<td>8. Conduct positional change every two hours for diarrhea control according to response of comfort by patient.</td>
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<tr>
<td>9. Promote body hygiene and comfort after diarrheal episodes.</td>
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<tr>
<td>10. Keep water control.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

continue
### Intervention-fatigue control

<table>
<thead>
<tr>
<th>Action</th>
<th>Morning</th>
<th>Afternoon</th>
<th>Night</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Encourage expression of feelings about the limitations.</td>
<td></td>
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<tr>
<td>2. Monitor nutritional intake in order to ensure an appropriate energy intake.</td>
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<tr>
<td>3. Select the interventions (aerobic exercise, manual activities) to reduce fatigue.</td>
<td></td>
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<tr>
<td>4. Practice exercises as appropriate.</td>
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<tr>
<td>5. Use of massage with essential oils as necessary.</td>
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<tr>
<td>6. Help the patient to identify their preferences in relation to the activities.</td>
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<tr>
<td>7. Limit environmental stimuli (noises and lights) in order to promote relaxation.</td>
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<tr>
<td>8. Encourage alternate periods of rest and activities.</td>
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<tr>
<td>9. Offer complementary resources (music).</td>
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</tbody>
</table>

### Intervention-control of delirium and dementia

<table>
<thead>
<tr>
<th>Action</th>
<th>Morning</th>
<th>Afternoon</th>
<th>Night</th>
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</thead>
<tbody>
<tr>
<td>1. Continuously monitor the neurological status.</td>
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<tr>
<td>2. Allow patient to maintain their rituals to limit anxiety.</td>
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<tr>
<td>3. Encourage visits of people that are important to the patient.</td>
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<tr>
<td>4. Guide the patient in relation to the person, place, and time if necessary.</td>
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<tr>
<td>5. Use environmental indicators (photos, colors, objects) that stimulate memory.</td>
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<tr>
<td>6. When approaching a patient, come closer slowly and preferably from ahead.</td>
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<tr>
<td>7. Provide appropriate lighting (not excessive).</td>
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<tr>
<td>8. Express verbal and non-verbal interest for the patient.</td>
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<tr>
<td>9. Avoid questions that the patient is unable to answer.</td>
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</tr>
</tbody>
</table>

### Psychological dimension

#### Identification of the stages of Kübler-Ross

<table>
<thead>
<tr>
<th>Stage</th>
<th>Within the 24 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Signs of denial</td>
<td></td>
</tr>
<tr>
<td>2. Signs of anger</td>
<td></td>
</tr>
<tr>
<td>3. Signs of bargaining</td>
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</tr>
<tr>
<td>4. Signs of depression</td>
<td></td>
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<tr>
<td>5. Signs of acceptance</td>
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</tbody>
</table>

### Intervention-psychological care

<table>
<thead>
<tr>
<th>Action</th>
<th>Morning</th>
<th>Afternoon</th>
<th>Night</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Actively listen to the patient and request psychological service.</td>
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<tr>
<td>2. Promote family involvement.</td>
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<tr>
<td>3. Allow the patient to actively express their feelings and wishes</td>
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<tr>
<td>4. Keep an effective communication between the team and the patient.</td>
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<tr>
<td>5. Promote a relationship of trust with the family.</td>
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</tbody>
</table>

### Social dimension

#### Intervention-support to patient and family members

<table>
<thead>
<tr>
<th>Action</th>
<th>Morning</th>
<th>Afternoon</th>
<th>Night</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Assess the emotional reaction of the family to the condition of the patient.</td>
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</tr>
<tr>
<td>2. Listen to the concerns, feelings, and doubts of family members.</td>
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<tr>
<td>3. Facilitate communication between family members.</td>
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<tr>
<td>4. Accept the values of the patient and family with no judgments.</td>
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<tr>
<td>5. Answer all the questions made by family members and patient jointly with the multidisciplinary team.</td>
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<tr>
<td>6. Help the family the solve value conflicts.</td>
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</tr>
<tr>
<td>7. Teach the care plans to the family.</td>
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<tr>
<td>8. Provide the necessary knowledge to family members who will participate in the decision making.</td>
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<tr>
<td>9. Create opportunities for visits of people desired by the patient.</td>
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<tr>
<td>11. Promote attitudes aiming at protecting the rights of the patient.</td>
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<tr>
<td>12. Avoid procedures that prolong their suffering.</td>
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</tbody>
</table>
Spiritual dimension

<table>
<thead>
<tr>
<th>Intervention - spiritual support</th>
<th>Morning</th>
<th>Afternoon</th>
<th>Night</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Use effective communication to establish trust and care with empathy.</td>
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<td></td>
</tr>
<tr>
<td>2. Treat the patient with dignity and respect.</td>
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<tr>
<td>3. Encourage the participation in interactions with family and friends.</td>
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<tr>
<td>4. Offer privacy for spiritual activities.</td>
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<tr>
<td>5. Facilitate the process of forgiveness within the family and social circle.</td>
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</tr>
<tr>
<td>6. Organize visits of spiritual advisor.</td>
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</tr>
<tr>
<td>7. Encourage the use of spiritual resources, when desired (Eucharist, anointing of the sick, holy water, recitation of the rosary, prayers, anointing oil, and fluidic water). Specify:</td>
<td></td>
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<tr>
<td>8. Provide spiritual music, literature, or TV/radio shows to the patient.</td>
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<td></td>
</tr>
<tr>
<td>9. Being with the patient regarding their religious rituals.</td>
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</tbody>
</table>

Interventions in the act of terminality

<table>
<thead>
<tr>
<th>Morning</th>
<th>Afternoon</th>
<th>Night</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Remain physically close to the patient when they are scared.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Make changes in the environment based on the needs and desires of the patient (care with windows, ambient sounds, temperature).</td>
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</tr>
<tr>
<td>3. Respect specific requests of care made by the patient and their family members.</td>
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<tr>
<td>4. Support the family efforts to stay with the patient.</td>
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<td></td>
</tr>
<tr>
<td>5. Include family members in the decision making and care activities, if desired by them.</td>
<td></td>
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</tbody>
</table>

Intervention - postmortem care

<table>
<thead>
<tr>
<th>Time:___________</th>
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</thead>
<tbody>
<tr>
<td>1. Remove all drains, probes, and accesses.</td>
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</tr>
<tr>
<td>2. Clean the body, if necessary.</td>
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<tr>
<td>3. Put in dentures, if possible.</td>
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<tr>
<td>4. Close the eyes of the patient.</td>
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<tr>
<td>5. Cover any puncture marks with cotton and a spatula, completely hiding them.</td>
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<tr>
<td>6. Keep the correct body alignment.</td>
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</tr>
<tr>
<td>7. Offer support and listen to family members during the length of stay and after burial through telephone contact.</td>
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</tr>
<tr>
<td>8. Identify the patient with a two-copy label containing name, age, date of death, time of death, and ward to be placed on the chest of the patient e on the external human remains pouch (HRP).</td>
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</tr>
<tr>
<td>9. Organize, protocol, and deliver the belongings of the patient to the family.</td>
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</tr>
<tr>
<td>10. Guide the family in relation to the death certificate provided and filled by the attending physician (deliver the yellow copy and instruct them to go to a notary’s office within 15 days).</td>
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<tr>
<td>11. Transfer the patient to the morgue.</td>
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<tr>
<td>12. Record the adopted measures in the patient’s record.</td>
<td></td>
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</tbody>
</table>
Abstract
Objective: To identify how fathers perceive their contribution to the support and encouragement of breastfeeding based on learning, and see how their partners understood this participation.
Methods: Qualitative study with eight families interviewed before and after the completion of four group meetings and in follow-up during home visits in the postpartum period. Data were analyzed to understand the content of the couples’ speeches based on the attachment theory.
Results: The fathers show satisfaction in providing care to children, and support the breastfeeding for their partners’ contentment.
Conclusion: The fathers demonstrated to be true participants, especially when their efforts are valued by their partners and nurses. The expansion of support activities to couples is recommended since the prenatal period and after childbirth in a systematic way on the public health care network.

Keywords
Paternity; Breast feeding; Maternal-child nursing; Public health nursing

Resumo
Objetivo: Identificar como o pai percebe sua contribuição no apoio e estímulo à amamentação com base no aprendizado e verificar como a companheira compreendeu esta participação.
Métodos: Estudo qualitativo, participaram oito famílias, entrevistadas antes e após a realização dos quatro encontros grupais, acompanhadas em seus domicílios no puerpério. Os dados foram analisados com compreensão dos conteúdos manifestos dos discursos dos casais, fundamentados por meio da teoria do vínculo.
Resultados: Evidenciou-se que pais demonstram satisfação em prestar cuidados aos filhos e apoiar a amamentação para contentamento de suas companheiras.
Conclusão: Os pais revelam-se verdadeiros participes, principalmente quando suas iniciativas são valorizadas por parte da companheira e pela enfermeira, sendo recomendada ampliação de atividades de apoio a casais, desde o pré-natal e após o nascimento do filho de forma sistematizada na rede pública de atenção à saúde.
Introduction

Breast milk is recognized as the best food for the child, with benefits to the child, woman, father, family, society, country, ecology and the planet.(1)

In recent years, the concept of father has suffered changes resulting of transformations in the world, especially in the political, economic, scientific and cultural fields. The paternal place used to be associated with the function of provider of the family material needs and the person who ensured order in the micro system of families. Men are still slaves of the male stereotype determined by identity figures such as the superman. In everyday life, this translates into the protector father and material provider. In today’s society, they are eccentric figures given the contingency function they have assumed culturally of responsibility for the family support.(2) Currently, men have new roles, such as companions, caregivers and protectors, among others.

The appreciation of parental participation since the prenatal period is known to break barriers of adaptation and care to the child and puerperal woman, and contributes to the management of breastfeeding, avoiding early weaning.(3)

For the selection of participants, the researcher approached pregnant women (accompanied or not) after the obstetrical consultation in a prenatal clinic of a district maternity hospital, secondary level, reference in the municipality of Fortaleza (state of Ceará - CE). After informing that participation would be linked to the partners’ participation, pregnant women aged 18 years and over were invited to participate. However, of the 21 women invited, only eight managed the adherence of their partners.

The activities with participating couples were initiated when mothers were seven months pregnant. At that time they were interviewed, their knowledge about breastfeeding was assessed, and their desires and interests in relation to care for their child were identified.

Before childbirth, there were four group meetings on Saturdays or Sundays because the fathers’ presence was easier during these days.

Given the proposal of follow-up after the baby’s birth, home visits (HV) were held, with an average of 20 meetings. The variation in number of visits was in accordance to specific complications: cracked nipples, engorged breasts, child’s pathology, maternal insecurity (especially in the first pregnancy), and negative influences of family and community.

Families were visited daily in the twelve consecutive days after childbirth, period in which breastfeeding was established. The visits were then spaced to once a week in the following two months, and every two weeks until the children completed six months of age.

When children were five months old, there was a meeting with the couples to assess the changes. Interviews with average duration of 15 minutes were recorded under informed consent of participants and transcribed for analysis of their speeches. The couples chose fictional names for themselves and their children.

The attachment theory was chosen as theoretical framework. It is defined as specific and unique relationship between two people that lasts over time.(5)

Methods

This qualitative study used the technique of action research, part of a dissertation of the Postgraduate Program in Nursing at the Universidade Federal do Ceará.

Note that action research uses techniques in which researchers and participants interact during the study to reflect, work and decide about practical changes. In this type of research, it is usually possible to run a project of transforming a reality and producing information and effective knowledge to solve the current world challenges.(6)
study participants were analyzed using the material from interviews, and observation of the bonding relationships between fathers, mothers and children during home visits to understand the meanings, reasons and justifications in the couples’ speeches.

The following categories were organized: The father’s perception regarding his contribution to the support and encouragement of breastfeeding based on learning; The partner’s understanding regarding the father’s participation in breastfeeding based on the knowledge developed in group meetings and home visits; The father as a participant in caring for the child and the partner promotes breastfeeding.

This study was approved by the Comite de Ética em Pesquisa da Universidade Federal do Ceará - COMEPE within the regulations governing research on human beings, the National Council of Health - Ministry of Health Resolution No. 196 of October 10, 1996 and complementary, approved the above project at the meeting of 31 January 2008.

Results

Profile characterization of participating couples
The profile of the eight interviewed couples showed that five fathers have complete and four have incomplete primary education, five have complete and two have incomplete high school education. The average age was 24 years. Three out of the eight children were first children, four were the second, and only a child was the third child of the couple.

Three out of the eight couples have been married for two or more years. The average time of common-law marriage was four years, five have lived together for more than two years, and a couple for ten years.

All children lived under the same roof of their biological parents and enjoyed the company of the father and the mother. Parents were informed about the importance of bonding for the formation of a healthy personality of the human being before the birth of their children.

Regarding religion, thirteen fathers were Catholics and four were Protestant. Only a father reported no religion, but baptized his child at two months of life, and his partner defined herself as Catholic. The average monthly income was R$ 600.00.

Following are the categories identified in the contents of participants’ speeches.

The father’s perception regarding his contribution to the support and encouragement of breastfeeding based on learning
The fathers demonstrate satisfaction in providing care to children, especially when they notice the recognition and appreciation their efforts and attempts of doing it properly from their partner and/or health professionals. They mentioned the advantage of a learning oriented by the nurse:

“She (the nurse) has taught many things we didn’t know in practice. How to bathe and what to do with her (wife) when the breasts were swollen”. “Her presence was very important” […] “I learned to bathe the child and about the general cleaning of the child’s body” (Paz). “I am very grateful to have participated of the group” […] “if he (son) wakes up at two in the morning, she (wife) gives him to me and I stay with him in the hammock until he falls asleep” (Shell).

Every father has mentioned the importance of continuing this type of initiative, evoking its expansion to other couples. One of them emphasized that this kind of educational practice should be expanded not only around the state of Ceará, but throughout Brazil. The need of sharing pleasant experiences with friends, neighbors and family seems to be inherent to human beings, hence, knowledge is multiplied.

The desire to share pleasant experiences is clear in the speeches of Bruno and Prisioneiro:

“I realized what she (nurse) told us really made sense […] It is a kind of knowledge I can pass to a brother, to somebody I know” […] (Prisioneiro). “We knew the negative consequences of the bottle […] It was all great, I learned a lot […] It should continue not only in Ceará, but throughout Brazil […] I think there would be a change in health in Brazil” (Bruno).

“Just fine, only good things, it was great. I realized that breast milk is the best, just it. Artificial milk,
sweetened, is not the same. I didn’t have this knowledge. For me, both were the same. I think we cannot fail to do so [...] We must continue in the same path” (Visconde).

In the speeches of some participants, was evident the idea that the group meetings have provided security and approximation of couples, favoring the family unit. The statements of Rei and Visconde show some examples:

“It helped a lot! In her visits (nurse), she made me feel more secure and my participation as a father is this, to be with her (wife), help her. In a nutshell: to be really happy” (Rei).

“It was the most important thing, there should be someone like that in the first months [...] I was very happy and if we hadn’t attended the meetings, he would not be breastfed [...] Every day I’m happy when I come back home to be near my wife [...] and this project has even approximated us, united the couple. [...] it’s good to care for the child. I became closer to her, more affectionate, the life of the couple has improved” (Visconde).

The partner’s understanding regarding the father’s participation in breastfeeding based on knowledge developed in group meetings and home visits

The importance of the father in the breastfeeding process becomes visible. Health professionals must believe it, include the participation of fathers since prenatal care, and encourage the partners to appreciate the initiatives of these fathers.

Based on professional practice and results of this study, it became clear that some men try to participate in child care and breastfeeding, but at times, are discredited, discouraged and reprimanded by their partners, as shown in the lines of D. Benta and Finha:

“The nurse has taught how to bathe. When I got back from maternity hospital, in the first bath, I thought Visconde (husband) was going to drop my son in the tub, so I said ‘careful not to drop my son’ [...] and she (researcher and nurse) said ‘he’s doing well, we need to trust him’” (D. Benta).

“[...] Some nights I’m tired, and he gets ‘Anjinho Curioso’and sings with him at night. He puts him to sleep but always wakes me up to tuck him into the crib. I told him to wake me up at that time because he doesn’t know how to tuck the baby into the crib” (Finha).

All women in this study agreed that the meetings and home visits contributed to the father’s participation in care and breastfeeding. A woman emphasized that her partner liked to be called ‘participant father’:

“The meetings were very encouraging, he’s asked many questions, was excited to help me. Then, he wanted to help me to show her (nurse) that he knew and was a participant father. I just laughed at him because he kept saying I’m a participant father, I’m a participant father [...]” (Finha).

The father as a participant in caring for the child and the partner promotes breastfeeding

All fathers contributed to their children's breastfeeding, seeking to provide peace and comfort to mothers. This fact may have contributed in part to the production and ejection of milk. Some of the participant fathers helped with household chores like washing clothes, home cleaning and meal preparation. This help was perceived with satisfaction by partners, as seen in the statements of both parents:

“[...] I do not leave any of his clothes dirty, I wash them all. It was a worthy experience, the first child. Now I have experience as a parent” (Shell).

“He washes all clothes, mine’s and Leãozinho’s, I don’t worry anymore, it’s already his task. Right now he’s there in the laundry room [...]” (D. Benta).

“[...] before these meetings, he (reference to husband) only complained and saw flaws in everything [...] and now he does everything in the house” (AMOR).

As for activities and daily care with babies, all fathers carried the children on their lap to sunbathe. They performed body care several times and cleaned the umbilical stump, while others trimmed their children’s nails, as described in the following speeches:

“He (husband) has participated in the care quite a lot, taking to sunbath, carrying the child, which he never did with the others [...] He was afraid to drop
them [...] the other children he only carried after four months of age [...]” (Emilia).

“It’s the father who trims the nails (pauses and smiles...) I fear I’ll hurt the baby [...]” (Lisbela).

All mothers reported that their partners got juices or other liquids and brought spontaneously while they were breastfeeding:

“Sometimes I’m breastfeeding and when I least expect, there he comes with a glass of juice, water [...] He has never done it with the others [...] (reference to previous children)” (Emília).

“He cares a lot about my diet, has always cared and [...] Now, even more. He even remembers that poem (refers to poem presented at meetings) [...] I am a very boring eater” (Lisbela).

**Discussion**

In the literature, the action research demonstrates successful experiences when used according to well-established methodological criteria. Through this method, we sought to transform the participant group context through educational activities.

Fathers clearly became allies in breastfeeding, and the learning based on appreciation of prior knowledge and encouragement of critical reflection contributed to good breastfeeding levels. Another study also suggested that fathers with greater knowledge about breastfeeding had a more positive view of it.\(^{7,8}\)

In Brazil, the nursing profession plays an important role in encouraging health interventions for mothers, with the practice of breastfeeding as a common horizon. Thus, health professionals and fathers can interact, exchange experiences and knowledge for the promotion and protection of women and children’s health.\(^9\)

Exclusive breastfeeding until six months had significant representation, as on this occasion, six out of eight participating women were breastfeeding exclusively, and one of them offered predominant breastfeeding. A child was weaned with the justification of work outside the home for a period longer than ten consecutive hours and use of pacifiers and porridge offered by bottles.

The importance of making fathers aware through education in the prenatal period became evident to continue the exclusive breastfeeding up to six months.\(^{10,11}\)

Nursing mothers stated that sharing child care with relatives and receiving help for everyday chores contributes to the success in maintaining exclusive breastfeeding for longer.\(^{12}\)

The clarification about management of breastfeeding and the opportunity of freedom for decision associated with educational level, reasonable per capita income and all participants having a belief, were identified as aspects favoring harmony, bonding, attendance, interest, punctuality and effective participation of couples during life together.

In this study, we observed that among other reasons, the group work and systematic monitoring of families through home visits have provided visibility to the category of nurses by the study participants.

The mediation of bonding was a concern throughout the study, emphasizing its benefits for breastfeeding and the family. The conquest of bonding is possible when breastfeeding is not related to an obligation to be fulfilled\(^{13}\) but perceived as a right of the child and the mother, who is responsible for the choice of her child’s food, an option that must be respected by family members and the social environment. Correspondingly, in a study, the valorization of bonding for the success of breastfeeding was found through the speeches of participants.\(^{14}\)

For the mothers’ guidance in decision making, nurses should give them opportunities to talk about their fears and difficulties, contribute so they know their children and their needs, think beyond technical care, be aware of the uniqueness of each mother-baby relationship, and not turn the breastfeeding obligation as the only form of care.\(^9\)

The fathers evidently looked at their babies with admiration and pride. Through nonverbal communication or with words, they showed willingness to participate in the care and help to put children in their partners’ arms at the time of breastfeeding. Fathers and mothers around the world embrace, caress
and rock the children in their arms naturally using various touches to comfort them. Data from another study showed that parents are interested in breastfeeding and want to be involved in the preparation and support of breastfeeding, and are interested in practical issues that demonstrate how to participate in the care, providing support to their partners.\(^{(15)}\)

Fathers and mothers are similar in their sensitivity to the child and experience the successful breastfeeding. Anxiety is a common feeling for parents. It can be decreased with guidelines that provide increased knowledge, skills and attitudes, and the exposure of ways for fathers supporting breastfeeding.\(^{(16)}\)

The experience of this study showed that the figure of a distant man, just the provider of authority and financial support of the family, is transforming into an effective caregiver as fathers feel valued by health professionals and their partners. Men are in search for a resizing of their lives. The model played by a generation used to be of an absent and affectively distant father, and is gradually being replaced by men seeking to start the exercise of contact and expression of their emotional needs.\(^{(2)}\)

The father should be remembered and included in all the reproductive process, nursing consultations, hospital and home care, because breastfeeding is an inherent part of this unique stage of family life.

**Conclusion**

In this study, the testimonials clearly showed how parents perceive their contribution to the successful breastfeeding, and the satisfaction they demonstrate in caring for their children, especially when their wives appreciate such initiatives. They look at the newborn child with pride, and by nonverbal communication or with words demonstrate willingness to participate in the care and help to put the child in their partners’ arms at the time of breastfeeding.

Some women realize and demonstrate satisfaction when their partners collaborate in the care with their children and themselves. On one occasion, the researcher had to alert the woman that the father was providing care effectively with a view to appreciate his success attempts. The father can be an important ally and a true partner in children’s education and breastfeeding therefore, the stimulation of their participation is essential. The father should be remembered and included in all the reproductive process, nursing consultations, hospital and home care, because breastfeeding is an inherent part of this unique stage of family life.

**Collaborations**

Rêgo RMV collaborated with the study stages of design, analysis, data interpretation, article writing, relevant critical review of the intellectual content and final approval of the version to be published. Souza AMA, Rocha TNA and Alves MDS declare their contribution with writing the article, relevant critical review of the intellectual content and final approval of the version to be published.

**References**


Moodle platform for the construction of knowledge in intensive care: an experimental study

Plataforma Moodle na construção do conhecimento em Terapia Intensiva: estudo experimental

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Cibelli Rizzo Cohrs¹

Abstract

Objective: To compare the improvement of knowledge and skills of undergraduate students who participated in activities developed in the Virtual Learning Environment, Moodle, with those who did not participate, during hospital practice in an intensive care unit; to understand the students’ perceptions regarding the use of Moodle for teaching the construction of knowledge associated with hospital practice.

Method: This was a study conducted in two stages, experimental and descriptive, with nursing students from a higher education institution in the capital of São Paulo. The experimental group consisted of Moodle and hospital practice, compared to the control group with the traditional strategy. The outcome in the experimental study was evaluated by a validated instrument. In the descriptive qualitative study, content analysis was used.

Results: With a mean age of 23 years and digital fluency, the experimental group had a mean score of 9.1 before the intervention, and the control group had 9.4. After the intervention, the experimental group had 11.5 and the control group had 10.2. Qualitative data reinforced the advantages of associating Moodle with the performance of practical care.

Conclusion: There was an improvement in the learning outcome in the group that used Moodle. The experimental group participants reported greater security and confidence in their practice.

Keywords
Educational technology; Education, distance; Education, nursing; Nursing education research; Nursing faculty practice; Education, higher; Intensive care units

Resumo

Objetivo: Comparar o aprimoramento de conhecimentos e habilidades dos graduandos que participaram das atividades propostas no Ambiente Virtual de Aprendizagem, Moodle, no período de prática hospitalar em unidade de terapia intensiva, com os que não participaram; compreender a percepção dos estudantes em relação ao uso do Moodle associado ao ensino da prática hospitalar para a construção do conhecimento.


Resultados: Com Média de idade 23 anos e fluência digital o Grupo Experimento, pré-intervenção, apresentou média de acertos de 9,1 e o controle de 9,4. Ao final, Grupo Experimento apresentou 11,5 de acertos e controle 10,2. Dados qualitativos reforçaram as vantagens da associação do uso do Moodle no desempenho da prática assistencial.

Conclusão: Houve melhoria no resultado do aprendizado no grupo que utilizou o Moodle. Participantes do Grupo Experimento relataram maior segurança e confiança para a assistência.

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Conflicts of interest: there are no conflicts of interest to declare. EBL De Domenico, is an associate editor of Acta Paulista de Enfermagem but had no participation in the manuscript evaluation process.
Introduction

In education and, consequently, in the practice of nursing care, the current demand is for professionals with a critical posture, able to analyze different situations and make decisions, with evidence-based practice as a guide to their thinking and actions.\(^1,2\) The adoption of participative and innovative methodologies, using educational technologies, has demonstrated positive results, especially in regard to student receptivity.\(^3\) In nursing undergraduate education, the ethical and safety issues of patients overlapping those in real care situations are currently discussed.\(^4-6\) It is desirable that the students acquire knowledge and skills in simulated learning situations so that they are able to make decisions and for the action of care when providing nursing services to patients.

From this perspective emerged the intention to associate the use of new strategies contained in a Virtual Learning Environment - VLE, Moodle, to the traditional form of education\(^7\) in order to develop the potential of students to construct knowledge for care of critically ill patients in the general education level. The Moodle platform is an environment for the development of learning that has the main features of a VLE. In the Moodle platform, there are tools that allow for course evaluations, survey, questionnaires, tasks and reviewing work; chats, forum posts, workshops, and also the ability to create collaborative texts.\(^8\)

The intention of associating Moodle to the theoretic and practice learning in a hospital environment delineated the study questions: are there differences in undergraduate learning outcomes and the development of knowledge for the care of patients when traditional teaching is compared to the combination of a VLE? What is the opinion of students regarding the use of the Moodle platform in this development?

The objectives of this study were to: describe the sociodemographic profile of the students; identify the undergraduates’ digital fluency; compare the improvement of knowledge and abilities of those who participated in the activities proposed in the VLE, Moodle, in hospital practice, with those who did not participate; and, to understand the students’ perception regarding the use of Moodle associated with hospital practice education in building knowledge.

Methods

This was a study designed in two stages. The first stage was experimental and quantitative. The second stage was descriptive and qualitative.

The participants were students enrolled in 2012 and 2013, attending the Intensive Care Nursing course of the fourth semester of the undergraduate nursing course at the Escola Paulista de Enfermagem (EPE), Universidade Federal de São Paulo (UNIFESP).

For the characterization of the subjects, the following data were obtained: age; previous healthcare training (mid-level or graduate) and current experiences in health, working or participating in extracurricular activities related to hospital practice. Inclusion criteria were: being enrolled in the intensive care nursing course for the first time; having access to the internet, having skills to surf the Internet, and to upload and download files.

Students were randomly assigned into two groups consisting of the Experimental Group (EG) and Control Group (CG), under supervision of the same professor, a nurse specialist in intensive care. All students participated in the lectures and were scheduled in the intensive care units in the same period. Participants in the EG additionally accessed the activities available in Moodle.

The educational activities introduced by the Moodle platform were related to three learning modules: management of central venous catheters (CVC), management of fluid balance (FB), and nursing care for patients receiving norepinephrine (NCPN), which were also delivered in the classroom by means of dialectic lecture.\(^9\) The educational activities in Moodle were de-
developed into four modules. The first module was student adaptation, in which the VLE Moodle features were explained. The second was on the CVC management; the educational strategies used were “link to a video”, the “daily” and the “wiki”, which is a text of collective construction feature. In the third module, on FB, the “file exchange” was used, a feature for a simulation activity, based on a clinical case in which students were asked to record, analyze and describe actions to be taken. In the fourth and final module, each student chose a patient from his/her hospital practice activities, and from a script, described a case in the “daily” feature, determining the care according to the steps of the nursing process. In all modules, forums for discussion and sharing of questions and opinions were opened.

The level of knowledge of the groups was evaluated by applying the Learning Outcomes Assessment Tool, developed by the researchers, which consisted of an assessment using 15 multiple-choice questions, equally divided among the topics. This assessment tool was validated by a jury of five experts, selected on the following criteria: being a nurse with a minimum of a master’s degree; professional experience in nursing care of critically ill patients or nursing care in pharmacotherapy, or evaluation of central venous catheters.

For validation, two experts evaluated the 15 questions regarding three of the modules and the other three assessed the five questions regarding one of the modules, thus there were three experts for every five questions. To calculate the agreement rate for each of the questions, the mean response score was calculated to be used in the denominator and 1 (one) was used in the numerator, the number representing the best answer. For general agreement, the mean of the agreement rates of the 15 questions was calculated among the three evaluators. The result was a general agreement equal to 0.78, i.e. above 75%.(8)

In the first, experimental stage, the Moodle platform was associated with activities in hospital practice, in comparison to the traditional strategy (hospital practice alone). In the first and last day of hospital practice, pre and post intervention, respectively, the same evaluation was administered to both groups. Descriptive statistics were used to analyze the characteristics of the subjects and the results of their evaluations. The data were presented in absolute numbers, percentages, means, medians, standard deviation, maximum and minimum values.(10)

In the second stage, the focus group (FG) technique was used to obtain qualitative data.(11) The utilization of this technique aimed at understanding the students’ perceptions of learning content for clinical decision-making with the association between Moodle and hospital teaching practice. Thus, 17 EG students participated in the FG, at the end of hospital practice in the years 2012 and 2013, forming three FG with four students and one FG with five students. The main investigator was the moderator for all groups. The meetings were conducted in a meeting room at the university and utilized the same script of questions. The moderator began the activities, clarified the rules of the FG and identified the central question (“What were the benefits provided by the association of VLE, Moodle, with hospital practice for learning technical procedures and for clinical decision making in care critical patient?”), which in the FG technique aims to lead participants to reflect and prepare them for questions with greater objectivity, which were: “Do Moodle resources support the acquisition of new knowledge, new skills, and new attitudes?” and “What are the feelings experienced in the hospital from the implementation of activities proposed in Moodle? Make comments and suggestions as wished”.

The duration of each FG was one hour, on average, the meetings were recorded, and verbal narratives were transcribed. After transcription, the Bardin Content Analysis technique was applied.(12) The answers were coded from E1 to E17, initially quantified by repetition, separated in thematic units, submitted to inferential analyses, and subsequent categorization. The objective was to evaluate the construction of knowledge and the ability to associate the different educational strategies in order to strengthen the performance of intensive care ac-
tivities in practice by undergraduate students. Thus, the theoretical framework of the development of knowledge and skills to generate making effective and contextualized decisions was selected. The data generated by the FG were analyzed under these conceptual perspectives.

The study submitted to the Committee of Research Ethics of the Universidade Federal de São Paulo/Hospital São Paulo who has reviewed and approved under number 1704/11.

**Results**

Thirty-four students participated, representing 17 students in the EG and 17 in the CG, with a mean age of 22.3 and 23 years, respectively. Table 1 shows the demographic characteristics of the sample.

### Table 1. Sample characteristics

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<th>Category</th>
<th>Experimental Group</th>
<th>Control Group</th>
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<td>4(11.8)</td>
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</table>

The results are related to the application of the Learning Outcomes Assessment Instrument. Table 3 shows the measures of central tendency and dispersion for the successes, mistakes and ignorance of the issues contained in the evaluation tool administered to students of both groups, before and after the hospital practice.

Figure 1 shows the difference in performance between EG and CG, before and after a period of hospital practice.

In the second, qualitative, stage of the research, students were asked about acquisition of new knowledge, skills, and attitudes, favored by Moodle resources. The statements of the students generated two categories: (1) Moodle favors the acquisition of new knowledge, skills and decision making (n=17) and (2) advantages of VLE: doing exercises (n = 10);
accommodating scientific material previously evaluated by the teacher (n=7); time and local flexibility; (N=6) and possibility for discussion (n = 4), as shown in chart 1.

The second question to the EG approached which feelings were experienced in the hospital from the implementation of the proposed activities in Moodle, and the statements enabled the construction of two categories: (1) Moodle supports safety (n=11) and confidence (n=5) for developing the hospital practice, and (2) Using a VLE to study provided autonomy (n = 3) and freedom (n = 2) as shown in figure 1.

Table 3. Measures of central tendency and dispersion obtained from the evaluation instrument in the pre- and post-intervention

<table>
<thead>
<tr>
<th>Question corrections</th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-hospital practice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EG - Correct</td>
<td>11.5</td>
<td>12.0</td>
<td>1.5</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>CG - Correct</td>
<td>10.2</td>
<td>10.0</td>
<td>1.9</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>EG - Wrong</td>
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<td>3.0</td>
<td>1.6</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>CG - Wrong</td>
<td>4.2</td>
<td>4.0</td>
<td>2.0</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>EG - Does not know</td>
<td>0.2</td>
<td>0.0</td>
<td>0.5</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>CG - Does not know</td>
<td>0.5</td>
<td>0.0</td>
<td>0.7</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Pre-hospital practice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EG - Correct</td>
<td>9.1</td>
<td>10.0</td>
<td>2.2</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>CG - Correct</td>
<td>9.4</td>
<td>10.0</td>
<td>1.9</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>EG - Wrong</td>
<td>3.8</td>
<td>4.0</td>
<td>1.5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>CG - Wrong</td>
<td>3.3</td>
<td>3.0</td>
<td>1.9</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>EG - Does not know</td>
<td>2.1</td>
<td>1.0</td>
<td>2.3</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>CG - Does not know</td>
<td>2.3</td>
<td>2.0</td>
<td>1.5</td>
<td>0</td>
<td>6</td>
</tr>
</tbody>
</table>

Chart 1. Stages of data analyses from FG questions

<table>
<thead>
<tr>
<th>FG Question</th>
<th>Examples of speech in full</th>
<th>Inferential analysis</th>
<th>Categorization</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are the feelings experienced in the hospital from the implementation of activities proposed in Moodle?</td>
<td>I think the key word, the greatest feeling was safety, we can only have safety if you have knowledge, as a great tool for us to have knowledge and direct the study, served well for us to have safety. (E13)</td>
<td>Provides safety (n=11) Provides confidence (n=5)</td>
<td>Moodle provides safety (n=11) and confidence (n=5) to develop the hospital practice</td>
</tr>
<tr>
<td>Make comments and suggestions/wishes.</td>
<td>... should have in all courses (...) and if you are with a doubt. It allows you to come in and ask the professor. (E5) ... It would also be interesting if I had more days to discuss cases that are posted on Moodle. (E17)</td>
<td>Have in all disciplines (n=6) Allocate more days for the activities of Moodle (n=1)</td>
<td>Associate the use of Moodle in curriculum subjects (n=6) and allocate days to use Moodle (n=1)</td>
</tr>
<tr>
<td></td>
<td>Maintain the gradual opening of activities (n=3) Use more media features (n=1) Delivering more complex activity at the beginning (n=1)</td>
<td></td>
<td>Customizing Moodle: gradual release of activities (n=3), anticipate complexity (n=1), use of media, and viewing of participants who are online (n=1)</td>
</tr>
</tbody>
</table>
As for the final question of the FG, it was requested of the students that they make comments and give suggestions. From these statements, the creation of two more categories was possible: (1) associate the use of Moodle in curriculum subjects (n = 6) and allocate days to use it (n = 1) and (2) Customizing Moodle: release gradual activities (n = 3), use of media (n = 2), start with the most complex activities (n = 1) and enable the display of participants who are online (n = 1). Chart 1 shows steps of the technique.

**Discussion**

The subjects were mostly female, consistent with the literature, which also highlights the predominance of women in choosing a nursing career.\(^{(11)}\) The age range of the participants also corresponded to the characteristics of students in a Brazilian public universities, mostly adolescents and young adult students, none had an employment relationship; certainly, the full-time course limits the possibilities for students to reconcile work and university study.\(^{(14,15)}\)

Regarding the familiarity with computers and the task execution ability of the computer, students from both groups demonstrated to follow the generation of which they are a part, with at least knowledge about the basics to the advanced in the use of tools that are required for the Distance Learning (DL) course.\(^{(16)}\) Thus, in the characteristics stage, both the CG and EG demonstrated homogeneity in the investigated items, which was relevant as a condition for the following data to be analyzed.

The assessment tool obtained similar results for correct answers, errors, and ignorance. However, when applied after the hospital practice, the EG demonstrated a higher number of correct answers, with a minimum of nine questions of the total of 15, compared to the CG, in which there were students with unsatisfactory results, not reaching 50% of the total number of questions. Studies with similar populations denoted that traditional education, when associated with VLE, was able to provide better results in student learning as well as studies with larger populations that highlighted that there was an increase in educational post-intervention assessment correct answers.\(^{(17)}\)

The FG, performed in a sequence of hospital activity with EG students, highlighted that the association of the VLE to hospital practice enabled the acquisition of new knowledge, and encouraged the clinical decision making in patient care, as demonstrated in the category “Moodle favors the acquisition of new knowledge, skills, and decision-making”. The practices of activities that simulated nursing care of patients in a virtual environment and, thus safe, enabled the student to anticipate the learning experience of care for patients in a real situation; these findings are shown to be consistent with the scientific literature.\(^{(15)}\)

Patient safety is an important intentionality that may permeate the education process and learning of health professionals. The longer the intellectual preparation and motor skills in simulated environments, preceding the care of the patients, the higher the degree of safety of students in care practice and, consequently, patient safety, according to the World Health Organization.\(^{(16)}\)

Another factor highlighted as favorable for the construction of knowledge was the ability to find the Moodle scientific texts closely related to what needed to be studied. It is understandable that the student verbalizes comfort and safety in relation to scientific papers indicated by the professor regarding the content to be learned, because although there is a strong supply of online publications, in general, students still do not have security for interpret their findings.\(^{(18)}\) Another analytical facility is the very ease of obtaining the article by the student, a lazy attitude. In this sense, the role of the teacher-tutor in Moodle deserves reflection, in that one can only monitor whether or not the student opened the text (which is possible via control tools) or provoke them with activities that may denote a real reading and reflection.\(^{(19)}\)

Perhaps this configures an important analytical aspect of this study, the safety provided by the association of different educational strategies, articulated to prepare the health care student for the effective and efficient professional action.
The contemporaneity of this condition has been demonstrated by scientific publications linking the occurrence of adverse events with patients to healthcare environments with a high level of ethical and moral injury to professionals, as well as the services of institutions.\(^{(20,21)}\) The care actions shaped in unsafe practices are the main causes of adverse events. Thus, it is the institutional graduation that promotes a safety culture.\(^{(22)}\)

Taking advantage of the digital skills of the current generation of young people to refine the process of teaching and learning, as well as favoring of health care quality policy, has been a trend not only of educational institutions with teaching hospitals, but also of the institutions that are exclusively hospitals. In fact, the expansion of options in terms of teaching strategies is thought-provoking and motivating from the exploration of literature and research results, as this brings approval and praise from students, as denoted the category on "Advantages of VLE: developmental exercises; accommodation of scientific material previously evaluated by the professor; time and local flexibility; and discussion possibilities".

Thus, it was possible to evaluate the advantage of the combination of the VLE with hospital practice by the student’s ability to perform exercises that promoted understanding of the content and, consequently, the ability to use them in practical situations. This produced satisfactory results, as expected of a well prepared and competent student, able to associate thought, action and good results.\(^{(17)}\) From the concept, students signaled that the hospital VLE-practice association can promote the development of knowledge that, under propitious conditions, can strengthen decision making.

The discussions in the FG revealed the category “Using VLE to study provides autonomy and freedom”, which demonstrated the need that the student must feel respected in his/her learning process. Feelings reported by some students demonstrate that the use of VLE enables respect for the learning style and allows for time management in the way that best fits one’s learning style. Another weakness in university education is highlighted with this analytical possibility: low educational investment for detecting cognitive styles and the consequent diversification of teaching strategies and assessment in respect to different demands. Cognitive styles can be classified into superficial, strategic or deep.\(^{(23)}\) By the answers obtained, Moodle provided some students the opportunity to deepen the content, a typical student style that is not limited to memorizing, but interpreting; giving meanings, adding them to previous experiences; understanding what is being studied and views its applicability, finally, attitudes expected for the professional performance of the learner in the ICU.\(^{(24)}\)

The students’ suggestions and comments expressed in the category “Associate the use of Moodle in curriculum subjects and dedicate days to use Moodle”, in addition, reinforced the importance attributed by students to the VLE to support the regular courses, and also highlighted the need for inclusion of these study hours in planning educational disciplines. In this study, the Moodle activities were not included in the class plan because it was a research study. Thus, certainly, students realized that the inclusion of VLE, added to other curricular activities common to all other students, was excessive.

The suggestion of the students on the use of media and the possibility of interaction with colleagues, expressed in the “Customizing Moodle: gradual release of activities, anticipate complexity, use of media, and viewing of participants who are online,” revealed that even in a small group, the different learning styles are present and have their needs. Thus, in this category and the one previously discussed, the perceptions of students are in accord with those described in the most recent report by the New Media Consortium (NMC). This report, prepared in 2013, focused on trends in educational technology in Latin America, and highlighted collaborative environments, online learning, open content and social media as part of higher education in Latin America.\(^{(20)}\)

The outcomes of both quantitative and qualitative research stages allowed for the inference that the construction of knowledge can be increased by the union of teaching strategies that allow for the autonomy of the student, the dialogic relationship,
and deepening of the content. Quantitative data showed that the concepts were best learned by the students in the EG. However, as the effectiveness of the application of this content to the decision-making in a practice situation could not be measured objectively, the qualitative data from the content analysis of the perceptions of students were valuable contributions, demonstrating that the effectiveness of conceptual learning favored the execution of activities in practice, signaling the improvement of procedural and attitudinal skills.

The small number of research subjects was a limiting factor for better results. There was the possibility that the number of questions contained in the Outcome Assessment Instrument was insufficient for proper evaluation or measurement of the learning characteristics of the chosen content.

## Conclusion

This study demonstrated that the association of Virtual Learning Environment- Moodle with the teaching strategy applied in the hospital practice period favored the learning process expressed in higher performance presented by the students of the experimental group. From the students’ perception, performing the activities proposed in Moodle provided them the ability to acquire knowledge and skills, as well as increased feelings of safety and confidence in caring for patients in critical care during their hospital practice.

## Collaborations

De Domenico EBL and Cohrs CR participated in the project conception, result analysis, writing of the article and final approval of the version to be published. Cohrs CR executed the intervention and data collection.

## References


Validation for the Portuguese language of the Educational Practices Questionnaire (Student Version)

Validação para a língua portuguesa do Educational Practices Questionnaire (Student Version)

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Alessandra Mazzo¹
José Carlos Amado Martins²
Valtuir Duarte de Souza-Junior¹
Isabel Amélia Costa Mendes¹

Abstract

Objective: To translate and validate the Educational Practices Questionnaire (Student Version) for the Portuguese language.

Methods: Methodological instrument translation and validation study. For the validation process, the event: III Workshop Brazil – Portugal: Care for Critical Patients was set up.

Results: 103 nurses participated in the research. The psychometric tests (scale validity and reliability, correlation pattern between the variables, goodness-of-fit test of the sample and sphericity) presented satisfactory results. The clusters found in the factor analysis were not in accordance with the literature. Therefore, the division the original authors had made was followed.

Conclusion: The scale was called: Questionário de Práticas Educativas. The findings demonstrated good psychometric properties and suitable potential use. Further research is needed to consolidate the questionnaire and expand its dimensionality.

Keywords
Nursing education research; Education, nursing; Simulation; Validation studies; Questionnaires

Resumo

Objetivo: Traduzir e validar para língua portuguesa o Educational Practices Questionnaire (Student Version).


Resultados: Participaram da pesquisa 103 enfermeiros. Os testes psicométricos (validade e fidelidade da escala, o padrão de correlação entre as variáveis, o teste de adequação amostral e o teste de esfericidade) apresentaram resultados satisfatórios. Os agrupamentos encontrados na análise fatorial não apresentaram coerência com a literatura estudada. Assim, optou-se em seguir a divisão estabelecida pelos autores originais.

Conclusão: A escala foi denominada: Questionário de Práticas Educativas. Os achados demonstraram boas propriedades psicométricas e um adequado potencial de uso, todavia futuras pesquisas se fazem necessárias para consolidação desse questionário, bem como a expansão de sua dimensionalidade.

Keywords
Pesquisa em educação de enfermagem; Educação em enfermagem; Simulação; Estudos de validação; Questionários

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Conflicts of interest: none to declare.
**Introduction**

Educational practices permeate any and all teaching method and strategy. In 1987, a set of seven principles was defined\(^{(1)}\) for good educational practices that considerably contribute to the learning process. This definition received support from the American Association of Higher Education (AAHE) and the American Association of Colleges of Universities (AACU) and consists of the following principles: 1) Encouragement of student-teacher contact: The relation established between student and tutor in and beyond the school environment should be considered as a motivational factor, which encourages the student to think about his own values and future plans; 2) Encouragement of cooperation among students: Good learning happens in a collaborative and social manner, not in a competitive and isolated manner. The involvement among students permits the sharing of ideas and improvements in knowledge construction; 3) Encouragement of active learning: The way the teacher teaches should be meaningful to the students and, therefore, the students’ past experiences and daily reality should be taken into account, so that they can relate theory and practice. The involvement among students permits the sharing of ideas and improvements in knowledge construction; 4) Supply of immediate feedback: the students need to be aware of their education process. The teacher should provide appropriate information on the students’ performance in due time to allow them to reflect on their actions and use the resources needed to construct their knowledge; 5) Emphasis on the time to study: the teacher should advise the students on how to manage the time to study and memorize; 6) Establishment of high expectations: both teacher and student should be motivated to teach and learn. Both should hold high expectations in their actions for the teaching-learning process to happen in an environment that favors knowledge exchange; 7) Respect for different talents and forms of learning: many ways exist to learn. Each individual has his/her own knowledge construction characteristics. Therefore, these particularities should be valued and encouraged in the school environment.\(^{(1)}\)

In the light of the theoretical framework on simulation in nursing education,\(^{(2,3)}\) simulated teaching consists of five elements: Teacher, Student, Educational Practices, Characteristics of the Simulation and Results. All of these factors are interconnected in the learning process through the clinical simulation, which encourages the teacher-student relation, encourages teamwork, rescues theoretical contents and experiences, motivates learning, provides immediate feedback through the debriefing, respects and values the student’s learning. This feedback, provided in a positive manner to students in the early phase of their professional life, contributes to the valuation of individuals’ clinical training, entailing greater satisfaction with learning.\(^{(4)}\)

Nursing teaching through clinical simulation allows individuals to experience a wide range of professional practice contexts, ranging from highly stressful contexts like death to very happy ones like life.\(^{(5)}\)

In the nursing profession, care integrality is one of the guiding axes of education, and requires a pedagogical proposal that encourages the students to reflect on aspects of health practice, on their assessment process as a tool that helps to acknowledge their shortages, with a view to internalization and further correction. The understanding of the learning process should be perceived as something that involves both knowledge, skills and attitudes, as spaces for reflection on the subjects’ reality.\(^{(6)}\) In this conception, clinical simulation demands clinical reasoning from the students, reflexive thinking that makes them take decisions, one of the core skills for health professionals and mainly among nurses. Fast and agile clinical reasoning contributes significantly to successful professional interventions, to the quality of care delivery, which can positive or negatively have a direct impact in the patient’s life. In that sense, simulation permits competency building for nursing care through the combination of knowledge, skills...
and wanting to act, knowing how to act and being able to act (attitudes).\(^7,^8\)

To understand how individuals who participate in high-fidelity simulation perceive the educational practices, the National League for Nursing (NLN) - an organization that strives for excellence in nursing education – developed the Educational Practices Questionnaire (Student Version), a 16-item tool with two subscales (one related to educational practices and the other to the importance attributed to the item). The tool is divided in four factors: 1) Active learning, 2) Collaboration, 3) Diverse ways of learning and 4) High expectations. Answers are provided on a five-point Likert scale, including the option “not applicable” when the declaration is not relevant for the simulation performed. The validation study of the questionnaire involved 395 students, including 350 women and 45 men, with an average age of 29 years. The reliability using Cronbach’s alpha corresponded to 0.86 for the scale of characteristics of the educational practices and 0.91 for the importance of the items.\(^9\)

Recent studies have appointed the need for further research on the experience of individuals who use simulation as a teaching strategy with a view to better exploring its potential,\(^10\) and optimizing its use in learning.\(^11\)

Thus, the objective in this study was to translate and validate this American tool for the Portuguese language, which can measure characteristics of the educational practices in clinical simulation; and then publish it to contribute to the advancement of research involving simulation as a teaching strategy.

**Methods**

The first phase in this study was the translation of the tool. The criterion adopted followed the proposal by Ferrer et al.\(^12\) Two teachers experts in both languages translated the tool to Portuguese, after which a first consensus version was obtained in Portuguese. This version was submitted to an expert committee invited to participate: seven nurse experts from the field of nursing fundamental, all of whom were knowledgeable on simulation as a teaching strategy. Only four of them attended the meeting to analyze the tool. After informing on the research objective, the experts formalized their consent by signing the free and informed consent form. The questionnaire items were classified as valid or non-valid through the calculation of the Content Validity Index (CVI);\(^13\) for items with a CVI between 100% and 80%, the translation was maintained in the final version of the tool; the language of items with a CVI inferior to 80% was modified. At the end of this process, the tool was submitted to back translation by two teachers, one with expertise and the other native in the English language. After reaching a consensus on the back-translated version, it was compared with the original version, showing that the meaning of the items was not changed. Next, the semantic validation was undertaken, as well as a pretest with ten undergraduate students who had already engaged in simulation as a teaching strategy. The students were invited to manifest their doubts and considerations. This process happened regularly until reaching the final version of the questionnaire.

In the second phase, the tool was validated. For this phase, the III Workshop Brazil - Portugal: care delivery to critical patients was set up, promoted by a Brazilian educational institution in partnership with an educational institution from Portugal. To participate in this event, nurses were invited, professionally active or not, holding any post-graduation degree or not, with or without past experience with simulation as a teaching strategy. The event was offered free of charge and disseminated in the print and electronic media, with 180 places for registration on the website of the institution. The candidates could choose among three days to participate in the event; that is, each day of the workshop was reserved for 60 participants. All places were occupied in advance. The candidates received material for background study by e-mail. Among the 180 registrations, 103 actu-
ally attended the event. The workshop included a lecture on care delivery to critical patients and simulation, taught by faculty members from Brazil and Portugal with expertise in the area. The participants in this event were invited to take part in the research and manifested their acceptance by signing the free and informed consent form. To characterize the participants, a tool was developed with the following variables: age, sex, year of graduation from undergraduate program, years of experience, data on education, employment and experience with simulated teaching. After the theoretical content, still in the morning period, the participants were divided in three groups, each of which attended three skills training workshops. Low, medium, high-fidelity simulation and role play were used as teaching strategies throughout the event. In the afternoon, each group went through three different clinical simulations, in which each scenario involved care delivery to critical patients in a certain situation and covered the background study material, the theoretical content and skills training. After going through all phases, the participants again met in an auditorium and completed the Questionário de Práticas Educativas. Then, the data were coded in Excel worksheets and analyzed using Statistical Package for the Social Sciences-SPSS (version 22 for Windows). For all tests, statistical significance was set as p<0.05.

The study was registered on Plataforma Brasil under Certificado de Apresentação para Apreciação Ética (CAAE): 10551512.1.0000.5393.

Results

In the first phase of the study, the CVI for some items was inferior to 80%, so that their language was modified. In items 4 and 13, the word “didactic” was added to specify the material the tool refers to. In items 8 and 16, the word “instructor” was replaced by “teacher”, as the roles in the simulated environment in the United States differ from the roles in simulated environments in Brazil and Portugal. In these countries, in general, a single person, i.e. the teacher, serves as a teacher, instructor and facilitator. After this adaptation, the rest of the process took place regularly.

The final version of the scale has been described in chart 1.

In the second phase, 103 (100%) subjects participated in the workshop who agreed to take part in the research and were included in the study sample. Most participants, 90 (87.4%), were female, with an average age of 32.1 years. As regards education, on average, the participants had graduated in 2005. Twenty (19.4%) participants had not taken any type of specialization course and the remainder was either taking a course or had concluded the following course modalities: 64 (62.1%) Lato Sensu specialization, 47 (45.7%) Master’s and 20 (19.4%) Ph.D. What employment is concerned, 77 (74.8%) had a fixed job, being 48 (46.6%) in clinical nursing, 23 (22.3%) in teaching and six (5.8%) in service management. Concerning the experience in simulated teaching, 52 (50.5%) reported that they were not familiar with simulation as a teaching strategy, while 51 (49.5%) indicated familiarity with the tool.

With regard to the validity and reliability of the scale, the correlation pattern between the variables showed 36.3% (96) of correlations superior to 0.30. The goodness-of-fit of the sample, verified using the Kaiser-Meyer-Olkin test, corresponded to 0.81; Bartlett’s sphericity test <0.001 and anti-image matrix coefficients between 0.67 and 0.91.

In the factor extraction analysis, the total explained variance showed five eigenvalues superior to 1.00, with a cumulative percentage that explains more than 72% of the total variance, suggesting that the scale could be divided in five factors.

In the factor rotation, the commonality test demonstrated coefficients superior to 0.54 for all factors, strengthening the possible extraction of the factors; these procedures followed the analysis model the original authors had used: exploratory factor analysis with varimax rotation. The results of the analysis in this study were very different from the findings of the original version, without a link between the clusters. There-
fore, the division established in the original version was followed.

To verify the internal consistency, Cronbach’s alpha was used, with the following coefficients: active learning 0.86, collaboration 0.87, diverse ways of learning 0.77, high expectations 0.70 and, for the general scale 0.90.

Table 1 presents descriptive statistical coefficients for the Questionário de Práticas Educativas and the Scale of Importance of the Item.

Pearson’s correlation coefficient of the Questionário de Práticas Educativas and the Scale of Importance of the Item have been described in table 2.

Table 1. Descriptive statistics of the factors of the Questionário de Práticas Educativas and the Scale of Importance of the Item (n = 103)

<table>
<thead>
<tr>
<th>Variables</th>
<th>M*</th>
<th>M**</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active learning</td>
<td>3.60</td>
<td>5.00</td>
<td>4.56</td>
<td>0.41</td>
</tr>
<tr>
<td>Collaboration</td>
<td>2.50</td>
<td>5.00</td>
<td>4.66</td>
<td>0.52</td>
</tr>
<tr>
<td>Diverse ways of learning</td>
<td>3.50</td>
<td>5.00</td>
<td>4.64</td>
<td>0.47</td>
</tr>
<tr>
<td>High expectations</td>
<td>2.00</td>
<td>5.00</td>
<td>4.58</td>
<td>0.59</td>
</tr>
<tr>
<td>General</td>
<td>3.56</td>
<td>5.00</td>
<td>4.59</td>
<td>0.39</td>
</tr>
<tr>
<td>Scale of Importance of the Item</td>
<td>M*</td>
<td>M**</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Active learning</td>
<td>3.80</td>
<td>5.00</td>
<td>4.80</td>
<td>0.31</td>
</tr>
<tr>
<td>Collaboration</td>
<td>3.50</td>
<td>5.00</td>
<td>4.86</td>
<td>0.35</td>
</tr>
<tr>
<td>Diverse ways of learning</td>
<td>3.50</td>
<td>5.00</td>
<td>4.85</td>
<td>0.33</td>
</tr>
<tr>
<td>High expectations</td>
<td>3.00</td>
<td>5.00</td>
<td>4.84</td>
<td>0.36</td>
</tr>
<tr>
<td>General</td>
<td>3.75</td>
<td>5.00</td>
<td>4.82</td>
<td>0.29</td>
</tr>
</tbody>
</table>

Table 2. Pearson’s correlation coefficient of Questionário de Práticas Educativas and Scale of Importance of the Item (n = 103)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
<th>General Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active learning</td>
<td>0.48</td>
<td>0.59</td>
<td>0.64</td>
<td>0.96</td>
<td></td>
</tr>
<tr>
<td>Collaboration</td>
<td>0.48</td>
<td>0.47</td>
<td>0.42</td>
<td>0.65</td>
<td></td>
</tr>
<tr>
<td>Diverse ways of learning</td>
<td>0.59</td>
<td>0.47</td>
<td>0.42</td>
<td>0.71</td>
<td></td>
</tr>
<tr>
<td>High expectations</td>
<td>0.64</td>
<td>0.42</td>
<td>0.42</td>
<td>0.75</td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>0.96</td>
<td>0.65</td>
<td>0.71</td>
<td>0.75</td>
<td></td>
</tr>
<tr>
<td>Scale of Importance of the Item</td>
<td>M*</td>
<td>M**</td>
<td>Mean</td>
<td>SD</td>
<td></td>
</tr>
<tr>
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<td>0.73</td>
<td>0.73</td>
<td>0.97</td>
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<tr>
<td>Collaboration</td>
<td>0.67</td>
<td>0.72</td>
<td>0.53</td>
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</tr>
<tr>
<td>Diverse ways of learning</td>
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<td>0.72</td>
<td>0.56</td>
<td>0.82</td>
<td></td>
</tr>
<tr>
<td>High expectations</td>
<td>0.73</td>
<td>0.53</td>
<td>0.56</td>
<td>0.79</td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>0.97</td>
<td>0.78</td>
<td>0.82</td>
<td>0.79</td>
<td></td>
</tr>
</tbody>
</table>

Discussion

Among the educative practices, high-fidelity simulation enriches the teaching-learning process, being a relevant strategy that can be implemented in the curriculum of educational institutions, as it consolidates this process and enhances the students’ competences and skills.(14) The potential use of the scale in health institutions should also be highlighted in the continuing education process of their human resources, as professional qualification is fundamental for effective and high-quality healthcare.
The Portuguese version of the Educational Practices Questionnaire (Student Version) was called: *Questionário de Práticas Educativas*. The name Student Version was removed as the tool can be applied to any and all individuals who engage in a learning process.

The results of the psychometric tests appointed a high correlation between the variables and the fitness of the sample to develop the study. The total explained variance signaled that the scale could be divided in five factors, differently from the original scale. In the exploratory factorial analysis with varimax rotation, the items were grouped in a rather unexpected manner; as there was no logical explanation, the findings of the original study were followed. One justification for this unexpected grouping can be related to the characteristics of the sample studied. The validation study of the original version was developed with undergraduate nursing students, while the present study involved nursing professionals. The composition of the group studied influences the factor analysis: the more heterogeneous a sample is, the higher the correlations between the test scores.\(^{(15)}\) In view of the great heterogeneity of the study sample and the high correlations in the test, the scale factors should be better assessed in subsequent studies, either involving students or professionals.

Another source of influence this study may have undergone is related to the sample size: in the literature,\(^{(16)}\) it is suggested that, for the sake of factor analysis, the sample should contain at least five participants per variable and, in total, at least 200 subjects. Others\(^{(17)}\) recommend using ten subjects per variable and at least 100 subjects in total, or argue\(^{(18)}\) that the desired sample size depends on the size of factor loadings obtained, around 0.80. On the other hand, some sources\(^{(19)}\) classify samples of 50 individuals as very small, of 100 as small, of 200 as reasonable, of 300 as good, of 500 as very good and of 1,000 or more as excellent. Also, as a general role, having at least 100 subjects per factor measured is recommended.\(^{(20)}\) Without a consensus on the sample size, in the future, other study using the *Questionário de Práticas Educativas* can better clarify the factor division of the scale, whether involving undergraduate students or nursing professionals.

What the internal consistency is concerned, the results found are higher than the findings for the original scale, for the *Questionário de Práticas Educativas* as well as for the Scale of Importance of the Item, reasserting the coherence of the scales. The internal consistency of the four factors was also good in both scales, except for factor four, with a lower consistency in both scales.

In terms of descriptive statistics, the participants obtained higher averages in factor 2 of the *Questionário de Práticas Educativas*, followed by factors 3, 4 and 1. Identical results were obtained when the degree of importance of the item was assessed. These results should be further explored in other specific studies though. Pearson’s correlation test demonstrated a strong positive correlation between most factors in the *Questionário de Práticas Educativas*, appointing convergence between the factors and the general scale, and a strong positive correlation between the factors and the Scale of Importance of the Item. Although the sample size and specificity are considered as limitations in this study, we expect that future studies can offer support to consolidate the validity of the questionnaire and strengthen its potential use.

**Conclusion**

The educational practices involve important principles for the learning process in the different teaching strategies, including clinical simulation. Trying to see simulated teaching from this perspective allows us to understand better how the individuals who use simulation in their education have experienced it. In this study, the Educational Practices Questionnaire (Student Version) was translated and validated for the Portuguese language. In Portuguese, it is called *Questionário de Práticas Educativas* and can be applied to anyone using high-fidelity simulation in his/her education. Good psychometric results were found in this sample, except in the
factor analysis, which requires further investigation in subsequent studies.

Acknowledgements
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Collaborations
Almeida RGS, Mazzo A, Martins JCA, Souza-Junior VD and Mendes IAC declare that they contributed to the Conception of the project, analysis and interpretation of the data, writing of the article, relevant critical review of the intellectual content and final approval of the version for publication.

References
Pain induction by chemotherapy medication docetaxel in women with breast cancer

Indução da dor pelo quimioterápico docetaxel em mulheres com câncer de mama

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Pedro Augusto do Amaral¹
Maria Ângela Ribeiro¹
Anna Cláudia Yokoyama dos Anjos¹

Abstract

Objective: To describe the frequency, characteristics, location, pain intensity in breast cancer patients using the chemotherapy medication Docetaxel.

Methods: Longitudinal study involving 17 women with breast cancer under treatment using Docetaxel. The patients’ pain was assessed during three chemotherapy cycles, using the tools McGill Pain Questionnaire (Br-MPQ) and the Brief Pain Inventory (BPI). Spearman’s correlation and the Mann-Whitney test were used.

Results: The mean pain score increased in all variables of the BPI. When comparing the total coefficients on the Pain Assessment Index, 0.20; 0.33 and 0.24 were found in the first, second and third assessment, showing a correlation between the pain intensity and the interference in all daily activities on the BPI for the second assessment.

Conclusion: The occurrence of pain increased, compromising the participating women’s activities of daily living.

Resumo

Objetivo: Descrever a frequência, características, localização, intensidade da dor em pacientes com câncer de mama em uso do quimioterápico Docetaxel.

Métodos: Estudo longitudinal realizado com 17 mulheres com câncer de mama em tratamento com Docetaxel. As pacientes foram avaliadas durante três ciclos da quimioterapia quanto à dor, utilizando-se os instrumentos Questionário McGill de Dor (Br-MPQ) e Brief Pain Inventory (BPI). Utilizou-se a correlação de Spearman e o teste de Mann-Whitney.

Resultados: Houve aumento na média da dor em todas as variáveis do BPI. Quando comparados os valores do Pain Rating Index (PRI) total foram verificados respectivamente 0,20; 0,33 e 0,24 na primeira, segunda e terceira avaliações, sendo encontrada correlação entre a intensidade da dor e a interferência em todas as atividades do cotidiano no BPI na segunda avaliação.

Conclusão: Houve aumento na ocorrência da dor, comprometendo as atividades diárias de vida das mulheres participantes.

Keywords
Breast neoplasms/drug therapy; Pain/etiology; Pain/chemically induced; Antineoplastic agents/adverse effects; Pain measurement

Descritores
Neoplasias da mama/quimioterapia; Dor/etiologia; Dor/induzido quimicamente; Agentes antineoplásicos/efeitos adversos; Medicação da dor

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Pain induction by chemotherapy medication docetaxel in women with breast cancer

Introduction

According to the International Association for the Study of Pain (IASP), pain “is an unpleasant sensory and emotional experience associated with actual or potential tissue damage”.\(^1\) Pain can be acute or chronic, visceral or somatic, neuropathic or psychogenic, the latter being common in oncology patients.\(^2\)

One widely used chemotherapy medication to treat breast cancer is Docetaxel. Docetaxel is one of the drugs in the pharmacological group called “taxanes”. These derive from a natural substance found in the bark of the yew, *Taxus baccata*, a tree that produces both toxic (taxanes) and medicinal substances (taxol). Taxanes (paclitaxel and docetaxel) are antimitotic medications that act on the microtubules of tubulin by stabilizing them. The rupture of the cellular equilibrium changes the cell structure and its functions, resulting in apoptosis. Paclitaxel and Docetaxel are used to treat cancer with a significant therapeutic response, particularly in women with lymph node problems.\(^3\) Among the adverse reactions experienced by patients on Docetaxel, peripheral neuropathy was classified in the drug monograph as a common adverse reaction that affects about 30% of the patients.\(^4\) This adverse reaction affects the nervous system, classifying the medication as neurotoxic.\(^5\)

The characteristic symptoms of neuropathic pain are tingling, numbing and pain in the hands and feet; fine motor problems; difficulty to walk; loss of deep tendon reflexes, transitory muscle pain and arthralgias, especially in joints and limbs.\(^5\)

Patients on taxanes, such as Docetaxel, may experience muscular pain or arthralgia. These reactions have been called “acute pain syndrome associated with taxanes, probably resulting from peripheral nerve injury and sensitization of nociceptors”. On average, these start one or two days after the infusion of the chemotherapeutic drug and, on average, they last four to five days.\(^6\)

Pain is a symptom that is hard to assess, due to its subjective, complex and multidimensional nature.\(^7\) The tools used to assess the pain can be divided between multidimensional and one-dimensional.\(^8\)

The origin of pain is multifactorial, causing changes in the biopsychosocial and spiritual aspects, requiring an interdisciplinary team to diagnose and treat patients with painful syndromes that are hard to control.\(^8\)

This study is justified as the pain can significantly interfere in the accomplishment of different activities of daily living, and consequently in the quality of life of patients being treated. Through the measuring and assessing of the pain, individualized nursing and interdisciplinary care can be planned, focused on the control and/or elimination of the pain as an adverse reaction of Docetaxel use, and on the improvement of quality of life, as patients being treated with taxanes need individual pharmacokinetic adjustments, according to the clinical response, comorbidities, medication interactions and adverse reactions experienced.

The objective of the study was to describe the frequency, characteristics, location and intensity of the pain, as well as to analyze the repercussion of the pain intensity on the activities of daily living of the patients studied.

Methods

A descriptive and longitudinal study with a quantitative approach was undertaken. The sample consisted of the total population of women attended during the data collection period, i.e. 17 women with breast cancer being treated with Docetaxel. The inclusion criteria were women over 18 years of age, undergoing neoadjuvant treatment exclusively with Docetaxel, and with intact comprehension and communication skills. Women with impaired cognitive skills were excluded from the study.

One of the researchers, an undergraduate nursing student, collected the data at the chemotherapy outpatient clinic of the Oncology sector of a public teaching hospital in the city of Uberlândia, State of Minas Gerais, in the Southeast of Brazil, between December 2012 and September 2013. To collect the data, a previously selected tool was applied when the patients were awaiting multidisciplinary team care and during the chemotherapy sessions.
The medical history was used as a secondary source of information.

The women who accepted to participate in the study signed the Free and Informed Consent Form and answered three data collection tools to assess and characterize the pain: the identification and characterization form, the Brazilian version of the McGill Pain Questionnaire (Br-MPQ)(9) and the Brief Pain Inventory (BPI - Brief Pain Inventory). (10)

The Br-MPQ consists of a set of 68 descriptors, divided in four categories: sensory, affective, subjective assessment and mixed. For the sake of this study, the Pain Assessment Index and the Number of Words Chosen were verified. The Number of Words Chosen ranges from zero to a maximum of 20. The Pain Assessment Index is based on each word’s gradual score. In the 20 classes, the pain descriptors are ranked in an increasing order of intensity.

The BPI is a multidimensional pain measure that included 15 items, subdivided in two parts: the first assesses the pain intensity between zero (absence of pain) and 10 (unbearable pain); the second assesses the interference of the pain in daily activities, such as general activity, mood, ability to walk, work, relationship with other people, sleep and appreciate life, which is also assessed on a numerical scale from zero (did not interfere) to 10 (completely interfered).

All study participants received four cycles of doxorubicin + cyclophosphamide, followed by four cycles of Docetaxel, administered at 21-day intervals. During the treatment using doxorubicin + cyclophosphamide, the pain was not assessed, as the study was only focused on pain related to Docetaxel. The assessments took place at three distinct times, longitudinally distributed as follows: first assessment, before the start of the chemotherapy infusion using Docetaxel; second and third assessment, after the second and third cycles, respectively. As the interval between the chemotherapy cycles for breast cancer ranges between 21 and 28 days, the development and conclusion of the treatment was not delayed for any of the patients. Although no research data were collected in the final cycle using Docetaxel, it was observed during the nursing care and clinical pharmacy monitoring that the final cycle of Docetaxel was suspended in one of the patients due to tumor progression, while the dose was reduced in two patients due to severe toxicity. During the data collection, none of the participants was lost.

The collected data were typed in Microsoft Excel 2007 worksheets, with double data entry for the sake of greater reliability. The software used was Statistical Package for the Social Sciences (SPSS), version 22.0 for Windows. Spearman’s correlation was used to analyze the association between the pain intensity in the variable “Worst pain in the last 21 days” and “Interference of pain in activities of daily living”, and the correlation between the Pain Assessment Index and the Number of Words Chosen. The Mann-Whitney test was applied to verify the correlation between the Pain Assessment Index and the use of medications. Significance was set with a p-value of 0.05.

The Pain Assessment Index (sensory, affective, evaluative, mixed and total) was found according to the score attributed to each of the categories, corresponding to the index between the sum of the intensity obtained in each of the categories and the total possible score in each category. (11)

The pain variables at the three assessment times according to the BPI are displayed as means, standard deviations, minima and maxima in women undergoing chemotherapy with the medication Docetaxel.

The study was registered on Plataforma Brasil under Certificado de Apresentação para Apreciação Ética (CAAE): 06890012.9.0000.5152.

Results

The sociodemographic, economic and clinical characteristics are displayed in table 1.

During the first assessment, the average score for the variable worst pain in the past 21 days was 4.94 (minimum and maximum score: zero to 10; standard deviation: 3.41); the average score for the variable weak pain in the past 21 days was 1.88 (minimum and maximum: zero to
Pain induction by chemotherapy medication docetaxel in women with breast cancer

5; standard deviation: 1.65) and the mean pain score was 3.76 (minimum and maximum: zero to 8; standard deviation: 2.68). In the second assessment, the average score for worst pain in the past 21 days was 8.12 (minimum and maximum: 5 to 10; standard deviation: 1.53); the average for weak pain in the past 21 days was 3.65 (minimum and maximum: zero to 7; standard deviation: 1.96); and the mean pain score was 5.12 (minimum and maximum: 2 to 8; standard deviation: 1.53). In the third assessment, the average score for worst pain in the past 21 days was 6.82 (minimum and maximum: 2 to 10; standard deviation: 2.24); the average for weak pain in the past 21 days was 2.82 (minimum and maximum: zero to 8; standard deviation: 1.74); and the mean pain score was 3.59 (minimum and maximum: 1 to 7; standard deviation: 1.73).

The relation between pain intensity in the variable worst pain in the past 21 days and interferences in activities of daily living is presented in table 2.

Table 3 presents the Pain Assessment Index and the Number of Words Chosen in averages for the first, second and third assessments. It should be highlighted that Pain Assessment Indices closer to one corresponded to higher pain levels.

To explore the relation between the Pain Assessment Index and the Number of Words Chosen, the Spearman correlation test was applied, but no correlation was found in any of the assessments.

The Mann-Whitney test was applied to verify the relation between the patients’ medication use and the Pain Assessment Index, but no correlation was found between these variables. In the first assessment, 70.58% of the patients did not use any pain control medication. In the second assessment, 17.65% used non-steroidal anti-inflammatory medication, 17.64% weak opioids and 11.76% strong opioids. In the third assessment, only three patients did not use analgesics.

Emotional problem and physical effort were appointed as the most interfering factors. When asked about the cause of the increased pain, we found: movement, emotional problem and no perceived

Table 1. Distribution of study participants according to sociodemographic, economic and clinical characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age range</td>
<td></td>
</tr>
<tr>
<td>30-40</td>
<td>3(17.65)</td>
</tr>
<tr>
<td>41-50</td>
<td>3(17.65)</td>
</tr>
<tr>
<td>51-60</td>
<td>9(52.94)</td>
</tr>
<tr>
<td>≥61</td>
<td>2(11.76)</td>
</tr>
<tr>
<td>Marital status</td>
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</tr>
<tr>
<td>Single</td>
<td>1(5.88)</td>
</tr>
<tr>
<td>Married</td>
<td>12(70.50)</td>
</tr>
<tr>
<td>Separated/divorced</td>
<td>2(11.76)</td>
</tr>
<tr>
<td>Widowed</td>
<td>2(11.76)</td>
</tr>
<tr>
<td>Skin color</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>7(41.17)</td>
</tr>
<tr>
<td>Black</td>
<td>4(23.52)</td>
</tr>
<tr>
<td>Mulatto</td>
<td>6(35.29)</td>
</tr>
<tr>
<td>Education, years</td>
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</tr>
<tr>
<td>&lt;9</td>
<td>10(58.88)</td>
</tr>
<tr>
<td>≥9</td>
<td>7(41.17)</td>
</tr>
<tr>
<td>Income, minimum wage*</td>
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</tr>
<tr>
<td>&lt;1</td>
<td>5(29.41)</td>
</tr>
<tr>
<td>&gt;1-2</td>
<td>4(23.52)</td>
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<td>&gt;2-3</td>
<td>4(23.52)</td>
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<tr>
<td>&gt;3-5</td>
<td>2(11.76)</td>
</tr>
<tr>
<td>&gt;5</td>
<td>2(11.76)</td>
</tr>
<tr>
<td>Clinical staging</td>
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</tr>
<tr>
<td>IIA</td>
<td>4(23.52)</td>
</tr>
<tr>
<td>IIB</td>
<td>6(35.29)</td>
</tr>
<tr>
<td>IIIA</td>
<td>5(29.41)</td>
</tr>
<tr>
<td>IIIB</td>
<td>2(11.76)</td>
</tr>
<tr>
<td>Use of analgesic medication</td>
<td></td>
</tr>
<tr>
<td>First assessment</td>
<td>5(29.41)</td>
</tr>
<tr>
<td>Second assessment</td>
<td>8(47)</td>
</tr>
<tr>
<td>Third assessment</td>
<td>14(82.32)</td>
</tr>
</tbody>
</table>

*p-value <0.05

Table 2. Relation between pain intensity in the variable worst pain in the last 21 days

<table>
<thead>
<tr>
<th>Variables</th>
<th>First assessment</th>
<th>Second assessment</th>
<th>Third assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>p-value*</td>
<td>Coefficient</td>
</tr>
<tr>
<td>General assessment</td>
<td>0.770</td>
<td>0.000*</td>
<td>0.589</td>
</tr>
<tr>
<td>Mood</td>
<td>0.598</td>
<td>0.011*</td>
<td>0.488</td>
</tr>
<tr>
<td>Ability to walk</td>
<td>0.677</td>
<td>0.003*</td>
<td>0.833</td>
</tr>
<tr>
<td>Work</td>
<td>0.659</td>
<td>0.004*</td>
<td>0.698</td>
</tr>
<tr>
<td>Relationship with other people</td>
<td>0.309</td>
<td>0.121</td>
<td>0.567</td>
</tr>
<tr>
<td>Sleep</td>
<td>0.393</td>
<td>0.119</td>
<td>0.617</td>
</tr>
<tr>
<td>Appreciate life</td>
<td>0.702</td>
<td>0.002*</td>
<td>0.572</td>
</tr>
</tbody>
</table>

*p-value <0.05

*Minimum wage in force at the time of the research: R$678.00
cause; hence, several causes can contribute to the increase or appearance of the pain. As for the strategies to decrease the pain, resting/relaxation was appointed as the main strategy for pain relief, corresponding to 41% in the first assessment, 29.4% in the second assessment and 52.9% in the third assessment.

What the pain location is concerned, the following locations and respective percentages were appointed: in the first assessment, the patients appointed the lower limbs (52.9%), followed by the upper limbs (29.4%) and head (29.4%) as the body areas with the most intense pain. In the second assessment, 100% of the patients referred that the lower limbs were the body area with the most intense pain, followed by the upper limbs (64.6%) and back (64.6%). In the third assessment, the lower limbs (82.32%), upper limbs (41.16%) and back (35.28%) were appointed as the body areas with intense pain.

### Discussion

Most (52%) participants were between 51 and 60 years of age. These data were expected, as studies confirm that breast cancer is relatively rare before the age of 35 years. After the age of 50 years, the incidence rates display a progressive and fast increase, age being the main risk factor for the appearance of breast cancer. The white skin color was observed in 58% of the women, very similar to the findings in another study. In 29% of the participants, the family income was one minimum wage, and education inferior to nine years prevailed. These results demonstrate that the patients attended at this public health institution have low educational and socioeconomic levels, representing an important bottleneck to understand the orientations proposed. The nurses should make sure to make the language easy to understanding, facilitating communication and aiming for its understanding.

The increase in the mean pain score was found in all BPI variables when comparing the first with the second and third assessments. In the univariate analysis, a correlation was found between pain intensity and interference in all daily activities in the BPI during the second assessment (p<0.05). The greater interference in these aspects consequently entails a worse quality of life. The variables the pain affects in the three assessments were general activity, mood, ability to walk, work and appreciate life. In the BPI aspects “relationship with other people” and “sleep”, statistical significance was only found in the second and third assessments. A study of post-treatment pain in women with breast cancer found similar results. The pain most strongly affected the following aspects: mood, normal work and sleep. In a systematic review to assess the incidence of the acute pain syndrome induced by taxanes in breast cancer patients, the authors concluded that pain was a clinically significant adverse event that interfered in the activities of daily living and reduced the participating patients’ quality of life. Untreated pain causes anxiety and depressive symptoms, also impairing the cognitive functions and entailing great losses in daily and social activities and sleep. The pain can act as a limiting factor for the accomplishment of activities of daily living and leisure, besides causing changes in the body image and reducing the frequency and pleasure of sexual activities; the pain can result in significant changes in the quality of life when compared to women without pain. Therefore, the team members’ educational work is extremely important, highlighting the nursing professionals.

### Table 3. Pain Rating Index (PRI) and Number of Words Chosen (NWC)

<table>
<thead>
<tr>
<th>Variables</th>
<th>PRI</th>
<th>NWC</th>
<th>PRI</th>
<th>NWC</th>
<th>PRI</th>
<th>NWC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensory</td>
<td>0.19</td>
<td>3.41</td>
<td>0.34</td>
<td>5.65</td>
<td>0.24</td>
<td>4.53</td>
</tr>
<tr>
<td>Affective</td>
<td>0.20</td>
<td>1.82</td>
<td>0.35</td>
<td>3.12</td>
<td>0.28</td>
<td>2.53</td>
</tr>
<tr>
<td>Subjective assessment</td>
<td>0.30</td>
<td>0.65</td>
<td>0.51</td>
<td>1</td>
<td>0.38</td>
<td>1</td>
</tr>
<tr>
<td>Mixed</td>
<td>0.10</td>
<td>0.76</td>
<td>0.12</td>
<td>1.24</td>
<td>0.07</td>
<td>0.82</td>
</tr>
<tr>
<td>Total</td>
<td>0.20</td>
<td>6.63</td>
<td>0.33</td>
<td>10.98</td>
<td>0.24</td>
<td>8.86</td>
</tr>
</tbody>
</table>

PRI—Pain Rating Index; NWC—Number of Words Chosen
By means of the Br-MPQ, the different pain dimensions (sensory, affective, evaluative and mixed) could be assessed. When the Pain Assessment Indices were compared between the first and the second and third assessments, increased coefficients, and therefore increasing pain intensities were found. Also, the pain intensity increased after the start of the treatment using Docetaxel. The subjective assessment category stood out because the highest increase in the pain index was found. This analyzes, estimates and summarizes the strength and importance of the global subjective discomfort the presence of the pain causes in perceptual as well as reactive terms. It represents pain as a form of self-knowledge and self-assessment.\(^{(9)}\)

Higher pain intensity and, consequently, higher Pain Assessment Indices were found in the second assessment. In the third assessment, the mean Pain Assessment Indices were lower than in the second assessment. This result may be justified by the fact that no prophylaxis exists to prevent this neuropathic pain in patients who have started treatment with Docetaxel. After the first Docetaxel cycle, according to the patients’ complaints, analgesics need to be prescribed. Thus, during the third assessment, the patients would already be on correct analgesic and, consequently, experiencing lower pain levels. The growing use of analgesic medications during the second and third assessments can prove this fact. In view of the individual and subjective characteristics of pain and the pain threshold, no standard analgesia can be used, so that each patient’s individual complaints need to be verified to adopt the correct and effective conduct.

An increase was found in the mean NWC in all categories when comparing the first and the second assessment. In the data analysis, no statistical correlation was found between the Pain Assessment Index and the Number of Words Chosen. This result can be explained by the fact that the Number of Words Chosen is an additional index, which can hamper the analysis of statistical significance. The Number of Words Chosen does not necessarily drop when partial relief is obtained. The patients frequently choose a less intense word from a subclass or category instead of not using the entire subclass or category. That naturally results in a lower Pain Assessment Index, but does not lead to a change in the Number of Words Chosen.\(^{(9)}\)

Simultaneously with the increase in the pain intensity, the use of analgesics increased significantly, with the progressive use of stronger medications, starting with non-steroidal anti-inflammatory agents until reaching strong opioids. Nevertheless, no correlation was observed between the Pain Assessment Index and the use of analgesics. In the first assessment, 70.58% of the patients did not use any pain control medication. In the second, there was an enhanced drop in the number of patients who did not take any medication.

During the three assessment times for the data collection, it was verified that the patients appointed the lower limbs as the body area with the highest pain intensity, corresponding to 52.9% in the first assessment, increasing to 100% in the second assessment and 82.32% in the third assessment. Next, the upper limbs were appointed as the body area with the greatest pain intensity. In this respect, the number of patients increased considerably in the second assessment when compared to the first. The back was the third most appointed region with the highest pain intensity. The results found in this study are in line with the literature, where the patients tend to report greater pain in the lower limbs when compared to the upper limbs.\(^{(19)}\) Normally, the pain starts between 24 and 48 h after the Docetaxel infusion, with an average length of three to five days. The neuropathy can continue for months and even years though.\(^{(16)}\)

This study’s contributions related to the most detailed knowledge on Docetaxel-induced neuropathic pain, an important adverse reaction that affects women with breast cancer. This kind of studies supports the establishment of nursing interventions and can help with the management and reduction of neuropathic pain and its sequelae in the short, medium and long terms, contributing to improve the patients’ quality of life through qualified nursing care. There is no proven medication currently to prevent or treat chemotherapy-induced peripheral neuropathy. Therefore, a gap is also verified in the literature.
Nevertheless, evidence has already been published on the use of effective non-pharmacological strategies.\(^\text{20}\) 

As a multiprofessional team member, the nurse can systematically assess the pain, being the professional who spends most time and has most contact during patient care. As the responsible for continuing care, nurses can outline nursing interventions for the sake of appropriate pain control, providing comfort, safety and wellbeing. In a multidisciplinary activity, nursing can also manage the patients’ medication therapy to adjust doses in due time; monitor the infusion time of the chemotherapy medication, control the volume infused and monitor the cumulative dose. These fundamental measures will promote the success of the treatment and reduce the toxic levels of Docetaxel. Thermotherapy, massages, walks, therapeutic touch, attitude change, distraction, relaxation techniques, reiki, acupuncture, acupressure and music therapy should be part of the nursing and/or pharmaceutical prescription; these are considered alternatives that knowingly improve the patients’ quality of life.\(^\text{21}\) 

Neuropathy is an important factor that leads to dose reduction, treatment delay or interruption, being one of the first-choice management options to reduce this adverse reaction. In this study, none of the patients needed to interrupt the treatment or delay the chemotherapy cycle, although two patients had the Docetaxel dose reduced due to severe toxicity. In view of the importance of Docetaxel in the adjuvant and neoadjuvant therapies for breast cancer treatment, as well as its role in the prevention of relapse, Docetaxel-induce peripheral neuropathy lacks further studies to explore appropriate management forms, without causing losses for the treatment but being able to maintain the patients’ quality of life.\(^\text{22,23}\) 

The limits of this study were mainly related to the small sample size, as the population is very specific, despite including the entire population of women who complied with the inclusion criteria in the study context, in view of the established data collection period. Thus, new studies are needed with larger samples. It should also be kept in mind that the tools used, BPI and Br-MPQ, were not fully suitable for the assessment, characterization and measuring of neuropathic pain. Further studies are extremely important to assess neuropathic pain using suitable tools, such as the NCI (National Cancer Institute) scale, the CTCEI 4.0\(^\text{24}\) and the TNS-r,\(^\text{25}\) considering that, as mentioned earlier, no effective pharmacological interventions exist, although the interventions influence the symptoms. These study results can contribute to nursing care, as they establish nursing interventions that can result in better conditions to cope with the treatment and its adverse reactions, granting a better quality of life to the patients.

**Conclusion**

The mean pain score increased in all variables of the Brief Pain Inventory and the pain assessment index when the first assessment was compared with the second and third. In addition, a statistically significant association was found between pain and the variables general activity, mood, ability to walk, work and appreciate life when the first assessment was compared with the second and third. As a result of the growing pain, analgesic medication was increasingly used.

**Acknowledgements**

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**Collaborations**

Neris RR, Anjos ACY and Magnabosco P contributed to the conception of the project, the analysis and interpretation of the data, the writing of the article, relevant critical review of the intellectual content and final approval of the manuscript for publication. Amaral PA and Ribeiro MA cooperated with the critical review of the intellectual content and the approval of the final version for publication.
References


Clinical outcomes of pediatric patients treated with extracorporeal membrane oxygenation

Desfechos clínicos de pacientes pediátricos tratados com oxigenação por membrana extracorpórea

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Larissa Bertacchini de Oliveira¹,²

Abstract

Objective: To identify factors related to mortality, and evaluate the survival of pediatric patients treated with extracorporeal membrane oxygenation.

Methods: A retrospective cohort study that included pediatric patients using the device in the last five years. The groups were divided into those who survived after therapy, and those who did not. Multivariate logistic regression was used for assessing the predictive factors of death, and the Kaplan-Meier and log-rank for assessing survival.

Results: Left ventricular ejection fraction was higher in the group of survivors (74% + 14.6% vs 56.2% + 22%, p = 0.038), and the number of patients who required dialysis was higher in the group of non-survivors (52.4% vs. 12.5%, p = 0.039), showing significantly lower survival in this group (log-rank = 0.020).

Conclusion: Previous ventricular dysfunction, evidenced by a left ventricular ejection fraction <55%, and requirement of concomitant renal replacement therapy, increased the risk of death.

Keywords
Extracorporeal membrane oxygenation/adverse effects; Mortality; Advanced practice nursing; Nursing practical; Child

Descritores
Oxigenação por membrana extracorpórea/efetos adversos; Mortalidade; Prática avançada de enfermagem; Enfermagem prática; Criança

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Conflicts of interest: there are no conflicts of interest to declare.

Clinical outcomes of pediatric patients treated with extracorporeal membrane oxygenation

Introduction

Extracorporeal membrane oxygenation (ECMO) is a mechanical circulatory support (MCS) mode, widely used in pediatric patients with heart failure, either acquired or secondary to congenital heart disease, which is refractory to conventional treatment.\(^1\) Although indications have increased exponentially over the years and present promising results, especially as a bridge to heart transplantation, the use of this therapy involves many risks and complications.\(^2-4\) A 12-year cohort study by the Extracorporeal Life Support Organization (ELSO)\(^5\) which assessed the survival of pediatric patients with an indication for ECMO due heart failure, showed that only 23% survived to hospital discharge.

The benefits from the use of ECMO should be analyzed according to its risks. A study that evaluated a cohort of 303 infants who used ECMO for heart failure showed that 98% of the 46% of patients who progressed to death had any kind of complications, including: stroke, gastrointestinal, pulmonary and surgical site bleeding, disseminated intravascular coagulation, acute kidney injury (AKI), and infection. Furthermore, low birth weight, incidence of cardiorespiratory arrest, and the need for dialysis were the factors that were independently associated with mortality.\(^2\) Another multicenter study,\(^6\) which evaluated 998 pediatric patients who received ECMO, also due to heart failure, showed that longer use of this therapy was associated with increased mortality, ventilatory weaning time, Intensive Care unit (ICU) length of stay, and hospital costs.

The interest in conducting this study emerged from work as nurses in an ICU of a specialized cardiology center, who routinely attend pediatric patients on ECMO; because of the high complexity of these patients and the care they require; as well as the fact that the studies\(^2-7\) still demonstrate high mortality rates, unfavorable clinical outcomes and complications related to this therapy, and the observed results with these patients in our service. Thus, our purpose is to identify the factors data related with mortality, and to evaluate the survival of pediatric patients treated with ECMO.

Methods

This was a retrospective cohort single center study, performed in a teaching hospital specializing in high complexity cardiopneumology, in the city of São Paulo, Brazil, and a member of the Extracorporeal Life Support Organization (ELSO).

During data collection, the records of all patients who used any type of MCS between January of 2010 and March of 2015 were evaluated. All were surgical patients, up to 18 years of age, who used the therapy and the ECMO as support. We excluded patients for whom we could not recover the physical records, and those whose data records were incomplete or missing. For data analysis, patients were separated into two groups (survivors and non-survivors), based on those that survived and those who did not survive the use of this therapy until discharge from the hospitalization episode that used the device. The final sample consisted of 29 patients, as presented in figure 1.

The data collection was performed by two researchers, in an independent manner, between the months of May and October, 2015. The instrument used consisted of: sociodemographic data (gender, age and skin color); clinical characteristics (left ventricular ejection fraction, heart attack or previous stroke, diabetes, heart failure, hypertension, and baseline creatinine); data procedure (indication, type of cannulation, duration of the procedure, and complications); clinical evaluation of the six hours after the procedure, the first seven days, and device removal (vital signs, laboratory tests, use of vasoactive drugs, and clinical outcomes) and scores to assess the degree of acute lung injury (Murray Score),\(^8\) risk assessment of pediatric mortality (PRISM Score),\(^9\) and the degree of organ dysfunction in ICU (SOFA Score).\(^10\)

The PRISM score was calculated for each patient based on the data found in the health record on the day the therapy was initiated. The
highest PRISM score reflects a higher severity and increased risk of death. The SOFA was calculated with data collected immediately before initiation of ECMO, to evaluate the degree of organ dysfunction.

For assessment of acute kidney injury (AKI), the RIFLE classification was used, which is an acronym for Risk (risk of renal dysfunction); Injury (damage / injury to the kidney); Failure (failure of kidney function); Loss (loss of kidney function) and End stage renal disease (kidney disease in the terminal stage) using serum creatinine level criteria (SCr), glomerular filtration rate (GFR), and urine flow. (11) Acute kidney injury was defined by RIFLE criteria using the highest variation in SCr and estimated GFR during the first seven days after the onset of this therapy, as compared to baseline values. The GFR was calculated using the formula of the Modification of Diet in Renal Disease (MDRD). The patients were stratified according to the highest RIFLE score, according to the SCr and GFR criteria.

For statistical analysis, the Shapiro-Wilk test was used to verify the normal distribution of the continuous variables. Categorical variables were presented as absolute (n) and relative (%), frequencies; continuous variables were expressed by means and standard deviations, medians and interquartile ranges. The difference between groups was evaluated using the Student t-test, Mann-Whitney, chi-square and Fisher's exact test. A p-value <0.05 was considered significant. Predictive factors of death were evaluated by means of multivariate analysis with logistic regression. Survival curves were constructed using the Kaplan-Meier method and compared using the log-rank method. The Statistical Program for the Social Sciences (SPSS) (version 20.0; IBM, Armonk, USA) was used for data analysis.

The study was registered on Plataforma Brasil under Certificado de Apresentação para Apreciação Ética (CAAE): 45016115.2.0000.0068.
Clinical outcomes of pediatric patients treated with extracorporeal membrane oxygenation

Results

Among the 29 patients included in the study, 21 (72.4%) died, and eight (27.6%) survived up to the time of hospital discharge for the hospitalization that used ECMO. Table 1 shows the sociodemographic information, the procedure data, and clinical and laboratory evaluation of pediatric survivors and non-survivors treated with ECMO between 2010 and 2015. There was no statistically significant difference between the groups in relation to males (47.6% vs. 75%, p=0.176), age (60 ± 62 months vs. 37 ± 60 months, p=0.381) and body mass index - BMI (15.3 ± 2.5 kg/m² vs. 17.6 ± 9.3 kg/m², p=0.554). In relation to the indications for ECMO, cardiogenic shock was the most common indication (95.2% vs. 87.5%, p=0.263) among non-survivors and survivors, respectively. Patients who survived had higher left ventricular ejection fraction (LVEF) when compared to non-survivors (74% ± 14.6% vs 56.2% ± 22%, p=0.038).

Regarding the use of vasoactive drugs, the group of non-survivors used higher doses when compared with the group of survivors: dobutamine (13.5 ± 10.3 mcg/kg/min vs. 5 ± 3.5 mcg/kg/min, p=0.018) and norepinephrine (0.6 ± 0.24 mcg/kg/min vs. 0.1 ± 0.05 mcg/kg/min; p=0.017). The presence and extent of lung damage, assessed by Murray Score, were different when comparing the two groups, being higher in the group of non-survivors compared to survivors (2.33 ± 0.48 vs. 2.0 ± 0.01, p=0.005). Differences between groups regarding the PRISM score were demonstrated as higher in the group of non-survivors (22 [17-27] vs 11 [10.5 to 14], p=0.009). There was no difference between the groups in relation to hemodynamic parameters and laboratory data (Table 1).

Clinical outcomes of pediatric survivors treated with ECMO, between 2010 and 2015, are listed in table 2. A significant difference was identified between the patients of the non-survivor group compared to the survivor group on the dialysis outcome (52.4% vs. 12.5%, p = 0.039) and duration of using ECMO (14.6 ± 9.8 days vs. 9.2 ± 4.3 days, p=0.047).

Table 1. Socio-demographic characterization, procedure data, clinical and laboratory evaluation of pediatric patient survivors and non-survivors treated with ECMO

<table>
<thead>
<tr>
<th>Variables</th>
<th>Non-survivals</th>
<th>Survivors</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male sex</td>
<td>10 (47.6%)</td>
<td>6 (75%)</td>
<td>0.176</td>
</tr>
<tr>
<td>Age, months</td>
<td>60±62</td>
<td>37±60</td>
<td>0.381</td>
</tr>
<tr>
<td>BMI, kg/m²</td>
<td>15.3±2.5</td>
<td>17.6±9.3</td>
<td>0.554</td>
</tr>
<tr>
<td>LVEF, %</td>
<td>56.2±22</td>
<td>74±14.6</td>
<td>0.038</td>
</tr>
<tr>
<td>Skin color</td>
<td>19 (89.5%)</td>
<td>7 (87.5%)</td>
<td>0.817</td>
</tr>
<tr>
<td>RV dysfunction</td>
<td>11 (52.4%)</td>
<td>3 (37.5%)</td>
<td>0.471</td>
</tr>
<tr>
<td>Pulmonary hypertension</td>
<td>2 (9.5%)</td>
<td>2 (25%)</td>
<td>0.303</td>
</tr>
<tr>
<td>ECMO indications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiogenic shock</td>
<td>20 (95.2%)</td>
<td>7 (87.5%)</td>
<td>0.263</td>
</tr>
<tr>
<td>Bridge for heart transplant</td>
<td>0</td>
<td>1 (12.5%)</td>
<td></td>
</tr>
<tr>
<td>Postcardiomyd syndrome</td>
<td>1 (4.8%)</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Duration of the procedure, minutes</td>
<td>176±174</td>
<td>246±202</td>
<td>0.391</td>
</tr>
<tr>
<td>SvO2, %</td>
<td>58.4±22</td>
<td>87.7±15.5</td>
<td>0.166</td>
</tr>
<tr>
<td>Arterial pH</td>
<td>7.3±0.12</td>
<td>7.4±0.10</td>
<td>0.710</td>
</tr>
<tr>
<td>SaO2, %</td>
<td>89.4±15.7</td>
<td>88.6±6.5</td>
<td>0.816</td>
</tr>
<tr>
<td>Lactate, mg/dL</td>
<td>62.5±63.9</td>
<td>40.3±45.8</td>
<td>0.468</td>
</tr>
<tr>
<td>Delta CO₂, mmHg</td>
<td>8.4±4.6</td>
<td>8.5±5.1</td>
<td>0.981</td>
</tr>
<tr>
<td>Hb, g/dL</td>
<td>11.6±2.6</td>
<td>10.4±0.5</td>
<td>0.443</td>
</tr>
<tr>
<td>PaO₂/FiO₂, mmHg</td>
<td>203.8±127</td>
<td>118±35.7</td>
<td>0.064</td>
</tr>
<tr>
<td>MAP, mmHg</td>
<td>64±17</td>
<td>60±20</td>
<td>0.697</td>
</tr>
<tr>
<td>CVp, mmHg</td>
<td>15.5±5.4</td>
<td>16±5.5</td>
<td>0.948</td>
</tr>
<tr>
<td>Diuresis, mL/kg/h</td>
<td>2.4±2</td>
<td>2.4±2.4</td>
<td>0.971</td>
</tr>
<tr>
<td>Dobutamine, mcg/kg/min</td>
<td>13.5±10.3</td>
<td>5±3.5</td>
<td>0.018</td>
</tr>
<tr>
<td>Norepinephrine, mcg/kg/min</td>
<td>0.6±0.24</td>
<td>0.1±0.05</td>
<td>0.017</td>
</tr>
<tr>
<td>Epinephrine, mcg/kg/min</td>
<td>0.4±0.41</td>
<td>0.25±0.21</td>
<td>0.493</td>
</tr>
<tr>
<td>Milrinone, mcg/kg/min</td>
<td>0.77±0.45</td>
<td>1.37±1.42</td>
<td>0.543</td>
</tr>
<tr>
<td>SOFA score (onset of da ECMO)</td>
<td>2.33±0.48</td>
<td>2.0±0.01</td>
<td>0.005</td>
</tr>
</tbody>
</table>

Data expressed in absolute (n) and relative (%) frequency, mean, standard deviation, median and interquartile range. BMI - body mass index; LVEF - left ventricular ejection fraction; RV: right ventricle; SvO2 - venous oxygen saturation; SaO2 - arterial oxygen saturation; Hb - hemoglobin; PaO2 – arterial oxygen pressure; FiO2 – fraction of inspired oxygen; MAP – mean arterial pressure; CVp – central venous pressure; PRISM – Pediatric Risk of Mortality Score; SOFA – Sequential Organ Failure Assessment.

Table 2. Analysis of the clinical outcomes in pediatric patient survivors and non-survivors treated with ECMO

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Non-survivors</th>
<th>Survivors</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute kidney injury</td>
<td>14 (73.7%)</td>
<td>4 (57.1%)</td>
<td>0.425</td>
</tr>
<tr>
<td>Injury (I)</td>
<td>4 (21.1%)</td>
<td>1 (14.3%)</td>
<td>0.691</td>
</tr>
<tr>
<td>Failure (F)</td>
<td>10 (52.6%)</td>
<td>3 (42.9%)</td>
<td>0.658</td>
</tr>
<tr>
<td>Dialysis</td>
<td>11 (52.4%)</td>
<td>1 (12.5%)</td>
<td>0.039</td>
</tr>
<tr>
<td>Infection</td>
<td>6 (28.6%)</td>
<td>1 (12.5%)</td>
<td>0.343</td>
</tr>
<tr>
<td>Neurologic complications</td>
<td>6 (28.6%)</td>
<td>1 (12.5%)</td>
<td>0.343</td>
</tr>
<tr>
<td>Hepatic dysfunction</td>
<td>7 (33.3%)</td>
<td>1 (12.5%)</td>
<td>0.237</td>
</tr>
<tr>
<td>ICU length of stay, days</td>
<td>33.5±27</td>
<td>51±32</td>
<td>0.204</td>
</tr>
<tr>
<td>Hospital length of stay, days</td>
<td>37.9±29</td>
<td>72±51</td>
<td>0.109</td>
</tr>
<tr>
<td>SOFA score (discharge/ death)</td>
<td>10.3±0.6</td>
<td>9.5±2.5</td>
<td>0.303</td>
</tr>
<tr>
<td>Duration of ECMO, days</td>
<td>14.6±9.8</td>
<td>9.2±4.3</td>
<td>0.047</td>
</tr>
</tbody>
</table>

Data expressed in mean, standard deviation, absolute (n) and relative (%) frequency. ICU - intensive care unit; SOFA - Sequential Organ Failure Assessment; ECMO - extracorporeal membrane oxygenation; acute kidney injury according to RIFLE.
A multivariate analysis showed that LVEF <55%, the presence of AKI and the use of renal replacement therapy were independent risk factors for mortality in pediatric patients treated with ECMO between 2010 and 2015. Patients with reduced LVEF (<55%) had 1.440 times the risk of death when compared to individuals with LVEF above 55% (CI: 1.319 to 1.711, p=0.010). Patients who developed AKI during therapy with ECMO had twice the risk of death (CI: 1.343 to 12.858 p = 0.027). When renal replacement therapy was necessary, which was higher among non-survivors who had kidney failure according to the RIFLE criteria, the risk of death was 7.7 times greater (CI: 1.801 to 74.051, p=0.022) when compared with individuals who did not require dialysis (Table 3).

Table 3. Multivariate analysis of predictive factors for death in pediatric patients treated with ECMO

<table>
<thead>
<tr>
<th>Variable</th>
<th>OR</th>
<th>CI (95%)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.993</td>
<td>0.978-1.0408</td>
<td>0.459</td>
</tr>
<tr>
<td>Male sex</td>
<td>0.303</td>
<td>0.049-1.861</td>
<td>0.197</td>
</tr>
<tr>
<td>LVEF &lt; 55%</td>
<td>1.440</td>
<td>1.319-1.711</td>
<td>0.010</td>
</tr>
<tr>
<td>Acute kidney injury</td>
<td>2.100</td>
<td>1.343-12.858</td>
<td>0.027</td>
</tr>
<tr>
<td>Dialysis</td>
<td>7.700</td>
<td>1.801-74.051</td>
<td>0.022</td>
</tr>
</tbody>
</table>

OR - odds ratio; CI - confidence interval; LVEF - Left ventricular ejection fraction

Among the 29 patients included in the study, 21 (72.4%) died during hospitalization and only eight (27.6%) lived through hospital discharge, which shows a high mortality in the population studied. The mortality rate evaluated at six months and one year after discharge showed that, of the eight survivors, two died at six months and three others died one year after discharge.

The Kaplan-Meier analysis demonstrated that the survival, evaluated over the follow-up of patients, was lower for patients who required renal replacement therapy (p=0.020) (Figure 2A). However, when comparing the survival curves, considering the LVEF (Figure 2B) and the presence of AKI (Figure 2C), no difference between the curves was identified.

Figure 2. Survival curves of pediatric patients who used ECMO between 2010 and 2015, based on the need for renal replacement therapy - dialysis (Figure 2A), with left ventricular ejection fraction values - LVEF (Figure 2B), and with the presence of acute kidney injury - AKI (Figure 2C)

Discussion

According to the search conducted in the national literature, this study is the first that analyzed the predictors of mortality and survival of pediat-
ric patients with heart failure secondary to complex or acquired congenital heart disease, who used ECMO in a cardiology reference center in Brazil. In addition, the results obtained showed a sociodemographic and clinical characterization of patients using this therapy in the institution, in a cohort of five years.

The clinical and demographic characteristics data demonstrated that the studied sample consisted of seriously ill patients. In the group of non-surviving patients, LVEF was lower, the dose of vasoactive drugs (inotropes and vasopressors) was higher, Murray scores used to characterize the lung injury, as well as the PRISM score used to assess the risk of pediatric mortality, presented high values. These data may explain the high mortality observed in our study.

Even from the multivariate analysis, ventricular dysfunction (LVEF <55%), the development of AKI, and the need for dialysis were independent risk factors for mortality in patients who received ECMO therapy. Lower survival was statistically different for patients who required renal replacement therapy.

A meta-analysis of 12 studies involving 1,763 patients, showed that the main indication for ECMO was respiratory failure, followed by cardiogenic shock. In our center, cardiogenic shock was the main reason for initiating ECMO. In pediatric patients, respiratory failure has been described in the literature as the main indication for ECMO, however, our sample consisted of patients with complex congenital heart disease with cardiac dysfunction after surgical repair, which explains our findings.

Mortality is also associated with the duration of ECMO, and the longer the patient depends on the therapy, the greater the risk of complications and, therefore, the higher the mortality. In our study, the mean ECMO time was higher in the group of non-survivors when compared with survivors (14.6 ± 9.8 days vs. 9.2 + 4.3 days, p=0.047). A study evaluating 44 pediatric patients with congenital heart disease undergoing treatment with ECMO, similar to this, showed that the mean time of ECMO support was also higher in the group of non-survivors compared with the survivors.

The AKI is an additional complication in critical patients on ECMO, and is considered a risk factor for mortality in these patients, affecting up to 60% of pediatric patients receiving this therapy. Several studies showed that AKI is common in critically ill patients using MCS. Oliguria and acute tubular necrosis (ATN) associated with capillary permeability and intravascular volume depletion are frequent during the first 24 to 48 hours of ECMO, due to the acute inflammatory reaction triggered by ECMO.

Among the 29 patients included in this study, the incidence of AKI was 62% (18 patients). Moreover, when the predictive factors for death among patients on ECMO were evaluated, those who developed AKI during therapy had twice the risk of dying. The use of renal replacement therapy was also a predictive factor of mortality in this group, increasing the risk in 7.7. A study evaluating the prognosis of 102 patients who received ECMO showed that 81.4% developed AKI, and 85% of those who required renal replacement therapy combined with the use of ECMO, progressed to death. Despite diagnostic and therapeutic advances, the mortality of patients with AKI remained high in recent decades. Even with the use of new dialysis techniques and resources in the intensive care units, the extension of the life of patients with AKI showed no reduction in mortality.

The institution where the study was conducted was a high complexity hospital, a reference site for cardiopneumology, and has recently become a center of excellence in care for patients with ECMO by the Extracorporeal Life Support Organization, however, some limitations of the research can be considered. First, since the data collection was retrospective, some records of patients eligible for the study were not easy to access. As the majority of the patients died, many records were sent to a medical file service in another municipality, which may have led to an underestimation of the mortality of patients who used ECMO. In addition, the collection of ret-
respective data is subject to interpretation of the records by the researchers, and some medical records contained incomplete data, which was the exclusion criteria. The study was conducted in a single center and the sample size was very small, which may have contributed to the limitation of our findings.

**Conclusion**

The mortality of 29 pediatric patients included in this study using ECMO, between 2010 and 2015, was high (72.4%). Previous ventricular dysfunction, characterized by low left ventricular ejection fraction (<55%), the development of acute renal failure and the need for concomitant renal replacement therapy with ECMO were independent factors associated with mortality of these patients.

Moreover, the survival of pediatric patients treated with ECMO and renal replacement therapy, concomitantly, was significantly lower than those who were not. Caring for the patient on ECMO is still something new in the Brazilian reality; however, our findings are an incentive for further research in this area. These results can directly influence the nursing care provided, since these patients require highly complex care and an elevated nurse’s workload, similar to those found in the literature.

**Collaborations**

Santos RNNF, Oliveira ACARM e Silva JR declare that they contributed with the article writing, relevant critical review of the intellectual content, and final approval of the version to be published. Santana-Santos E & Oliveira LB collaborated in the study design, analysis, data interpretation, article writing, relevant critical review of the intellectual content, and final approval of the version to be published.

**References**


Excessive weight and sociodemographic vulnerability markers in young adult students

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Keywords
Overweight; Obesity; Health vulnerability; Socioeconomic factors; Young adult

Abstract
Objective: To analyze excessive weight (EW) in young adult students from socio-demographic markers of the individual dimension of vulnerability.
Methods: Analytical study, conducted with 560 young adults from 26 schools of a Brazilian northeastern municipality. The questionnaire used for data collection contained EW and sociodemographic variables, analyzed by descriptive measures of association and logistic regression by the method enter for model adjustment.
Results: A higher proportion of excessive weight was identified in young people who: were 23-24 years of age, women, skin color other than white, religious, with a partner, with children, without an occupation, with individual and family income more than two minimum wages. The excessive weight was associated with marital status and children, which remained in the final model.
Conclusion: Having a companion and children makes young adults vulnerable to EW. However, this condition is multi-determined and should be understood in a larger context.

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Resumo
Objetivo: Analisar o excesso ponderal (EP) em adultos jovens escolares a partir dos marcadores sociodemográficos da dimensão individual da vulnerabilidade.
Métodos: Estudo analítico, realizado com 560 adultos jovens de 26 escolas de um município nordestino brasileiro. O questionário aplicado para coleta de dados continha a variável EP e as sociodemográficas, analisadas por medidas descritivas, de associação e regressão logística pelo método enter para ajuste do modelo.
Resultados: Houve maior proporção de excesso ponderal nos jovens de 23 a 24 anos de idade, mulheres, de cor/raça diferente da branca, com religião, com companheiros, com filhos, sem ocupação, com renda individual e familiar maior que dois salários mínimos. O excesso ponderal apresentou associação com situação conjugal e filhos, que permaneceram no modelo final.
Conclusão: Ter companheiro e filhos torna o adulto jovem vulnerável ao EP. No entanto, ratifica-se que o agravo em questão é multideterminado e deve ser compreendido num contexto ampliado.

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Conflicts of interest: there are no conflicts of interest to declare.
Introduction

Excessive weight (EW), or overweight, is conceptualized as excessive fat storage in the body associated with health risks, and its relationship with various metabolic complications. It is a worldwide public health problem in developed and developing countries, with increased prevalence and high costs to resolve its complications. In the United States of America (USA), obesity has increased gradually, and is estimated to cost $147 billion/year through diseases related to it. (1)

Even though they are exceeded by the North Americans and Chileans in terms of prevalence, the absolute numbers in Brazil are alarming. Until the past decade, EW affected 40% of the adult population, and in this group, obesity reached 11%. (1,2) Regarding the costs in the country, the estimate of expenditures consumes much of the health budget. From 2008 to 2011, there was a significant increase in direct expenses, with obesity and associated diseases, following the increased prevalence of EW in different regions of the country and in various age groups. (3)

At the same time, overweight and obesity have also been intensifying between young people of different ages throughout the industrialized world. (4) The few studies that addressed young adults in the age range (20 - 24 years old) recommended by the Brazilian Ministry of Health and the World Health Organization (WHO), demonstrate that the frequency of excessive weight cases already affects about a third of these young people. (5-7) In addition to this evidence, risk factors and vulnerabilities are already observed to chronic non-communicable diseases (NCDs), requiring necessary attention in these young people who presented peculiar characteristics in this phase of life.

Many young people are in school situation; in school, habits that can influence health are shared between groups. This fact was evident in a study about social networks, which showed that social relationships had positive and negative associations with health behaviors. (8) This fact highlights the need to study the youth in school, since the environment is conducive to the acquisition and spread of new behaviors, and is also fertile ground for health promotion actions.

Excessive weight is presented as a trigger of several other NCDs, such as cardiovascular diseases (CVD), osteoarthritis, reproductive and sleep disorders, as well as some cancers and reduced lung function, so it necessary to study EW among students from the perspective of epidemiological discussions and policies. (9) It is a multifactorial grievance that requires interdisciplinary discussions to minimize complications and prevent the increase in cases. Within this multifactorial context, sociodemographic questions permeate the universe of causes related to EW and reinforce the need for significant interventions in different social and cultural arrangements among the school youth. (7)

A debate on potential socio-demographic vulnerability markers associated with EW for the group of young adults is essential to recognize that other aspects, not clinicians directly, are involved in the etiology of this complex chronic condition, in order to provide support for health promotion, mediated by more effective intersectoral actions. According to the paradigm, we ask: What socio-demographic vulnerability markers are related to EW in young student adults?

Answering this question is relevant, because the increase of the magnitude of EW among young people from different regions of the world is a reality. The recognition of the complexity of its determinants and the mobilization of various sectors of society to formulate actions that promote health and prevent this health problem is one of the current challenges on the agenda of global public health. Thus, the aim was to analyze the excessive weight of young adult student from demographic markers of the individual dimension of vulnerability.
**Methods**

This was an analytical, quantitative study conducted in the city of Fortaleza (CE), Brazil, more specifically in schools under the responsibility of the State Department of Education of Ceará (SEDUC).

For this study, the sample was composed by young adult students of Fortaleza-Ceará, i.e., those aged between 20 and 24 years, enrolled into any regular educational institution or Youth and Adult Education of Ceará, more specifically from Fortaleza. The choice by school units was based on considerations of the association between social relationships and health behaviors, because young people spend much of their time in the school environment, and produce or share health-related habits.

Considering that, the number of young students was unknown, because the list with the total number of students was not provided in a timely manner, for data collection the sample was based on the calculation for infinite populations. However, for purposes of calculation, a pilot study was performed with 30 young adult students (not included in the final sample) to determine the prevalence of the phenomenon: excessive weight. After such analysis, the prevalence of phenomenon was 37%, a value which was incorporated into the calculation of the sample, which was defined according to the following formula: 

$$n = \frac{z^2 \times P \times Q}{e^2}$$

where: 
- $n$ is the sample; 
- $z$ is the distribution value to the significance level of 5% (1.96); 
- $P$ is the prevalence of the phenomenon (37%); 
- $Q$ (63%) is the complementary percentage of $P$ ($Q=100-P$); and the sampling error (considered here to be 4%). Based on the result of calculation, the value was established to be 560 young adult students.

Pregnant women were excluded from the sample (parameters for overweight identification are different) and those who used wheelchairs for mobility (there was no mechanism available to perform anthropometric measurements for this group). After the required agreement of the necessary number of students for the study, the sampling plan was organized in sampling units (SU).

In the primary sampling unit, six of the seven administrative regional secretariats (SR) of the city were considered, except for the regional center, as SEDUC considers only six for school regionalization purposes.

A raffle of 15% of the 175 schools eligible for the study, considered as secondary units, was conducted to obtain 26 schools. The percentage was established after the understanding that the viable number of schools to visit within one week would be two institutions, and the weeks available were the first half of 2014, considering holidays and bimonthly assessments. In total, 13 weeks and consequently 26 schools were included in the study, or 15% of all schools. The time for data collection was based on the first semester of the 2014 school year, because the study was part of a set of graduate academic activities of one of the researchers.

Since the lack of previous data with the distribution of students in schools prevented a stratified sampling strategy, we proceeded to undertake a raffle of the 26 schools. Four schools in each region were selected, plus a school in region five and one in the region six, that were those with a higher number of schools (27 schools were in SR1, 26 in SR2, 27 in SR3, 26 in SR4, 38 in SR5, and 31 in SR6).

The planned sample ($n = 560$) was averaged across the 26 schools; 21 was the number of students per school ($560/26 = 21$). The selection of the young people in the schools occurred by convenience sampling, with 84 students in SR1, SR2, SR3 and SR4 (4 schools and 21 students in each), 119 in SR5 (5 schools and 21 school in each; 14 more students were added to reach the total of 560, since dividing 560 by 21 does not result in an exact number, and this regional had more schools), and 105 in the SR6 (5 schools and 21 school in each).
Thus, the school director and/or coordinator were contacted the days data collection was scheduled, according to the institution availability. The visits were performed in all the classrooms; the research was explained and the young people in pre-established ages were invited to participate in the study. If the invitation was accepted, they were sent to a specific room where the research questionnaires were administered and the objective measurements of anthropometric parameters were performed. The undergraduate and graduate students of nursing and physical education courses participated as researchers, after prior training.

Data collection occurred in the months of February to May of 2014, and was performed in three stages: 1) selection and awareness of schools; 2) administration of the data collection instrument relating to vulnerabilities; 3) verification of anthropometric measurements.

The instrument contained items related to school identification, sociodemographic characteristics and physical examination (height and weight). Anthropometric measurements were taken in a standardized manner and registered on the form. The procedures were performed for calculating body mass index (BMI), which resulted in the study outcome variable.

The data, once collected, were entered into the database using specific software. The analysis of excessive weight in the concept of vulnerability involved the assessment of their individual perspective.\(^{10}\)

The dependent variable was the excessive weight, verified by BMI in kg/m², calculated using the Quetelet index. The result was classified as underweight, normal weight, overweight or obesity I, II or III, and the last four classes were grouped to form the outcome of the study.

The independent variables, corresponding to the individual dimension, were investigated as variables related to sociodemographic markers (age, sex, self-reported skin color, religion, and marital status, children, and occupation, individual and family income). These were selected because it is understood that features in addition to behavior impact the outcome under study, considering the concept of vulnerability.\(^{10}\)

Initially, the mean and standard deviation of the quantitative variables were calculated and simple frequency and percentage were used for the qualitative variables. Subsequently, bivariate and multivariate analytical statistics were used. In bivariate analysis, the Pearson chi-square test for categorical variables was applied, considering for all tests the level of significance of 5%. To estimate the strength of association of possible markers of excessive weight, the odds ratio (OR) was calculated with a 95% confidence interval.

For the multivariate analysis, logistic regression was used for adjustment of the potential effects of confusion. For inclusion in the initial regression model, in order to verify the confounding variables, a p-value <0.20 obtained in the bivariate analysis was adopted.

The criterion established in the analysis stage for the variables to remain in the model was the Wald test, having shown at least one category with statistical significance of p <0.05. Finally, a residual analysis was performed to isolate points where the model showed little adherence, and points that would improperly influence the model. In addition, the data input method in all phases of regression was forced input (enter), because there was no previous model found in the literature with the influence of demographic variables on the outcome. The backward method was also tested, which showed better adjustment for the model.

The study was registered in Plataforma Brasil under Certificado de Apresentação para Apreciação Ética (CAAE) 30382314.3.0000.5534.
**Results**

The adults were, mostly between 20 to 22 years old (79.3%) with a mean age of 21.2 years (+1.4). Regarding sex, a homogeneous distribution was identified, with a slight increased proportion for females (53.9%). Most self-reported non-white skin color (86.2%), almost all had some kind of religion (92.5%), and the majority did not have a partner (77.7%), and had no children (77.9%). In terms of the level of education of the father and mother of these young people, slightly more than half of the father (53.9%) and most part of the mothers (62.1%) had up to eight years of study, respectively. With regard to employment and income, the majority reported studying and working/having an internship (64.1%) and the most part (94.1%) and almost half (48.8%) had individual and family income of up to two minimum wages, respectively.

Based on the dysfunctional nutritional status of the young adult students, the bivariate analysis of sociodemographic characteristics was performed. The results showed a higher proportion of excessive weight in young people of 23 to 24 years of age, women, those with a skin color other than white, religious, with partner, with children, without an occupation, individual and family income more than two minimum wages, as demonstrated in table 1.

However, statistically significant association was presented with excessive weight and certain groups (p <0.05): marital status and children, in which a higher proportion of the problem was identified among young people with a companion and children (Table 1). To be included in the adjustment stage of the logistic regression model, the variables need to present association p <0.20. Thus, only marital status and children remained in the multivariate analysis (Table 2).

The variables with p <0.20, were submitted for multivariate analysis with adjustment. Marital status (p = 0.047) and having children (p = 0.036) remained significant when the effect of the variables on excessive weight were analyzed, according to table 2.

### Table 1. Bivariate analysis of socio-demographic characteristics associated with weight excess in young adults’ students

<table>
<thead>
<tr>
<th>Variables</th>
<th>Excessive weight</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes f(%)</td>
<td>No f(%)</td>
<td>OR(95%CI)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>20 - 22 years old</td>
<td>153(34.5)</td>
<td>291(65.5)</td>
<td>0.77(0.51-1.17)</td>
<td>0.225</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23 - 24 years old</td>
<td>47(40.5)</td>
<td>69(59.5)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Male</td>
<td>89(34.5)</td>
<td>169(65.5)</td>
<td>0.91(0.64-1.28)</td>
<td>0.578</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Female</td>
<td>111(36.8)</td>
<td>191(63.2)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Self-reported skin color</td>
<td></td>
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</tr>
<tr>
<td>White</td>
<td>30(30.9)</td>
<td>47(61.0)</td>
<td>1.18(0.72-1.93)</td>
<td>0.522</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>170(35.2)</td>
<td>313(64.8)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
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<tr>
<td>Yes</td>
<td>186(35.9)</td>
<td>332(64.1)</td>
<td>1.12(0.58-2.18)</td>
<td>0.738</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>No</td>
<td>14(33.3)</td>
<td>28(66.7)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>With partner</td>
<td>58(46.4)</td>
<td>67(53.6)</td>
<td>1.79(1.19-2.68)</td>
<td>0.005</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Without partner</td>
<td>142(32.6)</td>
<td>293(67.4)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>58(46.8)</td>
<td>66(53.2)</td>
<td>1.82(1.21-2.73)</td>
<td>0.004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>142(32.6)</td>
<td>294(67.4)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
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<td></td>
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</tr>
<tr>
<td>No</td>
<td>77(38.7)</td>
<td>128(61.3)</td>
<td>1.21(0.85-1.73)</td>
<td>0.296</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>123(34.3)</td>
<td>236(65.7)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 2 MW</td>
<td>189(35.9)</td>
<td>338(64.1)</td>
<td>0.70(0.57-1.80)</td>
<td>0.456</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than 2 MW</td>
<td>8(44.4)</td>
<td>10(55.6)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 2 MW</td>
<td>97(35.5)</td>
<td>176(64.5)</td>
<td>0.97(0.65-1.44)</td>
<td>0.877</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than 2 MW</td>
<td>62(36.3)</td>
<td>109(63.7)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* f - Frequency; % - percentage; p - Pearson Chi-square test significance level; OR - odds ratio; CI - confidence interval; MW - minimum wage

### Table 2. Multivariate analysis of the sociodemographic markers associated with excessive weight in young adult students

<table>
<thead>
<tr>
<th>Variables</th>
<th>OR (95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>With partner</td>
<td>1.54(1.01-2.37)</td>
</tr>
<tr>
<td>Without partner</td>
<td>1</td>
</tr>
<tr>
<td>Children</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>1.58(1.03-2.43)</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
</tr>
</tbody>
</table>

* OR - odds ratio; CI - confidence interval

### Discussion

Contextualizing the individual vulnerabilities in this complex scenario requires the attempt to relate possible determinants in order to understand the dimensions supposedly involved in its development. They are dimensions that are changed because of the peculiarities of distinct populations. In the case of young adults, this reflection into the school set-
ting demonstrates a concern in dealing with these individuals in places of frequent presence.

This study established an approach that grouped possible individual vulnerabilities for this health condition in a cluster related to sociodemographic characteristics, shown in Tables 1 and 2. For discussions about the concept of vulnerability, the issues related to marital status and children conform within the family relationships of the individual dimension, as proposed in the analytical framework of the concept of vulnerability.\(^{[10]}\)

The discussion of sociodemographic questions showed that marital status and children were associated with excessive weight in the inferential analysis. Such questions corroborate studies in the area and demonstrate that these demographic markers influence the maintenance or exposure to nutritional status.\(^{[7]}\)

In this context, the marriage or stable union can positively affect the health, but can also affect it negatively. After establishment of a stable relationship, weight gain can be observed, which increases the proportions of men and women with excessive weight.\(^{[11]}\)

The marital status, “with partner”, identified in this study showed a statistically significant association with excessive weight in both bivariate (OR=1.79;[1.19;2.68];p=0.005) as well as in the multivariate analysis (OR=1.54;[1.01;2.37];p=0.047). Corroborating these findings, a survey conducted in the metropolitan area of Fortaleza, Ceará, Brazil\(^{[7]}\) identified factors for overweight in young adults. It showed that those who were married or in stable relationships had a higher chance of overweight in both the univariate analysis (OR=2.85;[1.79;4.55];p=0.001) as well as in the multivariate analysis (OR=2.95;[1.82;4.78];p=0.001). Although studies have been conducted in different cities, common outcomes related to marital status were identified.

The result of this relationship in adults was not different, as marital status also was related with the excessive weight. This fact was also similar in a cross-sectional study with adults in the northern area of Brazil,\(^{[12]}\) which found that men who had a partner (p <0.001) had a higher prevalence rate of EW compared to those who did not have a partner (RP = 1.88 [1.49; 2.37]). In another survey among adults in Teresina, Piaui, Brazil, those who had a stable union showed excessive weight: 44.8% (p=0.014) of women, as well as 54.8% among men (p = 0.0008).\(^{[13]}\)

Another marker associated with excessive weight was the variable “children”, which showed significant association in the univariate analysis (OR = 1.82; [1.21;2.73];p = 0.004) and multivariate analysis (OR=1.58;[1.03- 2.43]; p <0.036). The association between having children and excessive weight can be explained because, during pregnancy, the women have weight gain and many of them show difficulty losing the kilograms acquired during this period.

This fact was demonstrated in a study that analyzed weight retention after childbirth. It showed that the frequency of women with a level of weight retention considered excessive during the postpartum period was high, reaching 15%, \(^{[14]}\) which was also observed in international research.\(^{[15]}\) However, as demonstrated in the initial model of this study, gender was not associated with EW, individually. This finding should be investigated more accurately in future studies, forecasting the possible relationship between gender and children.

The change in marital status favors weight gain, but it will be subject to other individual characteristics related to each person. It appears that the context of marriage and the arrival of children, or the opposite, may influence weight gain due to changes in social behavior linked to self-image, gender and family discussion on the subject, mainly due to marriage at such a young age. This aspect was identified in a study on couples’ relationships in New York, which addressed the importance of social differences in the relationship of the body weight of couples, especially regarding the level of satisfaction with weight, and social comparison processes.\(^{[16]}\) Another study on teachers of state schools in the municipality of Jequié, Bahia, Brazil, with a prevalence of overweight or obesity, found it to be elevated among those who were married or in a stable relationship.\(^{[17]}\)
Despite the evidence that having a partner and having children exposes young adults to EW, the final model only partially explained the outcome in question. As seen, EW is not limited to the individual, but it is linked to the family and social system as a whole, and therefore needs to be treated as multi-determined condition. It is necessary to expand the discussions to the totality of the person’s relationships in EW, also considering the contextual vulnerabilities. Including the family in the treatment of obesity, not as a source of support, but as the primary agent of change, may possibly result in better long-term results.

The markers used herein may be employed by health professionals to improve their actions, directing health education practice. Among these professionals, the nurse stands out as an educator because of his/her formation, and he/she may intervene in a planned and systematic manner on the needs of the people under his/her care. A specific group that deserves attention is the young adult student, who benefits from health promotion practices performed by nurses in the School Health Program. In order to have effectiveness in relation to changing habits in this type of program, it is necessary to use epidemiological data for the action focused on interventions, including referral to other professionals when necessary, and teamwork.

Sociodemographic data related to EW, also provides a warning for a reflection on the family planning performed by nurses, so that this is not restricted to only reproductive issues, but also involves guidance on lifestyle. With marriage and the arrival of children, the reorganization of this new process of life is necessary, which was shown to influence EW. As this may have dysfunction of several types, this condition should be minimized or avoided with health promotion activities at any stage of life.

The limitations of this study include the impossibility of a stratified sampling, and consequently a non-probability sampling was used. The cross-sectional nature of this study also limits the longitudinal inferences. However, the model used in this study confirms the existence of socio-demographic markers related to excessive weight.

**Conclusion**

Excessive weight is significantly associated with marital status and having children and young adult students who have partners and children are vulnerable to excessive weight. However, the model used here indicates that other markers are also associated with their nutritional status, confirming the health situation as multifactorial and determined/conditioned by different issues, whether individual, social or related to health services. It is believed that the model in question indicates that other markers can lead to EW, and that questions about family dynamics, including markers of these dimensions should be investigated.

**Acknowledgements**

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**Collaborations**

Florêncio RS, Santiago JCS, Moreira TMM and Freitas TC contributed with study design, analysis, data interpretation, article writing, and relevant critical review of the intellectual content and final approval of the version to be published.

**References**


Development, validation and cultural adaptation of the Compasso protocol: Adherence to self-care in diabetes

Construção, validação e adequação cultural do protocolo Compasso: Adesão ao autocuidado em diabetes

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Abstract

Objective: To develop, validate the content and conduct the cultural adaptation of the Compasso protocol for promoting adherence to self-care practices in diabetes via telephone intervention.

Methods: Methodological research for tool development, following three stages: protocol development; content validation; and cultural adaptation. Fourteen professionals affiliated to the fields of healthcare, applied linguistics and statistics participated in the stages of development and content validation, while 341 individuals with diabetes mellitus took part in the adaptation stage. Data for validation and adaptation were collected through the web platform e-Surv and analyzed in the R environment.

Results: The Compasso protocol includes the following domains: behavioral and psychosocial aspects, support network, barriers, and self-care practices. The assessment of the protocol presented good agreement between the evaluators, with a mean CVI 0.96.

Conclusion: The content of the Compasso protocol was considered to be validated and culturally adequate to promote adherence to the practices of diabetes self-care via telephone intervention.

Keywords
Self care; Diabetes mellitus; Validation studies; Nursing education research; Nursing research

Resumo

Objetivo: Realizar a construção, validação de conteúdo e adequação cultural do protocolo Compasso para promover a adesão às práticas de autocuidado em diabetes via intervenção telefônica.

Métodos: Pesquisa metodológica de elaboração de instrumentos abrangendo as etapas: construção do protocolo; validação de conteúdo; adequação cultural. Participaram das fases de construção e validação um total de 14 profissionais das áreas da Saúde, Linguística e Estatística, e, da fase de adequação, 341 usuários com diabetes mellitus. Os dados para validação e adequação foram coletados através da plataforma web e-Surv e analisados no ambiente R.

Resultados: O protocolo Compasso aborda os seguintes domínios: aspectos comportamental e psicossocial, rede de apoio, barreiras e práticas do autocuidado. A avaliação do protocolo apresentou boa concordância entre os avaliadores, com IVC médio de 0.96.

Conclusão: Considera-se validado o conteúdo do protocolo Compasso e adequado culturalmente para promover a adesão às práticas de autocuidado em diabetes via intervenção telefônica.
Introduction

Diabetes mellitus is a chronic condition that may lead to irreversible complications affecting daily activities and quality of life. Moreover, it requires a change in everyday behavior patterns that often entails difficulties for achieving adherence to self-care in terms of physical activity, a healthy meal plan and proper use of prescribed medicines.\(^{(3,4)}\)

One of the challenges for health professionals is to find educational alternatives aimed at individuals with diabetes mellitus for building knowledge, skills and developing basic attitudes for the practice of self-care, considering autonomy, expectations and everyday life of each person.\(^{(5)}\)

The telephone intervention is used as an innovative strategy to encourage adherence to self-care practices, as it enables effective communication between the healthcare professional and the individual with diabetes mellitus, when associated or compared to in-person actions.\(^{(6,7)}\) By using a comprehensive and contextualized language, the professional is able to negotiate, motivate and promote co-responsibility for self-care, helping individuals overcome barriers. One of the potentials of telephone assistance is the individualized and systematic monitoring of individuals with diabetes mellitus, during the interval between the educational practice meetings, or when they are at home or outside the health service making choices and decisions related to their health.\(^{(6)}\)

Among the tools available for the self-care approach to diabetes mellitus via telephone calls found in a literature review were: the Automated Telephone Disease Management (ATDM) Satisfaction Scales and Self-efficacy Psychosocial Scale - Short Version (SPS-SV), which are intended to assess the psychosocial self-efficacy and individual satisfaction with diabetes in those receiving telephone assistance.\(^{(8,9)}\) Characteristics that facilitate the interaction between an individual and a professional via telephone call, however, are not addressed by available tools, which is a gap that needs to be filled. Indeed, as in any educational intervention, the use of an appropriate tool ensures reliable information for research quality assurance.\(^{(10,11)}\)

In view of this situation, a protocol is necessary to promote adherence to self-care practices, with the intended purpose of educating and motivating the individual to participate effectively in the treatment regimen. The proposal is to consider the individual and his/her feelings as the core of healthcare, identifying the obstacles as well as the solutions to overcome them, in order to enable him/her to perform physical activity, follow a meal plan, and make proper use of prescribed medications.

The approach taken in the Compasso protocol is individualized, aiming to support the individual in conscious decision making about the guidance received, and his/her commitment to follow it. The individual is expected to have responsibility to incorporate, into his/her daily activities, the directions perceived as relevant, and shall be responsible for his/her health and control of diabetes mellitus.

The objective of this study was to conduct the development, content validation and cultural adaptation of the Compasso protocol, to promote adherence to self-care practices in diabetes mellitus via telephone intervention.

Methods

This was a methodological study, conducted from December 2015 to March 2016, comprising the following stages: development, content validation by an expert committee, and cultural adaptation of the protocol.

In order to map the diabetes mellitus domains and development of the protocol items, the main issues of adherence to self-care practices in diabetes mellitus were investigated, associated with behavioral and psychosocial aspects, based on the Guidelines of the Brazilian Society of Diabetes, in the Strategies for the Care of the Person with Chronic Disease: Diabetes mellitus and the Behavior Change Protocol.\(^{(2,12,13)}\)

In order to prepare and organize the items that composed the structure of the protocol, in addition
to a literature review, discussions with experts were conducted, based on professional experiences of the participants and on the available literature. Five professionals from the fields of Healthcare, Applied Linguistics and Statistics participated in this stage. After consideration of all input from the experts, a second version was developed in order to facilitate the protocol understanding by the target population. The protocol was named Compasso: adherence to the self-care practices in diabetes mellitus via telephone intervention.

To ensure content validation and clarity, the second version was submitted for examination to an expert committee composed of nine health professionals. The selection of these professionals was carried out by convenience, as they were selected because they were actively participating in research related to the development and validation of tools, as well as being members of a research nucleus of a governmental educational institution that aims to develop educational healthcare actions. Therefore, the inclusion criteria to compose the committee were: first degree in healthcare, experience in assisting in diabetes, and conducting research in the construction and validation of tools.

An invitation was sent by e-mail to each professional providing a study explanation and requesting an analysis of the protocol content for clarity and relevance in the writing of each question, using an electronic questionnaire, administered through web platform e-Surv.

The content evaluation requested to the professionals consisted in their assigning one of the following four options to each section of the protocol: 1. One star = requires complete alteration; 2. Two stars = requires partial alteration with many modifications; 3. Three stars = requires partial alteration to improve the style of the text; 4. Four stars = No need for alteration.

After the judges’ evaluation, the Content Validity Index (CVI) of the committee was calculated, obtained by adding the relative frequencies of the three and four star answers to verify the judges’ level of agreement regarding the adequacy of the items evaluated. To check the validity of the second protocol version, a mean of 0.90 was used to indicate a minimum.\(^{(14,15)}\)

After each question, a form field was available for the experts’ considerations and observations regarding the clarity and relevance of the proposed content, and if there was a felt need for any change, improvement or exclusion. The suggestions for improvement of the items of the Compasso protocol were incorporated, and the third version of the protocol was obtained.

The cultural adaptation of the protocol involved two steps of protocol testing, with administration to members of the target population linked to eight Basic Health Units, under the premises of the research project entitled “Program evaluation of empowerment in diabetes in the primary health care.” The inclusion criteria for the participants of this stage were: having been diagnosed with diabetes mellitus type 2, and owning a landline or mobile phone.

The third version was first administered to 191 users with diabetes mellitus type 2. The main researcher contacted each individual via telephone, and was responsible for reading each question of the Compasso protocol and requesting the individual to answer the questions. The individual was also inquired about his/her understanding of the protocol items and wording, as well as his/her opinion on their relevance.\(^{(14)}\) During the protocol administration, responders’ answers were tape-recorded and entered on an electronic form through the web platform e-Surv by the researcher and,\(^{(13)}\) being subsequently exported to a file in text format for statistical analysis in the R software and environment.

At the end of this stage, the difficulties of interpretation of the questions and the specific protocol vocabulary were addressed as potential problems, using an interdisciplinary perspective to solve them. The same experts who worked on the protocol development participated in interdisciplinary meetings, expressing their opinions and drawing on their expertise to solve the problems.

A semantic analysis of the items was performed in order to guarantee that all the questions were comprehensible to the target popula-
Development, validation and cultural adaptation of the Compasso protocol: Adherence to self-care in diabetes

Some items were modified according to the experts’ opinions, generating a fourth version of the Compasso. This version was entered into a new test survey via the web platform e-Surv, and administered to 150 individuals with diabetes mellitus type 2, using the same methodological steps as well as the inclusion criteria as in the previous stage.

After this second stage of testing, experts identified no further problems and no individual suggested changes or indicated difficulties; thus, the fourth version was considered the final version of the Compasso protocol.

The methodological procedure of development, content validation and cultural adaptation of the Compasso Protocol is provided in figure 1.

Data were collected in a protocol developed for this purpose; containing information related to the sociodemographic and clinical variables of the individuals with diabetes: sex, age, marital status, income, and duration of diabetes, education and occupation.

All data were encoded and anonymously stored in a spreadsheet, which was exported from the web e-Surv platform for analysis in the R statistical programming environment.

The development of the study met national and international standards of ethics in research involving human subjects. The Research Ethics Committee of the Health Municipal Department of Belo Horizonte (Protocol No. 1,411,949) approved the project that originated this study. All participants, after due explanation about the objectives and criteria of participation, signed the Terms of Free and Informed Consent Form in duplicate and registered in Plataforma Brasil under Certificado de Apreciação Ética number (CAAE): 50109615.0.3001.5140.

Figure 1. Flow chart of the stages in the study for the development and validation of the Compasso Protocol
Results

From the readings and discussions of the reference materials, seven questions were elaborated for the first version of the protocol, based on the areas of self-care: 1. Feelings and barriers for caring in diabetes; 2. Dissatisfaction and readiness for change; 3. Support Network; 4. Willingness to develop a plan of goals; 5. Major complications of diabetes; 6. Follow-up meal plan; 7. Physical activity.

The first protocol domain included structural, environmental and economic barriers, and those related to behavioral and psychosocial aspects. Thus, feelings such as sadness and non-acceptance of the chronic condition were considered complicating factors for the practice of self-care. The domain related to dissatisfaction and willingness to change seeks to identify behaviors that are considered priorities for change by the individuals with diabetes mellitus. The third domain is related to the support network, in which individuals identify the actors involved in the process of taking care of their health. Regarding the fourth domain, the individual is encouraged to reflect on his/her willingness to commit to the development and completion of a prospective plan of goals.

The fifth domain focuses on the individual’s knowledge about the potential complications caused by diabetes mellitus. Finally, the sixth and seventh domains, respectively, address the issues related to physical activity and follow up of a meal plan designed and agreed upon seven days prior to the phone call.

After this selection and structural organization of the protocol, the experts who worked on this stage suggested the inclusion of a domain related to prescribed medicine administration that generated the eighth question in the protocol. This inclusion is justified by the high frequency of citations pertaining to this issue in national and international studies and especially in the clinical practice of experts. The eighth domain, entitled medicine administration, covers the proper use of prescribed medicine for the treatment of diabetes mellitus in the seven days prior to the phone call.

After the discussion of those seven initial questions, the second version of the Compasso protocol was developed, consisting of eight questions. The experts agreed that the elaborated questions comprised important domains in diabetes mellitus in the context of educational practice, in accordance with the reviewed literature and expert experience.

The experts reached a consensus that the Compasso protocol was meant to promote adherence to self-care practices within the context of diabetes via telephone intervention and not serve as a measuring instrument. Thus, scales or scores related to the protocol questions were not considered, as well as the calculation of internal consistency.

The second version was submitted for examination by an expert committee made up of six nurses and three nutritionists with experience in treatment of diabetes mellitus type 2 and conducting research in the construction and evaluation of instruments. Table 1 shows the results of their responses and the Content Validity Index (CVI) calculated for each question of the protocol.

Table 1. Content Validity Index of each question of the Compasso protocol according to the evaluation of health professionals

<table>
<thead>
<tr>
<th>Question</th>
<th>Judges’ scores</th>
<th>CVI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3 4 4 4 4 4 4 4</td>
<td>1.0</td>
</tr>
<tr>
<td>2</td>
<td>4 4 4 4 4 4 4 4</td>
<td>1.0</td>
</tr>
<tr>
<td>3</td>
<td>4 4 4 3 4 4 2 3</td>
<td>0.75</td>
</tr>
<tr>
<td>4</td>
<td>4 4 4 4 4 4 4 4</td>
<td>1.0</td>
</tr>
<tr>
<td>5</td>
<td>4 4 3 4 4 4 4 4</td>
<td>1.0</td>
</tr>
<tr>
<td>6</td>
<td>4 4 4 4 4 4 4 4</td>
<td>1.0</td>
</tr>
<tr>
<td>7</td>
<td>4 4 4 4 4 4 4 4</td>
<td>1.0</td>
</tr>
<tr>
<td>8</td>
<td>4 4 4 4 4 4 4 4</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Mean CVI: 0.96

CVI- Content Validity Index

The higher the value of the CVI, the lower the number of changes needed to improve each evaluated question. Only one question obtained a score less than 0.90, calling for debate and improvement. Question number three “Do you think there is someone you can resort to who can help you?” was reworded as “Sir/Ma’am, do you think there is someone you can resort to who can help you?” This adjustment was deemed appropriate to add greater politeness and promote the individual’s understanding of the question.

The other questions were considered clear by the judges, so no changes were deemed necessary.
The third version was tested with the target population, using a methodology that prioritized the overall understanding of the items by the individuals, and included interdisciplinary meetings for resolution of the problems found in the test phase.

A total of 341 individuals with diabetes mellitus 2 responded to Compresso by telephone call. The majority were women (66.6%), unemployed (80.9%) and lived with a partner (69.5%). Regarding education, 26 (7.6%) individuals were illiterate, and 245 (71.9%) had complete or incomplete elementary education. The mean age was 64.3±8.8 years and numbers of years of diagnosed diabetes was 13.5±10.6 years. The length of time spent on answering the Compresso protocol ranged from five to ten minutes.

Initially, 191 individuals answered the third version of the Compresso, and those questions that revealed difficulties in understanding were discussed by the experts in the interdisciplinary encounters, where improvements were proposed, such as the use of more colloquial words and more easily understood. Words such as “own”, “barrier”, “achievement”, “practice” and “self-care” were the focus of changes and resulted in the fourth version of the protocol.

After these alterations, more than 150 individuals were contacted via telephone intervention to answer the fourth version of Compresso. The purpose of this re-administration was to determine whether the improvements suggested by the experts were consistent with the particular profile of the target population, and its level of understanding with respect to the protocol questions.

In general, in this second administration, when asked about the understanding of the items and the words, the individuals did not express any difficulty in understanding the questions of the instrument, which led to the final version of the protocol, which was culturally appropriate for the Brazilian population with diabetes mellitus type 2 (Quadro 1).

Finishing this stage, the responses to the eight questions were grouped according to the frequency of citation by individuals and, later, categorized, to facilitate and standardize the completion of the Compresso protocol.

Quadro 1. Final version of Compresso protocol: follow up of self-care practices in diabetes via telephone intervention

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
</table>
| 1. O que o(a) senhor(a) acha mais difícil para cuidar da sua saúde?     | a) Seguir o plano alimentar  
  b) Não possui nenhuma dificuldade  
  c) Tomar os medicamentos  
  d) Marcar consulta  
  e) Falta de dinheiro  
  f) Fazer atividade física  
  g) Outros                   |
| 5. O senhor(a) imagina o que pode acontecer com o(a) senhor(a) se o(a) senhor(a) não se cuidar? | a) Complicações cardiovasculares  
  b) Amputação  
  c) Hipoglicemia ou hiperglicemia  
  d) Morte  
  e) Problema na visão  
  f) Outros                   |
| 2. O que o(a) senhor(a) acha que poderá fazer primeiro para cuidar da sua saúde? | a) Seguir o plano alimentar  
  b) Fazer atividade física  
  c) Tomar medicamentos  
  d) Marcar consulta  
  e) Organizar o tempo  
  f) Outros                   |
| 6. Nesta Última semana que passou, quantas vezes o(a) senhor(a) conseguiu seguir o plano alimentar? | a) Nenhuma vez na semana  
  b) 1 - 2 vezes por semana  
  c) 3 - 4 vezes por semana  
  d) 5 - 6 vezes por semana  
  e) Todos os dias  
  f) Não se lembra             |
| 3. O(a) senhor(a) acha que tem alguém que possa ajudar o(a) senhor(a)?    | a) Amigo  
  b) Cônjuge  
  c) Família (pais, filhos)  
  d) Não tem ninguém  
  e) Profissional de saúde  
  f) Outros                   |
| 7. Na última semana, quantas vezes o(a) senhor(a) faz pelo menos 30 minutos de atividade física? | a) Nenhuma vez na semana  
  b) 1 - 2 vezes por semana  
  c) 3 - 4 vezes por semana  
  d) 5 - 6 vezes por semana  
  e) Todos os dias  
  f) Não se lembra             |
| 4. O(a) senhor(a) está disposto a fazer alguma coisa para enfrentar essas barreiras que o(a) senhor(a) me falou? | a) Se sente disposto  
  b) Não se sente disposto |
| 8. Nos últimos sete dias o(a) senhor(a) tomou as injeções de insulina e/ou o número de comprimidos do diabetes indicado pelo médico do(a) senhor(a)? | a) Nenhuma vez na semana  
  b) 1 - 2 vezes por semana  
  c) 3 - 4 vezes por semana  
  d) 5 - 6 vezes por semana  
  e) Todos os dias  
  f) Não se lembra             |

*Questions that allow more than one choice.*
Quadro 2. Modifications made in accordance with each version and stage of development of the Compasso: development, validation and cultural adaptation.

<table>
<thead>
<tr>
<th>Item</th>
<th>Versions V1 and V2</th>
<th>Version - V3</th>
<th>Version - V4</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stage: Protocol development (Portuguese version)</td>
<td>Stage: Content validation (Portuguese version)</td>
<td>Stage: Cultural adaptation (Portuguese version)</td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>O que o (a) senhor(a) acha mais difícil para cuidar da sua própria saúde?</td>
<td>No changes</td>
<td>O que o (a) senhor(a) acha mais difícil para cuidar da sua saúde?</td>
<td>The word “own” was unusual for the target population, which caused difficulties in understanding.</td>
</tr>
<tr>
<td>02</td>
<td>O que o(a) senhor(a) acha que poderá fazer primeiro para cuidar da sua saúde?</td>
<td>No changes</td>
<td>No changes</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>O(a) senhor(o) acha que tem alguém que possa te ajudar?</td>
<td>O(a) senhor(o) acha que tem alguém que possa ajudar o(a) senhor(a)?</td>
<td>No changes</td>
<td>Adjustment in the form of treatment for greater politeness and understanding of the question.</td>
</tr>
<tr>
<td>04</td>
<td>O (a) senhor(a) está disposto a fazer alguma coisa para enfrentar essas barreiras que o(a) senhor(a) me falou?</td>
<td>No changes</td>
<td>O(a) senhor(o) está disposto a fazer alguma coisa para enfrentar essas dificuldades que o senhor(a) me falou?</td>
<td>Replacement of a lexical item by another with greater frequency of use</td>
</tr>
<tr>
<td>05</td>
<td>A(o)a senhor(o) imagina o que poderá acontecer com o(a) senhor(a) se o(a) senhor(o) não realizar as práticas de autocuidado?</td>
<td>No changes</td>
<td>O senhor(o) imagina o que pode acontecer com o(a) senhor(o) se o(a) senhor(o) não se cuidar?</td>
<td>Replacement of one expression by another one more close to everyday language</td>
</tr>
<tr>
<td>06</td>
<td>Nesta última semana que passou, quantas vezes o (a) senhor(a) conseguiu seguir o plano alimentar?</td>
<td>No changes</td>
<td>No changes</td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>Na última semana, quantas vezes o (a) senhor(a) fez pelo menos 30 minutos de atividade física?</td>
<td>No changes</td>
<td>No changes</td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>Nos últimos sete dias o (a) senhor (a) tomou as injeções de insulina e/ou o número de comprimidos do diabetes indicado pelo médico do(a) senhor(a)?</td>
<td>No changes</td>
<td>No changes</td>
<td></td>
</tr>
</tbody>
</table>

The final version of the protocol, with the changes made in accordance with each stage, and their justification can be found in the quadro 2.

**Discussion**

Profiling the management of self-care practices of individuals with diabetes, covering the psychosocial and behavioral factors related to health, are the main antecedents of an educational intervention. Knowledge of the context of the life of those in the target population on whom the practice will be used is an effective manner to bring the health professional close to the main complicating factors of adherence to self-care practices of individuals with diabetes, which should be carefully cultivated.\(^8,9\)

The School of Nursing, the Laboratory for Experimentation in Translation at the Faculty of Arts, and the Biostatistics Laboratory of the Universidade Federal de Minas Gerais, sought to develop the Compasso protocol with the main objective of assisting the health area of work to assess the self-care management of individuals with diabetes. The aim was to develop and validate an adequate protocol that could be administered via telephone, given the ease afforded by this type of contact, the potential of promoting the satisfaction of the individual receiving this type of intervention, and the need to monitor individuals with diabetes between the intervals of conventional educational practices.\(^11\)

The steps for development of instruments recommended by the literature were followed in order to ensure the construction of a reliable tool.\(^{14}\) The participation of professionals in the fields of healthcare, applied linguistics and statistics at this stage was important to assure proper selection and organization of items and domains, in addition to the analysis of the potential data in the test phase.\(^{14,17,18}\)

As a result of the validation performed by the health professionals, the Compasso was considered a protocol with relevant and valuable content regarding the promotion of adherence to self-care practices in diabetes **mellitus** type 2, a factor that was evidenced by the mean CVI of 0.96, recommended as an acceptable value in the literature.\(^{14,15}\)

The content of Compasso questions include findings from other studies in which the individuals reported that the barriers for the practice of self-care are related to psychosocial, economic and behavioral factors.\(^3\) Since these obstacles can explain the fact that a considerable number of individuals
are unable to follow a meal plan, do not practice physical activity, and do not adhere to medication treatment, educational interventions addressing these issues are necessary in the planning of interventions.\(^{(3,19)}\)

The selection of the web e-Surv platform proved to be effective to improve and facilitate the methods of data collection and storage for the content validation and cultural adaptation stages of the Compasso protocol.\(^{(20)}\) e-Surv is a free online tool, with ease of accessibility and use, whose applicability for data collection in the health area context is well described in the literature.\(^{(1,3,21)}\)

The stage of cultural adaptation had the participation of attentive experts who discussed the problems of the target population by means of interdisciplinary meetings, and allowed the exploitation of the problems at their root, ensuring an approximation with the local vocabulary, colloquialisms and simple words.\(^{(16)}\) The participation of individuals with diabetes, at this stage, also contributed to obtaining a functional protocol to be administered via telephone.

Compasso was easily understood, even for individuals of low level of education, predominant in the test groups, including those without literacy, and shown to be useful to apply via telephone, because it is a short protocol and of rapid implementation. In populations with low level of education, it is necessary to adopt methodologies that address these specificities and integrate the different contexts, as performed in the cultural adaptation.\(^{(16,20)}\)

As such, the use of Compasso can provide information to the healthcare professional planning and implementing contextualized telephone interventions and encouraging the adherence to the self-care practices. In addition, the Compasso may provide a monitoring of the individual with diabetes mellitus in a systematic manner, in order to reduce the demand for highly complex health services, facilitating the longevity of care.

The study limitation is the fact that was not possible to compare the Compasso with other existing tools with similar purpose, since they were not found in the available literature. Thus, the use of other validation testing was not possible.

### Conclusion

The Compasso protocol was validated regarding content and clarity and was culturally adapted, thus being available to be used by professionals working in the healthcare area for education practices in diabetes mellitus via telephone intervention.

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### Collaborations

Fernandes BSM, Reis IA e Torres HC contributed with the study design, analysis, data interpretation, paper writing, relevant critical review of the intellectual content and final approval of the version to be published. Pagano AS contributed with the study design, analysis, data interpretation, paper writing, relevant critical review of the intellectual content Cecilio SG contributed with the article writing, relevant critical review of the intellectual content and final approval of the version to be published.

### References


Educational video: a training strategy for caregivers of children with cleft lip and palate

Vídeo educativo: estratégia de treinamento para cuidadores de crianças com fissura labiopalatina

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Objective: To check the knowledge informal caregivers of children with cleft lip and palate acquire about the postoperative care of cheiloplasty and palatoplasty through the use of an educational video.

Methods: Randomized clinical trial conducted with 80 caregivers of children with cleft lip and palate, arranged into two groups: experimental (G1) and control (G2). Data collection occurred during the child’s hospital stay, in three stages, using a structured questionnaire and an educational video developed and validated for this study.

Results: There was evidence of improvement in the acquisition of knowledge about postoperative care in both groups (p <0.001), but it was higher in G1 compared to G2.

Conclusion: The educational video was shown to be effective to train caregivers of children with cleft lip and palate after cheiloplasty and palatoplasty.

Keywords
Education, nursing; Nursing care; Perioperative nursing; Caregivers; Audiovisual aids; Training

Descritores
Educação em enfermagem; Cuidados de enfermagem; Enfermagem perioperatória; Cuidadores; Recursos audiovisuais; Capacitação

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Introduction

Cleft lips, associated or not with cleft palates, are congenital deformities characterized by the lack of continuity of central facial structures and palatine processes, which can cause functional and cosmetic changes, and psychological disorders. (1,2)

The rehabilitation process of patients with cleft lip and palate begins with the primary plastic surgeries named cheiloplasty and palatoplasty, which are performed in the first months and years of life, respectively. Cheiloplasty is the reconstructive surgery of the cleft lip, and palatoplasty is the reconstruction of the cleft palate. (3)

In the postoperative period, parents are guided about care by the nursing staff, according to the surgery performed, including: observation of the general state; control of bleeding, swelling, bruising and scarring; immobilization of the humeroradial joint; cleaning of the surgical wound; provision of a liquid diet, and mouthwashes with antiseptics. (4) Parents’ or caregivers’ awareness about the importance of this care has a positive impact on the rehabilitation process. (5-7)

Thus, the educational role of nurses should be emphasized through the promotion of clarification and proper communication, with the need to meet the demands of information from parents or guardians about the surgical procedures, to facilitate adaptation to clinical situations, attenuate anxiety when facing painful procedures, promote self-care, change risky habits, or promote adherence to short- and long-term treatments. (8)

Interactive forms of health education have been identified as productive in the teaching-learning process because they use effective methods of coordination, dissemination of advances related to care in different specialties and professions, involving information and communication resources, including the development of materials to support this interaction. (9)

The use of educational materials by caregivers to obtain relevant information sets a pattern of acquisitions that can become adaptive actions beneficial to children with cleft lip and palate, providing favorable conditions to prevent risks and complications during the postoperative period. However, the quality of material should be ensured, as well as that of the evaluation tools (10).

Therefore, the objective of this study was to verify the knowledge acquired by informal caregivers of children with cleft lip and palate on the postoperative care of cheiloplasty and palatoplasty through the use of an educational video.

Methods

This is a randomized clinical trial conducted in a hospital specialized in the care of children with cleft lip and palate, and craniofacial anomalies, between August and October 2014.

The sample consisted of 80 informal caregivers who accompanied children with isolated cleft lip and palate who underwent primary surgeries of cheiloplasty and/or palatoplasty, forming two groups (G1 and G2). G1 was the experimental group that participated in the proposed training about postoperative care, which was applied by the researcher with the use of audiovisual aid created and validated for this research; and G2 was the control group, which also received postoperative guidelines, but that were given by nurses in the routine of the participating hospital.

A pilot study was conducted to set the sample, including 20 participants. Based on this study, an improvement of 35% was seen in G1, and an improvement of about 10% in G2, for a test power of 80% and alpha of 5%, estimating 40 caregivers per group. The group formation was undertaken from the surgical map, where children that met the inclusion criteria were consecutively numbered; with the use of a table of random numbers, group randomization took place. Thus, the sample consisted of 40 caregivers at random in the experimental group, and 40 caregivers in the control group. Caregivers of children with psychomotor impairment, genetic syndromes and other abnormalities or comor-
bidities were excluded, because these patients require special care.

Data collection took place during the period of hospitalization of children in the perioperative phase of the primary surgery, and included three stages:

• 1. Pre-training: interviews occurred in the perioperative period, at which the children were undergoing the surgical procedure, with the application of a structured questionnaire containing questions regarding the sample characterization and identification of information about postoperative care in cheiloplasty and palatoplasty. The characterization of the participants was aimed to identify, in relation to children: age, type of cleft and surgical procedure. Regarding the caregiver: age, number of children, socioeconomic classification, marital status, and degree of kinship with the child were verified.

To identify the information about postoperative care, the questionnaire consisted of five categories: a) General care: related to child positioning on the caregiver’s lap, permission to suck fingers and/or use a pacifier, child putting the hand in the mouth, care in the bedroom, toys and games, sun exposure, and the period that such care should be given in the postoperative period; b) Food: related to food consistency and temperature, more suitable utensils, and the period of supply of this food postoperatively; c) Hygiene and surgical healing: related to the removal or not of surgical stitches, dental and surgical hygiene, and daily frequency of this cleaning; d) Complications of surgical site: bleeding, trauma, injuries, respiratory distress, infection at the site, fever and pain that may happen at home; e) Behavioral state: caregiver’s behavior with the child in the care provided, and consequent mood of dedication to the task. The instrument was built for this study, being tested previously (pilot study), and was suitable for the procedures of application, vernacular, and purpose.

• 2. Training: in the postoperative period, at the day of discharge (24 hours after surgery), G1 caregivers received training based on the prior planning of the research, which consisted of the exhibition of an educational video, with basic information about general care, food and hygiene to maintain surgical wound integrity, and surgical healing, necessary for recovery, and similar to those adopted by the institution without the visual aid (G2). However, in addition to that, G1 received guidance on child management, and on other protective care in the return to routine, involved in the affective aspects of mother-infant relationship, and those arising from the vulnerability state of facing an illness. During the procedure, within about 10 minutes, there was no interference of the researcher, who remained present full-time, ensuring possible learning through the tool adopted. G2 watched the oral presentation by the nursing staff of the hospital, with the average time of 10 minutes, where routine postoperative guidelines were provided and, at the time of hospital discharge, a manual of guidelines related to such postoperative care was given.

The steps recommended in the literature were used for the preparation of the educational video,(11) including planning, proper selection of images, production of easy-to-understand texts, creation of a guide with methodological accuracy, as well as the combination of creativity to transform the challenge of the transmission of technical and scientific language into an appropriate message to the target audience. Validation was performed according to the content. Thus, the evaluation by experts from different areas was obtained, which included: Nursing, Health Communication and Visual Communication. Six experts participated, who mastered the theoretical and analytical assumptions of the reliability of constructs related to the instrument, and who met the inclusion criteria, i.e., to have ten or more years of experience in their fields or minimum specialist title. The analyzed criteria included: familiarity, plausibility and linguistic clarity.
The content validity index (CVI) was the tool chosen to evaluate the items separately.\(^{(14)}\) The index score was calculated by the sum of expert agreement about the items, allowing the identification of the overall score and ranking of product suitability. To evaluate the material as a whole, the criteria of concordance percent was used, which was obtained by dividing the total number of items considered relevant by the experts by the total number of items. A minimum percentage of concordance of 90% was considered.\(^{(12)}\) In this study, the concordance percent was 98%.

After its completion, the educational video was recorded on DVD and presented to the nursing staff of the participating institution so that they could validate their guidelines, and later it was made available to parents and caregivers of children with cleft lip and palate after cheiloplasty and palatoplasty. Access to the video was available only for participants, returning, in part, the collaboration provided to the study.

3. Post-training: after orientation training, the structured questionnaire on the guidelines provided was reapplied to both groups, aiming to identify the pattern of information acquired about postoperative care.

For the analysis of identification of the pattern of information on postoperative care in the pre- and post-training period of G1 and G2, the Wilcoxon test was used. The comparison between the groups in the pre-training, and regarding the difference of correct answers was carried out using the Mann-Whitney test, and for the comparison of the pattern of information about each related item in the pre- and post-training of G1 and G2, McNemar test was applied. For all tests, a 5% significance level was adopted.

The study was registered in Brazil under the Plataforma Brasil of Certificado de Apresentação para Apreciação Ética (CAAE): 09750212.8.0000.5441.

**Results**

The sample consisted of 80 caregivers, distributed into 40 caregivers in G1, and 40 caregivers in G2. Nonprogrammed homogeneity was found in the distribution of caregivers participating in G1 and G2. This condition showed that the use of a random number table was an effective procedure, considering that there was no statistically significant difference between the groups.

There was a predominance of mothers (97.5%), mean age of 28.4 years (± 6.2), with an average of 2 children (± 1.1), married (47.5%), with secondary education (46 3%) and low socioeconomic classification (78.8%). Regarding the children, according to gender, women prevailed (52%), with mean age of 10.8 months (± 8.6). Regarding the type of cleft, 20% had cleft lip, 40% isolated cleft palate, and 40% cleft lip and palate, where 32.5% underwent cheiloplasty, 40% palatoplasty, and 27.5% cheiloplasty and palatoplasty.

Regarding the identification of information pattern by the caregivers of postoperative care after the primary surgeries, a condition of similarity in the pattern of initial information by caregivers within the groups was observed in the pre-training. However, in the increment of accuracy, G1 showed higher knowledge acquisition after the intervention with the educational video when compared to G2 (Table 1).

Concerning information pattern by caregivers on the postoperative care of primary surgeries before and after training, it was observed that both groups had their knowledge improved in the variables related to postoperative care in the post-training, either after the guidelines provided by the nursing staff of the institution or the intervention with the educational video. These data were presented according to the mean, percentage and standard deviation in G1 and G2 before and after training, as well as their p-value, where statistically significant results were evident (Table 2).
When analyzing the individual items related to postoperative care of the primary surgeries in G1, it was observed that, of the five variables addressed, four showed a statistically significant difference, where only in the item of the variable “food”, about most suitable utensils for the provision of infant feeding after surgery, there was no significant difference. It was noted, however, that 36 caregivers already knew this information, and that only four caregivers obtained increment of this information after the intervention with the educational video (Table 3).

In the analysis of information pattern of postoperative care of G2 about each item of the variables, no significant difference was observed in six items (Table 3). Regarding “general care” of child putting the hand in the mouth and sucking a finger/pacifier, seven caregivers answered the question correctly after training. However, six caregivers were unable to answer this question. Regarding the use of bracelets at the elbow joint to prevent flexion, and not to compromise the postoperative rehabilitation or lead to rupture of surgical stitches, six caregivers showed an improvement of this information after training with the institution’s nursing staff.

The variable “food”, about food consistency and the most suitable utensils to give food to the child
after the surgery, four caregivers had their information updated after training. Regarding care relative to “hygiene and surgical healing”, 30 caregivers responded properly to how oral hygiene of children should be performed, before training, and six caregivers had an enhancement of this information, after training.

Regarding “behavioral state of the caregiver,” there was no significant difference in this variable from pre- to post-training due to lack of guidance from the nursing staff in this respect, where 39 caregivers were unable to answer, at post-training, what behavior the mother should have with the child in the postoperative period.

**Discussion**

The limitations of this study refer to the fact that it was performed with caregivers of children with cleft lip and palate of a single institution, which does not allow a generalization of results, and the possibility of measurement bias regarding the use of the interview as a data collection tool, because it is dependent on memory. However, it is important to emphasize that the results offer interesting contributions to the understanding of how these caregivers interpreted the message about postoperative care, employed through the use of an educational video. In addition to training of caregivers, the findings may extend to nursing professionals and others of related fields, including those related to telenursing, classes by videoconference, training and improvements related to postoperative care, and cheiloplasty and palatoplasty.

This study found that the group using the educational video as a teaching proposal presented better acquisition of knowledge regarding the information obtained about the postoperative care of primary surgeries of cheiloplasty and palatoplasty compared to the control group, indicating its efficacy for this purpose.

Learning based on audiovisual resources is considered an important teaching tool in nursing, because it contributes to the quality of care, with emphasis on the training of patients and caregivers, also being a vehicle for the dissemination of advances in care.\(^{(8,15,16)}\)

Based on caregivers’ characterization data, there was a predominance of mothers, corroborating other investigations.\(^{(4,17,18)}\) The presence of

<table>
<thead>
<tr>
<th>Variables</th>
<th>G1 (n)</th>
<th>G2 (n)</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child’s position on the lap</td>
<td>Yes/Yes Yes/No</td>
<td>No/Yes No/No</td>
<td>p-value*</td>
</tr>
<tr>
<td>Finger/pacifier sucking</td>
<td>2 0</td>
<td>0 34</td>
<td>4 4 &lt;0.001</td>
</tr>
<tr>
<td>Use of bracelets</td>
<td>31 0</td>
<td>0 9</td>
<td>0 0.008</td>
</tr>
<tr>
<td>Care in the bedroom</td>
<td>1 0</td>
<td>38 1</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Toys and games</td>
<td>4 0</td>
<td>29 7</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Sun exposure</td>
<td>7 0</td>
<td>27 6</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Time of care</td>
<td>29 0</td>
<td>11 0</td>
<td>0.003</td>
</tr>
<tr>
<td>Consistency</td>
<td>33 0</td>
<td>7 0</td>
<td>0.023</td>
</tr>
<tr>
<td>Temperature</td>
<td>25 0</td>
<td>13 2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Utensil indicated</td>
<td>36 0</td>
<td>4 0</td>
<td>0.134</td>
</tr>
<tr>
<td>Period of offer</td>
<td>27 0</td>
<td>13 0</td>
<td>0.001</td>
</tr>
<tr>
<td>Surgical stitches</td>
<td>24 0</td>
<td>15 1</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Buccal hygiene</td>
<td>32 0</td>
<td>8 0</td>
<td>0.013</td>
</tr>
<tr>
<td>Surgical hygiene</td>
<td>6 0</td>
<td>32 2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Frequency of hygiene</td>
<td>7 23</td>
<td>2 8</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Surgical site complications</td>
<td>32 0</td>
<td>7 1</td>
<td>0.023</td>
</tr>
<tr>
<td>Behavioral state</td>
<td>1 0</td>
<td>24 15</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

*McNemar test
the mother during hospitalization has been associated with less stress for the child. In addition, the mother, the main caretaker, receives training on the care, ensuring its continuity after hospital discharge.\(^{(4,17,19)}\)

Regarding the age of caregivers, the mean age was 28 years, which means young age. In the context of learning that is necessary to postoperative care, young people have greater willingness to learn. The use of an educational video as a teaching strategy is evidenced, because it is a very attractive method to this public.\(^{(20,21)}\)

Regarding the number of children, most reported having two children, and regarding marital status, there was a predominance of “stable unions”. There is a consensus that children with cleft lip and palate whose families are structured show better results regarding the rehabilitation process, considering that the care and responsibilities are divided between the parents.\(^{(4,17)}\)

Regarding caregivers’ education, there was a predominance of high school level. Education level is related to the learning capacity required for the acquisition of skills related to postoperative care and access to information, as well as to their quality.\(^{(4)}\)

As to the socioeconomic classification, there was a predominance of the lower class, corroborating the literature.\(^{(4,17,18)}\)

With regard to the child’s gender, there was a predominance of females. On the classification of clefts, there was equality between cleft lip and palate and cleft palate. The literature shows a prevalence of cleft lip and lip-palate in males, whereas cleft palate is prevalent in females.\(^{(1)}\) The mean age was 10 months. The optimal age for a cheiloplasty and palatoplasty is no consensus; however, good results, especially regarding the quality of speech, have been evidenced in cases in which surgical correction occurred before 12 months of age.\(^{(22)}\)

According to the institution’s protocol, cheiloplasty is performed at 3 months of age, whereas palatoplasty occurs between 10 and 12 months. In children with unilateral cleft lip and palate, cheiloplasty and palatoplasty have been concurrently performed from 3 months of age on.\(^{(17)}\)

Protocol stratification has been identified as an important quality indicator for the rehabilitation process of patients with cleft lip and palate, a fact that is evidenced in this study, related to surgery, demonstrating compliance to this recommendation.\(^{(2)}\)

Regarding nursing care after cheiloplasty and palatoplasty surgeries, it became clear that both groups were similar concerning correct answers in the pre-training; after training, greater knowledge was evidenced, denoting that they were able to hold information.\(^{(23)}\) However, in the group receiving the intervention through the educational video, it was observed that learning was significantly higher, reflecting its importance as a training tool.

The first item in the educational video was about general care, which included the child’s position on the caregiver’s lap, sucking of fingers and/or a pacifier, child’s hand placement in the mouth, care in the room, toys and games, sun exposure and period when such care should be given in the postoperative period. This care is related to the maintenance of wound integrity, and prevention of complications, especially bleeding.\(^{(4)}\)

The lip and palate are extremely irrigated areas, and traumas in these regions, which are already sensitized by surgery, can lead to bleeding. Sun exposure should be avoided, particularly at times when radiation is greater, because this interferes qualitatively in surgical wound healing, mainly in lip surgeries. Moreover, heat promotes vasodilation, which may cause bleeding. The period stipulated for such care is 30 days.\(^{(4)}\)

In the item ‘food’ it was observed that, in both groups, caregivers previously had satisfactory knowledge. This result is associated with the fact that food is the main concern of parents and caregivers of children with cleft lip and palate, since the time of diagnosis, extending to the postoperative period, due to the involvement of the oral cavity.\(^{(4,17,24,25)}\) This concern makes parents seek information about this care, justifying the previously established proper knowledge. Food should be liquid and cold, and offered in a cup or spoon, since sucking appliances such as baby bottles and straws
are prohibited. Such care also aims at maintaining the integrity of the wound and promoting wound healing.\(^{4,17}\)

As for the cleaning of the surgical wound, in cheiloplasty it should be performed with the aid of swabs soaked in saline or filtered water, whereas in palatoplasty, at the end of the food supply, water should be offered aiming to clean the surgical wound. In both surgeries, oral hygiene should be methodically carried out. These interventions are directly related to the prevention of infections. Surgical stitches in cheiloplasty should be removed after seven and ten days, whereas those used in palatoplasty fall spontaneously when not absorbable.\(^{18}\)

In cases of surgical complications such as bleeding, trauma, injuries, respiratory distress, infection at the site, fever and pain, the children should be immediately referred to medical evaluation at the place where they are. Later, after the child is stabilized, the situation shall be informed to the institution for appropriate procedures.\(^{4,26}\)

In the procedures for caregiver guidance on the variable "behavioral state of the caregiver,” the quality of affective and emotional interaction channeled in applied actions is as important as the attention to the practices of context and handling. G1 received guidance on facial and body expressions, reactions and voice tone, the message of which should be to convey peace and security, and to understand that the caregiver is the major reference of child well-being in the world. Nervousness, fear or indifferent actions could refer to a threatening world and to the child’s anxiety. With such care, the body tends to react with more efficient plasticity, and allows faster recovery. Thus, the intervention with the educational video was effective for the improvement of this modality.

The effectiveness of the educational intervention was evidenced by an increase in the mean of correct answers, with a statistically significant difference, showing the consistency of the instrument used to measure the comparison of results. These findings corroborate other studies that evaluated effectiveness of educational programs, as a favorable technology to the teaching-learning process, contributing to the understanding of care, leading to motivation, curiosity, and encouraging the participation of caregivers in care.\(^{27,28}\)

**Conclusion**

In this study, G1 showed better performance compared to the level of information obtained on postoperative care of primary surgeries of cheiloplasty and palatoplasty after training, compared to G2. In other words, caregivers showed changes in the acquisition of knowledge about the postoperative care of children with cleft lip and palate who underwent primary surgeries after training with the educational video, showing its efficacy as an educational resource for training informal caregivers in hospital settings.

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**Collaborations**

Razera APR contributed with the project design, research development, data interpretation, and article writing. Trettene AS, Mondini CCSD and Cintra FM collaborated with data analysis and interpretation, article writing, and critical review of its intellectual content. Tabaquim MLM collaborated with the project design, relevant critical review of its intellectual content, and approval of the final version to be published.

**References**


Risk factors associated with the development of metabolic syndrome in children and adolescents

Fatores de risco associados ao desenvolvimento da síndrome metabólica em crianças e adolescentes

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Mayla Rosa Guimarães¹
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Ana Roberta Vilorouca da Silva¹

Abstract

Objective: To analyze the frequency of cardiovascular risk factors among children and adolescents, and their association with metabolic syndrome.

Methods: This was an analytical, quantitative study using a stratified sample of 421 children and adolescents from 9 to 19 years of age, selected by simple random sampling in 12 municipal public schools located in the Northeast region of Brazil. Physical inactivity and weight excess were the factors investigated. Metabolic syndrome was identified based on the adopted criteria for age.

Results: The prevalence of metabolic syndrome was 4.1%; sedentary lifestyle was 30.2%; and weight excess was 20.5%. Higher values of body mass index were associated with the presence of the syndrome. Mean blood pressure, triglycerides, blood glucose, and waist circumference were increased in 11.9%, 20.9%, 0.5%, 8.6% of the sample, respectively; 26.1% presented low HDL-c.

Conclusion: A substantial portion of those involved presented the risk factors assessed, as well as weight excess association with the components of the syndrome.

Keywords
Metabolic Syndrome X; Metabolic diseases; Risk factors; Risk assessment; Adolescent; Child

Descritores
Síndrome X metabólica; Doenças metabólicas; Fatores de risco; Medicação de risco; Adolescente; Criança

Keywords
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Introduction

Metabolic syndrome is characterized by a set of cardiovascular risk factors related to the central deposition of fat and insulin resistance. The presence of at least three of the five following criteria qualify the individual as having metabolic syndrome: abdominal obesity, elevated triglycerides, low levels of high-density lipoprotein cholesterol (HDL-c), increased blood pressure, and increased fasting glucose. Although extensive discussion of the subject and its classification is well established in adults, the classification for children and adolescents is based on modifications of the criteria used in adults. Such modifications are references for identification of the syndrome in international research.(1-3)

The concern is with the presence of the syndrome features in children and adolescents. The prevalence of metabolic syndrome reaches 0.5% in children and 0.8% in adolescents, and at least 3.5% and 5.4% of these populations, respectively, present two components. Within this population, evidence also demonstrated a significant association between causative factors of metabolic syndrome and behavioral risk factors, physical inactivity and weight excess, emphasizing the importance of early diagnosis.(3-5)

Sedentary lifestyle is a conditioning factor on increasing secondary factors in students. Waist circumference, fasting blood glucose, total cholesterol and HDL-C appear altered when compared in active and sedentary groups. Within this behavior, a longer time watching television is associated with girls and obesity, and can be directly related to the development of cardiovascular risk factors, metabolic syndrome, and increasing age.(5-7)

Associated with sedentary lifestyle, weight excess is responsible for dyslipidemia and increased blood pressure in adolescents. In those individuals with weight excess, at least one secondary risk factor is found: the higher the body mass index (BMI), the greater the chance of altered biochemical tests, increasing the probabilities of having two or more risk factors in this group.(8,9)

Furthermore, obesity is the most prevalent pathophysiological cause of insulin resistance, which is associated with an increased number of cardiometabolic factors in adolescents, and reveals a predisposition for the subsequent development of metabolic syndrome, type 2 diabetes mellitus, and cardiovascular disease.(10)

Thus, this study aimed to analyze the frequency of cardiovascular risk factors among children and adolescents and their association with metabolic syndrome.

Methods

This was a quantitative, analytical study, conducted in 12 public schools located in northeastern Brazil. The population consisted of 1,452 elementary school students of both sexes. The sample size was estimated using the formula for finite populations, a confidence level of 95%, a relative error of 8%, population size, and prevalence. The sample included 421 participants stratified proportionally in the 12 schools and selected by simple random sampling, based on the established eligibility criteria.

The inclusion criteria were: being enrolled and attending school regularly; between 9 - 19 years of age; and participating in all stages of the research. The exclusion criteria included: those unable to obtain the anthropometric measurements (pregnant and wheelchair users), carriers of any disease, or taking medications that could interfere with glucose or lipid metabolism, totaling 30 individuals. After losses and exclusions were recorded, new pairings were made, up to the number of children and adolescents estimated at each school.

A structured questionnaire containing personal and socioeconomic data, variables of risk for cardiovascular (sedentary lifestyle and weight excess) and metabolic syndrome (waist circumference, blood pressure, fasting blood glucose, triglycerides, and HDL-C). The parents of the participants were informed by telephone contact of the need to collect venous blood sample,
with 12 hours of fasting to obtain laboratory information.

The socioeconomic classification, the Brazilian Economic Classification Criteria (CCEB), was used.\(^{(11)}\)

The sedentary lifestyle was defined by the International Physical Activity Questionnaire (IPAQ-short version).\(^{(12)}\) Weight excess was classified by the weight obtained by means of a portable digital body scale with a maximum capacity of 150kg and sensitivity of 100g, with the subject standing in the center of the equipment, wearing light clothes, barefoot, with feet together and arms extended down the body. The height was measured with a tape measure, precision of 0.5 cm, fixed perpendicularly on a flat wall. With this data, BMI (kg/m\(^2\)) was analyzed and classified, adjusted for age and sex of participants.\(^{(13)}\)

O perímetro da cintura foi obtida usando uma medida de fita inelástica colocado sobre a pele, com o objecto em posição vertical, no ponto médio entre a última costela e a borda superior da crista ilíaca, no final do movimento de expiração, e classificado como proposto ao público.\(^{(14)}\)

Blood pressure was assessed by auscultation with properly calibrated aneroid sphygmomanometers and cuffs of different sizes, with the width of the bladder corresponding to 40% of the arm circumference and length of at least 80%, and binaural stethoscopes. The appropriate cuff was based on the circumference of the arm of each participant. The blood pressure measurement procedure was performed with the individual in the sitting position, after five minutes of rest, with the cuff at heart level. Three measurements were taken with an interval of one minute between each one, and the mean score of the last two measurements was used. High blood pressure was determined by reference percentile values of arterial pressure, by sex, and in accordance with age and height percentiles.\(^{(15)}\)

After blood collection, the samples were processed the same day, and the serum was analyzed in automated equipment to determine the serum lipid profile and blood sugar. Triglycerides, HDL-c and the plasma glucose concentrations were determined by enzymatic methods, using reagents of biotech jobs, in the laboratory that was engaged for such a purpose.

Descriptive statistics were used, based on mean and standard deviation for continuous variables, and relative frequency for categorical variables. The Student’s t-test for independent samples was used to compare continuous variables and the presence of metabolic syndrome. The Fisher’s exact test assessed the association between the prevalence of the metabolic syndrome components associated to the variables: sex, age, BMI and physical activity (or absence of). The odds ratios were estimated, along with respective confidence intervals of 95% (CI 95%) for prevalence of isolated variables associated with metabolic syndrome (sedentary lifestyle, BMI, waist circumference, triglycerides and high blood pressure); those that presented a p <0.20 were included in the logistic regression model. However, it was impossible to calculate the odds ratios for the variables hyperglycemia and low HDL-c, as they presented as zeros within the statistical calculation. A significance level of 5% (p <0.05) was established for the final analysis. The data were processed using the IBM statistical package, Statistical Package for the Social Sciences (SPSS), version 20.0.

The study was registered in the Plataforma Brasil, under Certificado de Apresentação para Apreciação Ética, number (CAAE): 25431414.1.0000.5214.

Results

Among those evaluated, 59.6% were female; 85% were 9 - 13 years old, and 15% were between 15 - 17, with a mean of 11.46±1.797; 45.1% self-reported as mixed race; 70.3% belonged to the lower social class; only 96.7% were studying; 98.3% were single, and 82.9% lived with their parents.

Weight excess was present in 20.5% of the subjects with a mean BMI of 18.2±4.0kg/m\(^2\). Approximately 30.2% were sedentary; of these, 74% were female (p = 0.000) and 87.6% were between 9 - 13 years of age (p = 0.000).
Among the metabolic syndrome-related variables, mean arterial pressure was elevated in 11.9%. The mean systolic blood pressure (98.3 ± 12.0) was elevated in 7.8%, with a high prevalence in males (60.6%; p=0.014) and the age group of 9 - 13 years (66.6%; p=0.002). Regarding diastolic blood pressure (62.7 ± 12.0), 8.5% were elevated; of these, 63.8% were between 9 - 13 years of age (p=0.000). For a high value of triglycerides (80.0 ± 32.7), 20.9% were associated with females (70.4%; p=0.020) and those aged 9 - 13 years (93.2%; p=0.016). Increased waist circumference (67.0 ± 9.7), blood glucose levels (78.4 ± 9.7), and low HDL-C (46.6 ± 8.9) were present in 8.6%, 0.5%, and 20.9% of those investigated, respectively.

The prevalence of metabolic syndrome was 4.1%, with 3.8% aged between 9 - 13 years of age. Of the 13.1% of individuals with two components, 8.3% were girls and 9.9% were between 9 - 13 years of age. Those with three components (3.6%) were boys in 2.1%, and 3.3% were in that same age group (Table 1).

Overweight and obesity, both with a prevalence of 2.6%, were associated with the presence of two components of metabolic syndrome (p<0.001). In those with three components, the association was higher in obese subjects. Only 0.5% presented four or more components, but with weight excess associated. With two components associated with metabolic syndrome, 3.8% were sedentary and with three, only 0.7%.

Table 2 demonstrates that all the clinical continuous variables, except blood glucose, presented a significantly higher mean in the presence of metabolic syndrome.

The likelihood analysis showed a higher odds ratio for waist circumference and an elevated BMI (Table 3). After logistic regression, in the final model, the waist circumference variable was the one that really remained as a predictor of metabolic syndrome (high waist circumference: odds ratio: 81.0; 95% CI: 21.6 to 303.0).

Discussion

The limitations of these results were related to the cross-sectional design, which does not allow the establishment of causal relationships even in sta-
tistically significant associations. The classification criteria of the metabolic syndrome variables was based only on one study. Additionally, fasting of at least 12 hours is ensured by those involved in blood collection.

This study, however, brings an important epidemiological contribution to northeastern Brazil, revealing important data for the literature, especially due to the lack of studies that evaluate the frequency of cardiovascular risk factors among children and adolescents, and their association with the components of the metabolic syndrome. Thus, it should subsidize knowledge and support the planning and implementation of actions to prevent harm and/or promote health in this population, by nurses and other health care professionals, and may reduce the potential risks to these conditions presented.

Prevalence found in the literature ranged between 11.2 and 38% of children and adolescents presenting with excessive weight. Significant differences between genders were not observed, but it was associated with age, indicating that the higher the age, the higher the rates of excessive weight, which may predispose one to adult obesity.\(^{(16-18)}\)

The prevalence of a sedentary lifestyle, compared to that recommended by the international literature, was higher, which differs from a national study that showed more than 60% of sedentary. Thus, it is understood that the practice of physical activity is still not experienced by students, especially girls. The data are worrisome and provide reasonable arguments for the design and implementation of actions aimed at public school children. The promotion of healthy practices, such as physical activity in children, provides significant benefits, such as weight control, attenuator effects on cholesterol levels and insulin resistance, regular blood pressure, well-being, and greater predisposition to active life during adolescence.\(^{(19-21)}\)

Of the components of the metabolic syndrome, systolic blood pressure was statistically high in males \((p = 0.014)\), corroborating other results,\(^{(22)}\) but the prevalence increases considerably when assessing the average blood pressure of students, evidencing an increase in more than half of those who were evaluated.\(^{(23)}\)

The HDL-c was the most prevalent of the metabolic changes, followed by hypertriglyceridemia. In international research, this component was the second risk factor for the development of metabolic syndrome, followed by triglycerides.\(^{(24)}\)

In a national study, the value is lower than what has been described \((13.3\%)\), and remains higher in males.\(^{(16)}\) The prevalence of low HDL-c, even small, should be reversed by actions that stimulate its increase among students, as increased levels of HDL-c decrease the relative risk for cardiovascular disease.

The hypertriglyceridemia mainly affects students of low socioeconomic class, and people in this condition are associated with a higher incidence and mortality from cardiovascular disease, probably due to the accumulation of risk factors.\(^{(25)}\)

Change in waist circumference, although was not so prevalent as in other studies, was also identified, more frequently, in girls.\(^{(26)}\)

The prevalence of metabolic syndrome in the current study was elevated.\(^{(25)}\) The highest prevalence in the group up to 13 years of age was confirmed by literature, in addition to the association with excessive weight.\(^{(24)}\) In other words, high BMI increases the presence of other factors.\(^{(26)}\)

Thus, population-based studies adhere to the method and mark excessive weight as an important marker to identify metabolic syndrome and/or its components, and show a close association to its diagnostic criteria.\(^{(10,27)}\)

Thus, the results presented, together with national and international literature, may suggest the addition of such cardiovascular factor to the components of metabolic syndrome, considering, in addition to increased waist circumference, excessive weight as a measurable factor of body fat in the diagnosis of this metabolic disorder.

The significantly higher mean of the clinical variables of those with metabolic syndrome indicate the association between them. In individuals with greatly increased waist circumference and BMI, the chance to present metabolic syndrome is, respectively, 81.03 and 35.18 times
greater than in those without these alterations, followed by increased triglycerides and blood pressure. However, in the final logistic regression model, waist circumference is the only variable that actually remained predictive for metabolic syndrome. In general, these results are comparable to those found by other authors.\(^{(28)}\)

**Conclusion**

In a substantial portion of children and adolescents, excessive weight was associated with a higher prevalence of two components of the syndrome. The prevalence of sedentary lifestyle was associated with being female and the age group, between 9 - 13 years of age. Except for blood glucose, all continuous clinical variables showed a significantly higher mean in the presence of metabolic syndrome, and the waist circumference variable was the only one that remained a greater predictor of metabolic syndrome.

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**Collaborations**

Carvalho RBN, Nobre RS, Guimarães MR & Teixeira SEXM contributed to the study design, analysis, data interpretation, article writing, relevant critical review of the intellectual content and final approval of the version to be published. Silva ARV contributed with article writing & final approval of the version to be published.

**References**


Access times to health services in cases of myocardial infarction
Tempos de acesso a serviços de saúde face ao infarto do miocárdio

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Fernanda Carneiro Mussi³

Abstract
Objective: To analyze the access times of men and women who are having a myocardial infarction to referral hospitals in cardiology and the correlation between them.
Methods: Cross-sectional research, involving 100 victims of a myocardial infarction who were interviewed at referral hospitals in cardiology. To analyze the data, descriptive and inferential statistics were used with statistical significance.
Results: The access times were long (decision to seek care, arrival to first health service, time in care network and admission to referral hospitals in cardiology), except for the transportation time, mainly for women. The decision time contributed more to the time it took to arrive at the first health service and the time in the care network contributed more to the time to arrive at the referral hospitals in cardiology.
Conclusion: The long time waiting for specialized care reflects the lack of structure of the health services and the long decision time reflects the participants’ lack of recognition of the myocardial infarction.

Keywords
Health services accessibility; Public health nursing; Education, nursing; Myocardial infarction

Resumo
Objetivo: Analisar os tempos relacionados ao acesso de homens e mulheres com infarto do miocárdio a hospitais referência em cardiologia e a correlação entre eles.
Métodos: Pesquisa transversal, com 100 pessoas com infarto entrevistadas em hospitais referência em cardiologia. Dados analisados por estatística descritiva e inferencial, adotando-se significância estatística.
Resultados: Os tempos foram elevados (decisão para atendimento, chegada ao primeiro serviço de saúde, permanência na rede de atenção e admissão em hospitais referência em cardiologia), exceto o de transporte, sobretravado para mulheres. Houve maior contribuição do tempo de decisão na composição do tempo de chegada ao primeiro serviço de saúde e do tempo de permanência na rede na composição do tempo de chegada aos hospitais referência em cardiologia.
Conclusão: A longa espera por atenção especializada reflete a falta de estrutura dos serviços de saúde, e o tempo de decisão elevado reflete a falta do não reconhecimento do infarto pelos participantes.
Introduction

The myocardial infarction is the most common isolated cause of death in both sexes,\(^1\) corresponding to more than 30% of the deaths in Brazil.\(^2\) In studies related to myocardial infarction, gender specificities appoint differences in the occurrence and treatment of the coronary event.\(^3\)

The benefits of myocardial reperfusion therapies are time-dependent\(^4\) and can be used if the patient arrives quickly at the health service after the onset of the symptoms. Therefore, it is fundamental to know the times involved in the access to health services and associated factors.\(^5\)

Overall, pre-hospital delay in case of infarction is defined as the period between the onset of the symptoms and the admission to a health service and can be divided in two main components.\(^6\) The first is the decision time, the period between the onset of the symptoms and the decision to seek care, with influence from sociodemographic, clinical, cognitive, emotional and environmental factors. The second component is the period between the dislocation and the arrival to a referral service in cardiology for specific treatment. In this component, mainly the influence of the transportation means and the healthcare networks’ possible response has been observed.\(^6\) In addition, evidence exists that the gender can influence the medical conduct, in that women who receive interventions have reached a more advanced stage of the coronary disease.\(^7\)

Nevertheless, depending on the configuration of the care network for myocardial infarction, with particularities according to the countries and regions, various time fractions can make up the period between the onset of the symptoms and the admission to a referral hospital in cardiology. Differently from other countries, where the user is admitted directly to specialized services,\(^8\) in the public health network of Salvador, Bahia, Brazil, the admission to referral hospitals in cardiology, with access to hemodynamics and intensive care services, does not take place directly, as these services have no “open door” emergency service, but the access is mediated by regulation centrals. Hence, people with symptoms of a myocardial infarction have to be assessed at least at one health service for further regulation to these hospitals.

In this case, the different time components until the admission to a referral hospital in cardiology include the decision time (period between the onset of the symptoms and the decision to search a health service), the transportation time (period between decision to seek care and arrival to the first health service), time to arrive at the first health service (period between onset of symptoms and arrival at the first health service), time of stay in the healthcare network (period between arrival at first health service and admission to referral hospital in cardiology). Hence, the time to arrive at referral hospitals in cardiology corresponds to the period between the onset of the symptoms and the admission to a referral hospital in cardiology.

The lack of studies on the time male and female victims of myocardial infarction take to get access to referral hospitals in cardiology in different Brazilian regions evidences the need for further investigation. This knowledge can support nurses and other health professionals in the implementation of management and care practices, in the inpatient and outpatient context, with a view to optimizing the diagnosis and treatment of myocardial infarction. The delayed access reduces the possibility of effectively using myocardial perfusion therapies and increased the morbidity and mortality due to the disease.\(^9\)

In view of the above, the general objective in this study was to analyze the access times of male and female victims of myocardial infarction to referral hospital in cardiology and the correlation between them.

The specific objectives were to: 1. To estimate the times for decision, transportation, arrival to the first health service, length of stay in the healthcare network and time to arrive at the referral hospitals in cardiology; 2. To verify the correlation between the decision and transportation times and the time to arrive at the first health service; 3. To verify the correlation between the time to arrive at the first health service and the length of stay in the care network and the time to arrive at the referral hospitals in cardiology.
Methods

Cross-sectional study developed at two large public referral hospitals in cardiology in Salvador, BA, for the admission of users referred by the State Regulation Central.

To calculate the sample size, the estimated prevalence of myocardial infarction (AMI) corresponding to 99/100,000 adults in Salvador/BA was used as a parameter.\(^{(10)}\) The following were considered: total assumed population during data collection period=1,000; proportion in study population equal to 0.099; 5% significance level and 4% maximum desired error.\(^{(11)}\) According to the calculation, the sample size would correspond to 99, but 100 individuals were included, in line with the following criteria: medical diagnosis of AMI; minimum hospitalization of 24 hours and maximum 20 days and without medical restrictions for the interview.

The data collection tool consisted of structured questions to characterize sociodemographic and clinical aspects and the health service access. The data were collected through interviews with the study participants, except for the medical diagnosis, which was consulted in the patient history and confirmed with the assistant physician, as well as the time and time of hospitalization at the study hospitals.

The sociodemographic data were analyzed by means of descriptive statistics. To analyze the association between sociodemographic variables and sex, Pearson’s Chi-squared test was used. The times for decision, transportation, arrival at the first health service, length of stay in the healthcare network and arrival at referral hospitals in cardiology were analyzed by means of the geometric average and respective confidence interval (95% CI) due to the asymmetric distribution.

To analyze the correlations between the decision and transportation times and the time to arrive at the first health service and to analyze the correlations between the time to arrive at referral hospitals in cardiology and the decision and transportation times and length of stay in the healthcare network, Pearson’s correlation coefficient, and bivariate and multivariate linear regression models were used. The premises of normality, linearity and homoscedasticity were complied with. The data were analyzed in Stata version 11.0. Significance was set at 5% for all tests.

The study complied with the Brazilian and international standards for ethics in research involving human beings and was approved by the Comitê de Ética em Pesquisa do Hospital Ana Néri under process 11/09.

Results

As regards the sociodemographic characteristics of the sample, 71.0% were men, with a mean age of 58.7 years (sd 11.1) and 29.0% were women, with a mean age of 59.0 years (sd 12.1). The marital status married or living with a partner was predominant for men (81.7%) and women (58.6%). Nevertheless, more women were single, separated, divorced or widowed than men (p=0.016).

Most men (74.6%) and women (65.5%) came from Salvador/BA and the Metropolitan Region; a majority of men (73.2%) and women (65.5%) self-declared they were black and had a low education level (70.4% and 65.5%, respectively, had finished the first year of primary education). The monthly family income was up to three minimum wages for 62.0% of men and 65.5% of women. No significant proportional differences were found between the sexes and these variables.

All times were long, except for transportation, and longer for women (Table 1).

| Table 1. Geometric average of times studies according to sex |
|---|---|---|---|
| **Times in hours** | **Men** | **Women** | **p-value** |
| | **GA** | **95% CI** | **GA** | **95% CI** |  |
| TD* | 1.0 | 0.69-1.63 | 1.4 | 0.76-2.7 | 0.416 |
| TT† | 0.4 | 0.32-0.53 | 0.5 | 0.36-0.64 | 0.385 |
| TAFHS‡ | 2.0 | 1.43-2.77 | 2.3 | 1.37-3.77 | 0.650 |
| TSHCN§ | 31.2 | 23.56-41.30 | 48.2 | 31.07-74.69 | 0.087 |
| TARHC|| | 36.5 | 27.95-47.70 | 52.7 | 34.44-80.67 | 0.134 |

*TD - Decision time; TT - Transportation time; TAFHS - Time to arrive at first health service; TSHCN - Length of stay in healthcare network; TARHC - Time to arrive at referral hospitals in cardiology; CI - Confidence interval; p-value obtained through robust regression; GA - Geometric average

In tables 2 and 3, for the sexes, a strong linear correlation is observed between the decision time...
and the time to arrive at the first health service. The correlation between the transportation time and the time to arrive at the first health service was weak for men (Table 2) and moderate for women (Table 3). These correlations were statistically significant.

In the bivariate linear regression model, a greater contribution of the decision time than of the transportation time to the time to arrive at the first health service was observed for the sexes, with statistically significant correlation. For men (Table 2), it was identified that, at each one-hour increase in the decision time, the time to arrive at the first health service extended by 0.72h (43min) while, at each one-hour increase in the transportation time, the time to arrive at the first health service increases by 0.49h (29min). The explanation coefficient of the adjusted decision time model (R²=0.89) also provided the best explanation for the variation in the time to arrive at the first health service, as its magnitude exceeded the coefficient of the transportation time (R²=0.14). For women (Table 3), it was verified that, at each one-hour increase in the decision time, the time to arrive at the first health service increased by 0.79h (47.4min) while, at each one-hour increase in the transportation time, the time to arrive at the first health service extends by 0.12h (7.2min). For women, the explanation coefficient of the adjusted decision time model (R²=0.97) also provided the best explanation for the variation in the time to arrive at the first health service, as its magnitude exceeded the coefficient of the transportation time (R²=0.40).

The multivariate linear regression model also showed the greater contribution of the decision time in the composition of the arrival time to the first health service. For men, it was identified that each one-hour increase in the decision time means an extension by 0.69h (41min) in the time to arrive at the first service, versus 0.28h (16.8 min) of the transportation time (Table 2). For women, each one-hour increase in the decision time means an increase by 0.72h (43min) in the arrival time to the first service versus 0.28h (16.8 min) of the transportation time (Table 3). The correlations between the

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*TAFHS - time to arrive at first health service; †TD - decision time; ‡TT - transportation time; §TARHC - time to arrive at referral hospitals in cardiology; ||TSHCN - length of stay in healthcare network; ¶r: Pearson's Correlation Coefficient; **P-value based on Pearson's Correlation Test; ††COEF: Bivariate or Multivariate Linear Regression Model Coefficient; ‡‡SE: standard error; §§R²: Determination or Explanation Coefficient of Adjusted Model; aThe value corresponds to -0.98, 10^-2 in scientific format; bThe value corresponds to 0.53, 10^-2 in scientific format

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*TAFHS - time to arrive at first health service; †TD - decision time; ‡TT - transportation time; §TARHC - time to arrive at referral hospitals in cardiology; ||TSHCN - length of stay in healthcare network; ¶r: Pearson's Correlation Coefficient; **P-value based on Pearson's Correlation Test; ††COEF: Bivariate or Multivariate Linear Regression Model Coefficient; ‡‡SE: standard error; §§R²: Determination or Explanation Coefficient of Adjusted Model; aThe value corresponds to -0.98, 10^-2 in scientific format; bThe value corresponds to 0.53, 10^-2 in scientific format
predictive variables and the response variable were statistically significant. The explanation coefficient of the adjusted model (R²) explained 94% of the composition of the arrival time to the first health service among men (Table 2), and 98% among women (Table 3).

In table 2, the linear correlation coefficient also revealed, for men, a weak, small and strong correlation between the decision time, transportation time and length of stay in the health network and the composition of the arrival time to the referral hospitals in cardiology, respectively. For women (Table 3), the decision and transportation times showed a weak correlation in the composition of the arrival time to the referral hospitals in cardiology, while the correlation with the length of stay in the healthcare network was strong. All correlations were statistically significant.

The bivariate linear regression model showed a greater contribution of the length of stay in the healthcare network to the composition of the arrival time to the referral hospitals in cardiology. For men, every one-hour increase in the length of stay in the healthcare network means an extension by 0.94h (56min) in the time to arrive at the referral hospitals while, for every one-hour increase in the decision time, the time to arrive at the referral hospitals in cardiology would increase by 0.18h (10.8min) and the transportation time by -0.01h (0.6min) (Table 2). For the women, it was verified that every one-hour increase in the length of stay in the healthcare network means an increase by 0.97h (58min) in the time to arrive at the referral hospitals while, for every one-hour increase in the decision time, the time to arrive at the referral hospitals would increase by 0.30h (18min) and the transportation time by 0.48h (28.8min), (Table 3). The explanation coefficient of the adjusted model for the length of stay in the healthcare network also best explained the variation in the time to arrive at the referral hospitals in cardiology, with a coefficient superior to 0.90 and superior to the R² of the decision and transportation times in both sexes (Tables 2 and 3).

The multivariate linear regression model also showed greater contribution of the length of stay in the healthcare network in the composition of the time to arrive at the referral hospitals, for men as well as for women (Tables 2 and 3). For men (Table 2), it was identified that every one-hour increase in the length of stay in the health network means an extension by 0.93h (56min) in the time to arrive at the referral hospitals in cardiology, while every one-hour increase in the decision time and the transportation time means, respectively, an increase by 0.06h (3.6min) and 0.04h (2.4min) in the time to arrive at the referral hospitals in cardiology. For women (Table 3), it was identified that every one-hour increase in the length of stay in the healthcare network means an increase by 0.94h (56.4min) in the time to arrive at the referral hospitals in cardiology, while every one-hour increase in the decision time means an extension by 0.05h (3min) in the time to arrive at the referral hospitals in cardiology. The transportation time did not contribute to the increase in the time to arrive at the referral hospitals in cardiology. The explanation coefficient of the adjusted model explained 99% of the composition of the time to arrive at the referral hospitals in cardiology for men (Table 2) and 100% for women (Table 3).

Discussion

The participants were predominantly men, as observed in other studies,(12,13) who suffered a myocardial infarction early (≤ 65 years), (14) were in poor socioeconomic conditions and spent more time in the healthcare network. Individuals in worse socioeconomic conditions experience more difficulties to access the health services.(15) The larger proportion of black participation is justified by the development of the study in a capital that concentrates the largest number of descendants of African ancestors in the country.(16)

The mean times investigated showed delay in the access to health services, mainly for women, which remains long.(6) Women may underestimate the risk of heart disease(17) and experience symptoms that are not always typical of the disease, (18) reasons that contribute to a greater delay.
The high mean decision time and its strong correlation with the time to arrive at the first health service strengthens the importance of understanding how men and women act in response to the symptoms. This understanding provides explanations for the delay to reach the hospital and points towards actions that can reduce this delay. It is known that cognitive and emotional factors (interpretations, thoughts and actions in view of infarction symptoms) are associated with the delayed decision to seek care. Educational activities by nurses should focus on these factors in order to optimize the search for care.

Despite the small contribution of the transportation time to the time to arrive at the first health service, it is important to keep this time as short as possible and to make infarction victims value the summoning of the emergency care service (SAMU) or visit an emergency service within their health district. The SAMU is recommended because it possesses human and material resources to administer initial care, contributing to reduce the pre-hospital delay. The population needs orientation on the importance of summoning the service, which should readily respond to the calls. Educational strategies by nurses can be extremely valuable and can take place at primary care services, at home and at community centers.

In this study, long waiting times for admission and treatment at a specialized service were evidenced. The length of stay in the healthcare network was more strongly correlated with the time to arrive at the referral hospitals in cardiology for both sexes, strengthening the importance of a network that is shaped and structured to facilitate the access to specific points in the health system, minimizing care delays.

The universalization of the access to health services has not fully taken place, with supply and organization problems. The reality of access to the Unified Health System is unequal and excluding, with continuing problems in the different accessibility components, which can be associated with the retention of infarction victims in the service network, as shown in this study. The lack of structure of the public health hospitals is highlighted, such as the small number of clinical and surgical beds offered in cardiology. In addition, the response level of the emergency services has been insufficient, as highlighted in the Municipal Health Plan 2014-2017. Although these services aim to respond rapidly to the users and to counter-refer them to the other points in the healthcare network, they face challenges in the work process, such as the overload of care in response to spontaneous demand in the primary health care services, diminished health teams, disarticulated work process, scrapping of the physical structure and referral and counter-referral difficulties.

In view of the delay to start specialized treatment, in December 2011, the Brazilian Ministry of Health acknowledged the importance of organizing care networks for myocardial infarction in metropolitan regions with a view to reducing the mortality rates in the country. The efficacy of these networks has been verified in international studies, as illustrated by a specific recommendation of the American Heart Association.

Nevertheless, successful care delivery to infarction victims does not exclusively depend on the creation of care networks, but on raising the victims’ awareness on the need to visit an emergency service early, on integrated efforts by the community, health professionals and managers, as well as on public policies focused on the organization and structuring of the care network, including equipment, material and qualified staff.

**Conclusion**

The access times to referral hospitals in cardiology were high, mainly for women. In relation to the transportation time, the decision time was more strongly correlated with the time to arrive at the first health service and the length of stay in the network, in comparison with the decision and transportation times, showed a better correlation with the time to arrive at the referral hospitals in cardiology. The study strengthens the importance of health education strategies with a view to infarction victims’ recognition the gravity of the symptoms and the
valuation of an immediate visit to a health service. Moreover, it shows the need for a better quality of the emergency services’ response in Salvador/BA.

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Collaborations
Mendes AS and Mussi FC contributed to the conception and development of the research phases, writing of the article, compliance with journal standards and approval of final version for publication. Reis VRSS contributed to the conception and development of the research phases and Santos CAST collaborated with the conception, analysis and interpretation of the data.

References

Moral suffering in nurses of inspection departments in Brazil

Sofrimento moral em enfermeiros dos departamentos de fiscalização do Brasil

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Keywords
Health care coordination and monitoring; Ethics, nursing; Ethics; Moral damage

Descritores
Regulação e fiscalização em saúde; Ética em Enfermagem; Ética; Dano moral

Abstract
Objective: To identify the frequency and intensity of the causes of moral suffering experienced by nurses in inspection departments in Brazil.

Methods: Cross-sectional study with 28 professionals of managerial competence and 113 professionals of inspection competence. The sample was intentional and non-probabilistic. Data were collected through a questionnaire and submitted to descriptive and bivariate analysis.

Results: Participants revealed the causes of moral suffering in two stages: firstly, associated with the slow inspection process by the inspected institutions and Corens, and insufficient human resources. Secondly, associated with ethical problems; work conditions; and quality of nursing care.

Conclusion: To reflect on the causes of moral suffering in this scenario is to recognize the need for changes that should take place on the basis that sustains the profession’s ethical precepts and moral conducts, so as to strengthen the category.

Keywords
Health care coordination and monitoring; Ethics, nursing; Ethics; Moral damage

Descritores
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Introduction

Moral suffering (MS) arises from the professional’s sensitivity to moral issues because of conflicting situations. It happens when individuals face issues that require positioning contrary to their personal and/or professional values, and the decision does not produce the outcomes expected.\(^{(1)}\)

The phenomenon started gaining relevance in the nursing scenario as a result of being considered one of the main problems in the profession, as it affects workers in many activities of daily living. MS was associated with psychological responses (fear, anxiety, insecurity, among others); and work environment (specific situations such as ineffective communication, low autonomy, and insufficient human resources).\(^{(2)}\)

In a study with nursing staff in three hospitals in southern Brazil, it was evident that nurses had the highest perception of MS, followed by nursing aides and technicians. Nurses also had higher MS intensity over the lack of team work competence, disrespect for patient autonomy, and inadequate working conditions, whereas therapeutic obstinacy caused greater MS intensity among nursing aides. Finally, it is recognized that difficulties in organizing the work environment are an important cause of MS.\(^{(3)}\)

Healthcare literature generally describes this phenomenon in the clinical setting, revealing the experiences of nurses and professionals who provide direct patient care. This limitation, despite the importance of clinical work, points to the need to investigate MS in other contexts.\(^{(4)}\)

Moral suffering is not limited to the nursing context, as it has been highlighted as a problem in the activities of pharmacists, associated with problems involving work organization, inter-professional relationships with patients; of doctors, due to feelings of powerlessness in face of colleagues’ attitudes, and issues related to quality of care and bureaucratic obstacles, among others; and of psychologists, due to conflicting professional relationships, inter-institutional demands, and interdisciplinary disputes. Thus, the healthcare work environment is a source of MS, which shows the seriousness of the situation and reinforces the importance of broadening the discussion of the subject.\(^{(5-7)}\)

In this scenario, the relevance of knowing the causes of MS in nurses who work in Brazilian inspection departments is evident, because studies on this subject were not identified in the literature. Regarding these nurses’ daily work, the focus has been directed to problems of ethical and legal dimensions, related to interpersonal relationships and the procedures involving their work process.\(^{(8)}\) Just as the ethical issues regarding the practice of these professionals should be subject to reflection, their consequences for the employee’s experiences, including MS, must be critically addressed.

The challenge ahead is to explore the causes related to MS in the everyday work of these professionals by the conceptual framework of moral distress.\(^{(1)}\) The framework is a process updated to the new needs of the nursing knowledge field. It consists in connecting various concepts or moments of moral experience, such as uncertainty, moral sensitivity, moral deliberation, and moral competence.

Therefore, the objective of this study was to identify the frequency and intensity of the causes of MS experienced by nurses of managerial and inspection competence in inspection departments in Brazil. This is one of the objectives of the doctoral thesis entitled “A fiscalização do exercício profissional de enfermagem no Brasil: problemas éticos” (“The inspection of nursing professional exercise in Brazil: ethical problems”), linked to the Comitê de Ética em Pesquisa com Seres Humanos da Universidade Federal de Santa Catarina (UFSC), supported by Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq).

Methods

This cross-sectional study was developed in the Inspection Department of Brazilian Regional Nursing Councils.

All 26 states and the Federal District that make up the Federative Republic of Brazil have
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a Nursing Council office, totaling 27. Each council has an inspection department that, overall, counts on 52 professionals with managerial competence (nurse who acts in management: managers) and 329 professionals with inspection competence (nurse whose primary activity is inspection: inspectors), who constituted the study population.

An intentional non-probabilistic sample was chosen, seeking to achieve representation of all councils. Given the voluntary nature of participation, it was possible to obtain the cooperation of inspectors from all councils, and managers from 22 councils.

A questionnaire with closed-ended questions and one open-ended question created by the authors was used for data collection. The questions were drawn from a previous study. The instrument was validated by nursing professors and masters, all familiar with the study subject. To ensure applicability and reliability conditions, face validity guarantee was sought in order to verify the adequacy of questions in the data collection instrument, concerning its form and language in relation to the objective.

The closed-ended questions addressed the following variables: failure to act against foul committed by a nursing professional in professional practice; lack of competence or commitment of the inspection team members; need to prioritize the institutions to be inspected due to the shortage of human resources; insecurity and lack of support upon notification; slow inspection process by Coren and inspected institutions; conflictual inspection process in Coren and inspected institutions. The open-ended question allowed participants to freely express themselves on the causes of MS in their daily work.

The questions were answered using a five-point Likert scale. For frequency questions, 1 was used for “never”, 2 for “rarely”, 3 for “sometimes”, 4 for “often”, and 5 for “always.” In assessing intensity, the references were as follows: 1 for “no intensity,” 2 for “low intensity”, 3 for “intense”, 4 for “very intense”, and 5 for “maximum intensity.”

The questionnaire was the same for both groups (managers and inspectors). Data were collected from November 2013 to November 2014. Data collection took place in three stages.

The first data collection step was face-to-face, and applied during the 6th National Seminar on Inspection of Nursing Professional Exercise, where the research was promoted and the printed instruments distributed, returning to the researcher at the end of the event. The seminar was chosen for having the presence of a large number of managers and inspectors who work in Brazilian councils. The next step consisted in sending the questionnaire through an electronic link (Google™ Forms). The strategy was intended to capture participants who had not been in the seminar, and mobilize those who had chosen not to respond at that time. In the third step, to achieve representation for the two types of participants in all regions, an additional strategy was used, which consisted of sending questionnaires by mail.

Data were subjected to two different analyses, using the software Statistical Package for the Social Sciences, version 20.0, Chicago: SPSS Inc.; 2011. Descriptive statistics were applied, by using means and frequency distributions to identify the frequency and intensity of MS causes; and bivariate analysis was performed using contingency tables and association chi-square ($\chi^2$), or Fisher’s Exact Test, which allowed comparing the participants’ experiences. Significance level was $p<0.05$. Normality tests were applied in each simulation.

The study was registered under the Plataforma Brasil under number Certificado de Apresentação para Apreciação Ética (CAAE): 20169313.1.0000.0121.

Results

Using consecutive collection strategies, the sample of participants included the following distribution of respondents (% of the sample): North region (inspectors 10.6% - 17.9% managers); Northeast region (inspectors 27.4% - 32.1% managers); Cen-
ter-West region (inspectors 8.8% - 14.3% managers); Southeast region (inspectors 36.3% - 25% managers); and South region (inspectors 16.8% - 10.7% managers).

Regarding the profile, the predominant age group was 31-40 years for both positions (43% and 50% respectively, for managers and inspectors); and they were mostly women (89% and 86%). Length of experience on the board was higher among managers (43% from 6 to 10 years) compared to inspectors (42% from 1 to 5 years). Most participants had a graduate degree (82% and 80% with specialization and 25% and 15% with master's degrees, respectively, for managers and inspectors).

**Frequency and intensity of situations causing moral suffering**

From the eight situations (variables) presented, the analysis identified the frequency and importance of each MS cause suggested, both for professionals of managerial competence and of inspection competence. In the case of professionals of managerial competence, it was observed that the prevalence of the phenomenon was associated with the slow inspection process by the institutions inspected, which obtained the frequency “often” (66.7% of respondents), more significant than intensities “intense” (22.2%) and “very intense” (33.3%). The need to prioritize the institutions to be inspected by the shortage of human resources was also highlighted, with the frequency “often” (34.6%) and “always” (26.9%), whereas intensity ranged from “intense” (28.0%), “very intense” (20.0%), to “maximum intensity” (32.0%).

With lower prevalence, and without posing a major impact on these professionals' daily lives, insecurity or lack of support to notify was observed, with answers “never” (25.9%), “rarely” (40.7%), and “sometimes” (25.9%), and intensity between “no intensity” (26.9%) and “low intensity” (38.5%). The conflicting inspection process by Coren was expressed with frequencies “never” (23.1%), “rarely” (30.8%) and “sometimes” (34.6%), with intensity ranging from “no intensity” (22.2%), “low intensity” (40.7%), to “intense” (22.2%). Finally, regarding the lack of competence or commitment of the inspection team members, most participants stressed the frequencies “never” (18.5%), “rarely” (40.7%), and “sometimes” (25.9%), to which “low intensity” (34.6%) and “intense” (30.8%) were attributed.

The analysis of situations experienced by professionals of inspection competence showed that the main events in these professionals’ perception were related to the slow inspection process by the audited institutions, where responses are concentrated within “sometimes” (24.3%), “often” (38.7%) and “always” (19.8%), with intensities “intense” (25.9%), “very intense” (25.9%), and “maximum intensity” (23.1%). Other important situations involve the slow inspection process by Coren, in this case the most frequent responses were “sometimes” (33.9%), “often” (24.8%) and “always” (19.3%), and for intensity the responses emphasized were “intense” (23.6%), “very intense” (23.6%), and “maximum intensity” (26.4%), and the need to prioritize the institutions to be inspected by the shortage of human resources, with more frequent responses “sometimes” (24.1%), “often” (28.7%) and “always” (23.1%), and intensities of “intense” (22.9%), “very intense” (23.8%), and “maximum intensity” (21.9%).

There were situations, however, which were not relevant as an MS cause, such as the lack of competence or commitment of inspection team members, with responses “never” (38.4%) and “rarely” (37.5%), and importance ranging from “no intensity” (39.8%) to “low intensity” (24.1%), and the insecurity or lack of support to notify, with the predominance of responses “rarely” (36.6%) and “sometimes” (28.6%), with intensity attribution of “no intensity” (20.2%), “low intensity” (33.9%), and “intense” (19.3%).

By comparing the participants’ experience, the result of the Pearson's correlation coefficient analysis showed statistical significance (within the standards established for this study, p<0.05) in the variable low inspection process by the inspected institutions, associated with frequency (p<0.04); and for the variable conflicting inspection process in the
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institutions inspected associated with frequency (p<0.05) and intensity (p<0.02).

Causes of moral suffering from everyday work

The results of the open-ended question, which asked participant to indicate up to three MS causes, are presented in this category. All responses were considered and grouped into 5 subcategories, observed in figure 1.

Regarding the subcategories related to MS, the following causes were observed in the perception of managers and inspectors, as presented in chart 1.

**Chart 1.** Causes of moral suffering experienced in everyday work of professionals of managerial and inspection competence

<table>
<thead>
<tr>
<th>Subcategories</th>
<th>Managers’ MS causes</th>
<th>Inspectors’ MS causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethical issues</td>
<td>Inability to act against foul committed by an inspector;</td>
<td>Lack of transparency of some councils;</td>
</tr>
<tr>
<td></td>
<td>Reckless conduct related to the legal sector;</td>
<td>Lack of transparency of some council professionals;</td>
</tr>
<tr>
<td></td>
<td>Political interference in the activities of Corens;</td>
<td>Political interference in the activities of Corens;</td>
</tr>
<tr>
<td></td>
<td>Lack of transparency of some councils;</td>
<td>Impotence of leadership in solving internal conflicts;</td>
</tr>
<tr>
<td></td>
<td>Unawareness of the councils work by some professionals of the institution</td>
<td>Disputes regarding the conduct of co-workers; the conduct of the nursing staff and</td>
</tr>
<tr>
<td></td>
<td>(inspectors/managers);</td>
<td>the conduct of councilors;</td>
</tr>
<tr>
<td></td>
<td>Lack of work autonomy;</td>
<td>Oppressing management;</td>
</tr>
<tr>
<td></td>
<td>Authoritarian attitude of councilors;</td>
<td>Disrespect by nursing and health institutions’ professionals to fail to comply</td>
</tr>
<tr>
<td></td>
<td>Conflicting or hostile situation with inspectors;</td>
<td>with what is established;</td>
</tr>
<tr>
<td></td>
<td>Feeling of professional devaluation by Cofen.</td>
<td>Access denied in health institutions;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lack of autonomy in face of inspection demands;</td>
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<tr>
<td></td>
<td></td>
<td>Impunity of public and private managers.</td>
</tr>
<tr>
<td>Quality of nursing care</td>
<td>Nurses’ actions not consistent with their role;</td>
<td>Impotence in face of health institutions that do not commit to the safe exercise of</td>
</tr>
<tr>
<td></td>
<td>Lack of commitment/knowledge of health institutions’ managers</td>
<td>nursing practice;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Poor working conditions offered to nursing professionals;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ethical violations committed by nursing professionals due to circumstances/</td>
</tr>
<tr>
<td></td>
<td></td>
<td>political issues;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Absence of 24-hour nurses;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Health managers’ lack of commitment and knowledge;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Difficulty in producing evidence in face of the harassment experienced by nursing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>professionals.</td>
</tr>
<tr>
<td>Work organization</td>
<td>Lack of referrals and agility of ethical processes by the legal area;</td>
<td>Lack of inspection activities standardization;</td>
</tr>
<tr>
<td></td>
<td>Lack of legal support during activities;</td>
<td>Lack of support/endorsement of the legal area of councils;</td>
</tr>
<tr>
<td></td>
<td>Lack of inspection activities standardization;</td>
<td>Insufficient legal support in face of the diversity of situations faced in inspections;</td>
</tr>
<tr>
<td></td>
<td>Bureaucratic issues involving the inspection process.</td>
<td>Solitary work during inspection activities;</td>
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<tr>
<td></td>
<td></td>
<td>Lack of training.</td>
</tr>
<tr>
<td>Image of the Coren and Cofen system</td>
<td>Dissatisfaction of nursing professionals with Corens;</td>
<td>Unawareness of the role of Cofen /Corens system by nursing professionals;</td>
</tr>
<tr>
<td></td>
<td>Unawareness of the roles of Cofen/Corens system by nursing professionals.</td>
<td>Distorted and disrespectful attitude towards Cofen/Corens by health institutions and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nursing professionals.</td>
</tr>
<tr>
<td>Work conditions</td>
<td>Dissatisfaction with workload (claim for 30 hours);</td>
<td>Lack of financial resources, materials and insufficient or inadequate human resources;</td>
</tr>
<tr>
<td></td>
<td>Low pay and/or unequal pay among regions;</td>
<td>Low pay;</td>
</tr>
<tr>
<td></td>
<td>Human and financial resources (mainly transport) insufficient to carry out inspection actions.</td>
<td>Dissatisfaction with workload (claim for maximum workload of 30 hours); Inadequate facilities; Work overload.</td>
</tr>
</tbody>
</table>

**Figure 1.** Subcategories that express moral suffering causes from everyday labor of professionals of managerial and inspection competence
Discussion

Results showed consistency between the two groups, because they share the causes of their suffering, with only slight differences in frequency and intensity. Although some common MS sources have been identified, not all professionals will experience feelings of distress or suffering when faced with the situations mentioned.\(^9,10\)

It should be noted that higher frequencies and intensities are associated with difficulties in the inspection process, and the lack of human resources. These are problematic situations from which conflicts/moral dilemmas and anxiety emerge, preventing professionals from performing safe and skilled labor, which makes them suffer.\(^\)\(^11\)

In this case, detecting the ethical problem is essential and, to that end, it is important to develop an ethical/moral sensitivity, i.e. a differentiated capacity of perception. Identified as practical wisdom, this sensitivity is a critical and reflective analysis of oneself, one’s actions, thinking and being.\(^1,12\)

Some discrepancies found in the data collected from the two groups are not surprising, as it is a national level study and a diversity of problems and labor situations among the different realities is expected. A regionalized analysis of the data could reveal interesting differences. This behavior was observed in the data analysis of managers, as to the conflicting inspection process in the audited institutions (involving the frequencies “never,” “sometimes” and “often”); and the inability to act against foul committed by a nursing professional in professional practice (involving the intensities “no intensity,” “intense” and “very intense”). In these cases, more localized research could allow revaluations and/or relevant corrections.

By comparing the frequencies and intensities of the eight situations (variables) presented to managers and inspectors, there was an association with statistical significance for the slow and conflictive inspection process by the audited institutions. This perception may be associated with interpersonal relationships, personal and professional values, and organizational events, given the complex health scenario. Conflicts are not always negative, and if properly understood and managed, they can bring positive results, considering the most contemporary management models. In this case, personal skills in the negotiation process and the use of appropriate strategies to solve or reduce conflicts will provide changes in social relationships and work organization. If not managed properly, however, they can translate into impasses in negotiations with negative consequences for the professionals’ working practices and health.\(^13,14\)

Results on the open-ended question category, which asked the participant to indicate up to three pertinent MS causes, revealed ethical problems as the most important cause for the participating groups. These were characterized by attitudes contrary to ethics or undesirable from an ethical point of view, related to: political clashes, conflicting relationships, and difficulties linked to professional competence. These problems relate not only to isolated events, but reveal wider problems rooted in institutions and even in the health system. Unfortunately, they are still recognized in the national reality, highlighting the precarious conditions of health institutions, the fragile professional autonomy of nurses, outsourcing of nursing care, and inadequacy of training processes.\(^15,16\)

Regarding the political conflicts that arise for both participant groups, there was political interference and a lack of transparency in Corens. According to the inspectors’ point of view, there is a lack of punishment for public and private managers, institutional obstacles of health systems, and resistance to ethical and legal aspects by health institutions and nursing professionals.

Awareness of the importance of ethical values is essential for professional practice, maintains ethical environments, and prevents serious consequences in healthcare professional actions and outcomes.\(^17\) The practice of professional inspection seeks to preserve ethical values and principles, and when even in the relationships within this group of agents misconduct is reported, either for lack of transparency, honesty or recklessness, there is a serious warning to the Cofen/Corens system. There is no way to justify a relaxation of duties, either by institutions, profes-
professionals or inspection agents, giving way to the dan-
gerous banalization of unethical practices that are reported throughout the social context. Therefore, the definition of an institutional policy within the system is necessary, one that meets a new posture and image under construction, both in the sense of profession valorization, and in the instruments that boards may develop to address the causes of these problems, starting with the strive for qualification and the working conditions of their own agents.

Another source of MS was identified in conflicting professional relationships of managers, being associated with the councilors’ authoritarian attitude, and the conflicting relationship with inspectors and professionals from the legal sector. In the perception of inspectors, they are associated with the authoritarian relationship with managers, and the conflictual relationships with co-workers, nursing professionals and counselors. Studies confirm that work environments permeated by conflicting relationships, abusive conducts, demands, misunderstandings and insensitivities become heavy environments, causing stress, anxiety, distress and suffering, directly affecting professionals’ work performance and health.(15, 18)

Issues related to professional competence were directly associated with lack of autonomy for both participant groups. This intense perception of lack of autonomy for managers and inspectors was tied to the challenges they face in making decisions, and the freedom to act according to their professional principles, as identified in international studies. (19-21) Managers, however, also highlighted lack of technical expertise by co-workers, and the feeling of worthlessness by Cofen. Inspectors emphasized the impotence of the leadership in solving daily labor problems. In general, when these issues are not perceived and nothing is done to understand and solve them, they can lead to MS. Cases in which individuals have clarity of the situation, but have difficulties in expressing their concerns due to lack of organizational environments concerned about their professional experience are also a cause of MS.(22)

The subcategory working conditions presents situations that indirectly influence managers and inspectors as sources of MS. Although not directly responsible for the actions that lead to MS, they represent relevant issues in daily labor, such as dissatisfaction with workload, low pay, work overload, inappropriate facilities, and insufficient resources (personnel and equipment). However, MS does not occur only due to institutional obstacles, but it also involves political and economic aspects. MS can cause feelings like stress, exhaustion, emotional exhaustion, and even lead to job dissatisfaction. Therefore, moral distress takes over professionals, affecting their well-being, and therefore their work. (23-25)

Relying on the fact that MS is an individual experience, rather than a situational one, it was observed that the subcategory of nursing care quality was also statistically significant, however, only to inspectors. (9) Although standing out as a situation that brings about MS, anguish and uncertainty, the result is identified as positive. Inspectors showed an accurate vision of ethical issues, which relates to the immersion experience and direct observation of practices. Moral sensitivity has already been reported in international studies as a positive attribute. Thus, it is deemed important to support and stimulate strategies that enhance this competence to improve professionals’ sensitivity to ethical problems of their daily work. (1,26)

The study had as limitations low participation, and participants’ difficulty to express themselves on such a complex issue, which justifies further studies. It is suggested that this result may be associated with insecurity, institutional political issues, and even the feeling of disbelief in the return that an academic study can bring to professional practice, especially when the reported causes refer to issues affecting nursing activities in various contexts, and not just for the study participants.

Conclusion

This is the first Brazilian study focused directly on the issues that cause MS in nurses with managerial and inspection competence of the inspection departments. The research addressed the context of nurses who play an important social role for society, and also for professionals of the nursing category.
The study showed flaws and even ethical problems, not only within the limits imposed by institutions, managers and nursing professionals, but also in the board’s practices. This leads to the threat of trivialization of ethical issues that require a strict approach, and reflection on the actual and necessary conditions for the development of inspection activities. The focus of the study was not to explore alternatives and intervention and improvement actions of the inspecting process already underway in some of the councils, which may change some of the findings. Hence, complementary studies are important to monitor future changes.

Therefore, reflecting on the causes of MS in this scenario is recognizing the need for an assessment of professional behaviors and discussion on professional ethics, because changes must take place on the basis that sustains the profession’s ethical precepts and moral conduct, thus strengthening the category.

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Collaborations
Silveira LR, Ramos FRS, Schneider DG, Vargas MAO and Barlem ELD declare having contributed to the project design, data interpretation, article writing, relevant critical review of its intellectual content, and final approval of the version to be published.

References

Welcoming in primary health care from the viewpoint of nurses

Acolhimento na atenção primária à saúde na ótica de enfermeiros

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Abstract

Objective: To understand how the welcoming process occurs in the basic health units from the viewpoint of nurses.

Methods: An exploratory study with a qualitative approach that used semi-structured interviews, and adopted the content analysis technique proposed by Bardin for data analysis.

Results: Among the ten interviewed, nine were female. Analysis of the statements led to the emergence of access and the work process as empirical categories.

Conclusion: Welcoming is performed in the Basic Health Units of a Regional Federal District, but not in a structured manner, nor is it grounded in the recommendations of the Ministry of Health.

Keywords
User embracement; Primary care; Primary care nursing; Public health nursing

Descritores
Acolhimento; Atenção básica; Enfermagem de atenção primária; Enfermagem em saúde pública

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Introduction

The directive of welcoming was introduced into the Unified Health System (SUS) services in the mid 1990s, aiming, enabling changes in the development of health work by modifying relationships between workers, managers and patients, promoting linkages, co-responsibility and resolution, in addition to expanding access. However, the debate about welcoming has intensified since 2000, as a proposal for reversing the logic of the health service organization and functioning, in order to assume its original mission, which is to welcome, listen to and provide a positive response, being able to solve the population’s health problems.

With regard to the labor process, the welcoming guideline aims to shift the central axis from the physician to a multidisciplinary team, which is in charge for qualified individual listening, committed to solving the health problem and to transform the relationship between worker and patient, based on humanitarian parameters, solidarity and citizenship. This feature relates to the current discussions that have been occurring on the social construction of Primary Health Care (PHC-APS), attempting to break with some prevailing conventional paradigms, such as the adoption of a health management model for the population, rather than a supply management model.

For the Ministry of Health, there are several definitions of welcoming, which reveals the multiple meanings for this term. Also according to this agency, less is revealed about welcoming in the speech about it than in the concrete practices. In this sense, instead of (or in addition to) asking whether, in the particular service, welcoming occurs or not, it would be more appropriate to analyze how it works. Thus, this study aimed to understand the process of welcoming in the Regional Health Basic Health Units (UBS) of the Federal District, from the perception of nurses.

The expected purpose of this study is to contribute to the discussions about the organization of PHC in the Regional Health, particularly with regard to welcoming.

Methods

This was an exploratory study with a qualitative approach, conducted in ten of the 11 UBS, existing in the region. The criteria adopted for selection of units was based on those in which welcoming was integrated. Nurses that performed the act of welcoming were invited to participate in the study, regardless of the length of time that it had been integrated into the unit.

The empirical data collection was performed from April to July of 2014, by means of individual semi-structured interviews in a private environment at the UBS itself, using the following question: Can you tell me how welcoming was applied here in the UBS, and how it works? Each interview was encoded using the Subject name followed by Arabic numerals 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

After agreement, the professional signed the Terms of Free and Informed Consent, and the interview was conducted, recorded, and later transcribed, maintaining the literal content of the statements. During data analysis, the adopted technique of content analysis proposed by Bardin was applied.

The study was registered in Plataforma Brasil under Certificado de Apreciação Ética number (CAAE): 25086814.0.0000.555.

Results

Ten nurses who were responsible for welcoming participated in the interviews, one from each UBS. There was a predominance of females (nine nurses), with ages ranging from 26 - 61 years; mean training time of 12 years and six months, ranging from 3 - 33 years; with a mean of three years and one month working on the unit, ranging from 3 months - <14 years; and mean time of working with welcoming of three years and four months, ranging from 2 months - <14 years.

By analyzing all the statements of the professionals, it was verified that welcoming is closely linked to the organizational manner of the local network services, involving human, physical and environmental resources. In this sense, the access and work process was established as empirical categories, as chart 1.
The National Primary Care Policy (PNAB), published in 2006, has among the characteristics of the primary care team working process, the implementation of the guidelines of the National Humanization Policy, including welcoming.(5)

In revising the PNAB, Ordinance No. 2488 of October 21, 2011, welcoming remains as a feature of the team work process and is recommended to be performed with active listening, risk classification and a multidisciplinary room for welcoming for those with spontaneous demands, with health needs assessment, and vulnerability analysis in view of the responsibility of providing care and the first emergency attendance.(6)

Approaching the concept of welcoming in the health practice, we can understand that it is a tool that enables a guaranteed access in solidarity with the individual in the health service.(7) It can be used as an interrogator device of daily practices, allowing you to capture noise in the relationships established between individuals and workers in order to change them, establishing a working process centered on the individual's interest. Thus, welcoming constitutes a technology for the reorganization of services, with a view to guaranteeing universal access, resolution and humanization of care.(8)

Based on this study it was noted that health work in the traditional manner still prevails, focused on medical consultation, by distributing tickets for spontaneous demand. Thus, many individuals still leave the health unit without having their problem resolved. Therefore, in these cases, the proposal of welcoming was not covered, since it establishes a fixed number of vacancies, and does not meet the needs of the population. It is important to note that not all individuals served in the UBS need health care, but they believe that only a professional will resolve their needs. Therefore, the importance of welcoming is that you can guide and direct individuals to care that is appropriate for their needs.

However, the nurses’ statements showed attempts to alleviate this problem with proposals for local reorganization, aiming to reverse the logic of caring for those who come first to those with the most need. Thus, welcoming was pres-
ent in the statements of the subjects 2, 6, and 11, as a strategy to enable the linkage between the health worker and the patient, with an opening dialogue, emphasizing the commitment and the bond, and thereby maintaining the principles of universality, completeness and equity of SUS. These findings converge with the study results obtained, by indicating that welcoming and connection between the patient and the professional allow the whole health system to work in coordination, increasing access and improving the work process in health.

Welcoming proposes to reverse the logic of organizing and functioning of the health services, based on the following principles: serving all people who are seeking health services, ensuring universal access; reorganize the work process by moving its central axis from the physician to a multidisciplinary team, and qualify the worker-patient relationship with humanitarian parameters of solidarity and citizenship.

Welcoming should be seen, therefore, as a powerful device to meet the requirement of access, providing connection between staff and population, worker and patient, questioning the process of work, initiating comprehensive care and modifying the clinic. Thus, it is essential to qualify the staff for receiving, caring, listening to, dialoguing, decision-making, supporting, guiding and negotiating.

Starfield discusses access and accessibility and shows that, although they are used ambiguously, they have complementary meanings. Accessibility enables people to reach the services, and access enables skillful use of services to achieve the best possible results. It would be the way the person experiences the health service. The access to the possibility of implementing care, according to needs, has an interrelationship with resolvability and extrapolates the geographical dimension, covering aspects of economic, cultural and functional supply services.

A reality that remains very experienced in other states, and not only in the Federal District, is that access to consultation occurs by order of arrival, with bureaucratic criteria, without prioritizing risks, where welcoming is not part of the agenda. The limitations to access showed patient queues and dissatisfaction, as evidenced in the statement of Subject 3, in that part of the needs of the population cannot be satisfied. Similarly, in the large cities, patients are exposed to common risks, causing feelings of fear and embarrassment, as they need to find ways to ensure compliance, undergoing long waiting times in queues, exposed to all kinds of situations.

The primary care teams have the ability to link, take responsibility, and to act in performing collective actions of promotion and prevention in the territory, individual and family care, as well as the co-management of individual therapeutic projects of individuals, which sometimes requires paths, trajectories, and care lines that permeate other types of services to meet the full range of health needs. The statement of Subject 11 shows the unique role of welcoming, management and maintenance of these relationships.

The nurses of the health units expressed the need to adapt the theory of welcoming into daily practice. The statement of Subjects 7 and 9 demonstrate concern about the adherence to the proposal made by the Ministry of Health MH and also a better definition of what this practice of welcoming would be to improve services.

Furthermore, although useful and even necessary in some types of units, having a “reception room” is not enough. It is misleading to restrict the responsibility for the act of welcoming to the receptionists (or any employee, individually) as welcoming should not be reduced to a stage or a specific place, as evidenced in some statements.

The reports indicate a consensus that every UBS employee must perform welcoming, and that the nurse is the key player in this process. The statement of Subjects 7 and 9 showed that they do not realize welcoming with Risk Classification using a protocol or collectively developed instrument. Many professionals stated they were unaware of the existence of Risk Classification within PHC and, in the opinion of one of the interviewees, this should only be administered in hospitals.
Among the ten interviews, only two nurses, Subjects 3 and 6, referred to performing the work process in welcoming, systematically. They report assessing the complaint, assessing vital signs, investigating chronic or recurrent diseases, the use and access to medicines, thus making the necessary referrals. They emphasize that active listening is of primary importance in welcoming, to hear and determine whether one needs care, from a physician or a nurse, and if the patient is looking for care from another unit, such as a specialty. The majority do not use previously established protocols, based on Ministry of Health guidelines, conducting active listening that can address the need of that patient. That is, welcoming is not recognized as a structuring technology for professional practice.

As also shown in another study, the professionals considered welcoming as a technology for expansion of listening and decreasing the fragmentation of care. However, there are still difficulties in the organization of services and assignments of the UBS itself, hindering the realization of welcoming. Welcoming is present in the UBS - Regional Health, but not in a structured manner, not grounded in what is recommended by the Ministry of Health. The logic of care in the units is predominantly by order of arrival, as evidenced by the statements of the nurses, which demonstrated concerns for the need of the patient to arrive at the basic unit, in the early hours of the morning, standing in line in an attempt to obtain an appointment.

The fact that the study population was only composed of nurses, not incorporating other professionals who also are or should be involved in the welcoming process, is translated as a limitation of this study.

**Conclusion**

Although the implementation of SUS has advanced in recent years, especially with regard to the care networks where PHC plays a key role, there are still challenges to be overcome, highlighting the difficulties of access of the population to health services. Regarding welcoming, this study indicates that on one side are the patients, seeking care in a resolute manner, and on the other side are the health professionals who fail to respond with the available and recommended work tools and resources, demonstrating that, in Regional Health, the implementation of welcoming is permeated by conflicts and contradictions.

However, it is noteworthy that, for UBS to work with welcoming, which requires caring for patient health needs, among other things, it is necessary that the local health system be organized based on referral and counter referral to ensure comprehensive care. In other words, it is not sufficient for the UBS, or more specifically, professionals to desire to incorporate welcoming in their work process; a networked articulation is required.

Therefore, the results of this study are intended to contribute to the redirection of activities and development/implementation of welcoming in the Regional Health area of this study, so that care is powered by the patient’s well-being. We also emphasize the importance of future research, aimed at other professionals, in addition to patients as direct beneficiaries, which can provide relevant information to support the discussion on welcoming with Risk Classification and Stratification within the PHC environments in the Federal District, as most of the studies use the hospital area as the scenario.

**Collaborations**

Camelo MS, Lima LR, Volpe CRG, Santos WS and Rehem TCMSB declare that they collaborated in the study design, data interpretation, relevant critical review of the intellectual content, and final approval of the version of the article to be published.

**References**

Welcoming in primary health care from the viewpoint of nurses


Breastfeeding in indigenous children from two cities in the West Brazilian Amazon

Aleitamento materno em crianças indígenas de dois municípios da Amazônia Ocidental Brasileira

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Keywords
Breast feeding; Weaning; Indigenous population; Pediatric nursing; Maternal-child nursing

Abstract
Objective: To analyze breastfeeding practice among indigenous children aged between zero and two years and the factors associated with ablactation.

Methods: Cross-sectional study conducted with 94 indigenous children and 91 indigenous women. Data were collected in households by applying an instrument specifically developed for the study. Logistic regression was used for the analysis.

Results: A total of 60.6% of the children were breastfeeding. Exclusive breastfeeding was present in 35% of the children aged under six months. The only association of early ablactation with the variables was the ethnic group, in which the chance of early ablactation among the Poyanawa, Nawa, and Nukini ethnic groups was 3.7 times higher than the Katukina.

Conclusion: The prevalence indices of breastfeeding is below the recommendations of the WHO. Only the variable ethnic group was found to be associated with early ablactation. These data highlight the need to implement programs to promote breastfeeding among indigenous people.

Keywords
Breast feeding; Weaning; Indigenous population; Pediatric nursing; Maternal-child nursing

Resumo
Objetivo: Analisar o aleitamento materno de crianças indígenas de zero a dois anos e os fatores associados ao desmame.

Métodos: Estudo transversal realizado com 94 crianças e 91 mulheres indígenas. Os dados foram coletados nos domicílios, com aplicação de um instrumento construído especificamente para o estudo. Foi utilizada a regressão logística.

Resultados: Estavam em aleitamento materno 60,6% das crianças. Em menores de seis meses o AME esteve presente em 35% dos indivíduos. A única associação do desmame precoce com as variáveis foi a etnia, em que a chance de desmame precoce entre as etnias Poyanawa, Nawa e Nukini, foi 3,7 vezes maior em relação a etnia Katukina.

Conclusão: As prevalências de AM encontram-se aquém das recomendações da OMS. Somente a variável etnia mostrou-se associada ao desmame precoce. Esses dados mostram a necessidade de implementações de programas de incentivo ao AM entre os indígenas.

Conflicts of interest: Abuchaim ESV is an associate editor of the Acta Paulista de Enfermagem and did not take part in the process of evaluation of the manuscript.
Children that are breastfed for a longer period present lower morbidity and mortality rates, less dental malocclusion, and a higher level of intelligence than those that are breastfed for shorter periods or are not breastfed. Breastfeeding may protect against being overweight and having diabetes in the future. The World Health organization (WHO) and the Ministry of Health (MS) recommend exclusive breastfeeding (AME) during the six first months of life, then supplemented with other foods until the child is 2 years old or older.\(^{(1-3)}\)

Research conducted in 2008 in Brazil by the Ministry of Health in Brazilian capitals and in the Federal District showed an increase in breastfeeding duration. The median duration of exclusive breastfeeding (AME) was 1.8 months, and the median duration of breastfeeding (AM) was 11.2 months.\(^{(4)}\) In 2008 the prevalence of exclusive breastfeeding in children aged under 6 months in Rio Branco, capital of Acre, was 36.1%, and in Cruzeiro do Sul this number was 28.4%. These numbers are considered poor according to the parameters of the WHO.\(^{(5)}\) Despite the improvement in these rates, a large number of early-weaned children still existed, making breastfeeding a public health problem in Brazil, including among indigenous people.

Being indigenous in Brazil implies a higher chance of not completing the first year of life, suffering malnutrition and anemia during the growth period, living with a high burden of infectious and parasitic diseases, and being exposed to an accelerated process of nutritional transition. The First National Survey of Indigenous People’s Health and Nutrition in Brazil showed evidence of a high prevalence of hospitalization due to diarrhea (37.2%) and acute respiratory infection (47.6%). Also, nearly a quarter (23.6%) of the indigenous children had diarrhea during the week before the interview, and this study also pointed out an environment marked by chronic malnutrition.\(^{(6)}\)

Despite the significant number of published studies about the factors associated with early ablation in urban populations\(^{(7)}\) and, in smaller numbers in rural areas, there are few studies exploring this theme in indigenous populations.\(^{(8-10)}\)

In view of these factors, this study aimed to identify and analyze the type of breastfeeding practiced among indigenous children aged between zero and two years old from the cities of Cruzeiro do Sul and Mâncio Lima, located in the far western region of the Brazilian Western Amazon, as well as identify the factors associated with early ablation.

**Methods**

Descriptive, cross-sectional study conducted in the state of Acre, in the cities of Cruzeiro do Sul (Katukina ethnicity) and Mâncio Lima (Nukini, Nawa, and Poyanawa ethnicities).\(^{(11,12)}\)

The estimated population for the study considered the data made available by the Special Indigenous Sanitary District of Upper River Juruá based on the Sistema de Informação de Atenção à Saúde Indígena (SIASI), of the Fundação Nacional do Índio (FUNASA). In the second half of 2012 the number of children aged between zero and two years in the indigenous villages of Cruzeiro do Sul and Mâncio Lima were 104 and 98, respectively, totaling 202 children.

Women with children aged ≤ two years were included in the study. Mothers infected with the Human Immunodeficiency Virus (HIV) and human T-cell lymphotropic virus (HTLV1 and HTLV2), those using drugs incompatible with breastfeeding, and children with galactosemia were excluded from the study in accordance with the parameters of the Ministry of Health.

Data collection was conducted during October 2013 through semi-structured interviews covering characteristics of the mother, family, pregnancy, delivery, breastfeeding, and the child, conducted by the author in the presence of an Indigenous Health Agent from each village in order to enable the communication process. Information was obtained from the prenatal care card of the women, vaccination records of the children, and through the answers to the questions.

The results were analyzed through the software SPSS 16.0 for Windows. Pearson’s chi-squared test or Fisher’s exact test was applied for
associations between qualitative variables. For the quantitative variables the Student’s t-test was used in cases where the normal distribution was met, or the Mann-Whitney test for cases that were not found to be normally distributed. A logistic regression model was used to verify the factors associated with the variable answer. The association between the variable answer and the explanatory variables was expressed in odds ratio (OR) and their respective IC (95%). A level of significance ($\alpha$) of 5% ($\alpha=0.05$) was adopted in the entire statistical analysis, that is, results presenting p-value below 5% (p<0.05) were considered as statistically significant.

The study was registered in Plataforma Brasil under Certificado de Apresentação para Apreciação Ética number (CAAE): 14924313.8.0000.5505.

**Results**

Of the expected total 202 children, 91 women and 94 children participated in the study. The difference between the expected number and the actual number was due to the fact that the data provided by the Sistema de Informação de Atenção à Saúde Indígena (SIASI) of the Fundação Nacional do Índio (FUNASA)/MS were not up-to-date.

The population was distributed between the cities of Mâncio Lima (49.5%) and Cruzeiro do Sul (50.5%). Regarding the ethnic groups, the Katukina was represented by 50.5% of them, followed by Poyanawa (28.6%), Nukini (12.1%), and Nawa, with 8.8%. The mean age of the women was 26 years, and most of them had a partner (75%), were illiterate or had not completed elementary school (72.5%), were housewives (82%), and had income below the minimum wage (78%).

According to the gestational characteristics and the delivery, it was observed that most women attended less than six prenatal visits (60%) and had vaginal delivery (87.9%); of these, 59.3% were performed at home. Almost all of them had only one child under two years old (95.6%), and nearly 39% presented an illness during pregnancy (the most recurrent was malaria).

Among the indigenous children it was observed that 98% of them were born at 39 weeks or more, and most of them presented 6 months or more of life (79%), were male (53%), with birth weight between 1,500 and 4,800 grams. Respiratory problems (83%) and diarrhea (76%) were the most recurrent health problems.

Of the total of 94 children, it was verified that 20 were aged less than or equal to 6 months, and 74 were older than 6 months. Of the total, 57 were breastfeeding (60.6%). Regarding the distribution of the types of breastfeeding practiced among the 57 children, the most common was supplemented breastfeeding (73.7%), followed by exclusive breastfeeding and predominant breastfeeding (12.3% each) and partial or mixed breastfeeding (1.7%).

Table 1 shows the distribution of the types of breastfeeding practiced among the indigenous children according to age.

<table>
<thead>
<tr>
<th>Age of the child</th>
<th>Type of breastfeeding</th>
<th>≤ 6 months n(%)</th>
<th>&gt; 6 months n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exclusive breastfeeding</td>
<td>7(35.0)</td>
<td>0(0.0)</td>
<td></td>
</tr>
<tr>
<td>Predominant</td>
<td>6(30.0)</td>
<td>1(1.3)</td>
<td></td>
</tr>
<tr>
<td>Mixed or Partial</td>
<td>1(5.0)</td>
<td>0(0.0)</td>
<td></td>
</tr>
<tr>
<td>Supplemented</td>
<td>5(25.0)</td>
<td>37(50.0)</td>
<td></td>
</tr>
<tr>
<td>Artificial</td>
<td>1(5.0)</td>
<td>36(48.7)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>20(100.0)</td>
<td>74(100.0)</td>
<td></td>
</tr>
</tbody>
</table>

AM - Breastfeeding; AME - Exclusive breastfeeding

The mean age in which the children discontinued the exclusive breastfeeding was 5.1 months; mean age for ablation was 11.4 months (Table 2).

A total of 87 children that were not exclusively breastfed were selected for the assessment of early ablation. There was information in 82 of them, and early ablation was observed in 50% of the children (IC 95% [38.7%; 61.3%]).

The variables presenting p<0.20 (ethnic group, occupation, and place of delivery) were selected for the multivariate model. The variable income was removed from the initial model due to the fact that occupation and income were found to be highly associated (p<0.001), thus impairing the logistic model.
After the adjustment of the multivariate model, it was concluded that only the variable ethnic group was found to be independently associated with early ablactation (p=0.027).

The distribution of early ablactation among the ethnic groups revealed that the Katukina presented lower percentage of early ablactation than the others. Through the generalization of Fisher’s exact test it was verified that the ethnic groups Poyanawa, Nawa, and Nukini did not differ in terms of percentage of early ablactation (p=0.163). The chance of early ablactation among the ethnic groups Poyanawa, Nawa, and Nukini was 3.7% higher than that observed for the Katukina ethnicity (IC 95% [1.496; 9.318], p=0.005).

Among the alleged reasons for early ablactation that the present study points out are: the baby quit breastfeeding (24.3%), insufficient milk/dried milk (8.1%), and other reasons (64.9%). Among the latter, the ones most often mentioned were mother interrupted breastfeeding (70.8%), mother got pregnant, and mother returned to school, with 12.5% each.

### Discussion

Among the limitations of the study was the fact that the number of individuals represented a major challenge, as the data provided by SIASI-FUNASA/MS were not up-to-date and the gap was only perceived upon initiation of the collection, leading to a reduced studied sample. The difficulty of access to the Nawa and Nukini ethnic groups, which demanded an approximately 6-hour trip in a small boat, and the difficulty in communication with the women of the Katukina ethnicity, which occurred through an interpreter (the Indigenous Health Agent) were also pointed out.

The results of this research contribute to a diagnosis of the situation of breastfeeding and early ablactation in the studied ethnic groups, providing support for the implementation of public policies and specific research for the indigenous community in the field of breastfeeding. Breastfeeding must be encouraged and improved in the Nawa, Nukini, Katukina, and Poyanawa ethnic groups through the example of leadership and families in the cultural context for compliance with the guidelines of the WHO and the Ministry of Health. This will improve the current situation of the high frequency of diarrhea, respiratory problems, malnutrition, and other infections.

Indigenous women know the benefits of breastfeeding, however only 60.6% of them were breastfeeding at the time of the study. A small difference (66.7%) was observed in the comparison of this rate with the rate found in the last national survey on breastfeeding conducted in 2008 with indigenous children of the city of Cruzeiro do Sul; the same was found for the city of Rio Branco, capital of the state of Acre, with 62.8%.

A study conducted with indigenous children from Sydney, Australia, from a very different reality revealed a slightly lower frequency among the Gudaga (64.7%) in relation to non-indigenous children born locally (75.2%).

The average duration of breastfeeding was 11.4 months, considered a poor rate according to the parameters of the WHO that recommends supplemented breastfeeding until the child is two years old or older.
Lower data were also found in the comparison between indigenous and rural populations. Results of a study conducted in 2006 in Brazil identified a median value of 15.8 months for breastfeeding in the rural area and 12.9 months for the urban area. This difference may be related to feeding difficulties among children in the rural area and the higher availability of food in the urban area. Also, there are cultural interferences, and influence from the media in relation to female aesthetics and advertising of packaged foods.

A better result in relation to this duration was identified among the indigenous people of Upper Xingu in Mato Grosso, as their feeding during almost the entire first year of life is based on breastfeeding until approximately the third year of life.

Among the children under six months old, only 35% were breastfeeding. The mean value for exclusive breastfeeding was 5.1 months.

The prevalence of exclusive breastfeeding among the indigenous peoples in this study was lower than the rate found in Rio Branco (36.1%) in 2008 and higher than that found in Cruzeiro do Sul (28.4%) in the same period.

A systematic review of the nutritional status and infant feeding of Amerindians identified that exclusive breastfeeding is not practiced by 48% of the women of a given indigenous ethnic group in Peru, who introduced supplemental foods before the child was six months old.

In the 1996 and 2006 National Demographic and Health Survey (PNDS) the median duration of breastfeeding was higher in the urban area than in the rural area (1.4, and 1.2 months, respectively); this results may be associated with the access to information about the benefits of breastfeeding and the higher educational level of the mothers.

Data showed a significant association between the type of breastfeeding and the age of the child (p<0.001), that is, supplemented breastfeeding was most frequent among children older than six months. These data are in accordance with the practice recommended by the WHO and the Ministry of Health, which recommend supplemented breastfeeding after the child is six months old in order to add to breastfeeding, not replace it.

The other types of breastfeeding were more frequent among children aged six months or less, differing from the recommendation that in this period exclusive breastfeeding must not be supplemented by the introduction of any other food, except for drops or syrups containing vitamins, oral rehydration salts, mineral supplements, or ritual fluids or drugs. This recommendation was made in order to avoid competition with breastfeeding.

In relation to some aspects that could affect the duration of breastfeeding, it was observed that almost all the women had previous experience in breastfeeding, evidence of the fact that this is a common practice in the studied ethnic groups. Most children breastfed in the first hour of life, a good result according to the classification of the WHO for breastfeeding at this time of life, as these values were found in between 50% - 89% of the cases.

An interesting result was the participation of the father or partner, mentioned by almost half of the interviewed women, differing from the expectations for an indigenous community where men, in general, leave the initial care of the children as the responsibility of the mother or other close relatives. As expected, family support was frequently noted, revealing that breastfeeding among the indigenous population has a social nature and it is not something exclusive to the mother. This enhances the chances of optimizing breastfeeding because the process of health education is performed jointly.

The use of pacifiers and finger sucking were mentioned by less than 10% of the mothers, showing that such practices are not common among the studied indigenous ethnicities; among these, some mothers mentioned that the child had already quit the habit. However, the use of a baby bottle was mentioned by more than half the mothers, showing that the indigenous community has been increasingly influenced by other non-indigenous communities, as this is not a traditional habit. This is a worrying situation, as the use of baby bottle is associated to early ablactation.
Breastfeeding in indigenous children from two cities in the West Brazilian Amazon

Through the identification of the factors associated with early ablactation the multivariate analysis showed that only the variable ethnic group was associated in an independent manner, and the Katukina group presented lower percentage of early ablactation than the others. The chance of occurrence of early ablactation among the Poyanawa, Nawa, and Nukini ethnicities was 3.7 times higher than the values observed for the Katukina ethnicity.

Breastfeeding in the Katukina ethnic group

Breastfeeding is an entrenched practice in this ethnic group, but the difficulty of access to other foods (as well as their high cost) may be an explanation for the maintenance of this habit, instead of the awareness of the importance of breastfeeding for the healthy development of the children. This idea was corroborated in a report made by the indigenous community Ojibwe in Minnesota, United States. The practice of cross-breastfeeding was noted, and in this case it resulted from the lack of other foods. This cultural habit of cross-breastfeeding was also identified in the indigenous community Ojibwe.

Breastfeeding in the Poyanawa ethnic group

Most children under six months old were breastfeeding in combination with water or water-based liquids. It is known that this practice may be associated to early ablactation according to a cohort study conducted in the city of Porto Alegre, Rio Grande do Sul, which concluded that postponing the introduction of water and/or teas, as well as other types of milk, increased the chance of breastfeeding for over two years.

Regarding the feeding of the children older than six months it was verified that all of them were subject to supplemented breastfeeding, as were the infants in the Nawa and Nukini ethnicities.

Breastfeeding in the Nawa ethnic group

This community was considered extinct for almost a century, and rose again in 1999 with many non-indigenous influences and as a mixed-race community, a fact that may partly explain the absence of exclusive breastfeeding. A similar situation was reported in the indigenous community Ojibwe, whose culture suffered non-indigenous influences. These historical and social changes had an impact on them in the form of the use of baby bottles and formulas prescribed by doctors.

Breastfeeding in the Nukini ethnic group

The early introduction of other foods may be a result of several activities engaged in by the women; many of them study, work at school, and in agriculture/fishing. Other foods being available, as well as influence from the media were also factors responsible for the introduction of supplemental feeding, as pointed out by the indigenous leader of this community.

The alleged reasons for early ablactation in all the ethnic groups are similar to the findings of the study conducted in the city of Pelotas, Rio Grande do Sul, whose the most common reasons for ablactation include: “there was no milk, little milk, or weak milk”, “the child did not want to breastfeed”, and “mother preferred not to breastfeed”.

Other reasons mentioned are related to the indigenous culture, which recommends ablactation for children aged one year old. Another reason is ablactation due to a new pregnancy for this community believed that breastfeeding would harm the pregnancy.

Conclusion

Regarding the distribution of the types of breastfeeding practiced among the 57 children, the most common was supplemented breastfeeding (73.7%), followed by exclusive breastfeeding and predominant breastfeeding (12.3% each) and partial or mixed breastfeeding (1.7%). The mean age of exclusive breastfeeding was 5.1 months, and of breastfeeding was 11.4 months. Exclusive breastfeeding was present in 35% of the children under six months of age. The chance of occurrence of early ablactation among the Poyanawa, Nawa, and Nukini ethnicities was 3.7 times higher than the values observed for the Katukina ethnicity. Reasons for early ablactation include the baby quitting the breast, production of little milk/dried milk, mother interrupting breastfeeding, mother getting pregnant, and mother returning to school.
Acknowledgements

The authors thank the Universidade Federal do Acre (UFAC) and the Universidade Federal de São Paulo (UNIFESP) for the partnership in the conception and implementation of the MINT-ER (Interinstitutional Masters Program) UFAC/UNIFESP that aimed at the results of this study. Thanks to the Regional Coordination of the Fundação Nacional do Índio (FUNAI) in Cruzeiro do Sul for the support in the execution of this study. Thanks to the indigenous leaders for the authorization to conduct the study in their ethnic groups and their contribution during the process. Thanks to the Indigenous Health Agents for their willingness to help in the data collection process. Thanks to the mothers of the indigenous children for their willingness to spontaneously participate in the interviews.

Collaborations

Maciel VBS, Silva RPM, Sañudo A, Abuchaim ESV and Abrão ACFV state that they collaborated in the conception of the study, analysis, data interpretation, writing of the article, relevant critical review of its intellectual content, and final approval of the version to be published.

References

History unveiled in Juquery: intramural psychiatric care in the civic-military dictatorship

A história desvelada no Juquery: assistência psiquiátrica intramuros na ditadura cívico-militar

Douglas Sherer Sakaguchi
João Fernando Marcolan

Abstract
Objective: To unveil the unofficial history of psychiatric care at the time of the civic-military dictatorship.
Methods: This is a descriptive, exploratory, investigative, qualitative study that uses content analysis. Interviews were conducted with former employees of the psychiatric hospital Hospício do Juquery. Two interviews were registered, and the others recorded and transcribed.
Results: Processes involving care were accompanied by the use of violence, encouraged by the dynamics of the institution. Like the policy at the time, the unveiled psychiatric care points to rigid, authoritarian rules, and to the annihilation of forms of subjectivity, a true process of reification of individuals. A strong relationship between the violence practiced and the therapy involving knowledge/scientific power was noted.
Conclusion: The state should be responsible for having spread rampant repression through its ideological and repressive apparatus, such as the Hospício. Analyzing the real facts that were concealed by the official history promotes understanding in an attempt to avoid the repetition of the violent practices and the dehumanization presented there.

Keywords
Hospitals, psychiatric/history; Politics; Violence; Torture

Descritores
Hospitais psiquiátricos/história; Política; Violência; Tortura

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Keywords
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Descritores
Hospitais psiquiátricos/história; Política; Violência; Tortura

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Conflicts of interest: there are no conflicts of interest to declare.
Introduction

Founded in 1898 in the city of Franco da Rocha, Hospício do Juquery came to equate, through the scientific way, the possibility to combine healing and care, based on a fundamental political issue that is to give legitimacy to the exclusion of individuals or social sectors not fully classifiable in criminal provisions with a view to regeneration or disciplina-

tion of the individual that is resistant to discipline of urban life, work and family.\(^1\)

In the period from 1964 to 1985, Brazil passed through a period of civic-military dictatorship; its greatest feature was the restriction of the exercise of citizenship, and violent repression of opposition movements.\(^2\)

During this period, the psychiatric hospital was important because those considered undesirable to the new social and political setting were also put there. The military government consolidated the linkage between the asylum-type hospitalization and privatization of care, increasingly hiring beds and associated clinics, which quickly grew to meet the demand.\(^3\) During this period, Hospício do Juquery had an incredible increase in admissions and in the number of inmates that was 7,099 in 1967, and reached 14,438 inmates in 1968.\(^4\)

These data reveal the need for the state to invest in these legitimized spaces for social cleansing; the assistance that was announced as science became one of violence, the face of the political system of the time.

The objective of this study was to reveal the unofficial history of psychiatric care at the time of the civic-military dictatorship.

Methods

This is an exploratory and descriptive, investigative study, using the qualitative method, through content analysis.\(^5\)

Inclusion criteria were being a former employee or retiree or both of the Psychiatric Hospital Franco da Rocha - Juquery; having worked between 1960 and 1990 and having cognitive conditions to participate.

The contact with the study participants was done through the intermediation of a former employee of the hospital complex who, after interviews with one of the researchers, articulated the participation of five other respondents. The interviews took place in public spaces and residences of respondents in the city of Franco da Rocha, state of São Paulo. The first two interviews were recorded in writing, and the other were recorded and fully transcribed.

The interviews were conducted by means of guiding questions and began after guidance on the research and participation, when they voluntarily signed an informed consent. The guiding questions were about the period they worked at the institution, their main functions in the complex, the care provided, the analysis of this care, situations experienced and how this experience influenced their lives.

We emphasize the difficulty to find people who were willing to talk about their experiences due to fear of retaliation, so exclusion criteria were not used, and the number of participants obtained was the maximum achieved during the study period. There were people invited who refused to participate when they knew the purpose of the study, and showed fear. For safety and confidence of researchers and respondents, it was agreed that there would be no mention of data that could identify them, such as gender, age, time and place of work; although the questionnaire had sociodemographic data, these cannot be disclosed. Respondents were designated by the letter E, followed by a number from 1 to 6.

The study was registered on Plataforma Brasil with the number of Certificado de Apresentação para Apreciação Ética (CAAE): 18656913.2.0000.5505.

Results and Discussion

Six former employees of Hospital do Juquery participated in the research. During the interviews, violence actions appeared as a central theme in the speeches of the six respondents. In the period they worked at the hospital complex, the unveiled psychiatric care points to rigid, authoritarian rules, oriented to submission of any expression of subjectivity.
We will treat violence as a product of social relations, determined according to time, space, assumptions, conditions, contexts and cultures of each society. The replication of State violence in the hospital confirms the idea that man reproduces what society is. If it is unfair, he is too. If it is violent, he does not leave at that.

The hospital favored the practice of violence, with the employees feeling free to exercise their perversity in controlling bodies: biopower. For Goffman, the main purpose of this culture is to be able to control patients - control that must be kept regardless of their welfare.

The study obtained broader data with categories and thematic units, but in this article we substantiate the issue of institutional violence and gather the respondents’ speeches into two categories: Violence as a synonym for care and Violence against political prisoners.

**Violence as a synonym for care**

It was observed, from the respondents’ speeches, that violence was embedded in the provision of care, because its origin was in the liberality of its use, and the certainty of impunity.

Inmates reception sets the internal logic to be implemented during their stay wide open. The humiliating and assaulting treatment is the way to keep patients under obedience, because the violent act can impose unquestioning obedience.

The report below refers to the Judicial Asylum.

*E1: The example is that it does not depend on what the patient did out here (pause), if the guy was admitted in a very severe state, there was the 2nd floor that was the death row, it is like a corridor from here to the station and there, there was a dark cell. The window was high, it was a solitary cell, there was a corridor, they “put” an employee at one side and another employee at the other side, and the patient passed and they beat (accelerated voice), yes, they called it the death row. Things heated up there. Ah! Patients were badly treated there. Very badly treated, oh I worked there from 1980 to 1984, I was there for almost 05 years.*

The cases involving care were accompanied by violence due to the institutional opening provided for this type of behavior.

*E3: It was this one that rubbed the broom and everyone was afraid of her. They were terrified of her. Nowadays she is a Protestant. If you did a bad thing, man, she took the broom handle, and hit patients, hit, hit. She hit a lot, this I saw. (...) Because there was one there that scrubbed the patients with brooms, she did not bath them correctly, everything with the piassava broom (pause), that woman who did this was an employee, at that time there was a lot of violence.*

Following we have excerpts that indicate which was, beyond the practice of physical violence, but through it, the greatest evil of torture:

*E4: torture was down there in the Psychiatric Department. In the Psychiatric Department there was torture, this was the easiest thing (pause) it was normal to say that there was this and that there. The focus of psychiatric care is the individual in psychological distress. When subjected to torture in a place that is intended for care, the abysmal gap between the ideological position delegated by society and practice devoid of ethical and scientific sense becomes evident. In addition, it shows that the practice was used by the state hegemonic ideology, and that science was an ideological/repressive apparatus of the State to satisfy its whims and excesses.*

And violence had no limits:

*E3: It was this one that rubbed the broom and everyone was afraid of her. They were terrified of her. Nowadays she is a Protestant. If you did a bad thing, man, she took the broom handle, and hit patients, hit, hit. She hit a lot, this I saw. (...) Because there was one there that scrubbed the patients with brooms, she did not bath them correctly, everything with the piassava broom (pause), that woman who did this was an employee, at that time there was a lot of violence.*

The cases involving care were accompanied by violence due to the institutional opening provided for this type of behavior.

The abuser turns the victim into a prey, pouring his/her narcissistic needs on this prey, to be free of all his/her internal discomfort, or worse, using it for his/her sadistic tendencies of pleasure. The situation becomes favorable for the caregiver of vulnerable
people to vent his/her anger, the aggressiveness that was received and badly elaborated internally, the frustration, anger, lack of control.\(^{(13)}\)

For the maintenance of this order, the use of torture may have different motivations. On the collective level, the motivation may be maintenance of power, but at the individual level, sadism prevails as the main motivation.\(^{(14)}\)

Some indicated the acts of violence as a recommendation from the management team:

E1: *it was an order from the directors - first, hit them.*

We emphasize that the institution's leaders would never have had enough power to use violence “successfully” if the employees had not supported them in their ideology through practice.

It is the support that gives power to the institutions, a support that is also part of consent that led to the existence of laws.\(^{(10)}\)

E3: *the smell was also horrible, there were places where they vomited, many people died due to lack of care. Because some of them gave the medicine, they said “Look, the medicine, the medicine, here” (laughs), the two did like this “which medicine do you take?” I don't know why they died, they appeared dead in the morning, we checked how many were dead in the morning, many died. [...] Obviously they went into a coma because of the drugs.*

E5: *many patients died there due to the state of impregnation, they were about to die they were taken to “surgery” (code used to the place where most recently was the Emergency Room).*

Medicines come to have their therapeutic use pushed aside, taking a role of punishment and even destruction, being supported by science discourse.

Chemical torture had the advantage of being a “legal” way of practice, unlike other forms that forced the perpetrators to hide them and deny them.\(^{(14)}\)

There is recent literature of a former employee who became a hospitalized patient to demonstrate the use of unbridled violence. It is known that the most agitated patients, those considered furious, were more medicated than others, especially if they had beaten an employee. The use of drugs did not follow any criteria, and those in charge turned a blind eye or even encouraged their practice.\(^{(15)}\)

E4: *once there was a patient who was totally disturbed, then she kept screaming day and night, shouting and singing, and she sang religious songs, all the time (pause), they even called, as she had a clinical problem, she could not go to Psychiatry. So they called a person to do electroshock. They applied electroshocks, that day I was astonished (pause) they applied electroshocks on her, her teeth were ground, it was violent, and they did that two or three times in one day and said it was to calm her spirit, this happened for three or four days.*

We note that there is a strong relationship between violence and therapy; because in the asylum institution those considered having power/knowledge have the freedom to implement their persversity. The disciplinary use of medical practices, such as electroshock, according to the speech of the interviewee, was the means to threaten inmates to behave well, and to calm those who were not threatened.

This fact gives a more widespread example of the process of use of knowledge for domination through repression and submission.\(^{(9)}\)

The use of electroshock was one of the practices that served as a lesson for other inmates, with the desired success achieved by the institution: the establishment of fear and blind discipline. Reporting indicates that it was enough for inmates to hear the letters E, C and T for fear to force them into submission.\(^{(15)}\)

**Violence against political prisoners**

The issue on political prisoners was reported by respondents with much fear and resistance, because they believed that this was the point of greatest vulnerability due to touching a theme that was considered prohibited and that would place them at risk of persecution and punishment, even so long after the fact.

There was fear to fully report the events regarding political prisoners, but they mentioned the existence of individuals that, based on the conditions of detention and treatment, were considered those who disagreed with the dictatorial regime and so were hospitalized there. Given the absence of guaranteed civil rights, social movements were silenced through
arrests, torture, killings and systematic destruction of their organizational structures. Political prisoners represented the central ideology of oppresion.[16]

Political violence presented itself in various ways, such as the disappearance of dissidents, the overthrow of unions, and legislation that defrauded the public opinion.[7] As an arm of the State, the madhouse and lunatic asylum started admitting people who threatened the established order, and were elevated to repressive apparatus of the dictatorship aid.

The respondents reported having had contact with this practice that despite of being camouflaged was easily perceived, because the prisoners in the asylum came with no identification, were brought by the police, came from the Judicial Asylum for some medical treatment. They reported mistreatment received and the marks left.

E4: “they came with no name, the police brought them, suddenly on the next day they were dead [...] internal bleeding, was the diagnosis that doctors gave as cause of death, that’s it. There was no investigation, they died, it was over. I saw corpses entering there, I saw (pause) many who had no marks, many came all injured, traumatized, with a hit on the eyebrow, head (pause) hurt [...] We thought it was a political prisoner, because there was no (pause) because the police brought them, they did not come out alive, there was no live one. (...) One thing that caught my attention was that when they were admitted, they did not come out alive, there was no live one. (...) One thing that caught my attention was that when they were admitted, they had had no identification, no name, they had a number, ignored number so-and-so. It was always like that, then every time there was an unknown number so-and-so I said “maybe that one is a political prisoner”, I thought, I did not say, I thought (pause) because we could not even say anything.

The nomenclature “ignored” symbolized the real vision of the State of those who were destined to madhouses and asylums. The designation of ignored is part of the process to prevent the identification of this new inmate, being another number for the State of many who are to date considered missing. To the ignored ones there was only disappearance left.

The marks left by this process in family, society and employees are huge, with the State being the greatest protagonist of this violence and not being held responsible for such acts, giving the feeling of being something untouchable, encouraging submission and silence of population.

Even today, violence is seen as a possible way in contrast to tolerance, dialogue, recognition and civilization.[17]

E1: “already got a political prisoner, I’m afraid to tell. Oh, the guy was hungry there, he had a bath once a day, sometimes not shower (silent pause) toothpaste was denied for him to brush his teeth. He was separated, in a place were the most dangerous were. I will not even tell if he left alive, all of them left (pause) from here on I will not tell (accelerated voice) the guys raped, they did horrible things, the guy went out with fear, the guy did not come out as the same person, he was one when he entered and another one when he left (accelerated voice) and this was made on purpose with political prisoners. There were many political prisoners (...). They were beaten a lot or died there or were left there.

Violence was the primary method of maintenance of the state power, where those who questioned authority had the intensity of the violence they received increased, a collective demonstration of the path that should be followed.

It is clear that the practice of systematic torture was sponsored by the State.[15] These acts did not aim only to produce pain on the body of the victim that made him/her go into conflict with his/her very spirit, and give up the speech against the system, but also to give the victim moral destruction through the rupture of emotional boundaries.[18]

E5: “I saw many political prisoners being placed on Anatemol and Scopolamine, and then they were “broken”, all crooked, with no control of the tongue, ECT was used.

The reports show the hygienist political power given to the madhouse/asylum by the State. The admission of political prisoners as mentally ill patients allowed the application of the behaviors considered “therapeutic” such as electroshock, impregnation, violence of various forms, neglection and lack of assistance. If the electroshock was the device used for improvement of symptoms, in the political prisoners the presented symptoms were those of resistance, and so aimed at their full submission.
It is felt that violence was systematically used by the institutions, being employed as a true State policy, authorized and encouraged by the organs of power. To make these practices feasible, not only executioners were involved, but also health professionals who, supported by their scientific knowledge, applied torture practices disguised of therapeutic procedures.\(^\text{19}\)

The limitation of this study regards the quantity of participants who agreed to participate.

**Conclusion**

Hospício do Juquery, the Judicial Asylum, and other asylums became great state allies to maintain the political ideology of the time: the civic-military dictatorship. As a true repressive apparatus in the Althusserian sense, the space was legitimized by society, far from the eyes but not from the imaginary, and a space was created for the exclusion of those who were socially and ideologically undesirable, with places and apparatus that were appropriate to flourish perversity of those who kept order. We note the creation of a space intended not only for excluding people, but also for their annihilation as social and autonomous subjects, both permeated by care on behalf of knowledge.

Having knowledge of the facts as they occurred through whom lived it, and revealing what was hidden by the official history, promotes better critical understanding in an attempt to avoid the repetition of practices of violence and dehumanization that occurred at the time.

**Collaborations**

Sakaguchi DS and Marcolan JF declare that they contributed with the project design, writing of the article, relevant critical review of its intellectual content, and final approval of the version to be published.

**References**

Erratum

In the article published in Acta Paul Enferm. 2015; 28(2):183-89, Marques CA, Figueiredo EN, Gutiérrez MG; “Validation of an instrument to identify actions for screening and detection of breast cancer”, the authors requested to publish the following errata: Include the instrument, final product, of the validation process.

DOI: http://dx.doi.org/10.1590/1982-0194201600066
Form to identify the breast cancer early detection action - to Female patient

### General Information

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<td>1) Date <em><strong>/</strong></em>/_____</td>
<td>2) Start time <em><strong>:</strong></em></td>
<td>3) The end time <em><strong>:</strong></em></td>
<td>4) Interviewer name: __________________________________________________________________________________________________</td>
<td>5) Interviewer code:___________________________________________________________________________________________________</td>
<td>6) Primary Health Care service name: ______________________________________________________________________________________</td>
<td>(1)Mixed (2)Family Health Strategy (3) Traditional</td>
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### Patient identification

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<td>7) Medical record number: _____________________________</td>
<td>8) Patient name (just the first words): _____________________</td>
<td>9) Address: ______________________________________________________________________________________________________</td>
<td>10) Phone number: __________________________________</td>
<td>11) Public health insurance number: ______________________</td>
<td>12) Primary Health Care Model (1)Mixed (2)Family Health Strategy (3) Traditional</td>
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### Patient social demographic data (at the time)

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<td>13) When have you born? <strong>/</strong>/_____</td>
<td>14) What is your marital status? (1) single (2) married (3) windowed (4) separated (5) divorced</td>
<td>14.1) Are you live-in a marital relationship with someone? (1) yes (0) no</td>
<td>15) Which ethno racial /skin color do you consider yourself? (1) yellow (2) white (3) indigenous (4) black (5) mixed</td>
<td>16) What is your level of education? (1) illiterate/ primary education (2) lower secondary education or upper secondary education uncompleted (3) upper secondary education or post-secondary non-tertiary education uncompleted (4) post-secondary non-tertiary education or degree uncompleted (5) degree</td>
<td>17) Currently are you working? (1) yes (0) no (2) windowed</td>
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If you work, answer the question 17.1. If not, jump to the 18

17.1) If yes, what is your profession? _______________________

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<td>18) How many listed stuff below do you have?</td>
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<td>19) Which level of education has the householder?</td>
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<td>20) Do you have a private health insurance?</td>
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If you have a private health insurance, answer the question 20.1. If not, jump to the 21

20.1) In which situation are you using the private health insurance? (1) make exams (2) clinical appointment (3) clinical appointment and exams (4) other situation

### Breast cancer control in the last four years

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<td>21) Do you know any case of breast or ovarian cancer in your family?</td>
<td>(1) yes (0) no (99) don't know</td>
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If yes, answer 22 If not or don't know, jump to the 27

22) Was it a breast or ovarian cancer case? | (1) breast (2) ovarian (3) breast and ovarian |   |   |   |   |   |

If it was a breast cancer, answer 23. If it was an ovarian cancer, jump to the 26. If those two cancer types happen, answer since the question 23

### Breast cancer case:

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<td>23) Do you know if at the moment of the cancer diagnose your relative had more than 50 years?</td>
<td>(1) more than 50 (2) less than 50 (99) don't know or can't remember</td>
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24) Did it happen in one or both breasts? | (1) unilateral (2) bilateral (99) don't know or can't remember |   |   |   |   |   |

25) Which relationship degree have you two? | (1) mother (2) daughter (3) sister (4) other kinship (5) male (99) don't know or can't remember |   |   |   |   |   |

### Ovarian cancer case:

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<td>26) Which relationship degree have you two?</td>
<td>(1) mother (2) daughter (3) sister (4) other kinship (99) don't know or can't remember</td>
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27) Have any primary health care professional asked you or your relatives have had breast cancer or ovarian cancer? | (1) yes (0) no (99) don't remember |   |   |   |   |   |

### About the biopsy

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<td>28) Have the physician done a cut or a puncture to gather lump material into your breast (take a piece of it)?</td>
<td>(1) yes (0) no (99) don't know</td>
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If yes, answer 29

29) Do you know if it was a tumor? | (1) yes, benign (2) yes, malignant (0) no tumor (99) don't know |   |   |   |   |   |

### Clinical Breast Examination - On primary health care it is expected that the physician or the nurse examine your breasts every year. I will make some questions about it.

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<td>30) Have any primary health care professional advised you about the target age to start the breast examination by nurse or physician?</td>
<td>(0) no (1) yes, before 40 years old (2) yes, after 40 years old (3) yes, before 50 years old (4) yes, any age (99) don't know</td>
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31) At least once a year, have been your breast examined by physician or nurse from the primary health care? | (1) yes (0) no (99) don't remember |   |   |   |   |   |

32) Over the past four years, a primary health care professional has touch and /or examined your breast? | (1) yes (0) no (99) don't remember |   |   |   |   |   |

If yes, go to 33. If not or never or don’t remember, jump to question 39

33) In which year has been your breast touch or examined for the last time? | (1) it was in________(specify the year) (99) don't remember |   |   |   |   |   |
Mammography - I'll ask you some questions about the kind of test which a device compresses your breast to take an x-ray called mammography

I. 39) Have any primary health care professional advised you about the target age for the first mammography?
____ (0) no (1) yes, before 40 years old (2) yes, after 40 years old (3) yes, before 50 years old (4) yes, any age (99) don’t remember

If yes, answer 40. If not or never or don’t remember, jump to question 44

I. 40) Over the past four years, has a primary health care professional give you the invitation/request to the mammography?
____ (0) no (1) yes (99) don’t remember (2) never

If yes, go to question 42.1. If not or don’t remember, jump to 43

I. 42.1) Could you tell me the reason of your fault in the test?
____ (0) nothing (1) afraid of it (2) don’t consider it so relevant (3) was not requested (7) other reason (99) don’t remember

I. 42.2) About your no show, what happen?
____ (0) nothing (1) the primary health care service make a new arrangement (2) you did the rebooking (99) don’t remember

I. 43) Over the past four years, did you do the mammography in the public health service annually or ever two years?
____ (0) no (1) yes (99) don’t remember

If you did the mammography in the public health service during the last four years, go to 44. If you not or don’t remember, jump to 54.

If the mammography has been done in the public health service, specify:

I. 44) Over the last four years, when did you do the mammography for the last time?
____ (0) it was in________________________(specify the year) (99) don’t remember

I. 45) What was the mean reason of this test?
____ (0) no (1) breast abnormality (2) age (3) relative breast cancer case (4) screening (5) other reason

I. 46) Which health professional did the request?
____ (0) no (1) physician (2) nurse (99) don’t know

I. 47) How many months did you wait for perform the mammography since it’s request?
____ (0) don’t return (1) < 1 (2) 1|__3 (3) 3|__6 (4) > 6

I. 48) Where did you do the mammography?
____ (0) don’t remember (1) specify the health service name: __________________________

I. 49) After perform this test, how many months did you wait for the return appointment?
____ (0) don’t return (1) < 1 (2) 1|__3 (3) 3|__6 (4) > 6

I. 50) Has been found any abnormality?
____ (0) no (1) yes (99) don’t remember

If some abnormality has been found, go to 51. If not or don’t remember, jump to 56

I. 51) Can you remember this test outcome?
____ (0) no (1) yes, benign (2) yes, suspicious (3) yes, cancer (4) no cancer (99) don’t remember

I. 52) In the face of change, what has been done?
____ (0) nothing (1) other test (2) did not return (3) other decision (99) don’t remember

I. 53) How many months did you wait between this test performance and the final diagnose?
____ (0) don’t return (1) < 1 (2) 1|__3 (3) 3|__6 (4) > 6

If the mammography has not been done in the public health service, specify:

I. 54) Did you do this exam by the private insurance service?
____ (0) yes (99) don’t remember

I. 55) Why didn’t you do this exam in the public health service?
____ (0) no (1) other reason (99) don’t know

Breast ultrasound - Sometimes the physician advice you to perform an exam where a small handheld unit called transducer is gently passed back and forth over the breast. Now, I will ask you about this type of test.

I. 56) Over the past four years, has a primary health care professional give you the request for the breast ultrasound?
____ (0) no (1) yes (99) don’t know (2) never

If yes, answer 57. If not or never or don’t remember, jump to 68

I. 57) Were the breast ultrasound rebooking and if so, why?
____ (0) no (1) yes, because the patient miss the appointment (2) yes, because there was lack of health professional to perform the test (3) yes, because there was some mistake in the schedule (4) yes, because some device was damage (99) don’t remember

I. 58) Over the past four years, did you miss your exam or the return appointment?
____ (0) nothing (1) afraid of it (2) don’t consider it so relevant (3) was not requested (99) don’t remember

If yes, go to question 58.1. If not or don’t remember, jump to 59

I. 58.1) Can you tell me the reason of your fault in this test?
____ (0) nothing (1) the health care service make a new arrangement (2) you did the rebooking (99) don’t remember

I. 58.2) About your no show in this test, what happen?
____ (0) nothing (1) the primary health care service make a new arrangement (2) you did the rebooking (99) don’t remember

I. 59) Over the past four years, did you do the breast ultrasound in the public health service?
____ (0) no (1) yes (99) don’t remember

If the breast USG has been done in the public health service, go to 60. If not or don’t remember, jump to 68

If the breast USG has been done in the public health service, specify:

I. 60) What was the mean reason of this test?
____ (0) don’t remember (1) age (2) big breast (3) breast abnormality (4) the health professional request (5) relative breast cancer case (6) for lump puncture (7) another reason (99) don’t know

I. 61) How many months did you wait for perform the breast ultrasound since it’s request?
____ (0) don’t return (1) < 1 (2) 1|__3 (3) 3|__6 (4) > 6
<table>
<thead>
<tr>
<th>Question</th>
<th>Response Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>62) Where did you do the breast ultrasound?</td>
<td>(1) specify the health service name [GAP] ___________________________ (99) don't remember</td>
</tr>
<tr>
<td>63) After perform this test, how many months did you wait for return appointment?</td>
<td>(1) &lt; 1 (2) 1-3 (3) 3-6 (4) &gt; 6 (0) don't return (99) don't remember</td>
</tr>
<tr>
<td>64) Has been found any abnormality?</td>
<td>(1) yes (0) no (99) don't remember</td>
</tr>
<tr>
<td>If some abnormality has been found, go to 65. If not or don't remember, jump to 70</td>
<td></td>
</tr>
<tr>
<td>65) Can you remember this test outcome?</td>
<td>(1) yes, benign (2) yes, suspicious (3) yes, cancer (4) no cancer (99) don't remember</td>
</tr>
<tr>
<td>66) In the face of change, what has been done?</td>
<td>(1) other test (2) did not return (3) other decision (0) nothing (99) don't remember</td>
</tr>
<tr>
<td>67) How many months did you wait between this test performance and the final diagnose?</td>
<td>(1) &lt; 1 (2) 1-3 (3) 3-6 (4) &gt; 6 (0) don't return (99) don't remember</td>
</tr>
<tr>
<td>If the breast USG has not been done in the public health service, specify:</td>
<td></td>
</tr>
<tr>
<td>68) Did you this exam by the private insurance service?</td>
<td>(1) yes (0) no (99) don't remember</td>
</tr>
<tr>
<td>69) Why you didn't do this exam in the public health service?</td>
<td>(1) there is no specific reason (2) don't consider public health resources good (3) delay in the investigation (4) afraid of it (5) don't consider it so relevant (6) was not requested (7) other reason</td>
</tr>
<tr>
<td>Breast-self examination - To improve the awareness, it is expected that women perform the breast-self examination. Then, I will ask you about your body care</td>
<td></td>
</tr>
<tr>
<td>70) Have any primary health care professional advised you about the target age for start the breast-self examination?</td>
<td>(0) no (1) yes (99) don't know</td>
</tr>
<tr>
<td>71) Are you having a normal period (menstruation)?</td>
<td>(1) yes, regular (2) yes, irregular (0)</td>
</tr>
<tr>
<td>72) Do you do the breast-self examination?</td>
<td>(1) yes (0) no (2) never (99) don't remember</td>
</tr>
<tr>
<td>If yes, answer 73. If not or never or don't remember, jump to 77</td>
<td></td>
</tr>
<tr>
<td>If the breast-self examination has been performed, specify:</td>
<td></td>
</tr>
<tr>
<td>73) How often do you do the breast-self examination?</td>
<td>(1) monthly (2) bimonthly (3) quarterly (4) occasionally</td>
</tr>
<tr>
<td>74) How have you learned to perform it?</td>
<td>(1) TV (2) magazine or pamphlet (3) by health professional (4) other source [GAP] ____________</td>
</tr>
<tr>
<td>75) When do you do the breast-self examination?</td>
<td>(1) any period (2) before menstruation (3) any time after menstruation (4) from 5 to 7 days after menstruation</td>
</tr>
<tr>
<td>76) Have any primary health care professional advised you about how to perform the breast-self examination?</td>
<td>(1) yes (0) no (99) don't know</td>
</tr>
<tr>
<td>If the breast-self examination is not or never been performed, specify:</td>
<td></td>
</tr>
<tr>
<td>77) Why you don't perform the breast-self examination?</td>
<td>(1) don't know how to do it (2) afraid of it (3) don't consider it so relevant (4) another reason</td>
</tr>
<tr>
<td>General actions - some other health education opportunities</td>
<td></td>
</tr>
<tr>
<td>78) Have any health Professional give you an appointment book (Women Agenda) with some notes about your health?</td>
<td>(1) yes (0) no (99) don't remember</td>
</tr>
<tr>
<td>79) Over the last four years, have you been in a meeting about breast cancer?</td>
<td>(1) yes (0) no (99) don't remember</td>
</tr>
<tr>
<td>80) During this time, did you do the Pap smear?</td>
<td>(1) yes (0) no (2) never (99) don't remember</td>
</tr>
<tr>
<td>If yes, go to 81. If not or never or don't remember, ask about hesitation, suggestions or comments.</td>
<td></td>
</tr>
<tr>
<td>81) Over the last four years, have you done this test annually?</td>
<td>(1) yes (2) only once (3) twice (4) in three of these (99) don't remember</td>
</tr>
<tr>
<td>82) In this occasion or in your return appointment, have been your breast examined?</td>
<td>(1) yes (0) no (99) don't remember</td>
</tr>
<tr>
<td>83) In this occasion, have you been advised how to do the breast-self examination?</td>
<td>(1) yes (0) no (99) don't remember</td>
</tr>
<tr>
<td>Do you have any questions, hesitation, suggestions or comments?</td>
<td></td>
</tr>
<tr>
<td>The interviewer notes:</td>
<td></td>
</tr>
</tbody>
</table>