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CHARACTERIZATION OF STRESSORS INVOLVED IN HOSPITALIZATION OF PATIENTS IN CORONARY UNIT

CARACTERIZAÇÃO DOS ESTRESSORES ENVOLVIDOS NA INTERNAÇÃO DE PACIENTES EM UNIDADE CORONARIANA

CARACTERIZACIÓN DE LOS ESTRESORES ENVUELTOS EN LA INTERNACIÓN DE PACIENTES EN UNA UNIDAD CORONARIA

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Objective: to characterize the stressors involved in the hospitalization of patients in a Coronary Care Unit. Method: this is a cross-sectional study, conducted in a university hospital between September and October 2014 with 21 patients using a validated instrument called Environmental Stressor Questionnaire (ESQ). The mean scores were calculated and the values were ranked in decreasing order (from the most to the less stressful). Results: being in pain, fear of death, being unable to fulfill family roles, not being in control of oneself and being stuck with needles were the top stressors in the ranking, with the highest scores. Regarding the intensity of stress, 70% were classified as "not stressful" and "moderately stressful". Conclusion: admission to the coronary care unit was considered a non-stressful or moderately stressful experience. Pain, fear of death and being unable to fulfill family roles were the main stressors in this environment.

Descriptors: Intensive Care Units; Hospitalization; Psychological stress; Cardiology; Critical Care.

Objetivo: caracterizar os estressores envolvidos na internação de pacientes em Unidade Coronariana. Método: estudo transversal realizado em um hospital universitário entre setembro e outubro de 2014, com 21 pacientes, utilizando instrumento validado Environmental Stressor Questionnaire (ESQ). Calculou-se média dos escores e os valores obtidos foram ranqueados em ordem decrescente (mais estressante para o menos estressante). Resultados: sentir dor, ter medo de morrer, estar incapacitado para exercer o seu papel na família, não ter controle sobre si mesmo e ser furado por agulhas ocuparam o topo do ranking dos estressores, apresentando maiores médias. Em relação à intensidade do estresse, 70% foram classificados entre "não estressante" e "moderadamente estressante". Conclusão:

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a internação na Unidade Coronariana foi considerada experiência não estressante ou moderadamente estressante. Sentir dor, sentir medo de morrer, estar incapacitado para exercer o seu papel na família foram os principais fatores estressantes nesse ambiente.

Descritores: Unidades de Terapia Intensiva; Hospitalização; Estresse Psicológico; Cardiologia; Cuidados Críticos.

Objetivo: caracterizar los estresores envueltos en la internación de pacientes en una Unidad Coronaria. Método: estudio transversal, realizado en un hospital universitario, entre septiembre y octubre de 2014, con 21 pacientes, utilizando un instrumento validado llamado Environmental Stressor Questionnaire (ESQ). Se calculó la media de los puntos y los valores obtenidos fueron clasificados en orden decreciente (más estresante para el menos estresante). Resultados: sentir dolor, tener miedo de morir, estar incapacitado para ejercer su papel en la familia, no tener control sobre sí mismo y ser pinchado por agujas ocuparon el top del ranking de los estresores, presentando mayores medias. En relación a la intensidad del estrés, 70% fueron clasificados entre "no estresante" y "moderadamente estresante". Conclusión: la internación en la Unidad Coronaria fue considerada experiencia no estresante o moderadamente estresante. Sentir dolor, sentir miedo de morir, estar incapacitado para ejercer su papel en la familia fueron los principales factores estresantes en ese ambiente.

Palabras clave: Unidades de Terapia Intensiva; Hospitalización; Estrés Psicológico; Cardiología; Cuidados Críticos.

Introduction

The hospitalization process can be considered a stressful experience for patients and may result in physical and emotional destabilization, affecting the homeostasis of the individual[1]. Stress is a situation where the individual is under the action of a stimulus that causes some kind of tension that may induce physiological and psychological responses. Stressors are the factors that cause the stimulus and, depending on the intensity and duration, they can influence the response to stress. They can be classified into internal and external factors. Internal stressors are related to personal characteristics; and external stressors are characterized by external events such as a change of environment, for example[2].

Individuals submitted to a hospitalization process are affected by many factors. They include the temporary removal, risk of death, uncertainty about treatment and about recovery. Moreover, there are limitations in the provision of psychosocial support to such individuals. Patients who experience this situation are subjected to important changes in their lives and they have to develop mechanisms of adaptation[3].

When it comes to admission to the Coronary Care Unit (CCU), a sector that provides intensive care to cardiac patients, the high complexity of equipment, the technology involved in interventions and the own routine may turn the assistance mechanical and superficial. The technology present in this environment generates many forms of stimuli in the patient and may also be a stressor. Other noteworthy stimuli caused by CCUs related to the physical and social environment that can be sources of stress for patients include the arrangement of beds, which are placed next to each other, allowing patients to be aware of what is happening with the patients around them; constant expectation of emergencies; equipment positioned next to the beds with sound and light alarms; presence of artificial and permanent light; lack of windows in most cases, what does not allow patients to follow the evolution of the day; hospitalization of men and women in the same environment, possibly resulting in loss of privacy; discomfort caused by constant monitoring of vital signs and cardiac function, among others[4].

The offer of comprehensive care in a CCU is, therefore, a major challenge for the health team. Given the ambivalence between technology and humanized care, it is important to evaluate whether patients feel supported as they need during the fragile moments of hospitalization[4].

In the case of Acute Myocardial Infarction (AMI), which is the primary diagnosis of most patients treated in CCUs, the disease occurs suddenly and unexpectedly, causing emotional harm to the patients who have to deal with the unknown, fear of dying and physical limitation. The situation can lead to depression and anxiety, worsening the patient's condition and hampering the recovery of health[5-6].

When admitted to a critical care unit, patients experience a break of daily life, usual space and relations, strongly affecting their identity. Because now they are in a new, different and scary environment, as seen by most patients, they need adjust emotionally and physically to the place. This is an exhausting process, full of adjustments and extreme dependence on care, which can make the Intensive Care Unit (ICU) a solitary and frightening environment that may leave numerous negative marks on the patient's life. Many of these marks are related to experiences of having acted recklessly during this process. Many patients need to recover not only from the disease but also from the fact of having become patients[7].

Given the above considerations, the importance of this study comes from the need to know the stressors that affect patients, due to physiological changes, particularly of the cardiovascular system, that are triggered by stress[8]. Knowing the most stressful factors present in CCUs will contribute to promote measures to minimize the negative aspects that can be generated during the hospitalization period, contributing to a comprehensive and humanized care, since the impact of most of the stressors can be reduced by the development of interventions.

This study aimed to characterize the stressors involved in the admission of patients to the Coronary Care Unit.

Method

This is a descriptive cross-sectional study conducted in the Coronary Care Unit of the Clinical Hospital of the Federal University of Minas Gerais (UFMG), Belo Horizonte, Minas Gerais, Brazil.

The Coronary Care Unit was opened in 2010 and is a reference in the AMI care line in the city of Belo Horizonte. It receives Acute Coronary Syndrome (ACS) patients referred from the Unified Health System emergency units of Belo Horizonte (SUS-BH) for treatment, intensive care monitoring and primary and rescue Percutaneous Coronary Intervention (PCI). The CCU also receives cardiac pre-transplant patients, postoperative cardiac surgery patients and patients with other cardiovascular complications such as heart failure. The sector has 18 beds divided into two wards, one with 10 beds and the other with 8 beds. Both gender patients admitted with AMI are referred to the 10-bed ward, which is called coronary ward. Patient can see what happens to the front bed. Regarding the physical structure, the CCU has a bathroom for common use of all patients; no televisions; wall clocks that are visible for all; windows that are sealed due to presence of air conditioning, which allow a partial view from the outside; little natural light and strong artificial light; the color of the walls is clear and the atmosphere is visually clean and pleasant. The room has a fixed time to visits, which may last one hour. The presence of up to four visitors per patient per day is allowed. The team consists of nurses, nursing technicians, physicians, physiotherapists and psychologists, besides social service and spiritual support when needed.

The study was conducted between September and October 2014 with patients who were admitted to the coronary ward and who met the following inclusion criteria: being admitted to the CCU in the period of data collection and have confirmed medical diagnosis of AMI with or without ST-segment elevation; being hospitalized for more than 48 hours; being lucid and oriented, with Glasgow 15 and preserved ability of oral and/or written verbalization; and aged above 18 years. Thus, 21 patients participated in the study, representing a convenience sample.

A questionnaire was used to collect socio-demographic and clinical information of

patients. In order to assess the stressors among patients, the instrument Environmental Stressor Questionnaire (ESQ) was used, the changed version of the Intensive Care Unit Environmental Stressor Scale (ICUESS). This instrument was culturally adapted, tested and validated in Brazil and proved to be a valid and reliable questionnaire with Cronbach's alpha of 0.94, indicating good internal consistency. The ESQ is composed of 50 items evaluated by a Likert-type scale of five points: (0) does not apply, in the case of events not experienced by the patient during the hospital stay; (1) not stressful; (2) moderately stressful; (3) very stressful; and (4) extremely stressful. The *total score* is calculated by the sum of the values assigned by the patient to each item, ranging from 0 to 200 points. Higher values indicate greater stress felt by the patient. The *mean of scores* is calculated for each of the 50 items, and the values obtained are listed in descending order, from most stressful to least stressful. At the end, the patient is requested to indicate the three factors that he considered most stressful out of the list of 50 items. The ESQ also has two open questions about points that the patient would like to include as stressful and a space for free comments[9].

The questionnaire was applied in the CCU, always by the same researcher, approaching the patient in the bed and at times that would not interfere with the routine in the sector and with the resting hours of participants. Screens were used in the box of each respondent during the application of the questionnaire seeking to preserve their privacy and avoid interruptions or aspects that could influence or hinder the achievement of the research objectives.

Data were entered into the Epi Info program version 3.5.4 and descriptive analysis (simple frequency distributions, measures of central tendency – mean and median, measures of variability – standard deviation) were carried out in the Statistical Package for Social Science (SPSS) program, version 17.0.

It is noteworthy that the study followed the ethical principles recommended by Resolution nº 466/2012 of the Ministry of Health[10] and was approved by the Ethics Committee of the UFMG under Opinion nº 781.906. All participants were clearly informed about the objectives of the study on issues relating to privacy, confidentiality and anonymity of the information collected and, after agreeing, they signed the Informed Consent (IC).

Results

Table 1 shows demographic and clinical data of participants. Male patients were the majority, representing 76.2% of respondents. The mean age was 57.6 years, ranging between 43 and 75 years. As for schooling, 66.7% had incomplete primary education and only 9.5% had completed higher education. Regarding employment, 47.6% had no active employment and 52.4% had individual income of one minimum wage. The average length of stay was 4.2 days, ranging from 2 to 6 days. As for the type of treatment received, 20% were subjected only to the diagnostic catheterization, and 80% to angioplasty.

Table 1 – Socio-demographic and clinical data of participants. Belo Horizonte, Minas Gerais, Brazil, 2014 (to be continued)

Variavbles	%	Mean	Standard Deviation	Median	Variation
Age		57.6	8.3	58	43-75
Number of children		3.2	2.4	3	0-10
Gender					
Male	76.2				
Female	23.8				
Schooling					

Table 1 – Socio-demographic and clinical data of participants. Belo Horizonte, Minas Gerais, Brazil, 2014

(conclusion)

Variavbles	%	Mean	Standard Deviation	Median	Variation
Incomplete Primary School	66.7				
Complete Primary School	19.0				
Complete Secondary School	4.8				
Complete higher education	9.5				
Employment bond					
Active	52.4				
Not Active	47.6				
Marital Status					
Single	14.3				
Married	52.4				
Widow/widower	4.8				
Separated/Divorced	19.0				
Common-law marriage	9.5				
Individual income					
1 minimum wage	52.4				
2 minimum wages	23.8				
3 minimum wages	9.5				
4 minimum wages	0.00				
5 or more minimum wages	14.3				
Religious Beliefs					
Yes	95.2				
No	4.8				
Length of Stay		4.20	0.93	4	2-6
2 days	5.0				
3 days	15.0				
4 days	40.0				
5 days	35.0				
6 days	5.0				
Treatment type					
Catheterism	20.0				
Angioplasty	80.0				

Source: Created by the authors.

Table 2 shows the results of the ESQ with respect to stressors. The stress of each patient is represented by the total score. The study found an average score of 63.86, with a variation from 42 to 114 and a standard deviation of 17.57. The mean of the values assigned to items (average scores) was calculated in order to rank the items from the most to the least stressful according to the evaluation of patients. The mean scores obtained from the 50 questions of the ESQ were also synthesized. The mean of 1.28 and standard deviation of 0.65 were found for these values.

The item that got the highest score was "feeling pain", with the value of 2.71. More than one question in the questionnaire received score 0, which indicates that patients did not experience the stressful event related to these items (Table 2).

Table 2 – Ranking of the 50 items of the Environmental Stressor Questionnaire (ESQ) by average scores. Belo Horizonte, Minas Gerais, Brazil, 2014 (to be continued)

Questionnaire items	Rank	Mean	Deviation Standard	Median
Being in pain	1	2.71	1.31	3
Fear of death	2	2.38	1.46	1
Being unable to fulfill family roles	3	2.29	1.35	2
Not being in control of yourself	4	2.24	1.23	2
Being stuck with needles	5	2.14	1.32	1
Not knowing the length of stay in the ICU	6	2.00	1.27	1
Financial worries	7	2.00	1.35	1
Having lights on constantly	8	1.95	1.25	1
Being bored	9	1.95	1.21	1
Nurses and doctors talking to loud	10	1.90	1.19	1
Only seeing family and friends for a few minutes each day	11	1.90	1.27	1
Not being able to move hands or arms because of intravenous lines	12	1.86	1.17	1
Missing husband, wife or partner	13	1.67	1.52	1
Hearing the own heart monitor alarm go off	14	1.67	1.08	1
Having to use oxygen	15	1.62	1.25	2
Not knowing when to expect things to be done	16	1.62	1.00	1
Unable to sleep	17	1.52	1.10	1
Hearing unfamiliar and unusual noises	18	1.43	0.79	1
Receiving treatments you do not know	19	1.43	0.85	1
Having no privacy	20	1.38	0.90	1
Having men and women in the same room	21	1.29	0.63	1
Having nurses use words you cannot understand	22	1.29	0.88	1
Hearing people talk about you	23	1.29	0.76	1
Being aware of unusual smells around you	24	1.29	0.88	1
Uncomfortable bed or pillow	25	1.29	0.76	1
Having your blood pressure taken too often during the day	26	1.24	0.53	1
Listening to the noise and the alarms of the equipment	27	1.24	0.68	1
Having to look at the pattern of tiles on the ceiling	28	1.24	0.75	1
Being in a room which is too hot or cold	29	1.24	0.75	1
Hearing other patients cry out	30	1.19	0.66	1
View serum bags hanging over your head	31	1.19	0.66	1
Being awakened by nurses	32	1.10	0.29	1
Hearing the telephone ring	33	1.05	0.21	1
Frequent examination by doctor or nurse	34	1.05	0.21	1
Having strange machines around you	35	1.05	0.21	1
Having nurses constantly doing things around your bed	36	1.05	0.21	1
Watching treatments being given to other patients	37	1.05	0.21	1
Feeling the nurses are watching the machines closer than they are watching you	38	1.05	0.21	1
Being thirsty	39	1.05	0.21	1
Feeling pressured to consent to treatments	40	1.00	0.00	1
Having the nurse be in too much of a hurry	41	1.00	0.00	1
Fear of AIDS	42	1.00	0.00	1
Not having treatments explained to you	43	0.43	1.09	0
Not knowing what day it is	44	0.38	1.05	0

Table 2 – Ranking of the 50 items of the Environmental Stressor Questionnaire (ESQ) by average scores. Belo Horizonte, Minas Gerais, Brazil, 2014 (conclusion)

Questionnaire items	Rank	Mean	Deviation Standard	Median
Not having the nurse introduce themselves	45	0.19	0.85	0
Being restricted by tubes/lines	46	0.00	0.00	0
Having tubes/probes in your nose and/or mouth	47	0.00	0.00	0
Not knowing what time it is	48	0.00	0.00	0
Not knowing where you are	49	0.00	0.00	0
Not being able to communicate	50	0.00	0.00	0

Source: Created by the authors.

The results indicate that the most stressful factors were being in pain, fear of death, being unable to fulfill family roles, not being in control of oneself and being stuck with needles. Items that scored zero were those that did not apply to the reality of patients and of the studied sector.

Graphic 1 presents the percentage of stressors by category. According to the average score, each item of the questionnaire was divided into four categories: "N/A or not stressful" (average of 0-1); "not stressful to moderately stressful" (1-2); "moderately stressful to very stressful" (2-3); and "very stressful to extremely stressful" (3-4).

Graphic 1 – Percentage of stressors by category of intensity. Belo Horizonte, Minas Gerais, Brazil, 2014

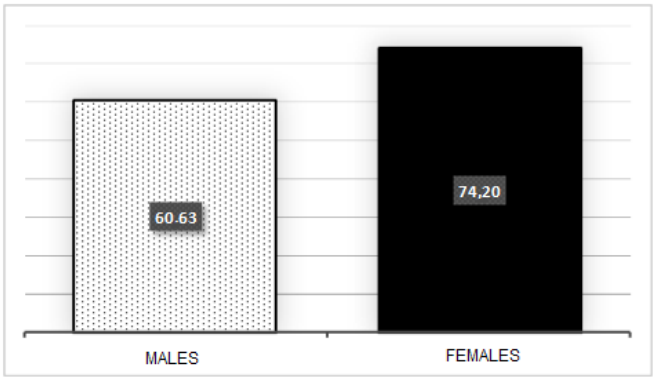
Source: Created by the authors.

Subtitle: N/A = not applicable

According to the graphic, most of the questionnaire items (70%) were classified as "not stressful" and "moderately stressful". No item had an average score above 3 and, therefore, no item was classified as "very or extremely stressful".

The total mean score of stressors by gender was calculated and is represented in Graphic 2. The average for men was 60.6 and for women, 74.2. This indicates that the stress perceived by women was greater than that perceived by men.

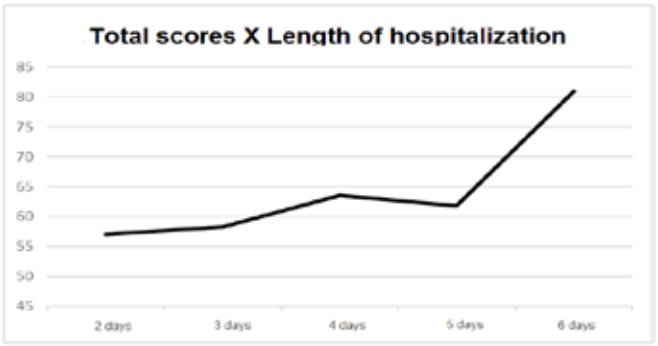
Graphic 2 – Total scores of stressors by gender. Belo Horizonte, Minas Gerais, Brazil, 2014



Source: Created by the authors.

The Graphic 3 shows the average total score observed for patients according to the length of stay. The graph curve shows an increasing trend, indicating that more stress is experienced by individuals with greater number of days of hospitalization.

Graphic 3 – Mean total scores by length of hospitalization. Belo Horizonte, Minas Gerais, Brazil, 2014



Source: Created by the authors.

Discussion

The ICU is a highly complex sector with stressors that may influence the development of anxiety, fear, dependence and neurological disorders such as *delirium*[11].

Among the stressors in this study, "being in pain" was ranked as the most stressful. This has been also found in other studies that evaluated the perspective of patients, families and the nursing staff on the subject[3-4,9]. The pain of infarction was classified by patients as a pain never experienced before or as the worst ever felt, often associated with a feeling of shortness of breath, choking and even suffocation. These patients were in a very vulnerable situation and reported a feeling of fear of dying before the pain[12]. When hospitalized, they had received analgesia and appropriate treatment to remedy this pain identified as unbearable. However, they had been subjected to diagnostic and therapeutic procedures that caused further pain and discomfort, especially when associated with the altered psychological state and the atmosphere of intensive care unit.

The perception of pain is subjective and influenced by cultural, social, psychological and environmental factors. There is no instrument capable of accurately measure pain, such as a thermometer or a scale. Nevertheless, it is possible

to measure pain by means of instruments that take into account the emotional aspect of pain and personal variables[13]. Thus, it is possible to deal with this pain with appropriate medication and with non-pharmacological treatments.

The second most stressful item was "fear of death". This is different from what was found in a study developed in the ICUs of two hospitals in the state of São Paulo, which showed "fear of death" as the 11th stressful item in the ranking[9]. However, the average scores of this item varied between 2 and 3 in the two studies and, therefore, the item was considered moderately stressful to very stressful. The feeling generated by the hospitalization linked to the urgency caused by the AMI brings out the social image associated with the ICU as an environment that relates to the possibility of imminent death[14].

Patients with coronary heart disease face a diagnosis involving an organ that has symbolic significance, i.e. the heart, and may feel insecure about the future, fearing death at any time. The way these patients find to deal with the stress of the diagnosis may influence the course of disease, the adherence to treatment and the adaptation to the new lifestyle. In this sense, a study[15] shows that the multidisciplinary care to patients undergoing interventional procedures in cardiology aiming to clarify their doubts on their symptoms and focusing on the individual and not the disease was effective to reduce the emotional stress and increase expectations of successful treatment.

"Being unable to fulfill family roles" was the third most significant item, what corroborates results of another study[9]. The AMI is an acute condition that requires urgent hospitalization, causing an abrupt break in the individuals' daily living. Suddenly, the individual ceases to work and perform routine activities, breaking the bond with family and friends[16]. This may explain the stress felt by patients of not being able to fulfill their role in the family. Individuals do not have time to adapt to the situation of disease and the need to be hospitalized, and they are unexpectedly removed from their social circle.

"Not being in control of oneself" was characterized 4th most stressful item for the patients in this study. In the ESQ translation work[9], this item had the 28th position in the ranking, but got the same rating of the present study, being considered an item that is moderately to very stressful. In a study conducted in the coronary care unit of a teaching hospital located in the state of São Paulo using the Intensive Care Stressor Scale (EETI), this item was scored as the fifth in the ranking[4]. This can be explained by the characteristics of the patients of this sector. Patients are conscious, oriented and awake, attentive to what happens around them and participating in all matters relating to their treatment. Although not subject to as many invasive procedures as a typical intensive care patient, they are deprived of autonomy, subjected to bed baths, rest and dependence on staff for simple activities such as eating and brushing teeth[17]. The loss of independence can lead the patient to a sense of distress and disability, potentiating their perception of stress, to characterize this item of the ESQ.

"Being stuck by needles" was pointed as the 5th most stressful item in this study and classified as moderately to very stressful, similar to the found in other studies[4,9,11]. This is related to the item "being in pain", as it is a painful and uncomfortable procedure for the patient.

The item "unable to sleep" had the second place in the *ranking* of a study conducted in São Paulo[9] aimed at adapting the ESQ. This is different from what has been found in the present study, where this item had the 18th position and was classified as not stressful. Thus, the results suggest that proper attention has been given to improving the quality of sleep of patients.

It is noteworthy that some items in this study were classified as "not applicable", as was the case of "Being restricted by tubes/lines" and "Having tubes/probes in your nose and/or mouth". This is because the patients analyzed were not subjected to procedures such as intubation, gastric intubation or surgery. This data differs from that found in other studies, which showed that these items are source of stress[9,11]. Other

items that were assessed as not applicable in this study as there are watches that can be viewed by all patients, facilitating their perception of time, were: "Not being able to communicate", "Not knowing where you are", and "Not knowing what time it is".

Further studies in this hospital sector are encouraged. Through the identification of stressors, the implementation of measures to minimize the impact of stress in CCUs will be possible, reducing the negative aspects of hospitalization in patients' lives by means of an integral and humanized care.

Conclusion

We conclude that admission to the studied CCU was considered by most patients as "not stressful" or "moderately stressful" experience (average of items: 1.28). Moreover, it was possible to perceive that "being in pain", "fear of death", "being unable to fulfill family roles", "not being in control of oneself" and "being stuck with needles" were the main stressors in this environment. Noteworthy is that "being in pain" was the most stressful item. Thus, it is necessary to assess pain, considering that pain is the 5th vital sign. This assessment will contribute to the management of pain in order to reduce possible physical and psychological harm to patients.

The assistance of the multidisciplinary team in intensive care must be focused on the care to restore the health of patients, but without leaving aside issues related to humanization, reception and identification of objective and subjective needs of individuals.

Collaborations:

1. conception, design, analysis and interpretation of data: Sílvia Aiala Membrive, Luís Paulo Souza e Souza and Selme Silqueira de Matos;

2. writing of the article and relevant critical review of the intellectual content: Sílvia Aiala Membrive, Luís Paulo Souza e Souza, Miguir Terezinha Vieccelli Donoso, Salete Maria de Fátima Silqueira, Allana dos Reis Corrêa and Selme Silqueira de Matos;

3. final approval of the version to be published: Sílvia Aiala Membrive, Luís Paulo Souza e Souza and Selme Silqueira de Matos.

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