

# Nursing process applied to an elderly with hypertension and chronic kidney disease: a case study

Processo de enfermagem aplicado ao idoso com hipertensão e doença renal crônica: um estudo de caso

Proceso de enfermería aplicado a anciano con hipertensión y enfermedad renal crónica: un caso de estudio

## RESUMO

Objetivo: implementar o Processo de Enfermagem no cuidado a um idoso com Insuficiência Renal Crônica e Hipertensão Arterial Sistêmica no contexto da internação hospitalar. Método: trata-se de um estudo qualitativo, do tipo caso clínico e desenvolvido em uma Enfermaria de Clínica Médica de um hospital de ensino do interior de São Paulo. Utilizaram-se como procedimentos de coleta de dados entrevista, guiada por um roteiro norteador, e exame clínico. Organizaram-se os resultados com base do Processo de Enfermagem. Resultados: Identificaram-se cinco diagnósticos de enfermagem: síndrome do idoso frágil, integridade da pele prejudicada, risco de infecção, conhecimento deficiente e risco de volume de líquidos deficiente. Selecionaram-se as intervenções criando um plano de cuidados individualizado em consideração a disponibilidade pessoal do usuário, os recursos técnicos e tecnológicos no contexto. Conclusão: observou-se que a implementação do Processo de Enfermagem, com apoio da nomenclatura padronizada NANDA-NIC-NOC, possibilitou o desenvolvimento da assistência de Enfermagem alinhada à integralidade do cuidado.

**DESCRIÇÕES:** Hipertensão; Insuficiência Renal Crônica; Relato de caso; Processo de Enfermagem; Assistência Integral à Saúde.

## ABSTRACT

Objective: to implement the Nursing Process in the care of an elderly person with Chronic Renal Disease and Systemic Arterial Hypertension in the context of hospitalization. Method: This is a qualitative study, of the type clinical case and developed in a patient wards of a teaching hospital in the interior of São Paulo. It was used as data collection procedures interview, guided by a guiding script, and clinical examination. The results were organized based on the Nursing Process. Results: Five nursing diagnoses were identified: frail elderly syndrome, damaged skin integrity, risk of infection, deficient knowledge and risk of deficient liquid volume. The interventions were selected creating an individualized care plan considering the user's personal availability, technical and technological resources in the context. Conclusion: It was observed that the implementation of the Nursing Process, with the support of the standardized NANDA-NIC-NOC nomenclature, made possible the development of Nursing assistance aligned to the integrality of care.

**DESCRIPTORS:** Hypertension; Renal Insufficiency, Chronic; Case Reports; Nursing Process; Comprehensive Health Care.

## RESUMEN

Objetivo: implementar el proceso de enfermería en la atención de una persona mayor con Insuficiencia Renal Crónica e Hipertensión Arterial Sistémica en el contexto de la hospitalización. Método: Se trata de un estudio cualitativo, del tipo caso clínico y desarrollado en una sala de clínica médica de un hospital universitario del interior de São Paulo. La entrevista, guiada por un guión orientador, y el examen físico se utilizaron como proceso de recopilación de datos. Los resultados se organizaron en base al Proceso de Enfermería. Resultados: Se identificaron cinco diagnósticos de enfermería: síndrome del anciano frágil, integridad de la piel dañada, riesgo de infección, conocimiento deficiente y riesgo de volumen de líquido deficiente. Las intervenciones se seleccionaron creando un plan de atención individualizado teniendo en cuenta la disponibilidad personal del usuario y sus recursos técnicos y tecnológicos en el contexto. Conclusión: Se observó que la aplicación del Proceso de Enfermería, con el apoyo de la nomenclatura estandarizada NANDA-NIC-NOC, hizo posible el desarrollo de la atención de enfermería alineada con la integralidad de la atención.

**DESCRIPTORES:** Hipertensión; Insuficiencia Renal Crónica; Informes de Casos; Proceso de Enfermería; Atención Integral de Salud.

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**INTRODUCTION**

**T**he constant increase in longevity in Brazil has been a reason for debate in the scientific community, due to the scarcity and/or restrictions of resources destined to this growing demand. In 2010, the elderly represented 8,6% of the Brazilian population, with a forecast of 20% in 2020 and 22,7% in 2050. It is known that this population uses more health services, has more frequent hospitalizations and more occupation time. This fact is correlated with the pattern of diseases commonly presented by the elderly, which are often chronic and multiple, requiring constant monitoring and permanent care. 1-3

Thus, the great challenge for health professionals is focused on improving the provision of care for this population, with the objective of promoting a better quality of life, taking into account their functional capacity; socioeconomic level, psychological status; social interaction, self-care; family support; sociocultural values, process of death and dying, lifestyle, among others. 1-3

Along with this demographic transition reflected in health services, there is the challenge of confronting Chronic Non-Communicable Diseases (NCDs), such as cardiovascular diseases (CVD), chronic respiratory diseases, diabetes mellitus and cancer. It is estimated that, worldwide, due to the aging of the population, the number of people with high blood pressure has increased by 90% over the last four decades. 4

Of these, Systemic Arterial Hypertension (SAH) is discussed as a condition in which blood pressure remains elevated and sustained at levels greater than 140x90

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mm/Hg. It is characterized, for most of its course, asymptomatic, making early diagnosis and treatment difficult. 5-7

Complications of uncontrolled SAH are directly identified as hypertensive heart disease and heart failure, and indirectly, renal failure. Relating to the latter, SAH gradually causes damage to blood vessels, reducing the blood supply to the kidney and other organs, and the high pressure exerted by the blood is also responsible for damaging the nephrons, functional units of the kidneys. Therefore, by reducing the functionality of the nephrons, excess fluid develops in the blood and wastes stop being excreted, consequently, the blood volume in the body increases, contributing to the rise in blood pressure. 8

In turn, Chronic Kidney Failure (CKF) is defined as the irreversible loss of nephron function and if the disorder is not treated, with dialysis or transplantation, it can lead to death from uremia. 9 It is diagnosed through tests performed for at least three consecutive months, the main one being the Glomerular Filtration Rate (GFR) at values below 60ml/ min/ 1,73m<sup>2</sup>. 9-10

Considering the pathophysiological complexity involved in the binomial SAH and CKF, as well as the potential negative repercussions in case of irregular treatment, the assistance to users affected by these pathologies represents a challenge for Nursing. In this sense, the Nursing Process is a central clinical tool, private to nurses and mandatory in their professional practice, which underpins the practice of evidence-based care and organizes the care work of nursing professionals regarding the method and instruments (COFEN No. 358/2009).

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For the present experience, it is speculated how the Nursing Process is configured using a standardized nomenclature for an elderly person with systemic arterial hypertension and chronic renal failure in the context of hospitalization. Faced with this question, the objective is to implement the Nursing Process in the care of an elderly person with Chronic Kidney Failure and Systemic Arterial Hypertension in the context of hospitalization.

## METHOD

This is a clinical case study, with a qualitative character.<sup>12</sup> The study setting used the infirmary of the Medical Clinic of the Hospital das Clínicas of the Faculty of Medicine of Botucatu. This unit has 14 rooms and 40 beds, with an occupancy rate of 87% and acting as a reference for tertiary care for 68 municipalities.<sup>13</sup>

The sample was constituted by a J.S.G. hospitalized in that unit for the treatment of CKF and SAH. Data were collected in six meetings, distributed from November to December 2018, during the supervised curricular internship of the Clinical and Surgical Adult and Elderly Health discipline of the Undergraduate Nursing Course at the Faculty of Medicine of Botucatu.

Data collection procedures were interviews based on a semi-structured script, clinical examinations and consultation of hospital records. The semi-structured interview met the presuppositions of a clinical interview to collect identification data, current complaint and main complaints, current illness, past pathological history, family history, personal and social history, and systems review. With regard to the NP, the interview with the participant is a fundamental step for collecting primary subjective data.

With regard to primary objective data, a comprehensive physical examination was conducted, reviewing all body segments and biological systems through the application of propaedeutic techniques: inspection, percussion, palpation, auscultation. For secondary objective data, information

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was collected from hospital documents (laboratory tests, imaging tests and hospital records).

The theoretical framework for data treatment and analysis met the assumptions of the Nursing Process (COFEN n.º 358/2009).<sup>11</sup> After the procedures for data collection and clinical assessment, an individualized care plan was drawn up using the diagnoses identified in the NANDA International taxonomy (NANDA-I 2018-2020),<sup>14</sup> with interventions from the Nursing Interventions Classification (NIC)<sup>15</sup> for each one. For each specific diagnosis, the results that should be achieved were elaborated according to the Nursing Outcomes Classification (NOC).<sup>16</sup>

The current ethical research procedures were considered<sup>17</sup> with signature of the Informed Consent Form (ICF), based on the approval of the Research Ethics Committee of the Faculdade de Medicina de Botucatu, opinion n.º 4.269.264 and CAAE: 32648720.4.0000.5411.

## RESULTS

It is characterized by J.S.G, 70 years old, male, brown, divorced, catholic, five children and lives alone in a kitnet located in a neighborhood in the southern zone of the researched municipality that has basic sanitation services. An income of around R\$ 1.600,00 was reported. He worked as a bus driver for a period of 50 years until he retired. He attended until the fifth year of elementary school. The family organization and the relational pattern of its members were outlined in Figure 1.

The current complaint is described with the report that, since November 8th, 2018, back pain started evolving into chest pain and great difficulty in walking. The municipality's Mobile Emergency Care Service (SAMU) was called, at the insistence of its neighbors, on the 13th of the same month, which referred him to the emergency room at Hospital das Clínicas. At the entrance to this service, his BP was 210x80mmHg, being diagnosed as hypertensive urgency. Due to the increase in the renal marker creatinine (Table 1), it was decided to perform

Renal Replacement Therapy, using the peritoneal dialysis (PD) method.

Hypertensive emergencies are defined as extremely high blood pressure with risk of target organ damage, 10 which explains the negative outcome of the user's kidney disease. The kidney is a target organ likely to suffer damage from uncontrolled SAH. 6

Table 1 shows a summary of the findings of the clinical examination:

The objective data from laboratory tests were organized and displayed in Table 1, emphasizing the user's clinical evolution during hospitalization in sodium, urea and creatinine tests.

The Nursing Process was conducted, with the processing of collected data, through the validation and grouping, construction and prioritization of Nursing Diagnoses, as shown in Chart 2. The diagnostic selection was a guiding step for the identification of Results and Interventions, through NANDA-NOC 14,16 and NANDA-NIC connections. 14,15

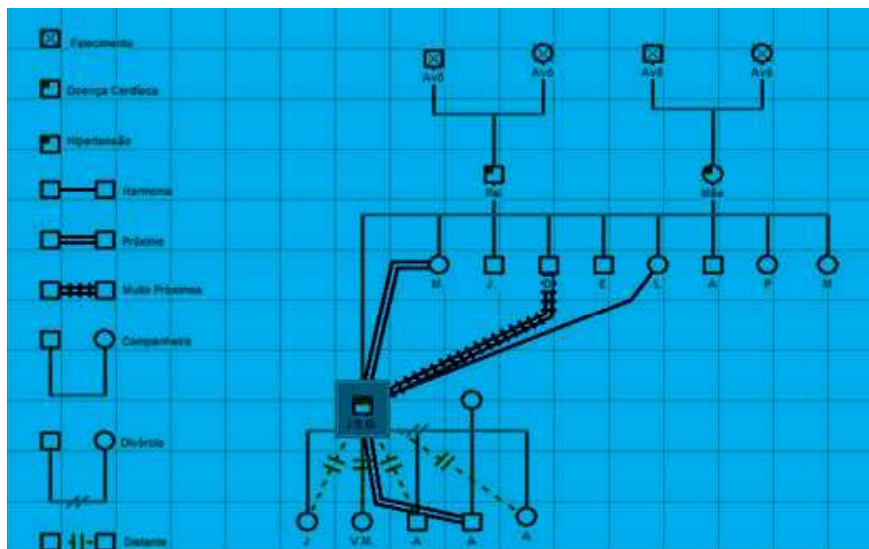
## DISCUSSION

Based on the genogram and the information obtained during the interviews, it was observed that J.S.G. showed a great distance from his family. It was evident that the social support network was only organized with the help of two neighbors, as it is the only one in the family residing in the city. With such health needs, the barriers found to help in the construction of a social and family support network for the user became clear. It was shown that the support network is important in achieving treatment adherence by the user, as it provides emotional support and motivation. 19

CNCDs are listed among the causes that most lead users to seek the health system, with Primary Health Care (PHC) being the one most used by the elderly population. However, the low resolution of PHC is questioned, since its attributes – access, integrality and longitudinality – have been weakened, causing the number of hospitalizations due to PHC-sensitive conditions to increase. 20-22

It faithfully portrays, through the case

Figura 1. Genograma de J.S.G. Botucatu (SP), Brasil, 2018.



Software: Genogram Software - GenoPro.

Table 1. Physical examination findings of J.S.G. Botucatu (SP), Brazil, 2018.

SYSTEMS	DESCRIPTION OF FINDINGS
Head and neck	Conscious, slightly disoriented in time and space. Skin without relevant color change and dry. Normal visual acuity. Ears free of secretions or lesions, normal hearing acuity. Nostrils free of secretions or lesions. Slightly dehydrated oral mucosa, bilaterally palpable carotid pulse. Cervical region without palpable nodules.
Chest: pulmonary and cardiac	Flat chest without alterations, uniformly palpable thoraco-vocal thrills bilaterally, preserved expansibility, without hypersensitivity regions, to percussion, clear pulmonary sound, and MV+ without adventitious sounds on auscultation. Not visible or palpable ictus cordis, 2 rhythmic heart sounds, systolic murmur audible mainly in aortic focus.
Abdomen	Semiglobose. Skin with surgical lesion in the left iliac fossa with an occlusive dressing, without signs of inflammation. Tenckhoff catheter on the left flank for peritoneal dialysis. Hematoma in the right and left iliac fossa. Arterial pulsations and peristalsis not visible on inspection. Audible borborygmus. Normoactive hydro-aerial noises. Tympanic percussion. Abdomen without pain on superficial or deep palpation. Absence of visceromegaly or masses.
Peripheral Vascular	Upper and lower limbs with 2+ pulses, palpable, except popliteal and pedal. No DVT signals. Pain when walking in the unit corridor.

of the user J.S.G., the problem of linking to the PHC. Their hospital admissions are characterized by hypertensive emergencies that would be avoided if there was access to the PHC service and adherence to lifestyle changes or drug treatment. 21

In the data collection, a gap was identified between the cardiovascular diagno-

sis and the evolution of kidney disease, as reported by the user, SAH was detected 30 years ago and during hospital care five years ago, due to a hypertensive emergency, there was a diagnosis of CRF grade III, rapidly progressing to grade V, a period in which there were five hospitalizations due to hypertensive urgencies.

Thus, the importance of the longitudinality of care for users with CNCDS in the context of PHC is discussed. The importance of individuals with SAH or Diabetes Mellitus regularly attending the health service, in order to establish management and control of these diseases, is discussed in a study by Stopa, S.R. et al. Allowing the re-assessment of the user's health conditions,

Table 1. Biochemistry: sodium, creatinine and urea from J.S.G. Botucatu (SP), Brazil, 2018.

	NOV/ 15TH	NOV/ 16TH	NOV/ 17TH	NOV/ 18TH	NOV/ 19TH	NOV/ 20TH	NO- V/21S
UREA	135	133	140	137	142	115	76
SODIUM	_	141	140	131	142	142	138
CREATININE	6,9	7,1	8,0	8,1	7,0	6,6	5,5

Reference values – Urea: 19,0 mg/dl – 42,0 mg/dl, Sodium: 137 mmol/L – 145 mmol/L; Creatinine: 0,80 mg/dl – 1,5mg/dl (Source: Fishback; Fichback, 2016). 18

Table 2 – Individualized Care Plan J.S.G. Botucatu (SP), Brazil, 2018.

Nursing diagnoses	Current and expected results	Care prescription
Frail Elderly Syndrome related to impaired mobility and memory, and unbalanced nutrition; evidenced by muscle weakness, food inappetence and inability to recall information about facts or events.	Development: adult in the third age (0121): Shows of loneliness Current: 2 -> Expected: 5	Encourage greater involvement with established relationships  Identify the family's perception of the situation  Identify support network and explore the strengths and weaknesses of the current relationship network
	Mobility: Walking Current: 3 Expected: 5 Balance Current: 3 -> Expected: 5	Monitor level of awareness and level of orientation  Remove hazards from the environment and modify the environment to reduce hazards and risks.
	Memory: Recall remote information accurately Current: 2 -> Expected: 4	Monitorar a memória recente, alcance da atenção, memória passada, humor, afeto e comportamentos  Monitor recent memory, attention span, past memory, mood, affect, and behaviors  Stimulating memory by repeating the patient's last expressed thought and talking about past experiences as appropriate
	Appetite: Current food intake: 3 -> Expected: 5	Auriculotherapy with mustard seed in the right ear at the Shemen, brainstem, anxiety, subcortex, heart and kidney points. Change weekly, alternating ears.  Monitor caloric and nutritional intake by monitoring dietary intake.
		Carry out a shared nutritional assessment with a professional from the nutrition and dietetics service.

<p>Impaired skin integrity characterized by disruption of the skin surface and related to the PD catheter.</p>	<p>DP Access (1105): Hematoma at the site. Current: 2 -&gt; Expected: 5</p> <p>On-site sensitivity. Current: 2 -&gt; Expected: 5</p>	<p>Promote pain relief or reduction to a comfort level accepted by the patient, through medication and comfortable bed position.</p> <p>Prevent complications in wounds and promote healing by changing the dressing and cleaning the SW.</p> <p>Dressing a dialysis catheter installed in the E flank region, 1x/day after the bath and when necessary. Sanitize with sterile gauze soaked in alcoholic chlorhexidine and occlude with dry gauze. Note the appearance of skin around insertion.</p> <p>Perform aromatherapy associated with massage with Juniperus berri (2%), Origanum marjoram (5%) and Lavender angustifolia (5%) oils in a neutral cream. Apply to lower limbs 1x/day after showering.</p>
<p>Risk of infection characterized by changes in the integrity of the skin and ruptured skin for placement of a PD catheter in the left flank</p>	<p>Risk control: infectious process:</p> <p>Monitoring changes in general health status. Current: 4 -&gt; Expected: 5</p> <p>Practice of actions to promote fluid intake Current: 2 -&gt; Expected: 5</p>	<p>Monitor immunization status, facilitate access to immunizations, and provide immunizations to prevent communicable diseases, through evaluation of the vaccination portfolio.</p> <p>Sanitize, monitor and promote wound healing closed by sutures, through daily inspection of the SW in LIF.</p> <p>Minimize the acquisition and transmission of infectious agents by performing an occlusive and sterile dressing in LIF.</p>
<p>Deficient knowledge characterized by the lack of ability to remember and misinterpretation of information related to their disease (SAH) and their drug treatment, as evidenced by the report of lack of information about their treatment</p>	<p>Information processing: Display of organized thought processes. Current: 3 Expected: 5</p> <p>Concentration: Keeps attention Current: 3 Expected: 5 Stay focused Current: 3 Expected: 5</p>	<p>Strengthen the individual's confidence in their ability to perform a health behavior, through health education and daily team motivation.</p> <p>Develop, implement and evaluate a teaching program placing the patient in a group of people with the same health condition.</p> <p>Develop and make available instructions and learning experiences to facilitate voluntary adaptation of health-promoting behavior through an informational booklet on high blood pressure and chronic renal failure (Figure 4).</p>

Sources: NANDA-I, 201814; Bulechek, Butcher, Dochterman, 201015; Moorhead, Johnson, Mas, Swanson, 201016.

establishing treatment strategies, motivating healthy habits and self-care, as well as

referring the individual to other specialists when necessary. 22

It should be noted that, in addition to the issue of longitudinality, the biomedical

model is exercised in the clinic of different health professionals in their different contexts of action. It is evident that the characteristics of this clinical reasoning disregard the complexity of the factors that comprise health care, especially with regard to psychosocial scenarios, represented in this study by the fragility of the social and family support network. 23-25

It was verified, under the influence of this model, the centralization of drug treatment, the changes in lifestyle, however, it did not meet the minimum set of guidelines for healthy habits, identified in the clinical history: large intake of processed foods and little physical activity, given that his state of health does not allow him to make great efforts.

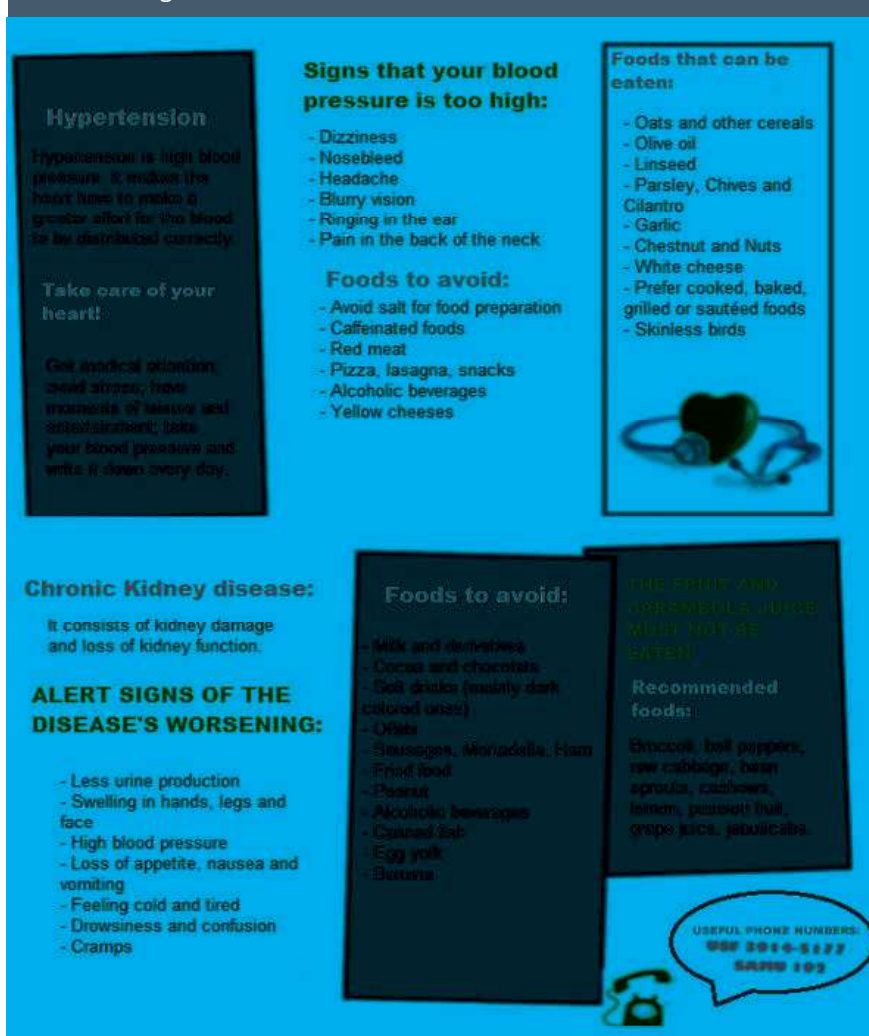
Having collected the subjective and objective data, the Nursing diagnoses were determined based on Taxonomy III - NANDA-I, 14 building the planning and developing the implementation of the interventions described in an individualized care plan.

Priority was given to the Frail Elderly Syndrome diagnosis, identified after finding a set of defining characteristics, relational and associated factors. A survey identified factors associated with the diagnosis: female gender, non-white color, no partner, no education, monthly income below the minimum wage, preexisting morbidities for respiratory diseases and infectious and parasitic diseases. Although only a few conditions characterize the case under discussion, diseases of the genitourinary system were included and were the main reasons for hospitalization. 25

The respective diagnosis is considered a clinical condition associated with age, but that does not occur in all elderly people invariably or in the same way, being the result of a set of alterations in the organic systems, mainly in the musculoskeletal system, generating changes in homeostasis that promote a decrease in functional capacity or disability. 20

The diagnosis Impaired skin integrity and Risk for infection were also attributed, identified during inspection due to the presence of a Tenckhoff catheter in the iliac

Figure 2. Information booklet prepared for J.S.G. as an intervention implemented in the Nursing Process. Botucatu (SP), Brazil, 2018.



fossa region used for Peritoneal Dialysis, with which the user will return to his/her home. Peritonitis is identified as the most frequent complication of PD and, when treated early, it has a good evolution. In order to reduce the risk of catheter infection, the importance of clear and coherent guidance for all necessary care is highlighted. 26

Realizing the weakness shown by the user regarding the understanding of their health status, the diagnosis of deficient knowledge is justified in order to intervene in the aggravating factors for the progression of their CKF and SAH. It was decided to develop a health education strategy with

the aim of helping to understand self-care, avoid future complications and improve their current health status, so, in addition to providing guidance through dialogue with the patient, an informative booklet was created, as shown in Figure 2:

The informative booklet was designed taking into account the results of studies in which health educational interventions carried out in the treatment and monitoring of patients with CNCD in PHC, promote the reduction of complications from these diseases and clarify the risk factors and importance of adherence to treatment, valuing changes in habits, and thus encouraging the autonomy of care. 27-28

It is emphasized as technological innovation, the implementation of two integrative practices, as Nursing interventions: auriculotherapy and aromatherapy. They are aligned as non-invasive ways to promote comfort and stimulate the body towards homeostasis, and in the national context, the country is the leader in offering these modalities in the PHC of the public health network. 29-30

In auriculotherapy, mustard seeds were applied in Shenmen, Brainstem, Subcortex, Heart and Kidney points. The Shenmen point is assigned to help reduce stress, anxiety, pain and tension; the brain stem has a sedative function, calms the spirit and stimulates the mind; subcortex has the function of reducing acute or chronic pain and also has action on the digestive system; heart had the function of treating SAH; kidney stimulates the filtration of blood through the kidneys and treats disorders in the

gynecological and urogenital system. 31

Aromatherapy is defined as a therapy that uses essential oils, in order to balance emotions, improve physical and mental well-being and that acts in different ways in the body, and can be absorbed through inhalation through the airways, by topic use or ingestion. The user of this study applied the essential oils topically, massaging the lower limbs with the compounds incorporated into the neutral cream. 32

## CONCLUSION

It is observed that the implementation of the Nursing Process, with the support of the NANDA-NIC-NOC standardized nomenclature, enabled the development of Nursing care in line with comprehensive care. Such consideration is evidenced by the attribution of nursing diagnoses distributed in different domains of taxonomy,

as well as by the set of prescribed interventions, including the biological, psychological and educational dimensions.

Referring to the pathophysiological and psychosocial complexity of the context discussed in this case study, the Nursing Process represented a methodological tool that guided the performance of nursing team professionals in meeting the different health needs identified by the user. In this sense, it is stated that the investigation was a determining step in this process, since it was carried out in an expanded manner and with the support of various subjective and objective data resources.

Added to the contribution to Nursing care in the hospital context, the applicability of the Nursing Process enhanced learning through the association of theory and practice and reflection-action, promoting clinical reasoning and criticality.

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