

ORIGINAL ARTICLE

Nursing process in the care of women with acute coronary disease

Processo de enfermagem direcionado às mulheres com doença coronariana aguda

Proceso de enfermería en mujeres con enfermedad coronaria aguda

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Abstract

Objective: to describe the application of the nursing process directed at women with acute coronary disease based on the Medium-Range Theory for Nursing in Cardiovascular Rehabilitation. **Method:** This is an intervention study conducted on 14 female patients with acute coronary disease admitted to a cardiology hospital in Ceará, Brazil, between October 2020 and January 2021. **Results:** Twelve priority nursing diagnoses were identified, the most common being anxiety, fear, fatigue, and impaired physical mobility. The planned nursing interventions were based on the development of a care plan that involved a degree of goal achievement so that these women could improve their outcomes. After applying the interventions, there was a reduction in the listed needs. **Conclusions:** The application of the theory made it possible to broaden the perspectives on each woman's cardiac recovery and allowed for interventions with activities aimed at the physical, social, and psychological cardiovascular rehabilitation of these women.

Descriptors: Cardiovascular Diseases; Cardiac Rehabilitation; Women's Health; Nursing Theory; Nursing.

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Resumo

Objetivo: descrever a aplicação do processo de Enfermagem direcionado às mulheres com doença coronariana aguda fundamentado na Teoria De Médio Alcance Para Enfermagem em Reabilitação Cardiovascular. **Método:** trata-se de uma pesquisa intervenção, realizada em 14 pacientes com doença coronariana aguda do sexo feminino, internadas em um hospital cardiológico no Ceará, nos meses de outubro de 2020 a janeiro de 2021. **Resultados:** Foram identificados doze diagnósticos de Enfermagem prioritários sendo os mais incidentes: ansiedade, medo, fadiga e mobilidade física prejudicada. As Intervenções de Enfermagem planejadas foram pautadas no desenvolvimento de plano de cuidado que envolvesse um grau de obtenção de meta, para que essas mulheres conseguissem melhorar seus resultados. Após aplicação das intervenções, houve redução das necessidades elencadas. **Conclusões:** a aplicação da Teoria possibilitou ampliar os olhares para a recuperação cardíaca de cada mulher e permitiu intervir com atividades direcionadas para a reabilitação cardiovascular física, social e psicológica dessas mulheres.

Descritores: Doenças Cardiovasculares; Reabilitação Cardíaca; Saúde da mulher; Teoria de Enfermagem; Enfermagem.

Resumen

Objetivo: describir la aplicación del proceso de enfermería dirigido a mujeres con enfermedad coronaria aguda basado en la Teoría de Alcance Medio para Enfermería en Rehabilitación Cardiovascular. **Método:** se trata de una investigación de intervención, realizada en 14 pacientes con enfermedad coronaria aguda del sexo femenino, ingresadas en un hospital cardiológico en Ceará, entre octubre de 2020 y enero de 2021. **Resultados:** Se identificaron doce diagnósticos de enfermería prioritarios, siendo los más frecuentes: ansiedad, miedo, fatiga y movilidad física reducida. Las intervenciones de enfermería planificadas se basaron en el desarrollo de un plan de cuidados que implicaba un grado de consecución de objetivos, para que estas mujeres pudieran mejorar sus resultados. Tras la aplicación de las intervenciones, se redujeron las necesidades enumeradas. **Conclusiones:** la aplicación de la teoría permitió ampliar la perspectiva sobre la recuperación cardíaca de cada mujer e intervino con actividades dirigidas a la rehabilitación cardiovascular física, social y psicológica de estas mujeres.

Palabras clave: Enfermedades Cardiovasculares; Rehabilitación Cardíaca; Salud de la Mujer; Teoría de Enfermería; Enfermería.

INTRODUCTION

Given that the incidence of Cardiovascular Diseases (CVD) in women is increasing, accounting for 1/3 of female deaths worldwide, with approximately 8.5 million deaths per year, studies and practices focused on this population are necessary.^{1,2}

Understanding and seeking studies aimed at reducing these numbers is relevant

because women have smaller arteries compared to men, which makes atherosclerosis more susceptible to obstructing blood vessels. Furthermore, with the onset of menopause, estrogen production decreases; estrogen is a vasodilating hormone that helps prevent the accumulation of LDL and facilitates the production of HDL.³

Complementarily, there is the social



factor, which highlights a change in women's habits, behaviors, and lifestyles, especially after the 1960s, a decade strongly marked by women's entry into the labor market.³

Considering this scenario, Nursing stands out as playing a fundamental role within the interdisciplinary scope of care directed at this population, especially after the diagnosis of CVD, in the Cardiovascular Rehabilitation process. Cardiovascular Rehabilitation (CR) is a set of multidisciplinary activities that encompass physical, nutritional, clinical-psychosocial aspects and lifestyle changes, necessary to ensure that people with Cardiovascular Diseases (CVD) have optimal physical, mental and social conditions, allowing them, through their own means, to live as normally as possible in society.^{4,5}

To perform care actions, nurses have tools such as the Nursing Care Systematization (SAE) and the Nursing Process (PE) provided for in the normative resolution of the profession in Brazil. According to COFEN Resolution No. 358/2009, the SAE is the way to organize professional work in terms of method, personnel, and instruments, making the operationalization of the PE possible. The SAE is implemented through the PE, which is a methodological instrument that guides professional nursing care and the

documentation of professional practice.⁶

To support the implementation of this care process, there are nursing theories, which are considered sources that underpin clinical care practices and are suggested for the care process, given that the nursing process needs theoretical support to underpin all stages, as recommended by COFEN Resolution No. 358/2009.

Nursing theories emerge in this context as a source of theoretical knowledge to support clinical nursing practice, among them cardiovascular nursing, where the Middle-Range Theory of Nursing for Cardiovascular Rehabilitation (MTN-CVR) stands out. Its purpose is to contribute to the nursing care implemented for patients who, due to a cardiovascular event, need to be encouraged to adopt positive coping mechanisms in the cardiovascular rehabilitation process, so that they adapt to their new life condition, thus rehabilitating themselves physically, psychologically, and socially.⁷

Considering the specific nature and vulnerability of women's health, and the increasing morbidity and mortality from cardiovascular disease in this population, the need for research and discussion in this very specific area is further reinforced.

In this context, the following guiding question arose for the present investigation: What is the contribution of applying the PE,



based on the TMA Enf-RCV, as an intervention for the rehabilitation of women who have suffered acute coronary artery disease?

Thus, the objective is to describe the application of the nursing process directed at women who have suffered acute coronary artery disease, based on the Middle-Range Theory for Cardiovascular Rehabilitation Nursing.

METHOD

This is an intervention study conducted in three inpatient units, ward type (B, C and G), of the Dr. Carlos Alberto Studart Gomes Hospital, in the city of Fortaleza, Ceará, during the period from October 2020 to January 2021.

The study population consisted of female patients admitted to the aforementioned inpatient units. Sampling was done using a purposive approach, which involves selecting cases that meet predetermined parameters, thus comprising 14 women.⁸

The sample included female patients who had suffered acute coronary artery disease, treated clinically, hemodynamically, or surgically during the months of data collection, and who were over 18 years of age and able to maintain a conversation according to the Mini-Mental State Examination (MMSE) protocol.

Patients who presented a clinical impediment to conversation were excluded from the sample, in order to collect the information necessary for the study.

Meetings were held with each participant to complete the stages of the nursing process. Initially, contact was made with the nurses in the sector to identify the target population. Next, the research objectives were presented to the patients, and they were invited to participate. The women who agreed to participate did so by signing the Informed Consent Form. A questionnaire-type research instrument was used to collect personal, social, and health information from the participants. Also at this time, a physical examination focusing on the cardiovascular system was performed on all participants.

On this same occasion, an instrument from this scale was used, adapted from defining characteristics related to the nursing diagnosis of Anxiety, present in the Nursing Process, was used as a way to measure the diagnosis. This instrument was applied at two points in time to analyze the level of anxiety: first, as baseline information before the implementation of nursing interventions for anxiety; and again after their implementation. The aim was to evaluate the signs and symptoms of anxiety before and after the proposed interventions, using the developed scale, the discourse,



and the behavior of the interviewees.

In the second phase, clinical reasoning took place to identify the needs of each participant and to list Nursing Diagnoses (ND), Rehabilitative Care Planning, and Rehabilitative Nursing Interventions, using the NANDA International taxonomy, Nursing Outcomes Classification (NOC), and Nursing Interventions Classification (NIC), respectively.⁹⁻¹¹

The third phase of the investigation was characterized by the implementation of the planned Nursing Interventions, aimed at the physical, social, and psychological rehabilitation of the women studied. The interventions were based on the concepts, assumptions, and propositions of the TMA Enf-RCV.⁷

In the fourth stage, the effectiveness of the proposed interventions implemented in the physical, social, and psychological cardiovascular rehabilitation process of the participants was evaluated, classifying them as total rehabilitation, partial rehabilitation, or no rehabilitation, according to the needs identified in the patient.

Descriptive analysis was used for the independent variables (age, family income, and years of education) and dependent variables (marital status, employment status, and comorbidities).

This study respected ethical aspects,

in accordance with Resolution No. 466/2012 of the National Health Council (CNS), having been submitted to and approved by the Ethics Committee of the State University of Ceará with opinion number 4.179.297, as well as being analyzed and approved by the Ethics Committee of the Hospital de Messejana Dr. Carlos Alberto Studart Gomes, under CAAE 87213318.4.0000.5039.

RESULTS

When characterizing the social and demographic profile of the study participants, regarding age range, participants between 61-70 years old predominate with seven women (50%), followed by the 41-50 age range with four women (29%) and 51-60 years old with three women (21%). When analyzing these women by marital status, 64% (nine) of the women were married or in a stable union, while 36% (five) were distributed among single, widowed, and divorced.

Regarding the level of education, the majority of the women were illiterate, eight of them (57%), which made it more difficult to carry out some interventions and created a greater demand for assistance from them. Additionally, 29% (four) of the women had primary education and 14% (two) had secondary education, and none of them had higher education.



Through the investigation, it was found that 100% of the women followed a religion, with 86% (12) of them practicing Catholicism and 14% (two) Protestantism. Through the women's spirituality, it was possible to identify desires and needs in relation to closeness with God and, with this, interventions related to spirituality were outlined.

Regarding family income, it was observed that most women earn between

one and two minimum wages (64%), while 29% of the sample had an income of up to one minimum wage and only 7% had an income greater than two minimum wages. Of the 14 women who made up the sample, eleven were from Fortaleza or the metropolitan region and three came from the interior of the state.

Regarding the clinical characteristics of the study participants, see Table 1.

Table 1 - Characterization of the sample regarding clinical profile and risk factors associated with illness. Fortaleza-CE, 2021

Clinical data		N	%
Previous hospitalizations	None	4	29.0
	1	2	14.0
	2	7	50.0
	3 or more	1	7.0
Previous treatments	IAM	1	7.0
	DM/HAS	9	64.0
	Others	1	7.0
	None	3	22.0
Smoking history	Yes	1	86.0
	No	2	14.0
History of alcoholism	Yes	9	64.0
	No	5	36.0

Source: Authors.

Chart 1 below presents the needs identified according to Roy's adaptive modes: physical-physiological, self-

concept identity, interdependence, and role performance.



Chart 1 - Needs identified according to Roy's adaptive modes: physical-physiological, self-concept identity, interdependence, and role performance. Fortaleza-CE, 2021

Physical-physiological mode	-Self-care deficit for feeding characterized by impaired ability to feed oneself acceptably related to fatigue; -Self-care deficit for bathing characterized by impaired ability to access the toilet related to weakness; - Self-care deficit in dressing characterized by impaired ability to put on each item of clothing related to fatigue; -Impaired physical mobility characterized by reduced gross motor skills related to activity intolerance; - Fatigue characterized by impaired ability to maintain usual routines related to stressors;
Self-concept identity mode	-Fear characterized by a feeling of apprehension related to an unfamiliar setting; - Anxiety characterized by worries about changes in life events that threaten the current situation. -Feelings of helplessness characterized by frustration regarding the inability to perform previous activities related to ineffective coping strategies; -A disposition toward enhanced spiritual well-being characterized by expressing a desire to increase acceptance;
Paper function mode	-Ineffective activity planning characterized by preoccupation with a task to be undertaken related to insufficient social support; -Ineffective role performance characterized by a change in the ability to resume the role related to an insufficient support system;
Mode of interdependence	Dysfunctional family processes characterized by an inability to meet the emotional needs of its members, related to ineffective coping strategies.

Source: Authors.

With the application of the Nursing process, in the needs assessment stage, the most frequent priority Nursing diagnoses stand out, namely: anxiety, fear, fatigue, and impaired physical mobility. For all identified diagnoses, interventions were

designed based on the concepts and assumptions of the TMA Enf-RCV, using the Nursing Interventions Classification (NIC) as a guiding basis, and were distributed in the table following Roy's adaptive modes: physical-physiological,



self-concept identity, interdependence, and role performance. Following the clinical judgment process of diagnostic

reasoning, a care plan was developed, highlighting interventions according to Roy's adaptive modes.

Table 2- Interventions implemented according to Roy's adaptive modes: physical-physiological, self-concept identity, interdependence, and role performance. Fortaleza-CE, 2021

Physical-physiological mode	1. Encourage the patient to feed themselves orally. 2. Inform the patient and caregiver about elevating the head of the bed during mealtimes. 3. Maintain the head of the bed elevated at 30°. 4. Create a pleasant environment during mealtimes. 5. Provide assistance until the patient is fully capable of self-care. 6. Help the patient accept their dependency needs. 7. Encourage the patient to perform normal activities of daily living according to their level of ability. 1. Encourage ablution or showering, when assessed and possible. 2. Provide assistance until the patient is fully capable of self-care. 3. Help the patient accept their dependency needs. 4. Encourage the patient to perform normal activities of daily living according to their level of ability. 5. Teach parents/family members to encourage independence, intervening only when the patient is unable to perform tasks. 6. Establish a routine for self-care activities. 1. Provide assistance until the patient is fully capable of self-care. 2. Help the patient accept their dependency needs. 3. Encourage the patient to perform normal activities of daily living according to their level of ability. 4. Teach parents/family members to encourage independence, intervening only when the patient is unable to perform tasks. 5. Establish a routine for self-care activities. 1. Assist the person in standing and walking. 2. Guide the patient and caregiver on mobility. 3. Determine the person's degree of dependence. 4. Assist the person in sitting on the edge of the bed for postural management. 5. Encourage independent ambulation, if indicated.
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	1. Identify factors that cause fatigue. 2. Provide guidance on breathing techniques. 3. Recommend light to moderate physical exercise if indicated. 4. Monitor activity tolerance. 5. Provide assistance until the person is fully capable of performing autonomous self-care.
Self-concept identity mode	1. Assist the person in identifying situations that cause fear. 2. Assess the person's knowledge about the disease and treatment. 3. Reinforce communication about the disease and treatment. 4. Provide explanations about the care to be taken. 5. Perform auriculotherapy. 1. Teach the patient to recognize reality by gathering information about the situation and making contingency plans. 2. Actively involve the patient in their own care. 3. Identify barriers to effective communication. 4. Provide guidance on procedures, including sensations the person may experience during procedures. 5. Assess the person's knowledge about the disease and treatment. 6. Reinforce communication about the disease and treatment. 7. Provide explanations about the care to be performed. 1. To help the patient identify barriers and attitudes that hinder growth or self-discovery. 2. To develop a care plan that involves a degree of goal achievement, starting from the simplest to the most complex. 1. Encourage participation in devotional services, retractions, and special prayer/study programs. 2. Promote the use of spiritual celebrations and rituals;
Paper function mode	1. Develop a care plan that involves a degree of goal achievement, starting from the simplest to the most complex; 1. Develop a care plan that involves a degree of goal achievement, starting from the simplest to the most complex. 2. Identify possibilities for role development. 3. Outline role development strategies according to the person's new reality.



Mode of interdependence	1. Identify the level of family support. 2. Involve family/significant others/friends in care and planning. 3. Identify the capabilities of family members to be involved in the patient's care. 4. Encourage family members and the patient to assist in developing a care plan, including expected outcomes and the implementation of that plan. 5. Offer the necessary support to family members so that they can make informed decisions.
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SourceThe author herself

Following the implementation of these interventions, a new data collection was carried out, focusing on evaluating the effect of the rehabilitation interventions in women with DCA.⁷

Alongside the clinical judgment process of diagnostic reasoning, the expected results were listed according to Roy's adaptive modes.

Table 3 - Expected results according to Roy's adaptive modes: physical-physiological, self-concept identity, interdependence, and role performance. Fortaleza-CE, 2021.

Physical-physiological mode	Self-care for improved nutrition; Self-care for effective bathing; Self-care for improved dressing; Improved physical mobility; Improved fatigue;
Self-concept identity mode	Improved fear; - Reduced anxiety; - Reduced feelings of helplessness; Improved spiritual well-being;
Paper function mode	- Activity plan established; Improved paper performance;
Mode of interdependence	Improved family processes.

Source: Author.

After the interventions were implemented, based on the expected results, a final evaluation process was necessary, obtaining results as presented in Table 2.



Table 2 - Evaluation of Nursing interventions in total, partial, or non-rehabilitation rehabilitation. Fortaleza-CE, 2021.

PATIENT	NUMBER OF NURSING DIAGNOSES		FINAL EVALUATION
	BEFORE THE INTERVENTIONS	AFTER INTERVENTIONS	
P1	10	1	Full rehabilitation
P2	8	1	Full rehabilitation
P3	12	10	No rehabilitation
P4	6	0	Full rehabilitation
P5	6	0	Full rehabilitation
P6	7	1	Full rehabilitation
P7	8	1	Full rehabilitation
P8	11	2	Full rehabilitation
P9	4	0	Full rehabilitation
P10	10	6	Partial rehabilitation
P11	4	0	Full rehabilitation
P12	7	1	Full rehabilitation
P13	9	2	Full rehabilitation
P14	12	7	Partial rehabilitation

Source: Author.

Based on this assumption, it can be observed that twelve (86%) women achieved full rehabilitation based on the diagnoses listed in the second phase of the research. We also found that two (14%) women underwent partial rehabilitation, noting that they still had some diagnoses that could not be resolved with the interventions outlined in the care plan.

DISCUSSION

The women participating in the study showed similarities in socioeconomic and demographic profiles to regional and national studies, regarding aspects such as age range, education, income, and religion. It is noteworthy that being over 55 years old is a risk factor for the development of CVD, and that the prevalence in this population is over 60 years old.¹²

In addition, regarding the level of



education, it is noted that the average overall score of the population with less than 4 years of schooling is higher than the score of individuals with more than 4 years of schooling in adults of both sexes, a fact that makes therapeutic management difficult, requiring educational technologies that facilitate the care process.¹³ Although CVD is increasing in young women, systematic assessment of CVD risk in women <50 years of age and men <40 years of age, without known CVD factors, is not recommended in the guidelines.¹⁴

Regarding religiosity, it is considered a component of human life, as it influences social and cultural interactions and the psychological dimension. Faith in God emerges as something indispensable for overcoming illness, a phase marked by fear, anxiety, and stress.¹⁵

Regarding income, a cross-sectional study conducted with women who presented with DCA corroborates the findings of the present research, as they had a monthly income of one to two minimum wages and related these figures to marital status, a relationship also found in this investigation.¹⁶

Regarding the most frequent priority Nursing diagnoses, it is known that anxiety is linked to feelings of fear, tension, and danger, being triggered by contact with something new or in unexpected or

unknown situations, as is the case when experiencing a DCA.¹⁷ Women who presented the diagnosis of fear and/or anxiety reported being afraid and anxious because of the surgical procedure, returning home, not being able to return to work, and everything that was to come with the new routine after the DCA diagnosis.

Therefore, goals are set with the aim of improving and/or reducing such feelings, enabling the dissemination of information about the diagnosis and treatment, as well as all the procedures to be performed, in order to reduce this tension in women.

It is important to highlight the role of the nurse in working with the multidisciplinary team to assess each woman's tolerance to physical activity, considering that the main objective of cardiovascular rehabilitation (CR) with an emphasis on physical exercise is to improve the components of physical fitness. Thus, CR should provide the highest levels of physical fitness achievable, in order to reduce the risk of cardiovascular events and promote all the other benefits to be gained from the regular practice of physical exercise, culminating in a reduction in overall mortality.⁵ Regarding impaired physical mobility, which is defined as a limitation in the independent and voluntary movement of the body or one or more extremities, this relates to the clinical



condition experienced by the woman. The expected results are linked to improving this behavior through assistance and guidance regarding ambulation or any other activity performed.

Regarding fatigue, defined as the oppressive and prolonged feeling of exhaustion and diminished capacity to perform physical and mental work at the usual level⁹, it relates to the clinical picture the patients were experiencing. Because it is a subjective phenomenon, there is the possibility of misinterpretations in the diagnosis of fatigue. The difficulty in distinguishing between activity intolerance and fatigue is especially important in the care of patients with chronic pain.

Nursing can assist in managing fatigue with interventions aimed at improving the patient's endurance capacity, including: health assessment, nutritional management, prescribed activity/exercise, prescribed diet, setting mutual goals, identifying risks, increasing sleep, and promoting exercise.¹⁸ Thus, goals are presented to improve these sensations, with interventions directed at health education focused on the clinical aspects of the illness itself.

In the final assessment, regarding the physical aspects, it was possible to observe a reduction in diagnoses when comparing before and after the interventions; however,

it is worth noting that a longer period of time is necessary between stimulation and education for clinical improvement to be observed. In this context, it is known that there are favorable effects of cardiovascular rehabilitation, with an emphasis on physical exercise, including meta-analyses of randomized clinical trials, which demonstrate significant reductions in cardiovascular and overall morbidity and mortality.¹⁹

In the social sphere, good results were also obtained, considering the involvement of the family and support network throughout this process. Based on the evaluation of the interventions, it was possible to observe that nursing rehabilitation interventions provide positive effects on the cardiovascular rehabilitation process.

The importance of the multidisciplinary team working for the common good is also evident, and this was justified in the resolution of diagnoses in the social sphere, given that Nursing had to contact other professionals to acquire information and pass it on to the women, such as the social worker, for example.

In terms of psychological aspects, a reduction in diagnoses was also observed when comparing before and after the interventions. Thus, it is important to reinforce that cardiovascular rehabilitation



is indicated in all cases of coronary artery disease (CAD), being considered useful and effective when it is centered not only on physical exercise but also when the person is accompanied by educational content, management of risk factors, and psychological counseling.⁵

In the meantime, the nurse's role in the cardiovascular rehabilitation process involves providing, promoting, maintaining, and restoring comfort, whether psychological, physical, or social. However, this practice is not effectively seen within the nursing team in the health service, hence the importance of applying theories focused on this rehabilitation.²⁰

Finally, it is clear that the final findings of the nursing process were positive, since, in general, the participants performed better with the implementation of the interventions, based on the use of the TMA Enf-RCV, when compared to the beginning of the study, which reinforces and proves the effectiveness of the theory for the rehabilitation of women with acute coronary artery disease.

CONCLUSIONS

The care process directed at women with coronary artery disease, based on the TMA Enf-RCV (Technical Assistance for Women with Cardiovascular Disease),

enabled the implementation of rehabilitative interventions, which provided improvements in the health status of the women studied, using the standardized language system NANDA, NIC, and NOC.

Therefore, it is crucial to promote initiatives to increase awareness of the importance of cardiovascular health throughout a woman's life. Furthermore, it is essential to better understand local disparities in women's cardiovascular health in order to define public policies and healthcare, reduce gaps, and promote gender equity in Brazilian healthcare.

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