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REVIEW

Nursing diagnosis in adult patients with cardiovascular conditions: an integrative literature review

Diagnósticos de enfermagem em pacientes adultos com condições cardiovasculares: revisão integrativa da literatura

Diagnóstico de enfermería en pacientes adultos con condiciones cardiovasculares: una revisión integrativa de la literatura

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ABSTRACT

Objective: To identify the nursing diagnosis in studies carried out with adult patients diagnosed with cardiovascular conditions. **Methods:** This is an integrative literature review carried out in the databases VHL, BDENF, CINAHL Database, PubMed, SciELO, and ScienceDirect, using the descriptors "nursing diagnoses" and "cardiovascular disease". **Results:** Sixteen scientific articles published from 2004 to 2020 were found, most in Portuguese (n=11). In regard to the types of study, most researches were descriptive (n=14). The discussion of the nursing diagnosis was based on the Standardized Language System of the NANDA-I taxonomy, used in most researches. Regarding the evidence level, the studies were classified as level IV. Four studies stated to use Nursing Theories, in most cases, the Dorothea Orem's Self-Care Theory (n=2). The most frequent nursing diagnosis among the studies was ineffective breathing pattern (n=5). **Conclusion:** New studies about nursing diagnoses targeted at cardiovascular diseases, using nursing theories, must be carried out to provide a better scientific support for the practice of nursing.

Descriptors: Nursing Diagnosis. Nursing Theory. Cardiology. Nursing Process.

RESUMO

Objetivo: Identificar os diagnósticos de enfermagem em estudos realizados com pacientes adultos que possuem diagnóstico clínico de condições cardiovasculares. **Métodos:** Trata-se de uma pesquisa de revisão integrativa da literatura conduzida nas bases de dados BVS, BDENF, CINAHL Database, PubMed, SciELO e ScienceDirect, com os descritores "diagnósticos de enfermagem" e "doença cardiovascular". **Resultados:** Obtiveram-se dezesseis artigos científicos publicados entre os anos de 2004 e 2020, publicados em sua maioria no idioma português (n=11). Considerando o tipo de estudo, a maioria das pesquisas foi enquadrada como descritiva (n=14). Para a abordagem dos diagnósticos de enfermagem, teve-se como base o Sistema de Linguagem Padronizada da taxonomia da NANDA-I, utilizado na maioria das pesquisas. Quanto ao nível de evidência, os estudos foram classificados como nível IV. Quatro estudos referiram à utilização de Teorias de Enfermagem, com maior frequência de uso da Teoria do Autocuidado de Dorothea Orem (n=2). O diagnóstico de enfermagem mais frequente entre os estudos foi padrão respiratório ineficaz (n=5). **Conclusão:** Novos estudos acerca da realização de diagnósticos em enfermagem voltados às doenças cardiovasculares, com a utilização de teorias de Enfermagem, precisam ser conduzidos para proporcionar maior embasamento científico à prática de enfermagem.

Descritores: Diagnóstico de enfermagem. Teoria de Enfermagem. Cardiologia. Processo de Enfermagem.

RESUMÉN

Objetivo: Identificar diagnósticos de enfermería en estudios realizados con pacientes adultos que tienen diagnóstico clínico de condiciones cardiovasculares. **Métodos:** Se trata de una revisión integrativa de la literatura realizada en las bases de datos BVS, BDENF, CINAHL Database, PubMed, SciELO y ScienceDirect, con los descriptores "diagnósticos de enfermería" y "enfermedad cardiovascular". **Resultados:** Se publicaron dieciséis artículos científicos entre 2004 y 2020, en su mayoría publicados en portugués (n=11). Considerando el tipo de estudio, la mayoría de los estudios fueron clasificados como descriptivos (n=14). Para abordar los diagnósticos de enfermería se utilizó el Sistema de Lenguaje Estandarizado de la taxonomía NANDA-I, utilizado en la mayoría de las investigaciones. En cuanto al nivel de evidencia, los estudios fueron clasificados como nivel IV. Cuatro estudios se refirieron al uso de las Teorías de Enfermería, con mayor frecuencia de uso de la Teoría del Autocuidado de Dorothea Orem (n=2). El diagnóstico de enfermería más frecuente entre los estudios fue patrón respiratorio ineficaz (n=5). **Conclusión:** Es necesario realizar nuevos estudios sobre la realización de diagnósticos de enfermería dirigidos a las enfermedades cardiovasculares, utilizando las teorías de Enfermería, para brindar mayor base científica a la práctica de enfermería.

Descriptores: Diagnóstico de Enfermería. Teoría de Enfermería. Cardiología. Proceso de Enfermería.

INTRODUCTION

Cardiovascular diseases (CVD) are classified as chronic-degenerative pathologies[1,2] and considered to be a public health issue with high rates of hospitalization and hospital costs[3], in addition to decreased quality of lie or death of the patient. They are one of the main causes of death in Brazil and in the world, with a mean of 383,961 deaths in Brazil in 2017, [4], and an estimated 23 million deaths in 2030.[5] Among CVDs, the ones that stand out are coronary syndromes, unstable angina, myocardium infarction with no elevation of the ST segment and myocardium infarction with elevation of the ST segment.[6]

The main risk factors include smoking, high serum cholesterol levels, obesity, diabetes mellitus, sedentary lifestyle, and systemic arterial hypertension (SAH)[7] The nursing team has an essential role in this regard, from the health education and the planned care based on the prevention of risk factors, to the care after the incident, to reduce its impact on the life of the patient. From this perspective, the Systematization of Nursing Care (SNC) and the Nursing Process (NP), as management tools, have become pillars for integral assistance and individualized patient care.[8]

The NP,[9], regulated by the Federal Nursing Council, contributes to promote, preserve, or restore health, and to make records of the assistance provided. It is responsible for basing the actions of the nurse on the development of reasoning and of diagnostic, therapeutic, and ethical judgement. The NP has five interdependent stages: data collection (investigation to gather information); nursing diagnosis (clinical judgement, which will include the grouping and interpretation of information in the first stage, to determine the clinical condition of the patient and guarantee efficient care); planning (Determining the expected results together with the interventions); implementation (execution of the actions); and evaluation (verification of changes and whether the expected results were reached).[10,11] Taxonomies and/or languages are used to carry out and register these stages.[12]

The taxonomy by NANDA is used for nursing diagnoses (ND), while the *Nursing Interventions Classification* (NIC) and the *Nursing Outcomes Classification* (NOC) are used to determine the interventions and evaluation, respectively.[13] The International Classification for Nursing Practice (ICNP) includes both NDs and interventions.[14] All these resources guide the nursing worker to develop a plan of care and of the evolution of the patient's clinical framework.[15]

Applying this methodology directly implies in a complete nursing assistance, that understands better the needs of the patient and facilitates the continuity of care by using of a standardized language, guiding the choice of nursing interventions to reach better outcomes, determine the priorities of care, improving the quality of care, and promoting the development of the profession.[16] Therefore, the objective of this review was to identify, in scientific literature, the nursing diagnoses in adult patients with clinical diagnoses of cardiovascular conditions.

METHODS

This is an integrative literature review (IR). This method promotes the generation of wider knowledge about an object or topic, and, as such, contributes for evidence-based practice in nursing.[17] The question was formulated in accordance with the PICO structure[18], which consists in: population = "patients with cardiovascular conitions" and intervention = "nursing diagnosis". The comparison and outcome criteria were not applied. As a result, the guiding question of this integrative review was: What nursing diagnoses were found in scientific literature fore patients with cardiovascular conditions?

Therefore, it was possible to determine the decsriptors using the DeCs — Health Sciences Descriptors — and MeSH — Medical Subject Headings —, combined using the Boolean operators OR and AND following a protocol, describing search strategies for each database (Flowchart 1). The structured data collection took place in July 2021, through an advanced search in the databases Virtual Health Library (VHL), CINAHL Database, US National Library of Medicine (PubMed), and ScienceDirect.

This investigation included primary studies in English, Portuguese, and Spanish that carried out researches focused on the identification of nursing diagnoses in adults with clinical cardiovascular conditions. There was no time restriction, due to the number of articles found. Secondary studies were excluded (narrative and integrative studies, systematic reviews), as well as grey literature (theses and dissertations, unpublished documents, conference or scientific meeting reports), and articles that were not in accordance with the chosen topic. An instrument created specifically for this study was used to collect the data from the researches found, including: author and year of publication, journal, type of study, level of evidence, use of nursing theory, taxonomy used, cardiovascular disease in the patients, and more and less common nursing diagnoses.

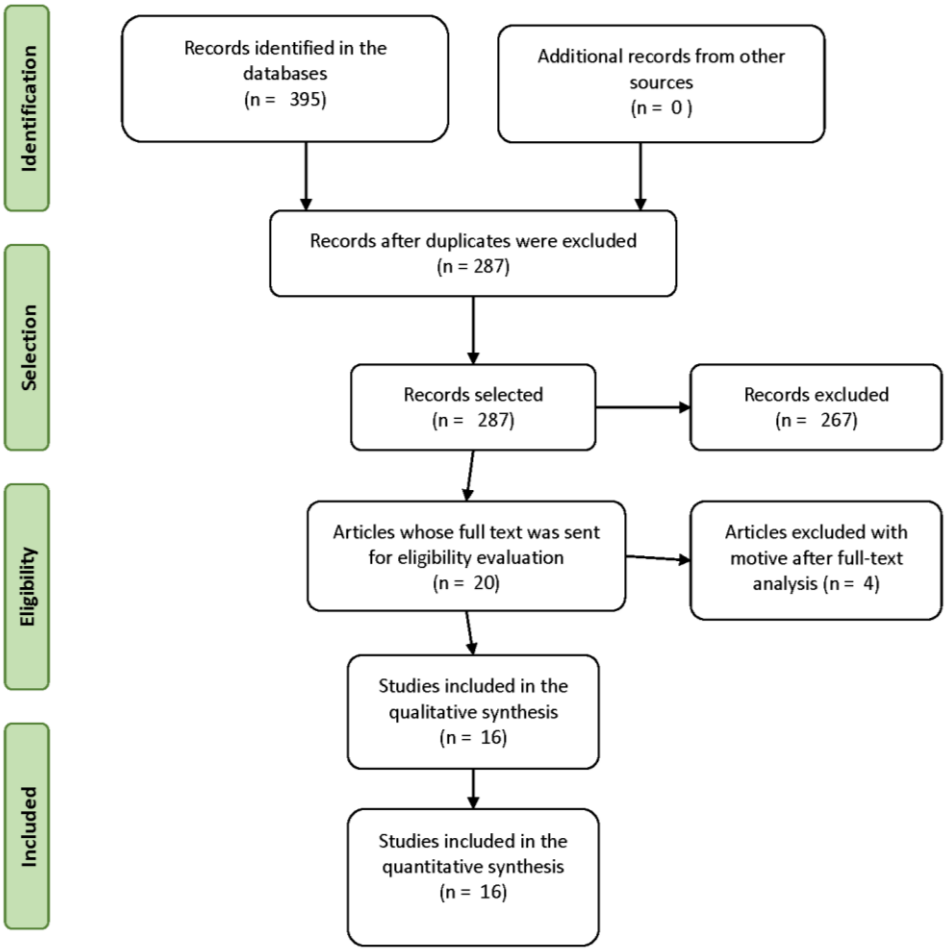
The level of evidence (LE)[19] was classifed as: level I - evidence from the meta-analysis of controlled, randomized clinical trials; level II - evidence from experimental design studies; level III - evidence from quasi-experimental research; level IV - evidence from descriptive studies with qualitative methodological approaches; level V - evidences from case reports or experience reports; level VI - evidence based on the opinion of specialists or based on norms or legislation. Since this is a literature review, it did not require Research Ethics Committee evaluation, as per Resolution No. 510/2016. The articles included were annotated and their information was organized and summarized to facilitate the displaying of information and the discussion of the results.

RESULTS

The searches found a total of 395 articles. After duplicates were removed, 287 were considered for

the process of study selection. From these 267 were excluded after titles and abstracts were analyzed. Thus, 20 complete articles were carefully reviewed. Applying the inclusion and exclusion criteria, 16 studies were included in the qualitative and quantitative synthesis (**Figure 1**). We included studies that addressed the following diseases or cardiovascular clinical conditions: acute myocardial infarction, unstable angina, heart failure, atrial fibrillation, cardiomyopathy, atrioventricular block, coronary syndrome, stable coronary artery disease, hypertension.

Figure 1. Flowchart of the research in databases. Arapiraca, Alagoas, Brazil, 2022.



Source: The authors (2022).

The 16 articles that involved the screening for nursing diagnoses in patients with cardiovascular conditions were published from 2004 to 2020 (Table 1). Regarding language, most studies were in Portuguese (n=11), followed by English (n=4) and Spanish (n=1). Considering the type of study, most researches were descriptive (n=14), with only two case studies. The discussion of the nursing diagnosis was based on the Standardized Language System of the NANDA-I taxonomy, used in most researches in the field. Regarding the level of evidence, most studies were classified as level IV. 12 studies did not report using nursing theories. Those who did resorted to the following theories: Dorothea Orem's Self-Care Theory (n=2); Callista Roy's Adaptation Theory (n=1), and Florence Nightingale's Environmental Theory (n=1).

Table 1. Characteristics of the articles included in the integrative review about nursing diagnoses in adult patients with cardiovascular conditions. Arapiraca, Alagoas, Brazil, 2022.

Author, year	Journal	Methodology	EL	Nursing theory	Taxonomy	Disease/condition Cardiovascular	Nursing Diagnoses	
							Most common	Least common
Martins et al., 2004	Online Brazilian Journal of Nursing	Exploratory-descriptive	IV	Florence Nightingale's Environmental Theory	NANDA I (2012-2014)	Acute myocardial infarction	Risk for infection Disturbed sleeping pattern Decreased diversional activity engagement Decreased cardiac output	Impaired gas exchange Risk for constipation Feeding self-care deficit Chronic sorrow
Lima et al., 2007	Acta paulista de enfermagem	Case study	V	Dorothea Orem's Self-Care Theory	NANDA I (2012-2014)	Acute myocardial infarction + HIV	Risk for inadequate adherence to treatment regimen Anxiety Decreased cardiac tissue perfusion Decreased physical mobility Ineffective protection Risk for infection	Not reported
Vitor et al., 2010	Rev Rene	Observational and cross-sectional	IV	Not described	NANDA (2009 - 2011)	Unstable angina instável	Risk for falls Acute pain Disturbed sleeping pattern Activity intolerance	Sedentary lifestyle Inadequate adherence to treatment regimen Constipation
Pereira et al., 2011	Escola Anna Nery Revista de Enfermagem	Descriptive, cross-sectional	IV	Not described	NANDA I (2009-2011)	Heart failure, acute myocardial infarction unstable angina, atrial fibrillation, atrioventricular block	Anxiety Acute pain Decreased cardiac output Sensory-perceptual impairment - visual Insomnia	Activity intolerance Sexual dysfunction Impaired urinary elimination
Nunciaroni et al., 2013	Revista Gaúcha de Enfermagem	Descriptive exploratory, retrospective, based on medical records	IV	Not described	NANDA I (2012-2014)	Coronary syndrome	Impaired skin integrity Decreased cardiac output Activity intolerance Acute pain Excess fluid volume Risk for spiritual distress Risk for constipation Risk for infection Risk for falls	Dressing self-care deficit Impaired gas exchange Decreased physical mobility Risk for deficient fluid volume
Lins et al., 2013	Ciência, Cuidado e Saúde	Cross sectional and descriptive, carried out using a retrospective document analysis	IV	Not described	CIPE® versão 2	Heart failure	Decreased cardiac output Impaired gas exchange	Increased fluid volume Impaired spontaneous ventilation
Galvão et al., 2016	Cogitare Enfermagem	Descriptive and exploratory with a quantitative approach	IV	Not described	NANDA I (2012-2014)	Unbalanced heart failure	Decreased cardiac output Activity intolerance Ineffective breathing pattern	Impaired spontaneous ventilation Anxiety

Altamirano et al., 2016	Revista Mexicana de Enfermería Cardiológica	Clinical, descriptive and prospective study, with a cross-sectional case.	V	Not described	NANDA I (2012-2014)	Cardiovascular, acute coronary syndrome, and abdominal compartment syndrome.	Decreased cardiac output Ineffective airway clearance	
Costa et al., 2016	International Journal of Nursing Knowledge	Cross-sectional study with medical records	IV	Not described	NANDA-I	Hypertension, diabetes mellitus, and dyslipidemia	Acute pain Excess fluid volume Decreased cardiac output Impaired spontaneous ventilation	Anxiety Impaired skin integrity
Belitardo et al., 2015	International Journal of Cardiovascular Sciences	Longitudinal, retrospective study with a retrospective analysis of medical records	IV	Not described	NANDA-I (2009-2011)	Systemic arterial hypertension, sedentary lifestyle, dyslipidemia, diabetes mellitus, stress and obesity.	Impaired skin integrity Decreased physical mobility Risk for constipation	Chronic pain Activity intolerance Impaired gas exchange
Cunha et al., 2018	Aquichan	Cross-sectional	IV	Dorothea Orem's Self-Care Theory	NANDA-I (2015-2017)	Acute myocardial infarction	Sedentary lifestyle Decreased physical mobility Risk for activity intolerance	Ineffective breathing pattern Impaired comfort
Costa et al., 2018	International Journal of Nursing Knowledge	Cross-sectional	IV	Not described	NANDA-I (2005–2006)	Acute coronary syndrome	Sedentary lifestyle	Not reported
Pedrão et al., 2018	Revista de Enfermagem UFPE on line	Quantitative ,cross-sectional, retrospective, and descriptive study.	IV	Not described	NANDA I	Chronic kidney disease, acute myocardial infarction, cardiomyopathy, cardiomyopathy, and diabetes mellitus.	Feeding self-care deficit Toileting self-care deficit Risk for infection Decreased physical mobility	Proteção ineficaz Acute pain
Cardoso et al., 2019	Investigación y Educación en Enfermería	Cross-sectional with data collection from electronic medical records	IV	Not described	NANDA-I (2015-2017)	Ischemic stable cardiopathy	Sedentary lifestyle Ineffective health management Inadequate adherence Activity intolerance	Ineffective breathing pattern Impaired memory
Nascimento et al., 2019	Revista de Enfermagem e Atenção à Saúde	Retrospective document analysis study using medical records	IV	Not described	NANDA-I (2015-2017)	Heart failure	Risk for infection Ineffective breathing pattern Self-care deficit Decreased cardiac output Impaired bed mobility Anxiety	Acute pain Constipation/diarrhea Impaired urinary elimination Constipation Insomnia
Hamadé et al., 2020	Revista Online de Pesquisa: Cuidado é fundamental	Descriptive, cross-sectional, quantitative	IV	Callista Roy's theory adaptation	NANDA I (2012-2014)	Coronary artery disease	Risk for activity intolerance Activity intolerance Fear	Nausea Impaired urinary elimination Diarrhea

Source: The authors (2022).

DISCUSSION

According to the World Health Organization, cardiovascular diseases and conditions cause 41 million deaths per year, representing 71% of all deaths throughout the world.[20] Among the studies included here, acute myocardial infarctions were the most investigated, due to their good short- and long-term prognostic when the treatment is adequate, efficient, and early, in addition to the fact that it can be avoided by preventing and controlling its risk factors.

In this context, the use of nursing diagnoses is a vital strategy to establish goals for cardiovascular patients. When they are based on nursing theory, they represent structures that can be used to develop crucial technologies and knowledge to consolidate good, evidence-based nursing and health practices.[21] Contemporary lifestyle involves the practice of unhealthy habits, with a significant presence of the risk factors most often associated with the heart diseases highlighted by the researches found: drinking, smoking, sedentary lifestyle, overweight/obesity.[22] Furthermore, the existence of untreated chronic pathologies, such as systemic arterial hypertension, diabetes, and dyslipidemia, increases the likelihood of cardiovascular damage.[23]

Decreased activity tolerance was one of the most common NDs found in the articles. It can also be considered as an important predictor diagnosis, as it opens the door for damage to the cardiovascular system. The definition of this diagnosis is: insufficient physiological or psychological endurance to complete required or desired daily activities, which can compromise health.[24] The practice of physical activities is considered to be the greatest tool to prevent and treat cardiovascular diseases. Therefore, factors that influence the adoption of healthy lifestyles must be encouraged by nursing as an essential pillar to reduce deaths and, consequently, improve quality of life.[25,26]

The ND sedentary lifestyle is associated with the lack of interest for the practice of physical activity. This level of practice is lower than the recommended according to sex and age group, which has been harmful to the quality of life and increased the complications of the cardiovascular disease frameworks. The regular practice of physical activities acts like a treatment for other NDs caused by cardiovascular diseases, such as: anxiety, fear, and disturbed sleeping pattern. This diagnosis was more common among older and less educated persons, meaning that there must be health education promotion regarding physical activity practices for all stages of life, in addition to those targeted at all ages. The risks of the lack of these practices to one's metabolism must also be explained, to raise awareness and increase people's interest to practice.[23]

The risk for decreased cardiac output was found in some cases of hospitalization of people with heart diseases, as a result of a worsening of vascular diseases. This ND is mainly related to the diminution of the left ventricular ejection fraction, leading to signs and symptoms such as dyspnea, caused by the inability of the heart to maintain a cardiac output sufficient to satisfy the tissues need for oxygen, and edema in the lower limbs, associated with the cardiac output shown by its infiltration in the interstitial space and the reduction of the peripheral blood flow, associated to intolerance to activity.[27,28]

The risk for activity intolerance is the ND that stands out among those who are under the risk of not carrying out sufficient physical activities or of not completing regular physical activity routines.[24]. Nursing assistance must allow for an evaluation of the potential physiological and motivational factors that result from this intolerance, whether due to compromised health states or lack of self care, considering the many cardiovascular diseases that prevent high-impact exercise.. This would allow for the work of a multiprofessional team that can provide qualified care.[29]

The ND ineffective breathing patter has a higher prevalence among heart failure patients due to the abnormality, in their respiratory system, of the gas exchange process and of carbon dioxide in their alveoli, due to the accumulation of liquids in the pulmonary region. This leads to pulmonary discomfort and brings prejudice to the quality of life (impossibility of carrying out tasks and sleep problems).[30] The clinical indicators associated with the ND ineffective breathing pattern, present in hospitalized patients, are prejudiced respiratory rate, orthopnea, and chest pain.[31]

The anxiety diagnosed in heart disease patients is caused by the loss of situational control[32]. It is especially common in patients who undergo invasive procedures, presenting negative feelings of both physiological and emotional disturbance. The anxiety related to the fear of the unknown may be mitigated with the help of qualified listening and by the dialog between professional and patient, with information about the patient's state of health and procedures that need to be carried out, so the patient gains knowledge about what is happening to them.[33]

The ND fear, more specifically, fear of dying, is directly related with anxiety about the progression of the disease and is more common among hospitalized patients. Considering how fear can harm the process of treatment of cardiac diseases, coupled with the psychological stress and the difficulty of performing self-care, nursing professionals have an essential role in carrying out interventions, as they search for reducing confusion by managing the symptoms of cardiac diseases, providing qualified, humane, integral care, and comforting the person being cared for, whether they are in the beginning, middle, or end of their lives.[34,35]

The impaired gas exchange is a common ND in people with heart failure (HF). It is caused by decreased cardiac output and by the accumulation of the blood deposited in one or two ventricles, increasing the volume of fluid in the vases and being the main cause for the accumulation of liquids that lead to pleural effusion, presence of adventitious noise, reduction of vesicular murmur, and pulmonary congestion.[36]

The decreased tissue perfusion is related with the interruption of the arterial blood flow, which prevents the gas transport into the tissues and, consequently, their good oxygenation.[37] In coronary diseases, the diameter of the vessels becomes smaller. This prevents blood flow from reaching all cells in the body, and can lead to the cellular death of large organs, such as the heart.[38] The regular practice of physical exercises, good diet, and periodical lab exams allow not only for the treatment, but also for the prevention of many cardiovascular diseases. The actions of nursing professionals in this regard are, therefore, essential to raise the awareness of patients about self-care[25].

The ND disturbed sleeping patterns was found in two studies, and can take place due to the response to the disease and to hospitalization in patients with cardiovascular disease. These alterations can result from unsatisfactory sleep, fatigue, sleep deprivation, and constant waking up due to related factors.[39,40] These changes in sleeping patterns open the door for other negative diagnoses to health - adverse physiological alterations, obesity, diabetes, and the worsening of cardiovascular diseases.

The description of nursing diagnoses contributes for the analysis of the responses to cardiovascular diseases. It also functions as support for the selection of nursing interventions and to reach the outcomes for which the nurse is responsible[2]. It is widely known that carrying out new research in nursing diagnosis is essential for nursing care to continue to evolve and develop, thus improving the assistance provided.[45]

It was found that most articles analyzed in this review used the new updated version of NANDA-I (2021-2023) and this taxonomy is present in their text. Therefore, future studies should consider the insertion of the following diagnoses and their respective domains: readiness for enhanced exercise engagement, ineffective health maintenance behaviors, ineffective health self-management, and readiness for enhanced health self-management (health promotion domain); risk for urinary retention (elimination and exchange domain); decreased activity tolerance, risk for decreased activity tolerance, risk for impaired cardiovascular function, risk for thrombosis (domain activity/rest); risk for adult falls and risk for child falls (domain safety/protection).[46].

One limitation of this study that could be mentioned is the low number of articles included, showing the need for further investigation about the tracking of nursing diagnosis in patients with cardiovascular conditions. In this review, it can be noticed that performing the nursing process and applying SNC in cardiology services favor the screening for issues and peculiarities, which, in turn, favor the determination of the diagnostic and the planning of nursing interventions and results.

This research is relevant for the practice of nursing, as it provides to the team the necessary base for a precise clinical evaluation, listing the nursing diagnoses described in literature, so nurses can use them to plan for expected outcomes and propose interventions to maximize teamwork.

CONCLUSION

This study found that the most common diagnoses described in cardiovascular diseases in adult patients were: ineffective breathing pattern, activity intolerance, sedentary lifestyle, and anxiety, which makes it much more difficult to provide effective care for individuals with cardiovascular diseases. As a result, the relevance of this study became apparent due to its originality, and it answered its research question as it described the nursing diagnoses found in scientific literature.

The NANDA International language was used in most researches, and only four articles used nursing theories. Therefore, new studies about nursing diagnoses of cardiovascular diseases, focusing on those that use nursing taxonomies, are essential for the evolution, efficacy, and visibility of nursing care.

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