*Artículo*

# Analysis of the "Diagnostic Reasoning" Concept in Nursing

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**Theme:** Epistemology.

**Contribution to the discipline:** Understanding the diagnostic reasoning phenomenon based on precedents, critical attributes, and consequences.

## Abstract

**Objective:** To develop an operational definition of the "diagnostic reasoning" concept in nursing. **Materials and methods:** This concept analysis is based on Walker and Avant's model. All the referential steps were followed: concept selection, determining the objectives and proposals for concept analysis, identifying the possible uses of the concept, determining the defining attributes, identifying a model case, identifying the contrary case, and identifying the precedents and consequences of the concept. **Results:** A sample of 20 studies was selected, identifying the following attributes: specialized thinking, cognitive skills, existing knowledge, intellectual competence; hypothesis-oriented reasoning; precedents: clinical assessment, practical experience, data interpretations, intuition, diagnostic judgment, information processing, clinical reasoning; consequences: improvement of nursing care, communication, planning interventions, addressing the identified problem, achieving effective results, autonomous actions, and quality of patient records. **Conclusions:** The study contributes to understanding the operational definition of the diagnostic reasoning concept in nursing by identifying the core attributes, precedents, and consequences.

**Keywords (Source: DeCS)**
Clinical decision-making; nursing diagnosis; nursing; concept formation.

# Análisis del concepto “razonamiento diagnóstico” en enfermería


## Resumen

**Objetivo:** desarrollar una definición operacional del concepto “razonamiento diagnóstico” en enfermería. **Materiales y métodos:** se trata de un análisis de concepto según el modelo de Walker y Avant. Se siguieron todos los pasos de la referencia: selección del concepto; determinación de los objetivos y las propuestas para el análisis conceptual; identificación de los posibles usos del concepto; determinación de los atributos definidores; identificación de un caso modelo; identificación del caso contrario; identificación de los antecedentes y de las consecuencias del concepto. **Resultados:** se seleccionó una muestra de 20 estudios, en los que se identificaron los atributos: pensamiento especializado, habilidades cognitivas, conocimiento existente, competencia intelectual; razonamiento orientado a la hipótesis; antecedentes: evaluación clínica, experiencia práctica, interpretaciones de los datos, intuición, juicio diagnóstico, procesamiento de informaciones, razonamiento clínico; consecuencias: avance de los cuidados de enfermería, comunicación, planeación de intervenciones, actuación sobre el problema identificado, alcance de los resultados eficaces, acciones autónomas, calidad de la documentación del paciente. **Conclusiones:** el estudio aporta a la comprensión de la definición operacional del concepto “razonamiento diagnóstico” en enfermería por medio de la identificación de los atributos esenciales, de los antecedentes y de las consecuencias.



**Palabras clave (Fuente: DeCS)**
Toma de decisiones clínicas; diagnóstico de enfermería; enfermería; formación de concepto.

# Análise do conceito “raciocínio diagnóstico” em enfermagem




## Resumo

**Objetivo**: desenvolver uma definição operacional do conceito “raciocínio diagnóstico” em enfermagem. **Materiais e métodos**: trata-se de uma análise de conceito segundo o modelo de Walker e Avant. Foram seguidos todos os passos do referencial: seleção do conceito; determinação dos objetivos e das propostas para a análise conceitual; identificação dos possíveis usos do conceito; determinação dos atributos definidores; identificação de um caso modelo; identificação do caso contrários; identificação dos antecedentes e dos consequentes do conceito. **Resultados:** selecionou-se uma amostra de 20 estudos, nos quais foram identificados os atributos: pensamento especializado, habilidades cognitivas, conhecimento existente, competência intelectual; raciocínio orientado para a hipótese; antecedentes: avaliação clínica, experiência prática, interpretações dos dados, intuição, julgamento diagnóstico, processamento de informações, raciocínio clínico; consequentes: avanço dos cuidados de enfermagem, comunicação, planejamento de intervenções, agir sobre o problema identificado, alcance de resultados eficazes, ações autônomas, qualidade da documentação do paciente. **Conclusões**: o estudo contribui com a compreensão da definição operacional do conceito de raciocínio diagnóstico em enfermagem por meio da identificação dos atributos essenciais, dos antecedentes e dos consequentes.



**Palavras-chave (Fonte: DeCS)**
Tomada de decisão clínica; diagnóstico de enfermagem; enfermagem; formação de conceito.

# Introduction

The diagnostic reasoning process in nursing has been under investigation due to its magnitude and complexity, as it involves the interpretation of responses regarding the patient's health status, which, if conducted in a non-structured way, is more prone to risks and misjudgments (1).

The diagnostic decision becomes a major assignment for the nursing staff, as they directly contact patients and experience the most varied clinical situations. Thus, to propose measures to qualify clinical reasoning and critical thinking, educational institutions and service providers have been demanding more trained and updated professionals who can meet the workplace needs (2).

Due to these requirements, the Resolution of the Federal Council of Nursing (Cofen) states that nurses have their actions supported by the systematization of nursing care (SNC) and the nursing process (NP). Cofen's Resolution 358/2009 states that the SNC organizes professional work in terms of method, personnel, and instruments, making it feasible to implement the NP, which consists of a methodological instrument that must be used in public and private health institutions to guide the care provided by nursing staff and the documentation of professional practice (3).

However, despite studies demonstrating its advantages for care practice (4-6), education, and research in nursing, several professionals and institutions are reluctant and hesitant to use the NP (7) due to a series of obstacles that must be overcome: a lack of acknowledgment by the nursing team, the number of nurses in institutions, the involvement with the process, the recognition by the institution's management, and the care result indicators. It is emphasized that the care process involves far more than technical knowledge, and professionals should measure their actions with scientific knowledge and ethical commitment (8).

One of the most critical steps of the NP is the nursing diagnosis, as it is through this step that the other ones can be performed. The nurse identifies the individual, group, or community responses to a health problem when establishing a diagnosis. However, for this purpose, nurses must develop specific skills and competencies to guide the diagnostic reasoning that will enable planning interventions and predicting nursing outcomes (9).

In medical science, the logic of the diagnostic process lies in the use of scientific methods in clinical reasoning intellectually and operationally to address a given clinical problem. For this, steps such as data collection, clinical history, physical examination, laboratory tests, data analysis, critical evaluation of the data collected, a listing of findings in order of importance, the selection of core findings, and a listing of diseases in which these core findings are found need

to be taken to reach the final diagnosis and select the disease that best explains the alterations manifested by the patient (10).

In nursing, diagnoses are based on analyzing and measuring human responses obtained through clinical judgment. Therefore, the correct diagnosis will depend on nurses' diagnostic ability and theoretical references; thus, a correct diagnosis requires intellectual, interpersonal, and technical competencies, along with mental and cognitive skills (11, 12), which characterize diagnostic reasoning, as well as its use and interpretation.

Hence, diagnostic reasoning is a process that enables observing and assigning meaning to phenomena in clinical situations, from the integration of critical thinking and observation, which leads to hypotheses that solve patients' problems (13). In this way, it is a theme of considerable relevance to improving care practice and skills that, added to clinical experience, are considered core to the critical thinking and deductive reasoning, such as interpreting, analyzing, evaluating, interfering, and clarifying (13).

Diagnostic reasoning is closely related to the choice of expected outcomes consistent with the diagnosis of appropriate patient interventions. In this sense, it becomes vital to analyze the "diagnostic reasoning" concept in nursing, as the development of the ability to think and reason for decision-making should be a key component for implementing NP. On the other hand, there are few studies on the analysis of the diagnostic reasoning concept, as shown by a search in the Cumulative Index to Nursing and Allied Health Literature (CINAHL), LILACS, and Medline databases using the descriptors "nursing diagnosis," "reasoning diagnosis," and "nursing," combined with the Boolean operator AND. Therefore, this theme requires further discussion and fostering within academia.

With the progress of research on clinical validation of nursing diagnosis, typical nursing phenomena have been used to create analytical rules for the inclusion or exclusion of diagnoses. The North American Nursing Diagnosis Association taxonomy is a reference for identifying patterns, symptoms, signs, and behaviors defined in a nursing diagnosis, enabling diagnostic intervention with a high level of accuracy (14).

Given this scenario, and considering that concept analysis is a method that allows for its thorough study, this research was designed to clarify the meaning of diagnostic reasoning in nursing and identify its attributes, precedents, and consequences. Thus, this study aims to develop an operational definition of the "diagnostic reasoning" concept in nursing to support clinical reasoning in diagnostic decision-making and interpretation.

The importance of furthering knowledge of this concept is noted, as the use of diagnostic reasoning can be found both in the

clinical context, where nurses apply the NP (15), and in the teaching context so that students can develop skills relevant to the implementation and execution of the NP (16, 17).

**Materials and methods**

This concept analysis study was developed according to Walker and Avant's (18) theoretical framework. The analysis was operationalized by an integrative review using the Whittemore and Knafl (19) method, following these five steps: 1) problem identification, 2) literature search, 3) data evaluation, 4) data analysis, and 5) presentation.

It should be noted that the concept analysis proposed by Walker and Avant (13) is strongly related to nursing and its classification systems, which are relevant to the improvement of language and understanding in the contexts that encompass clinical practice.

For the study, the Concept Analysis Model steps were considered: concept selection; determining the objectives and proposals for concept analysis; identifying the possible uses of the concept; determining the defining attributes; identifying a model case; identifying the contrary case; identifying the precedents and the consequences of the concept (18). However, the decision was not to develop the empirical references since the measurement of the terms found was not evident in the literature.

The integrative review was guided by the following questions: What attributes of the "diagnostic reasoning" concept in nursing? What are the precedents and consequences of the "diagnostic reasoning" concept in nursing?

We searched the CINAHL, Scopus, PubMed, Web of Science, and Nursing Database (BDEnf) databases in January 2018 to address the questions via the Federated Academic Community of the Journal Website, Coordination for the Improvement of Graduate Personnel.

For the search above, we used a combination of the descriptors indexed in the Health Sciences Descriptors (DeCS) of the Virtual Health Library ("nursing diagnosis," "clinical competence"), the Medical Subject Headings (MeSH) of the National Library of Medicine ("professional practice" and "nursing"), and the keywords "reasoning diagnosis," "clinical reasoning," and "critical reasoning." Five crossings were performed: nursing diagnosis AND clinical competence AND nursing; nursing diagnosis AND professional practice AND nursing; nursing diagnosis AND reasoning diagnosis AND nursing; nursing diagnosis AND clinical reasoning AND nursing; nursing diagnosis AND critical reasoning AND nursing.

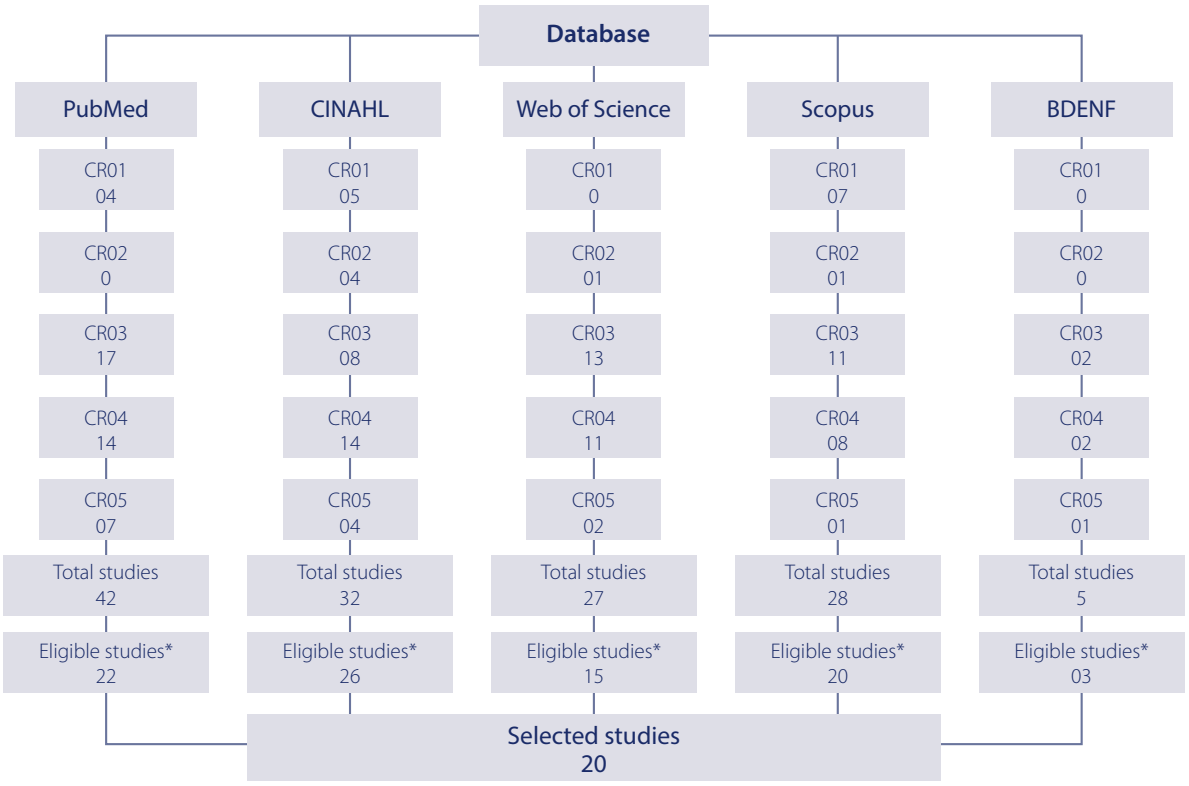
The inclusion criteria for the publications in the study were the following: full-text articles available in the selected databases in English, Portuguese, or Spanish, addressING the theme "diagnostic reasoning in nursing" and he guiding questions of this study. We decided not to restrict the publishing period, aiming to cover as many studies

on the subject as possible, regardless of the year of publication. Editorials, letters to the editor, abstracts, specialist opinions, and integrative review articles were excluded. The exclusion of these publications is justified by their level of evidence.

The search was performed in pairs simultaneously to ensure quality. Initially, after reading the titles and abstracts, we selected 179 articles. After the initial selection, the researchers performed a second reading of the titles and abstracts; if they met the research objectives, the articles would be read in full. In cases of disagreement between the researchers, the article was read in full. If it met the objectives, it was included in the sample.

Following this careful process, 86 articles were selected, as presented in Figure 1. Of the 86 articles, 39 were duplicates, totaling a partial sample of 47 articles read in full by the two researchers to confirm the inclusion and exclusion criteria. Of the 47, 20 articles were part of the final sample, read thoroughly to extract the mental constructs that represent categories of information to name diagnostic reasoning, precedents (events that occur before diagnostic reasoning) and consequences (events that occur as a result of diagnostic reasoning). Figure 1 demonstrates the search process performed (20).

**Figure 1.** Database search layout




Key: CR01 (crossing 01): Nursing Diagnosis AND Clinical Competence AND Nursing; CR02 (crossing 02): Nursing Diagnosis AND Professional Practice AND Nursing; CR03 (crossing 03): Nursing Diagnosis AND Reasoning Diagnosis AND Nursing; CR04 (crossing 04): Nursing Diagnosis AND Clinical Reasoning AND Nursing; CR05 (crossing 05): Nursing Diagnosis AND Critical reasoning AND Nursing.
*After reading the eligible studies in full, some were excluded for being duplicates and not meeting the eligibility criteria, resulting in a total of 20 selected studies.

**Source:** Own elaboration.

When reading the references in full, the researchers tried to extract the events related to the "diagnostic reasoning" concept,: what the literature covers on the theme, that is, how it is described and understood in the literature; everything that comes before (precedents) and after (consequences) the occurrence of the concept. These data were recorded on sheets. A characterization sheet was prepared for each reference with its title, year of publication, language, method, attributes, consequences, precedents, and references.

# Results

The results are centered on publications between 1986 and 2015, predominantly 2011 (*n* = 4), followed by 2009 (*n* = 3) and 2015 (*n* = 2). It is also noteworthy that most studies stemmed from Brazil (*n* = 8), the United States (*n* = 6), and England (*n* = 3). Furthermore, the methods used in most studies were descriptive (*n* = 5), quasi-experimental (*n* = 5), methodological (*n* = 2), case study (*n* = 2), and experimental (*n* = 2) (Table 1).

**Table 1.** Sample characterization

| Reference | Title | Year | Country | Method |
|---|---|---|---|---|
| (21) | Activating clinical inferences: A component of diagnostic reasoning in nursing | 1986 | The United States | Exploratory study |
| (22) | Metacognitive skills in diagnostic reasoning: making the implicit explicit | 1992 | The United States | Descriptive study |
| (23) | A longitudinal framework for fostering critical thinking and diagnostic reasoning | 1997 | England | Descriptive study |
| (24) | The influence of nursing diagnosis on information processing by undergraduate students | 1998 | Brazil | Quasi-experimental study |
| (25) | Diagnostic reasoning processes using patient simulation in different learning environments | 2002 | England | Case study |
| (26) | An analysis of expert nurse practitioners' diagnostic reasoning | 2003 | The United States | Descriptive study |
| (27) | Differential diagnosis in advanced nursing practice | 2006 | England | Case study |
| (28) | The impact of tutorial strategies on student nurses' accuracy in diagnostic reasoning in different educational settings: A double pragmatic trial in Italy | 2008 | Italy | Experimental study |
| (29) | O processo ensino-aprendizagem do diagnóstico de enfermagem, na ótica de estudos acadêmicos | 2009 | Brazil | Reflective study |
| (30) | Improving critical thinking and clinical reasoning with a continuing education course | 2009 | Brazil | Quasi-experimental study |

| Reference | Title | Year | Country | Method |
|---|---|---|---|---|
| (31) | Model of critical diagnostic reasoning: Achieving expert clinician performance | 2009 | The United States | Descriptive study |
| (32) | Virtual patients for assessment of clinical reasoning in nursing: A pilot study | 2011 | Taiwan | Quasi-experimental study |
| (33) | Diagnóstico de enfermagem: estratégia educativa fundamentada na aprendizagem baseada em problemas | 2011 | Brazil | Experimental study |
| (34) | Avaliação do objeto virtual de aprendizagem "raciocínio diagnóstico em enfermagem aplicado ao prematuro" | 2011 | Brazil | Descriptive study |
| (9) | Avaliação de objeto virtual de aprendizagem sobre raciocínio diagnóstico: estudo descritivo | 2011 | Brazil | Methodological study |
| (35) | Do knowledge, knowledge sources and reasoning skills affect the accuracy of nursing diagnoses? A randomized study | 2012 | The Netherlands | Randomized factorial design study |
| (36) | Effect of continuing nursing education on nurses' attitude toward and accuracy of nursing diagnosis | 2013 | The United States | Quasi-experimental study |
| (37) | Teaching dual-process diagnostic reasoning to doctor of nursing practice students: Problem-based learning and the illness script | 2014 | The United States | Quasi-experimental study |
| (1) | Análise do conteúdo de uma tecnologia para raciocínio diagnóstico de enfermagem | 2015 | Brazil | Methodological study |
| (38) | Objeto virtual de aprendizagem sobre o raciocínio diagnóstico em enfermagem aplicada ao sistema tegumentar | 2015 | Brazil | Methodological study |

**Source:** Own elaboration

## Use of the "diagnostic reasoning" concept in nursing

The "diagnostic reasoning" concept in nursing was not explicit in the selected studies; however, it was possible to extract its attributes, precedents, and consequences, which are crucial to the development of the concept.

## Determining the attributes and formulating the concept definition

Regarding the analysis of the "diagnostic reasoning" concept, the critical attributes for the occurrence of the concept were identified. The researchers extracted the terms involved in diagnostic reasoning to identify the attributes. After selecting terms, those that appeared in all studies were singled out: specialized thinking, cognitive skills, existing knowledge, intellectual competence, and hypothesis-driven reasoning.

Specialized thinking (25, 27, 28, 30, 31) is the type of thinking framed in the decision-making process and used to identify a problem and its solution. Accurate recognition of the patient's problems precedes formulating a solution and implementing it.

Cognitive skills (9, 22, 23, 25-28, 30, 33-35, 37, 38) include critical thinking skills such as information seeking, discernment, and analysis. Mental habits refer to the affective aspects of critical thinking or traits such as perseverance, flexibility, contextual perspective, and confidence. For the authors, it is important to develop cognitive skills and mental habits when interpreting human responses.

Existing knowledge (1, 20, 22, 23, 29, 35, 36, 38), in turn, is related to the nurses' ability to diagnose: the greater the knowledge, the better the diagnostic reasoning. The authors discuss the perspective that diagnostic ability in nursing evolves from experience and clinical knowledge. Knowledge is a prerequisite for the development of diagnostic reasoning.

The intellectual competence attribute (1, 23, 29-31, 36, 37) is addressed along with knowledge; the greater the knowledge, the better the nurse's judgment skills are when exercising diagnostic reasoning.

Hypothesis-driven reasoning (23, 26-28, 31, 32) refers to processing information through critical analysis and pattern recognition, leading the nursing professional to generate a diagnostic hypothesis.

The analysis of these attributes resulted in the formulation of a conceptual definition for the "diagnostic reasoning" concept: cognitive abilities that involve prior knowledge, intellectual competence, and specialized thinking and culminate into reasoning driven towards the diagnostic hypothesis.

## Developing a model case

Maria Lucia is a 37-year-old assistant nurse who has been working at the University Hospital of Rio Grande do Norte, Brazil, for seven years. Since her graduation, the nurse has used the nursing process following all the proposed steps. When collecting data from the hospitalized patient, the nurse analyzes all the reports, searches her memory for knowledge acquired during her academic training and professional experience to identify the relevant problems for nursing, and thus be able to design interventions that improve the patient's clinical condition. This professional can reason critically and analyze based on her cognitive abilities and intellectual competencies, developing diagnostic hypotheses and outlining a care plan for the patient.

This model case is fictional and highlights the attributes identified in the literature for the "diagnostic reasoning" concept.

## Developing the contrary case

Maria Lucia is a 37-year-old assistant nurse who has been working at the University Hospital of Rio Grande do Norte, Brazil, for seven years. The nurse has never used the nursing process in her work environment and does not believe that it would bring benefits to the patient since the medical diagnoses have already been listed. When collecting the inpatient's data, she notes the nursing evolution in the chart without prescribing any assessment or diagnostic hypotheses. The patient's care plan is followed by medical recommendations.

In this example of a contrary case, the "diagnostic reasoning" concept has not occurred. The nurse mistakes medical diagnosis for nursing diagnosis and demonstrates a lack of ability, interest, and willingness to promote patient care through the nursing process.

## Identifying the concept's precedents and consequences

According to the literature, seven precedents and seven consequences concerning the concept have been identified in Table 2.

**Table 2.** The concept's precedents and consequences

| Precedents | Consequences |
|---|---|
| Clinical evaluation (1, 21-29, 31, 33, 34, 35-37-39) | Advances in nursing care (27, 29, 31, 36) |
| Practical experience (23, 24, 26, 27, 29, 31, 35-37) | Communication (24, 29, 36) |
| Data interpretation (30, 31, 33) | Intervention planning (1, 22, 24, 27, 29-31, 33-35) |
| Intuition (24, 26, 29, 37) | Acting upon the identified problem (23, 27, 28, 31, 33) |
| Diagnostic judgment (21, 24, 28 ,31) | Achieving effective results (28, 29, 34) |
| Information processing (21-22, 24, 26, 33) | Autonomous actions (1, 24, 26, 28, 29, 33, 34, 38) |
| Clinical reasoning (22, 26, 27, 29-34, 36) | Quality of patient documentation (36) |

**Source:** Own elaboration.

Regarding the precedents for diagnostic reasoning, it is expected that nurses can identify health problems and know the best ways to solve them. To identify these health problems, nurses use diagnostic reasoning.

It is necessary to identify the problems to develop the skills for this type of reasoning, which will occur by recognizing the signs and symptoms and what the patient manifests at a given moment. This information will be extracted in data collection, which nurses will interpret based on their experiences acquired in academia, their professional practice, and their intuition.

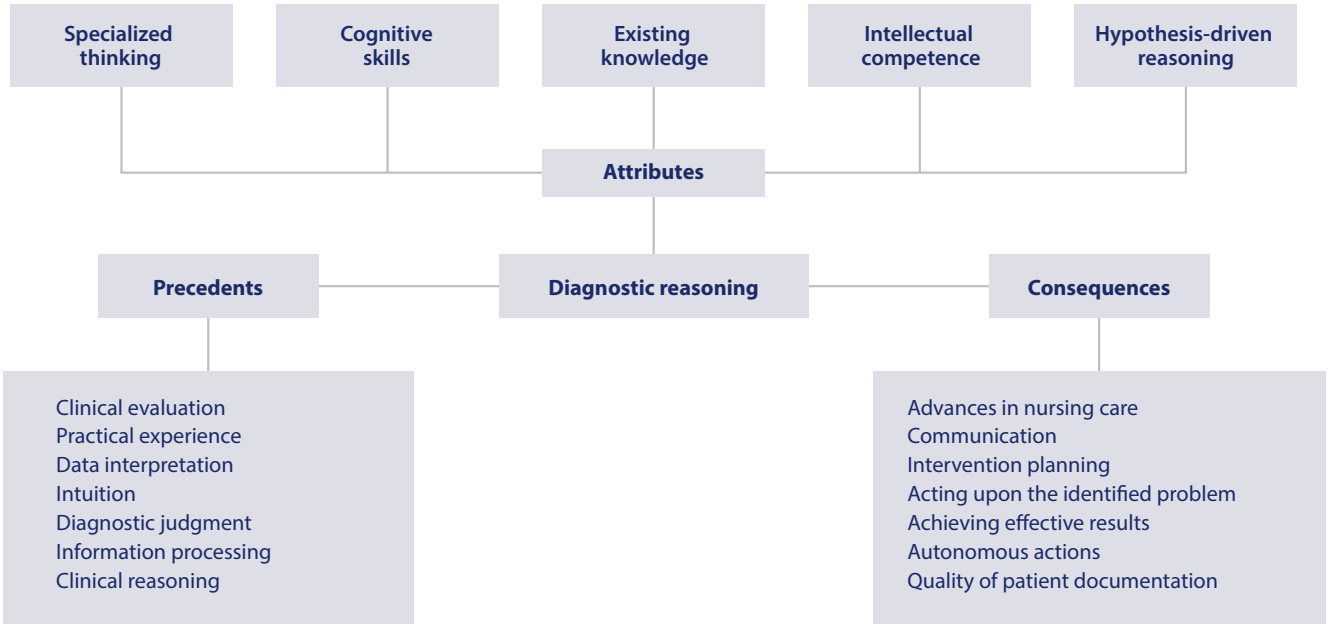
Processing this information supports clinical reasoning and data interpretation; with this, nurses can formulate a diagnostic judgment.

Regarding the consequences, diagnostic reasoning enables the planning of care through interventions directed towards the health problem and its evaluation; this way, it is possible to achieve effective results and ensure the quality of care.

It is also added that taking action on the identified problems, guided by care planning, guarantees autonomy for nurses, quality in the documentation and safety for the evaluation of such care.

The research results are presented in Figure 2, which displays the consolidated analysis of the diagnostic reasoning concept.

**Figure 2.** Structural consolidation of the analysis of the "diagnostic reasoning" concept according to Walker and Avant's theoretical framework




**Source:** Own elaboration.

# Discussion

Initially, it is understood that nursing needs to be well-conceptualized regarding diagnostic reasoning. Teaching strategies such as case reports, case studies, and simulations using a virtual patient should be present in the nurses' learning process. They substantially contribute to developing the expected clinical reasoning and, consequently, the cognitive process of making nursing diagnoses, which is commonly referred to as "diagnostic reasoning" (9).

The attributes identified in this study that encompass diagnostic reasoning were specialized thinking, cognitive skills, existing knowledge, intellectual competence, and hypothesis-driven reasoning. Specialized thinking is vital to achieving diagnostic reasoning, as it guides thoughts in an organized manner and represents the actions and events of a person with greater knowledge in specific domains (39). Regarding critical reasoning, cognitive skills are essential to

maintain the accuracy of the individual's health situation and support the decision-making process-. Through this essential act for clinical practice, the professional establishes the correct diagnosis and proposes appropriate conduct in the face of the clinical problem encountered (4).

Existing knowledge is essential to reach the diagnosis, which is an attribute that involves the need for step interpretation, so that diagnostic reasoning is supported by the existing knowledge and the data obtained. Thus, obtaining a general idea of the patient's condition favors the direction of clinical attention, and indirect evaluation of the patient increases the effectiveness of information and its processing (1).

The identification of evidence, the confrontation of scientific evidence, the mental construction of probable nursing diagnoses, and the validation of those diagnoses through patient discussion are part of a complex process of intellectual competence, which consists of the whole process of diagnostic reasoning (40).

Some strategies can be implemented as data collection enablers, namely: the use of care and shift models that favor the flow of information, enabling effective communication; the use of external sources such as care records, clinical discussion meetings, and conversations with family and significant others; consultation of clinical records, laboratory and imaging tests, data on lifestyle, ethnic group, occupation, socioeconomic conditions, and others, and effective communication between teams (1).

Hypothesis-driven reasoning is essential to reach the outcome of the nursing diagnostic process. For this, the nurse must have a questioning approach during data collection directly with the patient and indirectly by using previously collected data, laboratory tests, and shift reports to interpret, evaluate, and organize them for judging the patient's health problems and subsequently making a decision (40).

In short, for the diagnostic reasoning process, the collected data must be analyzed, summarized, and categorized, considering the best concept in one of the classification systems (41). The subsequent steps of diagnostic reasoning are the following: the planning process (expected results), implementation of nursing interventions, and evaluation of nursing care. The importance of a diagnosis choice and how it directly implies selecting the care plan (outcomes and interventions) is emphasized (42).

Based on the assumption that nursing diagnosis and results are complementary phenomena, it is understood that adequate diagnostic reasoning promotes good quality decisions by involving risks, benefits, identification of care, and assistance priorities. These are crucial elements to precede and rationalize outcomes and nursing interventions (43).

Subsequently, during planning, the objectives, goals, and deadlines should be established to reach the expected results, which will be achieved by selecting appropriate interventions. The intervention should clearly define what is planned, formulate precisely the problems to be addressed, identify the cause of the problem, analyze operations to address the problem, analyze the plan's viability, and implement the intervention (44).

It is noted that decision-making based on identifying a diagnosis is a complex step in the nursing process, which can have consequences for the patient. The adequate application of diagnostic reasoning will allow nurses to act based on the patient's actual conditions, reaching greater commitment and results for the patient. If effective, it will result in a positive evaluation of the patient's clinical condition (29).

## Conclusions

The present study identified specialized thinking, cognitive skills, existing knowledge, intellectual competence, and hypothesis-driven reasoning as essential attributes for the concept to occur. Regarding the precedents and the consequences, seven items were identified for each.

Knowing these points is a valuable tool for the nurses' decision-making process, formulated according to the principles of health problem identification and intervention planning focused on the patient's needs.

Critical thinking skills for diagnostic intervention in nursing are necessary for strengthening the profession as a science, highlighting the need to address these issues in academia. The study's limitations involve using controlled descriptors for the search and including available full-text articles only.

**Conflict of interest:** None declared.

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