Critical thinking skills in the nursing diagnosis process*

HABILIDADES DE PENSAMENTO CRÍTICO NO PROCESSO DIAGNÓSTICO EM ENFERMAGEM

HABILIDADES DE PENSAMIENTO CRÍTICO EN EL PROCESO DIAGNÓSTICO EN ENFERMERÍA

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ABSTRACT

The aim of this study was to identify the critical thinking skills utilized in the nursing diagnosis process. This was an exploratory descriptive study conducted with seven nursing students on the application of a clinical case to identify critical thinking skills, as well as their justifications in the nursing diagnosis process. Content analysis was performed to evaluate descriptive data. Six participants reported that *analysis, scientific and technical knowledge and logical* reasoning skills are important in identifying priority nursing diagnoses; *clinical experience* was cited by five participants, *knowledge about the patient and application of standards* were mentioned by three participants; Furthermore, *discernment and contextual* perspective were skills noted by two participants. Based on these results, the use of critical thinking skills related to the steps of the nursing diagnosis process was observed. Therefore, that the application of this process may constitute a strategy that enables the development of critical thinking skills.

DESCRIPTORS
Thinking
Nursing process
Nursing diagnosis

RESUMO

O objetivo do estudo foi identificar habilidades de pensamento crítico no processo diagnóstico em enfermagem. Trata-se de um estudo exploratório descritivo com aplicação de caso clínico a sete discentes de enfermagem para identificação de habilidades de pensamento crítico e suas justificativas. Foi realizada análise de conteúdo para processamento dos dados. Tem-se que seis participantes citaram análise, conhecimento técnico-científico e raciocínio lógico como habilidades de pensamento crítico importantes na identificação de um diagnóstico de enfermagem prioritário; a experiência clínica foi citada por cinco participantes; o conhecimento sobre o paciente e aplicação de padrões foram habilidades mencionadas por três participantes; o discernimento e perspectiva contextual foram habilidades referidas por dois participantes. Com base nesses resultados, observou-se a utilização de habilidades de pensamento crítico relacionadas às etapas do processo de diagnóstico de enfermagem. Concluí-se que a aplicação desse processo configura uma estratégia que possibilita o desenvolvimento de habilidades específicas de pensamento crítico.

DESCRITORES
Pensamento
Processos de enfermagem
Diagnóstico de enfermagem

RESUMEN

Se apuntó a identificar habilidades de pensamiento crítico en el proceso diagnóstico en enfermería. Estudio exploratorio, descriptivo, con aplicación de caso clínico a siete alumnos de enfermería, para identificación de habilidades de pensamiento crítico y sus justificaciones. Se utilizó análisis de contenido para procesamiento de los datos. Seis participantes citaron análisis, conocimiento técnico-científico y razonamiento lógico como habilidades de pensamiento crítico importantes para identificar un diagnóstico de enfermería prioritario; la experiencia clínica fue citada por cinco participantes; el conocimiento del paciente y aplicación de estándares fueron habilidades mencionadas por tres participantes; el discernimiento y perspectiva conceptual fueron referidas por dos participantes. En base a tales resultados, se observó la utilización de habilidades de pensamiento crítico relativas a las etapas del proceso de diagnóstico de enfermería; Se concluye en que la aplicación de tal proceso configura una estrategia que posibilita el desarrollo de habilidades específicas de pensamiento crítico.

DESCRIPTORES
Pensamiento
Proceso de enfermería
Diagnóstico de enfermería

INTRODUCTION

The nursing diagnosis is defined as the formulation of a clinical judgment regarding the responses of the individual, family or community to actual or potential health problems and to life processes. It provides the basis for selecting interventions to achieve the results for which the nurse is responsible[1]. This diagnosis is designated by a name that is provided by the nurse to guide decisions regarding the phenomenon on which nursing interventions focused[2].

According to different perspectives, the term diagnosis distinguishes the second phase of the nursing process and corresponds to an analysis of collected data in relation to a client's health; Specifically, a diagnosis refers to a clinical judgment in which the status of the patient is described, to a taxonomy-based diagnostic statement, used to identify a nursing diagnosis that explains the client's health status. Thus, diagnosis represents the result of a diagnostic process, which is defined as a method used to determine the health problem of the client, including an evaluation of the etiologic factors that underlie the problem. It involves analytical, logical reasoning and non-analytical, intuitive reasoning[3].

The nursing diagnosis process, as a form of clinical judgment, involves the recognition of evidence reported by the patient and identified from information relating to a health problem or a life process. After obtaining and verifying the relevant data set, evidence must be interpreted and categorized to produce the diagnostic hypotheses, with to the aim of making decisions regarding the nursing diagnosis that will ultimately shape the nursing interventions[4-5]. This process consists of the collecting and interpretation of data, including the categorization and naming of categor (ies). The collection of information consists of a patient evaluation, which corresponds to the first step of the nursing process, and the interpretation of information based on data analysis. This analytical process consists of the following steps: data collection, wherein the confirmed data are compared with memorized standards and known criteria to devise inferences; the establishment of inferences, the categorization of the data by combining relevant interrelated data into classifications, the establishment of diagnostic hypotheses; and finally, the formal classification, which is based on a nominal category assigned to the result of the clinical judgment process using a taxonomy or classification system[3].

According to an alternate perspective, the nursing diagnosis process involves two phases. The first phase consists of an analysis and synthesis of data to appraise the responses of the individual, family and community to health problems or life processes. The analysis phase requires data are separated into constituent parts define their interrelationships, and this phase is characterized by the categorization of data, identification of gaps, and the identification of convergent data. The synthesis of data groups information into patterns that are compared to standards, theories and models, thereby informing the diagnostic hypotheses with their respective causal relationships; the second phase consists of the formulation of the nursing diagnosis. The naming of a diagnosis, at minimum, requires a title and an indication of the factors that contribute to its occurrence[6]. In summary, the diagnosis process is operationalized as the investigation, collection, validation and organization of data, followed by the identification of standards, data registration and interpretation of the data, with the aim of identifying a precise diagnosis[7]. Furthermore, the diagnosis process is characterized by obtaining and processing data, followed by their interpretation and association. Interpretation of these data requires a knowledge of relevant theories and logical reasoning, which leads to the integration of data with existing theories and ultimately, culminates in the identification of a diagnosis[8].

> Critical thinking is an essential skill required in the nursing diagnosis process and is defined as an intentional judgment which that results in the interpretation, analysis, evaluation and inference of data, as well as an explanation for evidence upon which the judgment is based.

Thus, the decisions that drive the nursing diagnosis involve cognitive and interpersonal skills, as well as professional attitudes[9]. Critical thinking is an essential skill required in the nursing diagnosis process and is defined as an intentional judgment which that results in the interpretation, analysis, evaluation and inference of data, as well as an explanation for evidence upon which the judgment is based[10]. Critical thinking is a reflective process thinking that consists of an accurate evaluation of statements to determine whether data and/or interpretations are plausible[11]. Critical thinking also frequires the ability to question knowledge and to respond to questions and these traits, which can be learned and developed, rely on the ability to analyze, synthesize and evaluate information[12]. In nursing, critical thinking is considered an essential component of one's professional responsibility and the quality of nursing care. Critical thinkers have these mental traits: confidence, contextual perspective, creativity, flexibility, curiosity, intellectual integrity, intuition, comprehension, perseverance and reflection. They practice the cognitive skills of analysis, application of standards, discernment, searching for information, logical reasoning, prediction and transformation of knowledge[13].

In nursing education, and particularly in relation to the nursing diagnosis process, difficulties may be encountered in the development of critical thinking skills. For instance, an increased interest of students in performing nursing

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techniques may emerge at the expense of alternative activities that involve cognitive, critical and humanistic skills, including cultivation of interpersonal relationships. Undergraduate nursing course instruct pertains to the nursing diagnosis process is fragmented between disciplines covered in the curriculum, thereby making it difficult to consolidate the theoretical foundations of this process, as well as its formal or informal application in clinical practice. Furthermore, one study[14] highlights that, in the context of teaching the nursing process, there is a dissociation between what is taught in the theoretical lessons and what is routinely observed in of practical training. This conflict further contributes to a fragmentation between the knowledge and the practice; ultimately, this conflict indicates a detachment from critical appraisal, reflection and articulation of the information provided by the different disciplines that make up the undergraduate nursing course curriculum.

As a result of these gaps in the teaching of the nursing diagnosis process, students present with difficulties in exercising critical thinking, and therefore they tend to rely on the use of taxonomies. This focus, disregard the context of the clinical practice and especially the needs of the patient, which are often not expressed by selected given nursing diagnosis. The interpretation and grouping of data required, by the nursing diagnosis process represents a teaching challenge due to the need for data evaluation the coherent relationships linking data, and the gathering of evidence used to identify the nursing diagnosis.

Thus, it becomes essential to better understand critical thinking in the nursing context to ascertain the primary cognitive difficulties encountered by students during the application of the nursing diagnosis process. The current study was guided by the following question: What critical thinking skills are used by nursing students in the application of the nursing diagnosis process? Therefore, this study was conceived to identify critical thinking skills involved in the nursing diagnosis process.

METHOD

This was an exploratory study utilizing a qualitative approach. A validated case study[15] was presented to the nursing students to identify a priority nursing diagnosis, based on the taxonomy of Nanda-I[1], and to identify the critical thinking skills used, and the justifications for their use in the nursing diagnosis process. The case study design was justified as it is emphasized by the nursing literature as an important tool for identifying relevant clinical data and, consequently, for guidance in teaching the nursing diagnosis process. The formulation of diagnoses in actual clinical cases is extremely complex because it is not feasible to fully portray these situations in clinical simulations, thereby limiting their description. However, it is considered an appropriate

compromise to limit the complexity of simulations to the intellectual domain, by using case studies, particularly if the focus is the identification of a diagnosis or to improve diagnostic reasoning[9].

This study was conducted at Campus I of the Federal University of Paraíba (UFPB) in the city of João Pessoa - PB, where the an undergraduate nursing course linked to the Center of Health Sciences (CHS) is taught. Seven nursing students were selected, by invitation, in accordance with the following inclusion criteria: current status as a nursing student agreement to participate in the study by signing the Terms of Free Prior Informed Consent (TFPIC), attendance in the 9th semester of the UFPB undergraduate nursing course, these students were approaching the conclusion of the course and had practically applied the nursing diagnosis during different internships; and performance of theoretical and practical educational activities, in units at the Lauro Wanderley University Hospital (HULW) incorporating nursing diagnoses.

Data collection derived from the case study was executed with the participants. A clinical case was presented, and the identification of the relevant objective and subjective data was requested following an interpretation of the data, data grouping was suggested to establish different nursing diagnoses. Finally, the identification of a priority nursing diagnosis was articulated. Based on the resolution of the clinical case, the study participants exercised critical thinking based on self-reflection. To facilitate this exercise, the following question was developed by the researcher: What critical thinking skills did you use to follow the steps of the nursing diagnosis process and why did you use them? Participants were asked to endorse items related to critical thinking skills that, in their perception, were used in the nursing diagnosis process. After identification of the critical thinking skills, they were asked to justify the importance of these skills in the process.

Following data collection, a descriptive analysis of critical thinking skills was carried out, with skills identified and distributed in order of frequency. A content analysis strategy(16) was used to analyze the student's justifications of the constituent characteristics/elements of each critical thinking skill they exercised. This information provided a basis for directing focus group discussions regarding the conceptual definition of these skills and to build a theoretical model of critical thinking in the nursing diagnosis process.

In consideration of the ethical aspects of research with human subjects, the TFPIC outlined the aim of the study and the commitment of the researcher to maintain the confidentiality of the study participants. Furthermore, the research project was submitted to the Research Ethics Committee of the Lauro Wanderley University Hospital for evaluation and received approval under protocol CEP/HULW No. 211/10.

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RESULTS

Of the seven participants, six individuals cited analysis, technical and scientific knowledge and logical reasoning as critical thinking skills that are important in identifying a priority nursing diagnosis. Clinical experience was cited by five of the participants and knowledge about the patient and the application of standards were skills mentioned by three participants. Finally, two participants referred to discernment and contextual perspective skills. The frequency of the cited critical thinking skills thought to be utilized in the nursing diagnosis shown in Figure 1.

Based on the participant's justifications regarding the use of specific critical thinking skills in the nursing diagnosis process, the identified characteristics are presented in Chart 1.
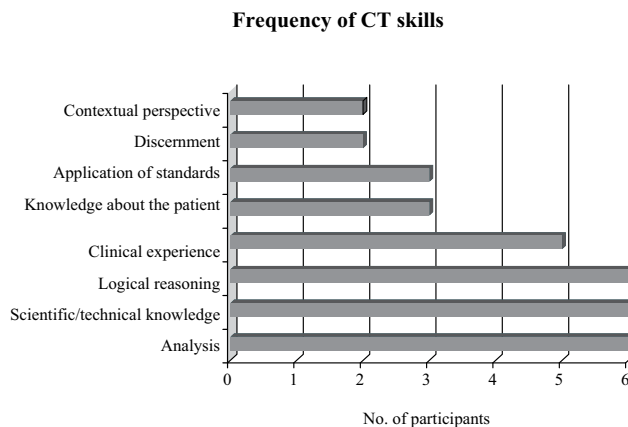
Frequency of CT skills

No. of participants

Figure 1 - Frequency of the critical thinking skills cited in the nursing diagnosis process according to the study participants - João Pessoa, PB, 2011

Chart 1 - Constituent characteristics/elements of critical thinking skills utilized in the nursing diagnosis process - João Pessoa, PB, 2011

PREDEFINED THEMES/CATEGORIES	CONSTITUENT CHARACTERISTICS/ELEMENTS
ANALYSIS	Evaluation and detailing of a clinical history Observation and relating of patient data Comprehension of health need priorities Grouping of main signs and symptoms
TECHNICAL AND SCIENTIFIC KNOWLEDGE	Knowledge of pathophysiology to comprehend and relate signs and symptoms Comparison of clinical situations with data from the literature Relating of signs and symptoms to establish problems
LOGICAL REASONING	Relating of objective and subjective patient data Relating of identified data with the health problems Organization of the data obtained Grouping of the data
CLINICAL EXPERIENCE	Experience with similar clinical cases Perception and observation of data from similar clinical cases
KNOWLEDGE ABOUT THE PATIENT	Comprehension of the patient's symptoms - subjective analysis Knowledge of the clinical history of the patient and of the family context
APPLICATION OF STANDARDS	Evaluation of clinical situations based on the literature Grouping of data based on standards and evidence from the literature
DISCERNMENT	Reflection of clinical situations Judgment of priority nursing diagnoses
CONTEXTUAL PERSPECTIVE	Analysis of evidence from a holistic perspective

The three critical thinking skills most often cited included analysis, technical and scientific knowledge and logical reasoning, as shown in Figure 1. Analysis, according to the participants, is an essential critical thinking skill in the nursing diagnosis process because it enables an *evaluation and detailing of the clinical history* from the *observation and relating of the patient data* to justify the identification of health problems. This analysis requires the *grouping of main signs and symptoms to comprehend the priority health needs of the patient*. The application of technical and scientific knowledge is considered fundamental to critical thinking skills as it assists in the *knowledge of pathophysiology to comprehend and relate signs and symptoms*, favoring the *compari-son of clinical situations with data from the literature* to evaluate the clinical manifestations. Thus, it was comprehended that the base of technician-scientific knowledge favors the development of the nursing diagnosis process by allowing the nurse *to understand the relation of signals and symptoms to establish problems and care*. Based on the perception of the participants, the use of logical reasoning was observed at the moment of *relating of the objective and subjective patient data*, aimed at understanding the *relationship of the identified data with the health problem* of the patient. Thus, logical reasoning can provide the *organization of the data obtained* to then proceed to the *grouping of the data* that will support the identification of the nursing diagnosis.

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Clinical experience, as the second critical thinking skill most often cited in this study, provides nurses with knowledge derived from their clinical practice. Clinical experience, according to the participants, helps to identify the priority nursing diagnosis due to *experience in similar clinical cases* enabling *perception and observation of data from similar clinical cases*.

Knowledge about the patient and the application of standards are the third most-cited skills mentioned by participants. Knowledge about the patient, according to participants, is critical in gathering data for in the nursing diagnosis process, as it is a *comprehension of the symptoms of the patient - subjective analysis*, that accounts for data related to the personal and family contexts. When establishing a nursing diagnosis, it is considered essential to have *knowledge of the clinical history of the patient and their family context*. Regarding the application of standards, the participants cited this as an important critical thinking skill required in the nursing diagnosis process because it enables a *clinical evaluation based on the literature*. In addition to this evaluation, the application of standards facilitates the *grouping of data based on standards and evidence from the literature*.

Discernment and contextual perspective were the least cited critical thinking skills in this study. According to participants, discernment is provided in the nursing diagnosis process by enabling the *reflection of clinical situations* based on the evaluation of the data. This evaluation enables the *judgment of priority nursing diagnoses*. Contextual perspective was considered relevant in the nursing diagnosis process due to its role in allowing an *analysis of evidence from a holistic perspective*.

DISCUSSION

Based on these results critical thinking skills were perceived to be interrelated and, based on the resolution of the clinical case used in this study, participants acknowledged a relationship between these skills and the steps of the nursing diagnosis process. The diagnostic process is commonly understood as a series of perceptual and cognitive activities in which observations lead to inferences and, in turn, lead to more observations. The initial conclusions raised from the observation of some data will be improved in that new observations are carried out for the naming of the problems identified[3]. The direction of this process requires collecting, processing and interpreting data based on relevant theories, enabling the integration between data identified and theoretical knowledge. Therefore, clinical experience, judgment to make decisions and critical thinking permeate the steps of the diagnostic process[8]. It can be seen that this cycle of activities requires a series of critical thinking skills for the perception, recognition and classification of information in an attempt to comprehend the complexity of human responses to health problems or life situations.

Thus, it appears that the diagnostic process involves the recognition of the signs or factors that are presented by a patient. This recognition requires the collection of reliable and relevant data. When relevant data have been obtained and considered, information must then be interpreted and grouped to construct patterns that inform the development of plausible explanations, or diagnostic hypotheses related to these indications. To clarify the relationship patterns between factors and articulate diagnostic hypotheses, the use of theoretical knowledge and practical experience, common sense, ethical judgment, intuition and critical thinking are required[5].

According to the study participants, technical and scientific knowledge and clinical experience permeate all the phases of the nursing diagnosis process. Clinical experience promotes the development of specific nursing knowledge and requires theoretical knowledge to enable the nurses to compare data identified with information from the literature. The analysis involves the application of standards and requires knowledge about the patient and their contextual perspective for the data collection. It is believed that, for the investigation and evaluation of the biopsychosocial aspects of human beings, it is necessary to compare identified data with standards in the literature, as well as knowing the specifics of the human being and their life context. The analysis process begins with the data collection and continues with its interpretation and with its grouping based on the application of standards and logical reasoning. At this moment, logical reasoning enables the coherent evidence to be related in the determination of inferences as diagnostic hypotheses. Thus, it is understood that the judgment of these hypotheses requires logical reasoning and insight to justify the relationship between data in order to judge them, with a view to making a decision regarding the priority nursing diagnosis[17].

In the clinical case used in this study, the participants were asked to identify a priority nursing diagnosis and, explain the different diagnostic hypotheses that could be raised; however, the interest of the study was the identification of the nursing diagnosis that represented the primary health needs of the patient in the clinical case presented. Different diagnostic hypotheses were identified, yet nursing students experienced difficulties, in selecting a priority nursing diagnosis. They identified a number of nursing diagnoses and, among them, established the order of priority according to the health needs presented by the patient.

In this context, it is accepted that the nurse's decision-making process should be based on a thorough evaluation of the patient's signs and symptoms by understanding their interrelationship as well as their relevance for patient care. Observations revealed some difficulty in establishing priority nursing diagnoses within the context of theoretical and practical activities with nursing students, when they are based on the classification systems used

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in professional practice. Regardless of the classification system used in the clinical practice, it is believed that it is essential to develop, both in the teaching and the nursing practice, the act of questioning the differences and similarities between the diagnostic concepts and their definitions; to comprehend the relationship between the signs and symptoms observed and, overall, to evaluate the main health needs of a patient so that a nursing diagnosis, selected as the priority, guides the planning of the appropriate nursing care. Thus, it is understood that discernment can be developed as an important critical thinking skill in the nursing diagnosis process through questions directed towards reflecting on certain clinical situations. It follows, therefore, that the difficulty in identifying priority nursing diagnoses represents a challenge for nurses to logically asses the relationships between signs and symptoms and to delineate their capacity for discernment.

These findings highlights the necessity of using strategies designed to develop critical thinking abilities, in nursing education as well as in clinical practice. An underlying assumption of the nursing diagnosis process is that the nurse must take a questioning stance, when interpreting and categorizing to identify the diagnosis. Notably, some questions may guide the evaluation of clinical situations that are intended to identify nursing diagnoses, such as the following examples:

- Is the information obtained sufficient to perform a clinical judgment? What other sources of information are available?

- What potential evidence can be identified to justify the selection of a nursing diagnosis?

- Is this evidence sufficient to characterize a nursing diagnosis?

- What factors are determinants for the generation of a nursing diagnosis?

- How are these factors related with the identified nursing diagnosis?

- Can these factors be modified through the nurse's actions? Is the participation of the patient, family or other professionals necessary for the care?

- Based on this diagnosis, what potential results can be achieved with the nursing care? What nursing interventions can be planned to facilitate these results?

It is widely believed that this questioning can promote the development of cognitive skills of required for critical thinking, such the search for information, analysis, the application of standards, logical reasoning and discernment. This questioning can help both the nursing student as well as the nurse, to expand their technical and scientific knowledge and to transform the knowledge based on their clinical experience. Furthermore, the questions can instigate the necessity to comprehend the nursing diagnosis as a way to assist the nurse in the understanding of human responses and in the planning of the nursing care with a focus on achieving efficient results. It is also believed that the case studies associated with the development of conceptual maps can help in the development of logical reasoning and, consequently, can facilitate the discernment for decision making regarding the priority nursing diagnosis as they allow for the visualization of interrelated concepts arranged in a configuration that expresses a meaning and, therefore, contributes to the understanding of specific phenomena of the clinical practice.

The use of specific critical thinking skills at different stages of the nursing diagnosis process was observed in this study and it appears that their application, both in nursing education and in the clinical practice, facilitates the identification of accurate nursing diagnoses. Furthermore, it should be noted that accurate diagnoses are essential for directing nursing interventions aimed at achieving positive health outcomes[18]. Based on this reasoning, the development of critical thinking skills can potentially improve the accuracy of nursing diagnoses.

CONCLUSION

This study demonstrated that a series of critical thinking skills was important to formulate an outcome of the nursing diagnosis process. The priority nursing diagnosis constitutes a resultant product of the clinical judgment of the nursing students. To judge which nursing diagnosis would be given priority in the clinical situation presented, the data were highlighted in the clinical case; then they were interpreted and grouped to raise different nursing diagnoses and an order of diagnoses priority was established among these.

The critical thinking skills identified in the nursing diagnosis process consist of the following factors: analysis, technical and scientific knowledge, logical reasoning, clinical experience, knowledge about the patient, application of standards, discernment and contextual perspective. Thus, we have the technical and scientific knowledge and the clinical experience function in the nursing diagnosis process as a basis for understanding clinical manifestations and establishing their interactions as they relate to the nursing diagnosis.

The skills of analysis, application of standards, knowledge about the patient and contextual perspective are interconnected and vital in the collection of data relevant. The interpretation and classification proficiency in the analysis, application of standards and logical reasoning to pose inferences that may underlie diagnostic hypotheses. Regarding clinical judgment, discernment and logical reasoning skills were reported critical in making decisions regarding priority nursing diagnoses.

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This study described an established relationship between critical thinking skills and the steps of the diagnostic process in nursing. Consequently, the application of the nursing diagnosis process in education and clinical practice informs strategies that may facilitate the development of distinct critical thinking skills.

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