

Approaches of the systematization of nursing care, complexity and ontology in the professional practice of nurses

Aproximações entre sistematização da assistência de enfermagem, complexidade e ontologia na prática profissional do enfermeiro

Aproximaciones entre sistematización de asistencias de enfermería, complejidad y ontología en la práctica profesional del enfermero

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ABSTRACT

Objective: To reflect on the approaches of the Systematization of Nursing Care, ontology and complex thinking in professional nursing practice.

Method: A reflective theoretical study grounded on the Complexity Theory of Edgar Morin and on the ontological principles of computational application which enables representing nursing concepts.

Results: The paradigm of complexity breaks the linearity and expands the meaning of Systematization of Nursing Care, supporting a conceptualization of new entities and objectives, moving away from reductionism in work practice. Ontology is considered as a potential technology for creating a standardized language capable of representing the Systematization of Nursing Care from the perspective of complex thinking.

Conclusion: Ontology furthers the formal representation of Systematization of Nursing Care knowledge, creating strength in its identity, organization, and sharing its knowledge and information. Supporting the dissemination of common nursing vocabulary contributes to nurses' daily experience and decisions.

Keywords: Patient care management. Standardized nursing terminology. Practice management.

RESUMO

Objetivo: Refletir sobre as aproximações entre Sistematização da Assistência de Enfermagem, ontologia e pensamento complexo na prática profissional do enfermeiro.

Método: Estudo teórico reflexivo fundamentado na Teoria da Complexidade de Edgar Morin e nos princípios ontológicos com aplicação computacional possíveis de representações conceituais na enfermagem.

Resultados: O paradigma da complexidade rompe com a linearidade e amplia o significado da Sistematização da Assistência de Enfermagem, favorecendo a conceituação de novas entidades e objetivos, distanciando-se do reducionismo na prática laboral. Considera-se a ontologia como potencial tecnologia para criação de linguagem padronizada capaz de representar a Sistematização da Assistência de Enfermagem na perspectiva do pensamento complexo.

Conclusão: A ontologia facilita a representação formal do conhecimento da Sistematização da Assistência de Enfermagem, gerando fortalecimento da sua identidade, organização, compartilhamento do conhecimento e informação. Aliada ao pensamento complexo, favorece a difusão de vocabulário comum à enfermagem, contribuindo na experiência e decisões dos enfermeiros.

Palavras-chave: Administração dos cuidados ao paciente. Terminologia padronizada em enfermagem. Gerenciamento da prática profissional.

RESUMEN

Objetivo: Reflexionar sobre las aproximaciones entre la Sistematización de la Asistencia de Enfermería, ontología y pensamiento complejo en la práctica profesional del enfermero.

Método: Estudio teórico reflexivo fundamentado en la teoría de la complejidad de Edgar Morin y en los principios ontológicos con aplicación computacional posibles de representación conceptual en la enfermería.

Resultados: El paradigma de la complejidad rompe con la linealidad y amplía el significado de la Sistematización de la Asistencia, favoreciendo la conceptualización de nuevas entidades y objetivos, alejándose del reduccionismo en la práctica laboral. La ontología se considera una tecnología potencial para crear un lenguaje estandarizado capaz de representar la Sistematización de la Atención de Enfermería desde la perspectiva del pensamiento complejo.

Conclusión: La ontología facilita la representación formal del conocimiento de la la Sistematización de la Asistencia, fortaleciendo su identidad, organización, intercambio de conocimiento e información. Unido al pensamiento complejo, favorece la difusión de vocabulario común al área de enfermería que contribuya en la experiencia y decisiones de los enfermeros.

Palabras clave: Manejo de atención al paciente. Terminología normalizada de enfermería. Gestión de la práctica profesional.

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■ INTRODUCTION

We live in a global moment in which stability, predictability, control and linearity are an illusion. There is an increasingly complex universe with several interactions and interrelationships which contrast with the mechanistic paradigmatic hegemony⁽¹⁾.

From the perspective of understanding health and nursing under a paradigm that moves away from fragmenting purposes, already obsolete for current demands, an approach to complex thinking is touted which understands the world in its entirety as systems composed of parts which interact and relate respectively⁽¹⁾. This also applies to management issues, especially in operationalizing the Systematization of Nursing Care (SNC), a management support methodology which aims to organize and plan care practice⁽²⁾. Even though it is not a newly discovered theme, the ballast of knowledge relating it to complex thinking is shallow⁽¹⁾.

Although there is incipience in correlating complex thinking with themes in the health management area⁽³⁾, some approaches have been studied in conjunction with complexity in the context of nursing, such as their applications in the fields of education, clinical practice, organization/management and in the discourse of the profession⁽⁴⁻⁶⁾.

Faced with such complexity present in the world of health, nurses are given the opportunity to reform their thinking, explore uncertainties and internalize new working methods⁽⁶⁾. To this end, there is the possibility of using ontology to know and share the particular and common understanding, its meanings, attributes and relationships of a certain domain⁽⁷⁾, including the SNC.

It is understood that elaborating an ontology can clarify semantic issues and understanding the relationships existing in the discourse universe of the SNC⁽⁸⁻⁹⁾, in order to minimize conceptual mistakes and ambiguities in light of the complexity in which it is possible to preserve the ontological relationship of the whole with the part, almost always hidden in the approach to this theme.

The need that arises is observed by different thought currents to define terms associated with SNC and by the disparity of concepts used in professional practice, resulting in disarticulation of the theory and practical application, which makes it difficult for professionals to understand⁽⁸⁾. Discussions on the design and nature of SNC are not exhaustive; this theme is the central focus of some discussions of the National Symposium on Nursing Diagnosis (*Simpósio Nacional de Diagnóstico de Enfermagem – SINADEN*)⁽⁹⁾.

Therefore, it is believed that the use of ontology can contribute to learning and the pertinent understanding of SNC, as well as its conceptualization with a formal representation

of knowledge that clarifies the integration between its parts and the whole in its practical applicability. Thus, the following question emerged: what are the possible links between SNC, complexity and ontology in the professional practice of nurses?

In order to construct a text that would contribute to the epistemological understanding of SNC and its ontological representation from the perspective of Complexity Theory, and in view of the relevance and contribution of the theme to the profession and science, the following objective was outlined: to reflect on the approaches of Systematization of Nursing Care, ontology and complex thinking in the professional practice of nurses.

■ METHODOLOGICAL COURSE

This is a theoretical, reflective study, anchored in scientific literature as a research resource on SNC themes, ontology and principles of Edgar Morin's Complexity Theory. The objective was to converge their ideas on a guiding axis which sought to identify an intertwining between the themes and build reflections, which in turn contribute to understanding the approaches between them in the professional context through a critical reading of the bibliographic material combined with inferences arising from the professional experience of the authors.

The data sources to compose the essay were obtained through exploratory and systematic research of documents, comprising books, legislation and articles published in journals indexed in electronic format in Portuguese and English in the databases: *Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS)*, Medical Literature Analysis and Retrieval System Online (MEDLINE), *Base de Dados em Enfermagem (BDENF)*, the Scientific Electronic Library Online (SciELO), the U.S. National Library of Medicine (PubMed) portal and UCL Discovery.

The following terms and descriptors related to the three aforementioned themes were used: "*Serviços de Enfermagem*", "*Pesquisa em Administração de Enfermagem*", "*Supervisão de Enfermagem*" and "*Processo de Enfermagem: Gerenciamento da prática profissional*", "*Enfermagem*"; "*Terminologia padronizada enfermagem*"; "Nursing work"; "Organising work"; "Complex Adaptive Systems; Complexity Science; Nursing; "Complexity"; "Ontologies". It is noteworthy that the term SNC is not part of the structured vocabulary of the Health Sciences Descriptors (DeCS). Therefore, a refinement of the search for articles in databases was performed by the knowledge area.

Articles from 2015 to 2021 were selected and authors considered as references in the topics covered were taken into account to develop and systematize the study concerning

scientific publication. After reading the abstracts and compiling the materials, the selected documents were read in full, followed by an analysis and identification of convergent elements for reflection.

The reflections are organized and built in two textual sections: "Approaches of SNC with complex thinking" and "Contributions of ontology to understanding SNC in the light of complexity". The connections, correspondences, convergences and divergences that relate the SNC to the Theory of Complexity point to new knowledge. These in turn will serve as theoretical substrates for the possible ontology development.

Approaches of the Systematization of Nursing Care with complex thinking

SNC was institutionalized from Resolution no. 358/2009 of the Federal Nursing Council (*Conselho Federal de Enfermagem – COFEN*), which defines it as a way of organizing professional work in terms of method, personnel and instruments, making it possible to operationalize the nursing process (NP), which is the methodological support used to perform systematized care^(2,9).

Historically, the SNC inherits the mechanistic and linear perspective of the early 20th century based on the administrative theories of the time, using the division of tasks to perform care and adopt norms, manuals and scales. Thus, it suffers a positivist influence, treating the relationships between environmental phenomena and the dynamics of work organization in a fragmented way, exclusively in parts⁽¹⁰⁾. That said, there is a need for new administrative approaches and new directions in care organization to deal with incompleteness and discontinuity of care.

It is known that SNC integrates the nursing work process components and the interrelation of actions between method, personnel and instruments to promote care. In this context, other organizational nursing work components are presented by ideological currents to meet the patient's needs, emphasizing an alignment between material artifacts, such as tools, technologies and instruments, cognitive artifacts, bodies of knowledge, methods and people, which they transform into service⁽¹¹⁾.

Seeking to materialize the practical interaction dynamics of the components which belong to the SNC, there is no room for fragmentation and simplification rooted in scientific and classical management concepts⁽¹⁾. However, since its inception, the SNC has not been static or perennial and its reflection in the light of complex thinking can contribute to a new perception and transformation of the current way of organizing nursing work.

In this reflection, SNC is understood as a management support methodology, composed of a structure of relationships and managerial and particular ideas which subsidize and guide the care practice. Additionally, it is discussed from the perspective of Edgar Morin's complex thinking, whose philosophical principles are: 1) systemic or organizational, 2) hologrammatic, 3) retroactive circuit, 4) recursive, 5) autonomy, 6) dialogic and 7) the reintroduction of knowledge into all knowledge⁽¹⁾.

When considering that nursing work has permanent action and intentionality, its process enables transforming a given object into a product through adopting tools which transform this nature. Thus, movements and actions pass from one state to another through instruments, methods and people. Tangenting to the systemic or organizational principle based on the relationship of the parts with the whole and that, when understanding the parts, one understands the whole and vice versa⁽¹⁾, it appears that the SNC components generate a change of state in the health-disease context through their intersections and relationships, attesting that it is infeasible to practice care management disregarding the correlated parts of the whole.

At this point, an approximation can be made with the Morinian perspective, which means the fact that the aforementioned SNC components are constantly complementary, allows us to infer that there is a connection with the principle of hologrammacy, since the parts are in the whole and the whole is in the parts. In this context, the systemic view is antagonistic to the simplistic view, in which the parts fall short of the whole and on the other hand, the whole is the mere sum of the parts⁽¹⁾.

Thus, positive aspects are observed from the view that nursing has a vertical division of managerial activities, such as the organization of the environment during the work process, but it portrays a mechanistic administration phase, work standardization, fragmentation aspects of activities and control which are still present as the central axis of care management⁽¹⁰⁾. In this context, it is inferred that the constituent elements of the SNC that promote care organization behave in a static and limited way, with reserved autonomy and discrete connections and articulations between personnel, instruments and methods.

Therefore, it is conjectured that it is necessary to consider the respective components of the SNC not only individually but also in an intertwined way, since they individually (parts/components) influence the fluidity and effectiveness of nursing care (whole), and this care (whole) influences the way of practicing each stage (parts), adjusting them when necessary to the personalized needs of each patient.

Still from the hologrammatic perspective, it should not be disregarded that the SNC can be interpreted and represented as a system composed of the health, the environment and the nurse's work process dimensions, which influence and are mutually influenced by it, since the health organizations are considered as living organisms that respond to environmental stimuli⁽¹⁾.

Furthermore, health is also a complex phenomenon due to its social, economic, cultural, environmental, behavioral and biological determinants, as already recognized by the World Health Organization (WHO). These variables impact the daily nursing routine and do not always follow the initial organization of work proposed, causing professionals to reinvent themselves, re-analyzing the needs of the new context and determining new strategic actions to manage care through the SNC.

Regarding this approach, the principle of the retroactive circuit is focused on here, which anchors cause-effect and effect-cause actions and proposes a vision of circularity, in which the effects retroact on the causes and feed them back⁽¹⁾. In this way, it is considered that the SNC can combine, external, environmental, clinical, organizational, financial and results variables that portray the real performed work to organize nursing work, clarifying the gap between prescribed and developed work, and evidencing the possibility of the worker to intervene in situations not foreseen by the initial planning.

However, the focus of nursing practice organization is often only on the patient and not on the management of the necessary arrangements to promote care, neglecting the organizational dimension⁽¹⁾. Considering that complex thinking is based on the General Systems Theory, it can be considered that both the dimensions mentioned and the SNC components themselves can be seen as living and interacting systems, making it possible to affirm that there is proximity to the principle of recursion.

The systemic approach is transdisciplinary, requiring dialogue between disciplines because they reduce the understanding of the complex problems of the world when conducted in isolation. Thus, the principle of recursion transcends the perception of alignment with that of self-production and self-organization. To this end, it establishes that products and their results are the cause and consequence of what produces them⁽¹⁾.

Understanding the administrative nature of SNC inserted in a universe of interacting systems that constantly feedback facilitates a perception of the influence of the various variables which make it difficult to implement in health environments. Among them, the lack of adopting a theoretical model by the institution, difficulty in obtaining support from

the local administration, low involvement of the team in the implementation, implicit rationing of material and personnel resources, complexity and dynamics of the environment, disagreements between the nurses' perception and the client's health conditions, and deprived recognition by the nursing team⁽²⁾.

It is argued that this constant exposure to health phenomena and varieties of environmental influences during the activity of planning care systematization and the complex dynamic needs of the patient denote the unpredictability and mutability of the linear path of the care organization, which corroborates rapid nursing adaptation, as these systems are in a state of rapid change. This understanding is aligned with the principle of autonomy, which considers that organizations have the ability to self-organize, consuming effort to preserve autonomy and consider the relationship with the environment⁽¹⁾.

This condition imposes a need on nurses for transformational leadership that is capable of self-reflection, of tolerating uncertainties and collaborating with the given context. Although leadership is not one of the core elements of this study, it is worth mentioning that the concepts of complexity are close to it and to organizational management, also reinforcing that the break with mechanism in these spheres can be beneficial for the product desired by nurses: care⁽¹²⁾.

An initiative to understand the relationship between the nurse's role in the systematization of care as leadership and the underlying personal component of the SNC starts from the possibility of evaluating the different ways of seeing the world and acting by the team in the coexistence of complexity. Different logic dialogues, without necessarily excluding each other, characterize a dialogic relationship as a dynamic way of interacting and learning from the team in the disorder, allowing the system to evolve. This is the dialogic principle, which allows us to understand the union of two conditions that would be antagonistic, such as order and disorder, which, despite being contradictory, are inseparable in the same reality, and this principle collaborates to organize complexity in the face of emergency⁽¹⁾.

Another principle, reintroducing knowledge into all knowledge declares the cognitive challenge of restoring the subject and starts from the reflection that all knowledge is a reproduction of the subject's observation and perception. Therefore, the fundamental limit for SNC evolution in the perception of the subject comes from understanding its conceptual gaps and the managerial definitions of this model, which imply training and professional practice, thus becoming a potential way to give visibility to nurses, reorganizing the nursing work process and connecting the concept of NP (part) as an implicit condition of the SNC.

In short, from the point of view of complexity, providing care means welcoming the circularity and dynamics of order-disorder-organization that continually (re)feed the elements of the SNC, which is also influenced by other variables which compose the nursing work process, such as leadership and the work environment. Thus, the growing complexity of health environments dynamizes inertia and causes non-linearity in its main elements, which does not lead to reflection on subordination to a single administrative or care model, but rather the need to understand it as a whole, in the parts and in the way they interrelate with environmental variables, in this case, from the perspective of Edgar Morin's complexity⁽¹⁾.

In view of the statements made herein, a strategy which emerges as a possibility to favor understanding of SNC in a complex way is ontology, which also has an affinity with Morinian complexity, as indicated in the following section.

Contributions of ontology to understanding the Systematization of Nursing Care in the light of complexity

Ontology is traditionally applied to philosophy, and studies the types (categories) of things existing in the world. The category system is obligatory to provide a comprehensive list of effective things to give meaning to the way people think and speak about the world^(7,13).

However, many knowledge domains have used the meaning of the word ontology to conceptualize and define presuppositions of their areas in a search for knowledge construction and reconstruction, with application prevalence in the Computer Science and Information area. It often adopts the ontology view as a way of formal representation of a given domain (conceptualization) and uses its concept to solve problems related to terminology applied in technologies⁽¹³⁾.

Therefore, the terms have conceptual properties of a knowledge domain and the representation and construction of a certain concept is based on the particular characteristics of an individual entity in a certain context, in which the network of concepts is established according to the relationship between terms⁽¹³⁻¹⁴⁾.

In terms of nursing, the concepts and principles of ontology with computational application have already been explored in the International Classification of Nursing Practice (ICNP[®]), resulting in terminological standardization by the International Council of Nurses (*Conselho Internacional de Enfermeiros – CIE*) and expanded in Brazil by the Center for ICNP[®] Research and Development⁽¹⁴⁾. In a more recent proposal, a partnership between the *Escola Superior de Enfermagem do*

Porto (ESEP) and the *Ordem dos Enfermeiros* developed their own Nursing Ontology.

Following this line of thought, it is considered that ontology with computational application can contribute to organization, understanding the complexity and defining the components and elements that exist in the SNC and attributing it to a formal specification established in the perspective of the nursing world, with capacity to be understood by computational resources. In addition, it offers the opportunity to broaden understanding by formalizing the management approach of the SNC and providing semantics to its statement.

However, a terminology should not only be represented in a formal model, but the interaction of the terms “method, personnel and instruments” and its detailed conceptualization can provide subsidies for materializing the documentation of practice, expanding the clarity of the elements of the profession, supporting information being provided to evaluate results and decisions during the administrative work process. This act of clarifying language is the most effective way of defining the meaning of a concept, as each science communicates through the corpus of knowledge, resulting in effective communication between peers⁽¹⁴⁾.

In view of the theme advancement, there is concern of researchers and class representative entities in relation to the meaning of SNC and its differentiation with the NP. This movement was observed during the review of Resolution no. 272/2002 of *COFEN*, which presents a restricted concept of SNC, recommending that the NP contained therein should be supported by theoretical support and composed of five stages⁽¹⁵⁾. The NP proposal to be contained in the SNC reveals breadth to its particular concept and gives the NP a condition of methodological instrument that guides care with its own significance and meaning.

Subsequently, Resolution no. 358/2009 provides a more appropriate ontological organization of SNC concepts and relationships⁽¹⁵⁾. Thus, planning and organization of the therapeutic environment are essential to execute the nursing work process and to manage its fundamental axis, which is care.

It is noteworthy that the concept of the term systematization precedes the expression SNC and comes from the idea of system, and as seen, system is a root word for complexity, which have similar meanings, but different origins; the first is of origin Greek and means “to put together”, and the second is from Latin, which represents “what is together”⁽¹⁾.

Thus, the expression SNC can be seen as a complex system composed of underlying elements of nurses' managerial work process that adapts according to the real needs of daily life. In turn, it is necessary to define the domains of

interpretation and its representation for its understanding, such as concept, structure, processes and operation.

This process is particularized as ontology with emphasis on the managerial domain of nursing, as it contains “parts”, “terms” or “axes” that organize the work, composed of “instruments, methods and people” which promote care when concomitantly performed, thus demystifying the conceptual distinction and the polysemy between NP and SNC. In this conception, the NP is part of the SNC structure and is based on the term “method”, as it composes a process organized in five logical and systematic steps of care planning.

It can be said that a body of knowledge of the SNC, a “method” represented by formal ontologies, must absorb the components that corroborate care planning in addition to considering nursing theories, such as material resources (instruments) and human beings (people), as well as their constitutive elements, administrative processes and their operation. This all determines applying SNC as an extension of care and is supported by the principles of complexity discussed above. Therefore, there is a complementary and inseparable relationship between managing and caring, giving the SNC the articulation and circularity of a set of elements that promote care management.

When moving towards this ontological perspective, which discusses the nature of SNC and assumes that its concept can be shaped by the imperative of complexity and adaptation, the belief that the set of elements “instruments, methods and people” has relatively stable and concrete organization patterns for care management becomes problematized.

Therefore, it is necessary to broaden the view in relation to the context and remain receptive to the interconnections and variability of interactions surrounded during the act of systematizing care. Broadly speaking, opening up the systemic problem of SNC requires reforming the thinking of professionals and metabolizing complexity, because nurses often experience order, disorder, singularity, plurality and incompleteness during their work organization. Therefore, ontology has the possibility of being a facilitator for this change of thought process, since the construction of contextualized knowledge denotes relevance to its applicability.

However, this proposal is not completely devoid of philosophical precedents of ontology, since, in addition to classifying and categorizing the SNC and its relationships, aiming to build a common vocabulary for researchers who need to share information in this domain, it takes into account the different possibilities of interpreting the world arising from the diversity of narrative, human discourse and factors related to the lived experience and expertise of the interpreter, making its application elusive when its principles are not clear.

In seeking to apply such conceptions to the context of practice and considering that the concept of SNC is partially mature in the informal discourse of the profession, it is still necessary to reflect on the essence of its meaning and to determine a denser conceptualization so that there can be substantial progress of its understanding and applicability.

■ FINAL CONSIDERATIONS

This reflection made it possible to demonstrate that the Systematization of Nursing Care expands its concept in the light of complex thinking when considering the possible variables that portray the reality of its proposal in order to interconnect and relate to promote integrated care. Although there is a growing movement towards conceptual distinction of the Systematization of Nursing Care, its meaning is still imprecise, considering its fragility in relation to the concept, the indefiniteness of its stages and its applicability form, which makes it difficult to exchange information between different groups of professionals and their operation. The constant self-criticism of the model currently used in the approach to SNC is a way of advancing in Nursing Science.

The use of ontology on Systematization of Nursing Care anchored in the principles adopted by complexity allows a new look at the phenomena, emphasizing the essence of the theory, in which the complex look must be developed, revised and redefined.

It is recognized that there are limitations in this study as it is a theoretical approach, needing to be deepened with field research. This reflection is not empty, but it is necessary to deepen it in order to promote a standardized language of the constitutive elements of the Systematization of Nursing Care from the perspective of nursing management, thus promoting a harmonious concept for science and for practice management in a paradigm that distances itself from reductionist and fragmented practices.

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