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## CONCEPT ANALYSIS STRATEGIES FOR THE DEVELOPMENT OF MIDDLE-RANGE NURSING THEORIES

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### ABSTRACT

**Objective:** to reflect on strengths and limitations of the concept analysis strategies as resources for the development of middle-range nursing theories.

**Method:** a reflection study of metatheoretical nature.

**Results:** strategies for concept analysis for the development of middle-range nursing theories are presented. The philosophical foundations of concepts and their interface with the analytical procedures were presented. It has been found that Nursing uses three approaches for concept analysis: adapted Wilsonian, evolutionary and pragmatic utility. The concept analysis strategy was illustrated by the Interactive Theory of Breastfeeding.

**Conclusion:** concept analysis strategies have been employed in nursing to develop theories and to refine the concepts and terminologies used in research and practice. Despite their widespread use, there is still great diversity of methods used and some uncertainties that hinder their implementation.

**DESCRIPTORS:** Nursing theory. Concept formation. Nursing. Models theoretical. Evidence-based nursing.

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# ESTRATÉGIAS DE ANÁLISE DE CONCEITO PARA O DESENVOLVIMENTO DE TEORIAS DE ENFERMAGEM DE MÉDIO ALCANCE

## RESUMO

**Objetivo:** refletir sobre fortalezas e limites das estratégias de análise de conceito como recursos para o desenvolvimento de teorias de médio alcance de enfermagem.

**Método:** estudo de reflexão de natureza metateórica.

**Resultados:** são apresentadas estratégias para análise de conceito para o desenvolvimento de teorias de enfermagem de médio alcance. Foram apresentadas as bases filosóficas de conceitos e sua interface com os procedimentos analíticos. Verificou-se que são três as abordagens utilizadas pela Enfermagem para a análise de conceito: a adaptada da Wilsoniana, a evolucionária e a da utilidade pragmática. A estratégia de análise de conceito teve por ilustração a Teoria Interativa de Amamentação.

**Conclusão:** as estratégias de análise de conceito têm sido empregadas na enfermagem para o desenvolvimento de teorias e refinamento dos conceitos e terminologias utilizadas na pesquisa e prática. A despeito do uso difundido ainda há grande diversidade de métodos utilizados e algumas indefinições que dificultam a sua aplicação.

**DESCRITORES:** Teoria de enfermagem. Formação de conceito. Enfermagem. Modelos teóricos. Enfermagem baseada em evidências.

# ESTRATEGIAS DE ANÁLISIS DE CONCEPTO PARA EL DESARROLLO DE TEORÍAS DE ENFERMERÍA DE MEDIO ALCANCE

## RESUMEN

**Objetivo:** reflexionar sobre diversos puntos fuertes y límites de las estrategias de análisis de concepto como recursos para el desarrollo de teorías de enfermería de medio alcance.

**Método:** estudio de reflexión de naturaleza metateórica.

**Resultados:** se presentan estrategias para el análisis de concepto con el fin de desarrollar teorías de enfermería de medio alcance. Se presentaron las bases filosóficas de los conceptos y su interfaz con los procedimientos analíticos. Se verificó que en Enfermería se utilizan tres enfoques para el análisis de concepto: el adaptado de Wilson, el evolucionario y el de utilidad pragmática. La estrategia de análisis de concepto tuvo a la Teoría de Amamantamiento Interactivo como ilustración.

**Conclusión:** las estrategias de análisis de contenido se han incorporado a la enfermería para desarrollar teorías y refinar los conceptos y las terminologías que se utilizan en la investigación y en la práctica. Pese a la gran difusión de su uso, todavía existe gran diversidad de métodos utilizados y algunas indefiniciones que dificultan su aplicación.

**DESCRIPTORES:** Teoría de enfermería. Formación de concepto. Enfermería. Modelos teóricos. Enfermería basada en evidencias.

## INTRODUCTION

Positivist tradition, and later post-positivist tradition, place relevance in the formal construction of theories and indicate science as having the primary purpose of testing theoretical explanations.<sup>1-2</sup> In this perspective, theory, as a symbolic representation of invented or discovered aspects of reality, would have the potential to expand the scope from a purely professional field of knowledge to an academic discipline.<sup>3</sup>

Post-positivist discourse, as well as other philosophical contributions, must be limited to the contextual, epistemological, historical and social fields of application to avoid dogmatic positioning in science. The advantage of the balance between philosophical, theoretical concepts/dimensions and empirical aspects for the construction of knowledge is highlighted as an essential criterion for disciplinary progress.<sup>4</sup> Thus, both professional practice and academic knowledge would be relevant and inseparable in the current state of scientific professions. If on one hand the theories, as constructs of abstraction above hypotheses and laws, must be recognized in their ability to produce adequate descriptions, explanations, predictions, or prescriptions for phenomena; on the other, they need to guide scientific research and professional practice.

In sociology, in order to overcome the problem of the limitation or inadequacy of the building of unified theories (grand theories or conceptual models), a scholar proposed in 1968 the middle-range theories that would be intermediate theories between the working hypotheses and the unified explanatory theories of all social uniformities. The author proposed that such theories serve as a guide for scientific research.<sup>5</sup>

In the 1970s, Nursing was inclined to produce unified theories, influenced by positivist thinking. However, because it is a discipline sustained in a profession, the task of theorizing should necessarily be linked to testing in professional practice. Because of this required link, a gap has arisen between theory (grand theories) and practice (professional). Subsequently, the development of middle-range nursing theories was one of the strategies adopted to build the necessary bridges to overcome the mentioned gap.<sup>6</sup>

Middle-range nursing theories have a limited number of concepts and variables, and are usually articulated by a world view or grand theory, embodying a disciplinary identity. Because these characteristics are testable but they still have a sufficient degree of generalization to be scientifically interesting, a fact that offers practical application advantages. The continued use of middle-range theories would enhance testing and modeling, increasing their relevance in contributing to the development of nursing knowledge in the coming decades.<sup>7</sup>

The building of middle-range nursing theories depends on the manipulation of concepts by the strategies of analysis, synthesis and derivation. Concepts have been considered the essential foundations of the construction of the conceptual framework of nursing theory. Interest in the subject is verified in the significant number of researches using concept analysis that were and still are carried through. A literature review of articles published between 2001 and 2010 indicated that of the 2317 articles about different types of nursing theories, concept analysis represented the second type, with 327 articles.<sup>8</sup>

Concept analysis is a formal and linguistic procedure that examines the elements of a concept, their use, and how similar or different they are to other related words. Supporters of concept analysis see its usefulness in semantically clarifying words that are vague or overused, allowing everyone who uses the word to communicate the same concept. Also, they provide accurate definitions for use in theory and research. However, as concepts are dynamic and change over time, a concept analysis should never be considered as a finished product, but as a definition of its attributes at the present moment.<sup>9</sup>

However, the defending position on the need to carry out concept analysis for theory building is not a consensus point, despite its long and recurrent use as a theory development strategy. Those who disagree support their criticism on the common notion in nursing that concepts would be the building blocks of theories. For them, concepts are contextual and, it is within the theory that they receive their meaning, in other words: theory shape the meaning of a concept, and not a concept would be the building block of the theory. Because of this, efforts to pursue an appropriate definition of the concept would be unsuccessful and inappropriate because concepts gain meaning by being in the relations and contexts in which they are employed. Consequently, in this philosophical perspective, the idea of concepts as building blocks of theory would derive from a misunderstanding of preeminent nursing authors.<sup>10-11</sup>

This article recognizes that the issue is under discussion and that the philosophical orientation of the author is what determines its position for or against the relevance of concept analysis as a facilitator for building theories. The purpose of this article is not to advocate in favor of either perspective. In fact, by means of a metatheoretical reflection, it intends to bring more clarity about the use of concept analysis as a step for the generation of middle-range theories, especially, since it assumes that even critics recognize the prevailing view in nursing that concepts are considered as building blocks for nursing theory.<sup>11</sup>

Thus, the objective is to reflect on strengths and limitations of the concept analysis strategies as resources for the development of middle-range nursing theories.

## **PHILOSOPHICAL FOUNDATIONS OF THE CONCEPT AND INTERFACES WITH ITS ANALYTICAL PROCEDURES**

The term concept has been presented by the authors in different ways: abstractions, images or mental formulations, words that describe mental images.<sup>10</sup> The concept as a symbolic statement describes a phenomenon or class of phenomena, being expressed by a definition. While the phenomenon is the empirical referent, the concept is its theoretical and symbolic expression. Thus, the concept, and its formation, depends on language, knowledge and on the other cognitive, affective constructs and personal and cultural beliefs.<sup>12</sup>

This more classic view of the concept in nursing incorporates three elements: meanings, uses and definitions.<sup>10</sup> And, somehow, it is considered that it is precisely on these three elements that concept analysis is focused. Conceptual analysis seeks to bring clarity to the phenomena of nursing practice and research to obtain and clarify meanings, pursues uses that are attributed to a particular concept, and intends constructing of constitutive and operational definitions, to obtain better accuracy and understanding in the diffusion of the concept. However, all these considerations only make sense in a more universalist, foundationalist, and static perspective of the concept.

In another perspective, there are those who point out that concepts are contextual, dynamic, modifiable according to their use and application in different circumstances and contexts and, therefore, need to be periodically reviewed and re-evaluated, aiming at their improvement.<sup>2</sup>

Finally, there are critics of the application of most or of all the concept analysis strategies employed in nursing as theory-builders, even pointing out that better alternatives would be literature reviews and meta-syntheses aimed at analyzing the writings of theorists and researchers on a particular issue.<sup>10-13</sup>

The credit and discredit spectrum of concept analysis goes through the philosophical orientation of science. In the philosophy of science, the notion of concept may have influenced nursing researches interest in determining concepts relevant to the discipline and the profession.<sup>14</sup> Conceptual problems are the critical point in the work of science, pointing out five types: phenomena scientists want to explain but lack explanatory procedures; phenomena only partially understood; conflict among concepts within

a single discipline; conflict among concepts of different disciplines and conflict among concepts and societal attitudes. It is sustainable to say that concepts are not orphans of their context.<sup>14</sup>

Considering philosophical aspects on the role of concepts and their relations with science and theories, it is necessary to advance further in the debate on conceptual analysis regarding its philosophical and epistemological foundations, but this would go beyond the objective of the article.

## **STRATEGIES FOR CONCEPT ANALYSIS AND INTERFACES WITH THE DEVELOPMENT OF MIDDLE-RANGE NURSING THEORIES**

Basically, Nursing uses three approaches for concept analysis: adapted Wilsonian, Evolutionary and Pragmatic Utility.<sup>15</sup> In this paper we will explore the method proposed by Walker and Avant as a basis for discussion to establish the divergences and convergences between the other approaches. Such a choice is justified by the fact of its wide diffusion and national and international application, besides representing a model of adaptation of the Wilsonian approach.<sup>16</sup>

In terms of philosophical affiliation, Wilsonian adaptation in nursing probably has a mark of the positivist paradigm, particularly as regards the way of viewing the concept as a static entity in time and capable of being reduced or extracted from its context of application. The Evolutionary approach is understood as having a post-positivist influence of interpretational character, contextualizing how attributes should be viewed, being subject to conceptual development or change. In the Pragmatic Utility Method, affiliation with critical theory is the support of the method, with the view of concepts of a probabilistic nature, requiring the comparison and contrast of the application of the concept between different disciplines.<sup>15</sup>

The most widespread Wilsonian adaptation in nursing proposes three strategies for the construction of a theory: derivation, synthesis and analysis, and each strategy can be used to elaborate concepts, statements and theories. Thus, by combining the proposals, in the end there are nine possibilities for the development of a given theory. Derivation is the transposition or redefinition of a concept, statement and theory from one context or field to another. In summary, observation-based information is used to construct a new concept, a new statement, and a new theory. In the analysis, the theorist must dissect a whole into parts so that it can be better understood.<sup>9</sup>

To illustrate the application of the middle-range theory development strategy from the concept analysis, the procedures developed in the Interactive Theory of Breastfeeding are presented.<sup>17</sup> The mentioned theory, developed in Brazil, used Walker and Avant's concept analysis method<sup>9</sup> to analyze the concept of breastfeeding and, from the evidence in the scientific literature, to identify the concepts related to the process of breastfeeding that made up the theory. The authors of the Interactive Theory of Breastfeeding followed Walker and Avant's method<sup>9</sup> and started from the selection of the concept of breastfeeding. Selecting or choosing the concept may seem like a simple task; however, this is not entirely true when it comes to developing a theory.

The selection of the concept to be analyzed is vital to the Wilsonian and evolutionary approaches, being the starting point. They differ in contextualized mode on how the attributes are to be approached, being subject to conceptual development or change. In the Pragmatic Utility method, the selection of the concept is not explicit, because this method is based more on guiding principles than on stages.<sup>15</sup>

The selection of the concept in theoretical terms is preceded by philosophical and ontological choices, if the concepts are theory-forming (as in Walker and Avant's view) or if they are formed by theories, as in the contextualist view.<sup>18</sup> The appropriated selection by the method of analysis or conceptual development, as well as the application of strategies of analysis, derivation or synthesis must be submitted to the decisions about the philosophical and theoretical framework of the theorist.

In deciding to conduct the analysis, the theorist still needs to keep in mind that the type of concept selected modifies the concept-phenomenon relation with impacts on theorizing. For example,



the adoption of the concept of “breastfeeding” forms a different theory of choosing the concept “feeding” or “infant feeding”.

Similarly, the contextualist view of the concept informs that relations to produce breastfeeding are influenced by the social and/or cultural context of the child, of the woman and their family. The contextual view, in our opinion, aligns with the elaboration of middle-range theories or of micro range theories that are closer to the empirical level of phenomena when compared to grand nursing theories.

To avoid adopting a static character to the concept, the authors of the Interactive Theory Breastfeeding selected a conceptual model compatible with the interactionist paradigm (Imogene King’s Open Systems Model). Also, they incorporated contextualist and non-static aspects proposing a definition of breastfeeding as a dynamic and unique experience to each event.<sup>17</sup> It is understood that this choice for a constitutive definition of contextualist nature partly circumvents the application of the traditional method of concept analysis.

The second stage, the determination of a goal for the analysis, is made explicit in the three analysis approaches, except in the Wilsonian method of Schwartz-Barcott and Kim.<sup>15-19</sup> Recognition of the particularities of the analysis approach facilitates the definition of objectives. In the Walker and Avant’s method, the main purposes are to distinguish between relevant and irrelevant attributes of a concept and to determine similarities and differences.<sup>9</sup> If the theorist understands the role of concepts as “theory builders”, then selecting a central concept becomes analogous to “laying the foundation of the theoretical building”. If, on the other hand, the theorist aligns with the perspective that concepts are meaning in the light of theory, then theoretical analysis functions as a strategy for perceiving or understanding the concept that is meant within the framework of the theory.

In the analysis conducted to elaborate the Interactive Theory of Breastfeeding, the objectives of clarifying the conceptual meanings of breastfeeding and of developing a conceptual definition were outlined.<sup>17</sup>

The third step, the search for the uses of the concept, is started in the Walker and Avant’s method after the concept analysis determination. In the evolutionary method, this search is also made by data collection, as well as indicating the following as guiding principles: selection and organization of the literature. It is emphasized that the philosophical differences and characteristics of each method can mark differences in the way the search is performed. In the theoretical development that serves as an illustration of this article, the authors were adherent to the universalist perspective of the traditional model of concept analysis by conducting an integrative literature review using a generalizing guiding question, namely: What is the definition of breastfeeding?<sup>17</sup>

It should be noted that the use of the evolutionary method would point to another perspective of searching the literature. In this method the context of the use of the concept and the presumed possibility of changes over time (conceptual evolution) would be remarkable.<sup>15-20</sup> Thus, when designing the search and registration strategy, the theoretical researcher must preserve the contextual character of the use of the concept, not seeing it as a static entity, as is characteristically observed in Wilson’s analytical method adapted by nursing.

To facilitate data collection, the authors were guided by an instrument structured in the following topics: definition, antecedent and consequences. The other procedures followed the design of the integrative research review.

The search for the use of the concept of breastfeeding encompassed productions of various disciplines in health and human area, such as: medicine, nursing, speech therapy, occupational therapy, pharmacy, dentistry, nutrition, psychology, among others, and served to demonstrate different perspectives of conceptual use and specific cuttings of the phenomenon, such as: the use of the terms “breast feeding”, and “bottle feeding” and the characterization of the terms used.

Critics of the concept analysis strategy raise a relevant issue by highlighting the view that the formation of concepts and theories are closely related or are part of the same activity, making the idea of concept systems important.<sup>11,21</sup> Given this perspective on the formation of concepts and theories, concept analysis would be an undertaking with serious limitations, given that analysis is unable to bring about completeness of the conceptual construct and its relationships to other concepts and to the theory as a whole. The critique still is based on the argument that the use of a term occurs in a particular situation or context, which would negate the universalist idea of a concept analysis – understood as a unique and contextual entity.<sup>18</sup>

However, professional demands related to concept analysis require us to be more conservative. This is because the formation of a disciplinary language has required the conceptual analysis procedure for the advancement of nursing practice, especially in nursing diagnoses. Also, the criticism of analysts is not the hegemonic position, demanding more debates about the consequences that the abandonment of concept analysis could bring to the nursing knowledge. Thus, it is pointed out that science has much to gain by advancing the reflection on the concepts analysis in nursing and its interfaces with the development of theories.

Once all the uses of the concept are identified, we proceed to the fourth step, the determination of the defining attributes, i.e., the gathering of attributes that are most often associated with the concept.<sup>9</sup> The very notion of the term “attribute” tends to carry within it the Cartesian idea of attribute as that by which a substance is known (corporeal substance and mind) or the Theory of Attributes of what the essence of the substance expresses.<sup>22</sup> The Cartesian idea is that there is an impossibility of knowing the substance except by some attribute.<sup>23</sup> In this way, the idea of “defining attributes” in the field of conceptual analysis becomes understandable, with the qualities, properties or characteristics (predicable attributes) that allow a concept to be known.

In methodological terms, the evolutionary view incorporates the identification of attributes in the stages of data collection, management and analysis. However, given the philosophical particularities of this approach, the literature review jointly identifies the attributes, contextual aspects (antecedents, consequences, sociocultural and temporal variations), substitute terms, and related concepts.<sup>2</sup> The pragmatic utility approach also recognizes the need to identify attributes. In this method, the attributes are the concept characteristics identified in the literature and obtained from the operational definitions and variables used in the investigated material. Still, all attributes must be present in a case for it to be considered an example of the concept.<sup>24</sup>

To build the Interactive Theory of Breastfeeding, the literature was scanned for breastfeeding attributes. The authors searched for ideas, words or expressions and defining characteristics that indicated characteristics of identity, singularity or essence of the concept. Using these three aspects (identity, uniqueness and essence) and the prevalence of occurrences in the literature gave certain attributes the condition of a “critical attribute”. The conception of critical attribute was used to support the central idea of the concept of breastfeeding (interaction between mother and child that usually involves the relation, affection and bond). In the above analysis, it seems that the critical attribute would function as analogous to the idea of the “main attribute”, that is, the kind of attribute that if hypothetically removed from the substance only words would remain and no substance itself. When the authors adopt interaction as a critical (main) attribute of breastfeeding, they consequently deny the possibility of any non-interactive breastfeeding conceptualization. Thus, any non-interactive process falls in the absence of the critical (main) attribute for the Interactive Theory of Breastfeeding, therefore, being a different concept from breastfeeding. Since, the purpose of the critical attribute is to be the basis for constructing a definition that is representative of the concept.<sup>17</sup>



In addition to the critical attribute, the authors of the Interactive Theory of Breastfeeding also worked with the “defining attributes”, namely: perception, judgment, action and reaction between mother and child.

There are also criticisms regarding the procedures for identifying attributes of nursing adaptations to the Wilsonian model. The question of whether attribute identification precedes case building is questioned precisely because the cases would act as evidence of attribute provision rather than as examples.<sup>18</sup> In Wilson’s model,<sup>16</sup> the criteria for defining the attributes would also not be clear among analysts, even if three different versions are identified to define a defining attribute: its frequency of occurrence, the necessary conditions and the purity (attributes must be present for the existence of a “pure” example of the concept).<sup>10</sup>

The next two steps relate to case building. The model case is built on the fifth step by Walker and Avant and represents the example of using the concept that employs all the defining attributes of the concept, from a real case, found in the literature or constructed.<sup>9</sup> In the evolutionary method such a step is called the identification of an example, i.e., it is not a constructed case, but the identification of a model case of reality that illustrates the concept in a practical manner and in a relevant context.<sup>25</sup>

The sixth step refers to the construction of additional cases: borderline, related, contrary, invented and illegitimate. Borderline cases should bring about most but not all of the defining attributes. Related cases are instances of the concept that are related to the concept itself, but that do not contain all the defining attributes. They present similarity with the studied concept, but differ from it when specifically analyzed. The contrary cases are the examples of “not the concept”. The invented cases are those that have the ideas outside of experience and evidence present in reality. Finally, illegitimate cases incorporate misuse of the concept or out of context.<sup>9</sup>

Interactive Theory of Breastfeeding provides clues to exemplify these cases. Starting with the model case, it must give priority to the critical attribute of ensuring mother-child interaction, involving relation, affection, and bonding. Obviously, for a better understanding of the characteristics of this attribute, the theory must be examined. The inclusion of all the defining attributes pointed out by the authors is still required: perception, judgment, action and reaction between mother and child.<sup>17</sup>

For the borderline case, the critical attribute should be present, but one or more of the defining attributes would be absent. In the specific case of the Interactive Theory of Breastfeeding, there is no evidence that there would be the possibility of borderline cases due to the absence of a defining attribute. However, it is possible to estimate that losses or changes in the nature of the defining attributes may generate related cases. For example, impairment in the defining attribute of “perception” may alter the interactive process by generating a case of impaired breastfeeding, in which the critical attribute of interaction is preserved, although changes in the phenomenon level may generate a related case of the concept.<sup>17</sup>

The related case refers in some way to the concept of breastfeeding, but does not have all the defining elements. Breastfeeding through equipment and devices has some attributes of breastfeeding, but it is a different concept.<sup>17</sup>

The contrary case would involve a situation where attributes were not present. In the context of the Interactive Theory of Breastfeeding, it would represent situations of feeding the child without affection, bond, relationship, perception, judgment, actions and reactions typical of the mother-child binomial relationship. The most likely condition for this situation refers to the concepts of abandonment, abuse and carelessness.<sup>17</sup>

The invented case involves ideas that go beyond the experience of the concept, projecting materials characteristic of speculation or fiction, such as: paternal breastfeeding, breastfeeding by a cybernetic or non-human organism. In the application of the Interactive Theory of Breastfeeding, a

hypothetical “paternal breastfeeding” would modify the relational statements linked to the concepts of breastfeeding and mother role; just as the inclusion of non-human entities would imply profound changes in the metaparadigmatic concept of the human being. By contrast, invented cases help to delimit and clarify the defining attributes of the concept.<sup>17</sup>

Using the descriptive and explanatory properties of the Interactive Theory of Breastfeeding, building a case with breastfeeding attributes as a fundamentally nutritional process would represent a typical case of an illegitimate application of the concept. This is because the critical attribute is based on the interaction of relational nature, giving the nutritional criterion the status of result of the interactive process of breastfeeding.

The idea of model case description seems to be the only aspect not receiving direct criticism against the use of the concept analysis from the perspective of nursing, perhaps because the stage for which the greatest similarity to the original model of Wilson was kept.<sup>11</sup>

In the process of identifying the antecedents and consequences of the concept, the incidents or events that occur *a priori* of the phenomenon (antecedents) are verified, being necessary for its occurrence; and those that happen after the concept and result from the presence of the phenomenon (consequence).<sup>9</sup> As a separate stage, this identification only occurs in the Walker and Avant’s method.<sup>9</sup> In the evolutionary approach, the identification of antecedents and consequences is contained in the collection and management of data.<sup>25</sup> It must be considered that the major focus of antecedents and consequences was not contained in Wilson’s proposal.<sup>11</sup>

In the Interactive Theory of Breastfeeding, the authors elaborated questions that guided an integrative review as a technique used to identify antecedents and consequences. The guiding questions were: what conditions influence the beginning of breastfeeding? and What are the consequences of breastfeeding?<sup>17</sup>

It can be assumed that the use of a separate stage for antecedent and consequence has impacts on the production of a theory, requiring that the concepts of time and causality be considered. In the more traditional perspective of time, the cause is antecedent to the (consequent) effect and the flow runs linearly, whereas in the new paradigm of science, the causality and the relations between antecedents and consequences are recursive.<sup>26</sup> This paradigm highlights the rhythmic and mutual exchange between the environment and people, establishing patterns that are constantly changing and evolving into fields of self-organization. Thus, linear temporality does not exist, questioning the veracity of the analysis for the establishment of antecedents and consequences.

As a last stage, there is the definition of the empirical indicators: identifying the classes or categories of breastfeeding closest to the observable and empirical level. Indicators are essential for providing observable and measurable data of the breastfeeding.<sup>9</sup> In the Interactive Theory of Breastfeeding, the phenomenon was defined as a process of dynamic interaction, therefore of a complex nature. Given this, a single measure will not be sufficient to represent the concept of breastfeeding. Broadly, some “empirical indicators” can be pointed out that indicate an interactive process: eye-to-eye mother-child communication, mother-child position, newborn grip and sucking, infant crying and sleep after breastfeeding, report of mother satisfaction, productive relations between father-mother-child trinomial, human milk supply, breast emptying after breastfeeding.<sup>17</sup>

The phenomenon of breastfeeding has definitions that express different conceptual perspectives derived from different contexts of the usage of the term and possible temporal conceptual evolutions. For example, by applying a functionalist view, breastfeeding can be conceptualized from the perspective of the nutritional function. If, on the other hand, the view of interactionism is adopted, the concept will fall into the process of reciprocity of actions (interaction).

Although breastfeeding appears in the literature in terms of an infant feeding method, the review articles pointed to nutrition as one of the purposes of breastfeeding, but not as its essence. For the

breastfeeding phenomenon to occur, the presence of a woman and child interacting, communicating, and seeking an appropriate position to achieve the benefits of breastfeeding is essential. These advantages are available to women, children and society.

## CONCLUSION

The study allowed to reflect on strengths and limitations of concept analysis strategies as resources for the development of middle-range nursing theories, seeking to collaborate in the expansion of knowledge on the theme by detailing aspects of different strategies and confronting them with philosophical elements that guide them.

The illustration of the concept analysis stages through the use of the Interactive Theory of Breastfeeding proved to be a facilitating factor of the procedural demonstration. In addition, it has opened spaces for theoretical and conceptual interpretations that have the potential to broaden the reader's knowledge.

As for the concept analysis strategy, it is noteworthy that besides the need for convergence between philosophical view and strategy, the theorist needs to pay attention to the preservation of a theoretical-philosophical cohesion in the construction of middle-range theories.

Finally, the use of theories and concepts aligned with breastfeeding, a concept referenced to an extremely common phenomenon for people, has the potential to minimize the effort to understand constructs that are not part of everyday life. And, consequently, the effort of those who are not used to the procedures of concept analysis and the development of nursing theories.

## REFERENCES

1. Davidoff F, Dixon-Woods M, Leviton L, Michie S. Demystifying theory and its use in improvement. *BMJ Qual Saf* [Internet]. 2015 [cited 2018 May 07]; 24(3):228-38. Available from: <https://dx.doi.org/10.1136/bmjqs-2014-003627>.
2. Rodgers BL. *Developing Nursing Knowledge: Philosophical Traditions and Influences* [e-book]. Philadelphia (US): LWW; 2004 [cited 2018 Sept 28]. Available from: <https://www.amazon.com/Developing-Nursing-Knowledge-Philosophical-Traditions/dp/0781747082>
3. McCrae N. Whither Nursing Models? The value of nursing theory in the context of evidence-based practice and multidisciplinary health care. *J Adv Nurs* [Internet]. 2011 [cited 2018 May 07]; 68(1):222-9. Available from: <https://dx.doi.org/10.1111/j.1365-2648.2011.05821.x>
4. Grace PJ, Willis DG, Roy C, Jones DA. Profession at the crossroads: A dialog concerning the preparation of nursing scholars and leaders. *Nurs Outlook* [Internet]. 2016 Jan [cited 2018 May 07]; 64(1):61-70. Available from: <https://dx.doi.org/10.1016/j.outlook.2015.10.002>
5. Merton RK. *On Social Structure and Science* (Heritage of Sociology Series). Chicago(US): The University of Chicago Press; 1996.
6. Brandão MAG, Martins JSA, Peixoto MAP, Lopes ROP, Primo CC. Theoretical and Methodological Reflections for the Construction of Middle-range Nursing Theories. *Texto Contexto Enferm* [Internet]. 2017 [cited 2018 May 07]; 26(4):e1420017. Available from: <https://dx.doi.org/10.1590/0104-07072017001420017>
7. Liehr P, Smith MJ. Middle Range Theory: a perspective on development and use. *Adv Nurs Sci* [Internet]. 2017 [cited 2018 May 07]; 40(1):51-63. Available from: <https://dx.doi.org/10.1097/ANS.0000000000000162>
8. Im EO, Ju Chang S. Current Trends in Nursing Theories. *J Nurs Scholarsh* [Internet]. 2012 [cited 2018 May 07]; 44:156-64. Available from: <https://dx.doi.org/10.1111/j.1547-5069.2012.01440.x>

9. Walker LO, Avant KC. Strategies for theory construction in nursing. 6th ed. New York (US): Pearson; 2019.
10. Paley J. How not to clarify concepts in nursing. J Adv Nurs [Internet]. 1996 [cited 2018 May 07]; 24:572-8. Available from: <https://dx.doi.org/10.1046/j.1365-2648.1996.22618.x>
11. Bergdahl E, Berterö CM. Concept analysis and the building blocks of theory: misconceptions regarding theory development. J Adv Nurs [Internet]. 2016 [cited 2018 May 07]; 72:2558–66. Available from: <https://dx.doi.org/10.1111/jan.13002>
12. Winch C. Innatism, Concept Formation, Concept Mastery and Formal Education. J Philos Educ [Internet]. 2015 [cited 2018 May 07]; 49(4):539-56. Available from: <https://dx.doi.org/10.1111/1467-9752.12121>.
13. Draper P. A critique of concept analysis. J Adv Nurs [Internet]. 2014 [cited 2018 May 07]; 70:1207-8. Available from: <https://dx.doi.org/10.1111/jan.12280>
14. Toulmin S. Human Understanding: the collective use and evolution of concepts. Princeton(US): Princeton University Press; 1977.
15. Weaver K, Mitcham C. Nursing concept analysis in North America: state of the art. Nurs Philos [Internet]. 2008 [cited 2018 May 07]; 9:180-94. Available from: <https://dx.doi.org/10.1111/j.1466-769X.2008.00359.x>
16. Wilson J. Thinking with Concepts. New York (US): Cambridge University Press; 1963.
17. Primo CC, Brandão MAG. Teoria Interativa de Amamentação: elaboração e aplicação de uma teoria de médio alcance. Rev Bras Enferm [Internet]. 2017 Dec [cited 2018 Sept 14]; 70(6):1191-8. Available from: <https://dx.doi.org/10.1590/0034-7167-2016-0523>
18. Risjord M. Rethinking concept analysis. J Adv Nurs [Internet]. 2009 [cited 2018 May 07]; 65:684-91. Available from: <https://dx.doi.org/10.1111/j.1365-2648.2008.04903.x>
19. Schwartz-Barcott D, Kim HS. An expansion and elaboration of the hybrid model of concept development. In: Rodgers BL, Knafl KA, editors. Concept Development in Nursing: Foundations, Techniques, and Applications, 2nd ed. Philadelphia(US): W.B. Saunders; 2000. p.129-59.
20. Rodgers BL. Concept analysis: an evolutionary view. In: Rodgers BL, Knafl KA, editors. Concept Development in Nursing: Foundations, Techniques, and Applications. 2nd ed. Philadelphia(US): W.B. Saunders; 2000. p.77-102.
21. Kemp C, Tenenbaum JB, Niyogi S, Griffiths TL. A probabilistic model of theory formation. Cognition [Internet]. 2010 [cited 2018 May 07]; 114(2):165-96. Available from: <https://dx.doi.org/10.1016/j.cognition.2009.09.003>
22. Becker RC, Fragoso, EAR, Guimaraens, F, Itokazu EM, Rocha M, editors. Spinoza e nós: Spinoza, a guerra e a paz. Rio de Janeiro(BR): Ed. PUC-Rio; 2017.
23. Descartes, R. Princípios de filosofia. Rio de Janeiro (BR): Edições 70; 2006.
24. Morse JM. Exploring pragmatic utility: concept analysis by critically appraising the literature. In: Rodgers BL, Knafl KA, editors. Concept Development in Nursing: Foundations, Techniques, and Applications, 2nd ed. Philadelphia(US): W.B. Saunders; 2000. p.333-52.
25. Rodgers BL. Beyond analysis: further adventures in concept development. In: Rodgers BL, Knafl KA, editors. Concept Development in Nursing: Foundations, Techniques, and Applications. 2nd ed. Philadelphia(US): W.B. Saunders; 2000. p.321-31.
26. Vernon D, Lowe R, Thill S, Ziemke T. Embodied cognition and circular causality: On the role of constitutive autonomy in the reciprocal coupling of perception and action. Front Psychol [Internet]; 2015 [cited 2018 May 07]; 6:1660. Available from: <https://dx.doi.org/10.3389/fpsyg.2015.01660>

## NOTES

### CONTRIBUTION OF AUTHORITY

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Discussion of the results: Brandão MAG; Mercês CAM; Lopes ROP; Martins, JSA; Souza PA; Primo CC.

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### CONFLICT OF INTERESTS

There is no conflict of interest.

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