

Betty Neuman Systems Model: Analysis according to Meleis

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Received: August 30, 2018; Accepted: September 19, 2018; Published: September 27, 2018

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Abstract

The objective of this work was to analyze the scientificity of Betty Neuman Systems Theory. For that, the evaluation method proposed by Meleis was performed, restricting itself to the critical analysis of addressing the components of clarity, consistency and practical the utility of this theory. The analyzed model presents fundamental value and applicability within the nursing science; therefore it allows for professional enrichment and favors the practice of care aiming at patient recovery, prioritizing a holistic care view that helps to construct a state of well-being and a balanced client.

Keywords: Nursing Research. Theory of nursing. Evaluation.

Introduction

Nursing has been consolidating itself as a science, producing its own knowledge that meets the interests, needs and peculiarities of the profession and has a great impact on society. Nursing care involves ethical, aesthetic, philosophical, humanistic and cultural precepts, which are necessary to understand the complexity and dynamicity of issues involving healthy living and the illness of individuals and / or population groups [1]. The practical actions of nurses are based on theoretical and scientific knowledge, and to support and base their practice, theories that support nursing as a science is incorporated. In the past, nursing care was based on principles related to hygiene and the environment; it was not completely focused on the health-disease process. Nowadays, as a result of the evolution of nursing as a science, the need for more specific and concrete knowledge has arisen, and nursing theories have emerged [2]. Therefore, nurses practice of care are guided by theories, so that the actions performed are not only performed empirically [3].

Nursing actions are composed of stages, which are build one the process of care. They are inter-related to achieve quality of care. The nursing process is a methodology used to implement, in the practitioner's practice, a nursing theory [3].

In order to verify the idea of care in the search for balance and well-being, the Betty Neuman Systems Model is suitable for

nurses as well as for other health care professionals, in affirming that the person in its totality is interrelated and interdependent as a result faces stressful situations, which leads to organic reactions with concomitant physiological, psychological, sociocultural and even environmental effects [4]. It is based on the precepts of Psychology, in which the client is seen as an open system that responds to stressors of the environment [5].

The variables involved are physiological, psychological, socio-cultural, developmental and spiritual. The client system comprises of a base structure protected by resistance lines. The conventional levels of health are identified as a normal line of defense protected by a flexible line of defense. When internal, external or created stressors break the flexible line of defense, the system is invaded, and the resistance lines are activated, causing the system to move toward a disease state. If adequate energy is available, the system will be reconstituted within the restored normal line of defense [5].

Therefore, it is necessary for nursing to appropriate and apply the theories in their daily practice, through the deepening of studies on theories subsidized by the analysis models. The models of analysis that are inserted in the scenario, are like tools that seek to answer questions as to the pertinence or not of its use in the biopsychosocial context of the individual, family and community [6].

As a result, it is imperative for nurses to be always looking for the most current knowledge available so that their practice of caring for the patient, family or community is improved, collaborating in a process of balancing between the health / illness process and improving the well-being of what you are taking care of.

The interest to conduct the present study arose to the extent that it allows for the retrieval of the scientific analysis of the proposal of Betty Neuman in his model, based on Meleis's model of analysis of theories [7], seeking to abstract its scientific principles and establish a discussion that will help the understanding and applicability of the theory. Also, starting from the perspective

that addresses caring from the condition of the human being, assuming its existence and limitations, it is questioned: Is it possible to evaluate the Betty Neuman Systems Model, considering the clarity, consistency and utility in its assumptions? How can its theoretical-philosophical content be applied in the field of nursing? In order to do so, we set out to analyze the Betty Neuman System Model using the critical segment of the theory analysis model proposed by Meleis [7].

Methods

Path used for the analysis of the System Model of Betty Neuman from the critical analysis of Meleis

The evaluation of nursing theories allows us to conjecture as to the real scientific role in the practice of care. Based on this current thought, the study allows for the astonishment about scientificity, based on the method of evaluation proposed by Meleis. I am therefore possible to use the method with the inclusion of all or part of the principles [7].

The Meleis evaluation model is divided into following: description, analysis, critique, test and support. The study turns to a critical segment, by this stage it makes a critical, or an estimative, or a determined examination of the situations that allows for the clarifying limitations or conformity of the step [7].

The critical segment was chosen by opting for the use of the relationship component between structure and function, selected for: clarity, consistency and utility of the theory. The study was developed during the discipline Critical Analysis of Clinical Care in Nursing and Health of the Postgraduate Program in Clinical Care in Nursing and Health that considered the analysis of the scientificity behind the theory as the main focus in question.

It presents the segment used in the development of the study, the central questions that permeated the process of description within the structural and functional components are indicated below:

- 1) Is the theory clear? How well can the theory be used to study the consistency of ideas? Is the theory conceptual?
- 2) Is there congruence of output between the components of the description of the theory? Is the theory consistent?
- 3) Is the theory useful in practice?

Results

The analysis allows to prove the scientificity of the Systems Model proposed by Betty Neuman, through the correlation of the concepts, assumptions, principles and theoretical structure.

The following steps were followed for structuring the Meleis critical analysis: 1) Description of the Betty Neuman Systems Model 2) Clarity of the Betty Neuman Systems Model 3) Consistency of the Betty Neuman Systems Model and 4) Utility of the Betty Neuman Systems Model in nursing practice.

Discussions

Critical Analysis of Meleis of the Betty Neuman Systems Model

1. Description of the Betty Neuman Systems Model

The Neuman Systems Model structures itself as a dynamic character in the General Systems Theory of Ludwig Bertalanffy, in which all and parts of interact dynamically, maintaining their own characteristics and adjusting to maintain equilibrium [8]. There is a constant interaction between stressors in which the client reacts by focusing on actions that reconstitute and adapts to the different situations [4].

The model was originally proposed in 1970 as a way to address the inquires of undergraduate students at the University of California and thereby proposing an overview of the physiological, social, cultural and the development of human beings [5].

Thus, the model was developed to provide a holistic integration framework. Nurses considered the system because of its clinical practice which contained elements of interaction, as well as the proposed model [5].

The client is an open system and this is the focus of the Neuman Systems Theory. The system is open to the environment, but remains stable and intact by the elaboration of lines of protection and defense, whose purpose is to prevent instability or promote a state of stability through nursing care [7].

The premises proposed by Neuman [10] are: 1) Nursing clients are dynamic; with unique and universal characteristics, which are in a constant exchange of energy with the environment. 2) The variables in a client's relationship - physiological, psychological, sociocultural, development and spiritual - influence the protection mechanism and determine the response of the client. 3) Clients present with a range of responses to the environment that represent well-being and stability. 4) Stressors attack the lines of defense, later normal lines of defense. 5) Nursing actions are focused on primary, secondary and tertiary prevention.

The client system is also described as two lines of defenses: flexible and normal. Environmental stressors in their first attempt attacks the flexible lines of defense. What can be visually represented in the Neuman diagram as an external circles around a power source core structure, the line can break what its flexible nature means. The role of the line of defense is to fight against or respond to stressors, promoting greater protection and maintaining a steady state [10].

When the normal line of defense is not effective, it allows stressors to penetrate the structure or allow reactions to occur, so the response to stressors may be manifested, these are described as instability or disease [7].

For Neuman, the human being, the environment, the health / disease process and society have a mutual and dynamic inter-

relationship, and it is in this context that nursing is involved [8]. Therefore, from a problem survey the nurse will plan their actions based on the needs in order to maintain the well-being and prevent or improve the health stage of the client.

Clarity of the Betty Neuman Systems Model from the critical analysis of Meleis

Clarity is defined as a continuum that varies from the highest to the lowest, that is, it must be explained by means of larger and larger details or even smaller and more specific ones. It is demonstrated in the premises, concepts and propositions, as well as the concept of domain. To have clarity in the concept it is necessary that the theoretician has operational definitions with thoughts in the same line of theory, being present in a parsimonious way and consists of the premises and propositions of the theory [7].

Some questions must follow to establish clarity: Are the concepts operationally defined? Do they seem to have content and construct validity? Does propositional clarity manifest itself in a coherent and logical way of propositions and systematic connections between the concepts of theory? So, clarity criteria range from the most complex to the simplest.

Starting from this idea, the present criticism aims to answer the questions as to the component clarity. Thus, for the analysis as Meleis predicts, Betty Neuman's System Model is initially clear as to its conceptual description, in which its structure shows itself as a central nucleus wrapped by normal and defensive lines. The focus of action of the theory is to approach the person in its totality, that has as a basic phenomenon of the individual and the environment, seeking to provide evidence as it reacts to the stressors, be they internal or external.

Within the scientific analysis, by structured as dynamic character of the General Theory of Ludwig Bertalanffy systems, it can be considered as a macrotheory as it incorporates global concepts mentioning man in its entirety. It has also brought other concepts such as stress, as a specific response to the demands that the person finds in internal and external relationships. In addition, associating concepts of primary prevention (before it affects the system), secondary prevention (early prevention with diagnosis and effective treatment) and tertiary prevention (reducing the effects of the disease) [11].

It was also influenced by Caplan (1964), who used it to define levels of nursing action, as well as Chardin (1955) and Putts (1972) with ideas about the application and environment of the model, as well as Marxist concepts, synthesizing human and the environment. In addition, the presence of Gestalt psychology, in which he describes interactions between the person and the environment, as well as the ideal body response to stress by Selye (1950) [7].

As Meleis points out, Neuman's theory has a strong potential for interdisciplinarity, when one sees the miscegenation of influ-

ences suffered for the construction of the model adopted today, the original concepts intrinsic to the theory giving sustainability and security when approached by the theorist [7].

The foundation of influences is an important factor to subsidize and maintain the scientificity character of the proposed model, since science is based on assumptions and premises and to sustain them they must be used in key concepts that ensure the character and validates the theory.

Therefore, the model is a field that explains the relationship between the client's system and the environment. Thus, the macro-theory has as its characteristic to describe the relations between the client's system and the nursing environment in the most varied situations require nursing care. The theory has a broad scope, for proving the structure and describing the domain components within every nursing, so it is also considered a great theory, useful with primary, secondary and tertiary level events, according to the needs of the client for each level of action of caring [7].

Neuman discusses the concept of health, in which for her theory, health requires energy, having congruences with the five variables, leading organic reactions with physiological, psychological, sociocultural and even environmental effects, being in constant harmony to keep the system in balance. It is a concept also inferred by the World Health Organization, which states that "health is a state of complete physical, mental and social well-being, and it does not consist only in the absence of disease or infirmity" [12].

Neuman also describes the concepts of person, environment and nursing. It considers man in its totality, nevertheless, it infers the multiplicity of physiological, psychological, socio-cultural and developmental aspects and spiritual, that react dynamically to the stressors factors. Within this idea, the environment would be the factor, an internal and external influence that surrounds the client's system. Stressors are defined as any event or phenomenon that affects the basic structure and causes the disorder, that is, stimuli that produces tensions and has the potential to cause instability to the system [9].

Nursing enters as part of a model, due to the primary concern of nursing be to help the client system to achieve, maintain or retain stability, which can be obtained from a careful investigation of the effects, existing and potential, and of the invasion stressors, helping the system adjust for optimal well-being. By offering stability, the nurse provides the link between the client's system, the environment, health, and nursing [9].

Returning to the model design, stability comes from the regulation and control of the system response to stressors through primary, secondary and tertiary prevention. The explanation of how stressful agents can affect the balance of this system, undoing entropy and walking to a disease state is flawed, since the stressors pointed out by Neuman do not become so clear between what

would be intra-personal, inter- personal and extra-personal.

Consistency of the Betty Neuman Systems Model from the critical analysis of Meleis

Assumptions are beliefs about a phenomenon that must be accepted as truth to support a theory, and can be argued philosophically [13].

Neuman mentioned the following presuppositions [5, 10]:

1. Each individual or group is unique, but presents common responses and characteristics.
2. Several stressors interfere in various ways with the balance of the person or group, provoking reactions according to the variables (physiological, psychological, sociocultural, developmental and spiritual).
3. Each individual or group develops, over time, responses that are considered as normal line of defense or standard to react to health deviations.
4. When the “damper” effect of the flexible line of defense can no longer protect the individual or group from stressors, break off leaving the normal line of defense exposed.
5. In the health/illness process, each individual has a line of resistance that favors stability and well-being.
6. In each stage of the life cycle, each individual has implicit in each system a normal line of defense that will provoke a reaction in response to the stressor.

7. Facing stressors and their possible reactions is carried out by primary care interventions.
8. Secondary prevention is related to the symptomatology that arises after a reaction to the stressors, as well as the hierarchization of the priorities of intervention and treatment, aiming at the stability / balance of the individual.
9. Tertiary prevention is related to the processes of adaptation and adjustment, so that the individual returns to stability.
10. The client is in constant exchange of energy with the environment.

This description demonstrates that due to the fact that a human being is an open system, consequently a human is in permanent change under the influence of factors that are interrelated. Nursing observes a person in its totality, has an action that aims to interfere in the responses to the stressors, being able to be of primary, secondary and tertiary prevention. The system adapts to the interferences through reactions, being in this context a nurse responsibility.

The premises and definitions presented are very clear, familiarity between the propositions and concepts, as well as the application in the nursing process, gives consistency to the theory.

Utility of the Betty Neuman Systems Model in nursing practice from the critical analysis of Meleis

The usefulness of the theory encompasses four areas: its potential for usefulness in practice, research, education, and administration. Following the following units as per Table below: [Table]

Critical Theory - UTILITY	
Criteria	Analysis Units
Practice	Direction Applicability Generalization Cost benefit Relevance
Research	Consistency Testability Predictability
Education	Philosophical statement Goals Concepts
Administration	Service structure Care organization Guidelines for patient care System of patient classification
Source: Meleis, 2012	

For the proposed analysis we will consider the criteria of practical utility, tapering into the units of analysis: Direction; Applicability; Generalization; Cost benefit and Relevance.

Practical utility considers the potential of operationalization and the use of theory in nursing practice. We should be able to answer the following questions or have tools to answer them in a clinical practice: Does the theory promote enough directions to affect practice? Does the theory have tools to prescribe? Does it include notions that are not applied in practice? Are the levels of abstraction or understandability applicable or not? Does the theory cover all areas of nursing? And the cost benefit? Is it currently used in nursing practice? Does it have relevance in nursing practice? Are the terms of the theory applicable in the nursing process? Are the assumptions of theory unique and stereotyped? Can the theory be used in groups? [7].

Nursing interventions can occur through the three prevention modalities. Primary prevention, which occurs before the stressor invades the system; secondary prevention, after the system has reacted, and tertiary, which occurs after secondary prevention, when reconstitution is established [5]. The nurse can intervene, helping the individual to use his / her best possible responses, thus acting as an active co participant together with the client [11].

It is a relatively new model and has great potential, whether for practice, research or education. It allows intervention with clear direction in primary, secondary and tertiary prevention [11].

The model has been used for the therapeutic approach of children, adolescents and families [4, 14-16], provides a method to diagnose disorders and then intervene and apply the nursing process to stabilize energy and strengthen the lines of resistance taking into account all system variables.

Thus, engaged in the idea of the utility of the Betty Neuman model, the nurse, as a professional who educates and intervenes, plays the role of helping the client to also deal with the environment created after contact with the stressors. In this case, it helps to mobilize all system variables to create an isolating and protective effect by strengthening the lines of defense that help deal with the threat of stressors in their well-being [14].

The Betty Neuman Systems model and its holistic approach become particularly applicable and useful for clients experiencing complex stressors that affect multiple variables, such as the person, the child, adolescents, the elderly, and the family [4, 14-16]. In summary, it is observed that the model directs the nurse's role, helping in decision making, allowing to apply its main concepts and assumptions in order to facilitate interventions and care [14].

It is observed that the theory can guide the practice of nursing, since it allows the nurse to act with actions geared specifical-

ly to the stressors that affect the balance of the system. To do this, through the use of the nursing process, and following the steps of this tool, with the establishment of problems, goals and planning, it aims at the well-being of the client, being necessary the enumeration of problems, indication of results and of interventions that direct the actions from the nursing diagnoses raised.

The theory includes with these notions that allow the applicability in clinical practice of nursing care. As mentioned, it covers several areas of nursing, ranging from the health of the child to the health of the elderly, being present throughout the life cycle. With respect to cost benefit, it is known that for practical use the theory must follow all the steps contained in its original structure, it is not necessary to pay, however the theorist has a website that provides information and does research feedback that are being developed. Currently, the theory has been used in nursing practice according to data from the practice center itself, which demonstrates the relevance in nursing practice and reaffirms that the theory is applicable in the nursing process [17].

Assessing the Betty Neuman System Model for its scientific role in the practice of care has become possible with the use of the evaluation method proposed by Meleis. To this end, the components used were: clarity, consistency and practical utility.

The scientificity is very present in the analyzed theory, the concepts interrelate demonstrating clarity when described by the theoretical. There is a link between the assumptions and concepts addressed, being described in a broad and complex way until entering the minimum and specific. However, the theory fails in the conceptual explanation of stressful agents, since they are not clear and differentiated from what would be intra-personal, interpersonal and extra-personal.

The stressors would be responsible for the responses or reactions of the clients or community, being possible to verify that these would be the key to the imbalance of the system depending on its potential of disorder. Nursing care will depend on this potential and may be a primary, secondary or tertiary preventive action.

The model holds fundamental concepts to Nursing, since it associates the concepts of environment, person, nursing and health, which are the components of the nursing metaparadigm, thus showing that it can be used in practice, supporting the nursing process. The use of this nursing theory enriches professional identity, since it provides a solid foundation from the care factors advocated by Neuman, which are useful to practice, considering the context and applicability to the situation in which it will be used, especially when viewing the balance and well-being.

One of his contributions is in the emphasis on the practice of holistic care, based on the human being in its totality that is influenced by factors that result in reactions in which nursing actions should be guided in order to prevent or reestablish the patient's health picture.

Conclusion

The analyzed model presents fundamental value and applicability within the nursing science, since it allows a clear professional enrichment and favors the practice of care aiming at patient recovery, prioritizing a holistic care that glimpses the state of well-being and balance.

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