

Review Article

Betty Neuman System Model: A Concept Analysis

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Abstract

Introduction: Nursing theories are critical as they drive nursing education, practice, and research. Neuman Systems Model (NSM) considers a person a complete system with integrated psychological, physiological, spiritual, social, and developmental components. Nurses give their patients physical, emotional, and psychological assistance and are subjected to mental and physical pressure due to these responsibilities, impacting their health, psychological well-being, and interpersonal relationships. This paper aims to perform a concept analysis of stressors proposed in NSM about lines of defense and the level of preventive interventions that can affect a person's well-being. Further, this paper discusses knowledge generation through NSM's applicability to preventing exhaustion and burnout among nurses.

Methodology: This theoretical attempt is carried out using the theory analysis approach suggested by Walker and Avant (2019).

Discussion: Nursing is a career that requires a great deal of dedication and personal engagement. Nurses are subjected to recurrent stresses due to technological advances and rising demands. Burnout occurs when nurses get discouraged and have less compassion for the patients due to recurrent burdens. Stress and burnout are two of the most common reasons for nurses to quit hospitals. The NSM is concerned with stresses that may affect a person's health and well-being (prediction). Nurses assist patients at the most vulnerable and challenging times, such as surgical procedures, traumas and personal and physical losses.

Conclusion: The NSM enables the investigation of preventative and protective treatments. Because of the model's flexibility, it may be used in a wide range of nursing situations. Administrative, hospitals, clinics, and other nurses can benefit from this paradigm. Evaluating the many distinct elements contributing to burnout is also feasible. The model's client factors of physiological, sociocultural, developmental, and spiritual characteristics are used to achieve this. Viewing the individual as an open system that responds to environmental stimuli encourages the existence of stressors that might lead to burnout.

Introduction

The NSM defines nursing as a discipline concerned with defining appropriate behaviours in stressful situations or in the reactions of a "client-client system" that puts the individual at the Centre of the nursing model [1]. The model is a one-of-a-kind approach to nursing that focuses on various critical domains. In healthcare settings, providers try to reduce stressors to help heal mentally, physically, and spiritually [1]. In the realm of nursing or any other discipline in the healthcare field, it can be successfully applied to an individual, family, and community.

The NSM provides a holistic, system-based approach to problem-solving through primary, secondary, and tertiary

nursing preventative interventions that focus on existing or potential environmental stressors and the patient system's reaction [2]. The interventions aim to retain, achieve, and maintain a person's well-being. Primary prevention identifies and reduces potential or actual risk factors. In contrast, secondary prevention involves putting the right actions in order and lowering the negative impacts of an invading stressor. The tertiary preventive intervention attempts to restore the person's well-being and maintain factors subjected to adjustment processes.

Some significant aspects of the NSM include the human, environment, health, wellness, and sickness, fundamental structure and energy resources, client variables, flexible line of defense, normal line of defense, and lines of resistance.



According to NSM, humans are considered open systems that continuously interact with internal and external factors and environmental stressors [3]. The human body is in a constant state of fluidity, ranging from a dynamic form of system stability to varied degrees of sickness.

The environment, which is a crucial arena relevant to the system and its function, has an impact on the human system. Neuman added physiological, sociocultural, developmental, spiritual, and psychological aspects to the client system [1]. The flexible line of defense is the first protective line that inhibits stressors from penetrating and reaching the normal line of defense. A typical degree of health a person or system has established through time is the normal line of defense. The normal line of defense can be described as the system's hardiness against the stressors that the system faces. When the system's hardiness fails in combating the stressors, lines of resistance are triggered and function as defensive mechanisms [4].

Purpose of analysis

This paper aims to perform a concept analysis of stressors proposed in NSM about lines of defense and the level of preventive interventions that can affect a person's well-being. Further, this paper discusses knowledge generation through NSM's applicability to preventing exhaustion and burnout among nurses.

Methodology

A theory articulates a series of propositions relating to a critical question in a field delivered as a meaningful whole [5]. It is necessary to do a theory analysis to thoroughly understand the phenomenon's connection and practical application [6]. This theoretical attempt is carried out using the theory analysis approach suggested by Walker and Avant [6]. The key reason for choosing this strategy is that it is a thorough procedure beneficial to a student new to theory analysis. Other causes include its methodological approach, which allows for a more objective examination of the theory by identifying its strengths and weaknesses [6]. Walker and Avant's proposed a theory analysis process that includes: a) identifying the theory's origins, b) examining the theory's meaning, c) analyzing the theory's logical adequacy, d) determining the theory's usefulness, e) determining the degree of the theory's generalizability and parsimony, and f) determining the theory's testability. This part will examine the NSM concerning stressors causing burnout among nurses through Walker and Avant's six-step theory analysis technique (2019).

Discussion

Identifying the origins of the theory

It is the initial phase in theory analysis, and it focuses on the evolution of the theory in terms of its creation and

purpose, as well as the identification of the theory's category and underlying assumption [6]. Historically in 1970, NSM was developed for graduate students to assist them in understanding patients' needs [7]. The NSM is a systemic approach to wellness-focused care that combines the system's thinking and holism [7]. However, Personal experiences, open systems theories, environmental stressor constructs, holism, gestalt theories of environment-person interaction, and the notion of preventative interventions all inspired Neuman's approach [7].

Neuman had worked on the existing system model for almost 40 years. Since 1980, the concept of the environment has been expanded and defined. A unique spiritual variable has been included and described, whereas the term client replaced the term patient, and descriptions of model components and interactions among these components have been provided [7]. The latest version of the NSM includes the original schematic and situates the conceptual elements of person, environment, health, and nursing within the nursing metaparadigm [7].

Examining the meaning of the theory

In the second part of the theory analysis method, the language used in theory is evaluated by identifying concepts and statements, their definitions, and the links between ideas presented in the assertions [6]. In this section, we will discuss the notions of stressors faced by a nurse as a client and their effects on lines of defense in the NSM to develop a deeper understanding of the concepts.

Neuman describes three possible intervention modes unique to the client systems' actual or projected reaction to stress. These interventions are classified as primary, secondary, and tertiary since they are dynamic and cyclical. All three intervention modalities can be applied simultaneously to have a synergistic impact. These three preventions in NSM aim to optimize the client's well-being or system stability.

In addition, Intrapersonal, interpersonal, and extra-personal stressors can affect client system stability. Intrapersonal stressors are those stressors that arise within the client's system boundaries. Intrapersonal stresses such as atherosclerosis and the resulting hypertension are instances of a client's intrapersonal stressors. On the other hand, interpersonal stressors are external stresses that occur near the client system's limitations. The client's function in the family, caregiver attitudes, and friendship relations, to mention a few, are all sources of stress.

In contrast, extra personal stressors happen beyond the client's unique environment. For instance, community resources, financial situations, and the client's work are all examples of extrapersonal pressures. These three stressors may be recognized by nurses in every workplace due to the complexity of human beings [7].



Nursing is a career that requires a great deal of dedication and personal engagement. Nurses are subjected to recurrent stresses due to technological advances and rising demands. Burnout occurs when nurses get discouraged and have less compassion for the patients due to recurrent burdens. Stress and burnout are two of the most common reasons for nurses to quit hospitals. Burnout was defined as physical and emotional exhaustion characterized by negative attitudes, a poor professional self-concept, and a loss of patient empathy [8]. In addition, low energy, persistent tiredness, weakness, and weariness are all indicators of physical depletion. Negative attitudes about oneself, job, and life are signs of mental exhaustion. Detached concern for patients, intellectualization of difficult situations, distancing from patients and coworkers, and reliance on other staff members for support are all signs of mental exhaustion. Finally, melancholy, helplessness, hopelessness, and imprisonment are all symptoms of emotional weariness [9].

Dealing with death and dying, requests from clients and family members, and insufficient staffing are stressors that nurses face. These stressors exist inside an organizational structure that depletes motivation and morale [10]. Burnout may also be caused by several stressors, such as a lack of control, insignificant support for crucial choices, and a lack of client gratitude [8]. Hospital and nursing management, staff educators, and nurses all have a role in sustaining the flexible line of defense, which is especially important since they directly influence the nurse's well-being, retention, and productivity [8].

In recent years, hardiness (resistance in NSM) has been proposed as a burnout-resistant trait. Hardiness is a collection of personality traits that enable a person to withstand a variety of stressors. It was initially researched by Kobasa [11], who discovered that it is a set of attitudes, beliefs, and behavioral inclinations that allow a person to adjust to a stressful situation and avoid experiencing a response. Hardiness has three components, according to Kobasa [11]: commitment, control, and challenge [12]. These traits are assumed to be inherited in a person's personality, although research shows that they may be learned and developed through time [8].

First and foremost, commitment is the ability to trust in the reality of one's own identity and to engage in life. Commitment permits a nurse to think about others rather than just themselves. This way of thinking instils a feeling of purpose, which helps to reduce stress. Nurses who have a sense of control seek reasons for their experiences in life. Seeking an explanation helps nurses consider why something occurs and how it relates to their responsibilities. As a result, this positive thinking could strengthen the flexible line of defense to control stressors. However, the challenge can be found in the concept that the environment is constantly changing and that a stressor may be viewed as an opportunity for progress rather than a danger to one's security. A personality type that resists stress and is called "hardy" comprises several features [13].

Several types of research have supported hardiness as a personality trait that mediates a person's stress response. Hardiness minimizes disorder in personnel exposed to high-stress levels Kobasa [11]. Another study on hardiness and nursing discovered that nurses with the personality trait of toughness had decreased job stress [12]. Nurses with the personality trait of hardiness may be able to cope better with job pressures and experience less burnout. Hardiness may cushion the consequences of stress, which is crucial for nurses and nurse administrators to understand. Promoting and teaching resilient attributes to staff nurses as a method of maintaining competent, compassionate nurses may be advantageous to nurses and nursing management as preventive interventions to secure the basic structure from the threat of being damaged.

On the other hand, low career advancement, excessive work pressure, and a lack of supervisor support are all stressors that contribute to burnout [14]. The personality trait of hardiness is an element of the normal line of defense, according to the NSM. The normal line of defense comprises features that develop through time and help a person deal with stress more efficiently. Over time, hardy people have evolved greater coping mechanisms and are less susceptible to stress impacts [15].

Similarly, personal factors may also play a role in burnout. Non-assertiveness in interacting with others, health issues, little social support, and family demands are just a few examples. Burnout is a multifaceted condition with well-defined causes rather than a simple one-dimensional sickness [16]. According to the NSM, burnout results from stresses infiltrating all protection lines (1995). The client/client system becomes unstable due to this infiltration, and the core may get exhausted, and burnout will occur if the system cannot reconstruct the lines of defense.

Analyzing the logical adequacy of the theory

Logical adequacy is all about a model's capacity to create predictions independent of its content and the degree of agreement among the discipline's academics on those predictions [6]. It also entails analyzing if the information is logically sound and whether any defects exist [6]. When seen from a broad perspective, the theory's scope, content, and context make sense and appear suited for application. Nursing and well-being are essential concepts ingrained in all nursing aspects and are acceptable and sufficient.

Nurses' clinical work can bring personal serenity and professional harmony but also lead to tiredness and burnout. Because of the pressures inherent in the nursing sector, resilience has been identified as an essential quality. The NSM is concerned with stresses that may affect a person's health and well-being (prediction). Nurses assist patients at the most vulnerable and challenging times, such as surgical procedures, traumas, and personal and physical losses. Nurses give their



patients physical, emotional, and psychological assistance in all of this. Nurses are subjected to mental and physical pressure due to these responsibilities, impacting their health, psychological well-being, and interpersonal relationships.

The NSM can assist nurses in improving their stress management in the workplace. Age, life experience, education, and spirituality impact a nurse's capacity to recover quickly, adapt to stressors, and be exceptionally active in dealing with difficult situations. By describing the link between the whole and its parts, the consequences of circumstances, and the client's interaction with their environment, NSM provides a framework for comprehending the concept of adversity. Relevant principles and hypotheses that help clarify the client system's reaction to the environment and endorse nursing strategies unique to the reconstitution process can potentially improve the client system in all domains, resulting in a higher level of well-being and health within the framework of the model. When nurses understand the individual-environment relationship better, they can make better clinical decisions, provide assistance tailored to the client and their family, and have a better chance of assisting the client in returning to a state of wellness, which is the ultimate goal.

Determining the usefulness of the theory

The theory analysis process's fourth step entails evaluating the availability of theory-generated research, determining the theory's relevance in addressing the clinical problem, and assessing the theory's potential to inform nursing practice [6]. The NSM provides a clear understanding for nurses to identify stressors affecting them. While using an NSM paradigm to conceptualize clinical nursing, a nurse should be evaluated through the stressors s/he faces as a professional demand. This interplay with the system's part and subpart gradually adapts for the development of resistance (hardiness) to those stressors from management, patients, and colleagues that promote consistency in the system [17].

The theory's utility may be measured in four ways: it is potential for application in practice, research, teaching, and administration. The Betty NSM and its holistic approach have become particularly practical and effective for clients suffering from complex stress that affects numerous elements, such as the individual, the child, adolescents, older people, and the family. The model leads the nurse's function, assisting in decision-making and applying the model's primary concepts and assumptions to facilitate interventions and care.

Defining the degree of generalizability and parsimony of the theory

Generalizability: Examining the theory's boundaries and analyzing the data that backs it up can assist in evaluating whether it is generalizable [6]. The NSM has aroused international interest. According to the literature, practitioners continue to work on the concept in various situations. It has

been used in multiple conditions and populations due to the emphasis on prevention. It has also developed a wide range of practical applications that may be utilized to care for people of all ages [18].

Parsimony: A theory must give clear and straightforward explanations of a complex phenomenon, as well as precise relational statements that do not overlap or harm the theory's content or structure, to be parsimonious [6]. Additional terms (Patient-Client & Health-Wellbeing in NSM) have been adopted to clarify the theory's ideas. Moreover, stepwise concepts are thoroughly discussed in NSM to ensure the approach is understood.

Determining the Testability of the Theory: The testability of a theory is a measure of its ability to generate hypotheses and inform research [6]. This section of the study also analyses whether the hypothesis is supported by evidence and/or has changed [6]. The NSM may be used to examine a variety of hypotheses.

Well-being and nurses' burnout are two research methodologies relevant to this paper. Psychological considerations significantly affect a person's ability to cope and save energy. This includes motivation, objectives, needs, expectations, personality type, coping skills, and resource utilization. The elements that might impact the degree of burnout in nurses can be compared. The NSM considers the surrounding environment, the requirement to analyze the environment, and the impact of stressors growing or decreasing. This thought process may lead to a better understanding of the stressful circumstances contributing to nursing burnout and how to address them. Primary prevention of future health problems is the emphasis of the NSM. It acknowledges the importance of avoiding nurse burnout concerns.

Strengthening lines of resistance is a strategy used in secondary prevention for this analysis that may include stress reduction workshops, recognition and reward, mentor and different social programs, and management and working environment improvements. In this analysis, tertiary prevention corresponds to a return to a state of well-being following the treatment of nursing burnout. The NSM focuses on a person's stress connection, reaction, and reconstitution elements. Qualitative research is the most appropriate investigation approach because the model examines participants' ideas and feelings. Qualitative research aims to find answers to a question by following a series of methods and collecting data.

This strategy is excellent for acquiring cultural information such as beliefs, attitudes, and social practices. The researcher's purpose with this strategy is to gain access to the participants' feelings and ideas about their stressors. Qualitative research determines why people have particular sentiments or attitudes that influence their actions



[19]. In this way, ethnography is an excellent qualitative approach. Ethnography studies groups, organizations, teams, community behaviours, social interactions, and perceptions [20]. Ethnography aims to create a comprehensive picture of people's attitudes and behaviours. Participant observation, in-depth observation, and focus groups are additional qualitative methods for this concept. Researchers can measure nonverbal expressions of sentiments through participant observation, which aids in a better understanding of actions and activities [21-23]. In-depth interviews are used to gather information about people's personal history. Focus groups help generate comprehensive overviews of a group's primary concerns.

Furthermore, the NSM, which uses the three lines of defense as indicators, may be utilized to assess this nursing burnout initiative. The objective is to keep participants from reaching the line of resistance, which is engaged by primary prevention during the invasion of a stressor. The NSM may also complete the project evaluation by including primary, secondary, and tertiary preventative interventions. In the published reports, secondary preventive methods have been used to alleviate current burnout symptoms experienced by nurses, according to the utilization of tertiary prevention. This might reveal whether primary and secondary burnout prevention strategies are helpful.

Conclusion

When evaluating how well the NSM fits the notion of stressors and hardiness, it is regarded as appropriate because of its holistic perspective and foundation on environmental elements connected to well-being. The NSM enables the investigation of preventative and protective treatments. Because of the model's flexibility, it may be used in a wide range of nursing situations. Administrative, hospitals, clinics, and other nurses can benefit from this paradigm. Evaluating the many distinct elements contributing to burnout is also feasible. The model's client factors of physiological, sociocultural, developmental, and spiritual characteristics are used to achieve this. Viewing the individual as an open system that responds to environmental stimuli encourages the existence of stressors that might lead to burnout.

Limitations

- This concept paper utilized only one method of analysis to ease the understanding of new learners.
- This paper involves the majority of old references due to the original sources of the Betty Neuman system model.

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