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The Betty Neuman model in the care of patients with a peripheral venous catheter

O modelo de Betty Neuman no cuidado ao doente com cateter venoso periférico

El modelo de Betty Neuman en el cuidado al paciente con catéter venoso periférico

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Abstract

Background: The use of a conceptual model as the Betty Neuman's during the nursing appointment with the patient aims to identify stressors, plan, and implement nursing care with the purpose of reestablishing the equilibrium of the patient.
Objective: To reflect on the applicability of the Betty Neuman systems model in the provision of nursing care to the patient with a peripheral venous catheter (PVC) for the administration of intravenous therapy.
Main topics in analysis: Applicability of the Neuman model to the patient with PVC.
Conclusion: The Neuman model has applicability in the nursing appointment and the provision of nursing care to the patient with PVC. It is also worth noting the importance of identifying the stressors as they affect the safety of the patient.

Keywords: nursing; peripheral catheterization; nursing theory

Resumo

Enquadramento: A utilização de um modelo conceptual como o de Betty Neuman durante a consulta de enfermagem ao doente, visa a identificação de stressores, o planeamento e a implementação de cuidados de enfermagem que objetivam restabelecer o equilíbrio do doente.
Objetivo: Refletir sobre a aplicabilidade do modelo de sistemas de Betty Neuman na prestação de cuidados de enfermagem ao doente com cateter venoso periférico (CVP) para administração da terapêutica endovenosa.
Principais tópicos em análise: Aplicabilidade do modelo de Neuman ao doente com CVP.
Conclusão: O modelo de Neuman tem aplicabilidade na consulta de enfermagem e na prestação de cuidados de enfermagem ao doente com CVP. Nota-se também a importância da identificação dos stressores por eles influenciarem a segurança do doente.

Palavras-chave: enfermagem; cateterismo periférico; teoria de enfermagem

Resumen

Marco contextual: La utilización de un modelo conceptual como el de Betty Neuman durante la consulta de enfermería al paciente tiene por objetivo identificar estresores, así como planear e implementar los cuidados de enfermería que tienen por objeto restablecer el equilibrio del paciente.
Objetivo: Reflexionar sobre la aplicabilidad del modelo de sistemas de Betty Neuman en la prestación de cuidados de enfermería al paciente con catéter venoso periférico (CVP) para administrar la terapia endovenosa.
Principales temas en análisis: Aplicabilidad del modelo de Neuman al paciente con CVP.
Conclusión: El modelo de Neuman es aplicable en la consulta de enfermería y en la prestación de cuidados de enfermería al paciente con CVP. Asimismo, se observa la importancia de identificar los estresores, ya que estos influyen en la seguridad del paciente.

Palabras clave: enfermería; cateterismo periférico; teoria de enfermería

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Introduction

The provision of nursing care is a vital and relevant activity within the hospital context, as there is often the need for specialized care in this environment. Care is related to the insertion, maintenance, and monitoring of the peripheral venous catheter (PVC) for the administration of intravenous medication to the patient. It also stresses the importance of such care, as the objective is to prevent and identify early signs and/or symptoms of peripheral vascular trauma and other complications (Braga et al., 2016; Oliveira & Parreira, 2010).

Some studies have documented that during the period of hospitalization 68.9% to 86.7% of the patients have one or more inserted venous catheters (Fernández-Ruiz et al., 2014; Pérez-Granda, Guembe, Rincón, Muñoz, & Bouza, 2014). These results justify the fact that nursing care with these catheters represents almost two-thirds of the activities performed by nurses (Moncaio & Figueiredo, 2009).

The intravenous route is considered a favorite course of action for therapeutic purposes, specifically the administration of medication, fluids, blood derivatives, and parenteral nutrients; and diagnostic purposes, that is, to obtain blood samples for laboratory examinations (Fernández-Ruiz et al., 2014).

The therapeutic purpose is currently common and essential to the sick in the hospital context but has also been widely used in the care of patients at the household (Ho & Cheung, 2012). However, the insertion and permanence of the PVC in the patient have been associated with complications that can manifest themselves through peripheral vascular trauma.

The peripheral vascular trauma is a consequence of the presence of a PVC and/or the administration of solutions through this catheter, as it causes some kind of damage (phlebitis, infiltration, bruise, pain, infection, among others) in one or more structures of the blood vessels or in nearby tissues (Arreguy-Sena, 2002). It is characterized by signs and/or symptoms of phlebitis, infiltration, bruises, catheter-related bloodstream infection, bacteremia, among others (Braga et al., 2016; Ho & Cheung, 2012).

In addition to the peripheral vascular trauma, other complications related to the insertion and permanence of the PVC may occur, such as the accidental removal of the catheter by the patient and the obstruction of the PVC (Danski, Oliveira, Johann, Pedrolo, & Vayego, 2015). Such complications may involve some type of peripheral vascular trauma, for instance, pain and alteration in skin integrity characterized by a solution of continuity. The occurrence of both the peripheral vascular trauma and other complications results in removal and venous repuncture for the insertion of a new catheter. This implies pain for the patient, increased vulnerability of the occurrence of an adverse event during the process of catheter insertion, increase in material costs for the insertion of a new catheter and an increase of the time available for the provision of nursing care (Danski et al., 2015).

Considering that the occurrence of a peripheral vascular trauma and other complications related to the insertion and permanence of the PVC endanger the safety and well-being of the patient, the nurse plays a paramount role in the provision of care, because they are responsible for the entire process of venipuncture. In other words, they perform care related to the choice of the catheter, the insertion of the PVC adequate to the sick, selects care to implement the intravenous treatment prescribed for maintenance and monitoring of the presence of the PVC until the removal and post-removal care (Sena, Krempser, Silva, & Oliveira, 2013).

Thus, the nurse will begin by identifying possible risk factors for peripheral vascular trauma and other complications, and planning and implementing care aimed at preventing undesirable events (Krempser et al., 2016). This action gives the nurse a role of paramount importance to the improvement in the quality of nursing care, so it is essential to consider the sick in their entirety, that is, in a holistic manner, aiming at their safety and well-being.

Nevertheless, the use of a nursing theory or conceptual model in clinical practice and research is essential to support and consolidate the performance of the nurse, and should, therefore, be based on available scientific evidence. Among the theoretical models of nursing care, the Betty Neuman systems model (Neuman & Fawcett, 2011) stands out. It has predominantly a holistic nature, and aims at the well-being and the perceptions and motivation of the sick, based on an open and dynamic system of exchange of energy and interaction of variables that relate to

the environment, in order to minimize the possible damage of internal and external stressors (Lowry & Aylward, 2015; Neuman & Fawcett, 2011).

The patient with PVC is directly susceptible to stressors that may affect their safety and well-being; therefore, it is of paramount importance that the nurses adopt the best practices based on models and theories, in order to provide care that can minimize the possible damage resulting from these stressors. Consequently, the Betty Neuman systems model assumes itself as a theoretical-philosophical model to guide nursing care to patients with PVC.

Within this framework, the goal was to reflect on whether the Betty Neuman systems model is applicable to the guidance of nursing care to the patient with PVC for the administration of intravenous medications. This reflection proposes an analysis of possible intra-, inter-, and extrapersonal stressors related to the patient or nurse, and of nursing care to be provided to the patient at primary, secondary, and tertiary levels, aiming at a holistic assistance, the security, and well-being of the patient.

This study is based on the author's own theoretical model of the Neuman systems model (Neuman & Fawcett, 2011), on studies that address the theme related to nursing care and the PVC, and on the perception of the authors on the discussed subject.

The development stage contemplated the following theme aspects: author's motivation for creating the model, metaparadigms and other important concepts used in the model, seeking to establish relations and examples with the nursing care to the patient with PVC, the new aspects the reflection identified and contributions to the science of nursing.

Development

The systems model proposed by Neuman was developed in 1970, at first to be used in education, with the purpose of the students understanding the five variables of the patient (physiological, psychological, sociocultural, and developmental and later spiritual). This theoretical model, as a theoretical, philosophical, and conceptual referential model, allows enlarging the vision of nursing, as it guides towards holism and well-being (Neuman & Fawcett, 2011).

In the developed systems model, the author considers the sick person (individuals, groups, and communities) as an open system that is in constant interaction with the environment (people, materials, and the different contexts), as it enables the exchange of energy, reactions resulted from the exposure to stressor elements, and the use of adaptive processes. The open system, in the true sense of Neuman's words, is flexible enough to appropriately deal with the complexity of the sick person and recognize the stressors they face. This theoretical-philosophical design allows also to gauge how the patient interacts with and responds to stressors and to identify their effects on the dynamics of the health-disease process (Lowry & Aylward, 2015; Neuman & Fawcett, 2011).

The strategy used by the patient to respond to a situation can change their dynamic state of stabilization, which turns out to be expressed in the form of well-being or a state of disease in various degrees. The well-being is, therefore, perceived in a continuum, which goes from the greatest degree of well-being to a serious illness or death. Health is the best state of well-being for the patient, within a range of normality that increases or decreases over time due to environmental stressors (intra-, inter-, and extrapersonal) and the adjustments required to achieve stability, also called homeostasis. The degree of well-being is determined by the amount of energy required to restore or maintain the stability of the system. When there is more energy available compared to what is being used, the system is stable, in a state of equilibrium (Lowry & Aylward, 2015; Neuman & Fawcett, 2011).

This model enables performing a full evaluation of the patient, in which the parties or subparts (variables) are organized in an inter-related whole in constant interaction with the environment. These interactions can affect the sick person positively or negatively. Thus, health is depicted by the level of well-being. When the system requirements are met, there is a great state of well-being; however, when these are not fulfilled, the state of well-being of the patient is minimized. In this theoretical framework, nursing has the role of trying to

control the five basic variables (physiological, psychological, cultural, developmental, and spiritual) that are within the basic structure of the system of the sick person and within the flexible line of defense, the normal line of defense, and the lines of resistance. These lines of defense influence the care provided to the patient, either for the general improvement of the system or for a better adjustment or adaptation of behavior patterns, or even for a better performance of the ability to do a specific task (Lowry & Aylward, 2015; Neuman & Fawcett, 2011).

The previously mentioned lines of defense aim to promote the adaptation of the patient to the values and the physiological condition when interacting with other people and in their socio-economic and cultural context. The lines of defense of the sick person are the limits of protection of the basic structure (central core), composed of the five variables of the patient's system, as it represents the processes of life and death within the context of the inter-flexible relations that interact with the variables system of the patient (Lowry & Aylward, 2015; Neuman & Fawcett, 2011).

The flexible line of defense constitutes the outer limit of the sick person's system and acts as a shock absorber. It aims to protect the normal line of defense and help the system to prevent the invasion of stressors. Consequently, the greater the distance between the flexible line and the normal line of defense, the greater the protection for the patient's system. The line of defense is dynamic and may alter in a short period of time, result from external factors, such as the change of ambient temperature, or from internal factors, such as the poor nutritional status of the patient, the loss of sleep, or dehydration, for instance. Its effectiveness may be reduced by one or several stressors, and this impact is not always perceived by the patient (Lowry & Aylward, 2015; Neuman & Fawcett, 2011).

The evolution of the sick person and their well-being over time are also represented by the normal line of defense, which depicts the adjustment of the five variables of the system due to environmental stressors, and has the role of protecting the basic structure while maintaining the integrity of the system. When the normal line of defense is ineffective before the impact of a stressor, the reaction occurs and the patient manifests the signs and/or symptoms of instability or disease. It must be stressed that not always does the patient perceive such changes. The therapeutic interventions resulting from the reaction to a stressor may, however, provide the decrease, the permanence, or the improvement of the level of well-being and stability of the patient (Lowry & Aylward, 2015; Neuman & Fawcett, 2011).

The systems model developed by Neuman is also composed of a series of concentric lines called lines of resistance whose role is also to protect the basic structure, which is situated in the center of the system. These lines are activated when the normal line of defense is hit by stressors. Each line of resistance contains factors of internal and external resources, known and unknown, that support the basic structure of the sick person and the normal line of defense, thereby providing the system protection. When the flexible line of defense and the line of resistance are invaded, both the depletion of energy as the illness and even death of the patient may occur. Consequently, therapeutic interventions are needed that intervene in this process or mitigate its signs and symptoms (Lowry & Aylward, 2015; Neuman & Fawcett, 2011).

The stress and the reaction of the patient are, therefore, two structural concepts, as the first emerges as a nonspecific response of the body to any type of occurring change, regardless of its origin, which requires adjustment or readjustment. Moreover, one can still declare that, because the stressors are stimuli that originate in the patient's own physical and psychological structure, they can alter the system stability and create disharmony in the patient's energy system. They were classified into three categories by Neuman and can help to interpret their stimuli based on their origin, which may be intra-, inter-, and extrapersonal. These categories relate to the internal, the external, and the created environments (Neuman & Fawcett, 2011).

When the effect of stressors is perceived as negative, it is called stress; when the situation is positive, it is called eustress, that is, a good stress, capable of leading the patient to a process of favorable adaptation (Neuman & Fawcett, 2011).

In what concerns the peripheral venous catheterization and the administration of medication, the extrapersonal stressors are, for instance, the PVC, physical limitations often imposed by the presence of the PVC, the administered medication, and its respective therapeutic actions or adverse reactions, such as lesions in the layers of the vein and in areas close to it. Such lesions may be triggered by the irritant or vesicant characteristics of medication, often resulting in peripheral vascular trauma manifested through signs and/or symptoms of phlebitis (Boyce & Yee, 2012) or infiltration, in the case of vein collapse and/or transfixation (Danski et al., 2015).

The pain, fear, and anxiety before a painful procedure and the risk of failure in venous puncture can be mentioned as patient-related intrapersonal stressors. Nevertheless, the participation of a family member during venipuncture can constitute an interpersonal stressor, which acts in a positive manner, as well as the therapeutic relationship established between nurse and patient.

The combination of all lines of defense (flexible, normal, and resistance) aims to protect the central structure of the sick person from possible stressors. These lines of defense and resistance vary according to some variables, such as the patient's age and development, health-disease status, and thus, it is necessary that the nursing team implements care in the three dimensions of intervention, namely: primary, secondary, and tertiary prevention. These interventions are mechanisms that help the sick person to retain, achieve, and maintain homeostasis (Neuman & Fawcett, 2011).

The primary dimension of intervention aims to prevent stress. Nursing care is therefore implemented before the system reacts to the stressor, and reinforce the flexible line of defense through the reduction and prevention of risk factors (Lowry & Aylward, 2015; Neuman & Fawcett, 2011). Thus, the direction of the nursing care to the sick person with PVC in hospitalization and for therapeutic purposes presents a vulnerability to risk nursing diagnoses, particularly the risk of infection and the risk of vascular trauma (Herdman, & Kamitsuru, 2018).

Among the risk factors of infection for the patient with PVC there are the invasive procedure and the skin integrity alteration, caused by the insertion of the catheter into the vein, compromising the first barrier of defense of the patient, the skin. Other risk factors related to the endangerment of the secondary defenses of the patient may occur and contribute to the risk of infection, such as leukopenia and immunosuppression. It is worth noting another risk factor, the insufficient knowledge to avoid exposure to pathogens, which is closely related to the nurse (Herdman, & Kamitsuru, 2018).

After reflecting on the risk factors of infection for the patient with PVC, one verifies that the invasive procedure (insertion of the PVC) is not an isolated risk factor, because others, together with it, have an important influence on this vulnerability, especially the insufficient knowledge (of the nurse) to avoid exposure to pathogens (in the patient). It appears, therefore, that this risk factor is closely related to the nurse. Consequently, it is essential that it presents specific knowledge based on scientific evidence about the intravenous treatment, including about the PVC to provide preventive care in the insertion, in the vigilance, in the care of maintenance and removal of the PVC, until the complete regeneration of the integrity of the patient's skin occurs, thereby reducing the risk of infection in the patient with PVC.

Unlike the diagnosis of risk of infection, which may occur in several situations not related to the use of a PVC , the nursing diagnosis of risk of vascular trauma specifies the vulnerability of lesion in the vein and in the nearby tissues due to the presence of a venous catheter and/or solutions administered to the patient through the catheter (Herdman, & Kamitsuru, 2018). The risk factors for this nursing diagnosis include, also, the direct influence of the nurse, namely: when the nurse has difficulty to identify the artery or vein, in the inadequate fixation of the PVC, in selecting the inappropriate type of PVC, in selecting the inappropriate size of the PVC, in selecting the insertion site, in the administration of solutions with rapid infusion rate, in the time of permanence of the catheter in site and in the administration of irritating solution (Herdman, & Kamitsuru, 2018). Despite being risk factors for the occurrence of

vascular trauma in the sick person, it should be emphasized that they are closely related to the decision of the nurse regarding what care should be given, so they can be prevented. However, it is worth noting that other institutional factors may influence the decision-making process of the nurse and compromise the implementation of preventive care and consequently the patient's safety, like the service itself: for instance, not providing a transparent and sterile dressing to fixate the PVC on the patient's skin in aseptic conditions; having only one type of PVC; restricting the use of central venous catheter (CVC); not providing for selection, by the nurse, the peripherally inserted central venous catheter (PICC) for the administration of irritating solution; and not providing an ultrasound scanner or transilluminator to assist in difficult venous puncture.

The identification of the risk factors of these nursing diagnoses by the nurse and the planning and implementation of nursing care within the context of the primary dimension in order to solve these diagnoses seek to act in the flexible line of defense and thus avoid the imbalance of the patient's system. Examples of preventive care are selecting a PVC whose caliber is adequate to the caliber of the vein, performing the venous puncture in places distant from articulation, using a transparent and sterile bandage at the PVC insertion site, performing the insertion of the PVC in the non-dominant limb of the patient, evaluating and seeking to meet the patient's preferences regarding the insertion site of the PVC, changing the dressing when it is dirty, wet, or loose, among others (Oliveira & Parreira, 2010).

The secondary intervention occurs after a reaction of the system to the stressor. That is, nursing care will be implemented to address the nursing diagnosis of vascular trauma. The identification of this diagnosis depends on the presence of signs and/or symptoms, and the implementation of nursing care aims at reducing the harmful effects at the time of the reaction to the stressor (Neuman & Fawcett, 2011). This happens, for example, when the nurse identifies an infiltration or extravasation of the intravenous solution by drugs with pH ≤ 5 or ≥ 9 in areas close to the insertion site of the PVC, which may manifest itself as a local edema and pain complaint reported by the patient.

One of the first steps of nursing care in the secondary intervention, from the therapeutic point of view, will be the removal of the PVC, with the purpose of avoiding the evolution of signs and/or symptoms and, consequently, the reach of the lines of resistance and the development of more severe manifestations such as tissue necrosis. Other nursing care can be implemented, such as the lifting of the limb to reduce edema and the administration of analgesics prescribed to relieve pain, among others (Pikó et al., 2013; Rose et al., 2008).

Nevertheless, if the patient remains with the infusion of drugs via PVC pH ≤ 5 or ≥ 9 and/or irritant/vesicant characteristics, they can develop new episodes of infiltration or extravasation. In this case, the patient must be assessed as to whether a CVC or a PICC is required, in accordance with the characteristics of the sick person and the prescribed intravenous treatment (Cheung, Baerlocher, Asch, & Myers, 2009; Cotogni & Pittiruti, 2014). This aims to avoid new manifestations of vascular trauma**,** so this analysis and the respective nursing care create a clinical opinion based on tertiary prevention, according to the Neuman model (Neuman & Fawcett, 2011).

Tertiary prevention occurs after the system has been treated by means of secondary prevention and refers to the adjustment processes for the regeneration of the system. This prevention aims to carry on with the interventions undertaken at the secondary level, strengthen the resistance to stressors and prevent the development of signs and/or symptoms, so it impacts on the system's stability. Therefore, it must be said that the nursing practices can contribute to the restoration and protection of the patient's system or to the restoration of the condition of well-being after the provision of therapeutic care. The trend of this dynamic movement implies the continuity/return of care at the level of primary prevention (Neuman & Fawcett, 2011).

Whether nursing care occurs in the levels of primary, secondary, and/or tertiary, prevention, the nursing team is part of the process of adaptation and stabilization of the patient's system when it acts intentionally on the five

variables, based on which the patient responses are expressed in the face of stress factors (Neuman & Fawcett, 2011).

In order to justify scientifically the clinical practice, nurses are provided with easily identifiable diagnoses, for instance, the risk of vascular trauma, the risk of infection, endangered skin integrity, anxiety, among others. These diagnoses express the needs of patients, whether they are directly related to the damage or the prevention of damage to blood vessels, or in how they react regarding the process of peripheral venipuncture and intravenous drug administration (Herdman, & Kamitsuru, 2018).

Consequently, the role of the nurse is to identify possible stressors and their consequences on the occasion of rupture of the lines of defense and assist the patient to stabilize their energy system through positive and necessary changes so that they reach the state of well-being (Neuman & Fawcett, 2011).

The nurse, as an also energetic being like the patient, should act in order to promote the transformation of situations that generate stress into opportunities for eustress (Lowry & Aylward, 2015; Neuman & Fawcett, 2011). Thus, as the nurse is an energetic being, it is of significant importance that their own stressors are identified, because they affect positively or negatively the lines of defense of the patient, the example the use of their knowledge based on scientific evidence for identifying and preventing risk factors (Braga et al, 2018). It is also relevant that nurses recognize when their competence to perform venipuncture with a lower risk of vascular trauma does not provide security to the patient, thereby requiring the use of imaging technologies such as the ultrasound scanner and/or requesting assistance from another professional with a greater competence (Avelar, Peterlini, Onofre, Pettengill, & Pedreira, 2010). This requires the nurse to be in balance with their energy system so that they can act therapeutically in consonance with the good practices and, thus, help to restore the patient's condition of well-being (Lowry & Aylward, 2015; Neuman & Fawcett, 2011).

The nursing care focused on prevention which Neuman emphasized (Lowry & Aylward, 2015; Neuman & Fawcett, 2011) is relevant and allows their application in the process of peripheral venipuncture and intravenous drug administration. This observation is particularly important because the patients are exposed to peculiar stressors, resulting from the process of hospitalization, as well as to others associated with the implementation of the intravenous therapy, with their expectations and organic responses, that is, originated by inter-, intra-, or extrapersonal stressors.

The Neuman systems model option of providing nursing care to people with PVC is justified by the fact that it is a conceptual and philosophical foundation which can lead to a reassessment of this practice based on the nurse-patient binomial and the concept of this activity, thereby guiding the clinical evaluation towards the identification of stressors and their possible causes. The use of this referential model helps to identify nursing diagnoses that can support the decisions made by the nurse as to the implementation of nursing care in the approach to a hospitalized patient who requires a venous access device for therapeutic purposes (Herdman & Kamitsuru, 2018; Neuman & Fawcett, 2011).

The Neuman systems model is well-being oriented, therefore, allowing that the patient with CVP is perceived holistically, from a perspective of energy dynamic system and interaction of intra-, inter-, and extrapersonal variables. This approach aims to minimize possible damage caused by the insertion or presence of a PVC in the sick person, which are manifested as internal and external stressors, and to identify coping ways (Lowry & Aylward, 2015; Neuman & Fawcett, 2011).

This reflection contributes with the nursing knowledge because it provides a correspondence of Neuman theoretical-philosophical model to the nursing care to patients with PVC and to the steps of the nursing process. This means the model guides the data collection, as it allows identifying variables that affect the responses of the sick person to stressors; it allows identifying nursing diagnoses; it subsidizes the planning of coping strategies, the implementation of nursing interventions in levels of prevention and guides

the evaluation towards the adjustment of the patient's and the nurse's system.

Moreover, the study reveals a new aspect regarding the identification of risk factors (stressors) for some nursing diagnoses, since these risk factors are intimately related to the nurse. For the diagnosis of infection risk the risk factor is the insufficient knowledge to avoid exposure to pathogens, and to the risk of vascular trauma the risk factors are difficulty in identifying the artery or vein, inadequate fixation of the catheter, inappropriate catheter type, inappropriate catheter size, insertion site, rapid infusion rate, permanence time of the catheter in site, and irritating solution. This identification was possible due to the vision of the Neuman systems theory, which allows identifying all variables related not only to the patient but also to the care agent, the nurse, since they are also an energetic being capable of influencing preventively and therapeutically the patient's lines of defense. The recognition of these nurse-related risk factors is of extreme relevance for safe nursing care, taking into account the planning of educational interventions in service, in order to maintain, recover, or achieve the stability of the nurse's system and consequently the patient's.

Conclusion

The Neuman model is applicable in providing nursing care to the patient with CVP, as it allows identifying the intra-, inter-, and extrapersonal stressors because it is a conceptual model that directs and guides the planning and implementation of nursing care at primary, secondary, and tertiary levels.

Considering the risk of peripheral vascular trauma and other complications resulting from the insertion and permanence of the PVC in the patient, primary level nursing care is relevant to the safety of the patient, as they aim at the prevention of undesirable events, thus contributing to the well-being of the patient. Therefore, one suggests the use of the Neuman theoretical model in clinical practice and research in nursing, particularly in the care to patients with PVC. Research may contribute to a better understanding of the Neuman model with the elaboration of an instrument to guide the nurse in the nursing appointment; for the identification of risk factors (stressors) and the more prevalent nursing diagnoses; and thus manage the planning of nursing care based on scientific bases.

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