



Symptom cluster: management and advanced practices in oncology nursing

Cluster de sintomas: manejo e práticas avançadas em enfermagem oncológica
Clúster de síntomas: manejo y prácticas avanzadas en enfermería oncológica

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ABSTRACT

Objective: To present the definition of “symptom cluster” in cancer patients and to reflect on the theory, assessment, outcomes, and interventions for symptom management, based on the perspective of advanced practices in oncology nursing. **Method:** Theoretical-reflective study that presents and discusses possibilities for managing “symptom clusters” through advanced practices in oncology nursing. **Results:** The term “symptom cluster” can be defined as a set of two or more related symptoms. The theoretical concepts and models that can help in its understanding are: Theory of Unpleasant Symptoms, Theory of Symptom Management, concept of self-efficacy and Theory of symptom self-management. Advanced practice nurses have the skills to manage “symptom clusters,” optimizing outcomes and positively influencing the quality of life of cancer patients. **Conclusion:** Advanced practice nurses have the essential characteristics to design, to implement and to evaluate intervention protocols aimed at the management of “symptom clusters” in cancer patients.

DESCRIPTORS

Oncology Nursing; Advanced Practice Nursing; Neoplasms; Signs and Symptoms; Concurrent Symptoms.

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INTRODUCTION

Chronic non-communicable diseases threaten global development and can affect the achievement of the sustainable development goals⁽¹⁾. Cancer is among the main non-communicable diseases, being considered a global public health problem, with a global incidence of 24.5 million cases and 9.6 million deaths in 2017⁽¹⁾.

Cancer diagnostic methods and treatment have advanced a lot in recent years, increasing the chances of cure, but the management of its symptoms remains incipient and patients experience multiple occurrences throughout the disease and treatment⁽²⁾. Studies show that the effects of the disease usually occur simultaneously, being called “symptom clusters,” and their presence increases suffering and affects the quality of life and functionality⁽²⁻⁴⁾.

The study that investigated the prevalence of symptoms in cancer patients identified high rates of fatigue, insomnia, pain, lack of appetite, as well as traces of anxiety and depression in patients undergoing treatment, indicating a negative correlation between symptoms and quality of life⁽⁵⁾.

Symptom management is an essential component of nursing care and nurses must be prepared to act in their management, optimizing outcomes and positively influencing the quality of life and survival of cancer patients⁽³⁾.

Advanced practice nurses can contribute to the field of symptom management in oncology, as they have a specialized knowledge base, skills for complex decision-making and clinical skills that favor the development of proposals for interventions aimed at symptom management⁽⁶⁻⁷⁾.

This study aims to present the definition of “symptom cluster” in cancer patients and to reflect on theoretical models, assessment, outcomes, and interventions for symptom management, based on the perspective of advanced practices in oncology nursing.

METHOD

This is a theoretical-reflective study that presents and discusses the concept of “symptom cluster” and the possibilities for managing symptoms with the advanced practices in oncology nursing. A semi-structured search was conducted in four literature databases (PubMed, SCOPUS, CINAHL, Web of Science) and Google Scholar, based on the combination of the following descriptors and keywords: (“Nursing” OR “Advanced Practice Nursing” OR “Oncology Nursing”) AND (“Cluster”) AND (“Sign and Symptoms”) AND (“Neoplasms” OR “Cancer”), considering the last 20 years (2001–2021). The most relevant articles were analyzed and the main outcomes summarized in this study.

RESULTS

SYMPTOM CLUSTER

The presence of symptoms is a significant problem in cancer patients, but, on the other hand, they provide relevant clinical information, indicating changes in biopsychosocial functioning, sensations or thoughts^(8,9).

In the health area, a “symptom cluster” can be understood as a set of two or more related symptoms that occur simultaneously and influence each other, usually with a common etiology^(4,9,10-12).

However, the literature shows different views on the essential elements that define a “symptom cluster.” Some authors are based on the correlation and simultaneous occurrence among symptoms, others focus on their effects on health outcomes, and others consider that common mechanism and etiology are the main aspects to be considered in defining a cluster⁽¹⁰⁻¹²⁾.

Pain–insomnia–fatigue, pain–depression–fatigue, nausea–vomiting, anxiety–depression are examples of “symptom clusters⁽⁴⁾.” The number of symptoms that can be grouped and characterized as a cluster is also controversial, as there is a discussion on whether at least two, or three symptoms would be enough to express the concept⁽¹⁰⁾. In this study, it is assumed that two symptoms can characterize a cluster.

The identification of “symptom clusters,” their phenotypic and molecular characteristics and the recognition of subgroups of patients at risk for high symptom burden and worse outcomes may contribute to improve symptom assessment and management⁽¹¹⁾.

Commonly, cancer patients present the fatigue, insomnia, pain, and depression cluster and it has been investigated in several studies indicating a common inflammatory etiology, evidenced by the association among this cluster and elevated levels of interleukin-1 β , interleukin-6, and tumor necrosis factor⁽¹³⁻¹⁶⁾.

The study exploring the relationship between inflammatory cytokines and clusters of pain, fatigue, depression, and sleep disorders in Chinese participants classified patients into three subgroups: all mild symptoms (Subgroup 1), mild pain and moderate fatigue (Subgroup 2), and all moderate to intense symptoms (Subgroup 3). The results indicated that patients with moderate to intense symptoms (Subgroup 3) had worse functional status and higher interleukin-6 levels, confirming the association between inflammatory markers and this “symptom cluster⁽¹⁴⁾.”

The interest in studying “symptom clusters” in cancer patients is related to the possibility of better understanding this phenomenon and developing intervention proposals capable of improving symptom management. The use of key concepts and theoretical models explaining the concept of “symptoms cluster” and related health behaviors are essential.

THEORETICAL MODELS AND KEY CONCEPTS

THEORY OF UNPLEASANT SYMPTOMS

In 1995, Lenz et al. proposed the theory of unpleasant symptom (TUS), which was revised in 1997, and has been used in cluster research because it states that the presence of one symptom or a group of symptoms can affect the experience with the others⁽¹⁷⁻¹⁸⁾. The TUS has three main components: symptoms, related factors, and performance. Symptoms are described in four dimensions: intensity, duration, quality, and distress⁽¹⁷⁾. Physiological, psychological, and situational factors are related to each other and influence the previous concept. The more factors related to the effects of the illness, the greater the effect impact on performance⁽¹⁸⁻¹⁹⁾. However, TUS focus on physical

symptoms, with less expression of psychological ones, which may be considered a disadvantage or limitation of this theory⁽¹⁰⁾.

THEORY OF SYMPTOM MANAGEMENT

The theory of symptom management states that effective symptom control can only be achieved by considering three components: symptom experience, management strategies, and outcomes⁽²⁰⁻²²⁾. Symptom experience includes perception, appraisal, and response. Management includes the ability to cope with negative outcomes through biomedical and self-control strategies. Patient outcomes are the results of symptom experience and management, including functioning, quality of life, costs, and morbidity. Each component can affect and be affected by the others⁽¹⁹⁾. The concept of cluster has recently been introduced into this theoretical model, but the relationship between the multiple cluster symptoms and the elements of the theoretical model are not fully established. Moreover, there are still few studies testing the applicability of this theoretical model in clinical practice^(20,23-24).

CONCEPT OF SELF-EFFICACY

The concept of self-efficacy was proposed by Bandura and its perception in symptom management is a key concept for cancer patient outcomes. It can be defined as the ability to implement behaviors to prevent, to recognize, and to alleviate the effects of the disease^(3,25-26).

High self-efficacy positively influences self-control behaviors and is related to better quality of life and improved health status, including reduced physical and psychological symptoms. A patient who masters this concept in managing symptoms tends to perceive them as less stressful⁽³⁾.

During cancer treatment, patients receive a lot of information about the disease and treatment and are expected to be able to self-manage the symptoms, but it is a complex task and few are able to do so^(3,9).

Nurses are in a unique position to teach patients new behaviors for symptom management. Nursing interventions to improve self-efficacy include partnering with the patient/family, setting patient-centered goals, promoting education about the disease and treatment, providing social support, and offering tools (e.g., symptom diary, rating scales, relaxation techniques) that can contribute to symptom management decision-making⁽³⁾.

High self-efficacy for symptom management can be defined as the patient's capability to identify symptoms and being confident, motivated, and able to respond effectively to the situation⁽³⁾. When self-efficacy increases, patients feel empowered for behavioral changes and may be able to reduce symptom burden, improve health status, and quality of life⁽³⁾.

THEORY OF SYMPTOM SELF-MANAGEMENT

Theory of symptom self-management (TSSM) includes patient characteristics (physiological, psychological and contextual), symptom characteristics (perceived health threat), perceived symptom self-control (view and behaviors of self-control) and outcomes (effects of the experience of self-control), with perceived self-efficacy as the central concept, which directs interventions for symptom self-control^(25,27).

TSSM incorporates patient characteristics that affect symptoms, multidimensionality, and the effects that exacerbate them. The main advantage of this theory is that it encompasses many aspects of disease effects, including perceived self-efficacy, indicating avenues for interventions that can lead to improvements with the potential to enhance symptoms self-control⁽²⁵⁾.

EVALUATION

The identification of "symptom clusters" varies widely among studies. Symptoms may form a cluster when they share a common etiology, when one symptom "triggers" the onset or exacerbation of others, or even when adverse events from the treatment of one symptom trigger the onset of others⁽²⁾.

Several clinical factors should be considered in the evaluation of "symptom clusters," including cancer diagnosis, disease staging, treatment and personal characteristics that may exacerbate symptoms, such as age and comorbidities⁽²⁾.

Some authors group the most frequent symptoms and use correlation tests to verify which ones are significantly related to each other, forming a cluster, usually reinforced by its influence on the outcomes (e.g., quality of life and functioning)^(9,10-11,28). Another way to identify clusters is from the presence of multiple symptoms that occur concomitantly, without the use of any statistical test, considering only the clinical observation that can evidence their synergistic effects^(10,29).

Also, some studies analyze how symptoms interrelate, considering the mediation and interaction effects among them. Mediation occurs when the effect of one symptom on another can be adjusted by a mediator (e.g., insomnia mediating the relationship between pain and fatigue). Interaction effects occur when the way one symptom (independent variable) affects another (dependent variable) depends on the intensity of a third (independent variable), such as the relationship between pain, fatigue, and depression^(13,30). When pain and fatigue are mild, for example, depressive phenomena tend to be mild, but when pain is intense, even with mild fatigue, depressive symptoms tend to be more intense^(10,30).

Some researchers identify subgroups of patients with similar experiences, i. e., they define "patient clusters" based on the manifestation of symptoms (e.g., high fatigue and mild pain; mild fatigue and severe pain; all mild symptoms, all severe symptoms)^(10,20,31).

OUTCOMES

The influence of "symptom clusters" on patient outcomes is an important indicator to evaluate the importance of this clinical phenomenon and propose interventions⁽¹⁰⁾. Some authors suggest that functionality (functional status/performance) and quality of life are the main outcomes to be evaluated, but there are studies that also analyzed mortality or depression as such^(8,10,32).

INTERVENTIONS AND ADVANCED PRACTICE NURSING IN THE "MANAGEMENT OF SYMPTOM CLUSTER"

Advanced practice nurses with the knowledge and skills to identify and to perform the management of "symptom cluster" have the potential to develop and to implement complex nursing

interventions focused on effective symptom management. Clinical experience, thinking, and reasoning associated with theoretical grounding are important elements in proposing these interventions.

Knowing the nature of the relationship among the symptoms of a cluster has a relevant impact on the coordination of more effective strategies for its control⁽²⁾.

Interventions for symptom management may focus on the central symptom or on multiple symptoms. Interventions focusing on the central symptom are justified by the fact that its amelioration (e.g. pain) can positively affect the others. On the other hand, interventions focusing on multiple symptoms aim to affect the cluster as a whole, which can be more complex and challenging, but also more beneficial to patients^(2,10).

Several studies have explored interventions for the management of “symptom cluster,” with non-pharmacological approaches and emphasis on psychoeducational and cognitive-behavioral strategies. Such interventions aim to educate patients about the disease and its treatment, helping them to report symptoms, self-monitor, and apply self-control techniques, such as relaxation and directed imagination^(2,16).

A study developed in Brazil tested a psychoeducational nursing intervention with six sessions for symptom management in cancer patients. The intervention was based on the model of symptom management and used educational strategies, cognitive-behavioral and relaxation techniques, seeking to identify the effects on multiple symptoms. The results showed a significant reduction in appetite and a trend toward a decrease in

insomnia, but the intervention did not show significant effects on the patients’ quality of life and functioning⁽²⁴⁾.

Researchers from Vietnam tested the effects of a psycho-educational intervention applied by nurses with three weekly sessions (one face-to-face and two by telephone call) for management of cluster fatigue, pain, and sleep disturbance in cancer patients. The intervention was based on the Model of symptom management and the results showed significant reduction in symptom intensity in the experimental group, including depression and anxiety, but the intervention did not affect the pain, functioning, and quality of life of these patients⁽³³⁾.

More studies are needed to improve non-pharmacological interventions for management of “symptom cluster” in cancer patients^(10,13) and advanced practice nursing can contribute to this subject.

CONCLUSION

Understanding “symptom cluster” in cancer patients may provide a significant contribution to the development of more effective symptom management interventions. Advanced practice nurses have the essential characteristics to design, to implement, and to evaluate intervention protocols for the management of symptom cluster in cancer patients.

Further studies should be developed in this area to expand the possibilities of symptom treatment, with possible positive repercussions on quality of life, functioning, and survival of patients with cancer.

RESUMO

Objetivo: Apresentar a definição de “cluster de sintomas” em pacientes com câncer e refletir sobre modelos teóricos, avaliação, desfechos e intervenções para manejo de sintomas, na perspectiva das práticas avançadas em enfermagem oncológica. **Método:** Estudo teórico-reflexivo que apresenta e discute possibilidades de manejo de “clusters de sintomas” por meio das práticas avançadas em enfermagem oncológica. **Resultados:** O termo “cluster de sintomas” pode ser definido como um conjunto de dois ou mais sintomas relacionados entre si. Os conceitos e modelos teóricos que podem ajudar na sua compreensão são: Teoria dos Sintomas Desagradáveis, Teoria do Manejo de Sintomas, conceito de autoeficácia e teoria do autocontrole dos sintomas. Os enfermeiros de prática avançada têm habilidades para realizar o manejo dos “clusters de sintomas”, otimizando os desfechos e influenciando positivamente a qualidade de vida de pacientes com câncer. **Conclusão:** Os enfermeiros de prática avançada reúnem as características essenciais para elaborar, implementar e avaliar protocolos de intervenções direcionadas ao manejo de “clusters de sintomas” em pacientes com câncer.

DESCRITORES

Enfermagem Oncológica; Prática Avançada de Enfermagem; Neoplasias; Sinais e Sintomas; Sintomas Concomitantes.

RESUMEN

Objetivo: Presentar la definición de “cluster de síntomas” en pacientes oncológicos y reflexionar sobre los modelos teóricos, evaluación, resultados e intervenciones para el manejo de los síntomas desde la perspectiva de la enfermería de práctica avanzada oncológica. **Método:** Estudio teórico-reflexivo que presenta y discute posibilidades para el manejo de “clusters de síntomas” a través de prácticas avanzadas en enfermería oncológica. **Resultados:** El término “cluster de síntomas” se caracteriza por un conjunto de dos o más síntomas relacionados entre sí. Los siguientes conceptos y modelos teóricos pueden auxiliar su comprensión: Teoría de los Síntomas Desagradables, Teoría del Manejo de los Síntomas, concepto de autoeficacia y teoría del autocontrol de los síntomas. Los enfermeros de práctica avanzada tienen habilidades para manejar los “clusters de síntomas”, que optimiza los resultados e influye positivamente en la calidad de vida de los pacientes con cáncer. **Conclusión:** Los profesionales de la enfermería de práctica avanzada reúnen las características fundamentales para elaborar, diseñar, aplicar y evaluar protocolos de intervención dirigidos al manejo de “clusters de síntomas” en pacientes con cáncer.

DESCRIPTORES

Enfermería Oncológica; Enfermería de Práctica Avanzada; Neoplasias; Signos y Síntomas; Síntomas Concomitantes.

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