Increasing Stringency in Symptom Cluster Research: A Methodological Exploration of Symptom Clusters in Patients With Inoperable Lung Cancer

Ingela Henoch, RN, PhD, Alexander Ploner, PhD, and Carol Tishelman, RN, PhD

Patients with cancer can experience a variety of symptoms, such as pain, fatigue, nausea, dyspnea, and sleep disturbances. Although several symptoms often occur in conjunction, research traditionally has focused on single symptoms. In 2004, Miaskowski, Dodd, and Lee argued that the new frontier of symptom research is the study of symptom clusters. A symptom cluster was defined by Dodd, Miaskowski, and Paul (2001) as three or more concurrent symptoms that are interrelated, although Kim, McGuire, Tulman, and Barsevick (2005) argued that two or more symptoms are sufficient to constitute a cluster if other criteria are met. The criteria involve the cluster symptoms occurring together in stable combinations relatively independently of other symptom constellations and that relationships among symptoms within a cluster should be stronger than with symptoms outside the cluster (Kim et al.).

In perusing the literature, the authors of this article found two main approaches used to determine the existence of symptom clusters. One approach is to inductively determine the cluster empirically; another is to investigate the existence of a predetermined symptom cluster formulated on the basis of previous research or clinical experience (Miaskowski, Aouizerat, Dodd, & Cooper, 2007). Fan, Filipczak, and Chow (2007) conducted a literature review of empirically derived symptom clusters commonly occurring in patients with cancer. After reviewing 13 studies, only one cluster, consisting of gastrointestinal symptoms, occurred consistently (in six of seven studies of patients with heterogeneous cancers), and no consistent symptom clusters were found in patients with lung or breast cancer (Fan et al.). On the other hand, when Barsevick (2007) examined scientific literature for occurrence of a predetermined cluster of fatigue, insomnia, pain, and depression in patients with cancer, she found that, regardless of method, various combinations of these symptoms formed a cluster.

Purpose/Objectives: To inductively explore the existence of symptom clusters among a homogenous group of patients with inoperable lung cancer close to diagnosis and to explore if the symptom clusters are consistent when examined with different instruments and analytical methods.

Design: Cross-sectional.

Setting: Lung medicine department at two university hospitals in Sweden.

Sample: 400 patients (52% men, 48% women) newly diagnosed with lung cancer with a mean age of 64.5 years.

Methods: Data were analyzed from various questionnaires, including the European Organisation for Research and Treatment of Cancer (EORTC) QLQ-C30, the EORTC LC13, and the Symptom Distress Scale. Items in the instruments were adapted to increase their correspondence. Symptom clusters were analyzed with Pearson correlations, cluster analysis, factor analysis, and Cronbach alphas.

Main Research Variables: Symptom clusters.

Findings: Three clusters were found to be notably consistent across instruments and analyses: first, a pain cluster consisting of pain, nausea, bowel issues, appetite loss, and fatigue; second, a mood cluster consisting of mood, outlook, concentration, and insomnia; and third, a respiratory cluster consisting of breathing and cough, with fatigue and appetite loss closely related to more than one cluster in several analysis.

Conclusions: The authors found consistent symptom clusters for a large cohort of patients with lung cancer at a comparable point in their cancer trajectory, across different measurement tools and statistical methods.

Implications for Nursing: The symptom cluster consistency for patients with lung cancer is an important finding because the relevance of symptom cluster research is questionable if consistency is lacking across data collection and analysis approaches. Achieving consistency is possible in symptom cluster research across instruments and analysis methods if instrument items are comparable.

This lack of consistency in the literature may not only be related to whether symptom clusters are predefined or empirically determined, but also to differences in