



## Symptom clustering in hospitalised older palliative cancer patients: A cross-sectional study<sup>☆</sup>



Aurélie Van Lancker<sup>a,\*</sup>, Dimitri Beeckman<sup>a</sup>, Sofie Verhaeghe<sup>a</sup>,  
Nele Van Den Noortgate<sup>b</sup>, Ann Van Hecke<sup>a</sup>

<sup>a</sup> University Centre for Nursing and Midwifery, Department of Public Health, Faculty of Medicine and Health Sciences, Ghent University, Ghent, Belgium

<sup>b</sup> Department of Geriatric Medicine, Ghent University Hospital, Ghent, Belgium

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### ABSTRACT

**Background:** Accurate detection of symptoms is essential in palliative care. Identification of clustering of symptom is valuable to develop target interventions. This area is largely understudied in older palliative cancer patients.

**Objectives:** To identify symptom clustering in older palliative cancer patients, and patient groups based on the clustering of symptoms, and to evaluate the difference in functional dependence and experiencing life as not meaningful between the identified patient groups.

**Design:** A cross-sectional study.

**Setting:** Geriatric and non-geriatric wards of seven acute care hospitals.

**Participants:** 400 palliative cancer patients aged 65 years and older.

**Methods:** Symptoms were collected using a validated instrument which assesses physical, psychological, functional, social, and existential symptoms by means of a structured interview with a researcher. An agglomerative hierarchical clustering analysis was used to analyse the data.

**Results:** The cluster analysis revealed five groups of symptoms: (1) urological and gastrointestinal symptoms, and their treatment complications, (2) psychological and existential symptoms, (3) pain, constipation, sleeplessness and airway problems, (4) functionality problems, and (5) fatigue-related symptoms. Three patient groups were identified: (1) symptom-free group, (2) physical discomfort group, and (3) physical and psychological discomfort group. In the last group, significant more patients had a geriatric risk profile and less of them received chemotherapy. Patients in this group were more often functionally dependent and experienced their life as not meaningful.

**Conclusion:** Five groups of symptoms were identified. Three patient groups were identified which reported different levels of functionality and experiencing life as meaningful. Healthcare professionals should be triggered to detect symptom clusters and be alert to the presence of the other symptoms in the cluster when identifying one symptom. They should also be alert to patients with a geriatric risk profile because of their higher risk of experiencing physical and psychological symptoms and the influence these symptoms have on being functionally dependent and experiencing life as not meaningful.

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\* Corresponding author at: University Centre for Nursing and Midwifery, Ghent University, UZ 5K3, De Pintelaan 185, 9000 Ghent, Belgium.  
Tel.: +32 93323619.

E-mail address: [Aurelie.VanLancker@UGent.be](mailto:Aurelie.VanLancker@UGent.be) (A. Van Lancker).

## What is already known about the topic?

- Symptoms patients experience within oncology and/or palliative care are clustered and therefore may occur together.
- Literature reports on the identification of patient groups based on symptoms in oncology care. Research found lower levels of functional dependence and quality of life in those patients with high symptom prevalences.

## What this paper adds

- Five symptoms clusters and three patient groups were identified in older palliative cancer patients.
- Older palliative cancer patients with a geriatric risk profile are at higher risk of experiencing symptoms.
- Older palliative cancer patients experiencing physical and psychological symptoms have a higher risk of being functionally dependent and experiencing life as not meaningful.
- Healthcare professionals should be triggered to detect symptom clusters and should be alert for patients with a geriatric risk profile.

## 1. Introduction

Cancer remains a leading cause of death worldwide and in Europe accounting for respectively 13% and 20% of all deaths (Ferlay et al., 2013, 2015). For those patients for which curative treatment is no longer possible, palliative care is important (World Health Organisation, 2002). The management of symptoms is one of the essential parts of palliative care (World Health Organisation, 2002). Older patients are more likely in need of palliative care due to the higher incidence of cancer, and higher occurrence of contraindications for curative treatment in older patients (Anisimov et al., 2009; Pallis et al., 2010). In palliative care, older patients are confronted with multiple symptoms (Van Lancker et al., 2014). According to Kim et al. (2005):

“A symptom cluster consists of two or more symptoms that are related to each other and that occur together. Symptom clusters are composed of stable groups of symptoms, are relatively independent of other clusters, and may reveal specific underlying dimensions of symptoms. Relationships among symptoms within a cluster should be stronger than relationships among symptoms across different clusters. Symptoms in a cluster may or may not share the same aetiology.”

Research on the clustering of symptoms has increased in the last years (Kirkova et al., 2011; Miaskowski et al., 2006; Walsh and Rybicki, 2006). Two different approaches exist to symptom clustering (Miaskowski et al., 2007). The first approach looks at the grouping of symptoms to identify symptoms which may occur together (Miaskowski et al., 2007). Symptoms within a cluster may have a similar aetiology or biological basis (Aktas et al., 2010; Miaskowski et al., 2007). Consequently, the treatment of one symptom in the clustering may have a positive influence on the occurrence of the other symptoms within the cluster (Aktas et al., 2010; Barsevick, 2007). Knowledge on

symptom clustering may help healthcare professionals to be alert to the occurrence of other symptoms within the cluster alongside an already identified symptom (Barsevick, 2007). The second approach looks at the grouping of individuals who experience similar groups of symptoms (Miaskowski et al., 2007). The identification of patient groups may assist healthcare professionals to define patients according to their need for interventions to control symptoms (Barsevick, 2007).

Different methods exist to identify symptom clustering of which cluster analysis is one method (Aktas et al., 2010; Beckstead, 2002). Cluster analysis groups similar symptoms together and has the advantage that no a priori knowledge about the grouping of symptoms or number of groups is needed and that sub-clusters can be identified (Beckstead, 2002). Walsh and Rybicki (2006) studied the clustering of symptoms in patients with advanced cancer and identified different clusters. Other studies identified patient groups based on pain, fatigue and insomnia. These symptoms were chosen because of their high prevalence in cancer patients (Cheng and Lee, 2011; Miaskowski et al., 2006). The authors found lower levels of functional dependence and quality of life in those patients with high symptom prevalences (Cheng and Lee, 2011; Miaskowski et al., 2006). All previously conducted studies focused on cancer patients in the curative stage of their disease or on younger patients. Older patients differ from younger in that they are confronted with a complex interplay of multiple problems related to the ageing process (Depp and Jeste, 2006). The ageing process results in, among other things, a higher occurrence of comorbidities and poly-pharmacy, functional decline, psychosocial problems and cognitive impairment (Depp and Jeste, 2006). Therefore, evidence on the clustering of symptoms and identification of patient groups based on groups of symptoms in younger palliative cancer patients cannot be generalised to an older younger population. Research in older palliative cancer patients is lacking.

## 2. Aim

The aim was (1) to study symptom clustering in older palliative cancer patients, (2) to identify patient groups based on the clustering of symptoms, and (3) to evaluate the difference in functional dependence and experiencing life as not meaningful between the identified patient groups.

## 3. Methods

### 3.1. Design and setting

A multi-centre cross-sectional was performed in seven acute care hospitals in Flanders, Belgium. The geriatric and internal wards of six general hospitals and one teaching hospital participated in the study.

### 3.2. Sample

A convenience sample of older palliative cancer patients fulfilling the following inclusion criteria were

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