Canadian Oncology Nursing Journal

Revue canadienne de soins infirmiers en oncologie

Volume 26, Issue 1 • Winter 2016
ISSN: 1181-912X (print), 2368-8076 (online)

Canadian Association of Nurses in Oncology
Association canadienne des infirmières en oncologie

Cancer symptom management in the home: A scoping review

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ABSTRACT

The aim of this scoping review was to examine interventions used by nurses in the home setting for symptom management of adults with cancer. Databases were searched (CINAHL, Medline, PubMed, EBM Reviews, Joanna Briggs Institute EBP) with key words cancer, home, nursing, symptom, and protocol. Out of 390 identified citations, five met the inclusion criteria. Studies were conducted from 1989 to 2009. Findings revealed that home care nursing services improved symptom management, promoted independence, maintained quality of life, and decreased use of health care services. Two studies used evidence-based guidelines for cancer symptom management. Although few studies have explored nursing interventions for cancer symptom management in the home setting, their evidence suggests some improved client- and system-level outcomes.

INTRODUCTION

Background

Symptoms are commonly experienced by individuals with cancer and can be distressing (Barbera et al., 2010; Henry et al., 2008). If not addressed they can quickly become life-threatening events (McCurdy & Shanholtz, 2012). Effective cancer symptom management is an essential component of nursing care that leads to improved outcomes for individuals with cancer (Johnston et al., 2009; Rueda, Sola, Pascual, & Subirana Casacuberta, 2011). Home care nurses are well-positioned to conduct assessments, triage, and provide symptom

management for individuals receiving ambulatory cancer treatment and living at home.

Evidence-based practice is important for cancer symptom management and a fundamental element of the nursing profession (College of Nurses of Ontario, 2009; Weber & Eskinazi, 2012). It is defined as “the integration of best research evidence with clinical expertise and patient values” (Institute of Medicine, 2001, p. 47). In health care, translating best evidence into best practice can be challenging (Grol & Grimshaw, 2003). However, the use of evidence-based practice can increase effectiveness and efficiency in the health care system and can facilitate positive outcomes for patients, families, communities and organizations (Grimshaw, Eccles, Lavis, Hill, & Squires, 2012; Lugtenberg, Burgers, & Westert, 2009). The use of clinical practice guidelines and protocols in nursing are interventions for facilitating use of best practices and optimal clinical interventions (Huffman, 2005).

Clinical practice guidelines are tools that support evidence-based cancer symptom management; unfortunately current formats often do not facilitate easy translation of the evidence into practice (Brouwers, Stacey, & O'Connor, 2013). Clinical practice tools such as protocols may help bridge the gap that exists between best evidence and current practice (Graham et al., 2006). Evidence-based, standardized tools for nurses to use in the assessment and management of symptoms in patients with cancer have potential to improve patient outcomes.

Access to evidence-based resources is especially important for nurses working in the home care setting, as these nurses tend to be more generalists and may lack the specialized oncology knowledge required to facilitate comprehensive symptom assessment and management (Feldman & McDonald, 2004; Ontario Home Care Association, 2011). Nurses working in the community have identified the lack of current evidence as a safety issue in their practice (Berland, Holm, Gundersen, & Bentsen, 2012) and current clinical practice guidelines available for use in the home health setting are limited (Williams et al., 2009). The aim of this scoping review is to examine interventions used by nurses in the home setting for symptom management in adults with cancer.

METHODS

Using a scoping review according to the typology described by Grant and Booth (2009), a search of electronic databases was conducted to identify published research studies focusing on interventions for adult cancer symptom management provided by nurses in the home. The following databases were searched to the end of October 2013, as they relate to health care and nursing and are relevant to the topic of interest: Medline, PubMed, EBM Reviews, Joanna Briggs Institute

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DOI: 10.5737/23688076261411

EBP Database, and Cumulative Index to Nursing and Allied Health Literature (CINAHL). Key search terms included *cancer*, *home*, *nursing*, *symptom*, and *protocol*. Searching also included: key informants; reference lists of relevant literature; government agencies; and official publications from relevant population groups. Only human studies in the English language were included. Studies about managing individual symptoms were excluded. Studies focusing on symptom management by remote means only were excluded, as the focus of this scoping review was on nurses working directly in the home, often with

less support and resources available to them. Studies focusing on palliative care were excluded, as it is often not explicit if patients are receiving cancer treatment. There were no time parameters placed on the search. Titles and abstracts were reviewed based on inclusion and exclusion criteria to ensure they would fulfill the aim of the review (Table 1).

Data extraction and quality appraisal of included studies was conducted. Appraisal used methodological criteria as outlined by the Cochrane Effective Practice and Organisation of

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Table 1: Selection criteria with search strategy		
Inclusion and exclusion criteria		
	Inclusion	Exclusion
Population	<ul style="list-style-type: none"> Adults experiencing cancer-related symptoms Living at home/community setting 	<ul style="list-style-type: none"> Children Surgery as main treatment Non-malignant diagnoses End-of-life/palliative
Intervention	<ul style="list-style-type: none"> Any symptom management strategy/protocol provided by nurses going into the home 	<ul style="list-style-type: none"> Individual symptoms Symptom management provided by remote means only (telephone, mobile device, web-based)
Outcomes	<ul style="list-style-type: none"> All outcomes including patient-level and system-level 	<ul style="list-style-type: none"> None
Search Strategy with findings		
Database	Search Terms	Number of citations
CINAHL	Cancer, nursing, home, symptom, protocol	172
All EBM Reviews (Cochrane DSR, ACP Journal Club, DARE, CCTR, CMR, HTA, and NHSEED)	Cancer, nursing, home, symptom, protocol	197
The Joanna Briggs Institute EBP Database	Cancer, nursing, home, symptom, protocol	134
Medline	Cancer, nursing, home, symptom, protocol	127
PubMed	Cancer, nursing, home, symptom, protocol	248
TOTAL		878
Manual search		0
Duplicates removed		488
Reviewed titles and abstracts		390
Abstracts Excluded		377
Articles screened		13
Excluded articles		
Not home setting		3
Not research		3
Not symptom management		2
Included for review		5

Table 2: Summary of Studies (N=5)					
Author Country	Study Design, Objectives	Sample (n)	Intervention	Key Findings	Study Quality Assessment
Nural et al. 2009 Turkey	Cross-sectional controlled clinical trial to determine effects of a home healthcare intervention on the quality of life	42 adults with GI cancer (m=18, f=24) No active treatment during study	Intervention: 3 home visits (baseline, days 20 & 40); nursing care guided by evidence-based protocol Control: 2 home visits (baseline & day 40); standard care Duration: 40 days	Intervention group: Improved physiologic functioning, psychological concerns & total stress compared to control group	1a. Low 2. Low 3. Low 4. Unclear 5. Low 6. Unclear/Low 7. Low
Benor et al. 1998 Israel	Controlled clinical trial to measure effect of nurses trained in applying the self-care model to ambulatory cancer patients	94 adults with breast, colon, genital, prostate, lymphoma Ages 20–70 Received active treatment	Intervention: Ten home visits by oncology nurses to assess, support, educate and coach about symptom management Control: Standard care from cancer centre Duration: 3 months	Decreased symptom intensity, increased independence, familial support and knowledge for intervention group Stable or reverse direction on all variables for control group	1a. High 2. Low 3. Low 4. High 5. Low 6. Low 7. Low
McCorkle et al. 1989 United States	RCT to assess effects of home nursing care on patients with progressive lung cancer	78 adults with lung cancer (m=47, f=31) Ages 18–89 Received active treatment	Intervention A: oncology nurses provided individualized care, other disciplines as needed Intervention B: Standard home care nurses and interdisciplinary health care team Control: Non-nursing office-based care provided by physician Duration: 6 months	Home care groups experienced less symptom distress; remained independent for a longer period of time but had worse health perceptions over time Specialized oncology group had fewer hospital admissions	1a. Unclear 2. High 3. Low 4. Unclear 5. Low 6. Unclear 7. Low
Molassiotis et al. 2009 United Kingdom	RCT to assess effectiveness of symptom-focused home care in patients with cancer receiving oral chemotherapy	Adults with colorectal cancer (n=110); breast cancer (n=54) (m=62, f=102) Ages 26–85 Received active treatment	Intervention: home visits by oncology nurses at baseline and as needed, weekly phone contact, symptom management evidence-based protocols, 24-hour on-call specialist nursing service Control: Standard care from cancer centre, 24-hour hotline at cancer centre Duration: 18 weeks	Decreased symptom toxicity scores and lower utilization of health care services for intervention group.	1a. Low 2. High 3. High 4. High 5. Low 6. Unclear 7. Low
McCorkle et al. 1994 United States	Controlled before and after study to evaluate impact of home care services for cancer patients post hospital stay	Adults with solid tumours (n=60) (m=23, f=37) Received current/past treatment	Intervention: Care by home care agencies: symptom assessment & management, education, support Control: No home care services Duration: 6 months	Intervention group had improved mental health and more independent	1b. High 2. High 3. High 4. Unclear 5. Low 6. Low/High 7. Low
Quality Assessment Legend 1a. Concealment of allocation (RCT) 1b. Characteristics for studies using second site as control (CCT) 2. Follow-up of professionals 3. Follow-up of patients or episode of care 4. Blinded assessment of primary outcomes 5. Baseline measurement 6. Reliable primary outcome measure(s) 7. Protection against contamination Low risk – Explicit description of process to meet each quality criterion Unclear – No description of process specified High risk – Description of process that does not meet each quality criterion					

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Care Review Group (2011). Criteria were rated low risk of bias, high risk of bias, or unclear based on study reporting for each of the criteria (Table 2).

Framework for analysis

The synthesis of the findings in this scoping review used the nursing process as the guiding framework given that it fits with how nurses think about what they do when providing care. Key elements included assessment criteria, implementation/intervention and evaluation (Wilkinson, 2007). Assessment is the first phase of the nursing process and is the systematic gathering of relevant data that guides subsequent care. Given eligible studies were focused on interventions; assessment was limited to what was reported in the intervention studies. Implementation occurs when action is taken by the nurse; when the interventions are put into place to achieve the clients' goals. Evaluation is the final phase in the nursing process and is an ongoing determination of the degree of success in achieving those goals. The information gathered by evaluation is often used to inform subsequent nursing assessments. Specific questions that guided the synthesis included:

- a) Assessment – What did nurses use to guide their assessment of clients' symptoms?
- b) Intervention – What were the characteristics of the interventions that were implemented?
- c) Evaluation – What outcomes were evaluated to assess the impact of the interventions and how were the outcomes measured? What were the results from the interventions?

RESULTS

Study selection

A total of 878 citations were identified (Table 1). Of these, 488 were duplicates and eliminated from the reviewed results, for a total of 390 articles. Thirteen articles were included for full text review. Eight were excluded because the article was: not research; not focused on symptom management; non-nursing focus; palliative/end-of-life population; individual symptoms; symptom management provided only remotely; or symptom management not provided in the home setting. Five articles are included in this scoping review.

Characteristics of the studies and participants

Of the five articles, there are two randomized controlled trials (RCT) (McCorkle et al., 1989; Molassiotis et al., 2009), two controlled clinical trials (CCT) (Benor, Delbar & Krulik, 1998; Nural, Hintistan, Gürsoy, & Duman, 2009), and one controlled before and after study (McCorkle et al., 1994) (Table 2). The studies were conducted in the United States (n=2), Turkey (n=1), Israel (n=1), and the United Kingdom (n=1). Four studies included participants with varying cancer diagnoses and stages, including hematological, genitourinary, breast, gynecological, astrocytoma, sarcoma, and gastrointestinal (Benor et al., 1998; McCorkle et al., 1994; Molassiotis et al., 2009; Nural et al., 2009) and one focussed exclusively on patients with lung cancer (McCorkle et al., 1989). There were from 42 to 164 participants (median=78) per study ranging in ages from 18 to 89 years old (median=58).

Four studies identified patients receiving cancer treatment including chemotherapy and/or radiation therapy as part of the treatment plan during the study (Benor et al., 1998; McCorkle et al., 1989, 1994; Molassiotis et al., 2009). In one study, patients did not receive any cancer treatment during the study period, but were receiving symptom management (Nural et al., 2009).

Quality was variable ranging from lower to higher risk of bias. Of the five included studies, a recent controlled clinical trial had the lowest risk of bias (Nural et al., 2009) and an older controlled before and after study had the highest risk of bias due to unclear reporting (McCorkle et al., 1994). Four studies had unclear reporting that affected the appraisals (McCorkle et al., 1989, 1994; Molassiotis et al., 2009; Nural et al., 2009). Three studies were judged as higher risk for follow-up bias because they obtained outcome measures for less than 80% of the participants (McCorkle et al., 1989, 1994; Molassiotis et al., 2009). No studies reported blinded assessment of primary outcomes. Two studies were judged to be higher risk, as the study designs did not allow for blinding because the nurses providing the intervention were also collecting the data (Benor et al., 1998; Molassiotis et al., 2009). The other three studies did not clearly report on this criterion (McCorkle et al., 1989, 1994; Nural et al., 2009).

Assessment criteria

None of the intervention studies described the process of symptom assessment.

Characteristics of the interventions

Nursing care was an essential intervention component of all studies, with care delivered directly by nurses. The home care interventions were multimodal and often addressed multiple aspects of patients' and families' care needs. Two studies used standard home care nursing services provided by home care agencies (McCorkle et al., 1989, 1994). Another study applied the self-care model by using nurses to coach and support patients regarding their symptoms during structured weekly home visits (Benor et al., 1998). Only one study with participants receiving an oral chemotherapeutic agent used an intervention for symptom management for treatment-related symptoms (Molassiotis et al., 2009). The other studies examined the intervention by looking at the overall impact of the home care nursing, with a greater focus on cognitive, psychological, and psychosocial outcomes (Benor et al., 1998; McCorkle et al., 1989, 1994; Nural et al., 2009).

Time. The interventions for the studies ranged in length of time from five weeks to six months (median=12 weeks) (see Table 2). Contact duration between nurses and patients ranged from 10 minutes to two hours, and frequency of contacts ranged from twice per week to every 20 days.

The nurses' knowledge and skills. Three studies described specific oncology training and education as a component of the nursing intervention including master's degrees (McCorkle et al., 1989) and expertise in cancer care (Benor et al., 1998; Molassiotis et al., 2009). Two studies provided no information on the level of oncology knowledge of the nurses in their studies (McCorkle et al., 1994; Nural et al., 2009).

Resources to guide nurses. Two studies used evidence-based guidelines as a component of the intervention (Molassiotis et al., 2009; Nural et al., 2009) and three did not (Benor et al., 1998; McCorkle et al., 1989, 1994). One study developed written symptom management protocols based on best evidence from the literature that included pharmacologic and non-pharmacologic self-management interventions for nine common symptoms (Molassiotis et al., 2009). The other study developed a guideline based on the literature to address home care needs of patients with gastrointestinal cancers (Nural et al., 2009). Care was provided based on this guideline that identified commonly experienced symptoms and provided evidence-based, practical interventions to implement in the home setting. Neither of these studies gave details about the development or evaluation of the guidelines/protocols and they were not available for review.

Control groups. Care received by the control groups was standard care provided by ambulatory cancer centres (Benor et al., 1998; McCorkle et al., 1989; Molassiotis et al., 2009), and care guided by a pain clinic (Nural et al., 2009). The other study did not describe the care received by the control group except to note that they did not receive home care nursing services (McCorkle et al., 1994).

Evaluation

Impact on patient outcomes. All five studies reported that, overall, the home care nursing interventions helped patients to remain less symptomatic and maintain more independence, both of which contribute to improved quality of life. Other positive effects noted in the experimental groups for specific studies include improved mental health ($p=0.04$) (McCorkle et al., 1994), increased knowledge related to symptom management ($p<0.05$) (Benor et al., 1998), decreased physiological, psychological, and total stress ($p<0.05$), and maintained quality of life compared to a decrease in the control group (Nural et al., 2009).

Impact on health care system outcomes. Two studies reported the positive implications for the larger health care system. Compared to usual care or office care, an oncology home care program demonstrated lower use of health care services with fewer inpatient days (57 intervention versus 167 control; 258 intervention versus 317 office care) (McCorkle et al., 1989; Molassiotis et al., 2009), fewer emergency hotline calls (32 intervention versus 91 control), and lower additional visits to health services (33 intervention versus 74 control) (Molassiotis et al., 2009).

DISCUSSION

This scoping review included five studies of variable quality that focused on cancer symptom management interventions by nurses in the home care setting. Interestingly the included studies did not describe symptom assessment processes and the characteristics of home care services in the studies conducted more than 20 years ago are likely very different than those of our current home care services. The interventions evaluated in the studies were often multimodal and were

delivered by generalist home care nurses and expert oncology nurses, with two studies using evidence-based resources to guide nursing care for symptom management. All studies evaluated patient outcomes including symptom distress and quality of life. Additionally, two studies that measured system outcomes reported decreased utilization of health care services.

Overall, the five studies revealed that home care nursing interventions improved individuals' physical and emotional well-being, and reduced the use of health care resources. The improvement in symptom management observed in these studies (Benor et al., 1998; McCorkle et al., 1989, 1994; Molassiotis et al., 2009) was similar to nursing in other clinical conditions including the management of enterostomal therapy and wound care (Baich, Wilson, & Cummings, 2010), diabetes (Hartman, Litchman, Reed, & Burr, 2009), heart failure (Riggs, Madigan, & Fortinsky, 2011), mental health (Thobaben, 2013), and urinary incontinence (Egnatios, Dupree, & Williams, 2010). Improved symptom management and greater independence suggested that home care nurses have the opportunity and the potential to improve the cancer experience.

Although positive outcomes were noted, two studies that used standard home care services were conducted more than 20 years ago and it is difficult to know the state of the home care nursing agencies at that time (McCorkle et al., 1989, 1994). There was no description of the characteristics of the nurses or the agencies providing the care, so it is not possible to further examine elements of their programs that may have contributed to the improved outcomes or how they compare to current services.

More recent studies included evidence-based interventions to guide the nursing care for symptom management (Molassiotis et al., 2009; Nural et al., 2009), which reflects the shift in recent years towards nursing practice guided by evidence (Estabrooks, 2004). These studies showed improvements in patient and system outcomes. Although nurses' perceptions are an important element that must be considered when developing and implementing evidence-based tools for nurses to use, these two studies did not discuss the nurses' perceptions. Other research has demonstrated that nurses want evidence in formats that are accessible, easy to use, and applicable to their clinical practice (Jeffs et al., 2013) and nursing engagement throughout the process of developing clinical practice tools can increase the likelihood of sustained changes to practice (Harrison, Légaré, Graham, & Fervers, 2010).

Interestingly, four studies evaluated interventions that were conducted through home care programs with care provided by expert nurses who had extensive oncology nursing knowledge, training, and experience (Benor et al., 1998; McCorkle et al., 1989; Molassiotis et al., 2009; Nural et al., 2009). Nurses for these studies were recruited specifically for the research study and had intervention-specific training. These studies highlight the value of expert oncology nurses and these findings are consistent with other studies of specialized oncology nurses that they improve individuals' experience of cancer through their expert knowledge and ability to provide specialized care (Howell, Fitch, & Caldwell, 2002; Koutsopoulou,

Papathanassoglou, Katapodi, & Patiraki, 2010; McCorkle et al., 2011). In contrast, home care nurses tend to be more generalists and given their role in providing cancer symptom management, it is unclear if the same outcomes would be observed (Feldman & McDonald, 2004).

Most of the interventions used in the five studies were complex and resource intensive based on the frequency and length of contact the study nurses had with patients. Although benefits were highlighted, the feasibility of replicating and implementing such complex programs seems unlikely at this time for various reasons, including fiscal restraints in Canadian health care (Dhalla, Guyatt, Stabile, & Bayoumi, 2011). The implementation of simpler, more affordable interventions needs to be evaluated to determine if positive outcomes can still be achieved while using health care resources more efficiently (Wensing, Bosch, & Grol, 2010).

Symptom assessment methods were not described nor discussed in any of the articles. This is somewhat concerning because assessment is the first phase of the nursing process and the information obtained during the assessment is what drives the remaining phases (Wilkinson, 2007). If evidence is not being used to inform the entire process, it raises questions about the consistency and comprehensiveness of symptom assessments. The Edmonton Symptom Assessment System (Bruera, Kuehn, Miller, Selmsler, & Macmillan, 1991) is now consistently being used to screen for cancer-related symptoms across Ontario oncology programs (Barbera et al., 2010).

Limitations and strengths

There are three main limitations to this scoping review. First, on an individual study level, articles identified had variable risk of bias. Second, at the review level, although

a thorough search of the literature was conducted using clear inclusion and exclusion criteria, it is possible that relevant articles were missed particularly given only one person was involved in study selection (Shea et al., 2007). Also, only one person extracted data and appraised study quality. Considering articles published in English only may have limited the review. Finally, given the focus on symptom management in general, studies focused on individual symptoms were not included.

The advantage of conducting a scoping review was highlighting the dearth of evidence in this area and justifying moving forward with further research. These findings outweigh the disadvantage in terms of the work required to conduct a scoping review.

CONCLUSION

Few studies have evaluated interventions by nurses for cancer symptom management for individuals in the home setting. These five identified studies demonstrate that home care nursing services may offer patients a better cancer experience by improving symptom management, promoting independence, maintaining quality of life, and decreasing use of health care services. The use of evidence-informed tools, such as symptom management protocols, to inform nursing practice in the home care setting was only evaluated in two of these studies, highlighting the very limited evidence available in this area. Further research is required to determine the effectiveness of the protocols and to explore sustainable approaches to integrate evidence into everyday clinical practice to improve home care nurses' abilities to manage symptoms related to cancer.

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