Self-Efficacy for Management of Symptoms and Symptom Distress in Adults With Cancer: An Integrative Review

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PROBLEM IDENTIFICATION: Self-efficacy for symptom management plays a key role in outcomes, such as quality of life (QOL), functional status, and symptom distress, for adults with cancer. This integrative review identified and assessed evidence regarding self-efficacy for management of symptoms and symptom distress in adults with cancer.

LITERATURE SEARCH: The authors performed a search of literature published from 2006–2018, and articles that examined the relationship among self-reported self-efficacy, symptom management, symptom distress or frequency, and severity in adults with cancer were selected for inclusion.

DATA EVALUATION: 22 articles met the inclusion criteria. All articles were critically appraised and met standards for methodologic quality.

SYNTHESIS: Evidence from this review showed that high self-efficacy was associated with low symptom occurrence and symptom distress and higher general health and QOL. High self-efficacy predicted physical and emotional well-being. Low self-efficacy was associated with higher symptom severity, poorer outcomes, and better overall functioning.

IMPLICATIONS FOR RESEARCH: Self-efficacy can be assessed using developed instruments. Presence of a theoretical model and validated instruments to measure self-efficacy for symptom management have set the groundwork for ongoing research.

KEYWORDS self-efficacy; symptom management; integrative review; symptom distress; cancer
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Changes in screening, early detection methods, and advances in treatments have resulted in a decrease in overall death rates and an increase in the number of adults living with cancer in the United States (Cronin et al., 2018). Living with cancer increases the complexity of care because adults often also have other chronic illnesses, such as heart disease, diabetes, or chronic lung disease (Hoffman, 2013). Acute and long-term symptoms related to a cancer diagnosis are physical and psychological and result from the disease process and treatments. Symptom distress is the amount of suffering that occurs as a response to the presence of symptoms (Rhodes & Watson, 1987). It may be psychological, emotional, social, or spiritual and can interfere with how adults cope with or manage their symptoms (Holland et al., 2013). Symptom management is an important part of the plan of care for adults with cancer because uncontrolled symptoms affect quality of life (QOL), functional status, perception of health, cost of health care, and survival (Brant, Dudley, Beck, & Miakowski, 2016).

Self-efficacy and symptom management are key concepts that affect outcomes for adults with cancer in all stages of treatment. Self-efficacy is a person's ability to implement behavior for a desired outcome (Bandura, 2001). Adults are expected to self-manage their symptoms but may not have the self-efficacy to do so. Patients with cancer are primarily responsible for managing their health, and they must be able to implement behaviors specific to the task of symptom management, such as symptom recognition, prevention, and actions to decrease or relieve the intensity, duration, and frequency of symptoms (White et al., 2017). Understanding self-efficacy, symptom distress, and the role that symptom management strategies have in controlling symptoms is imperative for maintaining

or potentially improving functional status and QOL for adults with cancer. This integrative review will examine current literature regarding self-efficacy for the management of symptoms and symptom distress or frequency and severity in adults with cancer.

Background

According to Bandura (1997), self-efficacy is a person's belief in his or her ability to implement behaviors to achieve a desired outcome and includes not only using the skills required to perform a behavior, but also knowing how and when to use them under diverse circumstances. Self-efficacy for symptom management in adults with cancer is "the ability to implement behaviors to prevent, recognize, and relieve symptoms" (White et al., 2017, p. E274). Self-efficacy for symptom management is similar to other terms, such as general self-efficacy, self-efficacy for coping with symptoms, and self-efficacy for self-management. Self-efficacy can be learned; therefore, self-efficacy for symptom management can be learned (Hoffman, 2013). As self-efficacy increases, people become empowered to change behaviors that are vital for self-management. Unless adults believe they can have an influence on results, they have no motivation to act (Bandura, 2001). Self-efficacy affects motivation, competence, perseverance, and effort and is required for symptom management behaviors (White et al., 2017; Zhang et al., 2014).

Symptoms are subjective experiences that reflect a change from normal and are important cues that bring problems to the attention of the caregiver (Dodd et al., 2001). The experience of distress from the presence of a symptom or cluster of symptoms is the catalyst for a person to report their presence and seek help (Fu, McDaniel, & Rhodes, 2007). Symptom distress is a global term that represents the amount of suffering experienced by adults in relation to the perception of the symptoms that are present (Holland et al., 2013). Symptom distress is measured by self-report and is caused by presence of symptoms, as well as concerns about illness or prognosis, disease treatment and side effects, psychosocial or spiritual issues, or financial concerns (Holland et al., 2013). The most distressing symptoms may not be the most severe, and the inability of adults to manage distressing symptoms is often the reason for seeking care (Badger, Segrin, & Meek, 2011). Symptom distress is an important area of focus for clinical interventions because it has been shown to negatively affect outcomes, including anxiety, depression, functional status, and QOL (Anderson et al., 2007; Bevans et al., 2014).

Symptom management for adults with cancer is a dynamic process because symptom frequency and intensity change during the phases of treatment. When symptoms are experienced, adults act on the perception of the symptom, seeking to alleviate or decrease the distress experienced from the symptoms (Fu, LeMone, & McDaniel, 2004). Symptom management strategies often involve interactions among the patient, his or her family members, and the healthcare team, and symptom management interventions should include factors related to self-efficacy, such as motivational behaviors (Brant et al., 2016; Brant, Beck, & Miaskowski, 2010). Consideration of intensity of the symptom experience, presence of multiple symptoms, and effectiveness of interventions and measurements of related outcomes should also be included (Brant et al., 2016).

Self-efficacy for managing symptoms influences self-management behavior and is linked to QOL and health status, including physical and psychological symptoms and functional well-being (Porter, Keefe, Garst, McBride, & Baucom, 2008). Self-management of symptoms affects the cost of health care through treatment-related services, hospitalizations, and use of the healthcare system, and it can reduce symptom distress and increase QOL (Gapstur, 2007; McCorkle et al., 2011; Ryan & Sawin, 2009). Self-efficacy for symptom management is a predictor of outcomes for populations with chronic diseases and is important for managing the complex challenges of cancer treatment (Kelleher, Somers, Locklear, Crosswell, & Abernethy, 2016; White et al., 2017). Therefore, the purpose of this integrative review was to identify, assess, and synthesize data from current experimental and nonexperimental research, as well as theoretical and empirical literature, regarding self-efficacy for management of symptoms and symptom distress in adults with cancer, particularly those undergoing hematopoietic stem cell transplantation (HSCT).

Methods

The methodologic approach used was the five-stage approach from Whittemore and Knafl (2005) of problem identification, literature search, data evaluation, data analysis, and presentation. This method was chosen because it allows for experimental and nonexperimental research, as well as theoretical publications, to be included in the analysis.

A search was performed using the databases Academic Search Premier, CINAHL®, Cochrane Library, MEDLINE®, Biomedical Reference Collection, PsycINFO®, National Institutes of Health Research

Portfolio Online Reporting Tools, and Google Scholar. A keyword search using MeSH (Medical Subject Headings) terms included, but was not limited to, *self-efficacy* AND *symptom management*, *self-efficacy* AND *symptom distress*, and *HSCT* AND *cancer*. The initial search was limited to HSCT only. Because of the limited number of publications found, the search was widened to include adults with cancer. The search was performed from January 2006 to May 2018 to capture the most recent literature because cancer treatment and symptom management strategies change frequently. Additional articles were identified manually by searching references of retrieved articles. The first author of the current article selected journal articles based on the inclusion and exclusion criteria, and decisions were reviewed by the second author. Inclusion criteria were articles with publication dates from 2006–2018; written in the English language; containing outcomes or concepts of self-efficacy for symptom management/general self-efficacy, symptom distress, symptom severity, or frequency; and involving adults with cancer and patients receiving HSCT. Exclusion criteria included pediatric population, cancer or HSCT caregiver, and unpublished manuscripts (dissertations).

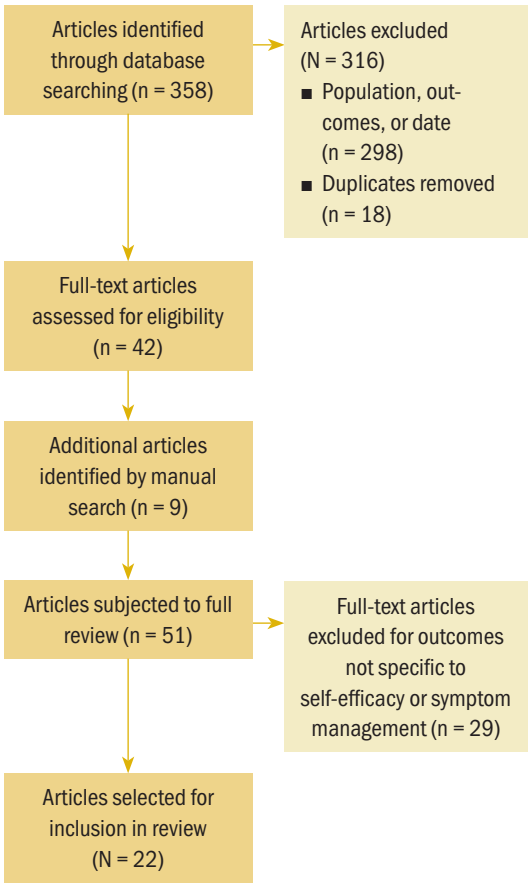
Data Evaluation

Figure 1 presents a flow chart of the identification of relevant articles. The search yielded 358 articles. After examining titles and abstracts in relation to the inclusion and exclusion criteria and excluding duplicates, the authors selected 42 articles for full-text review for relevance. Nine additional articles were retrieved from a manual search of references from full-text reviews. Of these 51 articles, 29 were excluded based on exclusion criteria, primarily outcomes or concepts not directly related to self-efficacy for management of symptoms or symptom distress. Twenty-two articles were selected for inclusion in this review (see Table 1). Nineteen research studies were selected, including 6 intervention studies and 13 descriptive studies. One integrative review, one theory paper, and one concept analysis were included in the review because the data presented were directly relevant to self-efficacy and symptoms in adults with cancer.

Quality Appraisal

The selected articles were published in peer-reviewed journals. The research articles were evaluated for quality of methodology using a quality appraisal tool developed by blending components of tools in published reviews from Lines, Hutton, and Grant (2017) and Guo, Whittemore, and He (2011) (see Table 2).

FIGURE 1. Flow Diagram of Article Selection



Criteria for quality appraisal included the study design, methodology, sample, instruments, analysis methods, and key findings. Studies that were randomized, controlled trials also were evaluated using criteria from the Critical Appraisal Skills Programme ([CASP], 2017) (see Table 3). The integrative review article selected for inclusion was evaluated using review criteria adapted from CASP criteria and met all criteria. The theoretical article was evaluated based on criteria from Walker and Avant (2011) and met all criteria. The concept analysis article was evaluated using criteria from Morse, Hupcey, Mitcham, and Lenz (1996), and all criteria were acceptable. No articles were rejected based on methodologic quality.

Data Abstraction and Synthesis

Publications were synthesized based on factors that influenced self-efficacy for management of symptoms and symptom distress in adults with cancer. To facilitate the synthesis, data were extracted into an

TABLE 1. Summary of Findings

Study and Setting	Design and Purpose	Sample	Outcome Variables and Instruments	Findings
Quantitative				
Bergkvist et al., 2015 (Sweden)	Descriptive, cross-sectional survey to compare general health, symptom occurrence, and self-efficacy in patients who underwent HSCT and received home care or hospital care during the early phase post-HSCT	117 patients with cancer who received allogeneic HSCT for a hematologic disease (median of 5 years post-transplantation)	■ Variables: General health, symptom occurrence, self-efficacy ■ Instruments: General Self-Efficacy Scale; Symptom Frequency, Intensity, and Distress questionnaire for stem cell transplantation	No differences in general health, symptom occurrence, or self-efficacy between hospital and homecare groups; high self-efficacy was associated with better general health and lower symptom occurrence.
Coolbrandt et al., 2018 (Belgium)	Two-group intervention with pre-/post-test design and surveys at baseline and 3, 6, and 12 weeks from start of treatment to evaluate efficacy of CHEMO-SUPPORT intervention in reducing symptom distress and other symptom-related outcomes	143 patients starting first chemotherapy treatment with any type of cancer	■ Variables: Overall symptom severity, self-efficacy, outcome expectations ■ Instruments: Cancer Behavior Inventory (shortened version), authors' self-constructed scale, participant self-report of symptom severity and distress, Common Terminology Criteria for Adverse Events	Intervention group showed significantly less worsening of overall symptom distress and severity; self-efficacy was significantly higher in the intervention group.
Hochhausen et al., 2007 (United States)	Descriptive, longitudinal study using a telephone survey at baseline and post-HSCT to examine the effects of pre-HSCT social support, self-efficacy, and optimism in predicting post-HSCT health-related QOL	87 patients with leukemia who received an allogeneic HSCT (1 year post-transplantation)	■ Variables: Social support, optimism, self-efficacy, health-related QOL, psychological distress, well-being ■ Instruments: Cancer Behavior Inventory (shortened version), FACT–General, FACT–Bone Marrow Transplantation (trial outcome index), Center for Epidemiologic Studies Depression Scale	Social support, self-efficacy, and optimism significantly predicted physical and emotional well-being post-HSCT.
Hoffman et al., 2009 (United States)	Secondary data analysis using a cross-sectional survey to test a theoretical model with the hypothesis that physical functional status is predicted through patient characteristics, cancer-related fatigue, other symptoms, and perceived self-efficacy for fatigue self-management	298 patients with breast, colon, and other cancers undergoing chemotherapy and experiencing pain or fatigue	■ Variables: Cancer-related fatigue severity, symptom severity, perceived self-efficacy for fatigue self-management, physical functional status ■ Instruments: Perceived Self-Efficacy for Fatigue Self-Management Scale, Brief Fatigue Inventory, Symptom Experience Inventory	Results validated the model; perceived self-efficacy had a positive effect on functional status and served as a mediator between cancer-related fatigue and physical functional status.

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TABLE 1. Summary of Findings *(Continued)*

Study and Setting	Design and Purpose	Sample	Outcome Variables and Instruments	Findings
Quantitative *(continued)*				
Hoffman et al., 2011 (United States)	To describe the development and testing of the Perceived Self-Efficacy for Fatigue Management instrument	298 patients with breast, lung, colon, and other cancers undergoing chemotherapy and experiencing symptoms of pain or fatigue	■ Variables: Reliability and construct validity ■ Instruments: Perceived Self-Efficacy for Fatigue Self-Management Scale, Brief Fatigue Inventory, SF-36	Instrument demonstrated reliability and validity and can be used to measure perceived self-efficacy for fatigue self-management in patients with chronic illnesses.
Kelleher et al., 2016 (United States)	Descriptive, cross-sectional surveys to examine how reported outcomes of self-efficacy for pain, function, and other symptoms were associated with pain, symptom severity and distress, and physical and psychosocial functioning	178 patients with breast or gastrointestinal cancer	■ Variables: Self-efficacy for pain, symptoms, and function; pain; physical well-being; symptom severity; symptom distress ■ Instruments: Modified version of a standard self-efficacy scale for people with arthritis, MD Anderson Symptom Inventory, FACT–General	Self-efficacy scores for pain and other symptoms correlated positively with pain, symptom severity, and distress, as well as physical and psychosocial functioning; patients with lower levels of self-efficacy had poorer outcomes and functioning overall.
Liang et al., 2015 (Taiwan)	To develop and evaluate the reliability and validity of the Symptom-Management Self-Efficacy Scale for Breast Cancer in chemotherapy	152 patients with breast cancer	■ Variables: Reliability and validity of instrument ■ Instruments: Symptom-Management Self-Efficacy Scale for Breast Cancer, General Self-Efficacy Scale	Instrument has acceptable reliability and validity for measuring symptom management self-efficacy related to chemotherapy.
Liang et al., 2016 (Taiwan)	Descriptive, cross-sectional survey to examine the association between symptom distress and QOL and propose symptom management self-efficacy as a mediator between symptom distress and QOL	201 patients with breast cancer treated as outpatients	■ Variables: Symptom management self-efficacy, symptom distress ■ Instruments: Symptom-Management Self-Efficacy Scale for Breast Cancer, Symptom Distress Scale–Chinese Modified Form	Symptom management self-efficacy mediated the association between symptom distress and global QOL, as well as functional QOL and symptom QOL; lower symptom distress was indirectly associated with better QOL through higher self-efficacy.
Mystakidou et al., 2010 (Greece)	Descriptive, cross-sectional survey to assess the relationship and influence of demographic and clinical characteristics on self-efficacy beliefs	99 patients with advanced cancer in a palliative care unit	■ Variables: General self-efficacy, anxiety, performance status ■ Instruments: General Perceived Self-Efficacy Scale, STAI	Self-efficacy significantly correlated with levels of anxiety, physical condition, and demographics and is influenced by components of anxiety, age, physical performance, and gender.

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TABLE 1. Summary of Findings *(Continued)*

Study and Setting	Design and Purpose	Sample	Outcome Variables and Instruments	Findings
Quantitative *(continued)*				
Oakley et al., 2010 (United Kingdom)	Mixed methods using literature review, ethnographic and feasibility study, participant observation, conversation, notes and reflective diary, interviews, and intervention development to gain insight into the patient experience, develop understanding of receiving oral chemotherapy, and investigate the use of a diary on self-medication, symptom management, adherence, and self-efficacy	8 patients treated with oral chemotherapy and healthcare professionals who cared for them	■ Variables: Experience of oral chemotherapy, factors enhancing self-management ■ Instruments: Cancer Behavior Inventory (shortened version), Memorial Symptom Assessment Scale–Short Form	Themes of relinquishing control and moderating factors; trends showed an association between effective symptom management and increased self-efficacy; diary was effective and useful.
Papadopoulou et al., 2017 (England, Scotland, and Northern Ireland)	Descriptive, longitudinal surveys at baseline and the start of 6 chemotherapy cycles to explore changes over time in self-efficacy and predictive ability of changes in state anxiety and health-related QOL during chemotherapy	137 patients with breast or colorectal cancer scheduled to receive adjuvant chemotherapy	■ Variables: Self-efficacy, anxiety, health-related QOL ■ Instruments: Strategies Used by People to Promote Health, STAI, FACT–Breast, FACT–Colorectal	No significant time effects for overall self-efficacy; self-efficacy significantly associated with decreased anxiety at all time points; significant relationship between self-efficacy and health-related QOL at all time points
Paterson et al., 2015 (United Kingdom)	Longitudinal surveys at baseline and 6 months with a subsample completing diaries to test social support theoretical model and detail self-management behaviors	74 patients newly diagnosed with prostate cancer	■ Variables: Perceived stress, social support, anxiety and depression, psychological adjustment; self-management self-efficacy; health-related QOL ■ Instruments: Hospital Anxiety and Depression Scale, Self-Management Self-Efficacy Scale, EORTC QOL Prostate Module, Perceived Stress Scale	Self-management self-efficacy significantly reduced at 6 months; significant decline in QOL at 6 months postdiagnosis
Porter et al., 2008 (United States)	Descriptive cross-sectional telephone survey to examine self-efficacy for managing pain, symptoms, and function and to examine associations between self-efficacy and patient/caregiver adjustment	152 patients with early-stage lung cancer and their caregivers	■ Variables: Self-efficacy, pain, fatigue, QOL, depressive symptoms, anxiety ■ Instruments: Modified version of a standard self-efficacy scale for people with arthritis, Brief Pain Inventory, Brief Fatigue Inventory, FACT–Lung, Beck Depression Inventory, STAI	Patients low in self-efficacy reported significantly higher levels of pain, fatigue, lung cancer symptoms, depression, and anxiety and significantly worse physical and functional well-being.

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TABLE 1. Summary of Findings *(Continued)*

Study and Setting	Design and Purpose	Sample	Outcome Variables and Instruments	Findings
Quantitative *(continued)*				
Shelby et al., 2014 (United States)	Descriptive, cross-sectional survey to examine the relationships among physical symptoms, self-efficacy for coping with symptoms, and functional, emotional, and social well-being	112 patients with breast cancer taking adjuvant endocrine therapy	■ Variables: Medical comorbidities; physical symptoms; self-efficacy for coping with symptoms; functional, emotional, and social well-being ■ Instruments: Modified version of a standard self-efficacy scale for people with arthritis, Pain Intensity Scale of the Pain Inventory–Short Form, Brief Fatigue Inventory, Vasomotor Subscale of Menopause-Specific Quality-of-Life Questionnaire, FACT–Taxane	Higher self-efficacy for coping with symptoms was associated with greater functional, emotional, and social well-being after controlling for physical symptoms; self-efficacy for coping with symptoms moderated the relationship between physical symptoms and functional and emotional well-being
Wu et al., 2012 (United States)	Descriptive cross-sectional survey and telephone interview to examine whether self-efficacy for symptom management mediates relationships among subjective cognitive functioning, psychological adjustment, and health-related QOL	245 patients who underwent HSCT with at least moderate distress at 1 year and 8 months post-HSCT	■ Variables: Subjective cognitive functioning, self-efficacy for symptom management, depressed mood and anxiety, QOL ■ Instruments: Traumatic Brain Injury Self-Efficacy Scale, FACT–Cognitive, Brief Symptom Inventory depression and anxiety subscales	Subjective cognitive impairment reduces confidence in ability to manage common post-HSCT symptoms; better subjective cognitive functioning was associated with greater self-efficacy for symptom management, which was associated with less depressed mood, reduced anxiety, and better QOL.
Randomized, controlled trial				
Hoffman et al., 2017 (United States)	Quantitative intervention with surveys in person and via telephone presurgery, postsurgery, and weeks 1, 3, and 6; using a weekly diary; and measuring functional outcomes presurgery, postsurgery, and weeks 3 and 6 to investigate the effects of an exercise intervention to promote perceived self-efficacy for fatigue self-management	72 postsurgery patients with non-small cell lung cancer	■ Variables: Feasibility and acceptability of the intervention, effect of the intervention on cancer-related fatigue severity, perceived self-efficacy for fatigue self-management, functional status ■ Instruments: Perceived Self-Efficacy for Fatigue Self-Management, Brief Fatigue Inventory	Intervention was feasible; intervention group improved in perceived self-efficacy for fatigue self-management; fatigue was reduced, and mental and physical health components of functional performance in intervention group improved when compared to the control group.

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TABLE 1. Summary of Findings *(Continued)*

Study and Setting	Design and Purpose	Sample	Outcome Variables and Instruments	Findings
Randomized, controlled trial *(continued)*				
Mosher et al., 2016 (United States)	Quantitative intervention with surveys at baseline and 2 and 6 weeks to examine the efficacy of a telephone-based symptom management intervention	106 patients with lung cancer and their family caregivers	■ Variables: Depressive and anxiety symptoms, pain severity, self-efficacy for symptom management ■ Instruments: Modified version of a standard self-efficacy scale for people with arthritis, Patient Health Questionnaire–8, Generalized Anxiety Disorder–7, Brief Pain Inventory, Fatigue Symptom Inventory, Memorial Symptom Assessment Scale	No significant differences between groups in symptoms, self-efficacy for symptom management, or perceived social constraints
Ruland et al., 2013 (Norway)	Quantitative intervention with surveys at 3, 6, 9, and 12 months to examine the effects of an Internet-based interactive health communication application on symptom distress, depression, self-efficacy, health-related QOL, and social support	325 patients with breast or prostate cancer who were undergoing treatment	■ Variables: Symptom distress, depression, self-efficacy, health-related QOL, social support ■ Instruments: Cancer Behavior Inventory 2.0, Memorial Symptom Assessment Scale–Short Form	Significant effect on symptom distress; no significant differences in other outcomes
Zhang et al., 2014 (China)	Quantitative intervention with surveys at 3 and 6 months to test the effects of a nurse-led self-efficacy–enhancing intervention compared to routine care	152 patients with colorectal cancer diagnosed within the past 6 months	■ Variables: Self-efficacy, symptom distress, anxiety and depression, QOL ■ Instruments: Stanford Inventory of Cancer Patient Adjustment, MD Anderson Symptom Inventory, Hospital Anxiety and Depression Scale–Chinese version	Intervention group had significant improvement in self-efficacy and a reduction in symptom severity, symptom interference, anxiety, and depression.
Integrative review				
Zhu et al., 2017	To synthesize studies regarding effectiveness of Internet-based interactive programs on symptom distress, social support, self-efficacy, QOL, and psychological well-being	174 patients with breast cancer undergoing treatment	■ Variables: Symptom distress, social support, self-efficacy, QOL, psychological well-being	Internet-based interactive programs moderated by healthcare providers have positive effects on self-efficacy, symptom distress, and psychological well-being but inconclusive effects on social support and QOL.

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TABLE 1. Summary of Findings *(Continued)*

Study and Setting	Design and Purpose	Sample	Outcome Variables and Instruments	Findings
Theoretical model				
Hoffman, 2013 (United States)	Exemplars to describe how nurses can apply a tested middle-range theory in clinical practice to increase perceived self-efficacy	Patients with cancer	–	Nurses can use perceived self-efficacy–enhancing symptom self-management interventions to improve functional status and QOL.
Concept analysis				
White et al., 2017 (United States)	To describe the concept of perceived self-efficacy for symptom management in patients with cancer	Patients with cancer	–	Greater perceived self-efficacy for symptom management improved performance outcomes.

EORTC—European Organisation for Research and Treatment of Cancer; FACT—Functional Assessment of Cancer Therapy; HSCT—hematopoietic stem cell transplantation; QOL—quality of life; RCT—randomized, controlled trial; STAI—State–Trait Anxiety Inventory

evidence table that supported comparison of samples/settings, methodologies, analyses, and outcomes.

Results

The 22 articles reviewed were from 19 studies conducted in the United States, Sweden, Scotland, United Kingdom, Taiwan, Norway, Belgium, Greece, and China. Participants were diagnosed with breast, lung, prostate, colorectal, gastrointestinal, or hematologic cancer; were undergoing chemotherapy or HSCT; or had advanced cancer. Sample sizes ranged from 74–325 for the 18 quantitative studies, and the mixed-methods study had a sample size of 8. The mean age across all studies was 57.7 years. The focus of this review was self-efficacy for symptom management; however, articles were retained if one concept was included. Ten articles reported general self-efficacy, and 11 reported on symptom severity or frequency rather than symptom management or distress. All articles were appraised for quality. The quantitative studies met most of the quality appraisal criteria, with power analysis being the most common criterion not included in 6 of 18 studies. The randomized, controlled trials were not blinded. The review, theoretical, and concept analysis publications met all criteria of the quality appraisals.

Self-Efficacy and Association With Symptoms and Symptom Management

Eight articles found that higher general self-efficacy was associated with higher symptom management and lower symptom occurrence, symptom distress, improved performance outcomes, and higher QOL (Bergkvist et al., 2015; Coolbrandt et al., 2018; Oakley, Johnson, & Ream, 2010; Papadopoulou et al., 2017; Porter et al., 2008; Ruland et al., 2013; Zhang et al., 2014; Zhu, Ebert, & Wai-Chi Chan, 2017). General self-efficacy was also associated with psychological symptoms of depression and anxiety in adults with advanced cancer and those who received HSCT (Hochhausen et al., 2007; Mystakidou et al., 2010). Two studies showed that greater self-efficacy for symptom management was associated with higher QOL (Liang et al., 2016; Wu et al., 2012). Paterson, Robertson, and Nabi (2015) reported a decrease in self-management self-efficacy when symptoms significantly increased for men with prostate cancer. Higher self-efficacy for coping with symptoms was associated with greater functional, emotional, and social well-being (Shelby et al., 2014). Kelleher et al. (2016) and Porter et al. (2008) reported that individuals with lower levels of self-efficacy for managing symptoms had higher levels of pain, fatigue, depression, anxiety, symptom severity, and symptom distress, and lower levels of physical and psychosocial functioning ($p < 0.01$) and functional well-being ($p < 0.0001$). Bergkvist et al. (2015) also found that adults receiving HSCT with lower self-efficacy had higher symptom occurrence ($p < 0.001$) and poor general health ($p = 0.002$) five years after transplantation.

For adults who received HSCT, higher self-efficacy was associated with increased health-related QOL,

lower depression, and better general health from one to five years after transplantation (Bergkvist et al., 2015; Hochhausen et al., 2007). Cognitive function is also a factor to consider for self-efficacy for symptom management in adults because high doses of chemotherapy required for HSCT regimens may lead to impaired cognition. Wu et al. (2012) found that better subjective cognitive functioning was associated with greater self-efficacy for symptom management, and the evidence suggests that interventions to increase self-efficacy will reduce the negative impact of subjective cognitive impairment on QOL. An association was found in adults receiving HSCT among self-efficacy, general health, occurrence of symptoms, and ability to manage symptoms (Bergkvist et al., 2015; Hochhausen et al., 2007; Wu et al., 2012).

Self-efficacy affects QOL with lower symptom occurrence and distress in adults with cancer (Hochhausen et al., 2007; Liang et al., 2016; Mystakidou et al., 2010). Liang et al. (2016) found that self-efficacy for symptom management mediated the association between symptom distress and QOL in women with breast cancer. Lower symptom distress led to better QOL through higher self-efficacy. Other publications support the relationship between self-efficacy and QOL in adults with lung, prostate, breast, or colorectal cancer (Hoffman, 2013; Mosher et al., 2016; Papadopoulou et al., 2017; Porter et al., 2008; Shelby et al., 2014; Zhang et al., 2014).

Theoretical Model

The relationship between self-efficacy and symptoms is established in patients with cancer. Hoffman et al. (2009) tested a theoretical model for perceived self-efficacy for cancer-related fatigue self-management and demonstrated that self-efficacy had a positive effect on physical functional status. Other findings were that greater fatigue predicted lower self-efficacy for fatigue self-management and that greater self-efficacy for fatigue self-management predicted higher physical functional status. Hoffman (2013) published the theory of symptom self-management with interventions that nurses could use to increase an individual's self-efficacy. This theory includes the concepts of symptoms, perceived self-efficacy for symptom self-management, symptom self-management, patient characteristics, and performance outcomes. Interventions used by nurses to enhance self-efficacy were described and included direct mastery experiences, vicarious experiences, social and verbal persuasion, and interpreting inferences from physiologic and psychological states.

Concept Analysis

White et al. (2017) analyzed the concept of perceived self-efficacy for symptom management in patients with cancer. The attributes of cognitive and affective processes, motivation, confidence, competence, and awareness were identified. The antecedents identified were symptom presence, performance accomplishment, verbal persuasion, and presence of threat or fear. The consequences of self-efficacy for symptom management are either positive or negative and include symptom relief, health status, cost of care, QOL, and behavior performance.

Measurement of Self-Efficacy

Instruments to measure self-efficacy should measure a person's beliefs in his or her ability to perform the task, such as symptom management, within the situation of the study (Bandura, 1997). Validated and reliable research instruments are available to measure self-efficacy for symptom management behaviors in specific cancer populations (Hoffman et al., 2011; Liang, Wu, Kuo, & Lu, 2015). An instrument that measures symptom management self-efficacy in women with breast cancer was developed and tested and included items regarding communication, severity of symptoms, managing emotional and interpersonal disturbances, and acquiring resources while undergoing chemotherapy (Liang et al., 2015). Hoffman et al. (2011) developed and validated an instrument to measure self-efficacy for fatigue self-management for adults undergoing chemotherapy. These instruments are self-report measures and have potential for use to assess self-efficacy for symptom management in other cancer populations and in clinical settings.

Intervention Studies

This review included six intervention studies designed to enhance self-efficacy. Although the interventions varied in methodology, four resulted in improved self-efficacy (or trends) and/or lower symptom severity or distress (Coolbrandt et al., 2018; Hoffman et al., 2017; Ruland et al., 2013; Zhang et al., 2014), one was found to be effective and useful (Oakley et al., 2010), and one showed no difference between groups (Mosher et al., 2016). Zhang et al. (2014) developed a nurse-led intervention to enhance self-efficacy for symptom management for patients with colorectal cancer. The intervention used the strategies of performance accomplishments, vicarious experience, verbal persuasion, and physiologic states, including self-efficacy education, self-management skills and demonstrations, positive feedback, relaxation techniques, and health

coaching. This intervention resulted in significant improvement in self-efficacy ($p = 0.003$) and reduced symptom severity ($p = 0.01$) after six months. Hoffman et al. (2017) used an exercise and balance intervention to affect fatigue severity in postsurgical adults with lung cancer and found that, as behavior performance increased, self-efficacy for fatigue self-management also increased when compared to a control group ($p < 0.001$). Mosher et al. (2016) tested a telephone-based symptom management intervention with symptom management as a primary outcome and improved self-efficacy to manage symptoms as a secondary outcome. The results of the study did not show differences between groups in self-efficacy for symptom management or symptom levels.

Ruland et al. (2013) studied an Internet-based intervention with components of assessment, tailored symptom self-management support, information, communication, and a diary. The intervention significantly reduced symptom distress ($p = 0.04$) but did not show a difference in self-efficacy ($p = 0.26$). Similarly, Coolbrandt et al. (2018) tested an individually tailored nursing intervention to reduce symptom distress and improve self-efficacy as a secondary effect. The intervention focused on performing preventive self-care behaviors, monitoring symptoms, timely reporting of symptoms, and performing self-care behaviors to alleviate symptoms. The intervention included coaching sessions, written information, and access to nursing services for assistance and was

TABLE 2. Quality Appraisal for Selected Quantitative Studies

Study	Appropriate Methodology	Power Analysis Included	Appropriate Recruitment Strategy	Response Rate Percentage	Reliability and Validity Reported
Bergkvist et al., 2015	Yes	No	Yes	Yes	Yes
Coolbrandt et al., 2018	Yes	Yes	Yes	Yes	Yes
Hochhausen et al., 2007	Yes	No	Yes	Yes	Yes
Hoffman et al., 2009	Yes	No	Yes	Yes	Yes
Hoffman et al., 2011	Yes	No	Yes	No	Yes
Hoffman et al., 2017	Yes	Yes	Yes	Yes	Yes
Kelleher et al., 2016	Yes	No	Unknown	No	Yes
Liang et al., 2015	Yes	No	Unknown	No	Yes
Liang et al., 2016	Yes	No	Unknown	No	Yes
Mosher et al., 2016	Yes	Yes	Yes	Yes	No
Mystakidou et al., 2010	Yes	No	Unknown	Unknown	Yes
Oakley et al., 2010	Mixed methods	No	Unknown	–	No
Papadopoulou et al., 2017	Yes	No	Yes	No	Yes
Paterson et al., 2015	Yes	Yes	Yes	Yes	Yes
Porter et al., 2008	Yes	No	Yes	–	Yes
Ruland et al., 2013	Yes	Yes	Yes	Yes	Yes
Shelby et al., 2014	Yes	No	Unknown	No	Yes
Wu et al., 2012	Yes	No	Yes	No	Yes
Zhang et al., 2014	Yes	Yes	Yes	Yes	Yes

Note. All studies met the criteria for the categories of selecting a clearly focused issue, sample size, outcome accurately measured to minimize bias, confounding factors of limitations identified, data analysis sufficiently rigorous, clear statement of findings, and ability of results to be applied to another context.

effective in enhancing self-efficacy (p = 0.02) and lessening symptom distress (p = 0.01). Oakley et al. (2010) reported on a feasibility study using a diary intervention for symptom communication and medication scheduling and found an association between effective symptom management and increased self-efficacy. This qualitative study identified a theme of self-efficacy in addition to the theme of self-medication and symptom management. These interventions demonstrate the feasibility and effectiveness for increasing self-efficacy and symptom management behaviors and decreasing symptom distress.

Integrative Review

An integrative review conducted by Zhu et al. (2017) found that Internet-based programs moderated by healthcare providers have positive effects on self-efficacy, symptom distress, and psychological well-being in women with breast cancer during treatment. The authors determined that, despite limited evidence available, Internet-based interactive programs have the potential to improve self-efficacy and reduce symptom distress. Self-efficacy for symptom management can be learned, and resources and tools can assist nurses to provide education for individuals at any stage of the cancer journey.

Discussion

This review demonstrates links among self-efficacy, management of symptoms and symptom distress, and QOL. Presence of self-efficacy predicted higher physical and emotional well-being and was associated with lower symptom occurrence and symptom distress, which leads to better overall health and improved QOL.

Self-efficacy for symptom management is difficult to measure. This literature review shows inconsistencies in the way that the concepts of self-efficacy, symptom management, and symptom distress are measured. The studies reviewed used a variety of measures, including general self-efficacy scales, instruments modified from an arthritis scale, behavior scales, and instruments developed for a specific symptom or type of cancer. Presence of symptoms and symptom distress also were measured using a variety of instruments, making it challenging to compare the concepts among studies.

Several nurse-led interventions have been shown to be feasible and effective for increasing self-efficacy for symptom management and reducing symptom severity and distress. These interventions used the strategies of performance accomplishments, vicarious experience, verbal persuasion, motivational interviewing, communication and collaboration, and tailored symptom management while considering physiologic and psychological states when providing education (Coolbrandt et al., 2018; Hoffman et al., 2017; Ruland et al., 2013; Zhang et al., 2014). This encompassed coaching and education regarding symptom management tailored to the patient's situation, return demonstrations of skills, and ensuring mechanisms for adults to communicate and discuss presence of symptoms. These are all effective strategies for enhancing self-efficacy for symptom management and are consistent with Bandura's (1997) self-efficacy theory. Adults with low self-efficacy may not feel empowered to communicate presence of symptoms, particularly if the symptoms are related to managing emotions, such as anxiety or depression, or seem mild in nature. Providing mechanisms for communication of symptom presence tailored to the adult's situation (e.g., telephone, Internet, video contact) followed by education on how to manage those symptoms has the potential to affect symptom distress and QOL. The few intervention studies available to enhance self-efficacy for symptom management in adults with cancer are an indication that more research is needed on this topic. Focusing research on a specific phase of treatment, such as during chemotherapy or during intensive treatment, allows for development of patient-centered interventions.

Barriers to development of self-efficacy for symptom management should be considered when

TABLE 3. Quality Appraisal for Randomized, Controlled Trials

Study	Participants Blinded	Precision of the Estimate of Treatment Effects
Hoffman et al., 2017	No	Yes
Mosher et al., 2016	No	No
Ruland et al., 2013	No	Yes
Zhang et al., 2014	No	No

Note. All studies met the criteria for the categories of randomizing assignment to treatment, proper accounting for participants at end of trial, similar groups at start of trial, equal treatment of groups aside from intervention, outcomes measured and primary outcome specified, applicability of results, considering all clinically important outcomes, and benefits being worth the harms and costs.

developing and implementing interventions. A barrier to effective symptom management is low or lack of self-efficacy. Challenges, such as impaired cognitive function, must be considered when evaluating self-efficacy. Although the study by Wu et al. (2012) described in the current review discussed impaired cognitive function in adults undergoing HSCT, it should be noted that all adults who receive chemotherapy treatments are at risk for impaired cognitive function (Ahles, Root, & Ryan, 2012; Cohen, Shonka, Armstrong, & Wefel, 2014). Other barriers to developing self-efficacy for symptom management include an adult having the belief that nothing can be done to alleviate symptoms or difficulty interpreting the cause of symptoms and whether to report them to the healthcare team.

Limitations and Strengths

A limitation was that participants were mostly Caucasian except for the studies from China and Taiwan. Lack of diversity is a common finding in studies of adults who received HSCT, which affects the ability to generalize findings and potential development of interventions. Another limitation is the variability of participants' stages of illness. Studies had participants who were newly diagnosed, those undergoing treatment, and patients with advanced cancer. The cross-sectional methodology of some of the articles is also a limitation because self-efficacy has the potential to change depending on phase of treatment and severity of symptoms. Power analysis was frequently omitted from the studies and included in only six of the publications. Although the randomized, controlled trials were not blinded to assignment, blinding would be difficult with this type of intervention research. A limitation of this review is that the studies selected for inclusion were limited to those in the English language. Relevant studies may be published in other languages that were omitted in this review. Strengths of this review are the use of a framework to guide the selection and analysis and use of quality appraisal tools specific to the publication type. Inclusion of articles from several countries is also a strength of the review.

Implications for Nursing Practice and Research

Nurses are well positioned to assess an adult's self-efficacy for symptom management and to affect development of patient-centered interventions to assist with managing symptoms related to cancer and its treatment. Assessment of self-efficacy is not typically integrated into nursing care because other terms are commonly considered when developing a patient-centered plan of care, such as motivation, capability, adherence or compliance, and access to support and resources. Self-efficacy for symptom management encompasses all of these characteristics and more, providing a more complete assessment of the person's needs and strengths. Assessment of self-efficacy for symptom management should occur early in the individual's cancer journey, with reassessments done throughout the course of treatment because the disease effects and treatment plans are dynamic, requiring changes in symptom management strategies.

KNOWLEDGE TRANSLATION

- High self-efficacy leads to better symptom management behaviors, functioning, and overall quality of life and lower symptom distress.
- Interventions to enhance self-efficacy have been shown to be feasible and effective, but further research is needed.
- Nurses need to assess and promote self-efficacy for symptom management behaviors in adults with cancer.

There are few valid and reliable measurement tools for measurement of self-efficacy for symptom management. One instrument that has potential for use is the Symptom-Management Self-Efficacy Scale for Breast Cancer, which has only been tested in adults with breast cancer but shows promise for other types of cancer (Liang et al., 2015). Another option for assessing self-efficacy for symptom management is the Self-Efficacy for Managing Chronic Conditions instrument, which is a Patient-Reported Outcomes Measurement Information System (PROMIS) instrument developed to be used for adults with chronic conditions (HealthMeasures, 2018). This instrument is brief, free, and may be clinically useful, but it has not been reported in cancer populations. Further work is needed to identify tools that can be used to measure self-efficacy for symptom management in clinical practice.

Assessment of self-efficacy for symptom management starting at diagnosis and throughout the treatment process would provide a guide for patient-centered interventions. As demonstrated by the few intervention studies selected for this review, more research is needed to discover effective self-efficacy–enhancing interventions that can be individually tailored for patients with cancer or their caregivers to use for problem solving and managing symptoms. Interventions should be incorporated into care and use strategies of performance accomplishments (direct mastery experience), vicarious

experience, verbal and social persuasion, and psychological and physiologic states (Hoffman, 2013; Zhang et al., 2014). These include assessing confidence, goal setting, and demonstrating symptom management tasks with return demonstration by the adult; defining a collaborative plan of care; and coaching and verbal encouragement. Other interventions include keeping a journal, evaluating symptoms, and reinforcing past accomplishments—always while considering each person's characteristics, such as severity of illness, mental state, mood, social environment, lifestyle behaviors, and available resources. Nurses should also consider the timing of interventions because effects from the disease and treatments are dynamic. Teaching aimed at enhancing self-efficacy may not be effective when symptom levels are high.

Conclusion

Recognizing deficits and intervening to enhance self-efficacy is critical for providing overall care for patients with cancer who have symptoms or symptom distress. Based on the studies reviewed, the authors conclude that assessment of self-efficacy for symptom management and implementation of interventions to enhance self-efficacy are feasible and effective. Although instruments have been developed to measure self-efficacy for symptom management, further research is needed to test these instruments in adults with cancer. Few interventions have been developed, and opportunities exist for further intervention development and refinement. This integrative review shows that the groundwork has been laid for this important work that has great potential to decrease symptom occurrence and severity and improve overall well-being and QOL in adults with cancer.

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