

This material is protected by U.S. copyright law. To purchase quantity reprints, e-mail reprints@ons.org. For permission to reproduce multiple copies, e-mail pubpermissions@ons.org.

Relationship Between Hope and Fatigue Characteristics in Newly Diagnosed Outpatients With Cancer

Shiow-Ching Shun, RN, PhD, Fei-Hsiu Hsiao, RN, PhD, and Yeur-Hur Lai, RN, PhD

Hope is a pivotal factor in personal adjustments for patients struggling with their cancer diagnoses, particularly those newly diagnosed and receiving active treatment (Chi, 2007; Hammer, Mogensen, & Hall, 2009; Whitney, McCullough, Frugé, McGuire, & Volk, 2008). Previous investigation has revealed hope to be a significant factor for survival and a vital factor for reducing psychological distress, increasing self-esteem, and enhancing psychosocial well-being and quality of life (Felder, 2004; Herth, 2000, 2001; Lai et al., 2003; Mattioli, Repinski, & Chappy, 2008). Hope is described as having multidimensional factors (Herth, 1992; McClement & Chochinov, 2008) and generally is defined as the desire that an individual anticipates for the future (Chi, 2007). A sense of hopelessness has been proposed as a risk factor for suicide in patients with cancer (Lin, Wu, & Lee, 2009). Therefore, identifying factors influential to patients' feelings of hope is important to better support patients by providing and maintaining their hope during the cancer treatment process.

Previous studies have examined many influential factors for hope, including demographic factors (e.g., age, gender, education level, religion, marital status) and disease-related factors (e.g., diagnosis of cancer, disease stage, time since diagnosis) (Chen, 2003; Chi, 2007; Rustøen & Wiklund, 2000; Vellone, Rega, Galletti, & Cohen, 2006). Declining functional status (Lai et al., 2003; McGill & Paul, 1993) and increasing symptom distress (Chen, 2003; Lai et al., 2003; Vellone et al., 2006) have been commonly identified as significant factors affecting the level of hope in patients with cancer. Cancer-related fatigue may play a key role in influencing a patient's sense of hope because it profoundly affects the physical, psychosocial, and cognitive performance of patients (Dy et al., 2008; Lai et al., 2007; Miller, Maguire, & Kearney, 2007; Morrow, 2007). In addition, energy has emerged as an attribute of hope, whereas lack of energy is one of the

Purpose/Objectives: To examine the relationship between hope and fatigue (intensity, duration, and interference) in newly diagnosed patients with cancer receiving chemotherapy.

Design: Cross-sectional and correlational.

Setting: Oncology outpatient clinics of two medical centers in northern Taiwan.

Sample: 182 patients diagnosed with various types of solid tumors in the previous six months and receiving chemotherapy treatment.

Methods: Questionnaires were used to assess patients' fatigue intensity, duration, and interference, as well as level of hope and related background information before drug administration at a chemotherapy visit. The relationship between fatigue characteristics and level of hope was verified using Pearson's correlation analysis.

Main Research Variables: Hope, fatigue intensity, duration, and interference.

Findings: Compared to fatigue intensity, interference and its duration have a stronger association with level of hope. Further analysis of the seven individual items of fatigue interference found that interference with mood status and relations with others is significantly associated with level of hope in newly diagnosed patients.

Conclusions: Fatigue duration and interference caused by fatigue, particularly in mood status and relations with others, are associated with the perception of hope in newly diagnosed patients.

Implications for Nursing: Clinical nurses should assess intensity of fatigue as well as its interference and duration to better support patients' perception of hope by reducing interference caused by fatigue.

manifestations of fatigue (Lee, 2001), indicating an important relationship between fatigue and hope. However, little attention has been given to exploring the connection between hope and cancer-related fatigue.

To the authors' knowledge, only one study has focused simultaneously on hope and fatigue: Lee (2001) reported a

negative relationship between hope and overall perceived fatigue as measured by the revised Piper Fatigue Scale in patients with breast cancer. However, the aim of the study focused on the roles of fatigue and hope on psychosocial adjustment. The relationships between hope and characteristics of fatigue (e.g., intensity, duration, interference) have not yet been explored. Because cancer-related fatigue is the most frequently reported side effect of cancer treatment and hope is a pivotal factor for survival, a better understanding of their relationship could allow healthcare providers to help patients maintain a sense of hope while managing their fatigue, thus relieving the most common issue encountered by patients with cancer.

Cancer-related fatigue is a complex and multidimensional phenomenon, and fatigue intensity and its interference are two major dimensions assessed in clinical care guidelines (National Comprehensive Cancer Network [NCCN], 2007; Piper et al., 2008). However, assessing fatigue interference has been underperformed when compared with assessing fatigue intensity in the clinical screening process. For example, screening newly identified patients with advanced cancer for fatigue intensity during the clinical screening process has been suggested (NCCN, 2007), but further assessment of fatigue interference in functioning is recommended only when patients have moderate-to-severe fatigue. However, interference caused by fatigue can directly affect patients' quality of life (Armstrong, 2003) and might influence their level of hope. Therefore, the aim of the study was to examine the level of hope and fatigue in newly diagnosed patients receiving chemotherapy and further explore the association between hope and fatigue in this population.

Methods

Study Design

A cross-sectional survey with convenience sampling was used in this study. Potential participants were recruited from outpatient clinics of two leading medical centers in northern Taiwan. Inclusion criteria were adult patients (aged 18 years or older) with cancer diagnosed within the past six months with a solid tumor, receiving chemotherapy or concurrent chemotherapy and radiotherapy, able to communicate verbally, and willing to sign a consent form after receiving a detailed explanation of the study purposes and procedures. The study was approved by the institutional review boards of both hospitals, and patient consent was obtained before data collection. A set of questionnaires were administered during a day of chemotherapy before drug administration through person-to-person interviews by two research assistants. Of 227 eligible participants, 182 patients with cancer completed the data collection process from February 2005 to September 2007.

Instruments

Data were collected using a structured questionnaire consisting of the Chinese version of the **Herth Hope Index (HHI)**, the **Fatigue Symptom Inventory (FSI)**,

Table 1. Sample Characteristics

Characteristic	\bar{X}	SD	Range
Age (years)	50.81	10.4	21–78
Education completed (years)	9.63	4.16	0–18
Characteristic	n	%	
Gender			
Male	83	46	
Female	99	54	
Marital status			
Single	7	4	
Married	157	86	
Divorced	7	4	
Widowed	11	6	
Religion			
Buddhist or Taoist	108	59	
Christian	6	3	
Catholic	1	1	
Other	2	1	
None	65	36	
Employment			
None	124	68	
Part-time	13	7	
Full-time	45	25	
Type of cancer			
Breast	58	32	
Nasopharyngeal	34	19	
Colorectal	33	18	
Other (e.g., brain, liver, prostate)	29	16	
Lung	15	8	
Cervical	13	7	
Cancer stage			
I	18	10	
II	52	29	
III	44	24	
IV	68	37	
Time since diagnosis (months)			
3 or less	124	68	
4–6	58	32	
Treatment			
Chemotherapy only	125	69	
Chemotherapy and radiotherapy	57	31	
Karnofsky Performance Status score			
70 ^a	17	9	
80 ^b	62	34	
90 ^c	77	42	
100 ^d	26	14	

N = 182

^a Indicates patients can care for themselves but cannot perform normal activity or to do active work

^b Indicates patients can perform normal activity with effort, with some signs and symptoms of disease

^c Indicates patients can perform normal activity with minor signs or symptoms of disease

^d Indicates patients can perform physical activities very well with no evidence of disease

Note. Because of rounding, not all percentages total 100.

the **Karnofsky Performance Status (KPS)**, and demographic data and medical information.

The HHI, a 12-item, four-point Likert-type scale, assesses the overall hope level of adults. Each item is scored from 1 (strongly disagree) to 4 (strongly agree), with a total range of scores from 12–48. The higher the score, the greater the level of hope. Satisfactory psychometric characteristics have been supported (Herth, 1992). In addition, the Cronbach alpha coefficients ranged from 0.75–0.9 in Taiwanese patients with cancer in previous studies (Lai et al., 2003; Lin, Lai, & Ward, 2003). Its coefficient in the current study was 0.86.

The FSI, a 14-item self-report measure, was designed to assess the intensity (four items: worst, least, average, and current), interference (seven items: general daily activities, ability to bathe and dress, work activity, ability to concentrate, relations with others, enjoyment of life, and mood), duration (two items: number of days in the previous week [0–7 days], and the mean percentage of time each day) and daily pattern (one item) of fatigue (Hann, Denniston, & Baker, 2000; Hann et al., 1998). Items to assess intensity and interference are rated on an 11-point Likert-type scale (0 = not at all fatigued; 10 = extremely fatigued), and the mean percentage of time each day, which assesses duration, also is rated on an 11-point Likert-type scale (0 = none of the day; 10 = the entire day). Two items on the questionnaire ask patients to rate the intensity of fatigue on average and at its worst, representing the fatigue intensity. The score of the seven-item subscale represents interference of fatigue in this study. The Chinese version of the FSI has been rigorously translated and back-translated, and its psychometric properties have been examined on patients with cancer (Shun, Beck, Pett, & Berry, 2006; Shun, Beck, Pett, & Richardson, 2007). In the current study, the Cronbach alpha coefficient for the FSI-Chinese version was 0.92.

The KPS is widely used to quantify the functional status of patients with cancer (Mor, Laliberte, Morris, & Wiemann, 1984). It uses an 11-point rating scale that ranges from 100 (normal function) to 0 (equivalent to being dead) in 10-point intervals. The KPS has been used to examine patients' functional status in Taiwan (Lin et al., 2003).

The demographic questionnaire included two parts: demographic data and medical information. The demographic variables were age, gender, marital status, education level, religion, and employment status. Medical history data gathered were the type of cancer, stage of cancer, length of time since diagnosis, and type of treatment.

Data Analysis

Data were entered and analyzed using SPSS®, version 15.0. Descriptive statistics were used to report the characteristics of participants and levels of hope and

fatigue. Pearson's correlation was used to examine the association between the fatigue characteristics and hope. In addition, seven individual items of fatigue interference and hope also were examined to explore significant, important interferences on functioning in daily life associated with the level of hope.

Results

Patient Characteristics

The demographic characteristics and medical information for the 182 patients are summarized in Table 1. Most participants were women, married, and Buddhist or Taoist. The most common form of cancer was breast cancer. A majority of participants had been diagnosed for three months, mostly at stage IV; 57 patients (31%) were receiving concurrent treatment (chemotherapy combined with radiotherapy). The majority had good functional status (KPS of 90 or higher).

Level of Hope and Fatigue Characteristics

The mean scores for hope and fatigue characteristics are reported in Table 2. The mean HHI score was 35.18 (SD = 4.74), ranging from 23–48. The worst fatigue was 3.64

Table 2. Mean Scores of Hope, Fatigue Intensity, and Interference

Variable	\bar{X}	SD	Min	Max
Hope^a	35.18	4.74	23	48
Fatigue intensity^b				
Worst fatigue	3.64	2.45	0	10
Average fatigue	2.73	1.82	0	8
Fatigue duration				
Number of days fatigued ^c	3.37	2.59	0	7
How much of the day fatigued ^d	2.71	2.57	0	10
Perceived interference with functioning^e	1.44	1.66	0	7.7
General daily activities	1.54	2.18	0	8
Ability to bathe and dress	0.64	1.69	0	8
Work activity	1.33	2.16	0	8
Ability to concentrate	1.41	1.84	0	8
Relations with others	1.26	2	0	10
Enjoyment of life	1.83	2.42	0	10
Mood	2.07	2.47	0	10

^a Measured by the Herth Hope Index, with scores ranging from 12–48 (the higher the score, the greater the hope)

^b Measured by the Fatigue Symptom Inventory, with scores ranging from 0–10 (the higher the score, the greater the fatigue)

^c Patients were asked to “indicate how many days in the past week you felt fatigued for any part of the day” (0–7 days).

^d Patients were asked to “rate how much of the day on average you felt fatigued in the past week” (0 = none of the day, 5 = half of the day, and 10 = the entire day).

^e Indicated the mean scores of the seven-item subscale, ranging from 0–10 (the higher the score, the greater the fatigue interference)
Max—maximum; Min—minimum

Table 3. Pearson's Correlations Between Hope and Fatigue Characteristics

Variable	r	p
Fatigue intensity		
Worst fatigue	-0.131	0.077
Average fatigue	-0.137	0.065
Fatigue duration		
Number of days fatigued ^a	-0.157	0.035
How much of the day fatigued ^b	-0.177	0.017
Perceived interference with functioning^c		
Daily activities	-0.122	0.101
Bath and dress	-0.138	0.062
Normal work activity	-0.087	0.244
Ability to concentrate	-0.129	0.083
Relations with others	-0.182	0.014
Enjoyment of life	0.123	0.098
Mood	-0.209	0.005

^a Patients were asked to "indicate how many days in the past week you felt fatigued for any part of the day" (0–7 days).

^b Patients were asked to "rate how much of the day on average you felt fatigued in the past week" (0 = none of the day, 5 = half of the day, and 10 = the entire day).

^c Indicated the mean scores of the seven-item subscale

(SD = 2.45), and fatigue on average was 2.73 (SD = 1.82) in the week prior to the interview. Most of the patients encountered no consistent daily pattern of fatigue (n = 83, 45%), with an average of 3.37 (SD = 2.59) days of feeling fatigued during the previous week. Participants reported feeling fatigued for about one-third of the day (\bar{X} = 2.71, SD = 2.57). The total perceived interference caused by fatigue was mild (\bar{X} = 1.44, SD = 1.66). Mood status was the factor most affected by fatigue in daily life in this study (\bar{X} = 2.07, SD = 2.47).

Relationship Between Hope and Fatigue

The association between hope and fatigue characteristics indicates that the level of hope has a significant negative correlation with fatigue duration ($r = -0.157$ to -0.177 , $p < 0.05$), and total perceived interference of fatigue ($r = -0.187$, $p < 0.05$) (see Table 3). In other words, patients with longer durations of fatigue and higher levels of perceived interference had lower levels of hope.

The results of Pearson's correlation for examining the association between hope and the seven individual items of fatigue interference showed that interference of fatigue with relations with others ($r = -0.183$, $p < 0.05$) and mood status ($r = -0.209$, $p < 0.05$) had significant negative correlations with hope.

Discussion

The aim of the current study was to examine the level of hope and the intensity, duration, and interference with daily life caused by fatigue to further explore their

relationships in newly diagnosed patients with cancer. The results suggest that duration and interference of fatigue have more significant associations with level of hope than intensity. Additional analysis of fatigue's seven individual items of interference found that interference of fatigue with relations with others and mood status in newly diagnosed patients is significantly associated with their levels of hope.

The level of hope in this study was moderate, which is similar to previous studies (Lai et al., 2003; Lin & Tsay, 2005; Rustøen & Wiklund, 2000). However, the level of hope in patients undergoing active treatment was close to or lower than the level in patients undergoing palliative care in previous studies (\bar{X} = 36.81–39) (Benzein & Berg, 2005; Duggleby et al., 2007; Herth, 1990), which might indicate that the impact of cancer and its related treatment on hope among newly diagnosed patients is as profound as that on patients undergoing palliative care. Another study indicated that the sense of hope in newly diagnosed patients is a dynamic phenomenon and that, as a result of their recent cancer diagnosis, patients oscillate between hope and hopelessness (Hammer et al., 2009).

Based on the current study's results, duration of fatigue and its interference were negatively correlated with level of hope, whereas fatigue intensity was non-significant when correlated with hope. One previous study examined the dimensions of pain associated with hope and reported that patients' cognition or interpretation of events, rather than symptom intensity, determines their level of hope (Chen, 2003). That finding was supported by the common sense model (Chen, 2003), which is related to an individual's cognitive representation of an illness or symptom (Leventhal, Meyer, & Nerenz, 1980). Based on this model, interference of fatigue is a consequence of fatigue, which refers to the impact of the fatigue on overall quality of life or its effect on functional capacity (Donovan, Ward, Sherwood, & Serlin, 2008). That might explain why fatigue intensity is not the key factor associated with patients' level of hope; however, duration and interference of fatigue that patients cognitively interpret as affecting their lives further influence their sense of hope.

The current study's results indicate that mood status and relations with others caused by fatigue were the significant factors associated with level of hope in newly diagnosed patients. Most patients had good functional status in this study and, therefore, interference of fatigue did not profoundly affect their daily activities (e.g., ability to bathe and dress, ability to perform work activities, ability to concentrate). However, being diagnosed with cancer is a life-threatening event, and newly diagnosed patients are still in a complex and unstable mood status involving anger, anxiety, uncertainty, and depression (Landmark, Böhler, Loberg, & Wahl, 2008; Steinberg et al., 2009). Therefore, mood status and relations with others were the categories most affected by fatigue and the

worse they are, the further sense of hope may decrease. Maintaining the level of hope in this population might be a helpful strategy for reducing the interference of fatigue on mood status. However, further examination of their causal effect is needed in future intervention studies.

Limitations

A few limitations should be considered. First, most patients reported fatigue intensity as mild to moderate and their functional status as good. Therefore, the association between hope and fatigue should not be generalized to those patients with severe fatigue. Second, the study participants were outpatients diagnosed within the past six months; therefore, the results may not be generalizable to inpatients and those with a longer length of illness.

Implications for Nursing

According to the current study's results, healthcare providers should routinely assess interference of fatigue with daily life, as well as duration of fatigue. Although the interference of fatigue profoundly affects patients' quality of daily life, assessing its interference has been underutilized in the clinical screening process (NCCN, 2007). Assessment of fatigue interference in functioning is recommended when patients have moderate-to-severe fatigue intensity (NCCN, 2007; Piper et al., 2008). According to the results of the current study, the level of interference of fatigue, rather than intensity of fatigue, had a significant negative correlation with the level of hope. Therefore, the authors suggest not only assessing intensity, but also routinely assessing the interference of fatigue with daily

life to prevent patients from experiencing severe levels of fatigue and, in turn, lower levels of hope.

Conclusion

The current study provides evidence of the important role of fatigue interference in the level of hope in newly diagnosed outpatients with cancer. The study also helps to identify patients with fatigue interference in mood aspect and relations with others as a high-risk population for a lower level of hope among outpatients with cancer. Therefore, routinely and actively assessing the level of fatigue interference in outpatients at the initial visit and beyond is recommended. Healthcare providers should develop individualized education counseling to help patients manage their fatigue during active treatment to reduce its interference with daily life. Doing so would help patients to maintain their sense of hope during active treatment and decrease the withdrawal rate of treatment or clinical trials.

The authors gratefully acknowledge the assistance of the patients who participated in this study and George Plautz, MA, for his editing.

Shiow-Ching Shun, RN, PhD, is an assistant professor, Fei-Hsiao, RN, PhD, is an associate professor, and Yeur-Hur Lai, RN, PhD, is a professor, all in the Department of Nursing in the College of Medicine at the National Taiwan University in Taipei. This study was supported, in part, by a grant from the National Taiwan University and the National Science Council (NSC 95-2314-B-002-335). Lai can be reached at laiwhk@ntu.edu.tw, with copy to editor at ONFEditor@ons.org. (Submitted September 2009. Accepted for publication December 2, 2009.)

Digital Object Identifier: 10.1188/11.ONFE81-E86

References

- Armstrong, T.S. (2003). Symptoms experience: A concept analysis. *Oncology Nursing Forum*, 30, 601–606. doi: 10.1188/03.ONF.601-606
- Benzein, E.G., & Berg, A.C. (2005). The level of and relation between hope, hopelessness and fatigue in patients and family members in palliative care. *Palliative Medicine*, 19, 234–240. doi: 10.1191/0269216305pm1003oa
- Chen, M.L. (2003). Pain and hope in patients with cancer: A role for cognition. *Cancer Nursing*, 26, 61–67.
- Chi, G.C. (2007). The role of hope in patients with cancer. *Oncology Nursing Forum*, 34, 415–424. doi: 10.1188/07.ONF.415-424
- Donovan, H.S., Ward, S., Sherwood, P., & Serlin, R.C. (2008). Evaluation of the Symptom Representation Questionnaire (SRQ) for assessing cancer-related symptoms. *Journal of Pain and Symptom Management*, 35, 242–257. doi: 10.1016/j.jpainsymman.2007.04.017
- Duggleby, W.D., Degner, L., Williams, A., Wright, K., Cooper, D., Popkin, D., & Holtzlander, L. (2007). Living with hope: Initial evaluation of a psychosocial hope intervention for older palliative home care patients. *Journal of Pain and Symptom Management*, 33, 247–257.
- Dy, S.M., Lorenz, K.A., Naeim, A., Sanati, H., Walling, A., & Asch, S.M. (2008). Evidence-based recommendations for cancer fatigue, anorexia, depression, and dyspnea. *Journal of Clinical Oncology*, 26, 3886–3895. doi: 10.1200/JCO.2007.15.9525
- Felder, B.E. (2004). Hope and coping in patients with cancer diagnoses. *Cancer Nursing*, 27, 320–324. doi: 10.1097/00002820-200407000-00009
- Hammer, K., Mogensen, O., & Hall, E.O. (2009). Hope as experienced in women newly diagnosed with gynaecological cancer. *European Journal of Oncology Nursing*, 13, 274–279. doi: 10.1016/j.ejon.2009.02.004
- Hann, D.M., Denniston, M.M., & Baker, F. (2000). Measurement of fatigue in cancer patients: Further validation of the Fatigue Symptom Inventory. *Quality of Life Research*, 9, 847–854. doi: 10.1023/A:1008900413113
- Hann, D.M., Jacobsen, P.B., Azzarello, L.M., Martin, S.C., Curran, S.L., Fields, K.K., . . . Lyman, G. (1998). Measurement of fatigue in cancer patients: Development and validation of the Fatigue Symptom Inventory. *Quality of Life Research*, 7, 301–310. doi: 10.1023/A:1008842517972
- Herth, K. (1990). Fostering hope in terminally-ill people. *Journal of Advanced Nursing*, 15, 1250–1259.
- Herth, K. (1992). Abbreviated instrument to measure hope: Development and psychometric evaluation. *Journal of Advanced Nursing*, 17, 1251–1259.
- Herth, K. (2000). Enhancing hope in people with a first recurrence of cancer. *Journal of Advanced Nursing*, 32, 1431–1441.
- Herth, K. (2001). Development and implementation of a Hope Intervention Program. *Oncology Nursing Forum*, 28, 1009–1016.
- Lai, Y.H., Chang, J.T., Keefe, F.J., Chiou, C.F., Chen, S.C., Feng, S.C., . . . Liao, M.N. (2003). Symptom distress, catastrophic thinking, and

- hope in nasopharyngeal carcinoma patients. *Cancer Nursing*, 26, 485–493. doi: 10.1097/00002820-200312000-00008
- Lai, Y.H., Shun, S.C., Hsiao, Y.L., Chiou, J.F., Wei, L.L., Tsai, J.T., & Kao, C.Y. (2007). Fatigue experiences in hepatocellular carcinoma patients during six weeks of stereotactic radiotherapy. *Oncologist*, 12, 221–230. doi: 10.1634/theoncologist.12-2-221
- Landmark, B.T., Böhler, A., Loberg, K., & Wahl, A.K. (2008). Women with newly diagnosed breast cancer and their perceptions of needs in a health-care context. *Journal of Clinical Nursing*, 17(7B), 192–200. doi: 10.1111/j.1365-2702.2008.02340.x
- Lee, E.H. (2001). Fatigue and hope: Relationships to psychosocial adjustment in Korean women with breast cancer. *Applied Nursing Research*, 14, 87–93. doi: 10.1053/apnr.2001.22374
- Leventhal, H., Meyer, D., & Nerenz, D. (1980). The common sense representation of illness danger. In S. Rachman (Ed.), *Contributions to medical psychology* (vol. 2, pp. 7–30). New York, NY: Pergamon Press.
- Lin, C.C., Lai, Y.L., & Ward, S.E. (2003). Effect of cancer pain on performance status, mood states, and level of hope among Taiwanese cancer patients. *Journal of Pain and Symptom Management*, 25, 29–37.
- Lin, C.C., & Tsay, H.F. (2005). Relationships among perceived diagnostic disclosure, health locus of control, and levels of hope in Taiwanese cancer patients. *Psycho-Oncology*, 14, 376–385. doi: 10.1002/pon.854
- Lin, H.C., Wu, C.H., & Lee, H.C. (2009). Risk factors for suicide following hospital discharge among cancer patients. *Psycho-Oncology*, 18, 1038–1044. doi: 10.1002/pon.1483
- Mattioli, J.L., Repinski, R., & Chappy, S.L. (2008). The meaning of hope and social support in patients receiving chemotherapy. *Oncology Nursing Forum*, 35, 822–829. doi: 10.1188/08.ONF.822-829
- McClement, S.E., & Chochinov, H.M. (2008). Hope in advanced cancer patients. *European Journal of Cancer*, 44, 1169–1174. doi: 10.1016/j.ejca.2008.02.031
- McGill, J.S., & Paul, P.B. (1993). Functional status and hope in elderly people with and without cancer. *Oncology Nursing Forum*, 20, 1207–1213.
- Miller, M., Maguire, R., & Kearney, N. (2007). Patterns of fatigue during a course of chemotherapy: Results from a multi-centre study. *European Journal of Oncology Nursing*, 11, 126–132. doi: 10.1016/j.ejon.2006.05.001
- Mor, V., Laliberte, L., Morris, J.N., & Wiemann, M. (1984). The Karnofsky Performance Status scale. An examination of its reliability and validity in a research setting. *Cancer*, 53, 2002–2007.
- Morrow, G.R. (2007). Cancer-related fatigue: Causes, consequences, and management. *Oncologist*, 12(Suppl. 1), 1–3. doi: 10.1634/theoncologist.12-S1-1
- National Comprehensive Cancer Network. (2007). *NCCN Clinical Practice Guideline in Oncology™: Cancer-related fatigue* [v.1.2007]. Retrieved from http://www.nccn.org/professionals/physician_gls/PDF/fatigue.pdf
- Piper, B.F., Borneman, T., Sun, V.C., Koczywas, M., Uman, G., Ferrell, B., & James, R.L. (2008). Cancer-related fatigue: Role of oncology nurses in translating National Comprehensive Cancer Network assessment guidelines into practice. *Clinical Journal of Oncology Nursing*, 12(5 Suppl.), 37–47.
- Rustøen, T., & Wiklund, I. (2000). Hope in newly diagnosed patients with cancer. *Cancer Nursing*, 23, 214–219.
- Shun, S.C., Beck, S.L., Pett, M.A., & Berry, P.H. (2006). Psychometric testing of three Chinese fatigue instruments in Taiwan. *Journal of Pain and Symptom Management*, 32, 155–167. doi: 10.1016/j.jpainsymman.2006.02.011
- Shun, S.C., Beck, S.L., Pett, M.A., & Richardson, S.J. (2007). Assessing responsiveness of cancer-related fatigue instruments: distribution-based and individual anchor-based methods. *Oncologist*, 12, 495–504. doi: 10.1634/theoncologist.12-4-495
- Steinberg, T., Roseman, M., Kasymjanova, G., Dobson, S., Lajeunesse, L., Dajczman, E., . . . Small, D. (2009). Prevalence of emotional distress in newly diagnosed lung cancer patients. *Supportive Care in Cancer*, 17, 1493–1497. doi: 10.1007/s00520-009-0614-6
- Vellone, E., Rega, M.L., Galletti, C., & Cohen, M.Z. (2006). Hope and related variables in Italian cancer patients. *Cancer Nursing*, 29, 356–366. doi: 10.1097/00002820-200609000-00002
- Whitney, S.N., McCullough, L.B., Frugé, E., McGuire, A.L., & Volk, R.J. (2008). Beyond breaking bad news: The roles of hope and helpfulness. *Cancer*, 113, 442–445. doi: 10.1002/cncr.23588