8. Summary of key evidence that nursing interventions influence this outcome and gaps in current evidence base

This section is based on a review of the integrated reviews published on cancer-related fatigue (see Section 4) and highlights evidence that nursing interventions influence fatigue. Gaps in existing knowledge and recommendations for research are identified.

A. Evidence that nursing interventions influence fatigue

- Aerobic exercise has been shown to reduce fatigue in adult patients receiving a variety of treatments. The most consistent evidence is in women with breast cancer receiving chemotherapy. Limited evidence exists in patients undergoing autologous stem cell transplantation and those receiving interferon. There is limited information about the effectiveness and acceptability of an exercise program designed for patients who already have high levels of fatigue.
- Recombinant human EPO (epoiten alpha) has been shown to increase hemoglobin level, decrease transfusion requirements, and improve self-reported energy and activity in adult patients with anemia secondary to myelosuppressive cancer chemotherapy for nonmyeloid malignancies.
- There is initial but limited evidence that a nurse-delivered energy conservation and activity management program can produce a modest decrease in fatigue in patients undergoing cancer treatment.
- There is initial but limited evidence that structured education and support interventions may reduce fatigue.
- There is inadequate evidence to support the use of megestrol acetate, prednisone, amifostine, and methylphenidate.
- Evidence regarding treatment of fatigue in children and adolescents, older adults, individuals with cognitive impairment, and individuals from different racial and ethnic groups is insufficient.

B. Gaps in Evidence

Prevalence/Pattern

- Studies indicate that fatigue is a prevalent symptom, but most studies were not systematic and did not use strict diagnostic criteria. The findings are also limited by lack of a healthy comparison group, lack of clarity between incidence and prevalence of fatigue, and lack of diverse samples.
- Fatigue exists at the time of diagnosis as well as during and after treatment. There are no general conclusions about its pattern over time, except that peak fatigue seems to occur in the first few days after chemotherapy.

Assessment/Measurement

- There are no published evaluations of clinical assessment approaches.
- There is limited information with respect to the meaning, effect, and experience of cancer-related fatigue from the patient's perspective.
- There is a lack of an agreed-upon definition of fatigue and approach to measurement among researchers.
- It is not clear how various measurement instruments compare in performance, item overlap, and time sensitivity. Little is known about clinically useful cut-off scores and meaningful change over time.
- There are few established instruments for children and adolescents, older adults, individuals with cognitive impairment, and individuals from different racial and ethnic groups. Most of the instruments related to cancer-related fatigue were developed after 1995; further studies of their psychometric properties in different countries and diverse populations are needed.
- Sufficient evidence exists in regard to pain assessment to support the use of brief rating scales for other symptoms in clinical practice.

Mechanisms/Etiology of Fatigue

- The mechanism of fatigue is poorly understood. Many physiologic and psychosocial factors are likely to contribute to fatigue, such as metabolic imbalances, tumor- and/or treatment-associated features, and psychosocial influences.

Correlates of Fatigue

- Research is inconsistent about the relationship between fatigue and physical movement, stage of disease, type of treatment, biochemical factors (hemoglobin, white blood count), and demographic characteristics (age, gender, marital status, occupation).
- There is a lack of information on the role that coexisting conditions and patient characteristics play in the development of fatigue.
- Preliminary research exists to examine the causes and correlates of postoperative fatigue and to determine the relationship between nutritional status, hydration status, and fatigue.
- Initial research supports the positive correlation between fatigue and daytime inactivity and nighttime restlessness. Limited but consistent research supports the relationship between fatigue and self-reported sleep. There is inadequate evidence regarding the relationship of objectively measured quality and quantity of sleep and fatigue.
- The phenomenon of radiation-induced fatigue, including etiology and correlates, is poorly understood. It is not clear how the type of biotherapy agent influences the type and pattern of fatigue.
- It is not clear how mental demands associated with a cancer diagnosis and treatment contribute to fatigue.
- The nature of the relationship between fatigue and depression is unclear.