

# Sleep, Fatigue, and Depressive Symptoms in Breast Cancer Survivors and Matched Healthy Women Experiencing Hot Flashes

Janet S. Carpenter, PhD, RN, Julie L. Elam, MSN, RN, Sheila H. Ridner, PhD, RN, Pam H. Carney, BSN, RN, Gloria J. Cherry, BA, RN, and Heather L. Cucullu, BSN, RN

**Purposes/Objectives:** To compare sleep quality and disturbance, fatigue, and depressive symptoms between breast cancer survivors and healthy women experiencing hot flashes and to examine relationships among sleep and remaining variables (fatigue, depressive symptoms, and frequency of hot flashes).

**Design:** Cross-sectional, descriptive, comparative pilot study.

**Setting:** University-based outpatient setting.

**Sample:** 15 breast cancer survivors and 15 healthy women matched on age, race, and menopausal status. All women had untreated hot flashes (no hormone replacement therapy or other hot flash treatments).

**Methods:** Questionnaires (sleep quality and disturbance, fatigue, and depression); two ambulatory, 24-hour sternal skin conductance monitoring sessions (hot flash frequency); and medical records review.

**Main Research Variables:** Sleep quality and disturbance, fatigue, depressive symptoms, and objective hot flash frequency.

**Findings:** The majority of participants evidenced poor sleep quality and high sleep disturbance (73% of breast cancer survivors and 67% of healthy women above a cutoff score of 5). Sleep duration was significantly shorter for breast cancer survivors in contrast to healthy women. Nighttime flashes were experienced by 67% of breast cancer survivors and 37% of healthy women. No group differences were found in fatigue, depressive symptoms, or objective hot flash frequency. Global sleep scores were significantly positively correlated with fatigue and depression but not with hot flash frequency.

**Conclusions:** Findings suggest that sleep disturbance is common in menopausal breast cancer survivors and healthy women, is not necessarily related to hot flashes, and may stem from a multifactorial etiology.

**Implications for Nursing:** Menopausal breast cancer survivors who present with any one of these symptoms should be screened for all symptoms both during and after treatment.

## Key Points . . .

- Oncology nurses should be aware of sleep problems, fatigue, and depressive symptoms in women who have been treated for breast cancer and are experiencing hot flashes.
- Sleep problems may be related to fatigue and depressive symptoms.

Verhagen, & Bleijenberg, 2002). Conversely, researchers examining hot flashes have tended to assess sleep problems using single items rather than empirically validated measures (Carpenter et al., 2002; Couzi et al.; Harris, Remington, Trentham-Dietz, Allen, & Newcomb, 2002; Stein, Jacobsen, Hann, Greenberg, & Lyman, 2000). Sleep in breast cancer survivors with objectively documented hot flashes warrants attention because sleep disruptions may be related to post-treatment fatigue (Broeckel et al.; Carpenter & Andrykowski; Okuyama et al.) and depressive symptoms (Carpenter & Andrykowski; Okuyama et al.; Servaes, Prins, et al.).

The purposes of this study were to compare sleep quality and disturbance, fatigue, and depressive symptoms between breast cancer survivors and matched healthy women experiencing hot flashes and to examine the potential relationships among sleep and remaining variables (fatigue, depressive symptoms, and frequency of hot flashes).

*Janet S. Carpenter, PhD, RN, is an associate professor, and Julie L. Elam, MSN, RN, is a research nurse, both in the School of Nursing at Indiana University in Indianapolis; Sheila H. Ridner, PhD, RN, is a postdoctoral fellow in the School of Nursing, Pam H. Carney, BSN, RN, is a research nurse in the Clinical Trials Office, Gloria J. Cherry, BA, RN, is a research nurse for the Cancer Information Service, and Heather L. Cucullu, BSN, RN, is a research nurse in the Clinical Trials Office, all at Vanderbilt University in Nashville, TN. Data from the breast cancer survivors group were supported by National Institute for Nursing Research grant R01 NR05261. Data from the healthy women group were supported by a grant from Merck & Co., Inc. (Submitted April 2003. Accepted for publication September 15, 2003.)*

Digital Object Identifier: 10.1188/04.ONF.591-598

Although breast cancer survivors with untreated hot flashes have reported sleep problems (Carpenter, Johnson, Wagner, & Andrykowski, 2002; Couzi, Helzlsouer, & Fetting, 1995; Finck, Barton, Loprinzi, Quella, & Sloan, 1998; Knopf, 2001), the extent of these sleep problems has not been fully documented. Among breast cancer survivors, sleep research has not included empirically validated measures of hot flashes, such as sternal skin conductance monitoring (Broeckel, Jacobsen, Horton, Balducci, & Lyman, 1998; Carpenter & Andrykowski, 1998; Okuyama et al., 2000; Servaes, Prins, Verhagen, & Bleijenberg, 2002; Servaes,