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## Development of an Instrument to Measure Adherence to Strength Training in Postmenopausal Breast Cancer Survivors

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As treatments improve, a greater number of patients with breast cancer will survive their cancer (American Cancer Society [ACS], 2007). In 1975, the survival rate for breast cancer in women was 75%; in 2007, it was 89% (ACS). Although survival rates continue to increase, breast cancer survivors are at increased risk for osteoporosis and decreased quality of life compared to healthy women (Van Poznak & Sauter, 2005). Osteoporosis and osteopenia affect up to 11% and 67%, respectively, of breast cancer survivors (Gross, Ott, Lindsey, Twiss, & Waltman, 2002). The increased risk for osteoporosis in breast cancer survivors is caused by early ovarian failure or menopause with cancer chemotherapy as well as treatment with glucocorticoids, aromatase inhibitors, and bone-wasting agents such as doxorubicin, cyclophosphamide, and methotrexate (Schwartz, Winters-Stone, & Galluci, 2007). In addition, breast cancer survivors are not candidates for hormone replacement therapy (HRT) because of concerns about cancer recurrence with administration of estrogen (Baber, Hickey, & Kwik, 2005).

Osteoporosis is a serious and potentially life-threatening condition, with complications including skeletal fractures, impaired daily function, and decreased quality of life (Siris et al., 2001). Studies have documented that exercise and nutritional and pharmaceutical interventions can be effective in preventing and treating osteoporosis in breast cancer survivors (Burnham & Wilcox, 2002; Schwartz et al., 2007). Exercise programming prescribed by healthcare professionals for postmenopausal breast cancer survivors varies with stage of recovery and from individual to individual and may include range of motion activities, balance routines, aerobic exercise, resistance exercises, or any combination of these (Fairey et

**Purpose/Objectives:** To develop a theory-based instrument for assessing barriers and motivators to strength- or weight-training exercise (SWTE) in postmenopausal breast cancer survivors with measurable bone loss after treatment.

**Design:** Exploratory, descriptive, and methodologic.

**Setting:** Academic oncology clinics in the midwestern United States, homes, and a fitness center.

**Sample:** 85 women, predominantly Caucasian (99%), breast cancer survivors, aged 35–75 years, six months after treatment, who were enrolled in a larger study were randomized to receive SWTE; 65 completed the instrument.

**Methods:** Development of a 47-item Likert-type instrument using interviews, contributions from experts, published research, and Self-Efficacy Theory.

**Main Research Variables:** Barriers and motivators of adherence to SWTE.

**Findings:** Four subscales emerged that accounted for 26%–59% of the variance. Factor subscales for barriers were “not prioritizing time for self” and “overcoming other barriers to adherence.” Subscales for motivators included “education and feedback” and “social support.”

**Conclusions:** The final instrument contained 47 items dispersed across four subscales. Additional psychometric testing of the instrument with a larger population is indicated.

**Implications for Nursing:** Nurses and healthcare professionals may use the instrument to readily identify barriers and motivators to SWTE adherence to improve program design and implementation efforts aimed at facilitating enhanced exercise adherence in breast cancer survivors with measurable bone loss after treatment.

al., 2003; Waltman et al., 2003). Reported benefits of exercise in these women include aerobic fitness, increased muscle strength and bone mass, increased physical functioning, increased quality of life, and decreased