

# Consistency of Breast and Arm Symptoms During the First Two Years After Breast Cancer Surgery

Agneta Wennman-Larsen, RN, PhD, Lena-Marie Petersson, RN, OCN®, RNT, PhD, Fredrick Saboonchi, PhD, Kristina Alexanderson, BSc, PhD, and Marjan Vaez, MSc, PhD

**T**he long-term consequences of breast cancer (BC)—the most common type of cancer among women (Ferlay et al., 2010)—and its treatments have attracted research interest as survival rates increase (Allen, Savadatti, & Levy, 2009; Champion et al., 2013; McCarthy, 2004; Rosedale, 2009). Long-lasting symptoms in the breast, arm, or axilla region from breast or axillary surgery (e.g., breast-conserving surgery, mastectomy, axillary dissection, sentinel lymph node dissection) and radiation therapy (RT) affect as many as 50% of women in the Nordic countries (Ewertz & Jensen, 2011).

Symptoms in the arm and axilla region are well studied (Albert et al., 2006; Baron, Fey, Borgen, & Van Zee, 2004; Coen, Taghian, Kachnic, Assaad, & Powell, 2003; Hack et al., 2010; Lee, Kilbreath, Refshauge, Herbert, & Beith, 2008; Taira et al., 2011; Verbeek, Spelten, Kammeijer, & Sprangers, 2003), and they have short- and long-term consequences for quality of life and well-being (Carlsen, Harling, Pedersen, Christensen, & Osler, 2013; Engel, Kerr, Schlesinger-Raab, Sauer, & Holzel, 2003; Groeneveld, de Boer, & Frings-Dresen, 2013; Noeres et al., 2013; Reme et al., 2012). Research has shown late consequences of more extensive surgery after completion of adjuvant therapy, related to the type of breast surgery (Ahn et al., 2009; Lindqvist, Stenbeck, & Diderichsen, 2005; Mujahid et al., 2010) and the type of axillary surgery (De Gournay et al., 2013; Johnsson et al., 2009; Lindqvist et al., 2005). Other predictors of arm or shoulder symptoms are younger age (Liljgren & Holmberg, 1997; Yap et al., 2003), having had axillary radiation (Hack et al., 2010; Yap et al., 2003), having had more lymph nodes dissected (Albert et al., 2006; Hack et al., 2010; Liljgren & Holmberg, 1997), and having a higher body mass index (BMI) (Hack et al., 2010; Levy et al., 2012). Early self-reported impairment of arm functioning is also a predictor of late effects of lymph node dissection (Albert et al., 2006).

**Purpose/Objectives:** To examine the severity and development of breast and arm symptoms separately during the two years following breast cancer surgery, and to examine whether previously defined predictors of arm symptoms are associated with breast symptoms.

**Design:** Prospective cohort study with two-year follow-up.  
**Setting:** Three institutions in the Stockholm, Sweden, region.

**Sample:** 645 women, aged 20–63 years, enrolled within 12 weeks of surgery for primary breast cancer.

**Methods:** Baseline register and questionnaire data with five follow-ups were submitted to descriptive, inferential, and logistic regression analysis.

**Main Research Variables:** Severity of breast and arm symptoms measured by the European Organisation for Research and Treatment of Cancer breast cancer–specific quality-of-life questionnaire.

**Findings:** Most participants had undergone breast-conserving surgery and sentinel lymph node dissection, and were scheduled for postoperative radiation therapy. Overall mean levels of breast and arm symptoms were low, but with large individual variations. At all six time points, the mean levels of breast symptoms were significantly higher than those of arm symptoms. Overall, the mean level of both types of symptoms decreased during follow-up. A body mass index (BMI) of 25 or greater and breast symptoms at eight months were associated with having breast symptoms at two years. Arm symptoms at baseline and at eight months, and radiation therapy and a BMI of 25 or greater were associated with having arm symptoms at two years.

**Conclusions:** Breast symptoms show different patterns of change and are not associated with the same factors as arm symptoms.

**Implications for Nursing:** For nurses monitoring women treated for breast cancer, the results of this study provide knowledge regarding the importance of early symptom identification and long-term symptoms after treatment.

**Key Words:** breast/arm symptoms; breast cancer; BMI; axillary surgery; breast surgery; radiation therapy  
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