

# Uncertainty During Breast Diagnostic Evaluation: State of the Science

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**B**reast cancer is the most common cancer in women and the second leading cause of cancer deaths for women in the United States (Ferrante, Chen, & Kim, 2008). In 2008, more than 1 million women underwent a breast diagnostic evaluation in the United States, with about 182,500 being diagnosed with cancer (American Cancer Society, 2009). Concern is increasing regarding the prolonged psychological impact of the uncertainty experienced while undergoing a diagnostic evaluation for breast disease. For women diagnosed with cancer, this experience is believed to influence treatment outcomes (Thorne, Harris, Hislop, & Vestrup, 1999). In women with benign disease, an unfavorable psychological experience may result in behavioral changes persisting for years afterwards, including a reduction in the likelihood of additional screening compliance (Andrykowski et al., 2002; Barton et al., 2004; Brett, Austoker, & Ong, 1998; Haas, Kaplan, McMillan, & Esserman, 2001; Lampic, Thurfjell, Bergh, & Sjoden, 2001; Lowe, Balanda, Del Mar, & Hawes, 1999; Olsson, Armelius, Nordahl, Lenner, & Westman, 1999; Scott, 1983; Thorne et al.) or overuse of mammography services from a misperceived increased risk of breast cancer (Aro, Pilvikki Absetz, van Elderen, van der Ploeg, & van der Kamp, 2000; Thorne et al.). The purpose of this article is to present the state of the science of uncertainty in the context of women undergoing diagnostic evaluation for suspected breast cancer. This article includes a description and definition of uncertainty, presents a synthesis of quantitative and qualitative studies, a discussion of methodologic issues, and suggestions for additional research.

## Conceptual Dimension

Uncertainty in illness is defined as the inability to determine the meaning of an illness-related event and occurs when an individual is unable to predict outcomes accurately (Mishel & Braden, 1988). This upsets the valued order of everyday life and threatens the sense of the taken-for-granted world by challenging the belief that an individual is healthy and forcing that person to confront

**Purpose/Objectives:** To present the state of the science on uncertainty in relationship to the experiences of women undergoing diagnostic evaluation for suspected breast cancer.

**Data Sources:** Published articles from Medline®, CINAHL®, PubMed, and PsycINFO from 1983–2008 using the following key words: *breast biopsy, mammography, uncertainty, reframing, inner strength, and disruption.*

**Data Synthesis:** Fifty research studies were examined with all reporting the presence of anxiety persisting throughout the diagnostic evaluation until certitude is achieved through the establishment of a definitive diagnosis. Indirect determinants of uncertainty for women undergoing breast diagnostic evaluation include measures of anxiety, depression, social support, emotional responses, defense mechanisms, and the psychological impact of events.

**Conclusions:** Understanding and influencing the uncertainty experience have been suggested to be key in relieving psychosocial distress and positively influencing future screening behaviors. Several studies examine correlational relationships among anxiety, selection of coping methods, and demographic factors that influence uncertainty. A gap exists in the literature with regard to the relationship of inner strength and uncertainty.

**Implications for Nursing:** Nurses can be invaluable in assisting women in coping with the uncertainty experience by providing positive communication and support. Nursing interventions should be designed and tested for their effects on uncertainty experienced by women undergoing a breast diagnostic evaluation.

the possibility of having a potentially life-threatening disease (Jordens, Little, Paul, & Sayers, 2001). Penrod (2007) stated that being in a state of uncertainty is discomforting, expressed by varying degrees of accompanying fear, shock, powerlessness, anxiety, and uneasy sensations. Characterization of uncertainty comes from how an individual appraises and manages the illness-related event (Mishel, 1990). Appraising uncertainty is based on past experiences, personality dispositions, and the person's interpretation concerning the severity of an illness and the potential impact of the illness on that person's everyday way of life.

In her analysis of uncertainty, McCormick (2002) asserted that situations that elicit uncertainty occur