Underestimation of Breast Cancer Risk:
Influence on Screening Behavior

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Breast cancer is the second-leading cause of
cancer death for women in the United States.
Epidemiology, molecular biology, and genetics have improved the understanding of
disease etiology, whereas early detection has helped decrease morbidity and mortality (American Cancer Society [ACS], 2008). Breast cancer risk assessment
tools, such as the Gail model (Gail & Constantino, 2001; Gail et al., 1989), use epidemiologic variables and information from a woman’s reproductive history to provide
an objective estimate of her probability of developing the
disease. Healthcare providers can use risk assessment
tools to estimate an individual’s probability of developing
breast cancer to provide tailored recommendations
about risk factors and screening. Women with an average
risk for developing breast cancer should obtain clinical
breast examinations (CBEs) and annual mammograms
starting at age 40 (ACS), whereas women at high risk
should explore additional screening methods (e.g., magnetic resonance imaging) and might consider initiating
screening at an earlier age and at more frequent intervals
(Gail & Rimer, 1998; Humphrey, Helfand, Chan, & Woolf,
2002). A woman who has received factual information
about her breast cancer risk will probably be more likely
to maintain an appropriate level of screening (Leventhal,

Two meta-analyses (Katapodi, Lee, Facione, & Dodd,
2004; McCaul, Branstetter, Schroeder, & Glasgow, 1996)
supported that perceived breast cancer risk has a signifi-
cant positive effect on screening mammography.
However, the reported Cohen’s effect sizes were small
(d = +0.2 and d = +0.16, respectively) (Katapodi et al.;
McCaull et al.), suggesting that perceived risk may not
be the primary force behind breast cancer screening.
Risk appears to be a necessary but insufficient condition
for adopting and maintaining routine.

The observed small effect sizes may be explained by
an underestimation of risk that inhibits women from
adopting appropriate screening. The suggestion has
significant clinical implications. Women at high risk for
developing breast cancer who underestimate their risk
are less likely to comply with medical recommenda-

Purpose/Objectives: To describe perceived breast cancer risk, identify the percentage of women with inaccurate risk perceptions, and examine the influence of perceived and objective risk on screening behavior.

Design: Descriptive, correlational, cross-sectional.

Setting: Community settings in a metropolitan area on the
western coast of the United States.

Sample: Multicultural sample of 184 English-speaking
women (57% non-Caucasian, X age = 47 ± 12 years) who
have never been diagnosed with cancer.

Methods: Two perceived risk scales (verbal and compara-
tive) and the Gail model were used to assess perceived and
objective breast cancer risk, respectively.

Main Research Variables: Perceived breast cancer risk, objective breast cancer risk, screening behavior.

Findings: Participants reported that they “probably will not”
get breast cancer and that their risk was “somewhat lower”
than average. Family history of breast cancer was a significant
predictor of perceived risk. Demographic characteristics and
objective risk factors were not associated with perceived risk.
Most women at high risk for breast cancer (89%) underesti-
imated their actual risk; fewer women with low to average
risk for breast cancer (9%) overestimated their risk. Age, Gail
scores, and health insurance status promoted breast cancer
screening; underestimation of risk had the opposite effect.

Conclusions: Inaccurate perceptions of risk do not promote
optimal breast cancer screening. The finding has implica-
tions for most women at high risk for developing breast
cancer who underestimate their risk.

Implications for Nursing: Oncology nurses can use risk as-
essment tools to provide individualized counseling regarding
breast cancer risk factors and screening. Women at high risk
who underestimate their risk could benefit from additional
screening and from advances in cancer chemoprevention.

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