

# Personality and Spirituality as Predictors of Mental Health and Salivary Alpha-Amylase Activity in Breast Cancer Survivors

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**OBJECTIVES:** To determine the relative predictive validity of personality and spirituality for mental health and salivary alpha-amylase (sAA) in breast cancer (BC) survivors.

**SAMPLE & SETTING:** 23 BC survivors participated in a single-group, cross-sectional study.

**METHODS & VARIABLES:** Predictor variables included personality and spiritual variables. Outcome variables included subjective physical and mental health outcomes and sAA, a neuroimmune biomarker.

**RESULTS:** Hierarchical regressions indicated that (a) conscientiousness and forgiveness independently predict 38% and 11% of variance in mental health scores, respectively; and (b) conscientiousness and forgiveness independently predict 15% and 24% of the variance in sAA, respectively. Consistent with psychoneuroimmunology theory, personality and spiritual variables independently influence subjective mental health and neuroimmune activity in BC survivors.

**IMPLICATIONS FOR NURSING:** Nurses should be aware of BC survivors' personality characteristics and spiritual dispositions so that distinct interventions can be offered to promote mental health and reduce stress-related neuroimmune inflammation.

**KEYWORDS** biomarkers; breast cancer; mental health; personality; sAA; spirituality

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Breast cancer (BC) survivors experience chronic stress and poorer mental and physical health because of ongoing psychosocial and physical symptom burdens associated with BC treatment (Eaton et al., 2020; Harrington et al., 2010). Chronic psychosocial stress in BC survivors is associated with neuroimmune inflammation, BC recurrence, and mortality (Dai et al., 2020; Mundy-Bosse et al., 2011; Witek-Janusek et al., 2007). Data suggest that BC survivors are at a 15% risk of BC recurrence in the first two years after initial diagnosis (Colleoni et al., 2016). As a result, researchers are interested in interventions that reduce stress and buffer the inflammatory neuroimmune changes that are associated with poor BC survivorship (Lengacher et al., 2019; Witek-Janusek et al., 2019).

Stress reduction is associated with better mental health in BC survivors; however, the effect of stress reduction interventions on physiologic health (e.g., neuroimmune inflammation) remains unclear (Carlson et al., 2017; Greenlee et al., 2017). Furthermore, the influence of spiritual factors (e.g., spiritual beliefs) on neuroimmune biomarkers is also unclear (Hulett & Armer, 2016). Understanding personality and spiritual variables may help explain diverse responses to stress among individuals (Soliemanifar et al., 2018).

## Psychoneuroimmunology Theory

Psychoneuroimmunology theorists posit that the brain's perception of stress is filtered through behavioral and psychosocial-spiritual variables (e.g., personality, spirituality) and communicated to the immune system via neuroimmune pathways, which results in a state of well-being or disease (Ader & Cohen, 1975; Lutgendorf & Costanzo, 2003). In short, during acute stress, the sympathetic-adrenal-medullary axis