

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