

# Prediction of Malnutrition and the Relationships Among Pain, Function, Depression, and Cancer Stage in Older Women With Breast Cancer

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**BACKGROUND:** Older women diagnosed with breast cancer are at risk for malnutrition.

**OBJECTIVES:** This article aims to evaluate the relationships among cancer stage, pain, functional status, depression, and malnutrition, and to determine whether these symptoms predict nutritional status.

**METHODS:** This cross-sectional study included women (N = 72) aged 70 years or older diagnosed with breast cancer at an academic medical center in the midwestern United States. The Timed Up and Go Test, Activities of Daily Living Scale, Numeric Pain Rating Scale, Geriatric Depression Scale, and Mini Nutritional Assessment were used. Demographic characteristics were evaluated using descriptive statistics. Bivariate and point-biserial correlations and linear regressions were used.

**FINDINGS:** Participants' Mini Nutritional Assessment scores were significantly related to cancer stage, pain, depression, and Activities of Daily Living Scale scores.

## KEYWORDS

geriatric oncology; nutrition; pain; comprehensive geriatric assessment

## DIGITAL OBJECT IDENTIFIER

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**BREAST CANCER ACCOUNTS FOR ABOUT ONE-THIRD** of new cancer diagnoses among women in the United States, and women who are older are at higher risk for this disease (National Cancer Institute, n.d.). For women aged 49 years or younger, the risk for developing breast cancer is about 1 in 51, whereas women aged 70 years or older have an increased risk of 1 in 15 (Siegel et al., 2019). Many older women (51%) who are diagnosed with breast cancer and receiving chemotherapy are at risk for malnutrition (Abd Allah et al., 2020) and experience impaired functional ability (Leão et al., 2020; Schrader et al., 2016). About 85% of older people scheduled to receive chemotherapy are malnourished (Paillaud et al., 2022), and 35% of patients with cancer are moderately to severely malnourished (De Groot et al., 2020; Schneider & Bressler, 2020). Among patients with cancer with a median age of 78 years, 49% screen positive for malnutrition (Zhang & Edwards, 2019).

## Background

### Malnutrition and Cancer

Malnutrition can manifest as being under- or overweight, which can have a negative effect on cancer outcomes (Arends et al., 2017; World Health Organization, 2020) and has associated risk factors such as older age, depression, functional impairment, and frailty (Zhang & Edwards, 2019). In the context of cancer, malnutrition can involve cachexia and sarcopenia and can range in severity depending on tumor type. Patients with gastrointestinal malignancies tend to have a higher prevalence of malnutrition compared to patients with breast cancer (Bossi et al., 2021).

As many as 65% of older adults diagnosed with cancer screen positive for cachexia (Dunne, Roussel, et al., 2019). Risk for malnutrition and cancer-related cachexia increases with age (Ruan et al., 2021), and determining prevalence is difficult depending on geographic location, living arrangements (Everink et al., 2021), disease status (van den Broeke et al., 2018), and variability among measurement tools (Marshall et al., 2016; Wolters et al., 2019).

For older women diagnosed with breast cancer, malnutrition is related to metastasis (Balzano et al., 2020), overall survival (Edwards et al., 2020),