

Original Article

Perceived Cognitive Function in Breast Cancer Survivors: Evaluating Relationships With Objective Cognitive Performance and Other Symptoms Using the Functional Assessment of Cancer Therapy—Cognitive Function Instrument

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Abstract

Context. Perceived cognitive impairment (PCI) has been shown to be one of the most common symptoms after breast cancer treatment. However, this symptom does not always correlate with objective cognitive performance and is often highly associated with other patient-reported symptoms.

Objectives. Using a sample of breast cancer survivors (BCS), this study examined relationships among the Functional Assessment of Cancer Therapy-Cognitive (FACT-Cog) scale, a self-report questionnaire that measures PCI; impact on quality of life (QoL); comments from others (other); perceived cognitive ability (PCA); objective cognitive performance on tests of verbal memory, speed of processing, and executive functioning; and other symptoms (fatigue, depression, anxiety, and sleep disturbance).

Methods. The BCS who were aged 40 years or older and at least one year post-chemotherapy treatment were enrolled. Participants completed questionnaires and a brief neuropsychological assessment.

Results. A total of 88 BCS who were on average 56.7 (SD 8.5) years old and 5.3 (SD 4.1) years post-treatment participated; 94% reported clinically significant PCI. The PCI was significantly correlated with some objective measures of immediate and delayed verbal memory and executive function, whereas PCA was associated with all these measures. The PCI and PCA were both significantly associated with depressive symptoms, fatigue, and anxiety, but only PCI was related to poor global sleep quality.

Conclusion. The PCA was highly correlated with objective neuropsychological performance and may be clinically useful in identifying problems with verbal memory and executive functioning in BCS. J Pain Symptom Manage 2015;49:697–706.

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Key Words

Cognitive impairment, breast cancer survivor, symptoms, neuropsychological assessment

Introduction

Breast cancer survivors (BCS) often report changes in cognitive function after cancer and cancer treatment.^{1–4} In fact, researchers have shown that perceived cognitive impairment (PCI) is one of their most prevalent symptoms over three phases of the

disease.⁵ The PCI after cancer and cancer treatment, often referred to as “chemo brain” by BCS,^{1,3,6,7} has been associated with difficulties in everyday functioning and reported by survivors as problems with memory, attention, speed of processing, and decision making.^{4,8} PCI has been shown to have a significant

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impact on BCS' self-perceptions, social network, work ability, and overall quality of life (QoL).^{1,2,4,6,9}

Cognitive impairment also has been documented among BCS using objective neuropsychological tests. Researchers have shown that cancer survivors perform more poorly on objective neuropsychological tests relative to healthy age- and education-matched women and to published norms.^{10–13} Although neuropsychological tests are considered the gold standard in assessing cognitive impairment, such tests are not always feasible or affordable.¹⁴ Administration of neuropsychological test batteries requires a trained and qualified professional and is often time intensive, which limits their use in practice.¹⁵ In addition, administration of large and lengthy neuropsychological test batteries may lead to conflicting test results because of fatigue, loss of attention, and decreased motivation.^{15,16} Concerns also have been raised in some studies that neuropsychological assessments are not always sensitive to the subtle cognitive impairment incurred by BCS.¹⁵

Accurate subjective reports of cognitive impairment, however, would be clinically useful in identifying survivors with subtle deficits.¹⁴ Although studies have not always supported a relationship between PCI and objective neuropsychological tests,^{17–22} subjective measures of impairment have been shown to correlate significantly with changes on magnetic resonance imaging that demonstrate impairment.^{23–25} In fact, Ferguson et al²³ found that one BCS with substantial cognitive complaints had both structural changes (increased white matter hyperintensities) and functional changes (expanded spatial activation during a working memory task) compared with her nonaffected twin. Therefore, finding efficient screening tools capable of identifying patients with clinically significant cognitive impairment is needed for both research and practice.

The Functional Assessment of Cancer Therapy Cognitive Scale (FACT-Cog, Version 3)^{14,25–28} is one of the most well-known and widely used self-assessment measures of cognitive concerns and has even been translated into other languages.²⁹ This instrument was originally developed using cancer patient focus groups and oncology clinical experts. The FACT-Cog is unique in that it measures both cognitive concerns (impairment or deficiency) and cognitive abilities—two concepts that are distinct and independent of one another.^{14,30} Notably, the Patient Reported Outcomes Measurement and Information System (PROMIS, www.nihpromis.org), an initiative by the National Institutes of Health (NIH) to develop reliable and valid patient-reported symptoms measures, has identified both perceived cognitive concerns and cognitive abilities as concepts of interest in assessing cognition. The FACT-Cog, both the total score and more recently the subscale scores of

PCI and perceived cognitive ability (PCA), has been widely used; however, little information is available regarding the relationship of this instrument and subscale scores with objective cognitive performance.¹⁴ More research is needed to understand these relationships, as well as relationships between the FACT-Cog and its subscale scores with other symptoms (anxiety, depression, fatigue, and sleep). In fact, although the FACT-Cog has been shown to be significantly correlated with other symptoms,²⁶ researchers recently have identified that PCI may relate more to other clinical features such as depression and anxiety than PCA. These findings suggest that these subscales are tapping into distinct and separate constructs, supporting the need for further research examining the use of both subscales and their relationship to other clinical symptoms.³⁰ Therefore, the purpose of this study was to explore the perceived cognitive functioning of BCS using the FACT-Cog and its subscale scores and their relationships to objective cognitive performance (verbal memory, speed of processing, and executive function) and to other symptoms (depression, fatigue, anxiety, and sleep).

Methods

This study was part of a longitudinal, randomized controlled trial to test advanced cognitive training programs in BCS.³¹ All data used in this study were collected at one time at baseline assessment.

Procedure

The BCS were recruited from a Midwestern cancer center and affiliated clinics. Women included in this study were aged at least 40 years or older, postmenopausal, and underwent at least 12 months post-cancer treatment that had included chemotherapy. In addition, based on self-report and medical record review, participants were free of any psychiatric (including major depression) or neurological (encephalitis, traumatic brain injury, brain surgery, dementia, or Alzheimer's disease) disorders. Women included in the study reported having cognitive problems since their diagnosis and treatment for breast cancer and were seeking treatment for them.

Measures

Eligible and interested women were consented and completed subjective questionnaires that assessed demographic and medical information; perceived cognitive functioning; and symptoms of depression, fatigue, anxiety, and global sleep quality. They also completed a brief objective battery of neuropsychological tests; the battery was brief to minimize fatigue. The neuropsychological tests were administered by the same trained psychology graduate student at the academic health

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