

# Systematic Review of Cognitive Impairment in Colorectal Cancer Survivors Who Received Chemotherapy

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**PROBLEM IDENTIFICATION:** Cognitive impairment is a common and troublesome side effect experienced by many cancer survivors. It can have a significant impact on survivors' ability to function and enjoy a high quality of life. However, most cognitive impairment research has focused on breast cancer survivors, despite the high rates of colorectal cancer and the toxicity of treatment agents in some colorectal cancer chemotherapeutic regimens, which have been linked to cognitive impairment. This review provides a novel synthesis of what is known about cognitive impairment in colorectal cancer survivors.

**LITERATURE SEARCH:** CINAHL®, Cochrane Library, Embase®, PsycINFO®, and PubMed® were systematically searched by a health sciences librarian.

**DATA EVALUATION:** Data were extracted across studies; findings about the prevalence, severity, and correlates of cognitive impairment were synthesized.

**SYNTHESIS:** Across findings from 26 articles representing 24 independent studies, 13%–57% of participants had cognitive impairment. Potential demographic, physiologic, and psychological correlates of cognitive impairment were identified.

**IMPLICATIONS FOR PRACTICE:** Findings indicate a need to focus research and patient assessments on early identification of risk factors, assessing for existing cognitive deficits and testing interventions to decrease cognitive impairment in colorectal cancer survivors.

**KEYWORDS** cognitive impairment; cognitive function; chemotherapy; colorectal cancer

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Cognitive impairment is experienced by as many as 75% of cancer survivors who have received chemotherapy (Janelsins et al., 2014). It is a complex treatment-related side effect experienced by cancer survivors both during chemotherapy (Hess et al., 2015; Moore et al., 2019) and more than 20 years after chemotherapy (Koppelmans et al., 2012; Stouten-Kemperman et al., 2015; Von Ah & Tallman, 2015). Cognitive impairment affects several domains, including attention/concentration, executive function, visuospatial ability, verbal/language skills, and memory (Kanaskie, 2012). These deficits are problematic because they may affect individuals' abilities to carry out daily activities, experience social connectedness (Selamat et al., 2014), adhere to treatment plans (Bender et al., 2014), and achieve a high quality of life (Lycke et al., 2019). Cognitive impairment may be measured using self-report (e.g., questionnaires used to assess cancer survivors' perceptions of their own cognitive function, including the Functional Assessment of Cancer Therapy–Cognitive Function [FACT-Cog]) (Wagner et al., 2004) and objective measures (a battery of neuropsychological assessments is the gold standard for assessing cognitive impairment in cancer survivors) (Wefel et al., 2011).

Although survivors across various cancer types report cognitive impairment (Lindner et al., 2014), previous studies focus primarily on breast cancer survivors (Bray et al., 2018). Similar to breast cancer, colorectal cancer has a high survival rate, and a large percentage of survivors receive chemotherapy as part of their treatment. Colorectal cancer is the third most common cancer worldwide, with 149,500 newly diagnosed individuals anticipated in 2021 (Siegel et al., 2021). Colorectal cancer survivors may receive surgery, radiation therapy, immunotherapy,