

# Higher Levels of Stress and Neuropsychological Symptoms Are Associated With a High Nausea Profile in Patients With Cancer Receiving Chemotherapy

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**OBJECTIVES:** To evaluate differences in the severity of global, cancer-specific, and cumulative life stress, resilience, and common neuropsychological symptoms among four subgroups of patients with distinct chemotherapy-induced nausea (CIN) profiles.

**SAMPLE & SETTING:** Adult patients with cancer (N = 1,343) receiving chemotherapy.

**METHODS & VARIABLES:** Patients completed stress, resilience, and neuropsychological symptom severity measures. The Memorial Symptom Assessment Scale was used to assess CIN occurrence six times over two cycles of chemotherapy. Parametric and nonparametric statistics were used to evaluate differences among subgroups of patients with distinct CIN profiles.

**RESULTS:** The high class had significantly higher levels of global, cancer-specific, and cumulative life stress; significantly higher levels of depression, anxiety, sleep disturbance, morning and evening fatigue, and pain; and lower levels of morning and evening energy and cognitive dysfunction.

**IMPLICATIONS FOR NURSING:** Clinicians need to evaluate CIN occurrence across each cycle of chemotherapy and assess patients for various types of stress and common neuropsychological symptoms.

**KEYWORDS** cancer; chemotherapy; nausea; stress; symptoms

**ONF, 50(4), 461–473.**

**DOI** 10.1188/23.ONF.461-473

Despite advances in evidence-based antiemetic regimens, 30%–60% of patients with cancer report unrelieved chemotherapy-induced nausea (CIN) (Röhrli et al., 2019). This large range in prevalence rates suggests a significant amount of interindividual variability in this symptom. Given that the known risk factors for CIN do not explain all its interindividual variability, additional risk factors warrant evaluation (Singh et al., 2018). For example, a cancer diagnosis and associated treatments and fear of recurrence are stressful experiences for most patients (Mazor et al., 2019). Equally important, an individual's level of resilience can affect their response to these events (García-León et al., 2019; Oppegaard, Harris, Shin, Paul, Cooper, Levine, et al., 2021). However, research on associations between CIN and stress and resilience is limited.

Although patients with cancer can experience several types of stress (e.g., global stress, cancer-specific stress, cumulative life stress) (Langford et al., 2020), except for two previous studies (Singh et al., 2018; Singh, Paul, et al., 2020), the evidence to support an association between CIN and stress has been inferred from intervention studies that evaluated the efficacy of a variety of stress reduction techniques. For example, findings from one systematic review suggested that progressive muscle relaxation, a stress-reducing intervention, decreases CIN and vomiting in patients with breast cancer (Kapogiannis et al., 2018). Additional, albeit inconclusive, evidence was reported in two exercise intervention studies (Haller et al., 2021; Johnsson et al., 2019). In the first study, which evaluated the