

# Radiation Therapy

## Predictors of nonadherence to treatment schedules among patients with head and neck cancer

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**BACKGROUND:** Patients with head and neck cancer (HNC) often undergo a demanding treatment schedule, including radiation therapy (RT). Nonadherence to RT schedules is a documented problem among patients with HNC and can negatively affect patient outcomes.

**OBJECTIVES:** This retrospective, descriptive study aimed to examine whether demographic or clinical characteristics or physical and psychological symptoms were associated with nonadherence to RT among patients with HNC.

**METHODS:** Electronic health records of 262 patients with HNC who received treatment at a cancer center in the southeastern United States were reviewed to determine whether nonadherence was related to symptom scores and other patient- and clinical-related factors.

**FINDINGS:** Patients at highest risk for nonadherence included women, those admitted as inpatients during treatment, and those who received outpatient IV fluids during treatment. Nonadherent patients reported higher mean scores on 9 of 12 symptoms measured during treatment, indicating a higher symptom burden. Patients with tongue tumors, greater spiritual well-being, and less constipation were less likely to be nonadherent.

### KEYWORDS

head and neck cancer; radiation therapy; chemotherapy; adherence; depression

### DIGITAL OBJECT IDENTIFIER

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**HEAD AND NECK CANCER (HNC) IS THE SIXTH MOST COMMON** type of cancer in the United States, with 54,010 new cases and 10,850 deaths anticipated in 2021 (American Cancer Society [ACS], 2021). The five-year relative survival rate is 60.8% (Centers for Disease Control and Prevention, 2020). Treatment for HNC includes radiation therapy (RT), chemotherapy, and/or surgery, depending on the tumor diagnosis (ACS, 2019; Ratko et al., 2014).

RT is a demanding course of treatment for patients with HNC, which can consist of 35–40 treatments on average over six or seven weeks (National Comprehensive Cancer Network, 2020). Adherence to the treatment plan is crucial, as research suggests that patients who missed RT visits were more likely to experience tumor recurrence and worse outcomes in the future (Ferreira et al, 2016; Ohri et al., 2016; Thomas et al., 2017). Nonadherence to RT is a documented problem in patients with HNC, with reported ranges of nonadherence between 20% and 57% (Naghavi et al., 2016; Ohri et al., 2016; Pujari et al., 2017; Rangarajan & Jayaraman, 2017). However, current research examining nonadherence to RT is limited and focuses solely on demographic and clinical factors (Naghavi et al., 2016; Ohri et al., 2015, 2016; Pujari et al., 2017). Treatment-related symptoms in this population include fatigue, nausea, pain, dysphagia, and respiratory problems (ACS, 2017), all of which can affect patients' actual and perceived abilities to complete RT (Edmonds & McGuire, 2007), but there is a gap in the literature examining this relationship further. The purpose of this retrospective, descriptive study was to examine whether demographic characteristics, clinical characteristics, and/or specific symptoms were associated with nonadherence to RT schedules among patients with HNC.

### Methods

#### Sample and Setting

Data were collected from the electronic health records (EHRs) of patients at a National Cancer Institute–designated comprehensive cancer center in the southeastern United States. The sample ( $N = 262$ ) included adult patients with HNC who started RT for curative intent at the cancer center between July 1, 2017, and June 30, 2018, and who had completed the revised Edmonton Symptom Assessment Scale (ESAS-r-CSS) screening questionnaire during treatment. A power analysis was performed using PASS software, version 16.0.1, to determine a target sample size of 250 participants, which achieves 90% power at  $\alpha = 0.05$  to detect a small effect and an odds ratio of 1.5 (Demidenko, 2007; Hsieh et al., 1998). Two hundred and sixty-two patients