

# HPV Status and Oral Health Symptom Patterning During Treatment and Survivorship in Patients With Head and Neck Cancer: A Longitudinal Analysis

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**OBJECTIVES:** To describe longitudinal oral health symptom patterns of patients receiving concurrent chemotherapy and radiation therapy for head and neck cancer (HNC) and examine associations between phenotypic characteristics, including human papillomavirus (HPV) status and oral health symptoms.

**SAMPLE & SETTING:** A pilot retrospective longitudinal chart review (N = 270) of patients with HNC at a northeastern U.S. regional cancer institute.

**METHODS & VARIABLES:** HPV status and oral health symptoms (pain, mucositis, taste alteration, xerostomia, dysphagia, and candidiasis) were examined during treatment (six weeks) and survivorship (three months). Latent transition analysis was conducted across each time point.

**RESULTS:** The latent transition analysis revealed classes with moderate to high symptom expression persisted into survivorship. The HPV-negative phenotype had higher symptom expression across treatment and survivorship.

**IMPLICATIONS FOR NURSING:** Patients with HPV-negative HNC may require early intervention, while considering social determinants of health to attenuate symptom expression and improve outcomes.

**KEYWORDS** head and neck cancer; survivorship; human papillomavirus; latent transition analysis

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Patients with head and neck cancer (HNC) experience severe oral health symptoms because of tumor location and overlapping injuries from the standard treatment of concurrent chemotherapy and radiation therapy (CCRT) (Kongwat-anakul et al., 2020). Symptoms include oral mucositis, xerostomia, and altered taste sensations, which typically occur in a cluster and exacerbate one another (Duffy, 2019; Villa & Sonis, 2015). Treatment for HNC causes salivary gland damage, leading to decreased saliva production and xerostomia, which further trigger altered taste sensations (e.g., persistent tastes or dysgeusia) and pain (Duffy, 2019). Treatment-related oral health symptoms are associated with decreased quality of life (QOL) and often lead to treatment delays and longer hospitalizations (de Melo et al., 2019; Elting et al., 2003; Schorn et al., 2020). Treatment-related symptoms can endure into survivorship, which underscores their long-term negative impact (Iwanaga et al., 2023). These extended symptoms negatively affect psychological well-being and long-term oral health (Iwanaga et al., 2023). Efforts to prevent these intrusive symptoms aim to improve treatment adherence, QOL, and treatment outcomes (Dunne et al., 2017; Ferreira et al., 2016). Additional research is necessary to delineate characteristics of patients with HNC that increase their risk of intrusive oral health symptoms.

There is a potential benefit of phenotyping based on baseline characteristics of patients with HNC to predict and manage oral health symptoms. Tobacco and alcohol use are prevalent in the HNC population and can exacerbate symptoms because of increased