

Objectives

- To determine the prevalence of subjective financial toxicity (FT) in patients with head and neck squamous cell carcinoma (HNSCC)
- To examine demographic, social, and clinical associations with FT in HNSCC
- To explore the relationship of FT with health-related quality of life (HRQOL) and survival outcomes in HNSCC

Background

- Financial toxicity (FT) is a concept increasingly being adopted within oncology to describe the economic burden of a cancer diagnosis and its adverse consequences for the patient.¹
- FT is recognized as an important aspect of cancer survivorship, as it may affect outcomes such as patient quality of life, ability to work, and adherence to treatment.²
- Patients with HNSCC on average have lower socioeconomic status (SES) and face higher out-of-pocket expenses compared to patients with other types of cancer.³
- Despite this, there is limited data about how FT affects patients with head and neck cancer.

Materials and Methods

- This study was IRB approved and all patients provided informed consent.
- Retrospective, cross-sectional analysis of patients with HNSCC who presented to UNC outpatient oncology clinics between May 2012 and July 2016.
- Patients completed study questionnaires on average 13.8 months after initial cancer diagnosis.
- PROMIS and FACT-GP questionnaires were used to measure general and cancer-specific HRQOL, respectively.
- Bivariate testing methods included two-sided t-tests, Chi-square tests, and Fischer’s exact test. Univariate logistic regression models were used to assess associations with FT.
- Kaplan Meier curves with log-rank p-values were used to assess survival outcomes. Vital status and cause of death were known for all patients at 5 years after diagnosis.

Results

- There were 202 patients with HNSCC with a mean age of 59.6 years (SD 10.0). Eighty-two percent were male and 87% were white.
- Fifty-three patients (26%) reported FT, defined as agreement to the statement “you have to pay more for medical care than you can afford.”
- There was no association between FT and the type (p=0.361) or number (p=0.498) of treatment modalities.
- Education of high school or less was the only significant predictor of FT (OR 2.52, 95% CI 1.03 to 6.14; p=0.042) in a univariate logistic regression model
- Patients reporting FT had significantly worse physical and mental HRQOL on the PROMIS questionnaires (p=0.004 and p=0.004, respectively) and worse functional HRQOL on the FACT-GP questionnaire (p=0.036).
- There was no significant difference in 5-year OS (74.3% vs. 83.9%; log-rank p-value=0.165) or 5-year CSS (79.7% vs. 85.7%; log-rank p-value=0.366) in patients with and without FT, respectively.

Table 1: Univariate Logistic Regression Model Examining Significant Predictors of FT

	OR and 95% CI	p-value
Age > 60 years (vs. </=60 years)	0.63 (0.33 to 1.19)	0.152
Female sex	1.52 (0.70 to 3.32)	0.288
Black race (vs. white)	1.37 (0.49 to 3.86)	0.549
Not married (vs. married)	0.53 (0.27 to 1.03)	0.061
Education (vs. college graduate)		
High school or less	2.52 (1.03 to 6.14)	0.042
Post-graduate/professional degree	0.81 (0.22 to 3.07)	0.760
Insurance (vs. private)		
None	2.71 (0.64 to 11.50)	0.177
Medicare	0.70 (0.34 to 1.47)	0.351
Medicaid	1.23 (0.40 to 3.83)	0.719
Currently work for pay	0.87 (0.46 to 1.64)	0.662
Distance to hospital above median (>52 miles)	0.73 (0.38 to 1.40)	0.342
History of tobacco use	1.24 (0.64 to 2.41)	0.518
History of alcohol use	0.74 (0.39 to 1.38)	0.342
Comorbid Depression	0.85 (0.34 to 2.13)	0.729
Comorbid Anxiety	0.98 (0.43 to 2.27)	0.966
Tumor site (relative to oral cavity)		
Oropharynx	0.74 (0.38 to 1.48)	0.398
Hypopharynx	0.47 (0.05 to 4.28)	0.505
Larynx	0.98 (0.31 to 3.13)	0.979
Other	0.68 (0.13 to 3.51)	0.641
Advanced Stage (vs. Early)	0.94 (0.46 to 1.91)	0.861
Treatment (vs. Surgery alone)		
Surgery + aRT	0.74 (0.26 to 2.06)	0.564
Surgery + aCRT	0.50 (0.21 to 1.21)	0.124
RT or Chemotherapy alone	0.27 (0.06 to 1.31)	0.105
Chemoradiation therapy	0.67 (0.29 to 1.50)	0.326
Number of Treatment Modalities (relative to 1)		
2	0.82 (0.41 to 1.67)	0.589
3	0.60 (0.25 to 1.41)	0.240

Figure 1. Kaplan Meier Curves for 5-year Overall Survival (OS) and 5-year Cancer-specific Survival (CSS) in Patients with and without FT

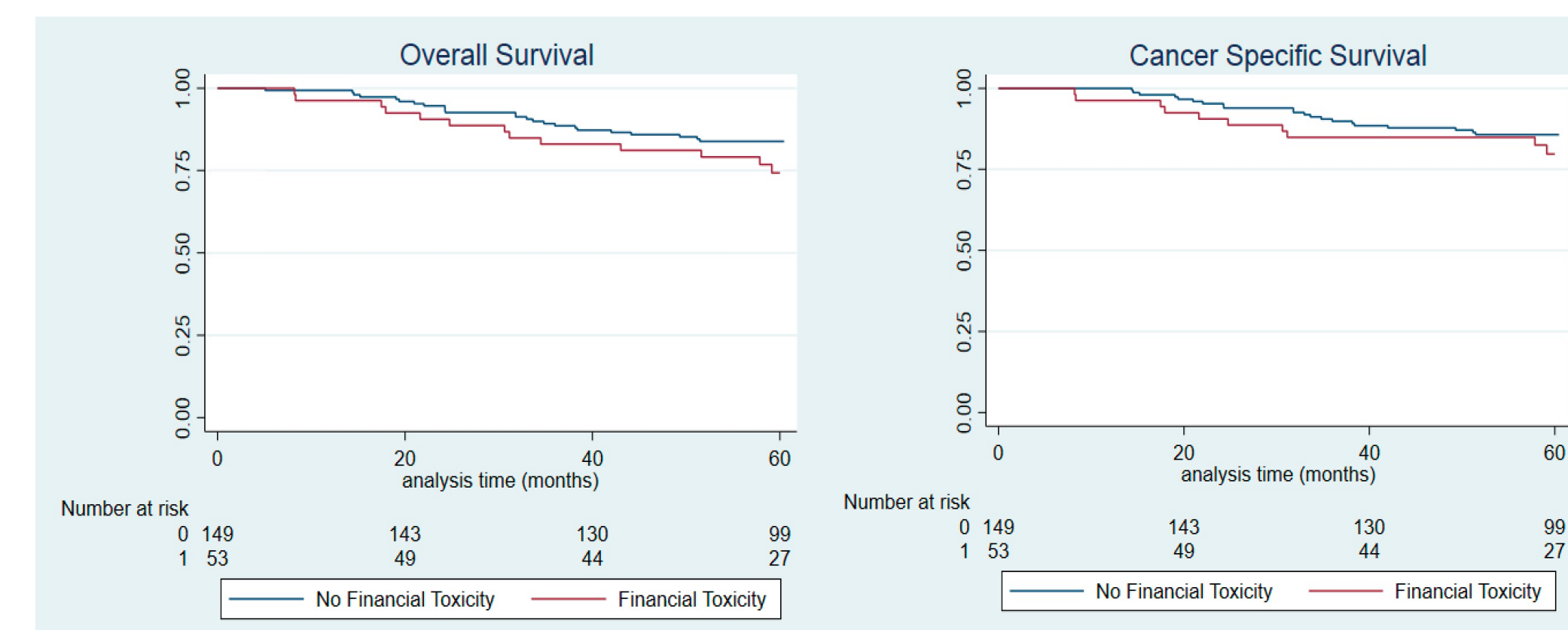


Table 2. HRQOL Outcomes in Patients with and without FT

Questionnaire	Patients with FT mean (SD)	Patients without FT mean (SD)	Mean difference (95% CI)	p-value
FACT GP Total	77.9 (15.2)	83.3 (16.7)	-4.85 (-10.05 to 0.35)	0.067
FACT GP Physical	22.0 (4.9)	23.2 (5.0)	-1.03 (-2.61 to 0.55)	0.201
FACT GP Social	20.7 (5.4)	21.1 (5.7)	-0.40 (-2.17 to 1.37)	0.654
FACT GP Emotional	18.8 (4.5)	19.7 (4.7)	-0.98 (-2.44 to 0.48)	0.189
FACT GP Functional	16.4 (7.1)	18.9 (7.3)	-2.44 (-4.72 to -0.16)	0.036
PROMIS Physical	13.8 (2.9)	15.2 (2.9)	-1.36 (-2.28 to -0.44)	0.004
PROMIS Mental	14.3 (3.1)	15.8 (3.3)	-1.52 (-2.55 to -0.49)	0.004

Discussion

- The prevalence of FT in this sample (26%) underscores the importance of this problem for patients with HNSCC.
- FT was associated with significantly worse HRQOL, which is supported by other studies in head and neck cancer literature.⁴
- In one study of unmet needs among head and neck cancer survivors, 23% of respondents said they needed more help managing financial issues.⁵
- Potential solutions may include financial navigators embedded in oncology clinics and cancer survivorship care plans provided to patients early after diagnosis and as part of a multidisciplinary approach
- Limitations of this study include potential selection bias due to volunteer sampling and limited generalizability due to an over-representation of white (87%) and privately- or Medicare-insured (88%) patients relative to national HNSCC studies

Conclusions

- At least a quarter of patients with HNSCC in this study report experiencing FT
- Patients with lower educational attainment are more likely to experience FT
- FT is associated with significantly worse HRQOL in patients with HNSCC

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