



Introduction

- Patients with head and neck cancer (HNC) are at increased risk of suicide compared to non-HNC patients and the general population
- Financial concerns are thought to be associated with suicide, and disparity in HNC survival is driven in part by socioeconomic status
- No previous studies have investigated the association between socioeconomic status and suicide among patients with HNC
- We sought to determine whether the risk of suicide among HNC patients differed by insurance status, which may be a proxy of socioeconomic status.

Methods and Materials

- Patients with HNC between 18 and 74 years diagnosed from 2007-2016 were queried from the Surveillance, Epidemiology, and End Results (SEER) program
- Death due to suicide was determined by ICD-10 codes
- Standardized incidence ratios (SIRs) of suicide were also obtained using SEER*Stat
- To account for competing risks, we compared risks between groups using Fine and Gray proportional hazards regression
- A sensitivity analysis excluding 65-74 year-old patients, most of whom were Medicare-eligible, was conducted.

Results

- A total of 82,805 HNC patients with 315 suicides were identified
- The sample was composed of 5.3% uninsured, 17.4% with Medicaid insurance, and 77.3% with private/other insurance
- The risk of suicide was 119.4, 70.1, and 64.5 suicides per 100,000 among the uninsured, Medicaid insured, and private/other insured, respectively
- The SIRs of suicide relative to the general population were 5.2 (95% CI: 3.0, 8.5), 3.4 (2.2, 5.1), and 2.8 (2.4, 3.3), respectively
- In Fine and Gray analyses, relative to patients with private/other insurance, there was no difference in the risk of suicide for those with Medicaid (sdHR = 0.78; 95% CI: 0.49, 1.17) but significantly higher for patients who were uninsured (sdHR = 1.76; 95% CI: 1.08, 2.87)
- Results were similar after adjusting for age, race, sex, marital status, metropolitan residence, county-level education and income, stage at diagnosis, and disease site (oropharynx vs. non-oropharynx) (sdHR_{Medicaid}: 0.86; 95% CI: 0.54, 1.34; sdHR_{Uninsured}: 1.90; 95% CI: 1.14, 3.17)

Table 1: Fine & Gray analyses, full HNC sample

		HR	95% CI LOWER	95% CI UPPER	P-VALUE
AGE	18-39				
	40-64	0.892	0.414	1.924	0.771
	65-74	1.085	0.491	2.398	0.84
RACE/ETHNICITY	Non-Hispanic White				
	Non-Hispanic Other	0.352	0.143	0.87	0.024
	Non-Hispanic Black	0.186	0.076	0.455	0
	Hispanic	0.297	0.13	0.679	0.004
SEX	Male				
	Female	0.229	0.13	0.403	0
RESIDENCE	Metropolitan				
	Non-metropolitan	0.901	0.571	1.423	0.656
COUNTY-LEVEL INCOME	High				
	Mid-high	0.918	0.601	1.401	0.691
	Mid-low	0.798	0.491	1.296	0.362
	Low	0.75	0.449	1.251	0.27
COUNTY-LEVEL EDUCATION	High				
	Mid-high	0.995	0.639	1.552	0.984
	Mid-low	1.121	0.722	1.742	0.61
	Low	1.592	1.001	2.532	0.05
STAGE AT DIAGNOSIS	Distant				
	Localized	2.358	1.197	4.648	0.013
	Regional	2.248	1.134	4.454	0.02
	Unknown/Unstaged	1.972	1.013	3.835	0.046
INSURANCE STATUS	Private/other				
	Medicaid	0.852	0.542	1.341	0.49
	Uninsured	1.9	1.138	3.171	0.014
MARITAL STATUS	Unmarried				
	Married	0.656	0.486	0.886	0.006
CANCER SITE	Non-oropharynx				
	oropharynx	1.414	0.679	2.945	0.354

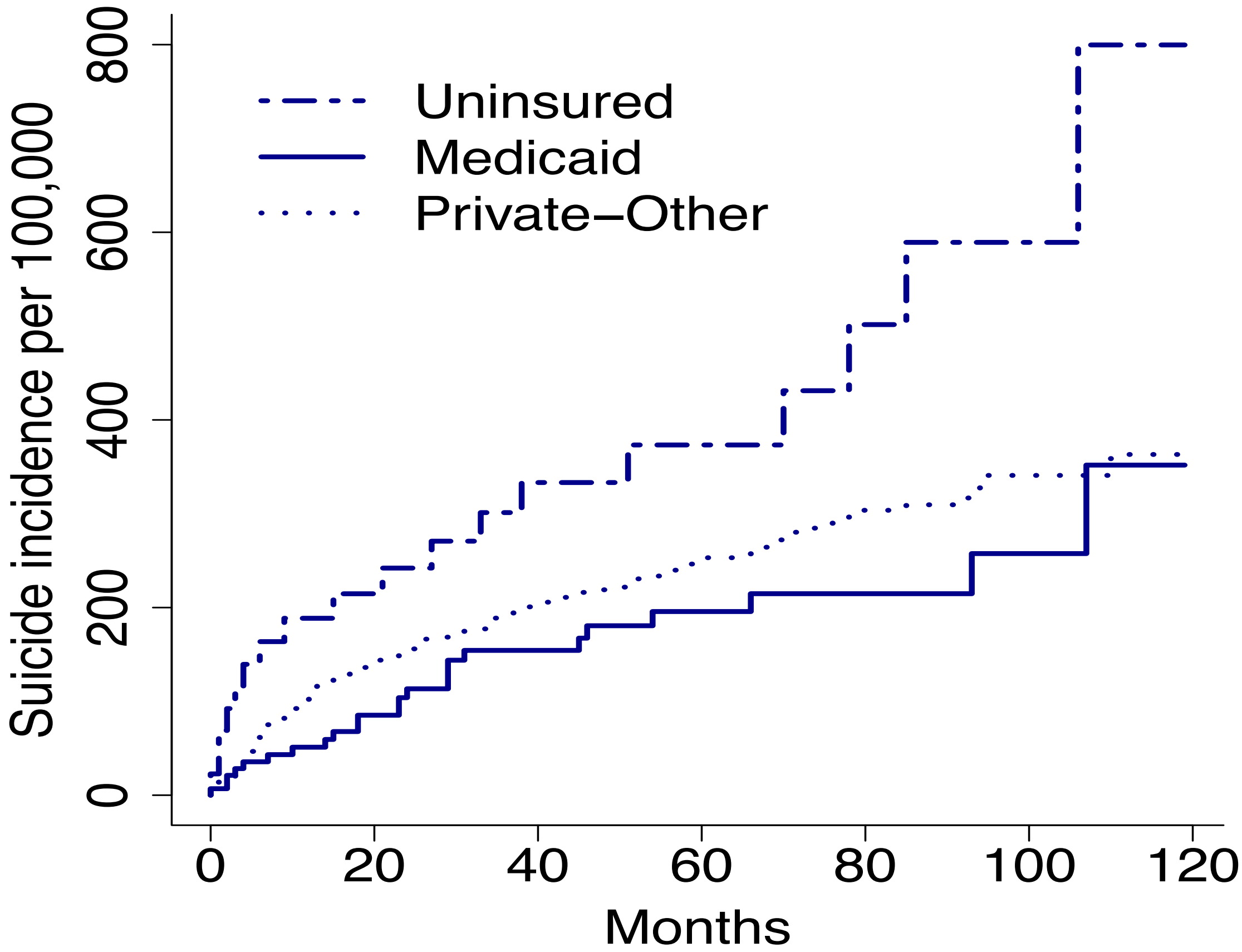
Table 2: Fine & Gray analyses, sample restricted to 18-64 year old

		HR	95% CI LOWER	95% CI UPPER	P-VALUE
AGE	18-39				
	40-64	0.914	0.423	1.975	0.818
RACE/ETHNICITY	Non-Hispanic White				
	Non-Hispanic Other	0.274	0.086	0.875	0.029
	Non-Hispanic Black	0.249	0.101	0.618	0.003
	Hispanic	0.261	0.095	0.716	0.009
SEX	Male				
	Female	0.269	0.141	0.515	0
RESIDENCE	Metropolitan				
	Non-metropolitan	1.183	0.647	2.164	0.585
COUNTY-LEVEL INCOME	High				
	Mid-high	0.944	0.573	1.554	0.821
	Mid-low	0.817	0.458	1.458	0.493
	Low	0.666	0.358	1.236	0.197
COUNTY-LEVEL EDUCATION	High				
	Mid-high	0.897	0.522	1.541	0.694
	Mid-low	1.278	0.763	2.138	0.351
	Low	1.586	0.899	2.797	0.111
STAGE AT DIAGNOSIS	Distant				
	Localized	2.878	1.205	6.869	0.017
	Regional	2.508	1.046	6.012	0.039
	Unknown/Unstaged	2.278	0.974	5.324	0.057
INSURANCE STATUS	Private/other				
	Medicaid	0.901	0.536	1.515	0.694
	Uninsured	2.111	1.248	3.57	0.005
MARITAL STATUS	Unmarried				
	Married	0.675	0.468	0.974	0.036
CANCER SITE	Non-oropharynx				
	oropharynx	1.009	0.364	2.796	0.986

Results continued

- Results remained similar after the sample was adjusted to exclude 65-74 year-olds from the analysis

Figure 1: Cumulative incidence analyses



Conclusions

- The risk of suicide is significantly higher among patients with HNC compared to the general population, and worst among patients without health insurance
- The similarity in hazard of suicide between patients under Medicaid and those private insurance may reflect a protective effect of having insurance, regardless of type
- The lack of significant difference between the Medicaid and privately insured groups might also suggest that a deeper analysis of the role of socioeconomic status in the risk of suicide may be warranted

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