

Low Income Areas Predict T Stage in Patients with Head and Neck Cancer

INTRODUCTION

- A strong predictor of mortality in patients with head and neck cancer (HNC) is the stage of tumor at time of diagnosis.
- Studies suggest that income level is associated with poor outcomes in HNC patients.
- US Department of Agriculture (USDA) defines low income residences as areas with a poverty rate of 20% or with a median family income less than 80% of median family income for the state or metropolitan area.

OBJECTIVES

- Determine prognostic value of residing in low income communities with outcomes in HNC patients.
- Evaluate patient demographic risk factors for advanced T stage at presentation

METHODS

- Retrospective review of patients with head and neck cancer who underwent surgical resection (n=104).
- Demographics, nutritional markers, recurrence, and mortality were reviewed.
- Low income residence was determined based on the USDA Atlas of 2019
- Statistical analysis was performed using Students T-test, Fisher's exact test, chi-square analysis, and multivariate logistic regression, when appropriate.

QUESTIONS?

- Contact aacolback@ucdavis.edu

RESULTS

- 41% (n=43) of patients in this cohort resided in a low income area, as defined by the US Department of Agriculture (USDA)
- 58% (n=25) residing in a low income area presented with advanced T stage (T3-4), as compared to 34% (n=21) in a medium/high income area (p<0.05).
- Patients were at **higher risk of advanced T stage on presentation when residing in low income areas** ($\chi^2 = 5.75$, p-value < 0.05).

Table 1. Patient Characteristics

	Low Income Status		P-value
	Yes (N=43)	No (N=61)	
Gender			
Female	11 (25.6%)	14 (23.0%)	0.939
Male	32 (74.4%)	47 (77.0%)	
Age (years)			
Mean (SD)	58.6 (10.5)	61.9 (10.2)	0.111
Median [Min, Max]	60.0 [33.0, 77.0]	63.0 [18.0, 80.0]	
Alcohol Use			
Yes	20 (46.5%)	32 (52.5%)	0.69
No	23 (53.5%)	29 (47.5%)	
Tobacco Use			
Current	7 (16.3%)	4 (6.6%)	0.104
Former	16 (37.2%)	34 (55.7%)	
Never	20 (46.5%)	23 (37.7%)	
T stage			
High (T3-4)	25 (58.1%)	21 (34.4%)	0.028
Low (T1-2)	18 (41.9%)	40 (65.6%)	
Food Desert Status			
Yes	33 (76.7%)	48 (78.7%)	1
No	10 (23.3%)	13 (21.3%)	

Figure 1. T stage and Low income

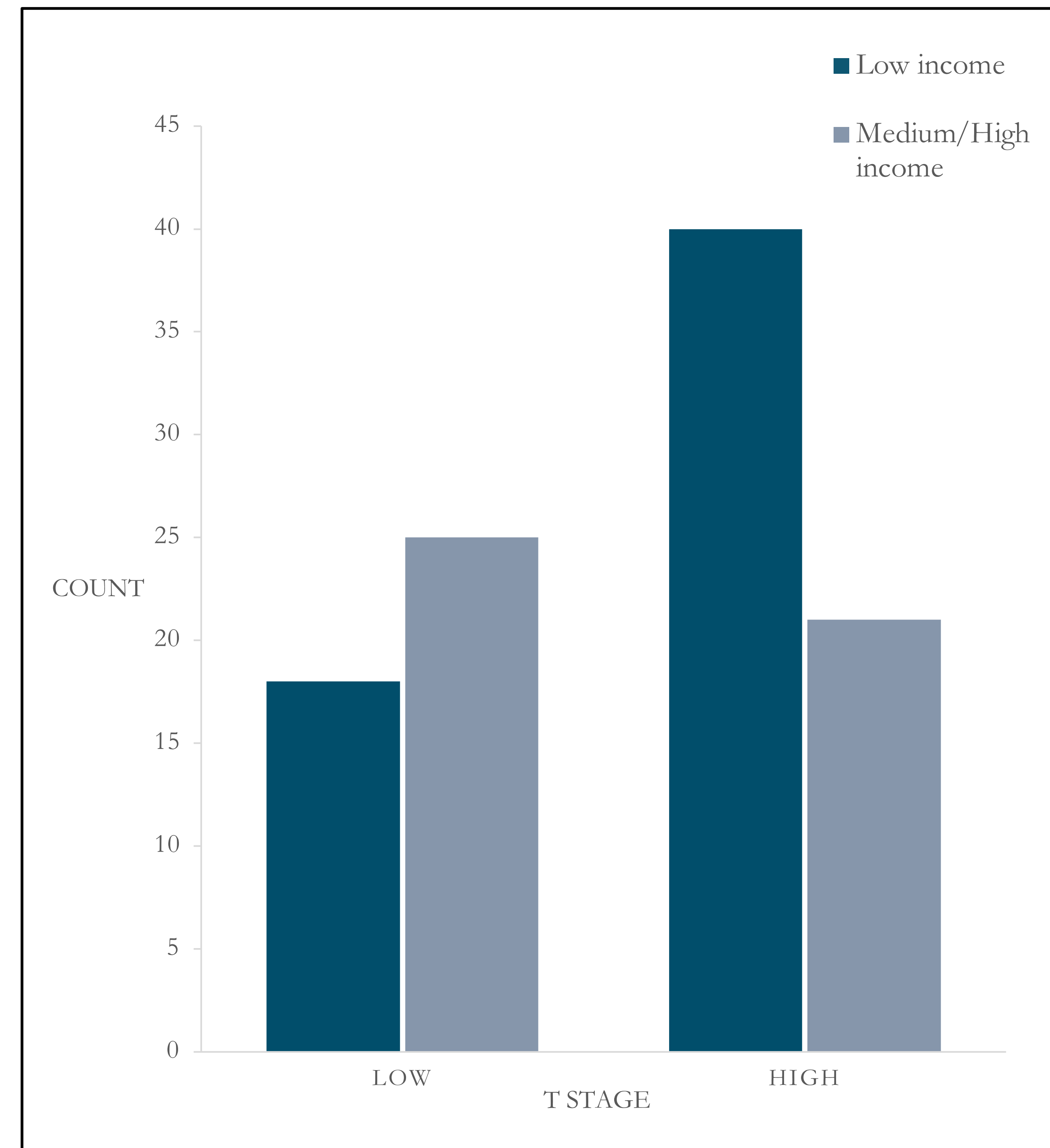


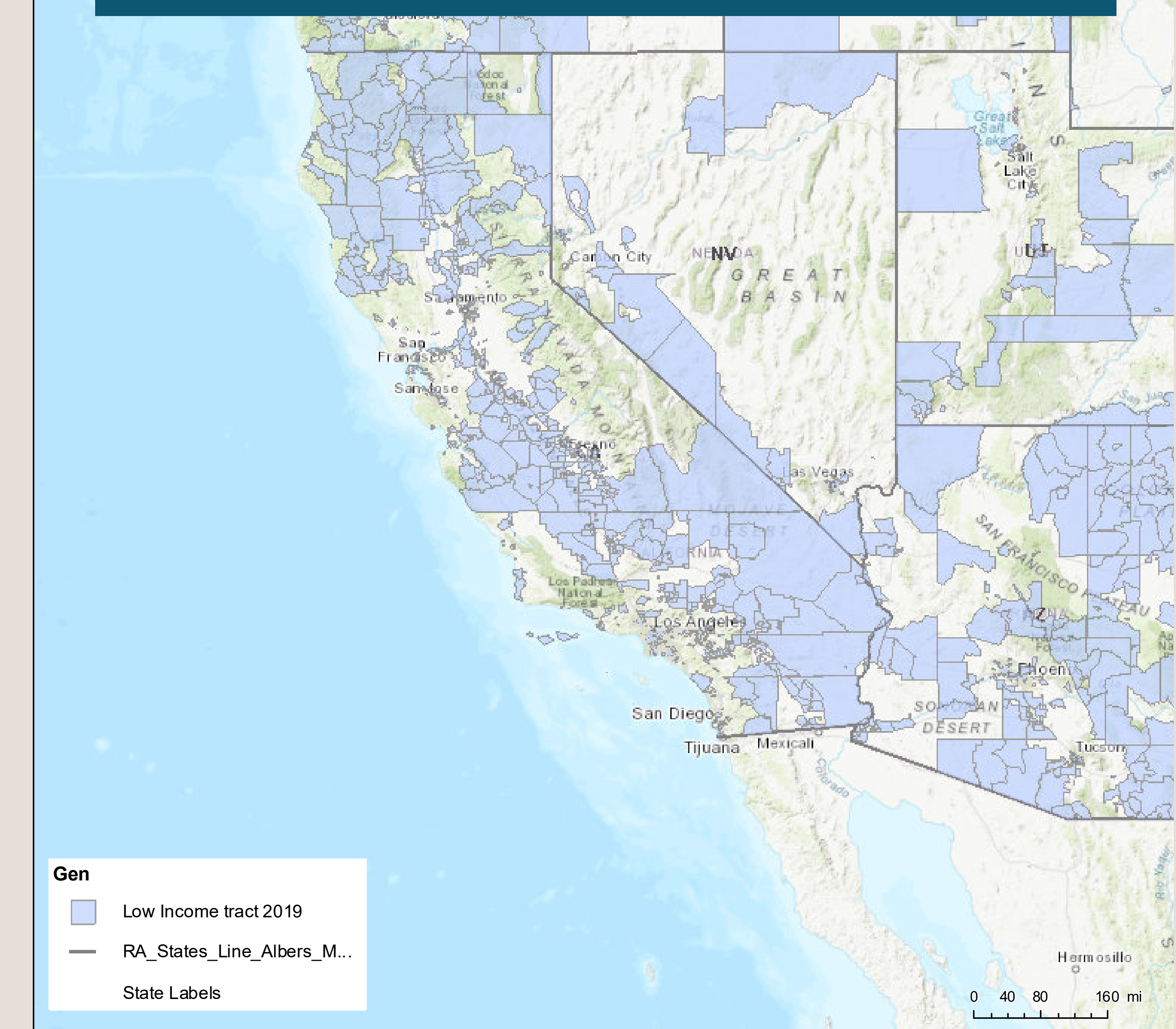
Table 2. Multivariate Logistic Regression for Variables Predictive of Advanced T Stage at Presentation

Independent variable	b	SE	z value	Pr (> z)	CI	OR ¹
Age	0.01003	0.02247	0.446	0.6553	(0.9669-1.0572)	1.01
Gender	-0.11816	0.54650	-0.216	0.8288	(0.2972-1.5833)	0.8885
Tobacco Use Former	-1.34634	0.99280	-1.459	0.1446	(0.0325-1.397)	0.2602
Tobacco Use Never	-1.98767	0.91211	-2.179	0.0293	(0.0173-0.710)	0.137
Alcohol Use	-1.1	0.4554	-2.415	0.0157	(0.1323-0.7979)	0.3329
Obesity ²	-0.54257	0.50294	-1.079	0.2807	(0.2105-1.5343)	0.5812
Low Income Status	1.0299	0.46046	2.237	0.0253	(1.1523-7.0893)	2.8008

- Low income status was an independent predictor of presenting with more advanced T stage**

¹obtained from Cox Regression Model; ²designated obese with BMI > 30; b, estimate; SE, standard deviation; CI, confidence interval; OR, odds ratio.

USDA MAP 2019



Date: 2/13/2023 Source: USDA Economic Research Service, ESRI. For more information <https://www.ers.usda.gov/data-products/food-access-research-atlas/documentation>

CONCLUSION

- Residence in a low income neighborhood is significantly predictive of advanced T stage in patients with HNC.
- Developing specialty care in low income communities may be beneficial to improve outcomes in HNC patients.
- Further research is needed to determine mechanism of low income status on progression of T stage.

REFERENCES

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