



# Socioeconomic Status and Clinical Trial Enrollment in Head and Neck Cancer: a Single-Institution Retrospective Study

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## ABSTRACT

**Introduction:** Enrollment in cancer clinical trials (CCTs) is essential to advance scientific discovery and develop new therapies, but patients with limited resources—including the uninsured and racial/ethnic minorities—remain historically underrepresented. Head and neck cancer (HNC) patients are particularly affected. This study examined one year of enrollment at our institution to evaluate the influence of socioeconomic status (SES) and distance from the cancer center in relation to CCT participation.

**Methods:** An ongoing, prospective multidisciplinary clinic database was searched for patients who were identified as potentially eligible for a clinical trial at their initial visit. Eligibility and enrollment were recorded from medical records. Patient zip codes were used to estimate SES and distance from our Cancer Institute. Univariate analyses (chi-squared test and t-test) were conducted.

**Results:** A total of 192 patients who first visited the clinic between May 2023 and April 2024 were included in the study. Univariate analyses revealed that gender (males more likely to enroll;  $p = 0.04$ ) and distance ( $p = 0.03$ ) were significantly different between patients who ultimately enrolled and those who did not enroll. The average distance of those who enrolled was around 40 miles (median 34.6), while the average distance of those who did not enroll was over 70 miles (median 35.4). Patients with stage IV disease were also less likely to enroll, though this difference did not quite reach statistical significance ( $p = 0.052$ ). Age, race/ethnicity, median income, insurance status, and Charleston comorbidity index did not significantly affect enrollment status. Multivariate analyses are underway and will also be presented.

**Conclusions:** When planning a CCT for head and neck cancer, patient sex, distance from the trial site, and disease stage may be important factors to consider. Limitations of our study include its retrospective nature and the use of median income within a patient’s zip code as a surrogate measure for SES. Further studies in other cohorts are needed to determine whether these factors are specific to our patient population or whether they can be extrapolated to head and neck cancer patients in general.

## BACKGROUND

- Cancer clinical trial (CCT) enrollment is essential to advance scientific discovery, develop new therapies, and correlates with increased cancer survival.
- Racial minorities, low-income, publicly insured are underrepresented in CCT.
- Barriers may include financial strain, travel distance, and social/systemic inequities.
- These disparities limit trial generalizability and reinforce health inequities.
- Risk factors for head and neck cancer (tobacco, alcohol) are more common in disadvantaged groups.
- CCT enrollment disparities in HNC remain underexplored.

**Objective:** Assess how socioeconomic status (SES), race/ethnicity, and distance to care impact CCT enrollment in HNC patients at our multidisciplinary clinic.

**Hypothesis:** Lower income, greater distance, and minority race/ethnicity will be associated with reduced CCT enrollment.

## Conclusions:

- Main Finding:** Sex and geographic proximity are key barriers to trial enrollment; addressing these may improve equity.
- Key predictors:** Male sex and shorter distance from the Cancer Institute were independent predictors of CCT enrollment
- Limitations:** Single-institution, retrospective design; SES estimated by zip code median income.
- Implications:** Addressing modifiable barriers (e.g., distance) and understanding sex-based differences may improve trial access and equity.
- Future directions:** Broader, multi-institutional studies are needed to confirm generalizability and assess survival outcomes.

## METHODS AND DESCRIPTIVE RESULTS

- Design: Retrospective analysis of HNC patients seen in our Multidisciplinary Clinic (MDC) from May 2023–April 2024)
- Data source: REDCap database (>4,000 cases since 2019).
- Inclusion: Patients with a documented discussion of CCT.
- Enrollment status defined as: Enrolled, declined, or ineligible.
- Variables collected

Demographics: Age, sex, race/ethnicity, tobacco/alcohol use, zip code  
Socioeconomic status (SES): Insurance type, median income (2022 U.S. Census, zip code)  
Clinicopathologic: BMI, Charlson Comorbidity Index, tumor site/subsite, clinical stage  
Distance: Shortest route (miles) from home zip code to cancer center (Google Maps)

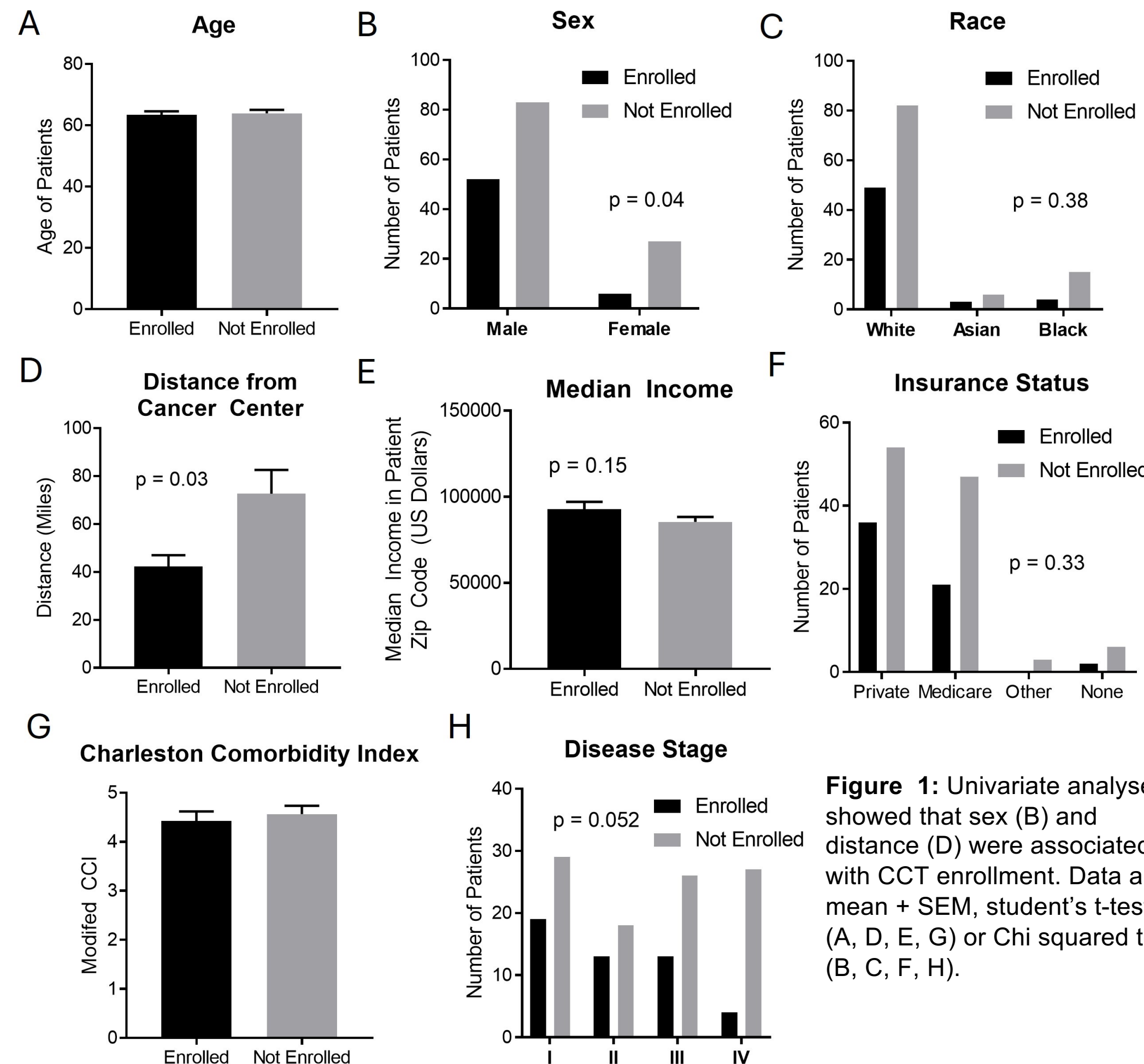
- Statistical analysis:  
Descriptive statistics  
Categorical: Chi-square tests  
Continuous: Student’s t-test  
Multivariable: Logistic regression with backward selection ( $\alpha = 0.1$ )

**Table 1.** Demographic and clinical characteristics of patients eligible for clinical trial enrollment

Characteristic	n = 192	Table 1 (continued)	n = 192
<b>Patient demographics</b>		<b>Clinical stage</b>	
Age, mean (SD), years	62.6 (11.0)	Stage I	55 (29%)
Male, n (%)	152 (79%)	Stage II	36 (19%)
Female, n (%)	41 (21%)	Stage III	42 (22%)
White, n (%)	144 (75%)	Stage IV	36 (19%)
Black, n (%)	26 (14%)	Unknown	11 (6%)
Asian, n (%)	10 (5%)	<b>Socioeconomic variables</b>	
Other/Unknown, n (%)	12 (6%)	Median income, mean (SD), USD	\$86,700 (31,100)
<b>Insurance status</b>		BMI (kg/m <sup>2</sup> ), mean (SD)	27.9 (6.1)
Private, n (%)	103 (54%)	Distance to trial site, mean (SD), miles	61.6 (84.5)
Medicare, n (%)	75 (39%)		
Uninsured, n (%)	8 (4%)		
Other (Tricare, VA, Medicaid)	6 (3%)		
<b>Charlson comorbidity index</b>			
0–1	32 (17%)		
2–3	57 (30%)		
4–5	90 (47%)		
6–7	13 (7%)		
<b>Tumor site</b>			
Oropharynx, n (%)	46 (24%)		
Oral cavity, n (%)	23 (12%)		
Other sites, n (%)	9 (5%)		

## RESULTS

Of 777 patients seen, a clinical trial was discussed with 192. On univariate analysis, male sex and shorter distance from the cancer center were significantly associated with clinical trial participation. Disease stage did not quite reach statistical significance ( $p = 0.052$ ).



**Figure 1:** Univariate analyses showed that sex (B) and distance (D) were associated with CCT enrollment. Data are mean + SEM, student’s t-test (A, D, E, G) or Chi squared test (B, C, F, H).

On multivariate analysis with backward selection, male sex and shorter travel distance were independent predictors of CCT enrollment.

Table 1: Multivariable Logistic Regression for Enrollment			Enrollment=Yes		
			Odds Ratio (95% CI)	OR P-value	Overall P-value
Sex	F	33	0.34 (0.13-0.87)	0.025	0.025
	M	136			
Distance			0.99 (0.99-1.00)	0.045	0.045

\* Number of observations in the original data set = 169. Number of observations used = 169.

\*\* Backward selection with an alpha level of removal of .1 was used. The following variables were removed from the model: Alcohol History, BMI, Insurance Status, Income, Race, Risk, and Tobacco History.