

INTRODUCTION

BACKGROUND

Palliative care continues to gain recognition among primary care providers, as patients suffering from chronic conditions may benefit from use of this growing service. Socioeconomic status (SES) and clinical indicators such as the Charlson Comorbidity Index (CCI) could help physicians identify patients for whom earlier referral to palliative care may be beneficial.

OBJECTIVE

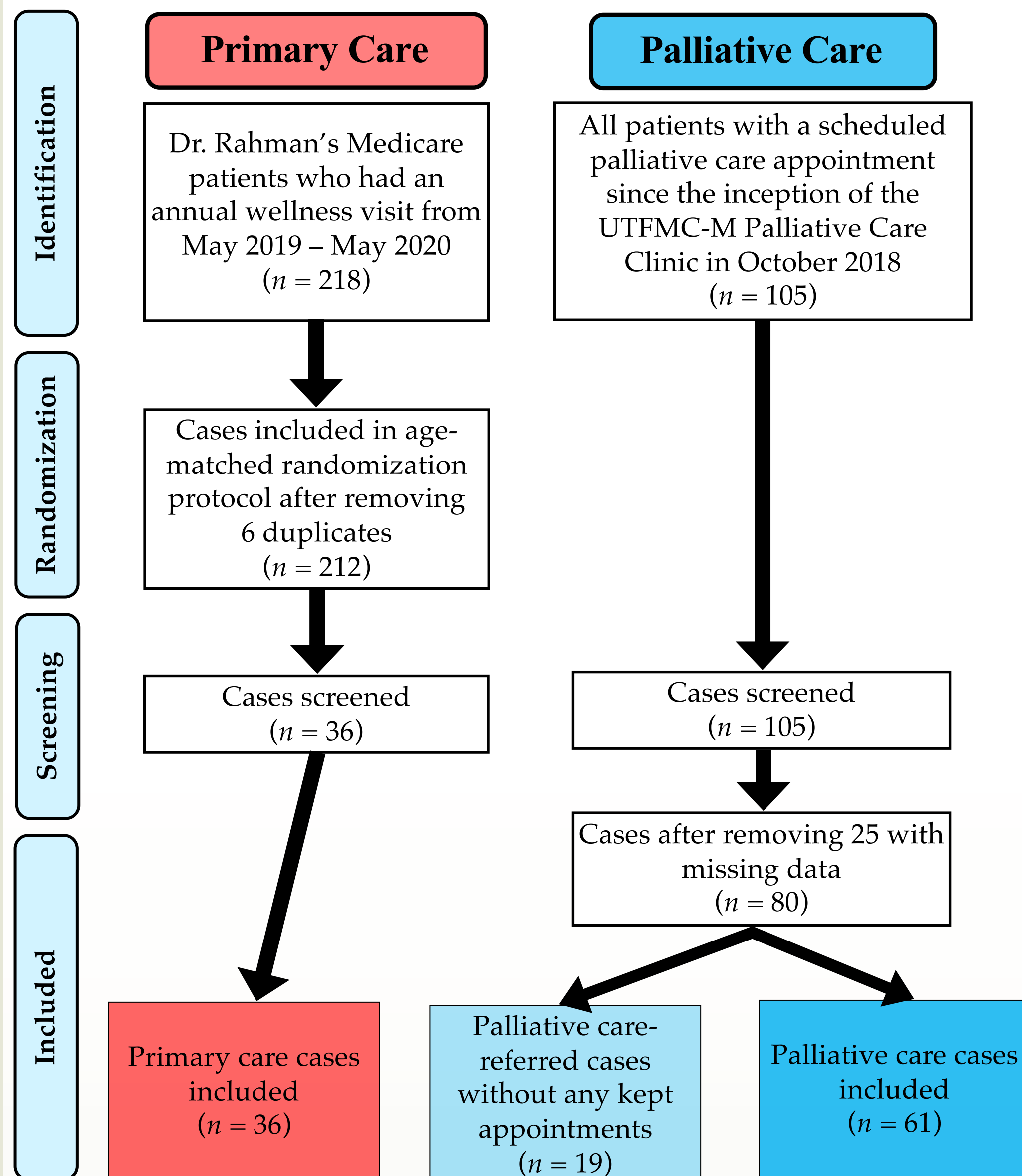
This single-institution quality improvement study investigates the clinical and socioeconomic characteristics of palliative care patients and identifies predictors of palliative care use.

RESEARCH QUESTIONS

- Do primary and palliative care patients at the University of TN Family Medicine Center, Memphis, TN (UTFMC-M) differ in disease burden and socioeconomic status?
- Are there clinical and socioeconomic predictors of palliative care use at UTFMC-M?

METHODS

Figure 1. Sample Selection



RETROSPECTIVE CHART REVIEW

Clinical and socioeconomic data were collected for each patient using the NextGen electronic medical record. American Community Survey data were used to match patient ZIP codes with median household incomes.

STATISTICAL ANALYSIS

Data were analyzed using SPSS and Microsoft Excel. Backward conditional variable selection was used to generate a Poisson regression model of palliative care use.

Clinical and Socioeconomic Predictors of Palliative Care Utilization

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RESULTS

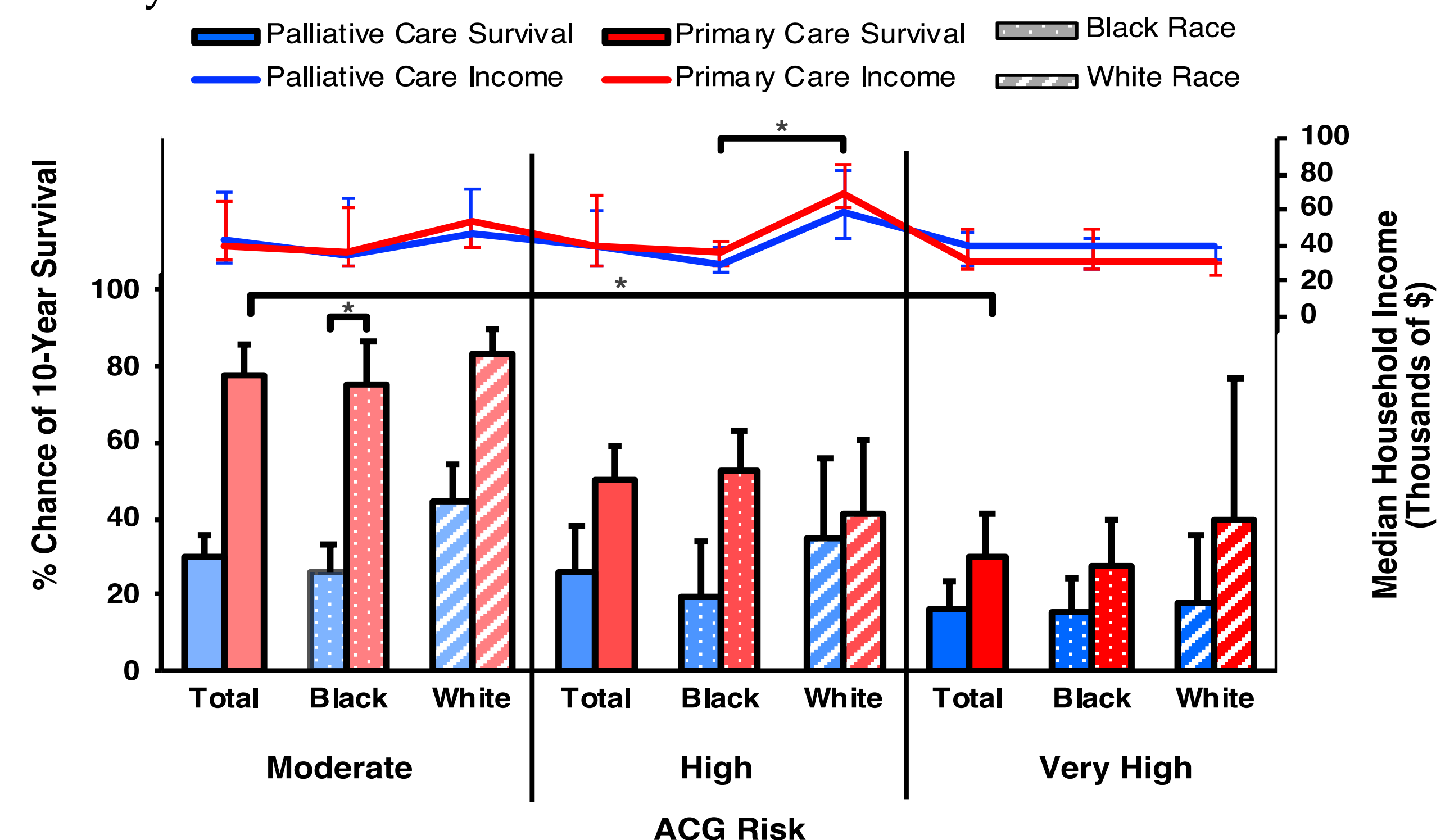
Table 1. Patient Characteristics Stratified by Care Group^a

	Primary Care	Palliative Care-Referred Non-User	Palliative Care	Total	p-value
Subgroup Size (%)	36 (31.0)	19 (16.4)	61 (52.6)	116 (100.0)	
Age (years, mean ± SD)	60.5 ± 11.9	60.8 ± 16.7	63.3 ± 14.0	62.0 ± 13.8	0.787
Sex, n (%)					0.695
Female	22 (61.1)	12 (63.2)	33 (54.1)	67 (57.8)	
Male	14 (38.9)	7 (36.8)	28 (45.9)	49 (42.2)	
Race, n (%)					0.330
Black	28 (77.8)	14 (73.7)	37 (63.8)	79 (69.9)	
White	8 (22.2)	5 (26.3)	21 (36.2)	34 (30.1)	
Distance to Clinic (mi, mean ± SD)	8.7 ± 4.9	10.1 ± 8.5	12.8 ± 13.5	11.1 ± 10.8	0.226
Median Household Income (median [IQR])	\$38,821 (\$31,459)	\$34,626 (\$9,478)	\$38,873 (\$37,448)	\$38,824 (\$28,658)	0.456
BMI (kg/m ² , mean ± SD)	30.2 ± 8.1	32.6 ± 11.7	25.9 ± 8.8†	28.3 ± 9.1	0.011 ^o
ACG Risk Score, n (%)					< 0.001 ^o
Moderate	8 (22.2)	2 (11.1)	38 (62.3)††	48 (41.7)	
High	18 (50.0)	7 (38.9)	11 (18.0)†	36 (31.3)	
Very High	10 (27.8)	9 (50.0)	12 (19.7)‡	31 (27.0)	
MME (median [IQR])	0 (0)	5 (41)	45 (119)†	0 (60)	< 0.001 ^o
CCI (median [IQR])	4 (3.75)	6 (2.50)	6 (3)†	5 (4)	0.002 ^o
Chance of Survival (median [IQR])	53% (83%)	2% (52%)	2% (53%)†	21% (77%)	0.002 ^o

^a ACG, Adjusted Clinical Groups; BMI, body mass index; CCI, Charlson Comorbidity Index; IQR, interquartile range; MME, morphine milligram equivalents; mv, missing values total and by subgroup; SD, standard deviation.
^o denotes significant value, p < 0.05.
^{*} denotes significant differences among all pairs (p < 0.05).
[†] denotes significant difference from Primary Care group (p < 0.05).
[‡] denotes significant difference from Palliative Care-Referred Non-User group (p < 0.05).

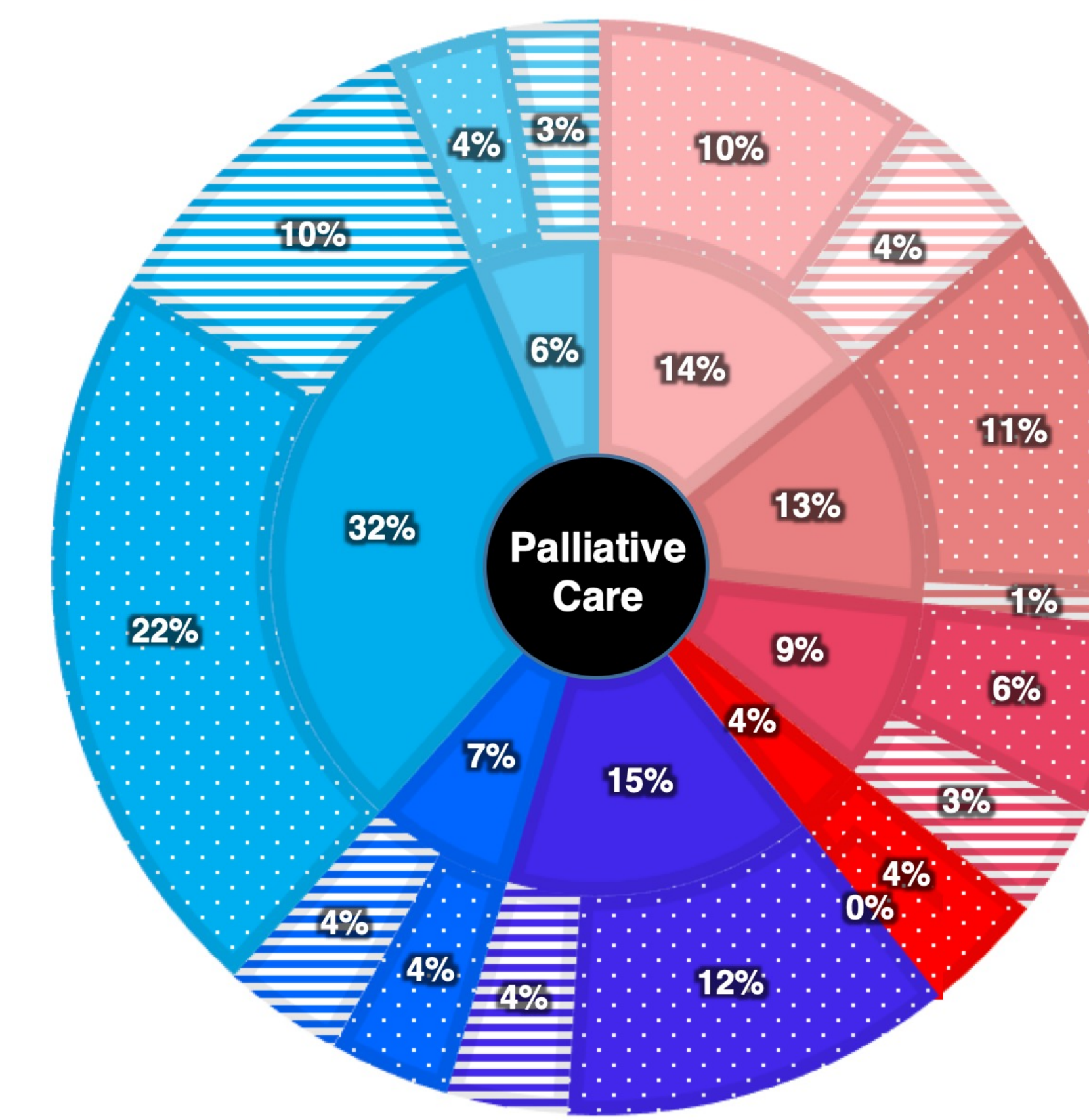
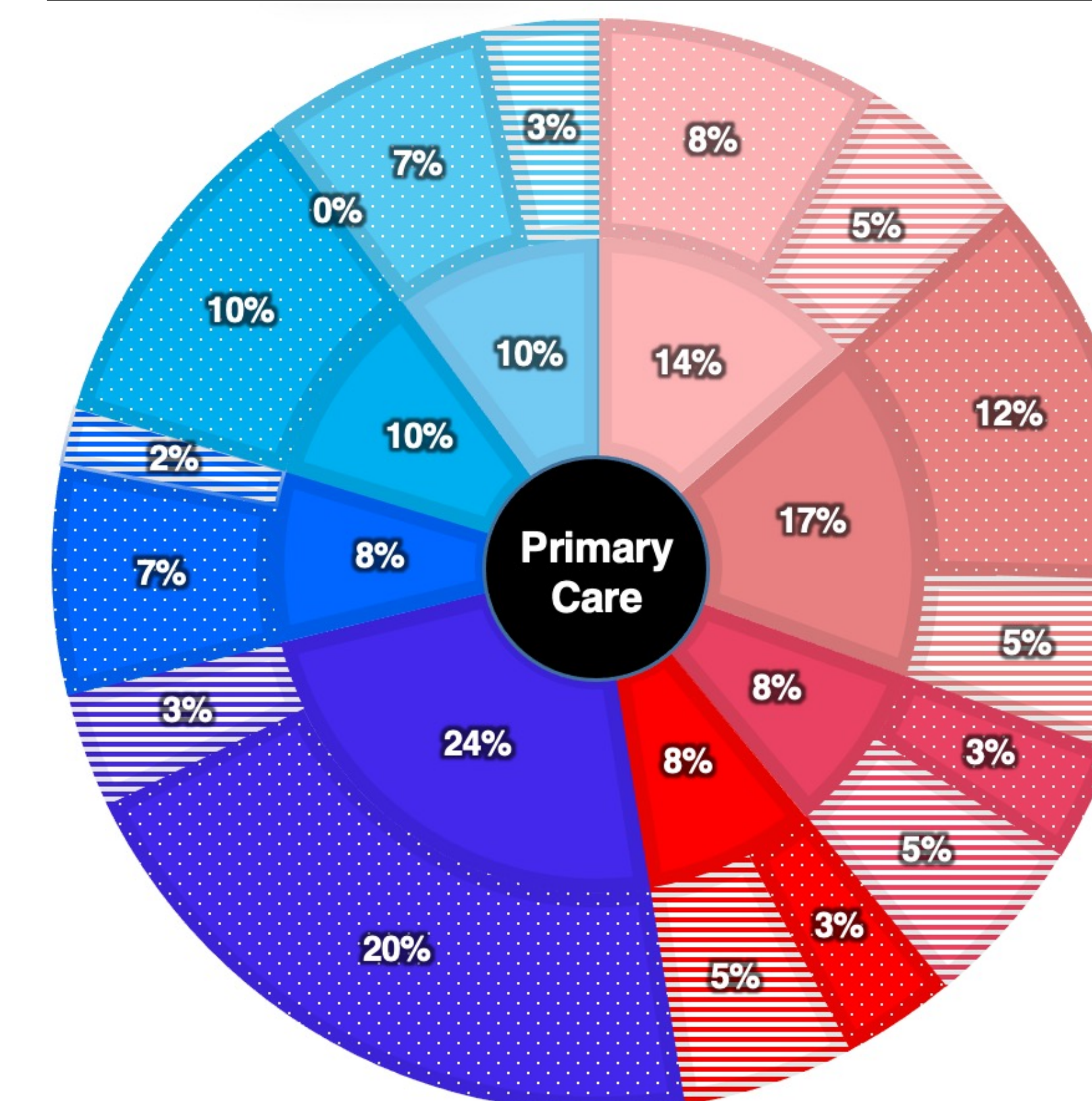
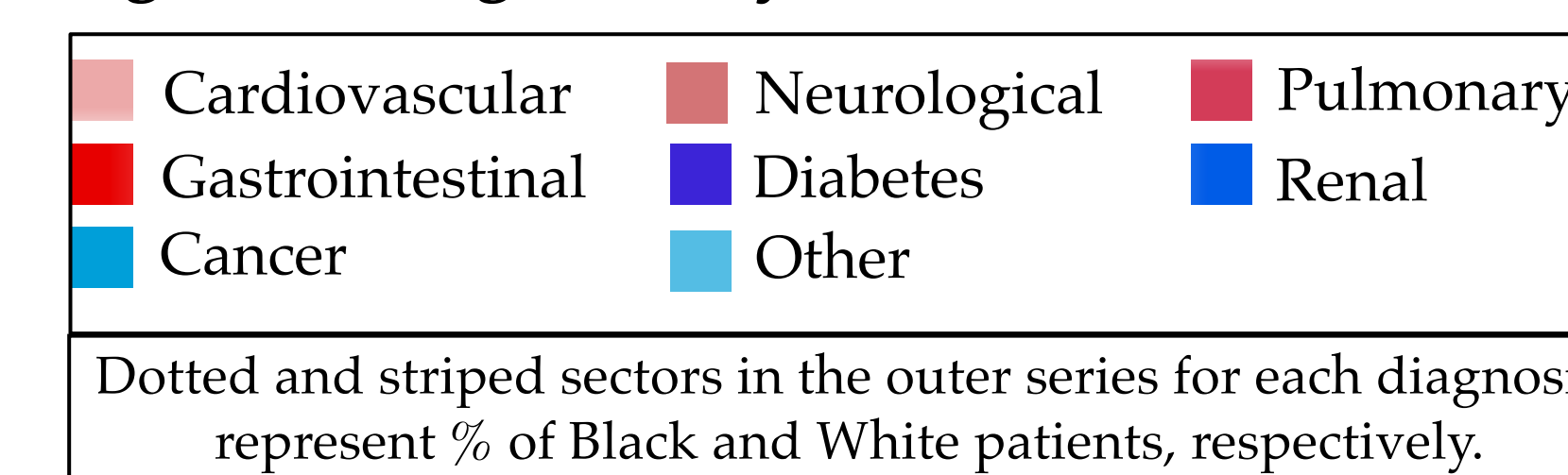
Palliative care patients had a lower chance of 10-year survival (p = 0.002) and tended to have lower ACG risk scores (p < 0.001) than primary care patients. Palliative care-referred non-users tended to have very high risk.

Figure 2. Disease Burden and Income Across Risk Groups for Palliative and Primary Care Patients



While chance of survival for very high-risk primary care patients was lower than for moderate-risk patients (30% vs. 78%; p = 0.019), it did not differ across risk groups for palliative care patients (p = 0.678).

Figure 3. Diagnoses by Race



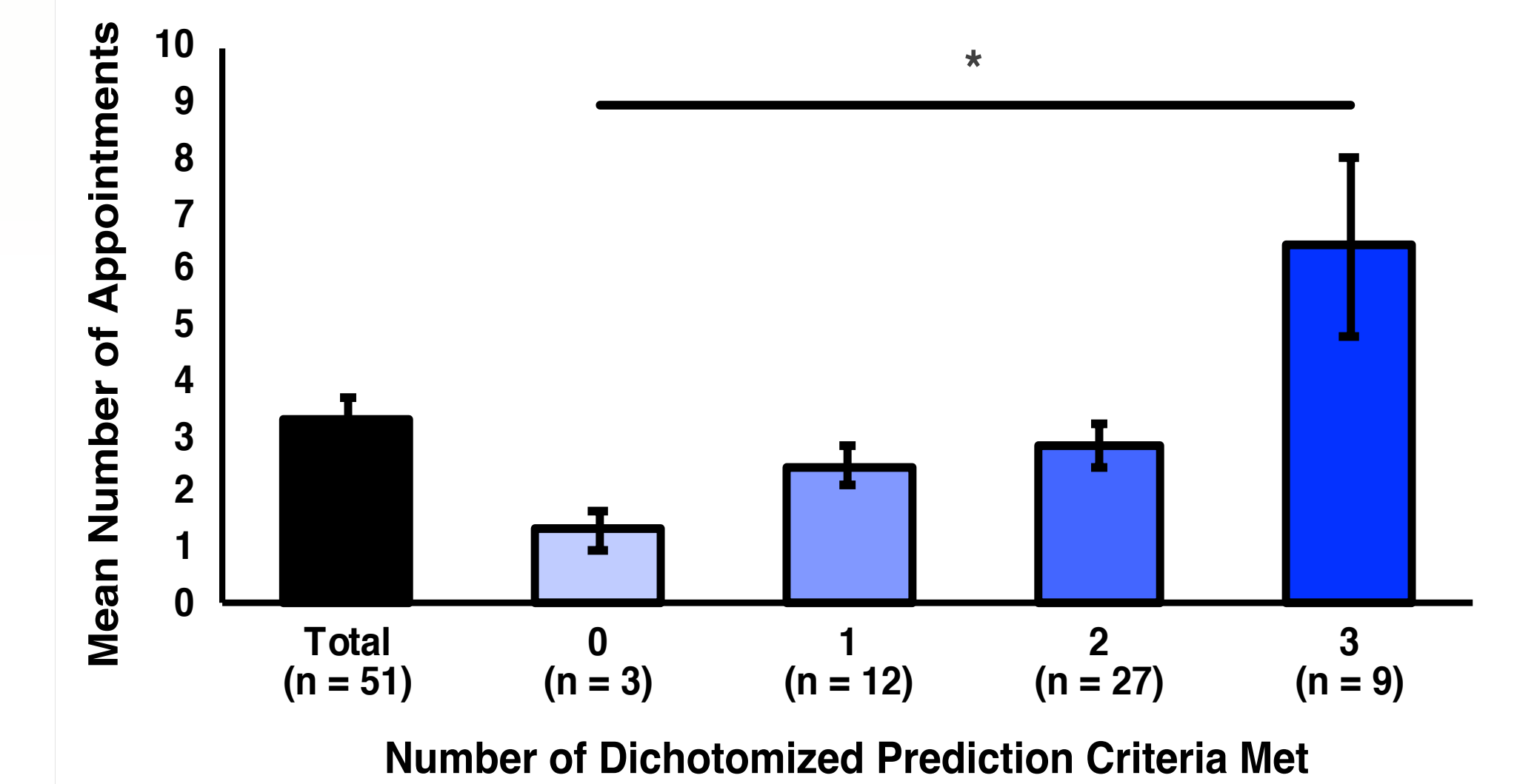
Palliative care patients differed from primary care patients in comorbidity distribution with a higher prevalence of cancer ($\chi^2 = 14.648$, df = 7, p = 0.041).

RESULTS, CONTINUED

Table 2. Poisson Regression Model of Palliative Care Use

Predictor	Wald Statistic	Exp(β)	p-value
Race (1 = Black)	3.187	1.372	0.074
Referral from Hospital (1 = Referred)	4.267	1.471	0.039
Charlson Comorbidity Index	8.930	0.907	0.003
Morphine Milligram Equivalents	3.803	0.998	0.051
Number of Medications	8.705	1.045	0.003
Systolic Blood Pressure	8.234	0.989	0.004

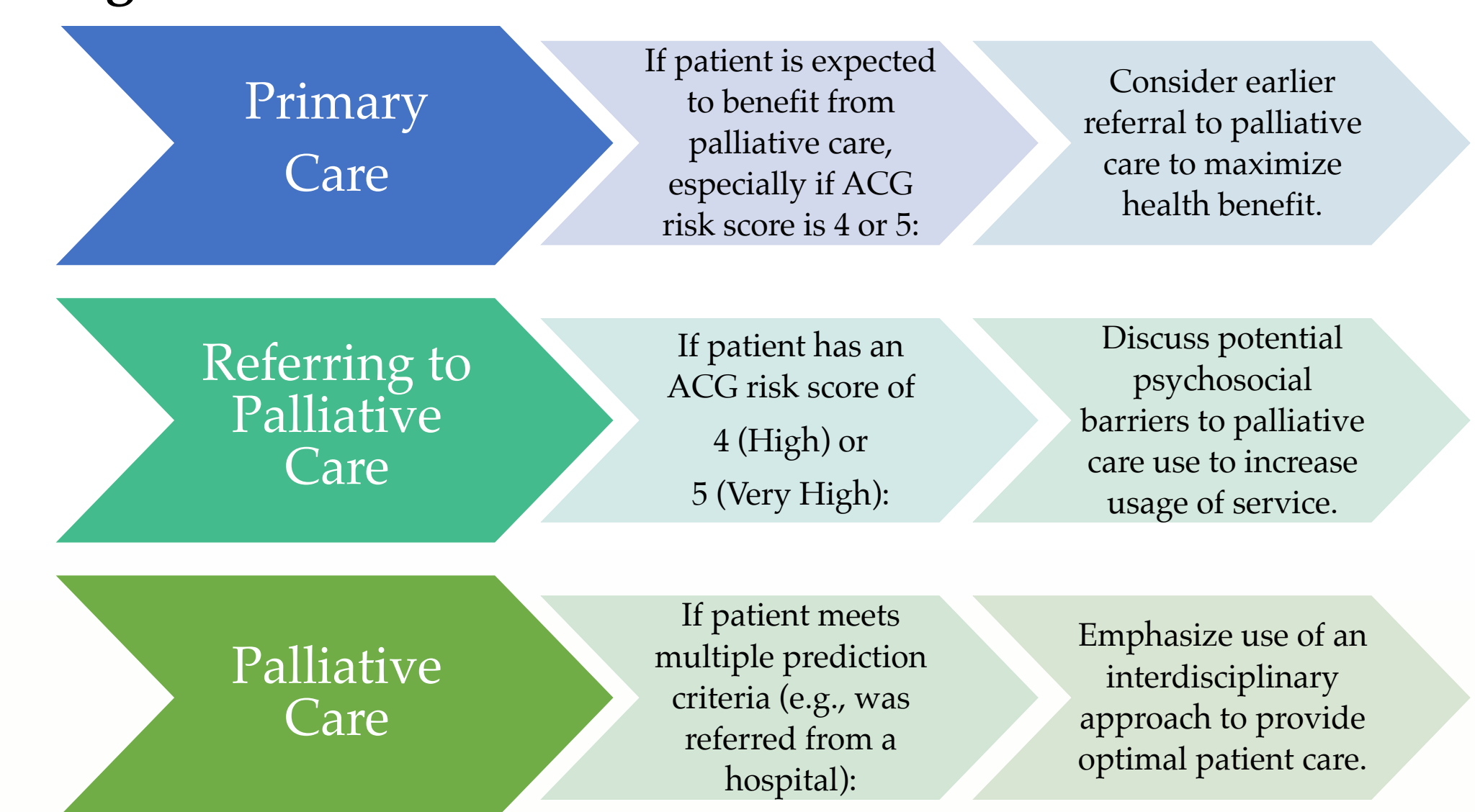
Figure 4. Palliative Care Use by Number of Dichotomized Prediction Criteria Met



Significant predictors of palliative care use are referral from hospital (p = 0.039), a greater number of prescribed medications (p = 0.003), a greater chance of survival (p = 0.003), and a lower systolic blood pressure (p = 0.004).

DISCUSSION

Figure 5. Recommendations



LIMITATIONS

- Moderate degree of overdispersion in regression model
- Limited sample sizes in race-risk crosstabulation
- Patient recall bias when reporting prescribed medications
- Height and weight were unavailable for patients in wheelchairs, so data are biased toward patients with greater mobility and potentially higher survival chance.

FUTURE DIRECTIONS

- Identify patients' reasons for visiting palliative care.
- Explore why some patients who are referred to palliative care do not keep their appointments.
- Investigate why patients who make more palliative care appointments do not significantly differ in chance of 10-year survival and socioeconomic status.