

Disparities in Health-Related Quality of Life among Adolescent and Young Adult (AYA) Cancer Survivors

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Introduction

- Health-related quality of life (HRQoL) is a comprehensive assessment of both physical and mental health.
- HRQoL has been increasingly supported as a factor impacting clinical care.
- Studies in adult populations have demonstrated that poor HRQoL at diagnosis is associated with poorer survival.
- However, the current literature on adolescent and young adults (AYA) cancer survivors, and particularly their HRQoL, is limited.

Methods

- Data was collected from a retrospective analysis of AYA 2+ year cancer survivors at MD Anderson ($n=2572$).
- SF-12 was used to measure physical quality of life, physical component score (PCS), and mental quality of life, mental component score (MCS).
- Differences across each tumor type, age at diagnosis category, and gender by race/ethnicity were determined through ANOVA.
- Odds Ratios were calculated for categories with significant differences between each of the four racial/ethnic groups through logistic regression.
- T-tests were used to assess significance of difference between quality of life in male and female AYAs by race/ethnicity.

Results

- In older AYAs, there were significant differences in PCS across racial/ethnic groups (Table 2). Risk of a poor PCS only reached statistical significance in white patients (Fig. 1).
- PCS was significantly for sarcoma AYA patients different across populations (Table 2). This risk was significantly higher for Hispanic survivors (Fig. 1).
- In general, while male AYA patients were found to have a higher risk of poor PCS, they also had a lower risk of poor MCS relative to female AYA patients of the same race/ethnicity (Fig. 2).

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Patient Characteristics	White	Hispanic	Black	Asian
TOTAL (N, %)	1,737 (66.6)	466 (17.9)	241 (9.2)	128 (4.9)
Tumor Type				
Breast	389 (22.3)	138 (29.6)	78 (32.4)	45 (35.2)
Sarcoma	216 (12.4)	51 (10.9)	28 (11.6)	15 (11.7)
Hodgkin's Lymphoma	186 (10.7)	42 (9.0)	22 (9.1)	5 (3.9)
Leukemia	160 (9.2)	60 (12.9)	16 (6.6)	18 (14.1)
Non-Hodgkin's Lymphoma	162 (9.3)	36 (7.7)	26 (10.8)	15 (11.7)
Germ Cell Tumor	120 (6.9)	46 (9.9)	5 (2.1)	4 (3.1)
CNS Tumors	78 (4.5)	9 (1.9)	3 (1.2)	2 (1.6)
Cervical	52 (3.0)	26 (5.6)	14 (5.8)	0
Other	374 (21.5)	58 (12.5)	49 (20.3)	24 (18.8)
Age at diagnosis				
Below 25 years	361 (20.8)	116 (24.9)	45 (18.7)	21 (16.4)
Above 25 years	1376 (79.2)	350 (75.1)	196 (81.3)	107 (83.6)
Gender				
Male	734 (42.3)	196 (42.1)	60 (24.9)	49 (38.3)
Female	1003 (57.7)	270 (57.9)	181 (75.1)	79 (61.7)

Table 1: Patient Characteristics
This table summarizes the patient population by race/ethnicity, quantifying the sample size by tumor type, age at diagnosis, and gender.

	PCS (mean, SD)					MCS (mean, SD)				
	White	Hispanic	Black	Asian	P-value	White	Hispanic	Black	Asian	P-value
TOTAL (N, %)	1,737 (66.6)	466 (17.9)	241 (9.2)	128 (4.9)		1,737 (66.6)	466 (17.9)	241 (9.2)	128 (4.9)	
Tumor Type										
Breast	52.1 (8.4)	50.6 (9.6)	49.9 (8.8)	52.2 (8.8)	0.11	45.7 (10.1)	46.0 (11.2)	48.1 (10.4)	45.8 (9.2)	0.30
Sarcoma	42.8 (11.8)	37.9 (10.4)	40.5 (10.4)	36.4 (12.7)	0.01	49.3 (10.1)	46.1 (11.6)	48.7 (9.6)	48.6 (10.7)	0.26
Hodgkin's Lymphoma	46.0 (11.2)	45.7 (10.0)	41.8 (11.0)	47.0 (10.8)	0.39	48.2 (10.0)	46.7 (10.6)	49.4 (10.8)	52.4 (7.1)	0.56
Leukemia	42.8 (10.9)	41.3 (11.6)	44.6 (11.8)	40.7 (9.8)	0.60	47.4 (10.2)	46.5 (11.2)	47.1 (9.7)	46.9 (10.3)	0.96
Non-Hodgkin's Lymphoma	43.1 (12.6)	44.1 (10.4)	39.0 (13.2)	46.0 (8.1)	0.26	46.5 (10.4)	46.0 (9.8)	47.5 (12.7)	43.5 (10.4)	0.69
Germ Cell Tumor	44.1 (11.2)	44.4 (10.9)	44.6 (10.8)	40.8 (11.5)	0.94	47.9 (10.4)	49.2 (10.1)	39.4 (13.5)	44.0 (4.9)	0.20
CNS Tumors	45.7 (9.9)	42.6 (11.4)	51.7 (5.5)	38.0 (21.2)	0.40	47.9 (10.7)	51.6 (8.0)	53.0 (10.4)	35.5 (0.7)	0.21
Cervical	45.8 (11.7)	42.3 (13.9)	37.5 (13.4)	N/A	0.08	44.2 (11.4)	45.2 (11.7)	43.8 (9.8)	N/A	0.91
Other	43.5 (11.8)	41.7 (11.3)	39.3 (9.9)	46.5 (10.0)	0.03	46.2 (11.0)	48.3 (9.6)	47.6 (10.7)	47.9 (12.3)	0.49
Age at diagnosis										
Below 25 years	43.8 (11.9)	42.9 (10.8)	42.6 (12.0)	41.5 (11.7)	0.74	49.2 (10.4)	47.8 (11.3)	48.8 (10.1)	51.6 (7.4)	0.39
Above 25 years	46.2 (11.3)	45.3 (11.6)	43.8 (11.2)	47.1 (10.8)	0.02	46.4 (10.4)	46.5 (10.6)	47.4 (10.8)	45.4 (10.4)	0.44
Gender										
Male	44.6 (11.6)	43.1 (10.5)	42.3 (11.2)	42.1 (11.2)	0.10	48.9 (10.3)	47.6 (10.5)	51.4 (10.0)	45.9 (10.9)	0.02
Female	46.5 (11.3)	45.9 (12.0)	44.0 (11.4)	48.7 (10.3)	0.01	45.6 (10.4)	46.2 (10.9)	46.4 (10.6)	46.8 (9.8)	0.52

Table 2: Physical Component Scores (PCS) and Mental Component Scores (MCS)
This table summarizes the recorded PCS and MCS patient population by race/ethnicity, quantifying the sample size by tumor type, age at diagnosis, and gender.

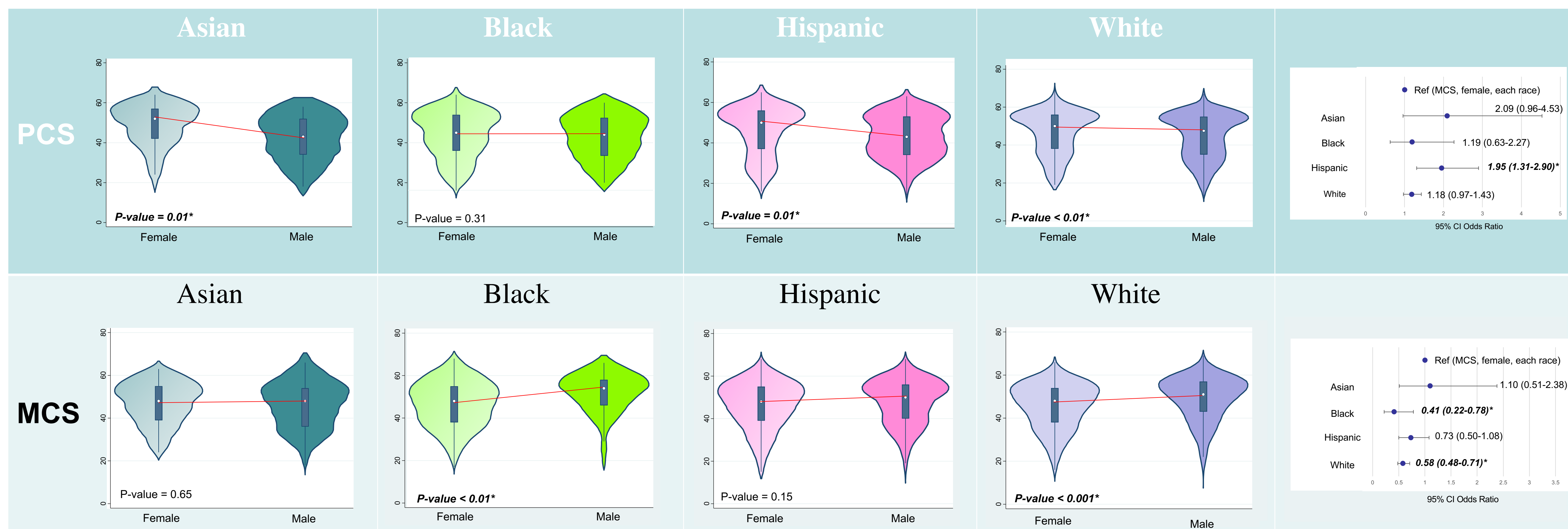


Figure 2: MCS and PCS by Gender
This graph depicts the differences in MCS and PCS in female AYA patients and male AYA patients by race/ethnicity. The top row corresponds to PCS in Asian, Black, Hispanic, and White AYAs respectively and the bottom row corresponds to MCS in Asian, Black, Hispanic, and White AYAs respectively. The last column reflect the odds ratio of poor PCS and MCS by gender in each racial and ethnic group.
* corresponds to a statistically significant Odds Ratio (p-value < 0.05)

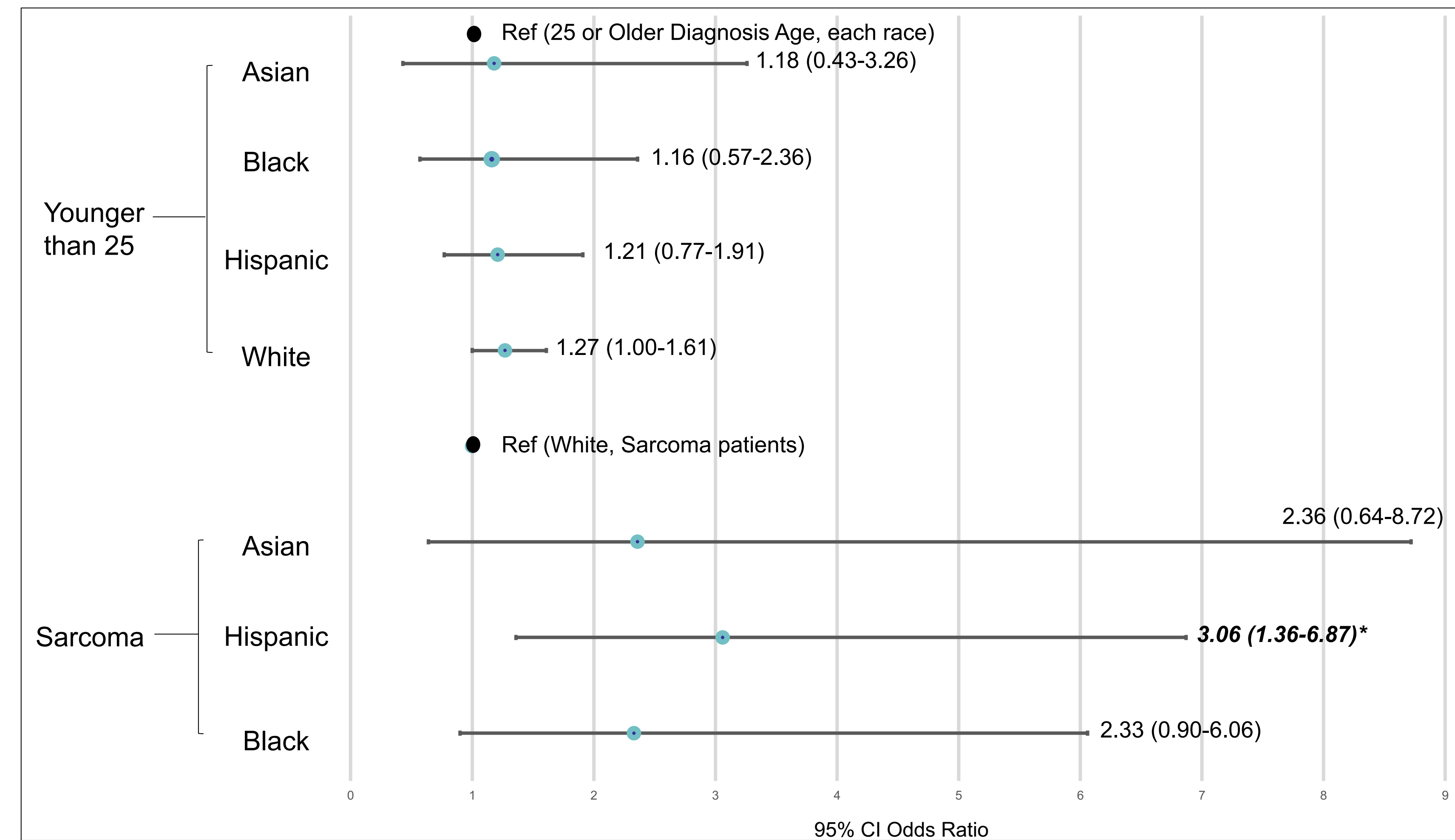


Figure 1: Mediators of Poor Quality of Life
This forest plot indicates the odds ratio of poor physical and mental quality of life, as indicated by a PCS and MCS score below 50, respectively.
* corresponds to a statistically significant Odds Ratio (p-value < 0.05)

Conclusions

- Findings may inform future efforts to reduce racial and ethnic disparities in health-related quality of life among AYA cancer survivors.
- Results highlight sarcoma tumors, gender, and age at diagnosis as significant mediators of poor HRQoL by race/ethnicity.