

# Demographic and Health Correlates of T/S Ratio Among Adolescents

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## Introduction

- Telomere length (TL) is proposed to play a mechanistic role in how the exposome impacts long-term health outcomes.
- Little is known about TL during adolescence, a developmental period during which early indicators of adult-onset health problems often emerge.
- The current study documents associations between commonly assessed demographic variables and salivary TL among a large sample of adolescents.

## Method

### Participants

Adolescents 11-17 years of age (47% male) and their primary caregiver ( $N = 899$ ).

### Procedure:

- Monoplex qPCR quantified TL of genomic DNA extracted from passive drool saliva.
- Youth and caregivers completed questionnaires.

### Measures:

- Demographics: Age, sex, race, family income, marital status, season of collection, caregiver age.
- Health: Diagnosed medical conditions, medication use, tobacco exposure.

### Analytic Method:

- Relative T/S ratio was calculated according to Pfaffl (2001) and corrected for well effects. T/S ratios were mean centered, scaled, and winsorized.
- Regression analyses followed multiple imputation.

## Results

Table 1. Demographic variables tested with T/S ratio

Variable	$\beta$	SE	p
Age	-0.033	0.017	.047
Race			
White	Reference	Reference	Reference
Black	0.605	0.074	< .001
Sex			
Female	Reference	Reference	Reference
Male	0.087	0.060	.146
Caregiver age	0.007	0.004	.086
Annual household income			
< \$30,000	Reference	Reference	Reference
\$30,000 - \$60,000	0.186	0.083	.025
> \$60,000	0.156	0.093	.093
Caregiver marital status			
Married	Reference	Reference	Reference
Single	-0.117	0.104	.258
Cohabiting	0.055	0.116	.635
Other (separated, divorced, widowed)	-0.124	0.095	.189
Tobacco use in previous year (yes/no)			
No	Reference	Reference	Reference
Yes	-0.036	0.155	.816
Household tobacco smoke exposure (yes/no)			
No	Reference	Reference	Reference
Yes	0.003	0.077	.972
Health diagnosis (yes/no)			
No	Reference	Reference	Reference
Yes	-0.084	0.062	.177
Prescription and steroid medication (yes/no)			
No	Reference	Reference	Reference
Yes	-0.179	0.127	.158
Season of saliva collection			
Autumn/Winter	Reference	Reference	Reference
Spring/Summer	-0.230	0.060	< .001

Figure 2. T/S ratio differs by season of collection

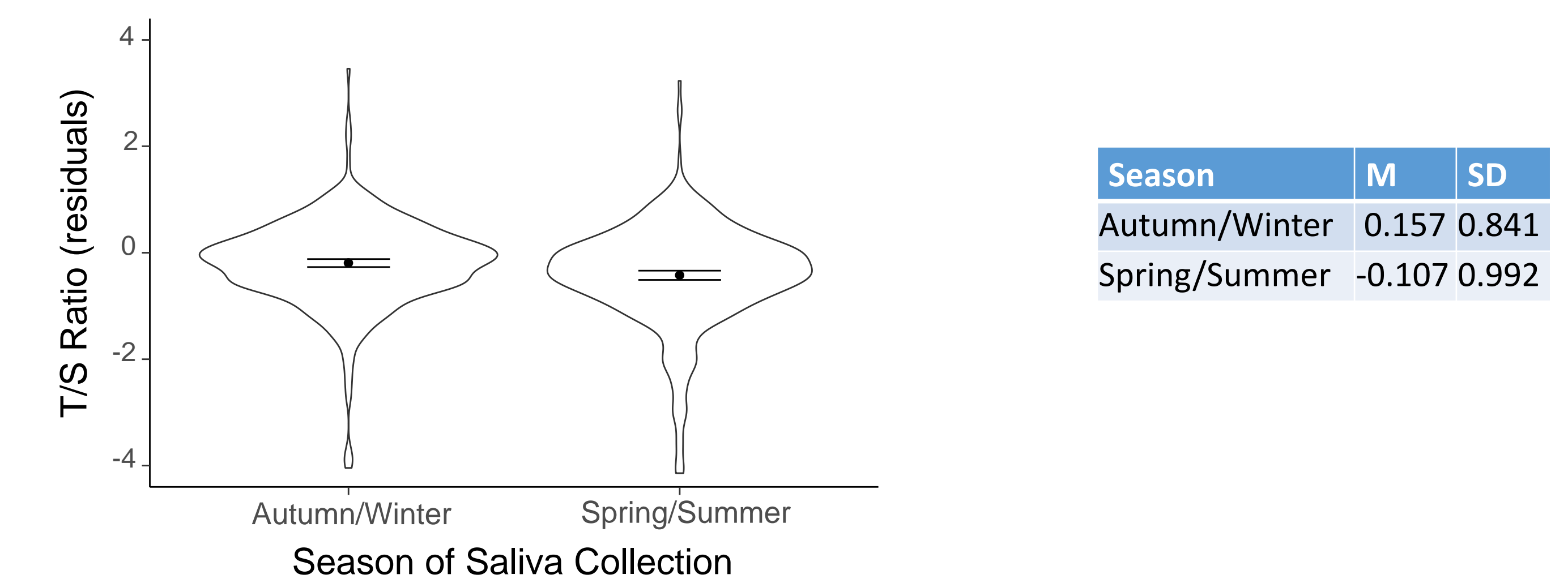


Figure 3. T/S ratio is larger for Black youth

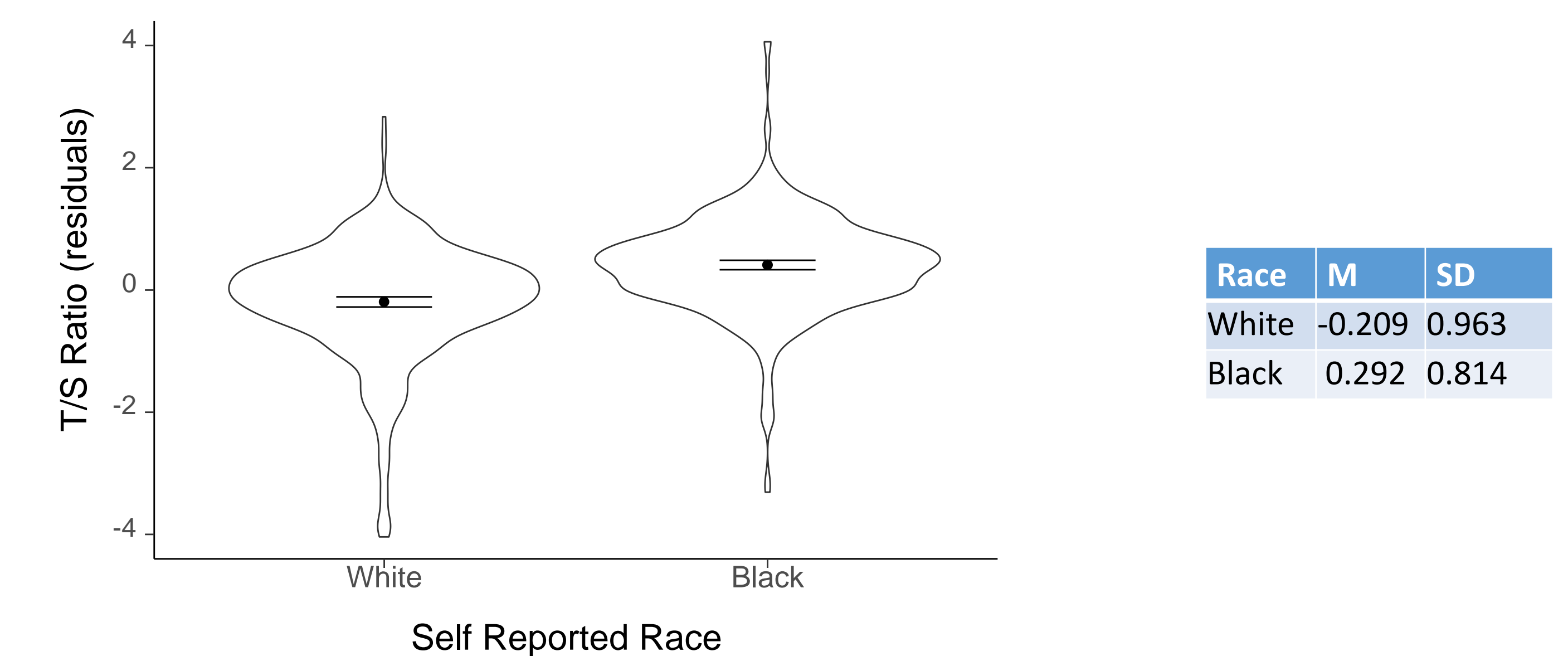
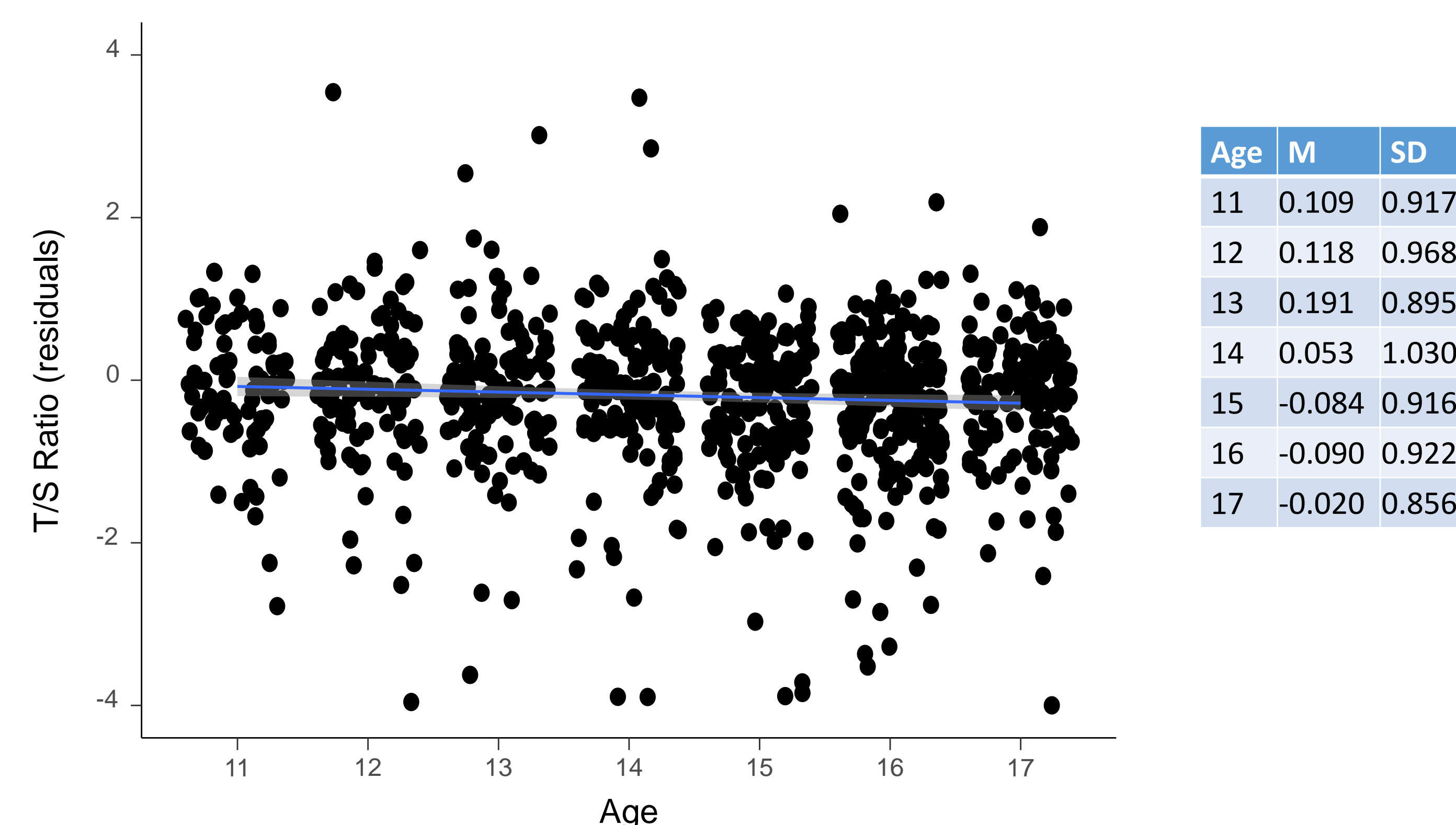


Figure 1. T/S ratio is inversely related to age



## Discussion

- Similar to adults, chronological age was negatively associated with TL among adolescents. TL also differed by family income, race, and season of collection.
- No effects were observed for other youth health indicators or caregiver demographics.
- These results elucidate the impact of the exposome on TL by identifying demographic variables associated with adolescent TL.