

# **Demographic differences in barriers to active commuting to three local destinations in children**

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# Background

- Time spent in active commuting can contribute significantly to youth physical activity levels.
- There are, however, demographic disparities in barriers and access to safe routes to local destinations.
- Obesity, diabetes and activity levels in children also vary by demographic groups.
- Studies have focused on active commuting to school and ignored other local destinations such as parks and shops.

# Objective

- Based on an ecological model of behavior, the present study investigated demographic differences in environmental and psychosocial barriers to active commuting to three local destinations in youth aged 5-18.

# Methods

- Parents of children aged 5-18 were recruited from neighborhoods varying in income and walkability in 3 cities in the US.
- Participants were recruited by mail, phone and in person.
- Participants completed a survey on 2 occasions approximately 2 weeks apart.
- Average response rate was 47%.

# Environment Measures

- The survey included new measures of barriers to active commuting to a local park, shop, or school.
- Factor analyses indicated three subscales that applied across all three destinations.
  - The safety factor included crime, safe bike storage, and stray dogs.
  - The environment factor included hills, sidewalks, traffic, lighting, and protected street crossings.
  - The psychosocial factor included getting sweaty, too much to carry, planning efforts, ease of driving, and peer behavior.
- Subscales demonstrated good test-retest and inter-item reliability and construct validity (Forman, Kerr at al. Prev Med 2008).
- For these analyses, scores were dichotomized around the mean

# Demographic measures

- Parents indicated:
  - the race of their child
    - Dichotomized to non Hispanic White or not
  - the age of their child
    - Dichotomized to 5-11 and 12-18
  - the gender of their child
  - their annual household income
    - Dichotomized to \$50,000+ and <\$50,000
  - their education level
    - Dichotomized to College degree or not

# Physical Activity Measures

- If a park or shop was within a 15 minute walk parents reported whether their child walked or biked to that destination at least once a week.
- For schools the distance was extended to a 30 minute walk.
- Only those who lived within walking distance of these destinations were analyzed.

# Analyses

- Chi square tests were used to assess demographic differences in barriers and activity levels.
- Logistic regression analyses were employed to test for interactions between demographic characteristics and barriers in predicting activity levels, while controlling for other demographic variables



# Participants N=289

	%
<b>Child's race</b>	
Non Hispanic White	51.9
Other	48.1
<b>Child's age</b>	
5-11 years	40.4
12-18 years	59.6
<b>Child's gender</b>	
Boys	47.7
Girls	52.3

	%
<b>Household income</b>	
\$50,000+	61.0
<\$50,000	39.0
<b>Parent education</b>	
College degree or more	49.4
Less than college degree	50.6

# Results

- 86% of children lived within a 15 minute walk to a park
- 80% within 15 minute walk to shops
- 55% within a 30 minute walk to school
- Among these children,
  - 66% walked/cycled to the park
  - 63% to shops
  - 42% to school

# Active Commuting

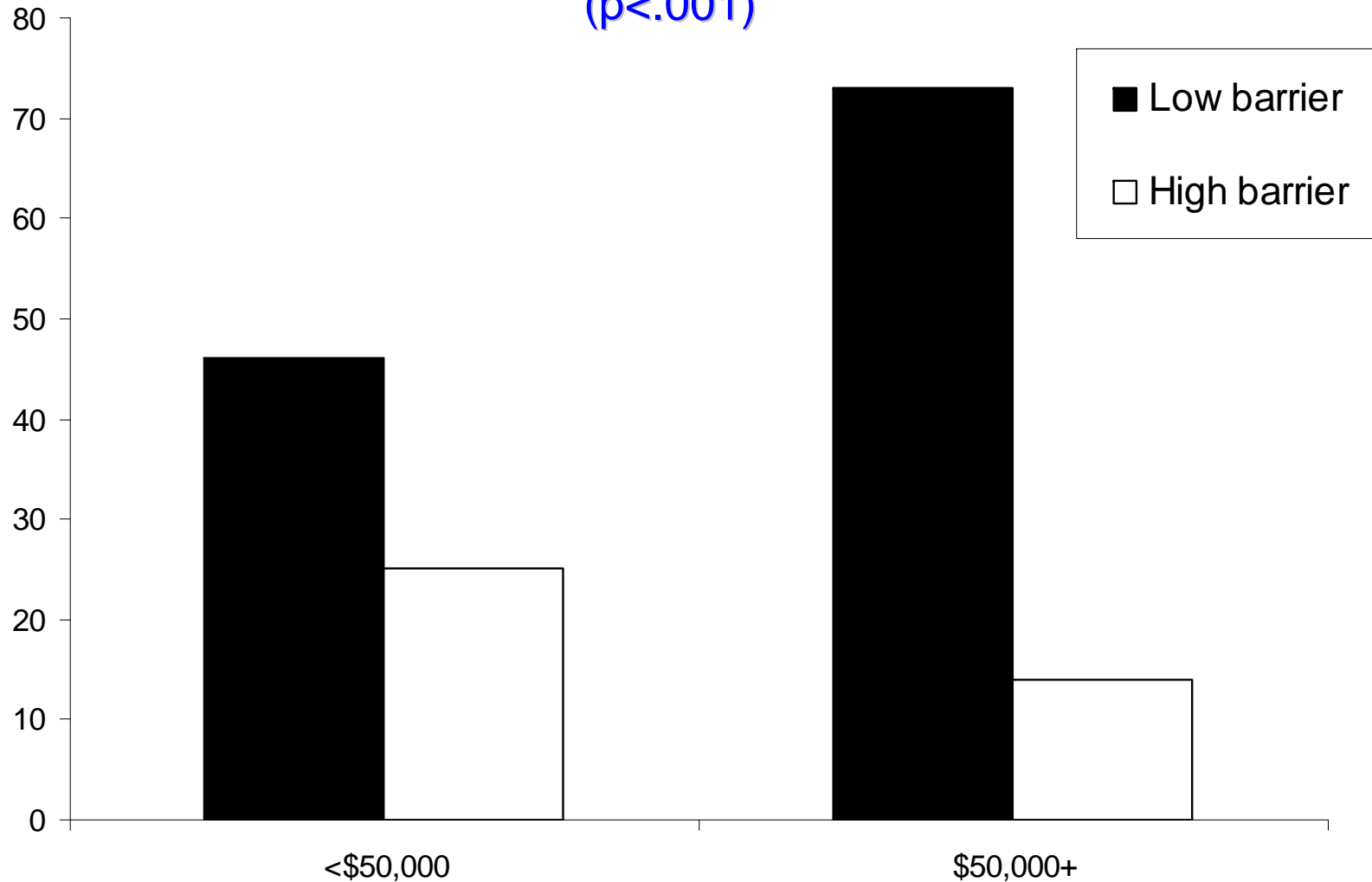
	Shops	Park	School
Age	+		
Gender			
Race/ethnicity			
Income		-	
Education	+		

# Commuting barriers

	Shops	Park	School
Age	<b>Environ ▼</b>	<b>Environ ▼</b>	<b>Psych ▲</b>
Gender			
Race/ethnicity	<b>Safety ▼</b>	<b>Safety ▼</b>	<b>Safety ▼</b>
Income	<b>Safety ▼</b>	<b>Safety ▼</b>	<b>Safety ▼</b>
Education	<b>Safety ▼</b>	<b>Safety ▼</b>	<b>Safety ▼</b>

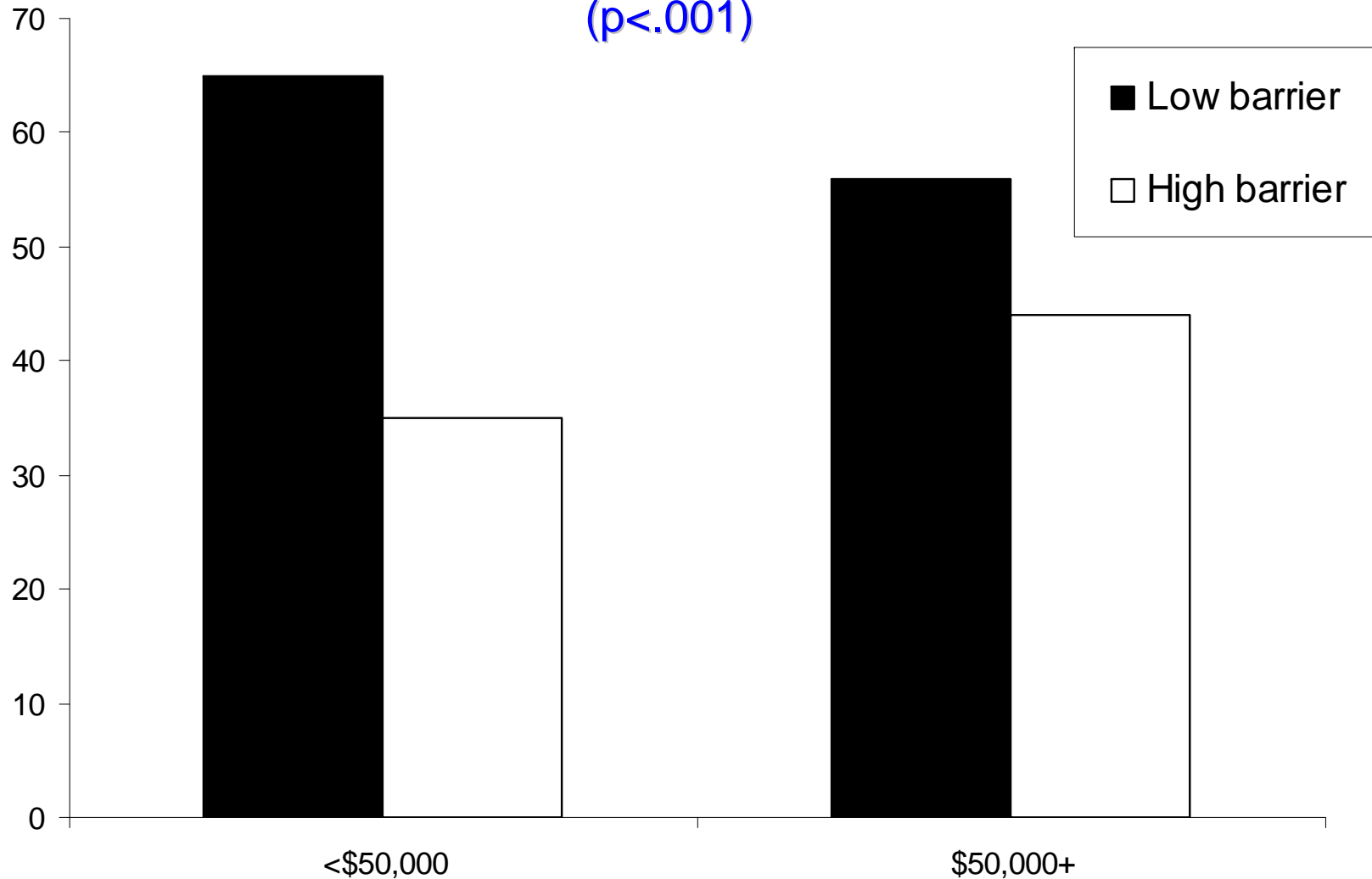
# % walk/bike to school x environment barrier x income

(p<.001)



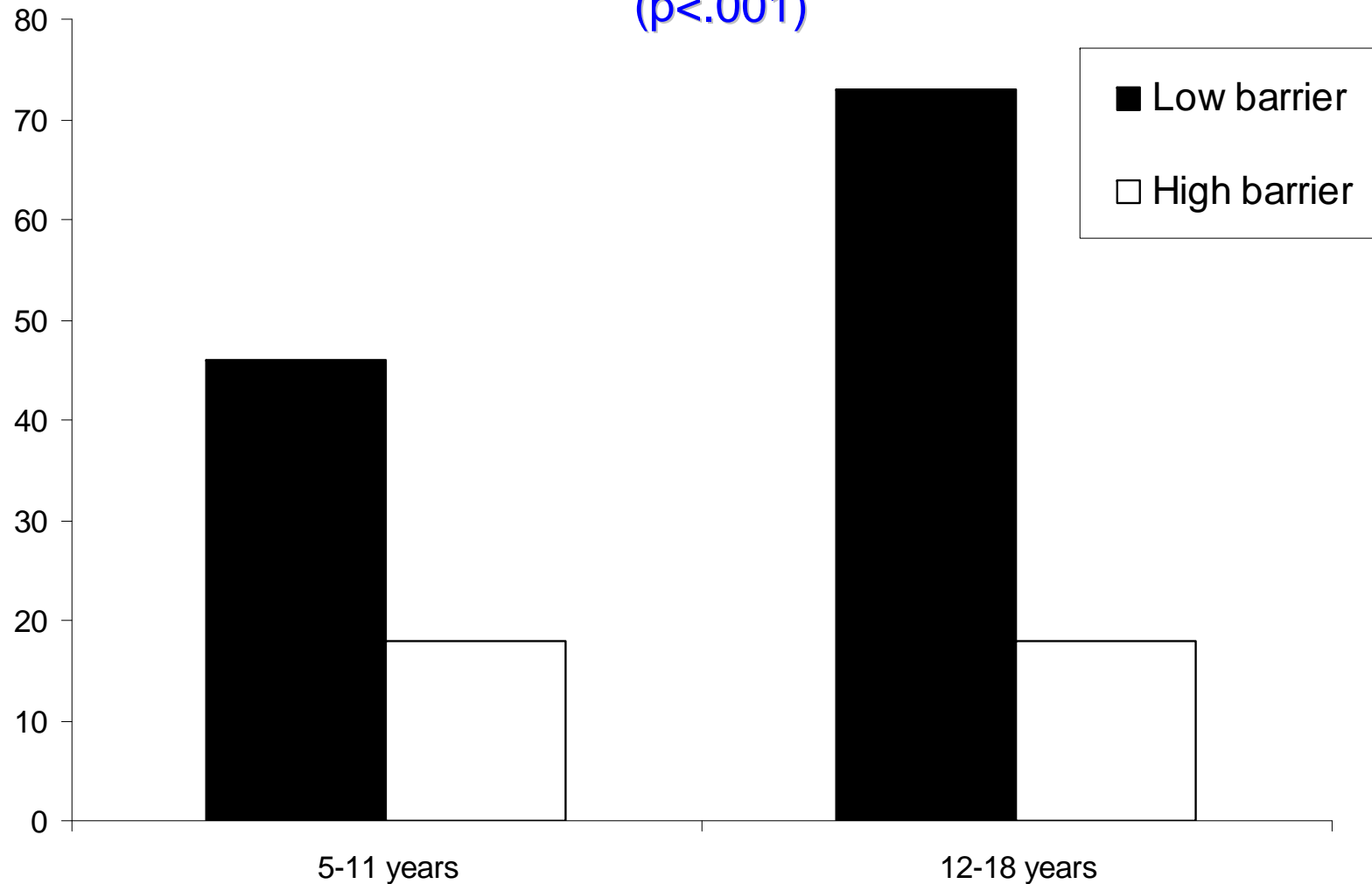
# % walk/bike to park x environment barrier x income

(p<.001)



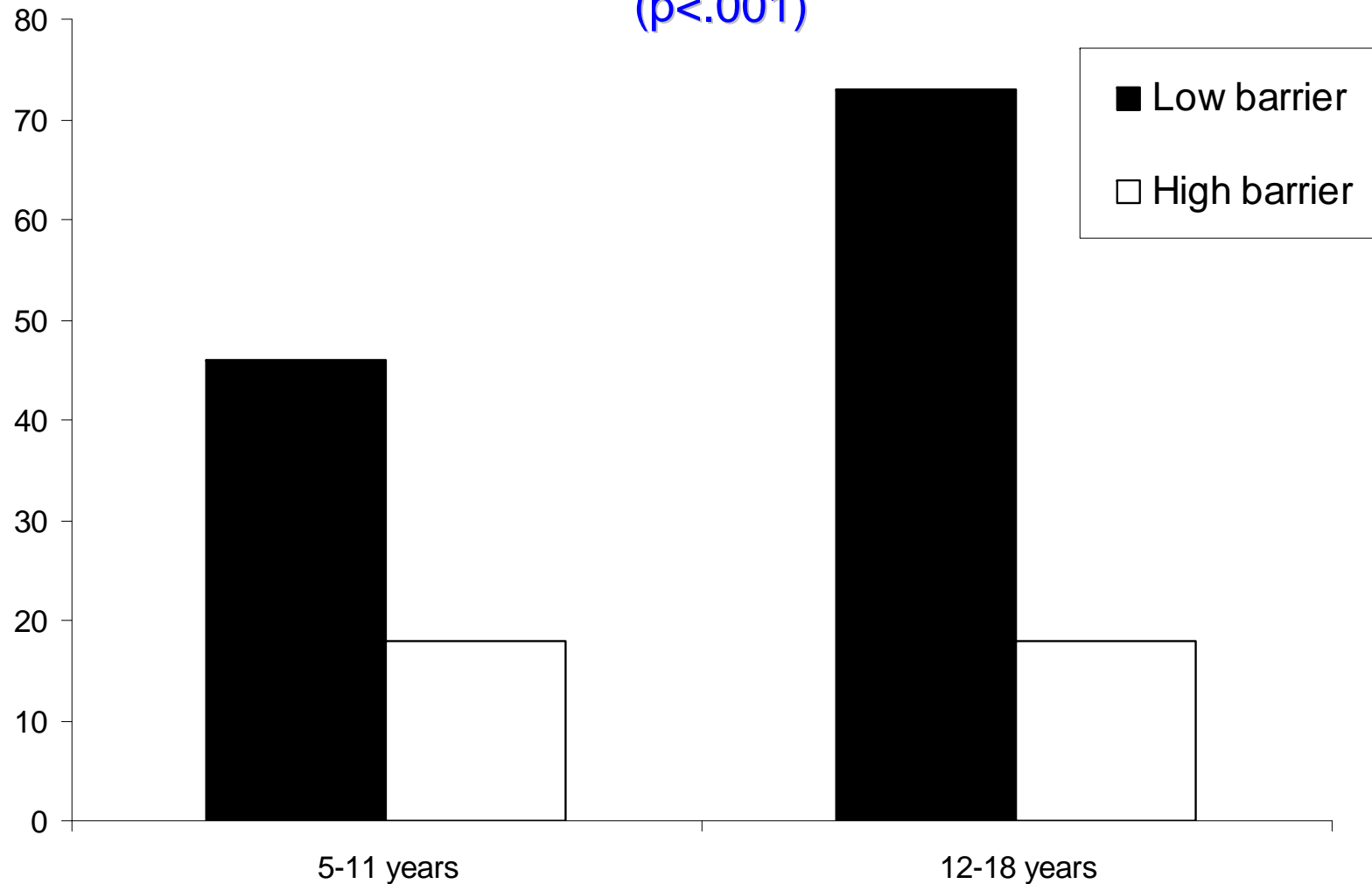
# % walk/bike to school x psychosocial barrier x age

( $p < .001$ )



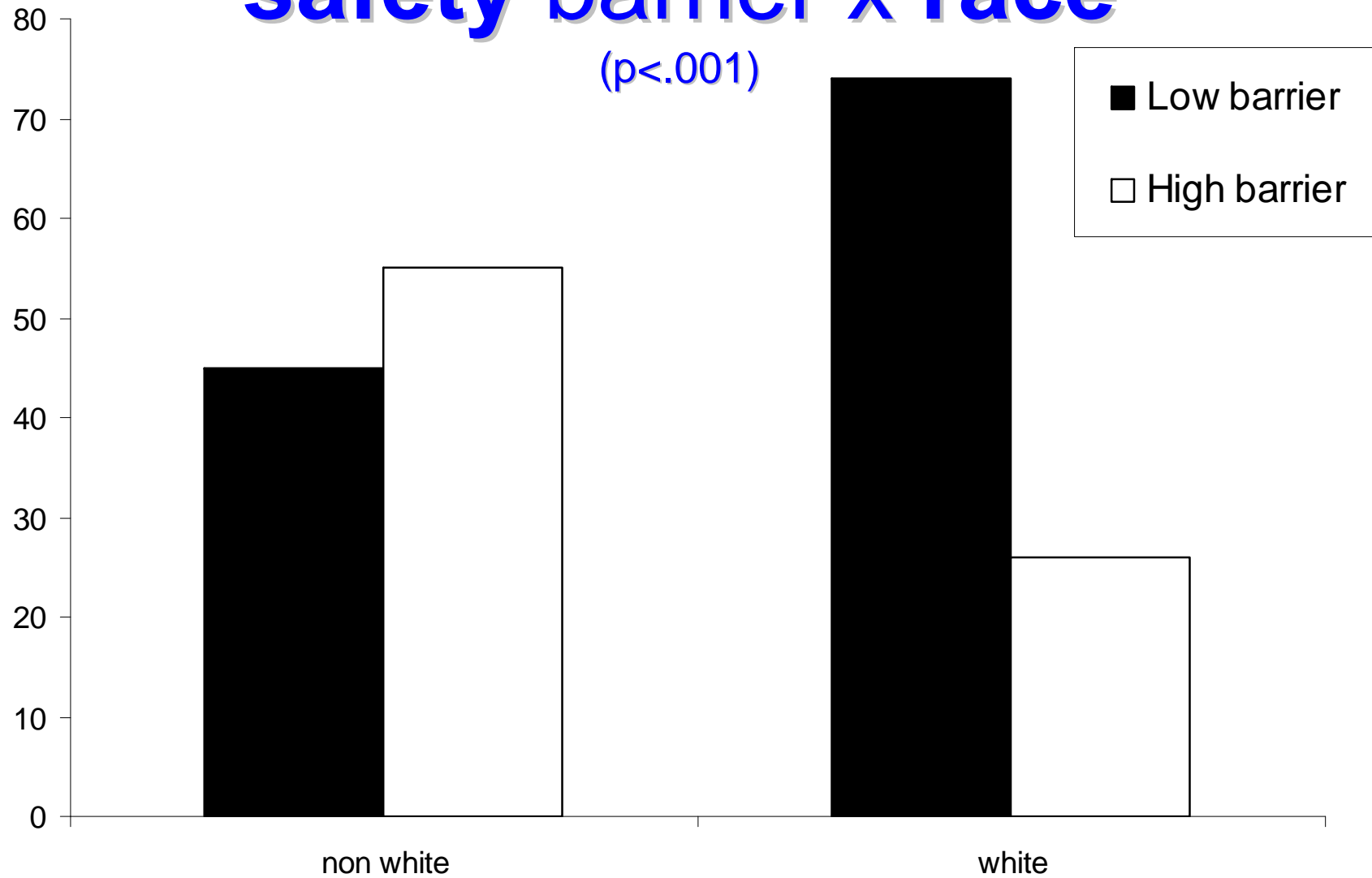
# % walk/bike to park x environment barrier x age

( $p < .001$ )





# % walk/bike to shop x safety barrier x race



# Conclusions

- Present findings show that the relationship between barriers and active commuting vary by demographics and destination.
- Evidence of disparities was consistent, with white, high-income and high-education parents reporting fewer safety concerns to all 3 destinations
- Adolescents' active commuting to school and park was more strongly related to barriers than was younger children's commuting behavior, so interventions may have greater effect on adolescents, who tend to be reducing their activities levels.

# Conclusions cont.

- Specific measures of behavior and barriers to behavior in specific locations are important