

ASSOCIATIONS OF COVID-19-RELATED CHANGES ACROSS DOMAINS OF CHILDREN’S PHYSICAL ACTIVITY AND DEMOGRAPHIC CHARACTERISTICS



Leigh Ann Ganzar, DrPH, MPH¹, Sarah Bentley, MPH¹, Casey Durand, PhD, MPH¹, Deborah Salvo, PhD², Harold W. Kohl, III, PhD¹, Deanna M. Hoelscher, PhD, RDN¹

- 1. Michael & Susan Dell Center for Healthy Living, UTHealth School of Public Health in Austin, Texas, USA
- 2. Washington University, Brown School, Prevention Research Center in St. Louis, Missouri, USA

INTRODUCTION

- COVID-19-related restrictions have affected many health behaviors such as stay-at-home orders and school closures.
- Children’s physical activity has been impacted on multiple levels by the COVID-19 pandemic:
 - Lack of social interaction with peers
 - Increased screen time due to virtual learning
 - Closing of recreational facilities
- Study objectives:** to assess parent-perceived changes in physical activity among children ages 9 – 11 years old during the pandemic (fall 2020), and to determine bivariate associations between changes in physical activity and demographic characteristics.

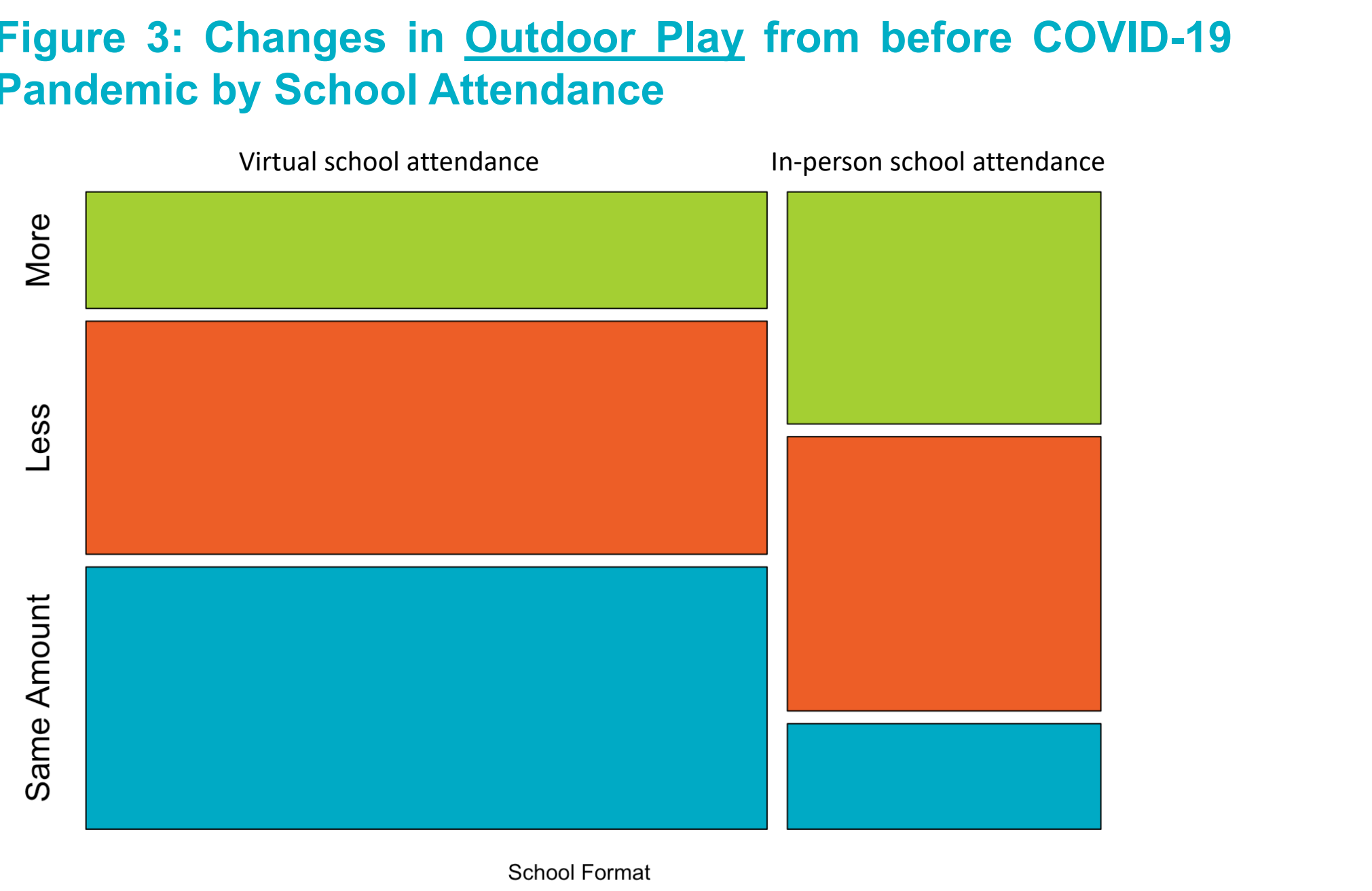
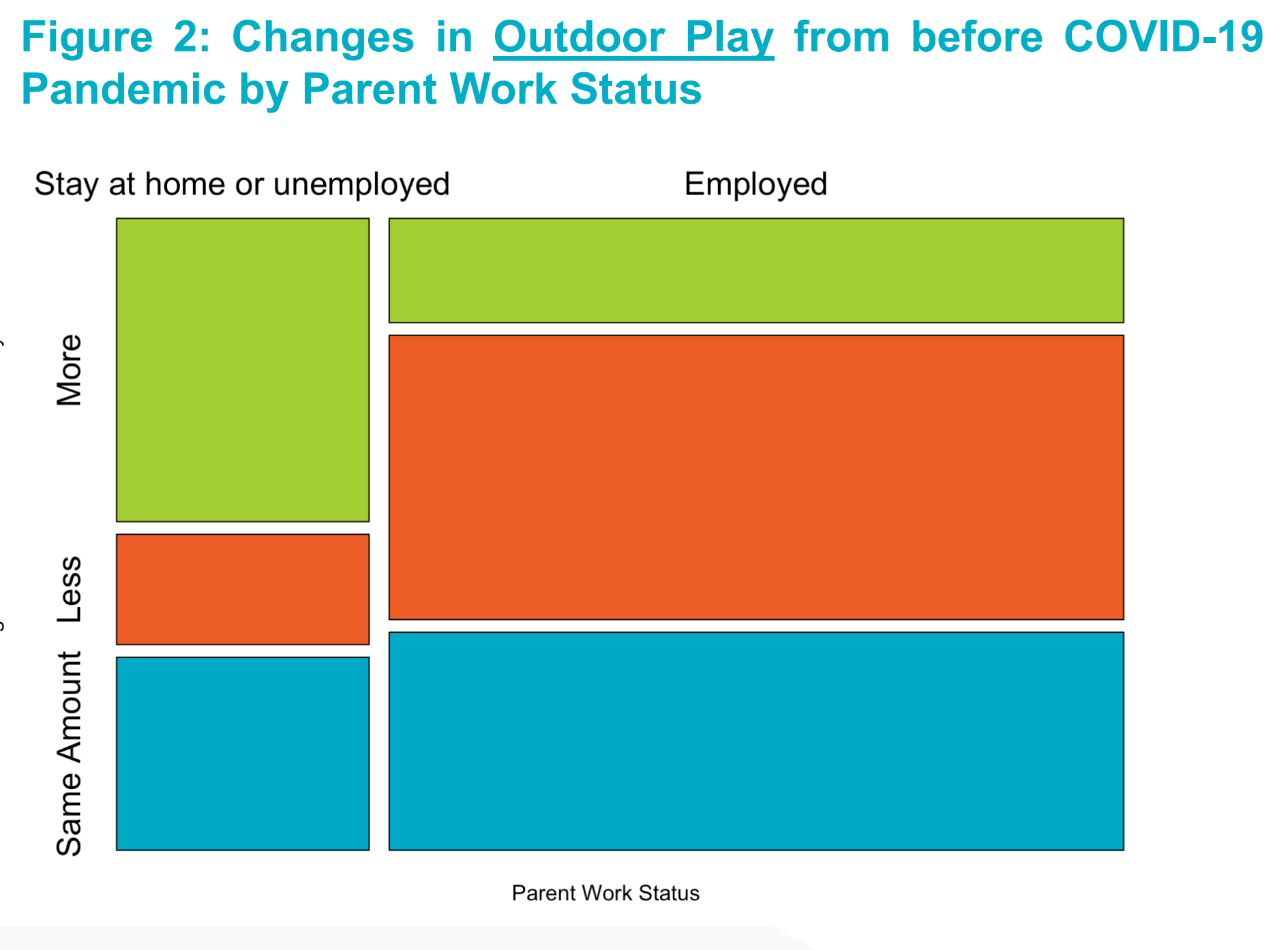
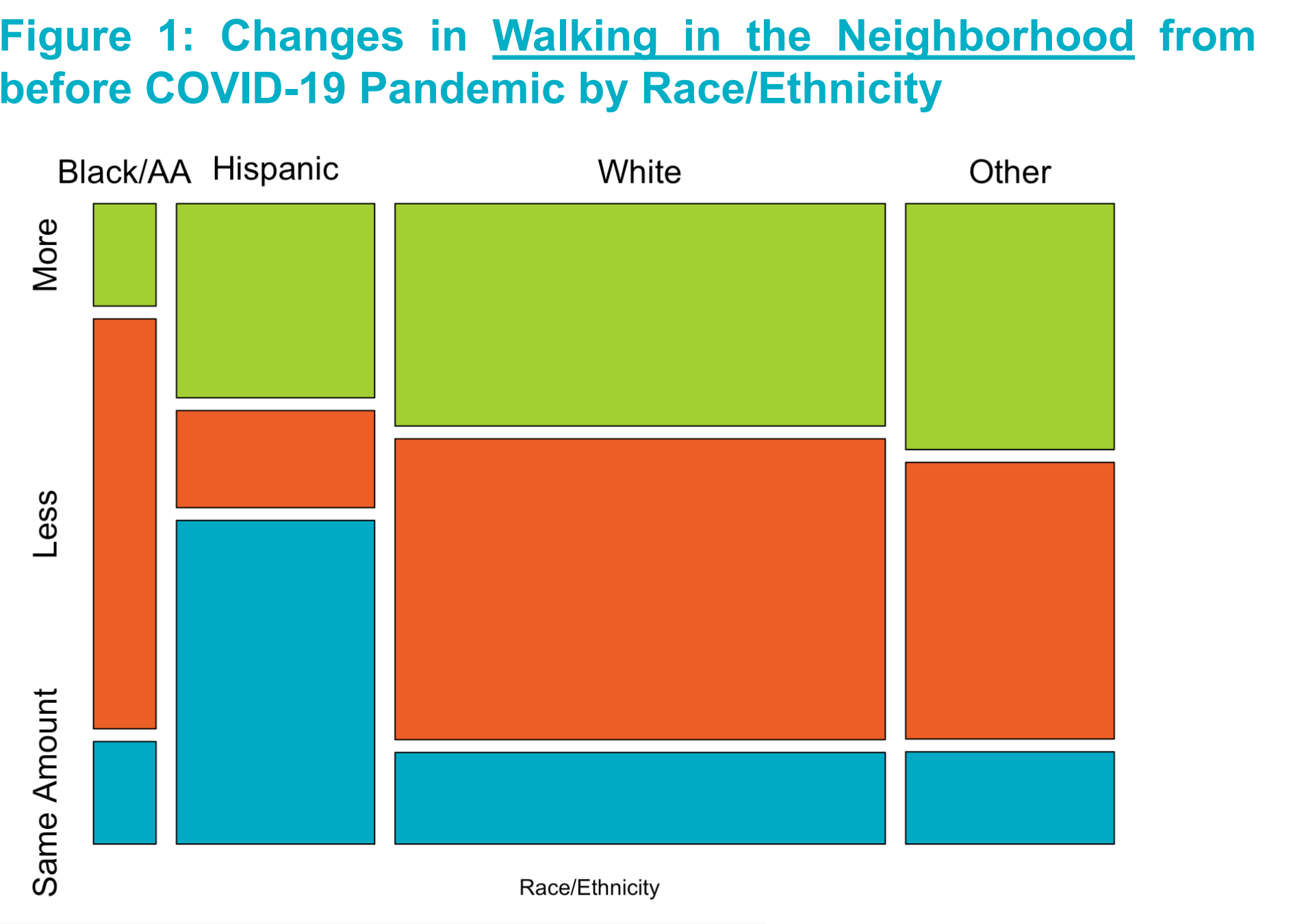
METHODS

- Study Design and Participants :** Parents of elementary school students in Central Texas participating in the Safe TRavel Environment Evaluation in Texas Schools (STREETS) cohort study completed a survey during the 2020 – 2021 school year (during the COVID-19 pandemic).
- Independent Variable:** Demographic factors assessed included parent self-report of child age, child gender, child race/ethnicity, parent employment status, household educational attainment as a proxy for socioeconomic status, and child school format.
- Dependent Variables:** Changes in physical activity were assessed through parent self-report of whether their child has more, less, or the same amount of the following:
 - Walking in the neighborhood
 - Biking in the neighborhood
 - Active play indoors
 - Outdoor play
 - Other leisure time physical activity
- Statistical Methods:** Chi square tests of independence were run to assess the bivariate association between each demographic factor and changes in each domain of physical activity. Significance level was set at p<0.05. All analyses conducted in R.

RESULTS

	Percentage N=112
Child age in years	
9	28.9
10	54.2
11	16.8
Child sex	
Male	51.2
Female	48.8
Child race/ethnicity	
White, non-Hispanic	46.1
Hispanic/Latino	26.5
Black/African American	6.9
Multiple race/ethnicity or other	20.5
Household educational attainment	
Less than high school	8.2
High school or GED	10.3
Some college	6.2
College degree	32.0
Graduate or professional degree	40.1
Parent work status	
Employed	74.7
Stay at home parent or unemployed	25.3
School format	
In-person school attendance	31.8
Virtual school attendance	68.2
Changes in walking in neighborhood	
More during COVID-19	41.9
Same amount as before COVID-19	34.4
Less during COVID-19	23.7
Changes in biking in neighborhood	
More during COVID-19	42.7
Same amount as before COVID-19	35.4
Less during COVID-19	21.9
Changes in active indoor play	
More during COVID-19	43.6
Same amount as before COVID-19	39.4
Less during COVID-19	17.0
Changes in outdoor play	
More during COVID-19	40.2
Same amount as before COVID-19	25.0
Less during COVID-19	34.8
Changes in other leisure physical activity	
More during COVID-19	25.3
Same amount as before COVID-19	44.8
Less during COVID-19	29.9

- Bivariate associations of demographic factors and changes in each domain of physical activity**
- Child age:** There were no significant differences in changes in physical activity across children of different ages.
 - Child sex:** There were no significant differences in changes in physical activity between males and females.
 - Child race/ethnicity:** There were significant differences in changes in walking in the neighborhood between racial/ethnic groups (Figure 1)
 - Household educational attainment:** There were no significant differences in changes in physical activity across levels of household education attainment
 - Parent work status:** There were significant differences in changes in outdoor play (Figure 2) between children who had parents who were employed compared to those who were stay-at-home parents or unemployed.
 - School format:** There were significant differences in changes in outdoor play (Figure 3), and other types of physical activity across school attendance format of the children.



CONCLUSION & NEXT STEPS

- Discussion**
 - There are differences in the changes in walking in the neighborhood by race/ethnicity, with Black/African American children being more likely to engage in less walking compared to before the COVID-19 pandemic.
 - Children who have parents who are not employed were more likely to engage in more outdoor play compared to before the COVID-19 pandemic.
 - Children who attend school in-person more likely to engage in more outdoor play compared to before the COVID-19 pandemic.
- Limitations**
 - Parent self-report of changes in physical activity
 - Attrition bias due to which participants responded to communication about participating in this measurement period.
 - Incomplete dataset due to the winter storm in Austin, TX and the related closures, power outages, and mail disruptions.
- Next Steps and Future Research**
 - These findings suggest that changes in children’s physical activity differs by demographics due to the COVID-19 pandemic. Future research should address physical activity promotion strategies to diminish these differences.