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National and Tennessee Trends in the Prevalence of Obesity and Overweight among High School Students Using YRBS Data 1999-2019

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National and Tennessee Trends in the Prevalence of Obesity and Overweight among High School Students Using YRBS Data 1999-2019

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BACKGROUND

Adolescent obesity and overweight in the US continue to be a serious public health issue. Youth obesity and overweight are associated with increased health risks and healthcare utilization costs and have steadily climbed since the 1990s. The national Youth Risk Behavior Survey (YRBS) is administered bi-annually to a representative sample of high school students enrolled in public and private schools throughout the US and is publicly accessible for study.

OBJECTIVES

The purpose of this study is to examine risk trends of youth obesity and overweight over 20 years (1999-2019) on a national scale, as well as specifically within the State of Tennessee.

METHODS

Study Population: Data from the 2019 Youth Risk Behavior Surveillance System (YRBS), a biannual cross-sectional survey administered to students of 181 public and private schools in all 50 states of the nation to collect information about obesity and overweight. Data was collected via a self-reported questionnaire validated by CDC to define study variables. Statistical analyses were performed using SAS 9.4 and SUDAAN 11.0.3. Linear trend analyses was conducted to examine disparities and risk trends of obesity and overweight prevalence stratified by age and race. Overweight is defined as a BMI at or above the 85th percentile and below the 95th percentile for children and teens of the same age and sex. Obesity is defined as a BMI at or above the 95th percentile for children and teens of the same age and sex.

KEY FINDINGS

Overall, there were 161,606 cases included in our sample representing 20 years of YRBS survey data. The obesity prevalence of high school students in the US increased 2.38% from 1999 to 2005, decreased 1.15% from 2005-2009, then increased 3.65% thereafter. Over the two decades, youth obesity rates significantly increased (~5%) in the US, based on results of the Cochran-Armitage trend test ($Z=16.10$, $P<0.0001$). In Tennessee specifically, obesity prevalence increased 0.67% from 2003 to 2007, decreased 1.63% from 2007 to 2011, and increased 5.69% thereafter, representing a significant linear increase of 5.81% over 16 years from 2003 onward ($Z=81.91$, $P<0.0001$). Results indicate while obesity rates have increased nationally among high school students overall since 2003, youth obesity rates within Tennessee consistently have remained above the national average. Little difference between the United States and Tennessee was found when comparing the age of high school obesity rates. In terms of race, African American has the highest overall obesity and overweight prevalence while Other races and White have the lowest overall obesity and overweight prevalence respectively.

CONCLUSION

Except for Hispanics from 2003 to 2009, a higher prevalence of youth overweight or obesity among each race were seen in Tennessee each year and except for 2003, there was a higher prevalence of both males and females in Tennessee who were overweight or obese each year. While national rates increased over the 20 years, the increase was higher in TN. Rising obesity in the US is a public health crisis. Obesity is a grave public health threat, more serious even than the opioid epidemic or covid19. Obesity-related prevention research should be a priority because there are high costs to individuals and states due to the burden and health care costs the condition presents.

RESULTS

Figure 1: National & Tennessee Obesity and Overweight Prevalence Among High School Students

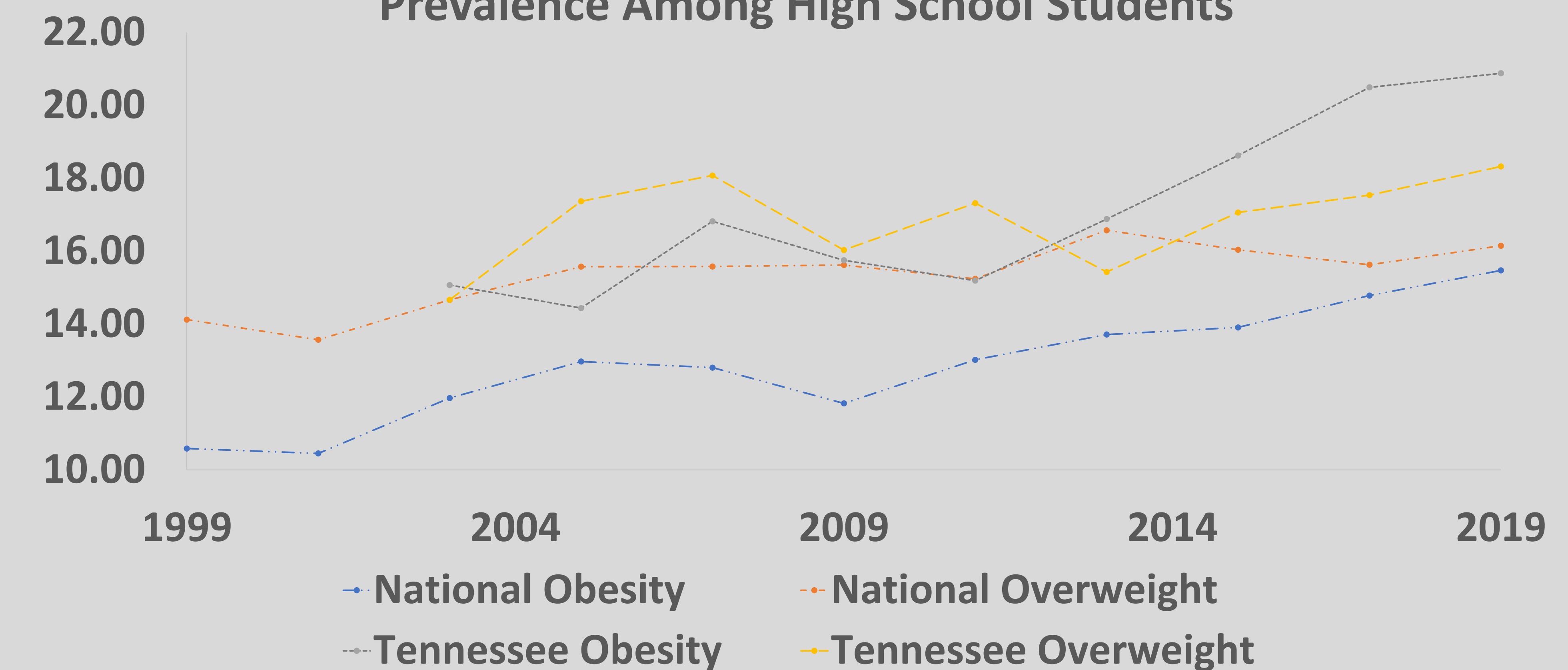


Figure 2: National Obesity Prevalence by Race Among High School Students

