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5-2014

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### Recommended Citation

Schober, Lee, "Soccer Participation and Youth Obesity in the United States" (2014). *Chancellor's Honors Program Projects*.

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# Soccer Participation and Youth Obesity in the United States

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## ABSTRACT

Soccer has been one of the fastest growing youth sports in the United States and is an excellent opportunity for adolescents to meet the recommended 60 minutes a day of aerobic physical activity, a level that may reduce the risk of developing obesity. **PURPOSE:** To determine whether a relationship exists between soccer capitalization rates and the prevalence of overweight and obesity among youth at the state-level in the United States. **METHODS:** Adolescent overweight/obesity data was obtained from the 2011 National Survey of Children's Health (NSCH). Soccer capitalization, a reflection of participation levels, was captured from a 2010 Youth Soccer report. Correlations, ANOVAs, and multiple regression were used to examine relationships and differences at the regional level of the US. **RESULTS:** States in the US had a mean obesity rate of 31.0% (SD=4.2) and a SC rate of 36.9% (SD=19.2). The two measures were moderately correlated,  $r(48) = -.39$  ( $p=0.005$ ) and shared 15.5% of the variance. There was a significant effect of US region within overweight/obesity [ $F(2, 44) = 11.71$ ,  $p < 0.000$ ] and SC rates [ $F(2, 44) = 7.68$ ,  $p < 0.000$ ]. The Southern region, compared to other regions, had significantly higher obesity rates (35.2%) and the Northeast region had significantly higher SC rates. The interaction of region and SC explained a significant proportion of variance in overweight/obesity rates,  $R^2 = .367$ ,  $F(3,44) = 8.5$ ,  $p < .001$ . **CONCLUSION:** Soccer capitalization is related to obesity at the state-level in the US. This research supports participation in soccer as a potential physical activity for addressing the adolescent overweight and obesity problem in the US.

## INTRODUCTION

Adolescent obesity is a growing problem in the U.S. In the past 30 years, the number of obese adolescents has quadrupled, leading to more than one-third of adolescents in the U.S. being overweight or obese. The cause of this growing number is a combination of genetic and environmental factors; however, weight gain can be limited by implementing a healthy lifestyle, including physical activity.<sup>1-2</sup>

The Physical Activity Guidelines for Americans suggest that adolescents participate in 60 minutes or more of physical activity daily, including moderate or vigorous physical activity as well as muscle strengthening and bone-strengthening exercises. Participating in such physical activity during adolescence reduces the risk of developing obesity, as well as other diseases such as heart disease and diabetes.<sup>3</sup> However, only one-fourth of children meet these guidelines.<sup>4</sup>

Soccer is a model sport for physical activity because of the combination of moderate and vigorous physical activity and bone-strengthening exercises required to play. In 2010, soccer was recognized as the fastest growing major sport for youth in the United States.<sup>5</sup> However, soccer participation rates have stabilized recently in the US with 7.1% of youth reporting currently playing organized soccer.<sup>6</sup> Soccer capitalization is a new state-level measure reflecting a ratio of the actual participation levels by the potential numbers of youth who could play soccer based on proximity to school and club resources.<sup>7</sup>

## PURPOSE

To determine whether a relationship exists between soccer capitalization rates and the prevalence of overweight and obesity among youth at the state-level in the United States.

## METHODS

**Data:** This secondary data analysis study utilized several national datasets to answer the research question. The following data were utilized.

1. Adolescent overweight/obesity state prevalence: This data was obtained from the 2011 National Survey of Children's Health (NSCH). The NSCH obtains a parent-reported height/weight of children 10-17 years of age. BMI-for-age and gender were used to classify children as overweight or obese (85<sup>th</sup> percentile or higher).<sup>8</sup>
2. Soccer capitalization (SC): This data was obtained from a 2010 Youth Soccer report.<sup>7</sup> Data for SC was calculated by comparing actual soccer participation rates with potential numbers of youth who could play soccer based on proximity to school and club resources.
3. Census regions: Using guidance from the Census Bureau, states were classified in region: West, Midwest, Northeast, and South.<sup>9</sup>

**Statistical Analyses:** Correlations, ANOVAs, and multiple regression in SPSS were used to examine relationships and differences at the regional level of the US.

## RESULTS

States in the US had a mean obesity prevalence rate of 31.0% (SD=4.2) and a SC rate of 36.9% (SD=19.2).

- ❑ The state prevalence rates for overweight/obesity and SC were found to be moderately correlated,  $r(48) = -.39$  ( $p=0.005$ ) and shared 15.5% of the variance. (See Figure 1)
- ❑ There was a significant effect of US region within overweight/obesity [ $F(2, 44) = 11.71$ ,  $p < 0.000$ ] and SC rates [ $F(2, 44) = 7.68$ ,  $p < 0.000$ ].
- ❑ The Southern region, compared to other regions, had significantly higher obesity rates (35.2%) and the Northeast region had significantly higher SC rates. (See Figure 2)
- ❑ The interaction of region and SC explained a significant proportion of variance in overweight/obesity rates,  $R^2 = .367$ ,  $F(3,44) = 8.5$ ,  $p < .001$ .

Figure 1. Relationship of State-level Overweight/Obesity and Soccer Capitalization

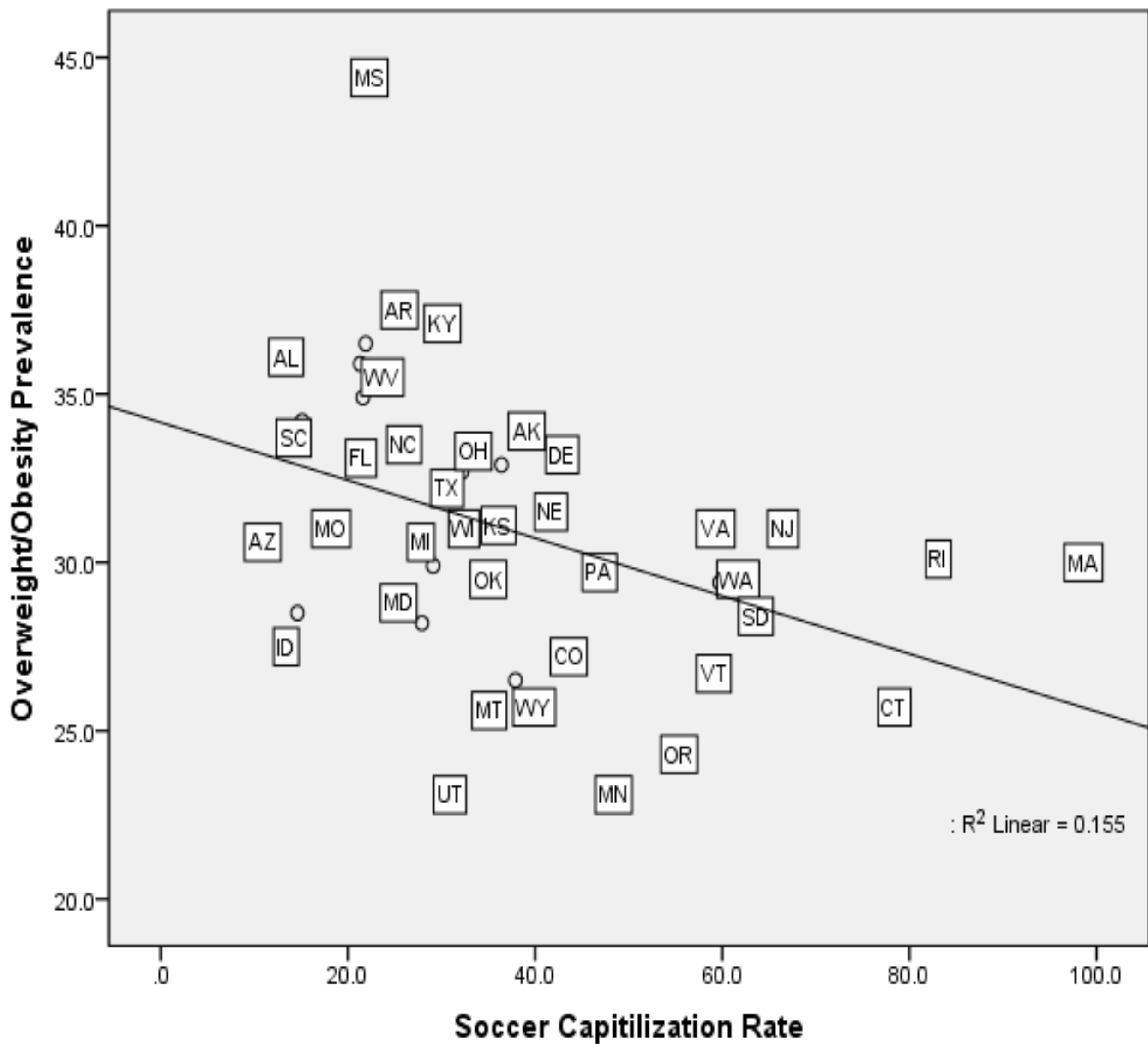
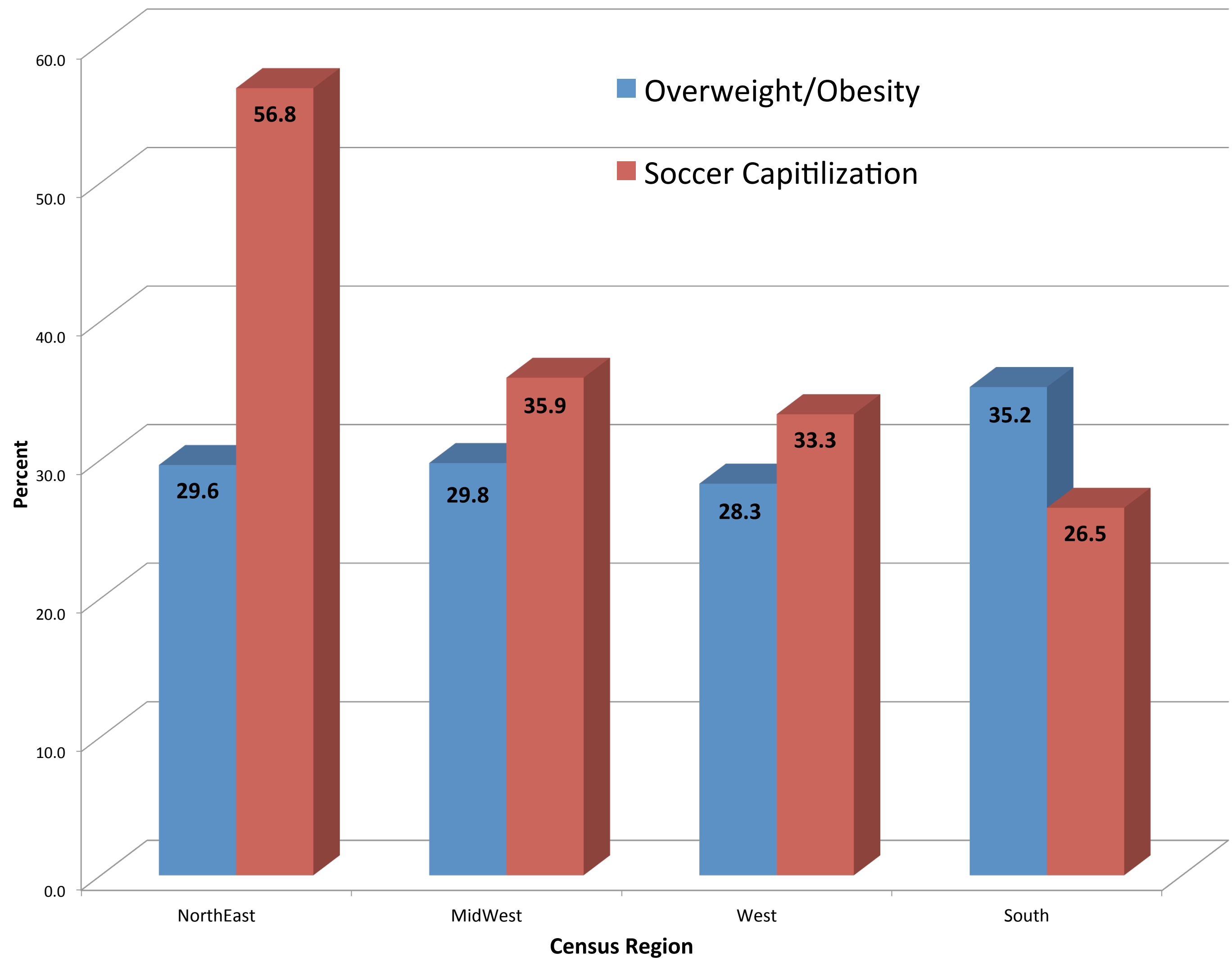


Figure 2: Youth Overweight/Obesity and Soccer Capitalization Rates by Region



## CONCLUSIONS

This research supports the notion that soccer capitalization is inversely related to overweight and obesity prevalence in youth. This follows with what would be expected, as participation in physical activity lowers the likelihood of adolescents developing obesity and other diseases.<sup>10</sup> This is illustrated in a 2008 study that found soccer to be an effective intervention among obese children that led to decreases in body mass index, a reflection of overweight and obesity, while also increasing moderate, vigorous, and total daily physical activity.<sup>11</sup>

Further research should investigate how to increase soccer capitalization, especially in the Southern region of the US. Perhaps cultural, environmental, and socioeconomic factors may help explain why soccer participation varies among states. In addition, prospective studies of youth could be undertaken to examine the relationship between physical activity and overweight/obesity among youth.

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