WOMEN'S SPORTS FOUNDATION

THE STATE OF HIGH SCHOOL SPORTS IN AMERICA:

An Evaluation of the Nation's Most Popular Extracurricular Activity

July 2019

A Women's Sports Foundation Report

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Acknowledgments

The State of High School Sports in America: An Evaluation of the Nation's Most Popular Extracurricular Activity builds on previous research and policy that view teen sports as an educational tool and public health asset. However, little to no research has scrutinized how adolescent health and educational achievement in sport differs from other extracurricular activities engaged in by teens. Additionally, the authors were interested in exploring a previously identified trend of high schools dropping sports programs.

The Women's Sports Foundation is indebted to the study authors, Philip Veliz, Ph.D., Marjorie Snyder, Ph.D., and Don Sabo, Ph.D. whose creativity, writing acumen and research excellence brought this project to fruition. We also express our deep appreciation to Elizabeth Baran, Laura Reiser and Krista Kokjohn-Poehler for providing invaluable feedback from the study design phase to the analysis and the writing. A special note of acknowledgement and appreciation is extended, as well, to Deana Monahan for her editorial and graphic skills.

This report was made possible through a partnership between the Women's Sports Foundation® and the Dick's Sporting Goods Foundation®.

About Sports Matter

DICK'S Sporting Goods has a long-standing commitment to promoting sports within the community. We believe that participation in sports truly make people better. They increase confidence and motivate athletes to reach their potential. They instill values; teach life lessons that extend well beyond the playing field, and help athletes overcome adversity. We believe sports make a difference. We believe Sports Matter. To learn more visit sportsmatter.org.

About the Women's Sports Foundation

The Women's Sports Foundation is a powerful voice, catalyst and convener dedicated to ensuring all girls have equal access to sports and physical activity and the tremendous life-long benefits they provide. Founded by Billie Jean King in 1974, we seek to strengthen and expand opportunities for girls to participate in sports through research, education, advocacy and collaboration with national and local organizations, corporate partners and the sports industry. The Women's Sports Foundation has relationships with more than 1,000 of the world's elite female athletes and has positively shaped the lives of more than 3 million youth, high school and collegiate student-athletes. To learn more about the Women's Sports Foundation, please visit www.WomensSportsFoundation.org or follow us at @WomensSportsFdn and www.facebook.com/WomensSportsFoundation.

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EXECUTIVE SUMMARY

This study sought to answer two general research questions:

1. Are U.S. public high schools offering fewer opportunities to participate in interscholastic sport?
2. How does involvement in interscholastic sport influence the positive development of adolescents when compared to involvement in other types of extracurricular activities?

This report was made possible through a partnership between the Women's Sports Foundation and the Dick's Sporting Goods Foundation. Our findings and conclusions were distilled from analyses of responses from two of the largest nationally representative samples of U.S. public high schools and high school seniors ever assembled: The data used comes from the Office of Civil Rights Data Collection and the Monitoring the Future survey (a survey collected by researchers at the Institute for Social Research, University of Michigan).

In Section 1: The Landscape of High School Sports Programs 2000-16, findings shed light on the number of U.S. high schools offering interscholastic sports, how many sports they offer, how many sports teams they field, and the trends in these numbers over time. Additionally, the report offers details on how different populations fare related to those trends.

In Section 2: The Influence of Involvement in School-Based Athletics on Adolescent Development, we uncover not only how high school athletic participation generally influences young people's lives, but also how it compares to a wide variety of different extracurricular activities offered within U.S. high schools. Specifically, this study objectively assesses the provision of interscholastic sports in the United States and the links between high school sports and psychological health, substance use, academic achievement, and academic problems.

Some key findings documented by this study appear below.

1. **The Rising Trend of U.S. Public Schools Dropping all Sport Programs Has Leveled in Recent Years:** Although the percentage of schools indicating they did not offer interscholastic sports has increased substantially since the turn of the new millennium (11.3% during the 1999-2000 school year versus 22.0% during the 2009-10 school year), the current study found evidence that this trend has not continued to increase between the 2009-10 and 2015-16 school years (23.5% during 2015-16 school year).
2. **Public Schools with High Levels of Poverty Continue to Struggle with Offering Any Sports to Students:** While trends in the number of schools indicating not offering any interscholastic sports has

remained consistent in recent years (21% – 23.5% between 2010-2016), schools with high levels of poverty are still substantially more likely to not offer any interscholastic sports when compared to wealthier schools. For instance, during the 2015-16 school year, 15.4% of low-poverty schools indicated offering no interscholastic sports compared to 33.6% of high-poverty schools.

3. **Participation Rates in Interscholastic Sport Remained Steady, Despite Fewer Sports and Sports Teams Being Provided by Schools:** While declines were found in both the number of sports (roughly 19 sports versus 15 sports) and sport teams (roughly 31 sport teams versus 26 sport teams) offered between the 2009-10 and 2015-16 school years, participation rates slightly increased during this time period (47.1% during the 2009-10 school year versus 47.9% during the 2015-16 school year).

4. **When Public Schools with High Levels of Poverty Offer Sports to Students, They Offer Over a Third Fewer Sports and Sports Teams:** For public schools that offered sports to students during the 2015-16 school year, low-poverty schools indicated offering 17.1 sports compared to only 12.2 sports at high-poverty schools. Low-poverty schools indicated offering 31.7 sports teams compared to only 18.4 sports teams at high-poverty schools. Additionally, high-poverty schools experience lower student participation in sports than low-poverty schools – 37.7% at high-poverty schools versus 57.2% at low-poverty schools during the 2015-16 school year.

5. **Girls' Participation Rates Still Lag Behind Boys' Rates Despite Having a Similar Number of Sports and Sport Teams:** During the 2015-16 school year, schools provided boys and girls with roughly eight sports and 13 sport teams each (girls were offered one fewer sport and sport team during the 2009-10 school year). Despite this progress during the 2015-16 school year, there were still disparities between participation rates for boys and girls (52.3% and 43.6%, respectively).

6. **Sports Are More Popular Than Ever:** Sports topped the list of extracurricular activities among U.S. high school seniors. More boys and girls participated in school sports than any other extracurricular activity. Nearly 60% of U.S. 12th-graders were involved with sports, and roughly 40% were involved at a high level between 2013-15.

7. **Athletes Are Highly Engaged in Other School Extracurricular Activities:** Nearly half of student-athletes also participate in other types of extracurricular activities. Over 60% of participants in other extracurricular activities (i.e., school newspaper/yearbook, performing arts, academic clubs, and student government) are also student-athletes. Sport is strongly associated with greater social involvement and diverse interests in U.S. high schools.

8. **High Involvement in Sport Yields Academic Dividends:** Highly involved athletes were more likely to report good grades, aspire to graduate college, and were less apt to get into trouble at school than non-athletes. In contrast, slightly-to-moderately involved athletes were linked with poorer academic performance, being more likely to cut class, and having to attend summer school when compared to non-athletes.

9. **Sports Are a Psychological Asset for Many Students:** Highly involved athletes had lower rates of depressive affect, lower levels of self-derogation, and higher levels of self-esteem when compared to students involved with other extracurricular activities. These findings are consistent with other studies that show the positive association between sport participation and physical activity and health (Sabo & Veliz, 2008; Sabo & Veliz, 2014). For instance, adolescents involved in sport engage in roughly two additional days of vigorous physical activity for at least 60 minutes during a typical week when compared to their peers who are not involved in these activities (Sabo & Veliz, 2014).

10. **The Links Between Sports and Substance Use Are Complex:** When compared to non-athletes, highly involved athletes were less likely to smoke cigarettes, use marijuana, and take illegal prescription drugs. In contrast, more highly involved athletes also showed higher odds of binge drinking than non-athletes. Slightly-to-moderately involved athletes also registered higher odds of binge drinking, and additionally registered higher odds of both marijuana use and driving under the influence than non-athletes.

The results reported here have implications for parents and educators, as well as coaches and athletic administrators who work in sports. The findings hold significance for assessing returns on investment of social and fiscal resources in school sports across America. In particular, sport is associated with a host of positive developmental outcomes; one of the most import being psychological health. This return on the psychological well-being among athletes will no doubt have a long-lasting impact that will set the stage for healthy development during adulthood.

Unfortunately, many of these resources that can help improve the lives of adolescents are still lacking within underserved communities in the United States. High-poverty schools located in urban, suburban, and rural areas still provide substantially fewer opportunities to participate in sport, making it harder for these communities to offer resources that will help aid in the positive development of the children and adolescents who live in these communities.

Greater effort is needed to pull more resources into schools that cater to underserved populations in order to expand their sporting curriculum (i.e., interscholastic sports) so that regardless of socioeconomic class, students will have access to and can benefit from sports participation.

SECTION 1: THE LANDSCAPE OF HIGH SCHOOL SPORTS PROGRAMS, 2000-16

Introduction

The most intriguing research projects are those in which the findings not only confirm what is expected, but also generate new results that raise eyebrows, curiosity, and more questions about the reality under investigation than anticipated. This initial report on the changing landscape of U.S. youth sports fits this mold. Two sets of interlocking findings that hold significance for the Dick's Sporting Goods Foundation (DSGF) are documented and discussed below.

Scrutiny of the text and tables below documents an overarching era of expanding youth participation in U.S. school sports since the 1999-2000 school year despite many schools dropping interscholastic sport programs during the past decade. Yet with the overall expansion of student participation in sport programs, our analyses uncovered signs of contraction or decline in the number of sports and types of sports offered by U.S. schools between the 2009-10 and 2015-16 school years. Most remarkably, with some exceptions, the downward shift in the number of teams and number of sports since 2009-10 was basically consistent across a diverse array of institutional characteristics; i.e., the decreases happened regardless of the type of community in which schools were embedded, the variation in the racial/ethnic composition of schools, or the economic resources available to the school.

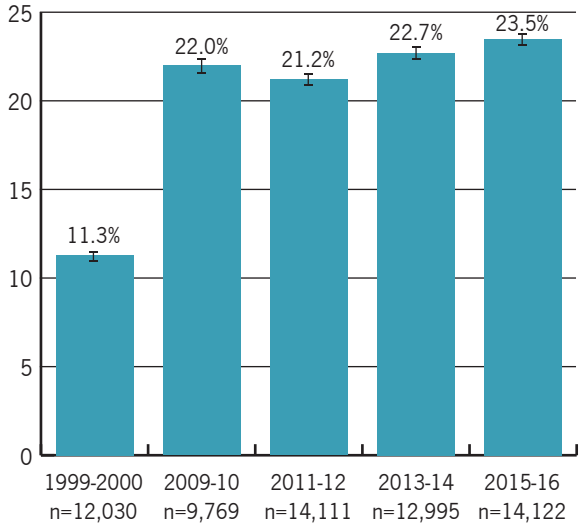
As we review these latter research findings, we wonder whether evidence for the recent decline in the number of sports and teams across U.S. high schools since 2009-10 represents the beginning of an actual downward trend, or perhaps, is a transient "dip" in a larger trend toward expansion. We also ask whether a new organizational paradigm for the provision of school sports may be taking shape in which student participation remains high or grows while the variety and number of sports are being reduced. Moreover, it is possible that private youth organizations are beginning to establish a stronger presence in attracting youth athletes.

On the following pages readers will find a summary of the research methods and design deployed in this initial phase of our investigation. A summary of the sampling design and procedures is followed by a list of key results.

Sample

The sample for this study consisted of 12,030 public high schools during the 1999-2000 school year, 9,769 public high schools during the 2009-10 school year, 14,111 public high schools during the 2011-12 school year, 13,090 public high schools during the 2013-14 school year, and 14,122 public high schools during the 2015-16 school year. All public schools used in the analyses offered grades 9 through 12. It should be noted that analyses examining the number of sports, number of sport teams, and participation rates restricted the sample to schools that indicated offering interscholastic sport. More details on the sample, measures, and validity of the findings can be found in Appendix A (see sections 1a, 2a, and 3a). Finally, it should be noted that participation rates in interscholastic sport counts multi-sport athletes multiple times.

Figure 1: The Percentage of High Schools That Did Not Offer Interscholastic Sports, between 1999-2000 and 2015-16



Note: Error bars that do not overlap reflect statistically significant differences.

Data comes from the CRDC

Percentage of Public High Schools Not Offering Interscholastic Sports

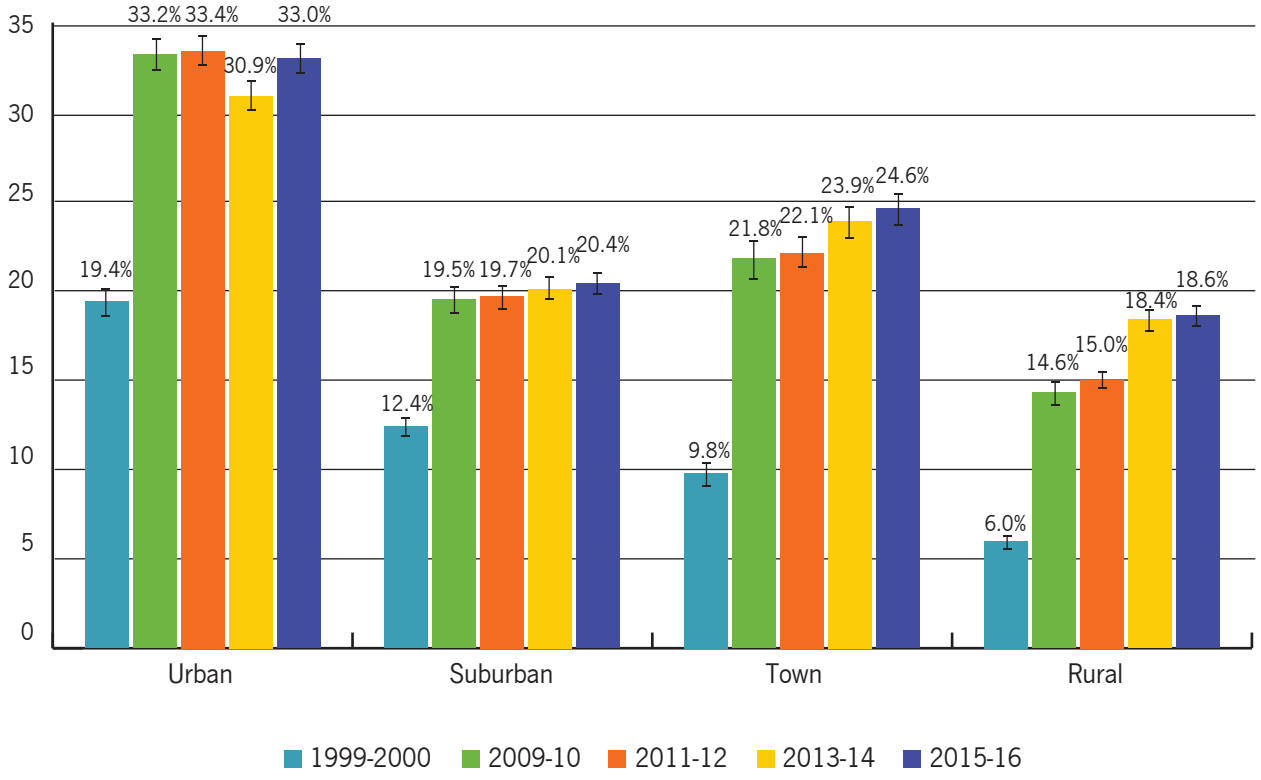
The findings show that the percentage of public high schools indicating they did not offer interscholastic sports has increased since the 1999-2000 school year (see Figure 1). For instance, 11.3% of public high schools during the 1999-2000 school year indicated not offering interscholastic sports, while 22.0% of public high schools during the 2009-10 school year indicated not offering interscholastic sport. However, it should be noted that no substantial changes have occurred between the 2009-10 and 2015-16 school year, with roughly 23.5% of public high schools not offering interscholastic sports.

Figures 2 through 4 on the following pages show these differences across this 16-year period by community type, school-level poverty, and school-level racial composition. The results show a large increase in the percentage of public high schools that indicated not offering interscholastic sport since the 1999-2000 school year, regardless of key school-level characteristics. Additionally,

several differences also emerged between the 2009-10 and 2015-16 school years with respect to certain school-level characteristics. In particular, public high schools located in rural areas experienced a significant increase in the percentage of schools indicating they did not offer interscholastic sports: 14.3% during the 2009-10 school year and 18.6% during the 2015-16 school year (see Figure 2).

High-poverty schools (i.e., those with 75% to 100% of students eligible for free or reduced-price lunches) are

Figure 2: The Percentage of High Schools That Did Not Offer Interscholastic Sports, between 1999-2000 and 2015-16 – by Community Type

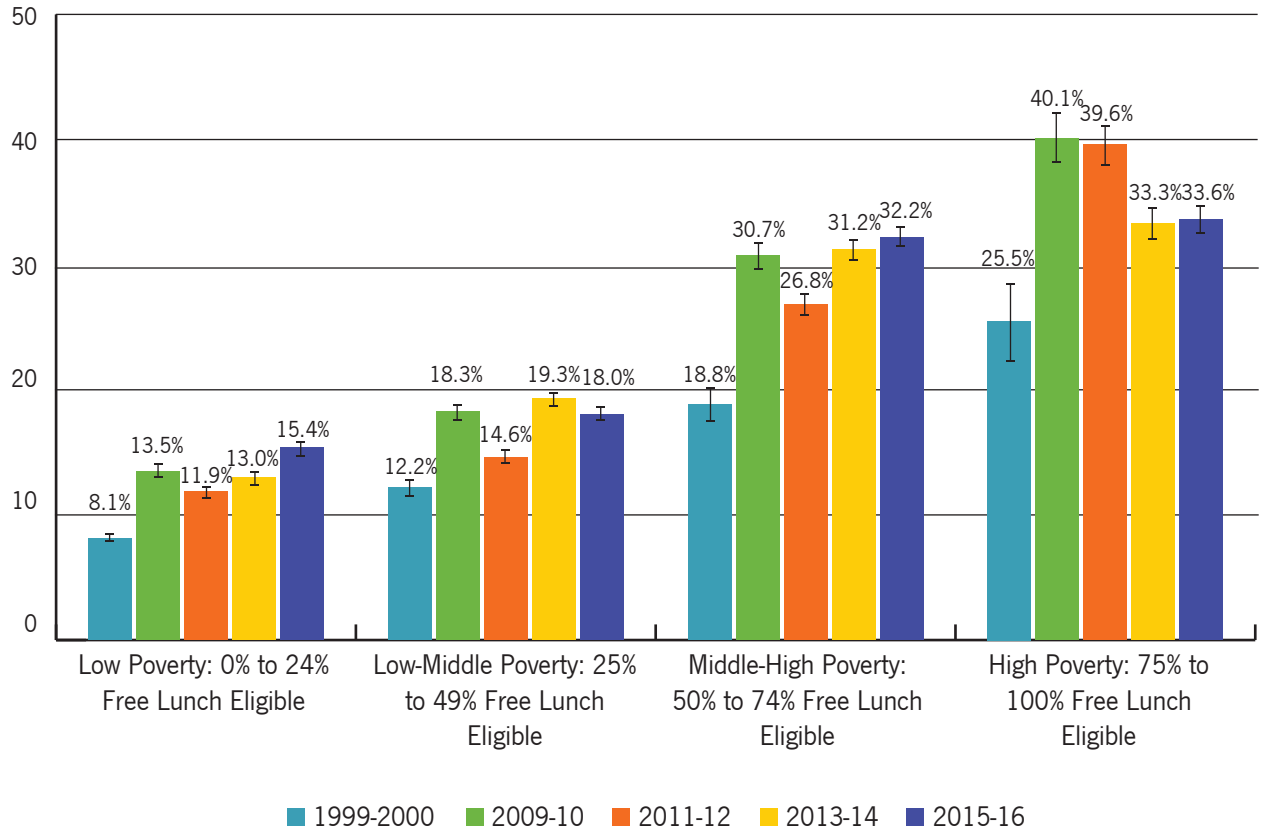


Note: Error bars that do not overlap reflect statistically significant differences.

Data comes from the CRDC

most likely to not offer interscholastic sports, with 33.6% indicating they did not offer interscholastic sports during the 2015-16 school year. However, this is actually down from 40.1% during the 2009 10 school year (see Figure 3).

Figure 3: The Percentage of High Schools That Did Not Offer Interscholastic Sports, between 1999-2000 and 2015-16 – by Percentage Free Lunch Eligible

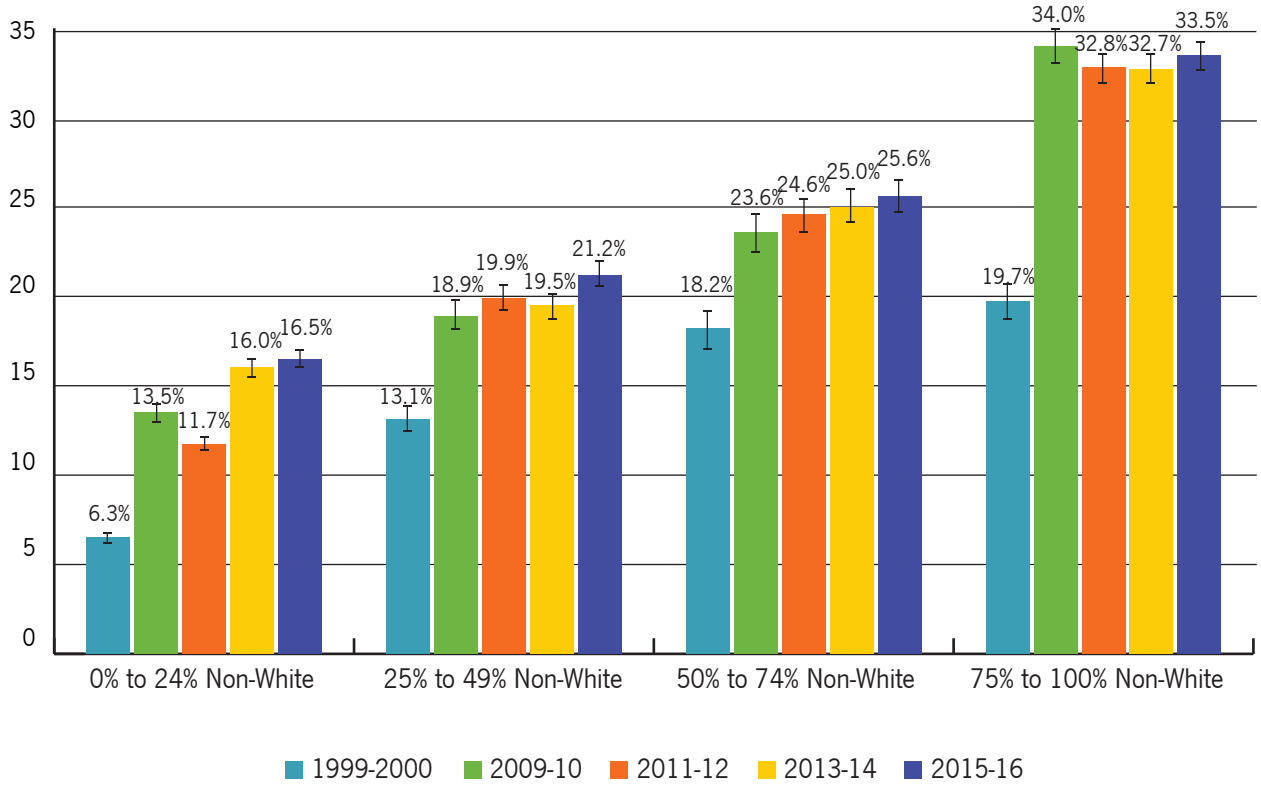


Note: Error bars that do not overlap reflect statistically significant differences.

Data comes from the CRDC

Finally, schools with a high percentage of white students (i.e., between 0 and 24% of students being non-white) experienced significant increases in the percentage of schools indicating they did not offer interscholastic sports between the 2009-10 and 2015-16 school years: 13.5% during the 2009-10 school year and 16.5% during the 2015-16 school year (see Figure 4).

Figure 4: The Percentage of High Schools That Did Not Offer Interscholastic Sports, between 1999-2000 and 2015-16 – by Percentage of Students Who Are Racial Minorities



Note: Error bars that do not overlap reflect statistically significant differences.

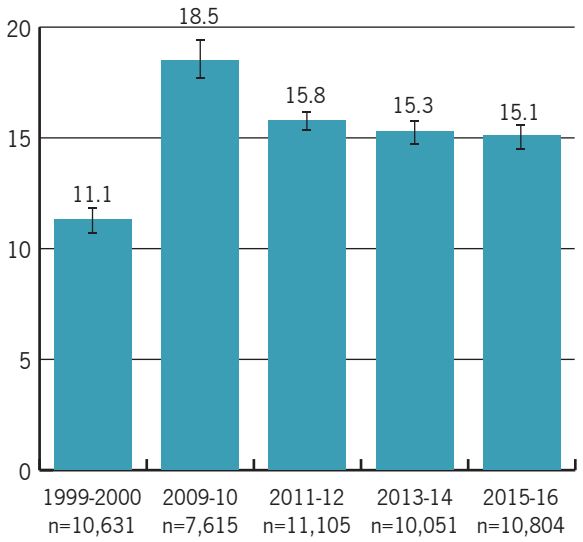
Data comes from the CRDC

Number of Interscholastic Sports

Overall, the number of sports schools provided girls and boys increased between the 1999-2000 and 2015-16 school years: roughly 11 sports during the 1999-2000 school year versus 15 sports during the 2015-16 school year. However, a significant decrease in the number of sports schools provided girls and boys occurred between the 2009-10 and 2015-16 school years: roughly 19 sports during the 2009-10 school year and 15 sports during the 2015-16 school year (see Figure 5).

Figures 6 through 8 on the following pages show these differences across this 16-year period by community type, school-level poverty, and school-level racial composition. The results show a large increase in the number of sports public high schools provide boys and girls since the 1999-2000 school year, regardless of key school-level characteristics. However, several notable differences were found between the 2009-10 and 2015-16 school years. Suburban schools (23.8 versus 18.8), town-based schools (16.1 versus 13.7), and rural schools (15.9 versus 11.4) each saw a decrease in the number of sports they provided boys and girls between the 2009-10 and 2015-16 school years (see Figure 6 on page 11). Schools considered low-poverty (21.2 versus 17.1), and low-middle-poverty (16.9 versus 14.7) all saw decreases in sports between the 2009-10 and 2015-16 school years. No decrease in sports offered was found within schools defined as high-poverty (see Figure 7 on page 12), though it should be noted that these schools offer fewer sports (12.2) compared to schools with lower levels of poverty. It also should be noted that regardless of racial composition at the school level, public high schools typically showed a decrease in sports between the 2009-10 and 2015-16 school years (see Figure 8 on page 13).

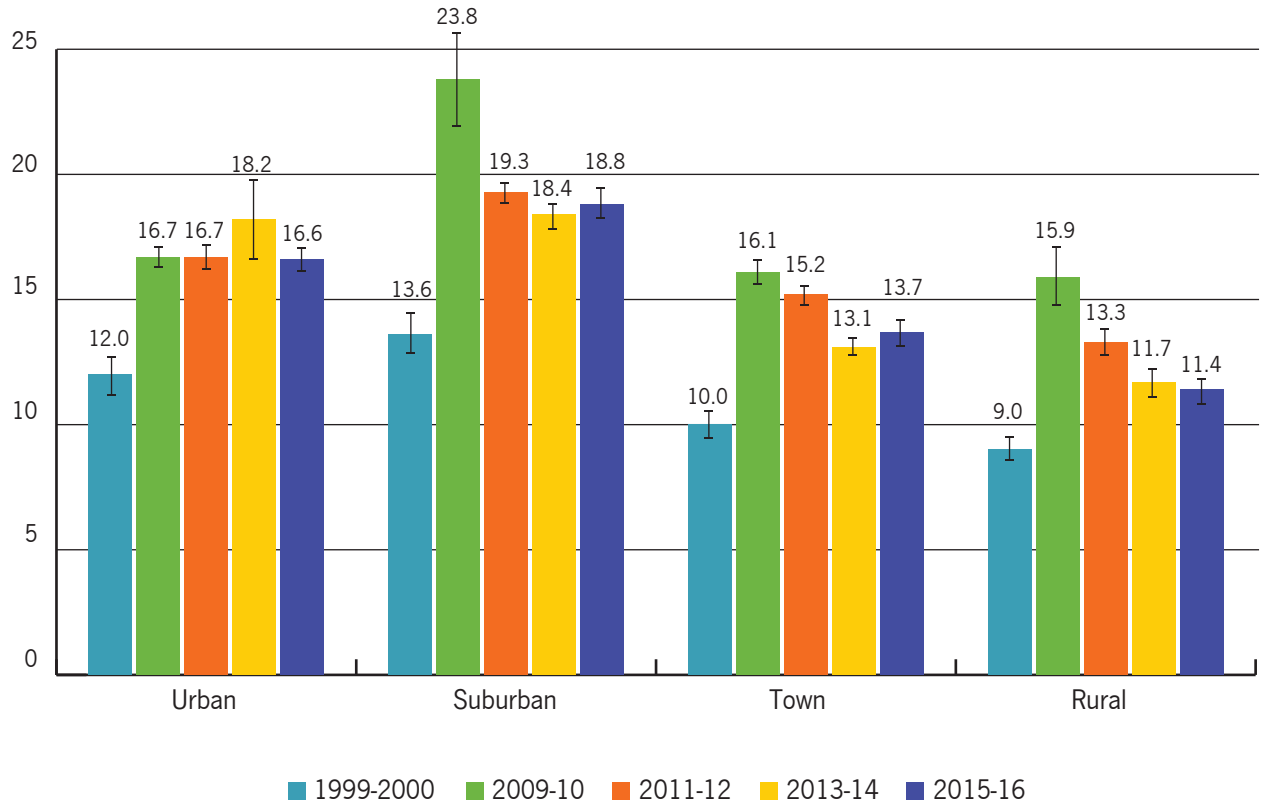
Figure 5: Number of Interscholastic Sports, between 1999-2000 and 2015-16



Note: Error bars that do not overlap reflect statistically significant differences.

Data comes from the CRDC

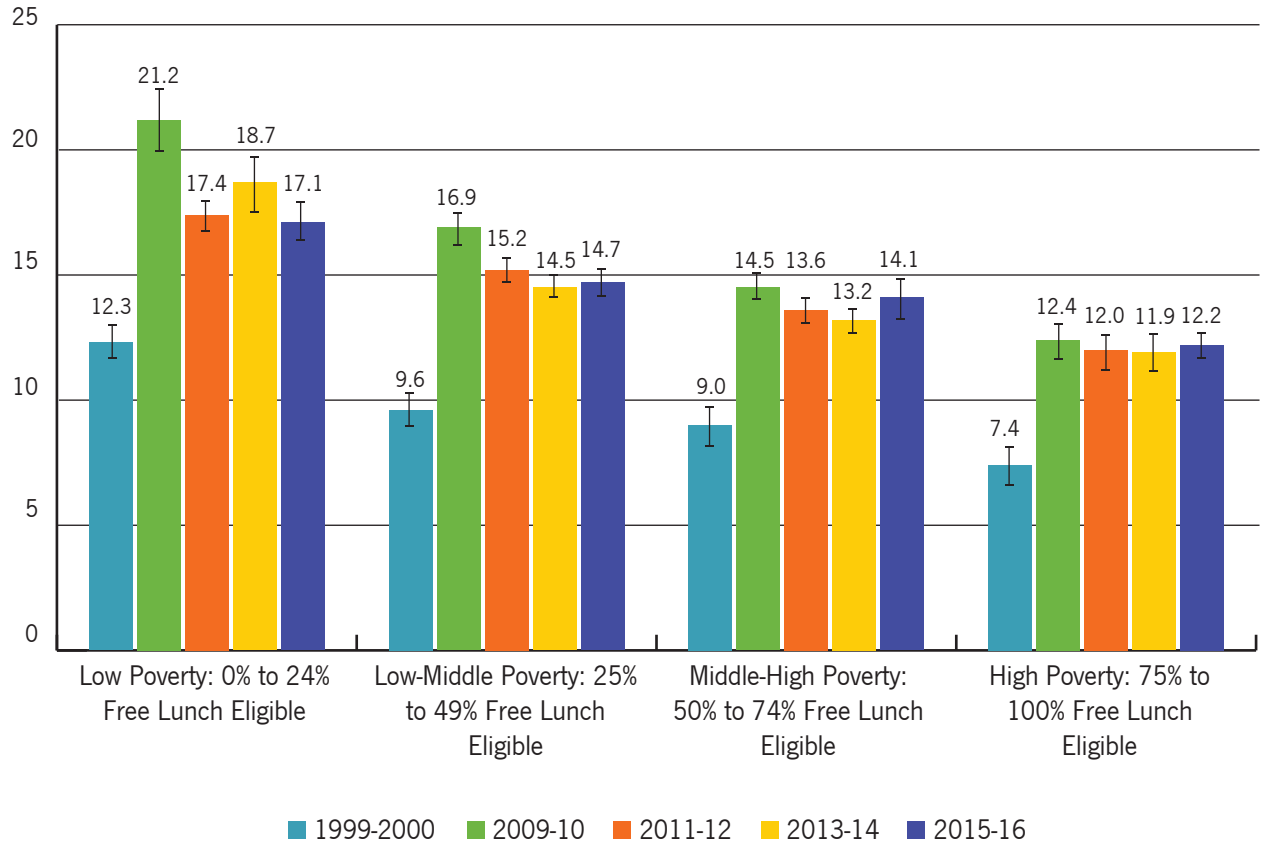
Figure 6: Number of Interscholastic Sports, between 1999-2000 and 2015-16 – by Community Type



Note: Error bars that do not overlap reflect statistically significant differences.

Data comes from the CRDC

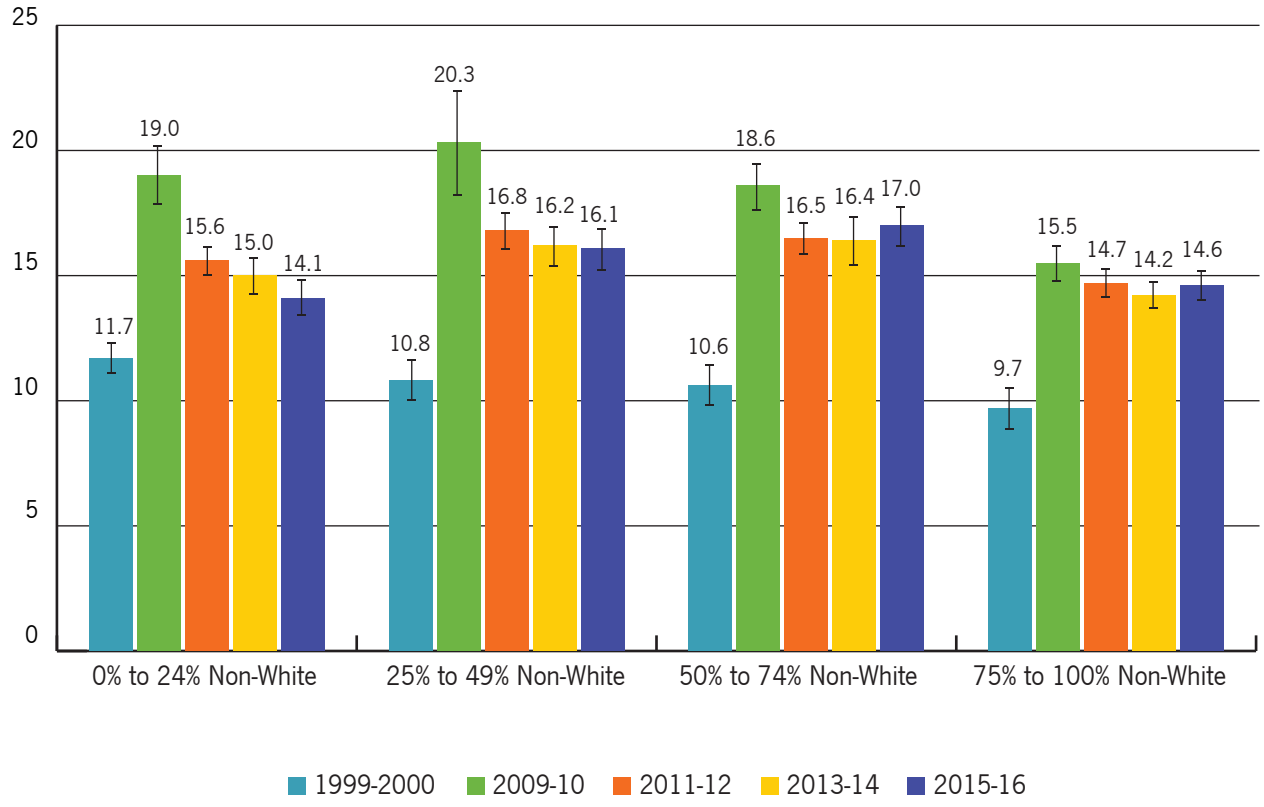
Figure 7: Number of Interscholastic Sports, between 1999-2000 and 2015-16 – by Percentage Free Lunch Eligible



Note: Error bars that do not overlap reflect statistically significant differences.

Data comes from the CRDC

Figure 8: Number of Interscholastic Sports, between 1999-2000 and 2015-16 – by Percentage of Students Who Are Racial Minorities



Note: Error bars that do not overlap reflect statistically significant differences.

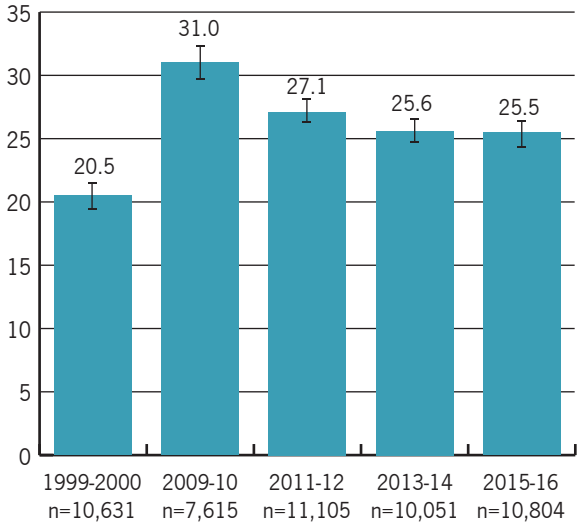
Data comes from the CRDC

Number of Interscholastic Sport Teams

The overall number of sport teams high schools provide girls and boys increased since the 1999-2000 school year. However, moderate, but significant, declines occurred since the 2009-10 school year. High schools provided roughly 31 sport teams to girls and boys during the 2009-10 school year, but this dropped to 26 sport teams by the 2015-16 school year (see Figure 9).

With respect to differences by community type, school-level poverty, and school-level racial composition, increases in the numbers of sport teams provided by boys and girls were found since the 1999-2000 school year (regardless of school-level characteristics). However, several decreases in the number of sport teams offered to girls and boys were found between the 2009-10 and 2015-16 school years. Schools located in suburban areas (39.6 versus 33.8), towns (28.0 versus 22.3), and rural areas (24.8 versus 17.8) experienced decreases in the number of sport teams offered to boys and girls between the 2009-10 and 2015-16 school years. Schools located in urban areas did not gain or lose during this time frame (see Figure 10 on page 15). Schools considered low-poverty (38.1 versus 31.7), and low-middle-poverty (28.1 versus 24.2) all saw decreases in the number of sport teams offered to girls and boys between the 2009-10 and 2015-16 school years. In contrast, no decrease in sport teams was found within schools defined as middle-high-poverty and high-poverty

Figure 9: Number of Interscholastic Sport Teams, between 1999-2000 and 2015-16

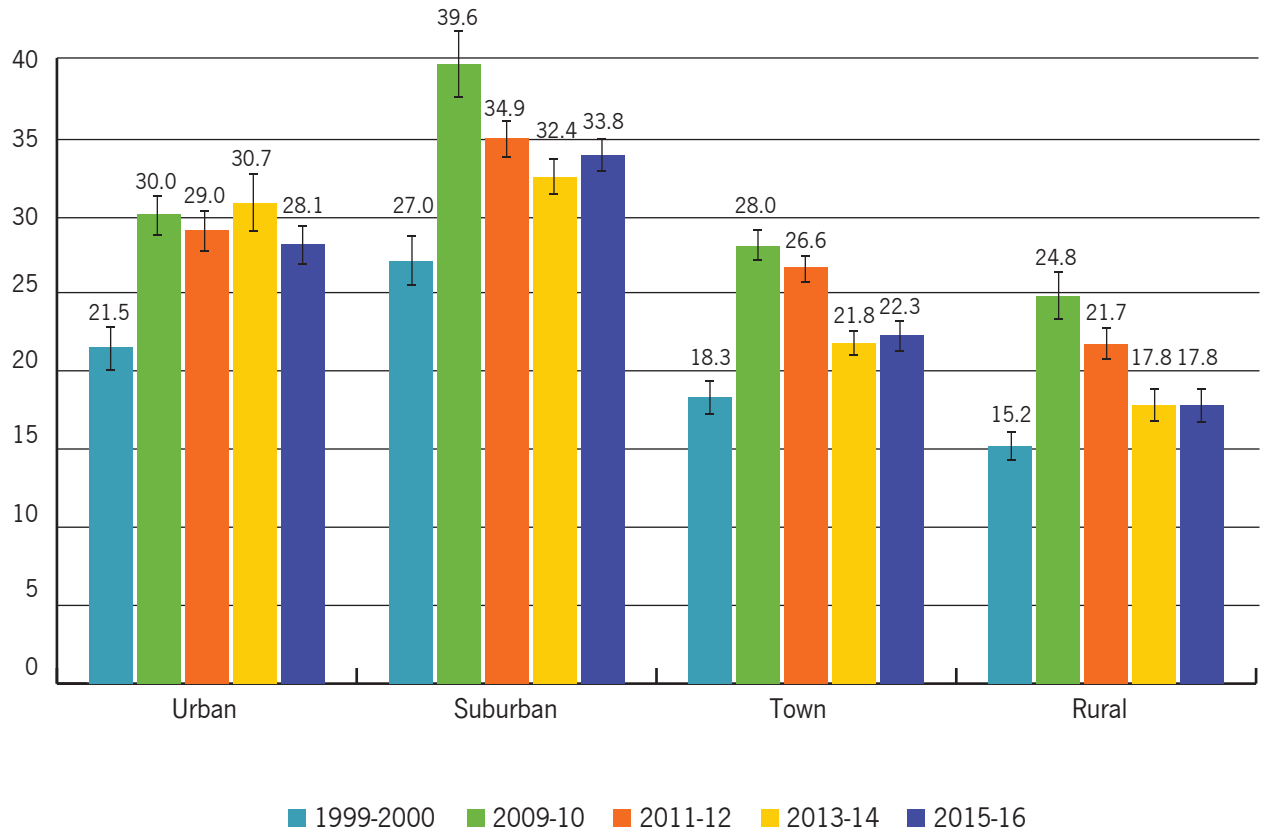


Note: Error bars that do not overlap reflect statistically significant differences.

Data comes from the CRDC

(see Figure 11 on page 16), though it should be noted that these schools offer fewer sports teams (high-poverty, 18.4) compared to schools with lower levels of poverty. Finally, regardless of racial composition, schools typically saw a decrease in sport teams offered to girls and boys between the 2009-10 and 2015-16 school year; this was more pronounced in schools that had a higher percentage of White students than Non-White students (see Figure 12 on page 17).

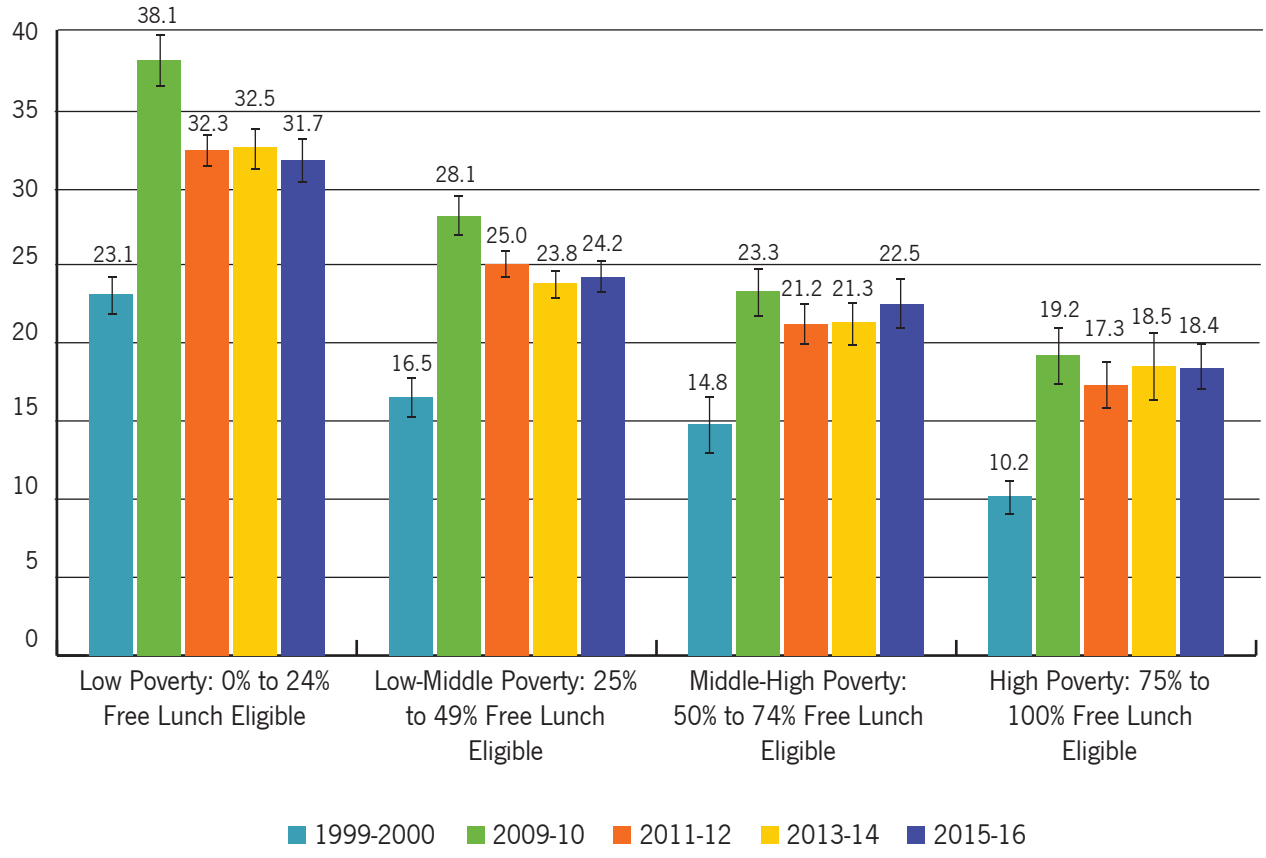
Figure 10: Number of Interscholastic Sports Teams, between 1999-2000 and 2015-16 – by Community Type



Note: Error bars that do not overlap reflect statistically significant differences.

Data comes from the CRDC

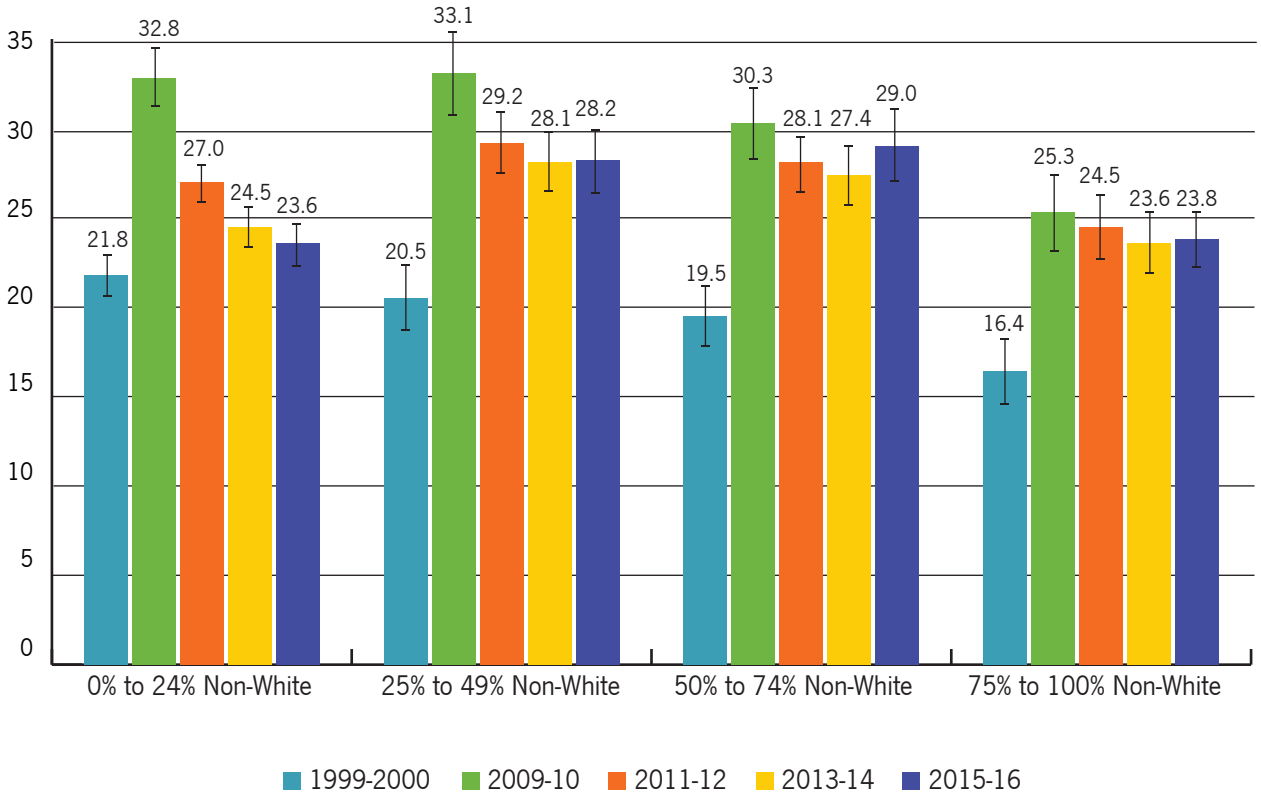
Figure 11: Number of Interscholastic Sports Teams, between 1999-2000 and 2015-16 – by Percentage Free Lunch Eligible



Note: Error bars that do not overlap reflect statistically significant differences.

Data comes from the CRDC

Figure 12: Number of Interscholastic Sports Teams, between 1999-2000 and 2015-16 – by Percentage of Students Who Are Racial Minorities



Note: Error bars that do not overlap reflect statistically significant differences.

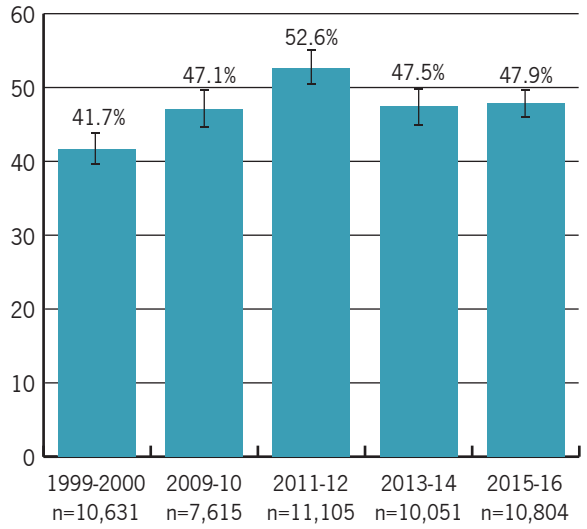
Data comes from the CRDC

Participation Rates in Interscholastic Sports

Similar to the number of sports and sport teams offered to boys and girls, participation rates in interscholastic sport also increased since the 1999-2000 school year. Interestingly, despite decreases in the number of sports and sport teams offered to girls and boys, no significant changes occurred in the percentage of students participating in interscholastic sport between the 2009-10 and 2015 16 school years (47.1% versus 47.9%, respectively; see Figure 13).

As shown with the number of sports and sport teams offered to boys and girls, Figures 14 through 16 on the following pages show a robust increase in sport participation rates since the 1999-2000 school year (regardless of key school-level characteristics). However, the results show several decreases and increases in sport participation rates between the 2009-10 and 2015-16 school years. Schools located in urban areas saw a slight increase in participation rates between the 2009-10 and 2015-16 school years (32.7% versus 35.3%). No changes in participation rates were found among schools located in suburban, town, and rural areas across this time period (see Figure 14 on page 19). Schools considered low-middle-poverty saw an increase in participation rates between the 2009-10 and 2015-16 school years (44.2% versus 48.5%); however, no changes in participation rates were found among low-poverty, middle-high-poverty and high-poverty schools (see Figure 15 on page 20). Though again it should be noted that high-poverty schools have lower overall student participation (33.7%) compared to schools with lower levels of poverty. Finally, schools with higher percentages of non-white students (i.e., 25% to 49%, 50% to 74%, and 75% to 100%) reported increases in participation rates between the 2009-10 and 2015-16 school year. Schools that were predominantly white did not see any change in sport participation rates during this time period (see Figure 16 on page 21).

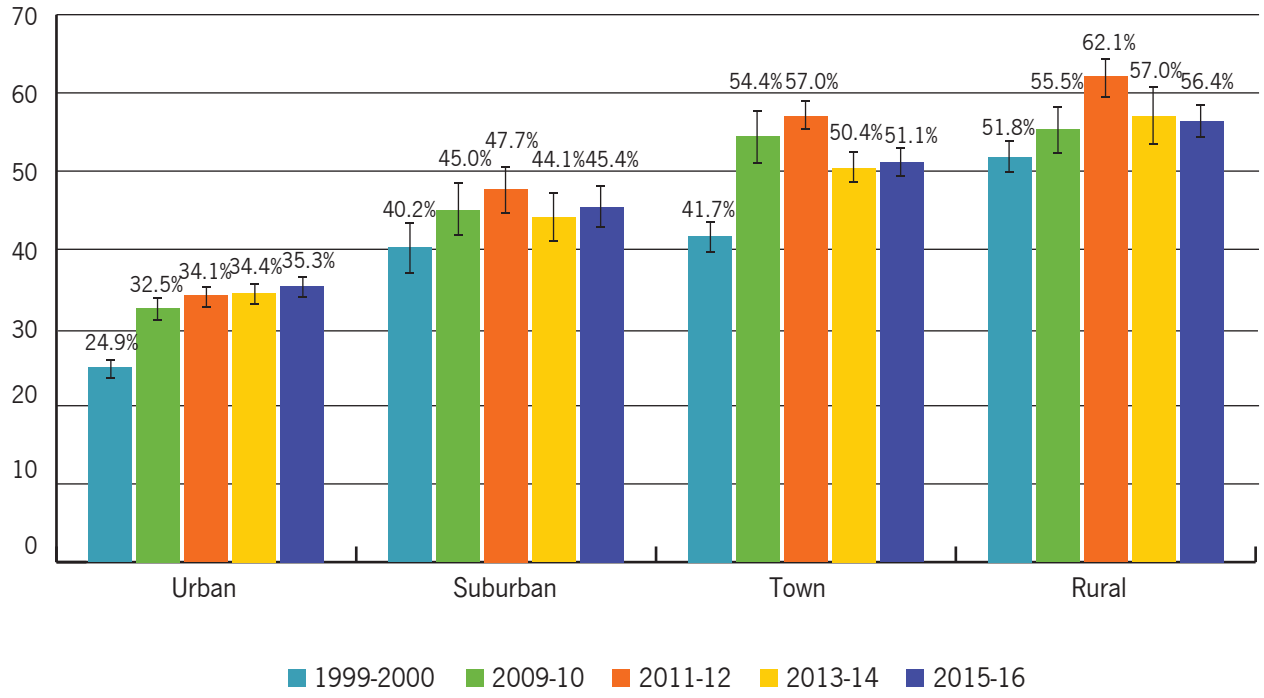
Figure 13: Participation Rates in Interscholastic Sports, between 1999-2000 and 2015-16



Note: Error bars that do not overlap reflect statistically significant differences.

Data comes from the CRDC

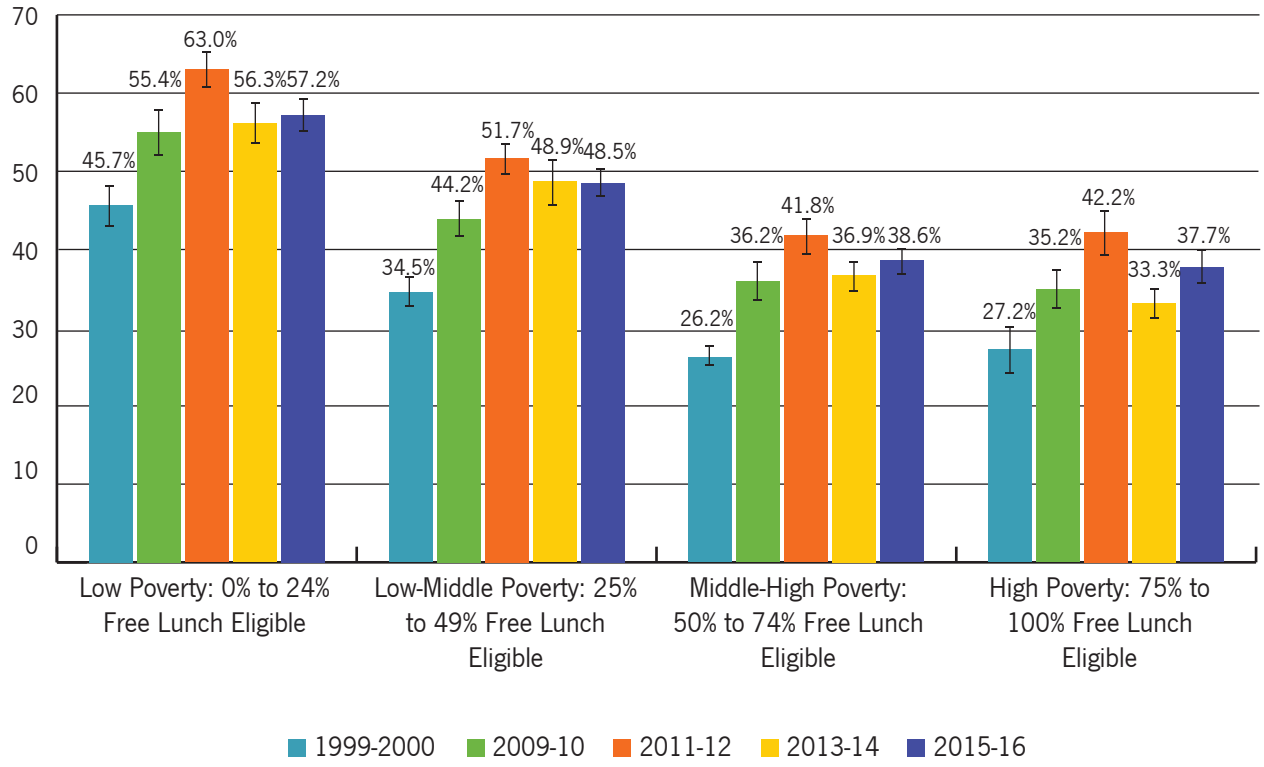
Figure 14: Participation Rates in Interscholastic Sports, between 1999-2000 and 2015-16 – by Community Type



Note: Error bars that do not overlap reflect statistically significant differences.

Data comes from the CRDC

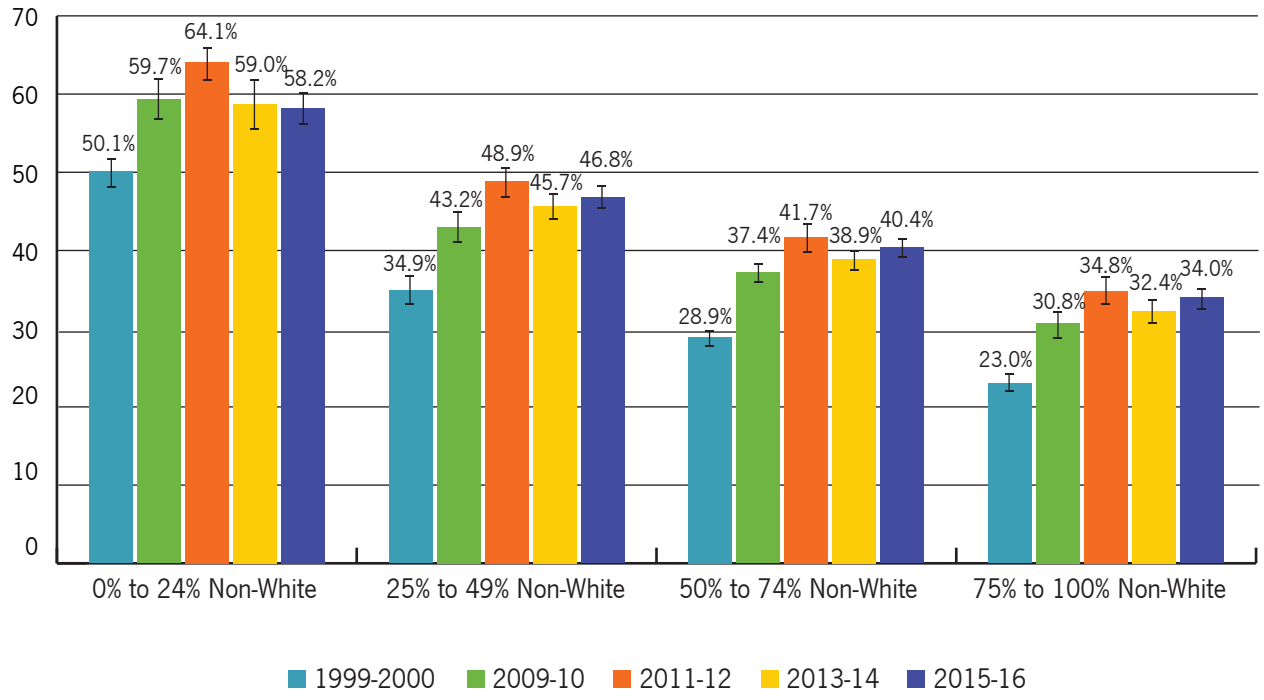
Figure 15: Participation Rates in Interscholastic Sports, between 1999-2000 and 2015-16 – by Percentage Free Lunch Eligible



Note: Error bars that do not overlap reflect statistically significant differences.

Data comes from the CRDC

Figure 16: Participation Rates in Interscholastic Sports, between 1999-2000 and 2015-16 – by Percentage of Students Who Are Racial Minorities



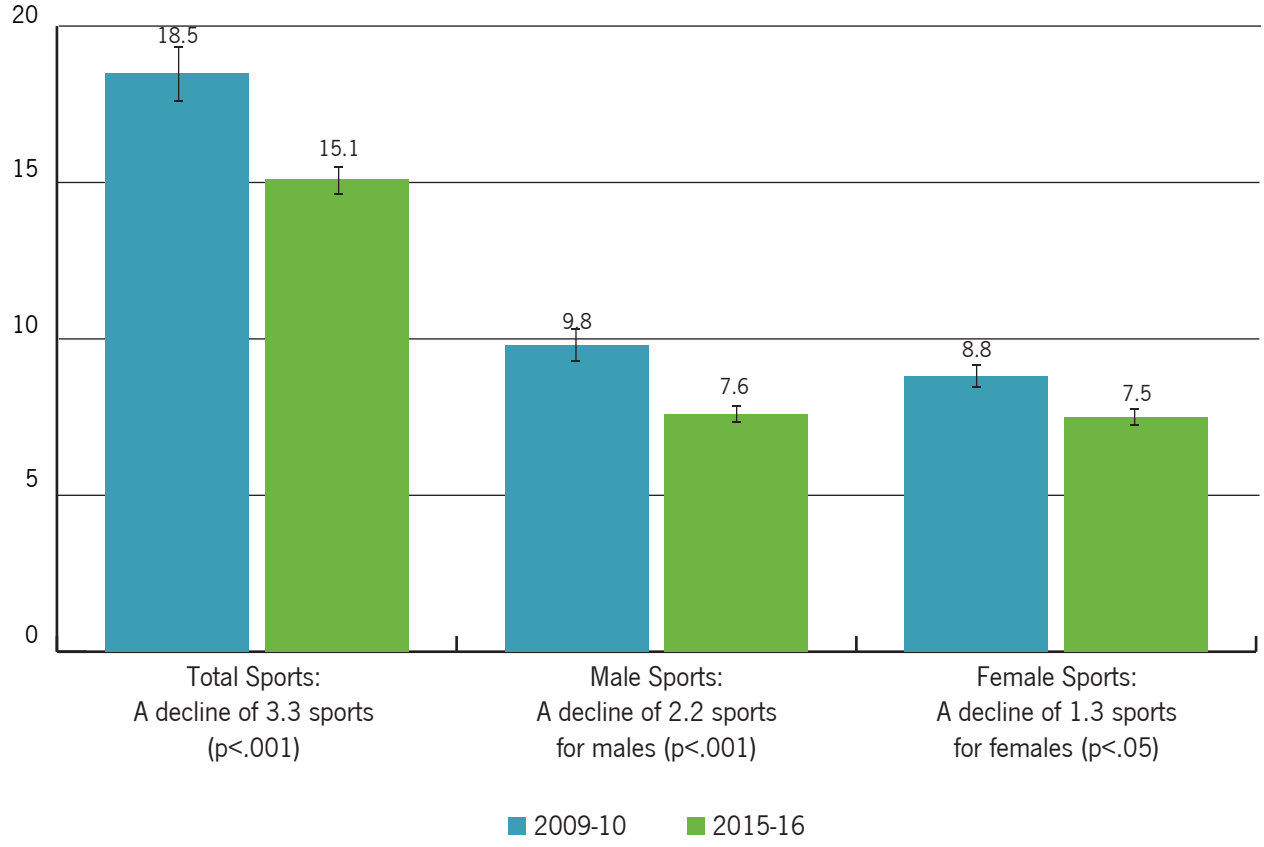
Note: Error bars that do not overlap reflect statistically significant differences.

Data comes from the CRDC

Examining Declines in Number of Sports, Teams, and Participation Rates between 2009-10 and 2015-16: A Gender-Specific Analysis

Examining the sample of schools shows (see Figure 17) that the number of sports school offered declined between 2009-10 and 2015-16 (from 18.5 to 15.1). Statistically significant declines also were found with respect to the number of sports offered to males (9.8 versus 7.6) and the number of sports offered to females (8.8 versus 7.5).

Figure 17: Number of Sports Offered Between 2009-10 and 2015-16; Total and Gender-Specific



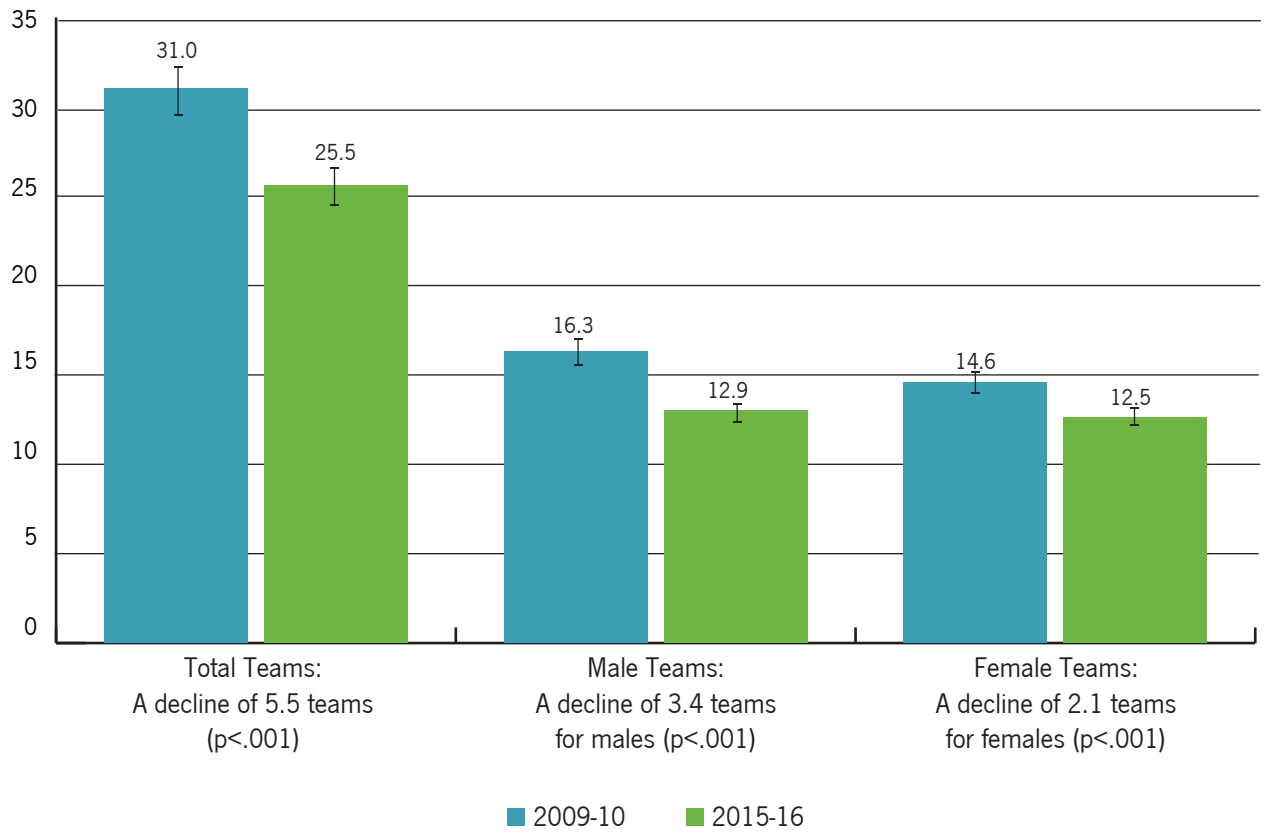
Note: Error bars that do not overlap reflect statistically significant differences.

Data comes from the CRDC

Interestingly, the number of sports offered to males declined to a greater extent than the number of sports offered to females (a loss of 2.2 sports for males to a loss of 1.3 sports for females). Despite these declines, it is noteworthy that the number of sports offered to males and females is now equal based on the information provided during the 2015-16 school year.

Statistically significant declines were also found for the number of sport teams offered between 2009-10 and 2015-16 (see Figure 18). The number of teams offered to males (16.3 versus 12.9) and the number of sports offered to females (14.6 versus 12.5) declined during this timeframe. Again, the number of teams offered to males declined to a greater extent than the number of teams

Figure 18: Number of Sport Teams Offered Between 2009-10 and 2015-16; Total and Gender-Specific



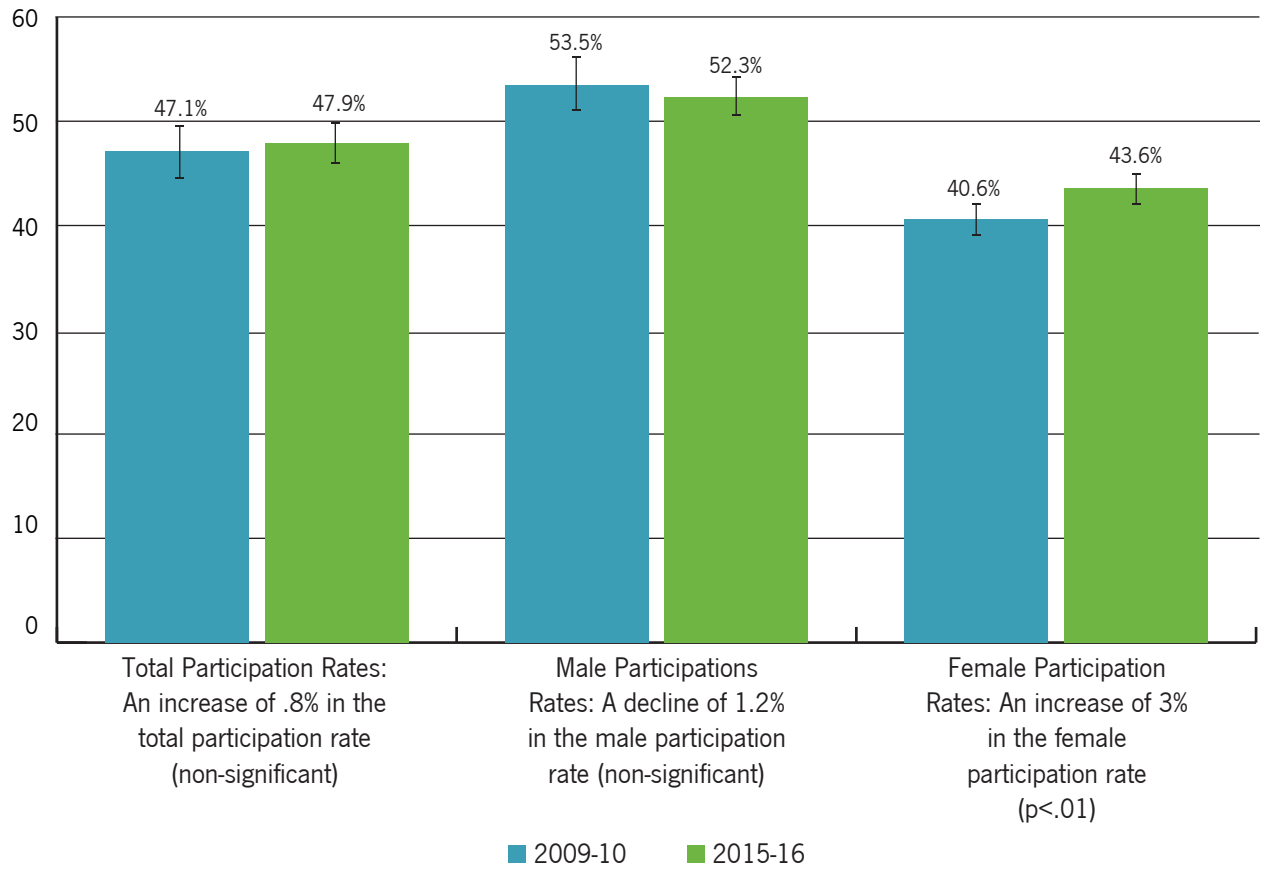
Note: Error bars that do not overlap reflect statistically significant differences.

Data comes from the CRDC

offered to females (a loss of 3.4 teams for males to a loss of 2.1 teams for females); however, the number of sport teams offered to males and females is now equal as of the 2015-16 school year.

Finally, we see participation rates remaining at similar levels between the 2009-10 and 2015-16 school years (see Figure 19). No statistically significant declines were found for participation rates for males (53.5% versus 52.3%) during this timeframe. However, participation rates

Figure 19: Sport Participation Rates Between 2009-10 and 2015-16; Total and Gender-Specific



Note: Error bars that do not overlap reflect statistically significant differences.

Data comes from the CRDC

increased slightly for females between the 2009-10 (40.6%) and 2015-16 school years (43.6%). Despite the modest increase in participation rates for females, participation rates for males were roughly 9% higher than participation rates for females.

Conclusions

This study confirms that more than one out of five public high schools offering grades 9 through 12 do not offer interscholastic sports (Sabo & Veliz, 2012). Unfortunately, the results also indicate that it is schools that cater to the most vulnerable population of adolescents that are more likely to not have opportunities to participate in sport. This study also validates previous research that schools with fewer resources and a higher proportion of disadvantaged students tend to have the fewest opportunities to participate in interscholastic sport, and additionally, they are more likely to cut sports from their overall activities portfolio (Sabo & Veliz, 2011; 2012). In particular, the results from the 2015-16 CRDC still provide evidence that schools located in urban areas, schools considered high-poverty, and schools that largely consist of racial minorities are more likely to not offer any interscholastic sports and to have fewer participation opportunities (i.e., measured in sport participation rates). This is especially problematic since interscholastic sport may be the only opportunity for underserved and marginalized populations to participate and learn about athletics given the decline in physical education in secondary schools (CDC, 2013), the limited availability of recreational facilities in low-income communities (Sabo & Veliz, 2008), and the financial constraints imposed by youth sport programs (C.S. Mott Children's Hospital, 2012).

Although the percentage of schools indicating they did not offer interscholastic sports has increased substantially since the turn of the new millennium, the current study found evidence that this trend has not continued between the 2009-10 and 2015-16 school years. Regrettably, it appears that schools that do offer interscholastic sports have made cuts to certain sports and sport teams during this same timeframe. For instance, the average number of sports that schools offered students was roughly 19 during the 2009-10 school year, but this dropped to 15 sports by the 2015-16 school year. Moreover, the average number of sport teams that schools offered students was roughly 31 during the 2009-10 school year, but this dropped to 26 sport teams by the 2015-16 school year. Interestingly, this decline in opportunities to participate in sport affected schools that typically provide the greatest amount of resources for students to participate in high school athletics (e.g., schools located in suburban areas and low-poverty schools).

While declines were found in the number sports and sport teams offered between the 2009-10 and 2015-16 school year for both boys or girls, no evidence of declines in participation rates were found among these two groups. Interestingly, much of the decline was due to fewer sport and sport teams being offered to males when compared to females during the 2015-16 school year. Accordingly, the

greater decline in the number of sports and sport teams for boys could be due to the fact that more sports and sport teams were being offered to boys than girls during the 2009-10 school year, and if cuts needed to be made, sports and sport teams for males were designated as a higher priority to be cut to maintain equity with respect to the amount of athletic opportunities provided to males and females.

Despite these downward trends in the number of sport and sport teams between the 2009-10 and 2015-16 school year, this study did find that participation rates in interscholastic sport appeared to remain unaffected during this period. This suggests that many students do find outlets to participate in at least one sport within their high school. However, it is impossible to determine from this study if multi-sport athletes lost opportunities due to sports or sport teams being cut.

While it appears that the provision of interscholastic sports has modestly decreased since the 2009-10 school year across public high schools, it is interesting to speculate if private youth sport organizations are filling in this supply gap. While the current study cannot answer this question, future research should try to untangle whether participation rates in private youth sport organizations have increased in recent years due to cuts to interscholastic sports within public high schools.

SECTION 2: ADOLESCENT DEVELOPMENT: THE INFLUENCE OF ATHLETIC INVOLVEMENT VERSUS OTHER EXTRACURRICULAR ACTIVITIES

Introduction

This section assesses the links between high school athletic participation and student psychological health, substance use and risky behaviors, academic achievement and ability, and problem behaviors in school. Throughout the report, we discuss how sport involvement influences these outcomes in comparison with other popular extracurricular activities, such as music and performing arts, school newspaper or yearbook, academic clubs, student council or government, and other school clubs or activities.

School administrators and community leaders regularly make decisions about what educational and financial strategies produce the best academic and developmental outcomes for their students. They know that extracurricular activities are key components of school culture and student life. So too have social scientists confirmed that student involvement in extracurricular activities is tied to favorable academic outcomes, reduced delinquency, higher graduation rates, and self-esteem gains. While more research is needed to understand the mechanisms through which specific types of extracurricular activities influence academic performance and youth development, the findings presented here clearly document that there is substantial overlap in student participation across the different types of extracurricular involvement that exist in U.S. high schools. Bluntly stated, specific extracurricular activities do not function as silos, but rather, participation unfolds across different forms of extracurricular activities. Our findings show that involvement with sport is a potential social catalyst for fomenting participation in multiple forms of extracurricular activities among adolescents.

The major objectives of this study are to:

1. Assess trends in participation in several popular school-based extracurricular activities between 1989 and 2015, with a specific focus on participation in school-based athletics. Additionally, assess the amount of overlap between participants involved in school-based athletics and other popular school-based extracurricular activities.

2. Assess how participation in school-based athletics is associated with psychological health, substance use, academic achievement, and academic problems, when compared to involvement in other types of school-based extracurricular activities (i.e., music and performing arts, school newspaper/yearbook, academic clubs, student council/government, and other school clubs or activities).

Methods

The present study uses secondary survey data from the 1989 through 2015 Monitoring the Future (MTF) study of 12th-grade students (a survey collected by researchers at the Institute for Social Research, University of Michigan). The sample used for this report consists of 67,321 12th-graders who were surveyed between 1989 and 2015. The sample was 51.4% female (48.6% male), 63.5% white, 11.7% black, and 24.8% "other race." Roughly half the sample was 18 at the time of the survey (57.7%) and indicated having at least one parent with a college degree or higher (48.8%). Roughly 35.5% of 12th-graders lived in the Southern region of the U.S., 20.3% lived in the Western region of the U.S., 25.2% lived in the Midwestern region of the U.S., and 19.0% lived in the Northeastern region of the U.S. Moreover, roughly half of the 12th-graders lived in suburban areas (48.0%), followed by urban (28.5%) and rural areas (23.5%). Please refer to 1c. Design and Sample on page 77 in the Appendix C for more details.

Key Measures

Key Measures for Involvement in School-Based Extracurricular Activities. In addition to sports, this study measured extracurricular involvement in five other school-based activities. See the list below. (Note that athletic participation rates did NOT count multi-sport athletes multiple times).

1. Athletic teams
2. Music or other performing arts
3. School newspaper or yearbook
4. Academic clubs
5. Student council or government
6. Other school clubs or activities

It should be noted that involvement was assessed in the following manner: (1) not at all involved, (2) involvement at a slight/moderate extent, and (3) involvement at a considerable/great extent.

Key Developmental Outcomes. The outcomes of interest assessed four unique domains:

1. Psychological Health
    - Depressive affect (e.g., hopelessness and feeling that life has no meaning)
    - Risk taking (e.g., enjoying doing risky or dangerous activities)
    - Self-esteem (e.g., feelings of self-worth and confidence)
    - Self-derogation (e.g., feeling inadequate and lacking self-worth)
2. Substance Use/Driving under the influence
    - Past 30-day traditional cigarette use
    - Past two-week binge drinking
    - Past 30-day marijuana use
    - Past 30-day nonmedical use of prescription drugs (e.g., painkillers)
    - Driving under the influence during the past year
3. Academic Achievement/Academic Ability
    - Self-rated school ability is above average
    - Self-rated intelligence is above average
    - Has an average grade of an A or A-
    - Definitely will graduate from a four-year college
    - Definitely will attend graduate/professional school
4. Academic Problems/Academic Difficulties.
    - Cut a full day of school in the past four weeks
    - Often skipped school without permission during the past year
    - Often got into trouble at school due to misbehavior during the past year
    - Often hated being in school during the past year
    - Attended summer school due to poor grades

Please refer to 2c. Measures on page 77 and 3c. Data Analysis on page 79 in Appendix C for more details on the analytic approach used in the current study.

RESULTS

Trends and Characteristics of Involvement in School Extracurricular Activities

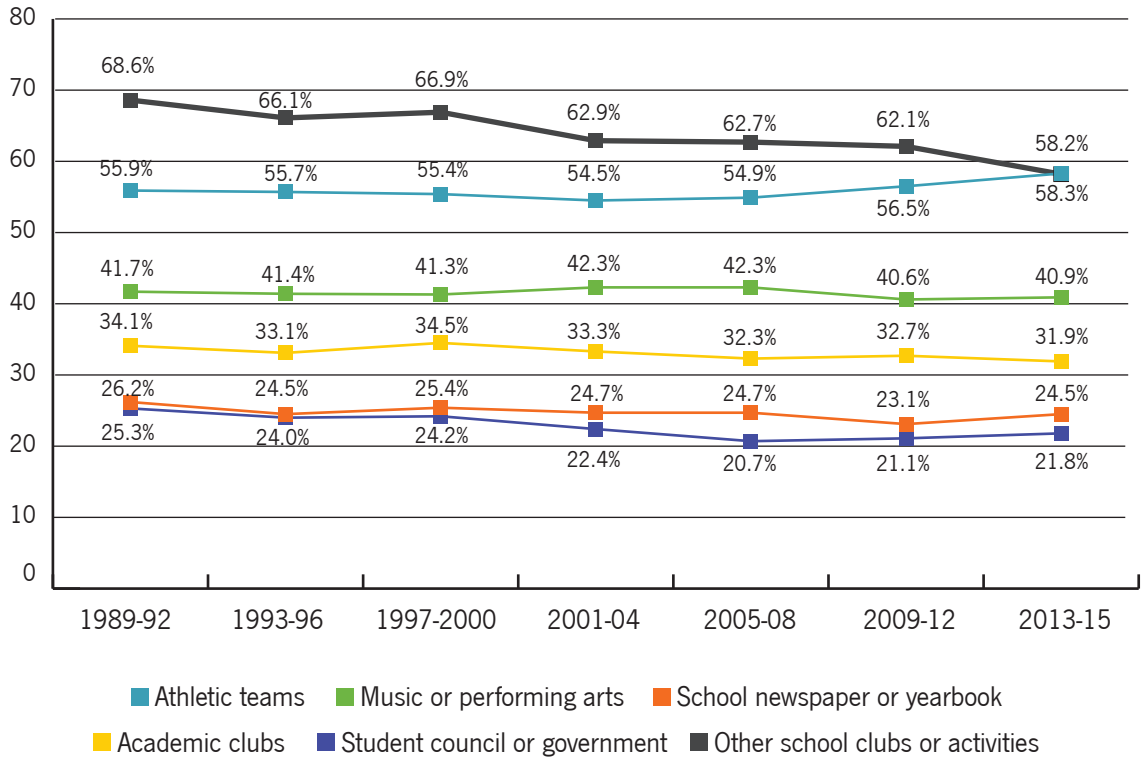
Trends in Extracurricular Activities between 1989 and 2015

In 2015 roughly 58% of 12th-grade students were involved in school-based athletics[1], followed by 58% of 12th-graders involved in "other" school activities, 41% of 12th-graders involved in music and performing arts, 32% of 12th-graders involved in academic clubs, 25% of 12th-graders involved in the school newspaper and yearbook, and 22% of 12th-graders involved in student council or government (see Figure 20 on following page). Interestingly, these participation trends in school-based extracurricular activities only showed an increase in athletics between 1989 and 2015; decreases in participation were found for involvement in school newspapers, academic clubs, student council, and "other" activities between 1989 and 2015. Trends were similar for participation in music and performing arts during this 27-year period (see Table 1 on page 32).

Table 1 provides several sociodemographic characteristics associated with participation in these school-based extracurricular activities. For instance, we see substantial differences between males and females regarding participation in each of the six extracurricular activities. While females are less likely to be involved with school-based athletics (62.6% of males versus 49.3% of females), females are more likely to be involved in music and performing arts, the school newspaper or yearbook, academic clubs, student council, and "other" school-based activities when compared to males. Please refer to Table 1 on page 32 for additional differences in participation in extracurricular activities by race, parental education, urbanicity, U.S. region, and cohort year.

1 These estimates regarding sport participation rates are different due to differences in how they were measured. The CRDC measures sport participation at the school level (and counts multi-sport athletes more than once). The MTF measures sport participation at the individual level (and does not count multi-sport athletes more than once). The estimate for sport participation during the 2013-14 school year was roughly 47%, while the participation rate in the MTF was roughly 58% between 2013-15. Accordingly, these differences were due to differences were more than likely due to measurement differences due to both the level of analysis, and how the questions were worded on the survey documents.

Figure 20: Percent of 12th-Graders Involved in School-Based Extracurricular Activities



Data comes from the MTF (1989-2015)

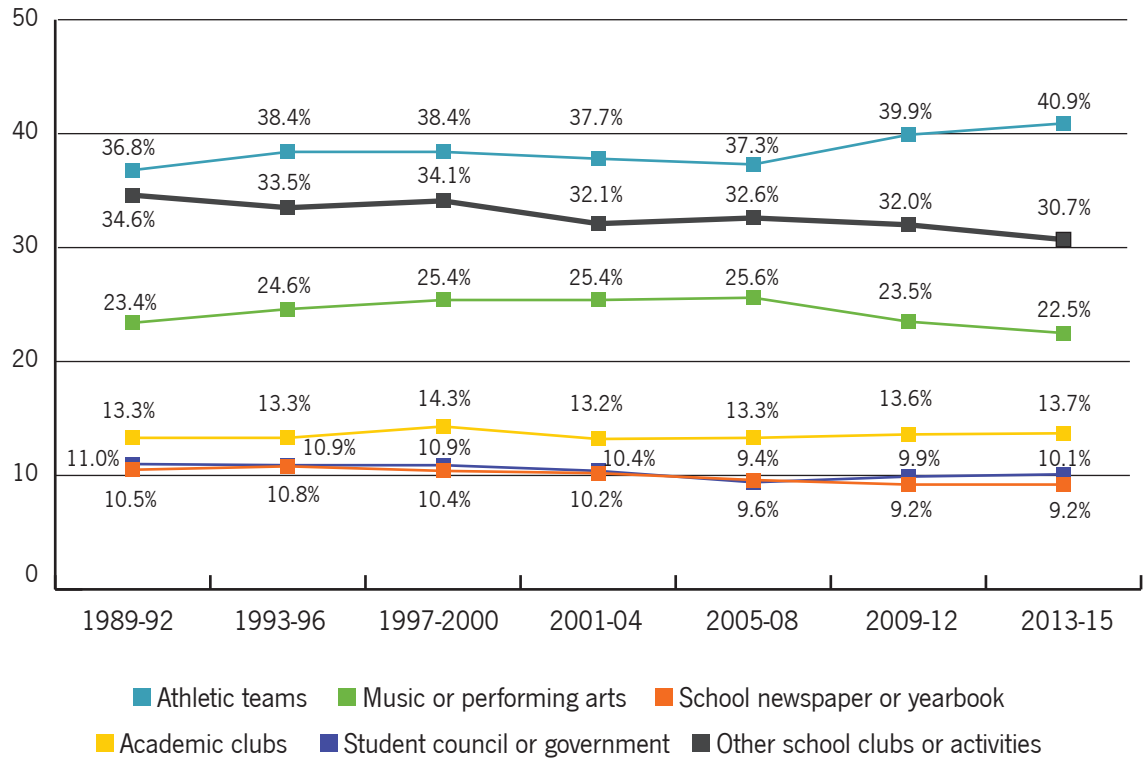
Table 1: Sociodemographic Characteristics Associated with Participation in School-Based Extracurricular Activities						
	% Involved with Athletic Teams	% Involved with Music or Performing Arts	% Involved with School Newspaper or Yearbook	% Involved with Academic Clubs	% Involved with Student Council or Government	% Involved with Other School Clubs or Activities
Overall	55.8%	41.5%	24.7%	33.2%	22.9%	64.3%
Sex						
Male[1]	62.6%	34.6%	19.9%	29.4%	19.1%	57.2%
Female	49.3%[c]	48.1%[c]	29.3%[c]	37.0%[c]	26.5%[c]	71.6%[c]
Race						
White[1]	57.3%	40.8%	24.7%	32.7%	22.9%	65.4%
Black	56.1%[c]	43.8%[c]	25.2%[a]	32.1%	25.7%[c]	64.5%
Other	51.7%[c]	42.3%[c]	24.6%[a]	35.1%[c]	21.5%	61.2%
Parental Education						
Less than a college degree[1]	51.1%	38.4%	23.1%	29.6%	20.9%	61.0%
College degree or higher	61.7%[c]	45.2%c	26.8%[c]	37.6%[c]	25.4%[c]	69.2%[c]
Urbanicity						
Rural[1]	57.4%	43.2%	26.0%	34.6%	26.1%	67.3%
Suburban	55.8%[c]	41.5%[c]	23.4%[c]	33.1%[c]	21.8%[c]	63.8%[c]
Urban	54.3%[c]	40.1%[c]	26.0%[b]	32.3%[c]	22.0%[c]	62.6%[c]
U.S. Region						
Northeast[1]	58.2%	39.8%	30.0%	31.5%	23.0%	62.7%
Midwest	59.6%	43.3%[c]	24.0%[c]	32.4%	23.2%	63.8%
South	52.1%[c]	41.7%[a]	23.2%[c]	35.3%[c]	23.2%	67.6%[c]
West	55.5%[b]	40.7%	23.5%[c]	32.3%	21.9%	60.8%
Cohort Year						
1989-92[1]	55.9%	41.7%	26.2%	34.1%	25.3%	68.6%
1993-96	55.7%	41.4%	24.5%[c]	33.1%[a]	24.0%[b]	66.1%[c]
1997-2000	55.4%	41.3%	25.4%[a]	34.5%	24.2%	66.9%[b]
2001-04	54.5%	42.3%	24.7%[b]	33.3%[a]	22.4%[c]	62.9%[c]
2005-08	54.9%	42.3%	24.7%[c]	32.3%[c]	20.7%[c]	62.7%[c]
2009-12	56.5%	40.6%[b]	23.1%[c]	32.7%[c]	21.1%[c]	62.1%[c]
2013-15	58.3%[c]	40.9%	24.5%[c]	31.9%[c]	21.8%[c]	58.2%[c]

a = p<.05, b = p<.01, c = p<.001 indicate statistically significant differences when compared to the reference group (denoted with 1). All significance tests accounted for cohort year, sex, race, parental education, U.S. region and urbanicity.

Trends in High Involvement (i.e., considerable or great extent) in Extracurricular Activities between 1989 and 2015

In 2015 roughly 41% of 12th-grade students were involved in school-based athletics at a considerable or great extent, followed by 31% of 12th-graders involved in "other" school activities, 23% of 12th-graders involved in music and performing arts, 14% of 12th-graders involved in academic clubs, 10% of 12th-graders involved in student council or government, and 9% of 12th-graders involved in the school newspaper and yearbook (see Figure 21). Participation trends in involvement at a considerable or great extent in school-based extracurricular activities only showed an increase in athletics and academic clubs between 1989 and 2015; similar to the general participation rates, decreases in participation at a considerable or great extent were found for involvement in music and performing arts, student

Figure 21: Percent of 12th-Graders Involved in School-Based Extracurricular Activities at a "Considerable/Great Extent"



Data comes from the MTF (1989-2015)

council, and "other" activities between 1989 and 2015. Trends were similar for participation at a considerable or great extent in the school newspaper or yearbook during this 27-year period (see Table 2 on page 35).

Table 2 provides details on several sociodemographic characteristics associated with participation at a considerable or great extent in these school-based extracurricular activities. For instance, we see substantial gender differences between males and females regarding participation in each of the six extracurricular activities. While females are less likely to be involved with school-based athletics at a considerable or great extent (44.6% of males versus 32.5% of females), females are more likely to be involved at a considerable or great extent in music and performing arts, the school newspaper or yearbook, academic clubs, student council, and "other" school-based activities when compared to males. Please refer to Table 2 on page 35 for additional differences in participation in extracurricular activities at a considerable or great extent by race, parental education, urbanicity, U.S. region, and cohort year.

Trends in the Overlap of Involvement in School-Based Athletics and Other Extracurricular Activities

Nearly half of 12th-grade students in 2015 were involved in school-based athletics and involved in at least one other school-based extracurricular activity (48%). Approximately, 16% of 12th-graders in 2015 were involved in more than one school-based extracurricular activity that did not include athletics, while 14% of 12th-graders in 2015 had no involvement in any school-based activity. Roughly 10% of 12th-graders in 2015 were involved in school-based athletics only, and 11% of 12th-graders were involved in only one school-based extracurricular activity that was not athletics. Participation trends between 1989 and 2015 provide evidence that the percentage of 12th-graders not involved in any extracurricular activity has increased (12% in 1989 versus 14% in 2015). Additionally, participation trends in school-based athletics only has increased during this 27-year period (6% in 1989 versus 10% in 2015). Notable decreases were found in participation trends for involvement in two or more extracurricular activities (with or without athletics being one of those activities) (see Figure 22 on page 36 and Table 3 on page 37).

Table 3 provides details on several sociodemographic characteristics associated with the overlap of involvement in school-based athletics and other extracurricular activities. For instance, we see substantial differences between males and females regarding involvement in athletics only (12.7% of males versus 3.3% of females). Please refer to Table 3 on page 37 for additional differences by race, parental education, urbanicity, U.S. region, and cohort year.

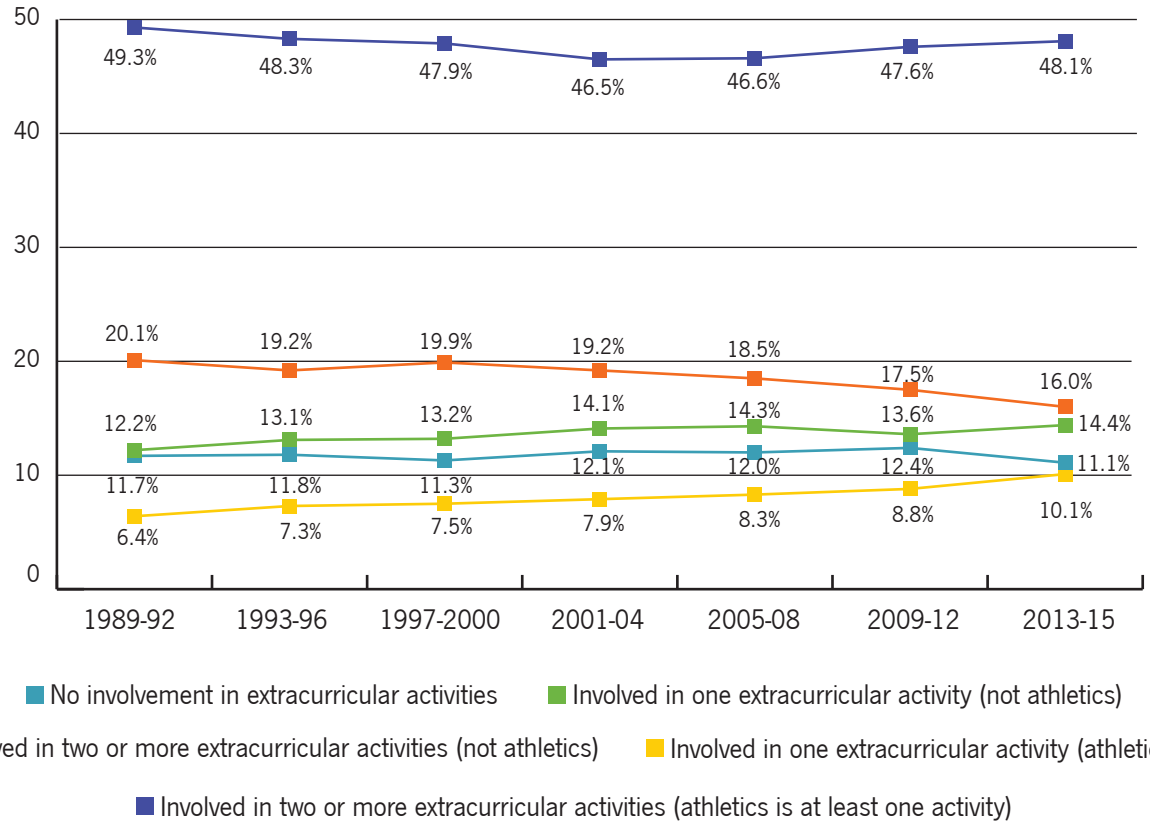
Figure 23 on page 38 provides the percentage of overlap among 12th-graders who are involved in school-based athletics who are also involved in certain types of extracurricular activities (see Figure 23 on page 38). For example, Figure 23 shows that among 12th-graders involved in music and performing arts, roughly 62% are also involved

Table 2: Sociodemographic Characteristics Associated with Participation at a Considerable or Great Extent in School-Based Extracurricular Activities

	% Involved with Athletic Teams to a Considerable/ Great Extent	% Involved with Music or Performing Arts to a Considerable/ Great Extent	% Involved with School Newspaper or Yearbook to a Considerable/ Great Extent	% Involved with Academic Clubs to a Considerable/ Great Extent	% Involved with Student Council or Government to a Considerable/ Great Extent	% Involved with Other School Clubs or Activities to a Considerable/ Great Extent
Overall	38.4%	24.4%	10.1%	13.5%	10.4%	32.9%
Sex						
Male[1]	44.6%	18.8%	6.3%	10.5%	7.5%	24.9%
Female	32.5%[c]	29.9%[c]	13.6%[c]	16.4%[c]	13.4%[c]	41.0%[c]
Race						
White[1]	40.2%	25.1%	10.3%	12.7%	10.6%	32.2%
Black	39.5%[c]	25.3%[a]	9.1%[a]	14.1%[b]	12.1%[c]	38.7%[c]
Other	33.1%[c]	22.2%	9.8%	15.4%[c]	9.3%	32.1%[c]
Parental Education						
Less than a college degree[1]	33.3%	21.4%	9.1%	12.0%	9.3%	31.1%
College degree or higher	44.7%[c]	28.2%[c]	11.2%[c]	15.2%[c]	12.0%[c]	35.8%[c]
Urbanicity						
Rural[1]	39.7%	26.1%	11.3%	14.9%	12.7%	36.5%
Suburban	38.9%[b]	24.8%[b]	9.0%[c]	13.1%[c]	9.5%[c]	32.1%[c]
Urban	36.4%[c]	22.4%[c]	10.8%[b]	13.1%[c]	10.1%[c]	31.5%[c]
U.S. Region						
Northeast[1]	40.4%	23.4%	11.1%	12.4%	10.8%	31.1%
Midwest	41.0%	27.0%[c]	10.3%[b]	12.8%	11.2%	31.4%
South	35.9%[c]	24.3%	9.6%[c]	15.2%[c]	10.3%[a]	37.4%[c]
West	37.6%[b]	22.5%	9.4%[c]	12.4%	9.4%	28.9%[c]
Cohort Year						
1989-92[1]	36.8%	23.4%	10.5%	13.3%	11.0%	34.6%
1993-96	38.4%	24.6%	10.8%	13.3%	10.9%	33.5%[a]
1997-2000	38.4%	25.4%[a]	10.4%	14.3%	10.9%	34.1%
2001-04	37.8%	25.4%[a]	10.2%	13.2%	10.4%	32.1%[c]
2005-08	37.3%	25.6%[a]	9.6%[c]	13.3%	9.4%[c]	32.6%[c]
2009-12	39.9%[c]	23.5%	9.2%[c]	13.6%	9.9%[b]	32.0%[c]
2013-15	40.9%[c]	22.5%	9.2%[c]	13.7%	10.1%	30.7%[c]

a = p<.05, b = p<.01, c = p<.001 indicate statistically significant differences when compared to the reference group (denoted with 1). All significance tests accounted for cohort year, sex, race, parental education, U.S. region and urbanicity.

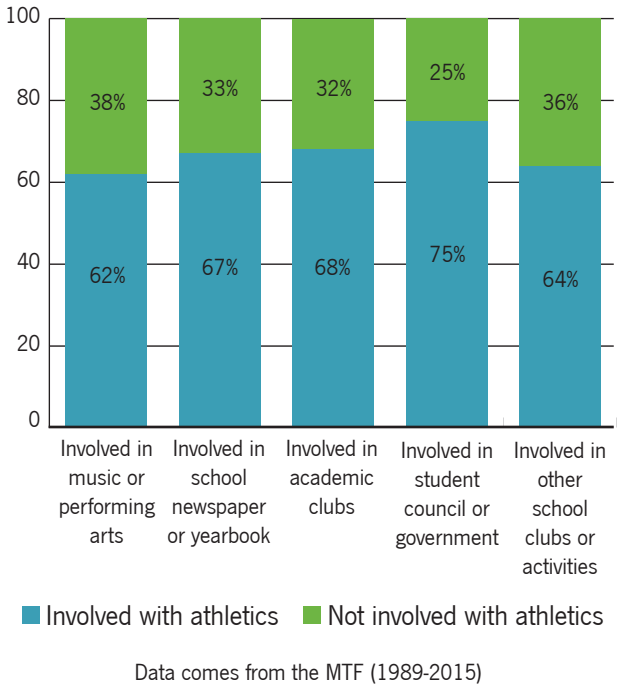
Figure 22: Percent of 12th-Graders Involved in Multiple Extracurricular Activities



Data comes from the MTF (1989-2015)

Table 3: Sociodemographic Characteristics Associated with the Overlap of Involvement in School-Based Athletics and Other Extracurricular Activities					
	% with No Involvement in Extracurricular Activities	% Involved in One Extracurricular Activity (Not Athletics)	% Involved in Two or More Extracurricular Activities (Not Athletics)	% Involved in One Extracurricular Activity (Athletics Only)	% Involved in Two or More Extracurricular Activities (Athletics Is At Least One Activity)
Overall	13.5%	13.5%	13.5%	7.9%	47.8%
Sex					
Male[1]	15.3%	10.1%	11.9%	12.7%	49.8%
Female	11.3%[c]	13.5%[c]	25.8%[c]	3.3%[c]	45.9%[c]
Race					
White[1]	13.0%	11.3%	18.2%	8.0%	49.2%
Black	12.5%[b]	12.4%	18.8%[a]	8.1%	47.9%[c]
Other	15.2%	12.7%	20.3%[c]	7.7%[b]	43.9%[b]
Parental Education					
Less than a college degree[1]	15.9%	13.8%	19.1%	8.2%	42.8%
College degree or higher	9.9%[c]	9.4%[c]	18.9%[a]	7.5%[c]	54.1%[c]
Urbanicity					
Rural[1]	12.1%	11.9%	18.5%	7.0%	50.3%
Suburban	13.7%[c]	11.8%	18.5%	8.3%[c]	47.5%[c]
Urban	14.3%[c]	11.7%	19.5%[a]	8.1%b	46.1%[c]
U.S. Region					
Northeast[1]	14.4%	10.1%	17.3%	8.7%	49.3%
Midwest	13.3%	10.7%	16.3%	8.4%	51.2%
South	12.7%[c]	13.2%[c]	21.9%[c]	6.7%[c]	45.2%[c]
West	14.3%	12.2%[c]	18.0%	8.7%	46.6%[b]
Cohort Year					
1989-92[1]	12.2%	11.7%	20.1%	6.4%	49.3%
1993-96	13.1%[a]	11.8%	19.2%	7.3%b	48.3%[a]
1997-2000	13.2%[a]	11.3%	19.9%	7.5%[c]	47.9%[a]
2001-04	14.1%[c]	12.1%	19.2%	7.9%[c]	46.5%[c]
2005-08	14.3%[c]	12.0%	18.5%[c]	8.3%[c]	46.6%[c]
2009-12	13.6%[b]	12.4%	17.5%[c]	8.8%[c]	47.6%[a]
2013-15	14.4%[c]	11.1%	16.0%[c]	10.1%[c]	48.1%
a = p<.05, b = p<.01, c = p<.001 indicate statistically significant differences when compared to the reference group (denoted with 1). All significance tests accounted for cohort year, sex, race, parental education, U.S. region and urbanicity.					

Figure 23: Percent Overlap Among 12th-Graders Involved in Athletics and Other Extracurricular Activities



Data comes from the MTF (1989-2015)

in school-based athletics. Figure 23 highlights that there is substantial overlap among 12th-graders who are involved in school-based athletics and other types of extracurricular activities – namely, more than 60% of 12th-graders involved in different types of school-based extracurricular activities are also involved in school-based athletics.

More than 60% of 12th-graders involved in different types of school-based extracurricular activities are also involved in school-based athletics.

The Impact of Involvement in Different School-Based Extracurricular Activities

In order to assess the impact of the different types of extracurricular activities on various outcomes with a focus on school-based athletics, we ran several multivariate analyses that included each extracurricular activity in the estimated models to determine the overall impact for each activity. It should be noted that Beta coefficients were provided for the results for psychological health; these estimates reveal the overall strength of each variable in the model and can take on values between -1 and 1 (-1 or 1 indicates perfect prediction, 0 indicates no association). Adjusted odds ratios were provided for the analyses assessing substance use, academic achievement, and academic problems. Values below 1 indicate a reduction in the odds of a specific outcome and values above 1 indicate an increase in the odds of a specific outcome (values equal to 1 indicate no association). To help aid the reader, we have highlighted statistically significant results in **green** or **red**. **Green indicates a positive effect (i.e., the activity is producing a good result developmentally)** and **red indicates a negative effect (i.e., the activity is producing a bad result developmentally)**. Detailed tables for these analyses are provided in Appendix C (see Appendix 4c. Tables B-H on pages 80-89).

Psychological Health

The results from Figures 24a-24d on pages 40-43 show the unique impact of each extracurricular activity (by level of involvement) on each of the four psychological constructs (see Figures 24a-24d on pages 40-43). First, we see that both involvement at a slight/moderate extent and involvement at a considerable/great extent in school-based athletics has a **positive impact** on both depressive affect and self-derogation when compared to non-participation in school-based athletics, while involvement at a considerable/great extent in school-based athletics has a **positive impact** on self-esteem when compared to non-participation in school-based athletics (regardless of involvement in other types of extracurricular activities). Moreover, we see that both involvement at a slight/moderate level and involvement at a considerable/great extent in school-based athletics has a **negative impact** on risk taking[2] when compared to non-participation in school-based athletics.

It must be highlighted that involvement at a considerable/great extent in school-based athletics is one of the strongest predictors (**having a positive impact**) of depressive affect, self-esteem, and self-derogation when compared to other school-based extracurricular activities. Only involvement at a considerable/great extent in "other" school-based activities has a slightly stronger effect on these outcomes.

It is also noteworthy that involvement at a slight/moderate extent was also found to be a substantial predictor (**have a positive impact**) of depressive affect, self-esteem, and self-derogation when compared to other school-based extracurricular activities. Finally, involvement at a considerable/great extent and slight/moderate extent were the strongest predictors of risk taking (**having a negative impact**) when compared to other types of involvement in extracurricular activities.

Substance Use/Driving under the Influence

Figures 25a-25e on pages 44-48 provide the results of the association between each extracurricular activity (by level of involvement) and the different measures for substance use outcomes (see Figures 25a-25e on pages 44-48). First, we see that involvement at a considerable/great extent in school-based athletics is associated with lower odds (**has a positive impact**) of cigarette use, marijuana use and nonmedical use of prescription drugs when compared to non-participation in school-based athletics. However, involvement at a considerable/great extent in school-based athletics was associated with higher odds of binge drinking (**has a negative impact**) when compared to non-participation in school-based athletics.

Text continues on page 49.

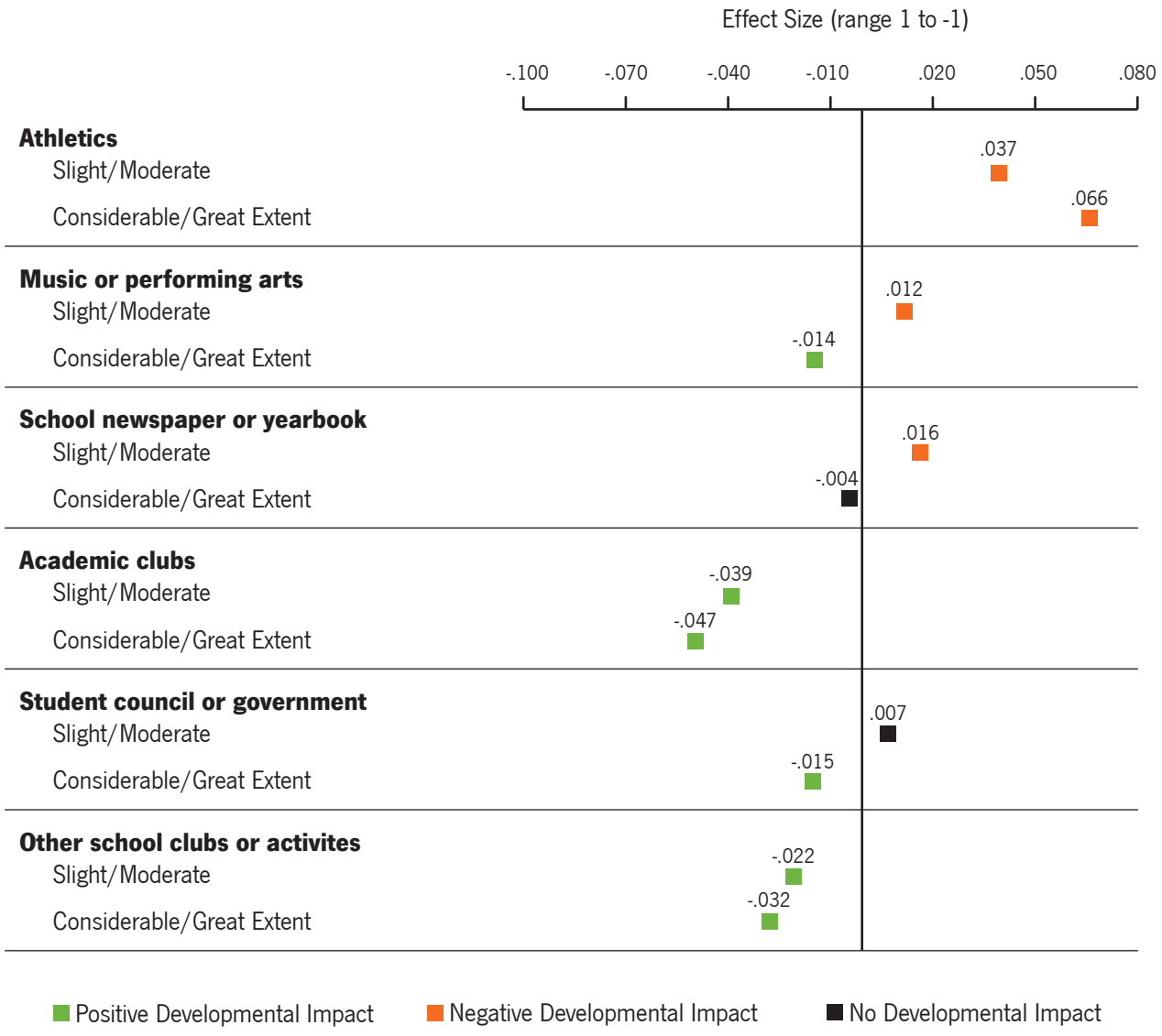
2 Risk taking was a composite measure of whether students positively answered two questions: "I like to test myself every now and then by doing something a little risky" and "I get a real kick out of doing things that are a little dangerous." While risk taking can be viewed as a negative attribute, it may also signify a personality that is more likely to take risks in order to engage in more innovative behavior within sporting or academic contexts.

Figure 24a: Examining the Effect of Participation in School-Based Athletics on Depressive Affect (Hopelessness and Feeling That Life Has No Meaning)

Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

Data comes from the MTF (1989-2015)

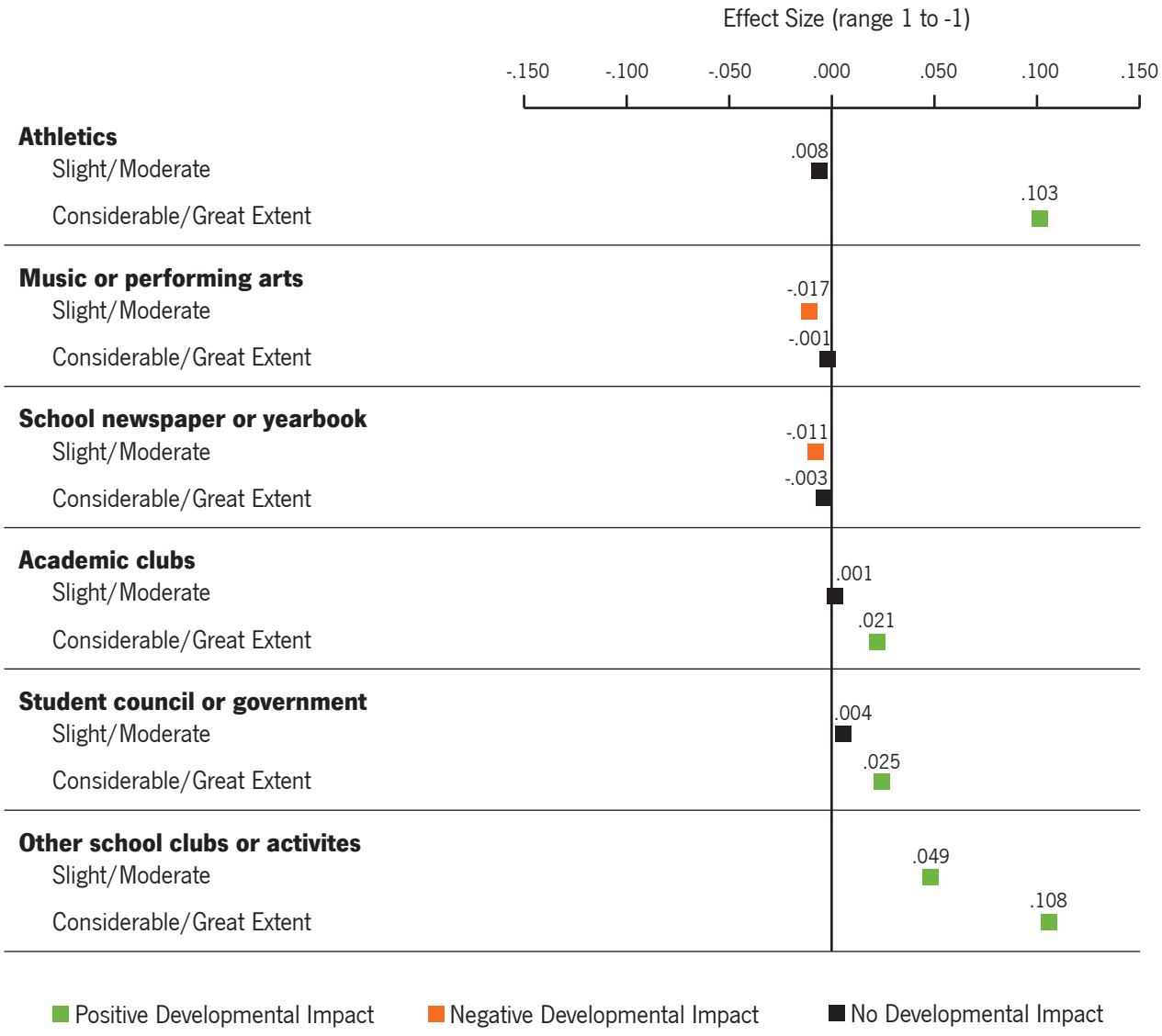
Figure 24b: Examining the Effect of Participation in School-Based Athletics on Risk Taking (Enjoying Doing Risky or Dangerous Activities)



Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

Data comes from the MTF (1989-2015)

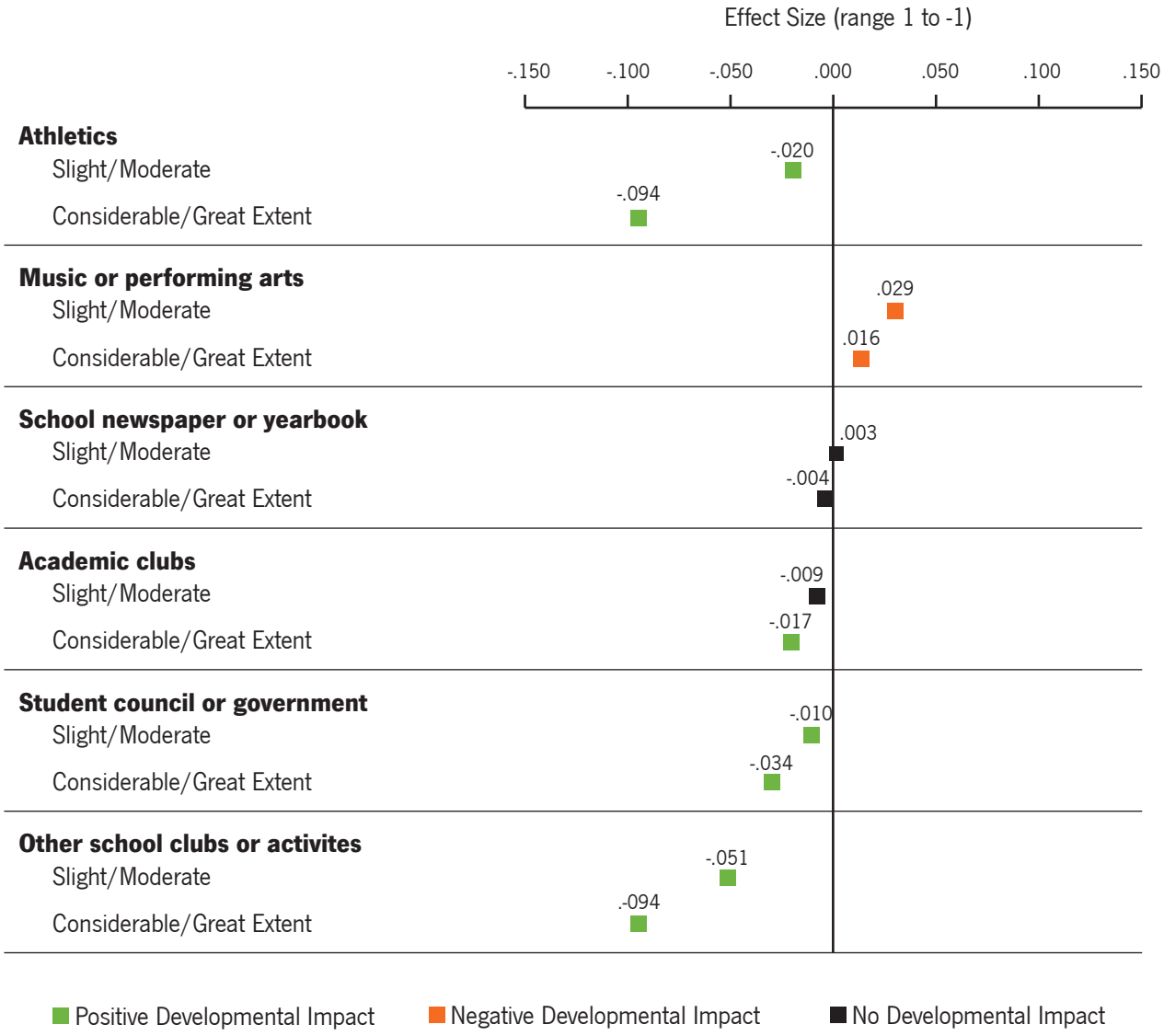
Figure 24c: Examining the Effect of Participation in School-Based Athletics on Self-Esteem (Feelings of Self-worth and Confidence)



Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

Data comes from the MTF (1989-2015)

Figure 24d: Examining the Effect of Participation in School-Based Athletics on Self-Derogation (Feeling Inadequate and Lacking Self-Worth)



Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

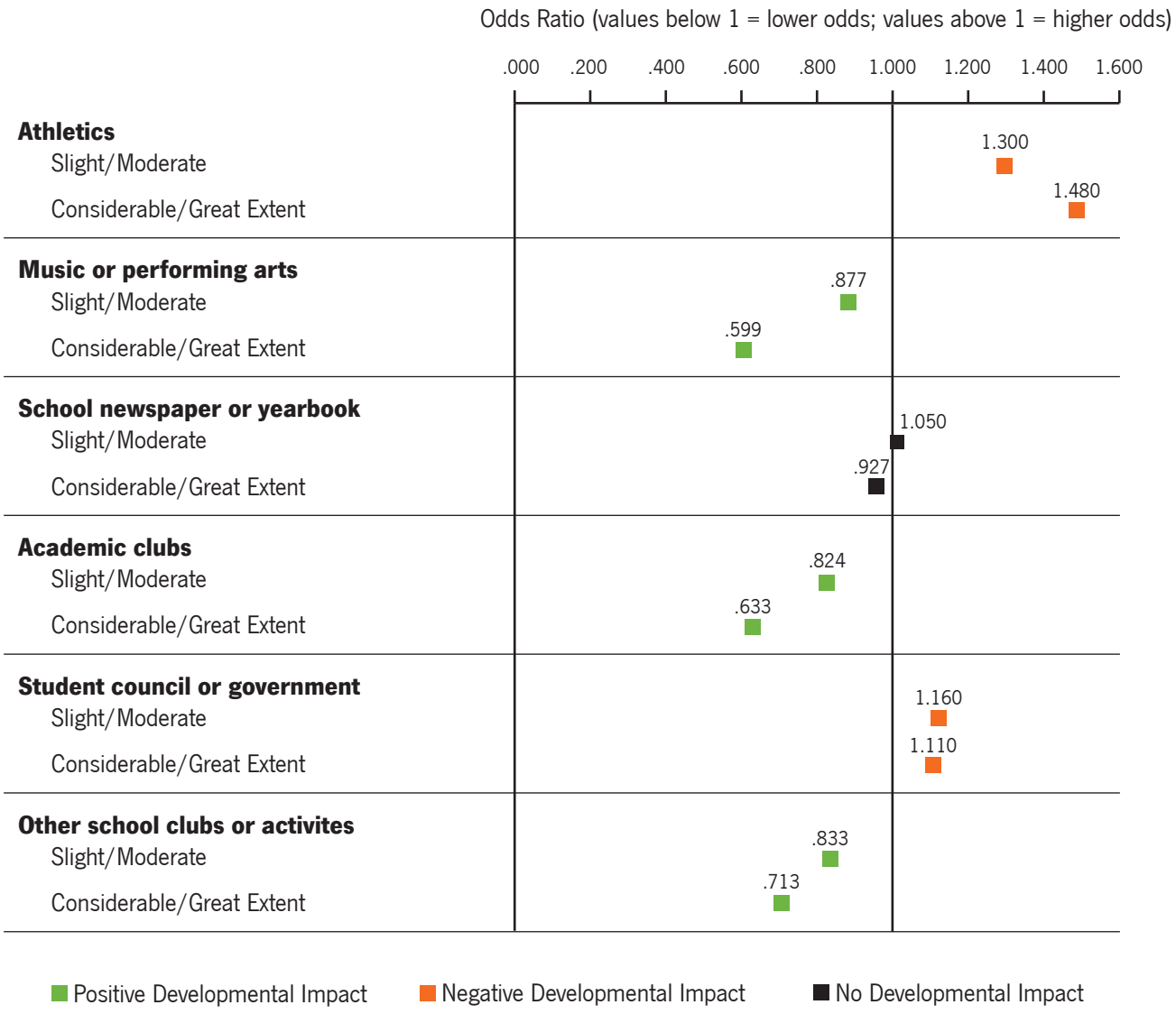
Data comes from the MTF (1989-2015)

Figure 25a: Examining the Effect of Participation in School-Based Athletics on Past 30-Day Cigarette Use

Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

Data comes from the MTF (1989-2015)

Figure 25b: Examining the Effect of Participation in School-Based Athletics on Past-Week Binge Drinking



Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

Data comes from the MTF (1989-2015)

Figure 25c: Examining the Effect of Participation in School-Based Athletics on Past 30-Day Marijuana Use

Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

Data comes from the MTF (1989-2015)

Figure 25d: Examining the Effect of Participation in School-Based Athletics on Past 30-Day Nonmedical Prescription Drug Use

Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

Data comes from the MTF (1989-2015)

Figure 25e: Examining the Effect of Participation in School-Based Athletics on Driving Under the Influence During the Past Year

Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

Data comes from the MTF (1989-2015)

Additionally, involvement at a slight/moderate extent in school-based athletics was associated with higher odds (**has a negative impact**) of binge drinking, marijuana use, and driving under the influence when compared to non-participation in school-based athletics.

With respect to the relative **positive impact** that participation in school-based sports had on these substance use outcomes when compared to other extracurricular activities, involvement at a considerable/great extent in school-based athletics ranked lower than involvement in "other" school-based activities, academic clubs, and performing arts, but higher than involvement in school newspapers/yearbook and student government. However, involvement at a slight/moderate extent in school-based athletics typically ranked the lowest with respect to the relative **positive impact** on these substance use outcomes; slight/moderate involvement in school-based athletics tends to be associated with a greater likelihood (**has a negative impact**) of substance use behaviors when compared to involvement in other types of school-based activities.

Academic Achievement/Academic Ability

Figures 26a-26e on pages 50-54 provide the results of the association between each extracurricular activity (by level of involvement) and the different measures for academic achievement/academic ability (see Figures 26a-26e on pages 50-54). We see that involvement at a considerable/great extent in school-based athletics was associated with higher odds (**has a positive impact**) of study participants having an average grade of an A or A-, indicating that they definitely will graduate from a four-year college, and indicating that they will attend a graduate/professional school when compared to their peers who do not participate in school-based athletics. However, involvement at a considerable/great extent in school-based athletics was associated with lower odds (**has a negative impact**) of students indicating that their intelligence is "above average" when compared to their peers who do not participate in these activities. Additionally, involvement at a slight/moderate extent in school-based athletics was associated with lower odds (**has a negative impact**) of students indicating that their school ability is "above average," indicating that their intelligence is "above average," and having an average grade of an A or A- when compared to adolescents who did not participate in school-based athletics.

When assessing the relative **positive impact** that participation in school-based sports had on these academic-based outcomes when compared to other extracurricular activities, involvement at a considerable/great extent in school-based athletics ranked lower than involvement in "other" school-based activities, academic clubs, and student government, but higher than involvement in school newspapers/yearbook and performing arts. However, involvement at a slight/moderate extent in school-based athletics typically ranked second to last (in front of involvement at a slight/moderate extent in performing arts) with respect to the relative **positive impact** on these academic-based outcomes.

Text continues on page 60.

Figure 26a: Examining the Effect of Participation in School-Based Athletics on Self-Rated School Ability Being Above Average

Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

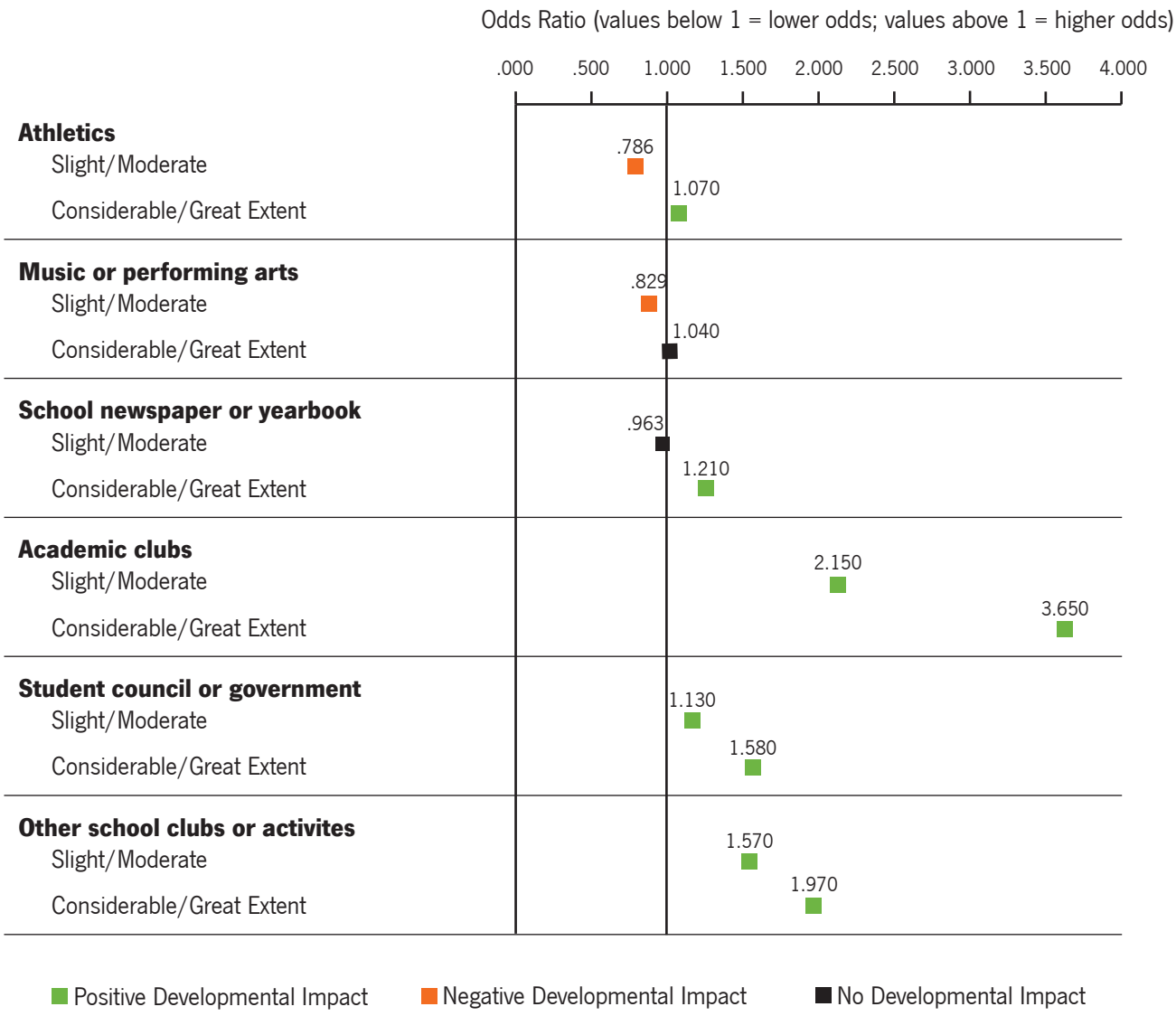
Data comes from the MTF (1989-2015)

Figure 26b: Examining the Effect of Participation in School-Based Athletics on Self-Rated Intelligence Being Above Average

Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

Data comes from the MTF (1989-2015)

Figure 26c: Examining the Effect of Participation in School-Based Athletics on Having an Average Grade of an A or A-



Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

Data comes from the MTF (1989-2015)

Figure 26d: Examining the Effect of Participation in School-Based Athletics on Aspirations to Graduate from a Four-Year College

Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

Data comes from the MTF (1989-2015)

Figure 26e: Examining the Effect of Participation in School-Based Athletics on Aspirations to Attend Graduate or Professional School

Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

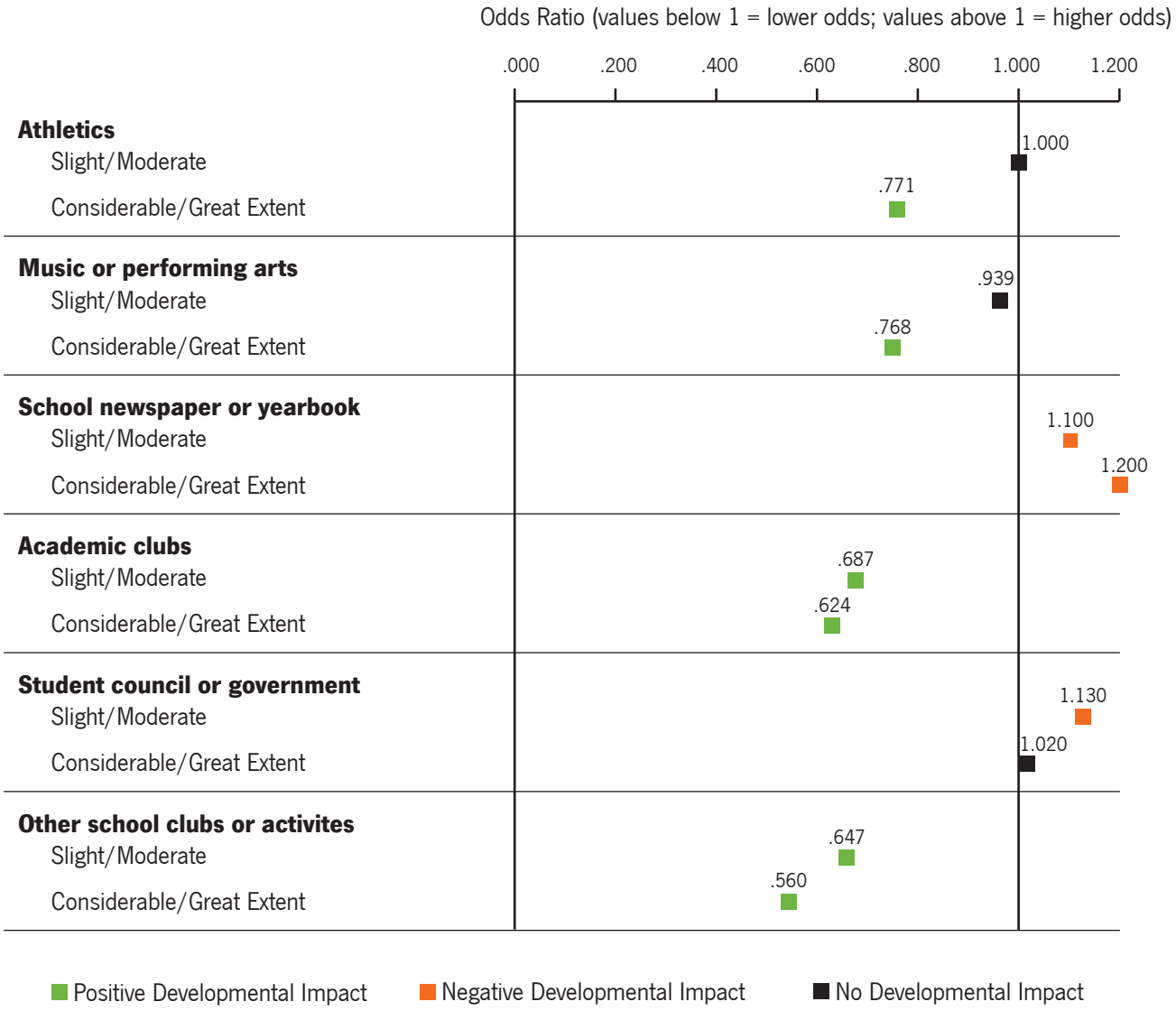
Data comes from the MTF (1989-2015)

Figure 27a: Examining the Effect of Participation in School-Based Athletics on Cutting a Full Day of School

Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

Data comes from the MTF (1989-2015)

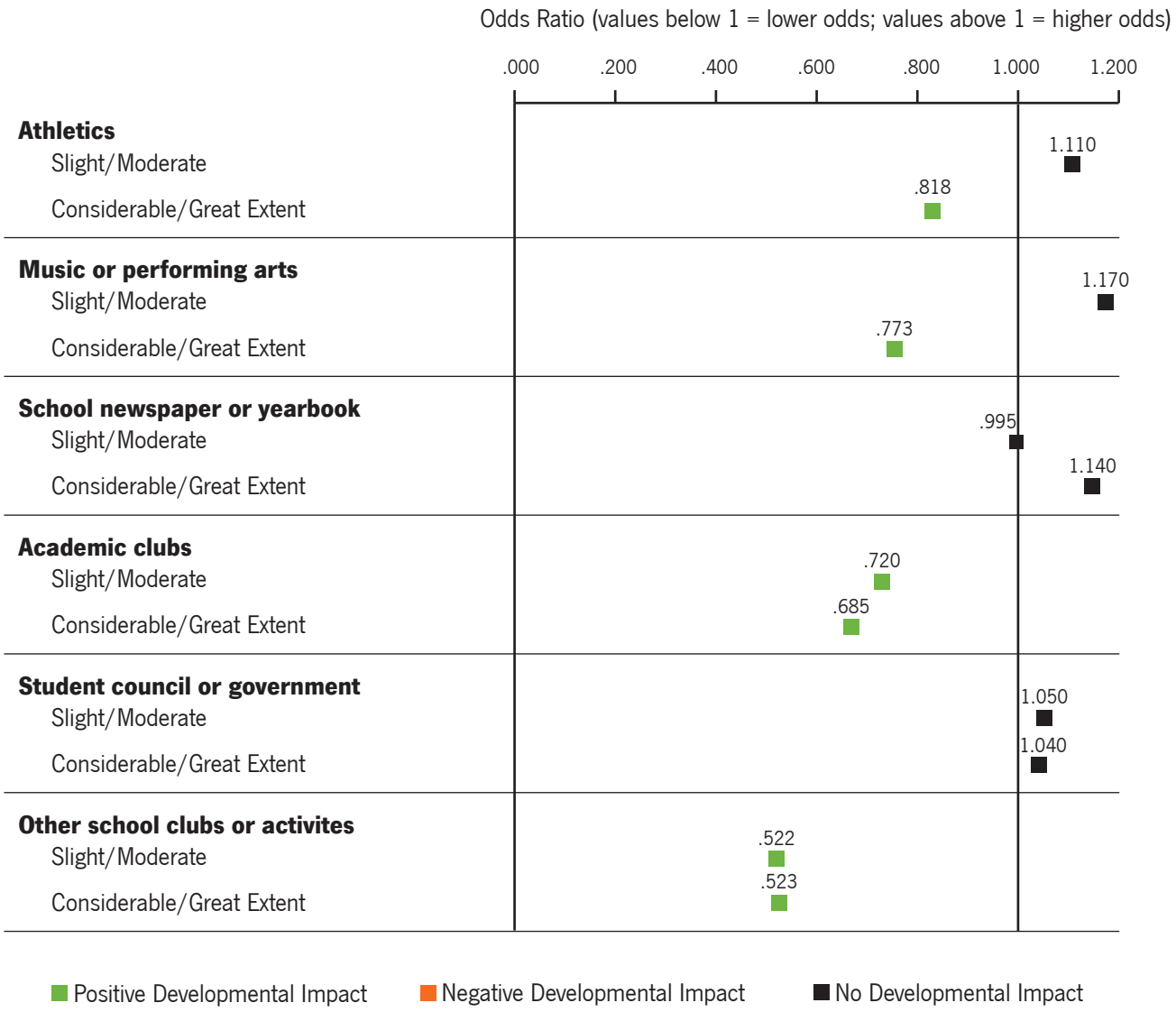
Figure 27b: Examining the Effect of Participation in School-Based Athletics on Skipping School Without Permission



Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

Data comes from the MTF (1989-2015)

Figure 27c: Examining the Effect of Participation in School-Based Athletics on Getting into Trouble at School Due to Misbehavior



Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

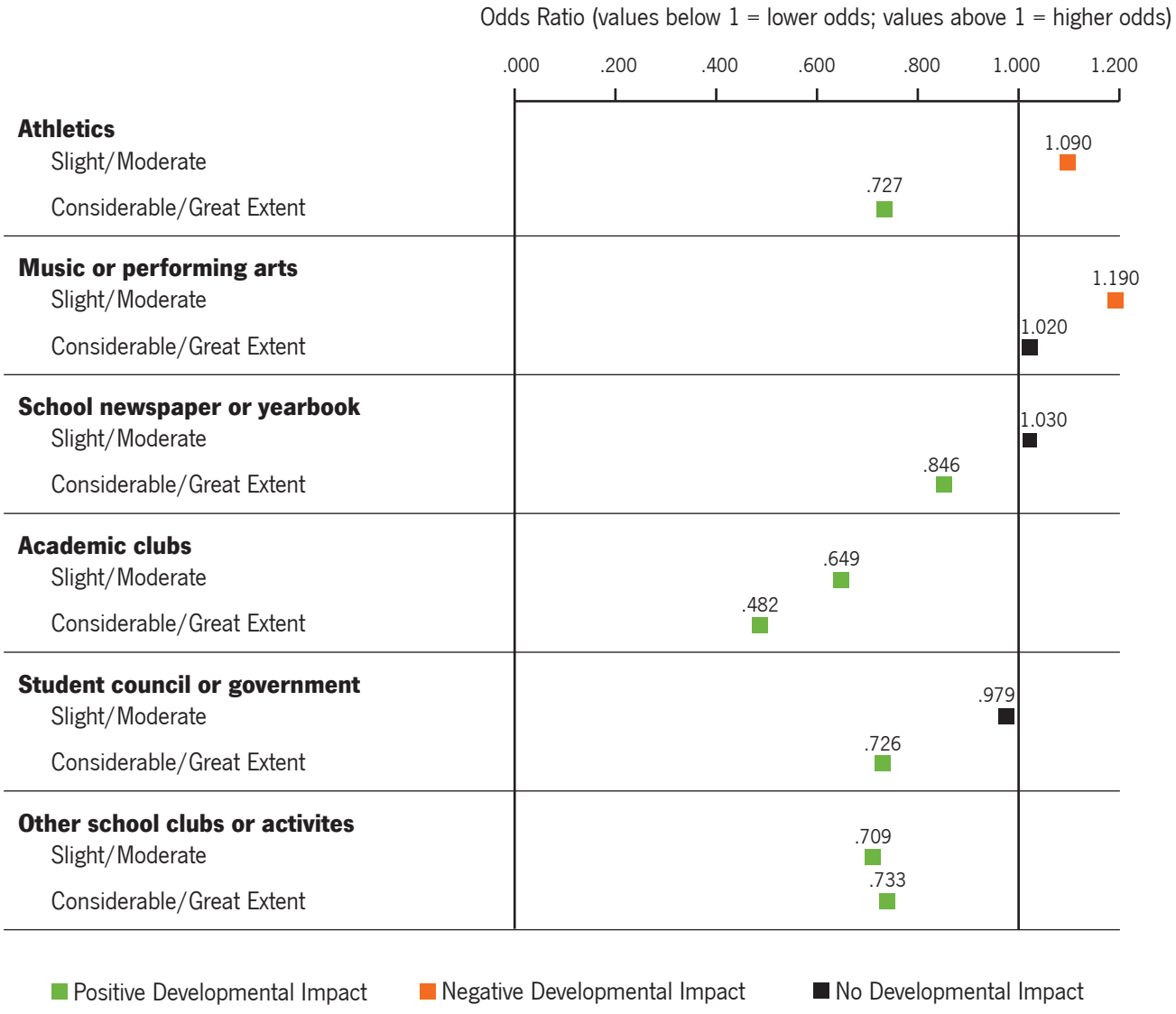
Data comes from the MTF (1989-2015)

Figure 27d: Examining the Effect of Participation in School-Based Athletics on Hating Being at School

Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

Data comes from the MTF (1989-2015)

Figure 27e: Examining the Effect of Participation in School-Based Athletics on Attending Summer School Due to Poor Grades



Reference group refers to adolescents not involved in the extracurricular activity being assessed. All analyses account for overlap with respect to involvement in multiple extracurricular activities.

Data comes from the MTF (1989-2015)

Academic Problems/Academic Difficulties

Figures 27a-27e on pages 55-59 provide the results of the association between each extracurricular activity (by level of involvement) and the different measures for academic problems/difficulties (see Figures 27a-27e on pages 55-59). Involvement at a considerable/great extent in school-based athletics was associated with lower odds (**has a positive impact**) of adolescents cutting a full day of school, indicating that they often skip school without permission, indicating that they often get in trouble at school due to misbehavior, indicating that they often hate being in school, and indicating that they attended summer school due to poor grades when compared to their peers who did not participate in school-based athletics. Moreover, involvement at a slight/moderate extent in school-based athletics is associated with lower odds (**has a positive impact**) of adolescents indicating that they often hate being in school when compared to their peers who did not participate in these activities. However, involvement at a slight/moderate extent in school-based athletics was associated with higher odds (**has a negative impact**) of 12th-graders cutting a full day of school and indicating that they attended summer school due to poor grades when compared to those who did not participate in school-based athletics.

Regarding the relative **positive impact** that participation in school-based athletics had on these academic problem-based outcomes when compared to other extracurricular activities, involvement at a considerable/great extent in school-based athletics ranked lower than involvement in "other" school-based activities and academic clubs, but higher than involvement in school newspapers/yearbook, performing arts and student government. However, involvement at a slight/moderate extent in school-based athletics typically ranked low (in front of involvement at a slight/moderate extent in performing arts and student government) with respect to the relative **positive impact** on these academic based outcomes; slight/moderate involvement in school-based athletics tended to be associated with a greater likelihood (**has a negative impact**) of adolescents indicating academic problems when compared to involvement in other types of school-based activities.

Compared to other extracurricular activities, high levels of involvement in school-based athletics was associated with:

- **Lower levels of depression**
- **Higher levels of self-esteem**
- **Lower levels of self-derogation**
- **Higher grades**
- **Greater aspirations to attend college**
- **Lower risk of truancy and school misbehavior**
- **Lower risk of academic problems**
- **Lower risk of cigarette use**
- **Lower risk of marijuana use**
- **Lower risk of nonmedical use of prescription drugs**
- **Higher risk of binge drinking**

Discussion

The results from the analyses reveal several important findings. First, the results highlighted that school-based athletics continued to be the most popular activity provided by high schools in the U.S.; roughly 58% of 12th-graders were involved in this activity (41% are involved at a considerable or great extent). Moreover, it was the only school-based extracurricular activity that showed an increase in participation rates between 1989 and 2015. In 1989, 56% of 12th-graders were involved in school-based athletics (37% were involved at a considerable/great extent), while 58% were involved in school-based athletics in 2015 (41% were involved at a considerable/great extent). Unfortunately, school newspapers/yearbook, academic clubs, student council/government, and "other" activities all showed evidence of declines in participation rates during this 27-year period. More than 60% of all participants involved in music and performing arts, school newspapers/yearbook, academic clubs, student council/government, and "other" activities were involved in school-based athletics at some extent during the regular school year.

While the results showed a relatively diverse portfolio of involvement in various extracurricular activities among athletes, it was reassuring to see how high levels of involvement (i.e., considerable/great extent) in school-based athletics had a positive impact on several important developmental outcomes when accounting for involvement in other types of extracurricular activities. Of most importance, the study found that high levels of involvement in school-based athletics were one of the strongest correlates with lower levels of depression, higher levels of self-esteem, and lower levels of self-derogation among 12th-graders — no other identifiable school-based extracurricular activity could match the strength of this association. These findings are consistent with other studies that show the positive association between sport participation and physical activity and health (Sabo & Veliz, 2008; Sabo & Veliz, 2014).

Interestingly, the results did find that these highly involved athletes also had higher levels of risk taking. Even though this finding may seem problematic on the surface (e.g., risk taking is associated with greater substance use), higher levels of risk taking may be beneficial for some groups of students (i.e., females) given cultural norms that would hold certain students back from taking chances in new social or academic domains (i.e., involvement in science and math).

Additionally, the results also found that high levels of involvement in school-based athletics was associated with higher grades, greater aspirations to attend college or graduate school, lower risk of truancy (i.e., cutting or skipping class) and school misbehavior, and lower risk of experiencing academic problems (i.e., hating school or attending summer school) when accounting for involvement in other types of extracurricular activities. While certain identifiable extracurricular activities like involvement in academic clubs had stronger associations with these academic outcomes, high levels of involvement in school-

based athletics still had a strong and unique impact on these academically related outcomes.

Encouraging patterns were also found with respect to substance use among highly involved athletes. In particular, high levels of involvement in school-based athletics was associated with a lower risk of cigarette use, marijuana use, and nonmedical use of prescription drugs when accounting for involvement in other types of extracurricular activities. Problematically, highly involved athletes were also at a greater risk of binge drinking when compared to other types of involvement in extracurricular activities. Higher levels of alcohol consumption is a common finding across other studies of adolescent athletes. Athletes may be at a greater risk of problematic forms of drinking due to having greater access to alcoholic beverages (e.g., athletes have higher social status and access to parties) and viewing risky forms of alcohol consumption as acceptable behavior (e.g., celebrating after victories).

Finally, while the study found many positive results for high involvement in school-based athletics, very few positive results were found among students who were only minimally involved in these activities (i.e., involved at a slight or moderate extent in school-based athletics). In fact, minimal involvement was associated with poorer academic outcomes and greater risk of binge drinking, marijuana use, and driving under the influence. Indeed, these results are discouraging and suggest greater effort may be needed to determine if these students who are minimally involved in school-based athletics should be considered for either academic or substance use counseling. Given that roughly 31% of students who are involved in school-based athletics identify as being minimally involved, school administrators and coaches may want to make a greater effort to get these minimally involved athletes a greater role in some aspect of the sport they are involved with during the school year. Greater outreach may help improve the lives of these students who may be struggling within the school environment.

Very few positive results were found among students who were only minimally involved in school-based athletics. In fact, minimal involvement was associated with poorer academic outcomes and greater risk of binge drinking, marijuana use, and driving under the influence.

APPENDIX A: SECTION 1

1a. Design and Sample

The data for this study derive from two major sources that collected school-level information for the 1999-2000, 2009-10, 2011-12, 2013-14, and 2015-16 school years. The first source of data is the Civil Rights Data Collection (CRDC). The purpose of the CRDC is to determine whether educational opportunities are being provided in an equitable manner across public elementary and secondary schools in the United States (e.g., number of sports offered to girls and boys). The CRDC is a mandatory survey given to all public schools and has collected information on nearly 100,000 public schools in the United States (1999-2000, N = 88,650; 2009-10, N = 72,164; 2011-12, N = 95,258; 2013-14, N = 95,437; 2015-16, N = 96,360). The second source of data is the Common Core of Data (CCD), a nationwide survey collected annually by the National Center for Education Statistics. The CCD gathers basic school-level information on all public elementary and secondary schools in the U.S. (e.g., number of students enrolled) and collected school-level information on the population of public schools in the United States (1999-2000, N = 95,289; 2009-10, N = 103,959; 2011-12, N = 103,483; 2013-14, N = 102,815; 2015-16, N = 102,401). Accordingly, the two major data sources were merged for the purposes of this study.

Given that only public high schools are instructed to answer questions on interscholastic sports (per the CRDC questionnaire), the results reported here pertain to public high schools that offered grades 9 through 12. After restricting the data to these specific parameters, the analytic sample for this study consisted of 12,030 public schools during the 1999-2000 school year, 9,769 public high schools during the 2009-10 school year, 14,111 public high schools during the 2011-12 school year, 13,090 public high schools during the 2013-14 school year, and 14,122 public high schools during the 2015-16 school year.

2a. Measures

The key measures of interest for this analysis were captured in the CRDC data. In particular, the CRDC included information on whether schools offered interscholastic sport, the number of different sports (e.g., football, baseball, etc.), the number of different sport teams (e.g., J.V. football, varsity football, etc.), and individual participants as reported by school administrators. Accordingly, the analysis included four specific measures of athletic opportunities at the school-level: (1) the school indicated not offering interscholastic sports, (2) the total number of sports schools provided students (i.e., a continuous measure of the number of single-sex sports offered to boys and girls), (3) the total number of sport

teams schools provide to students (i.e., a continuous measure of the number of single-sex sport teams a school offers to boys and girls), (4) and schools' total sport participation rate (i.e., a continuous measure that takes the total number of boys and girls who participate in single-sex sports divided by the total number of students within each school).

In addition to the measures for athletic opportunities, several indicators were used to assess differences based on key school characteristics. The CCD provides measures of several school-level characteristics of high schools that are known to be associated with the provision of sports and participation rates at the school level (Veliz & Shakib, 2012; 2014; Sabo & Veliz, 2011). Accordingly, the current study assesses school-level differences by racial composition (i.e, the percentage of the student body who are racial minorities), federal lunch enrollment as a proxy for school-level poverty (i.e., the percentage of students eligible for reduced-price or free lunches) (Kena et al., 2014), and type of community where the school is located (whether the school is in an urban, suburban, town, or rural area).

3a. Supplementary Tables

Multiple binary logistic and multiple (OLS) regression analyses were run to test how robust the findings were from the bivariate analyses presented in the main text of the report. Table A on the following page shows the results from these analyses. First, examining model 1 shows that the odds of schools not offering any interscholastic sports were lower during the 1999-2000 school year than during the 2015-16 school year when controlling for the percent of students eligible for free lunch, the racial composition within schools, school size, whether the school was considered a charter/magnet school, and school type (i.e., regular versus non-regular). Additionally, the odds of schools not offering any interscholastic sports were slightly higher during the 2009-10 school year than during the 2015-16 school year when controlling for key school-level characteristics. Second, examining models 2 through 4 shows that the number of sports, sport teams, and participation rates were significantly lower during the 1999-2000 school year than during the 2015-16 school year when controlling for key school-level characteristics, while the number of sports, sport teams, and participation rates were significantly higher during the 2009-10 school year than during the 2015-16 school year when controlling for key school-level characteristics. What these additional analyses confirm is that while the percent of schools not offering interscholastic sport has not increased since the 2009-10 school year (it has decreased slightly), the number of sports, sport teams, and participation rates have decreased during this time frame (2009-10 to 2015-16) among schools that offer interscholastic sports. Additional estimates are provided with respect to the associations between the key school level characteristics and the major outcomes for this study (i.e., indicated not offering interscholastic sports, number of sports offered, number of sport teams offered, and participation rates).

Table A: Overall Results Using Multivariable Models				
	(Model 1) Indicated not offering interscholastic sports (logistic regression) AOR (95% CI) (n = 17,536 unique schools)	(Model 2) Number of Sports Offered (OLS regression) b (SE) (n = 13,919 unique schools)	(Model 3) Number of Teams Offered (OLS regression) b (SE) (n = 13,920 unique schools)	(Model 4) Participation Rates (OLS regression) b (SE) (n = 13,911 unique schools)
Year				
2015-2016	[Reference]	[Reference]	[Reference]	[Reference]
1999-2000	.275***(.245, .310)	-5.09*** (.140)	-8.19*** (.242)	-.124*** (.003)
2009-2010	1.20***(1.10, 1.32)	1.36*** (.414)	1.77*** (.454)	.009* (.004)
2011-2012	.612***(.567, .659)	.582*** (.141)	1.26*** (.224)	.031*** (.003)
2013-2014	.958 (.896, 1.02)	.037 (.195)	-.314 (.246)	.001 (.009)
% Free Lunch Eligible				
0% to 25% FLE	[Reference]	[Reference]	[Reference]	[Reference]
26% to 49% FLE	.957 (.873, 1.04)	-2.44*** (.224)	-6.52*** (.290)	-.085*** (.007)
50% to 74% FLE	.876* (.774, .990)	-3.81*** (.251)	-9.48*** (.332)	-.124*** (.006)
75% to 100% FLE	.726***(.616, .854)	-4.16*** (.293)	-10.3*** (.423)	-.136*** (.006)
% Non-White				
0% to 24%	[Reference]	[Reference]	[Reference]	[Reference]
25% to 49%	1.75***(1.58, 1.94)	-.519 (.268)	-.753* (.351)	-.071*** (.007)
50% to 74%	2.24***(1.97, 2.56)	.203 (.336)	-.037 (.413)	-.096*** (.008)
75% to 100%	2.69***(2.34, 3.10)	-.574* (.267)	-1.03** (.365)	-.132*** (.009)
School Size (number of students)				
0 to 205	[Reference]	[Reference]	[Reference]	[Reference]
206 to 430	.423***(.385, .465)	3.40*** (.156)	6.28*** (.204)	-.130*** (.016)
431 to 900	.157***(.140, .177)	6.88*** (.162)	12.4*** (.219)	-.211*** (.016)
901 and higher	.040***(.035, .046)	11.11*** (.183)	23.0*** (.265)	-.319*** (.013)
Charter/Magnet School				
Regular	[Reference]	[Reference]	[Reference]	[Reference]
Charter/Magnet school	5.30***(4.71, 5.96)	-.791** (.251)	-4.05 (.405)	-.092*** (.010)
Regular versus Non-regular School				
Regular Public High School	[Reference]	[Reference]	[Reference]	[Reference]
Non-Regular (special ed./ voc./alternative/other)	25.4***(22.3, 28.9)	-2.58*** (.274)	-4.39*** (.493)	-.054 (.113)

*p<.05, **p<.01, ***p<.001; OLS = Ordinary Least Squares; AOR = Adjusted Odds Ratio; CI = confidence interval; b = unstandardized beta coefficient; SE = Standard Error.

Note that all analyses use robust standard errors using school as the cluster variable. Results were similar using Generalized Estimating Equations.

APPENDIX B: SECTION 1

Reassessing Interscholastic Sport Participation between the 2009-10 and 2015-16 School Years: Exploring Pockets of Disadvantage in the United States

An additional supplemental analysis to the report sought to detect if certain groups of schools were either losing or gaining sport opportunities between the 2009-10 and 2015-16 school years. In particular, 13,001 public high schools had information on the number of sports, sport teams, and participation rates for the 2009-10, 2011-12, 2013-14, and 2015-16 school years. Using this sample of public high schools that were followed across these four school years, we estimated statistical models using a data-centered approach (Latent Profile Analysis – technical notes are available upon request) to detect clusters of schools based on sport opportunities (i.e., number of sports, number of sport teams, and sport participation rates). Interestingly, the analyses yielded several groups of findings that suggested two important trends. First, schools that offered interscholastic sport during this seven-year period either experienced small losses or maintained the same number of sports, sport teams, and participation rates in interscholastic sports. Second, the analyses suggested that schools could be classified into three specific groups across the three measures that assessed opportunities to participate in sport.

For instance, Figure A on the following page shows three groups of schools that could be classified as "low sport opportunity," "medium sport opportunity," and "high sport opportunity" schools. Low sport opportunity schools made up the majority public schools in the United States (47.5%) and offered roughly nine sports during the 2015-16 school year. Figure B on page 68 shows the same pattern with respect to the number of sport teams that schools provide students. We see that the majority of U.S. schools can be classified as "low sport team opportunity" schools (47.5%); these schools offered roughly 13 different sport teams to their students. Additionally, Figure C on page 69 shows that the majority of public high schools in the United States can be classified as schools with "low participation rates"; 57% of U.S. schools had a sport participation rate of 33.3% during the 2015-16 school year. In other words, roughly three out of 10 students participated in interscholastic sports during the 2015-16 school year within these schools. Problematically, this is much lower when compared with schools classified as having "medium participation rates" (six out of 10 students participate in interscholastic sports)

Figure A: Number of Sport Opportunities Across Low and High Sport Schools (n = 13,001)

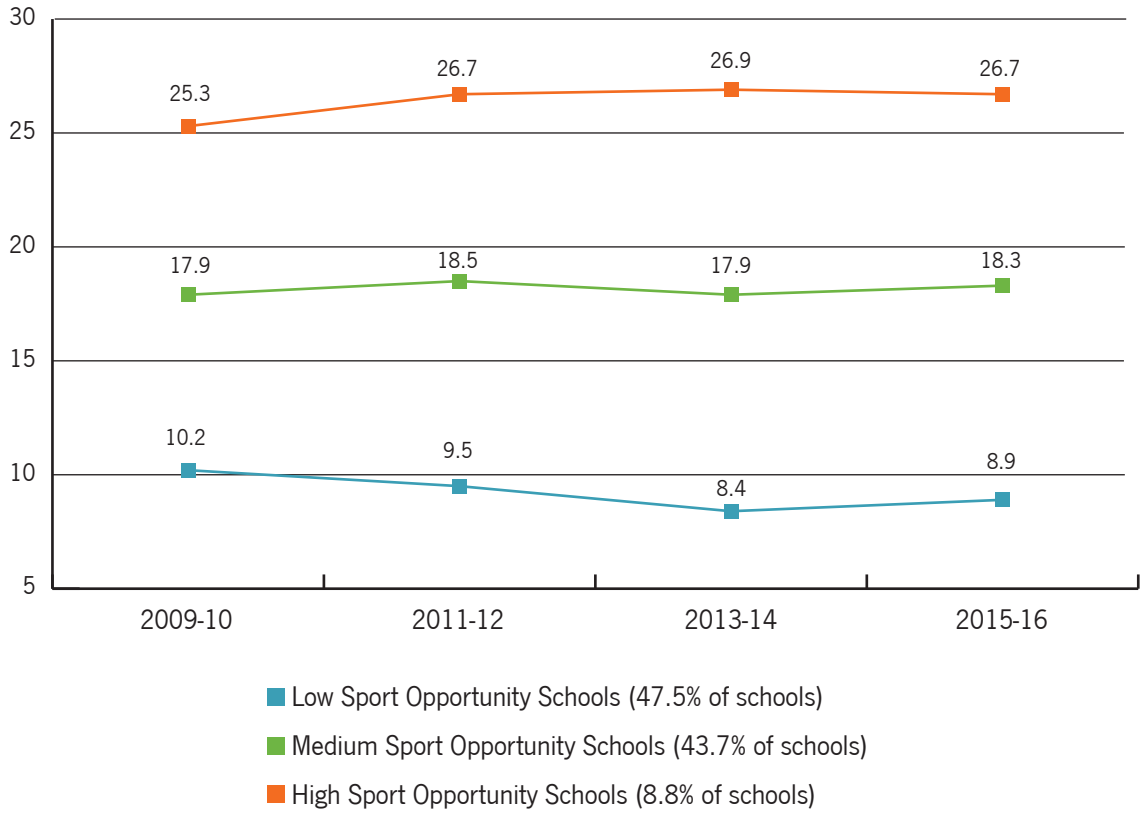


Figure B: Number of Sport Team Opportunities Across Low and High Sport Team Schools (n = 13,001)

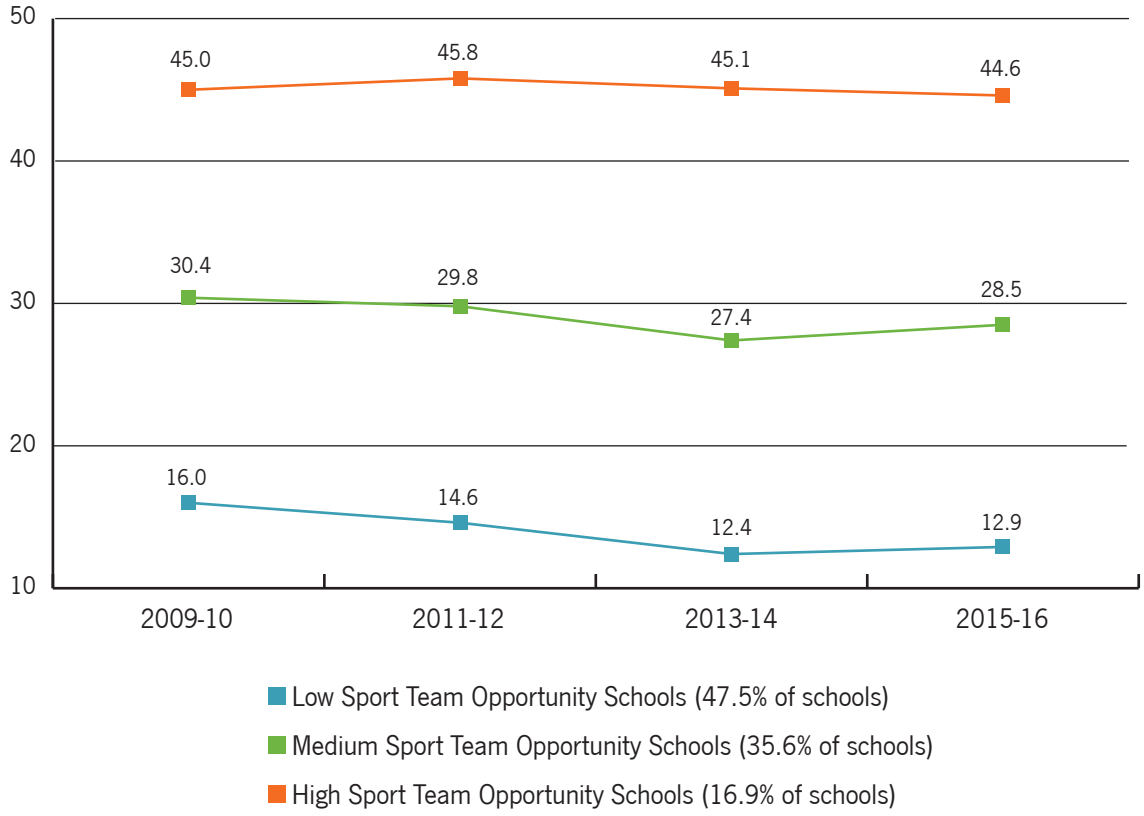
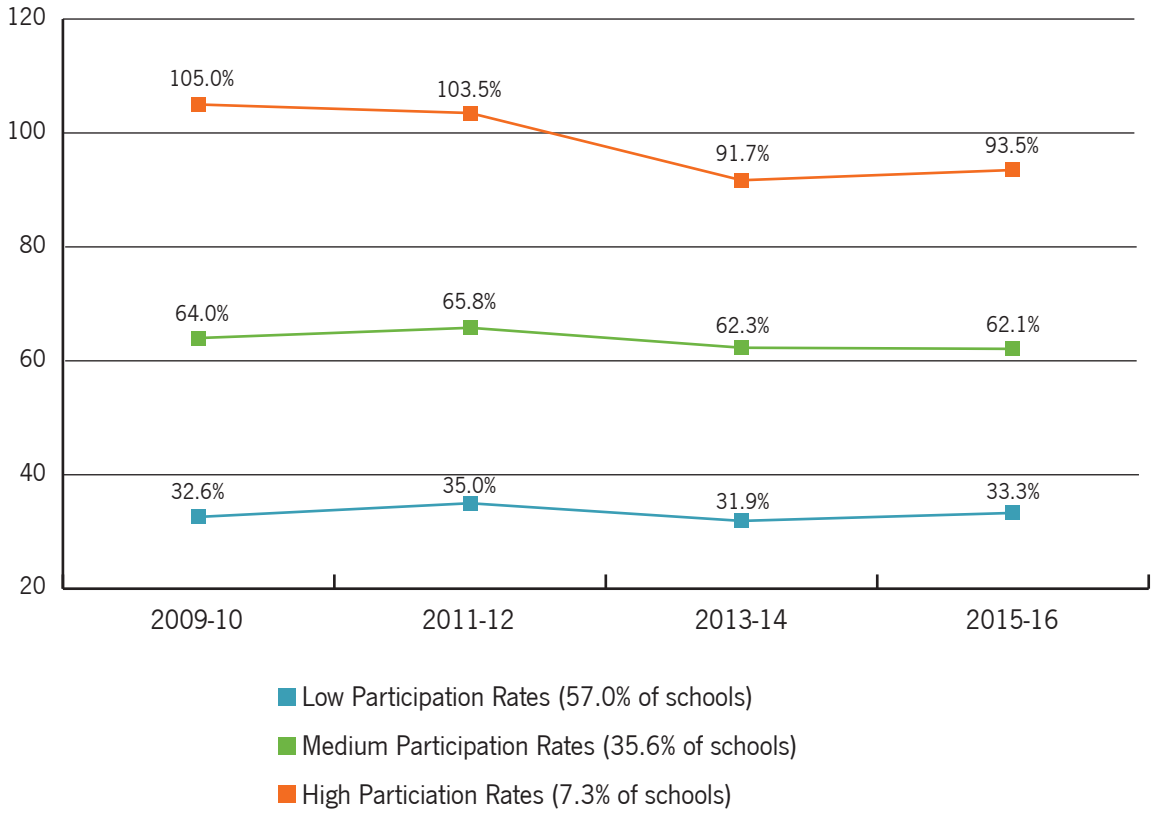


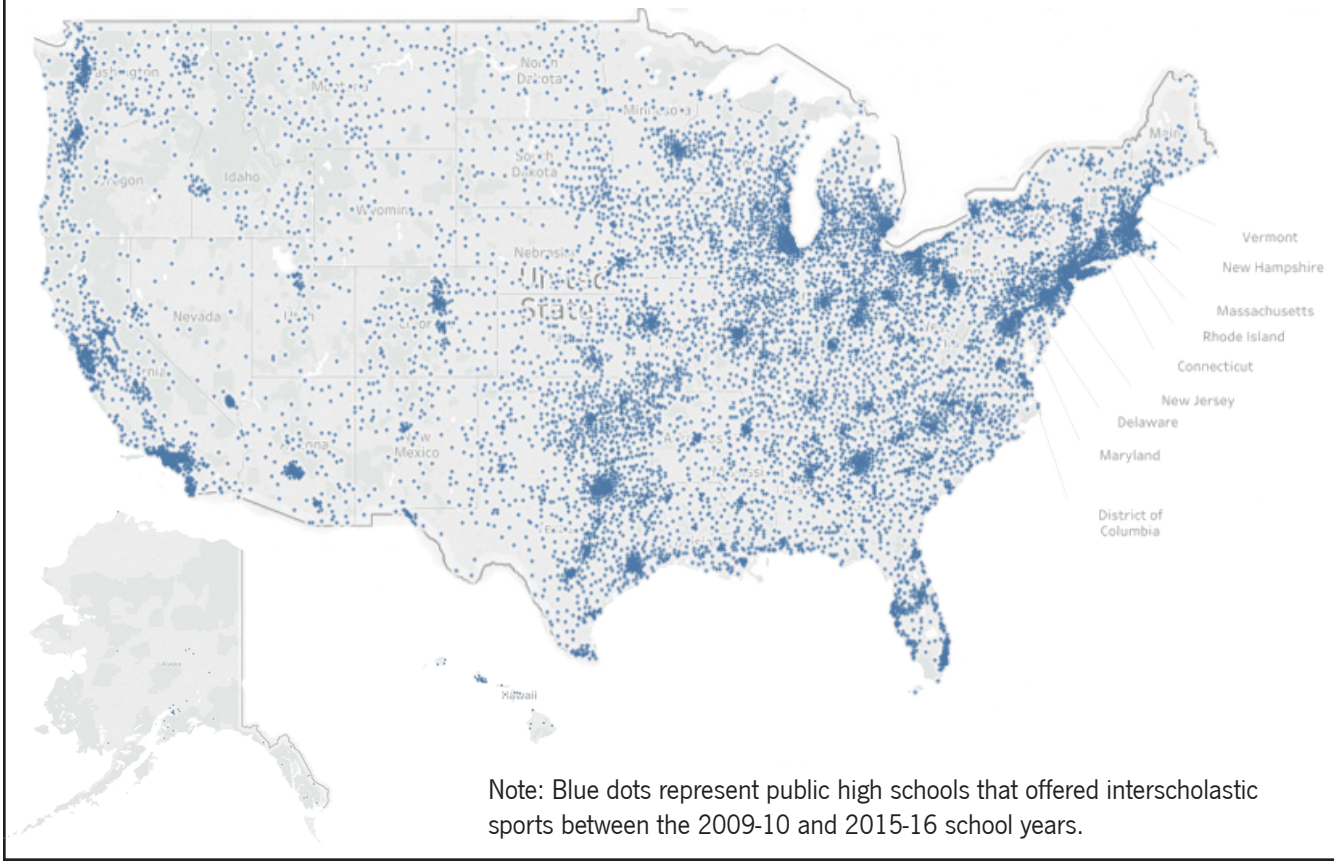
Figure C: Participation Rates Across Schools with Low and High Participation Rates (n = 13,001)



and "high participation rates" (nine out of 10 students participate in interscholastic sports).

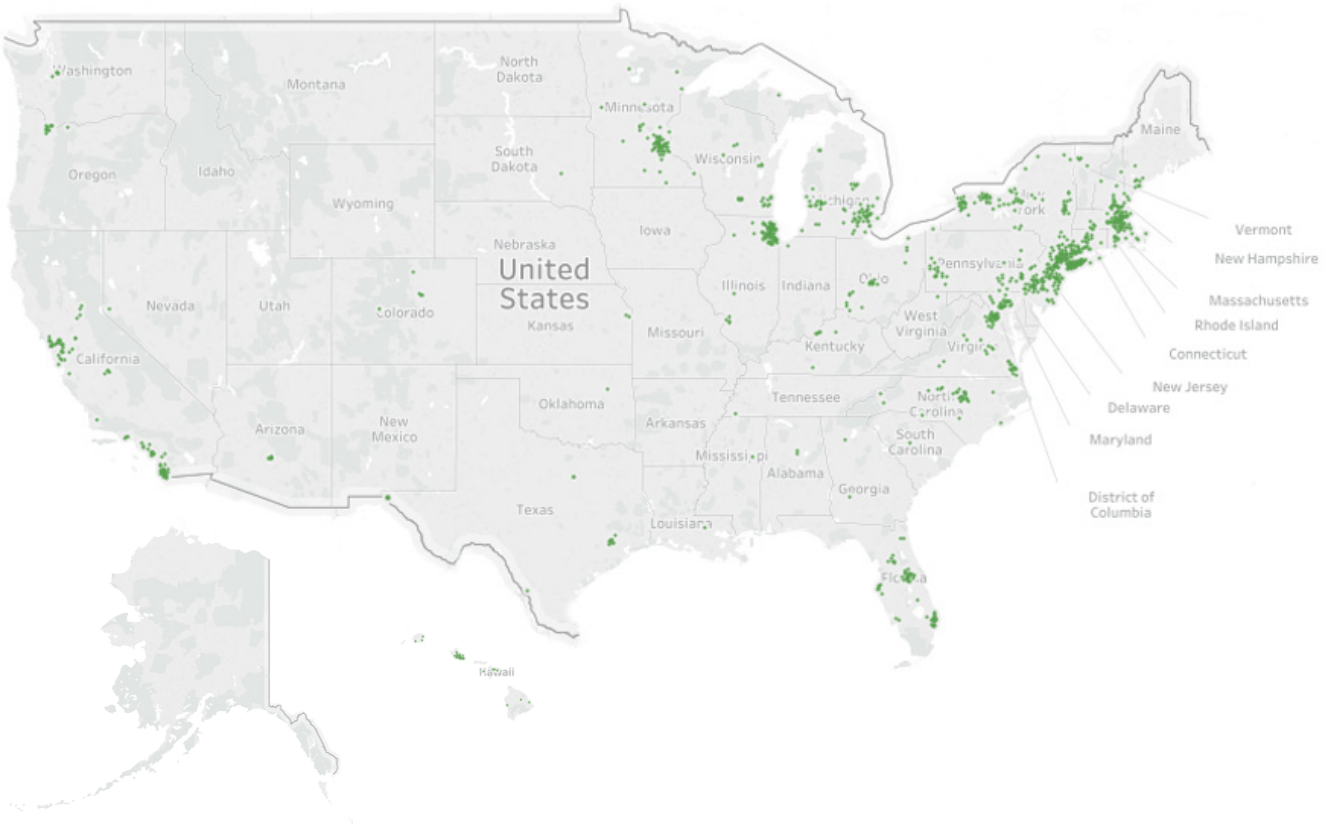
While the main report clearly outlines some of the school-level factors that are associated with fewer sport opportunities (e.g., low-resource schools), it is also important to show where these schools are located throughout the United States in order to get a better sense of who is losing out on this publicly available resource. First, Figure D shows the location of the 13,001 public high schools that were used in the analysis. Figure E on the following page and Figure F on page 72 show the location for both schools with "high sport opportunities" and schools with "low sport opportunities."

Figure D: Location of Public High Schools That Offer Interscholastic Sport Included in the CRDC Data (n = 13,001; public high schools that participated in the CRDC between the 2009-10 and 2015-16 school years)



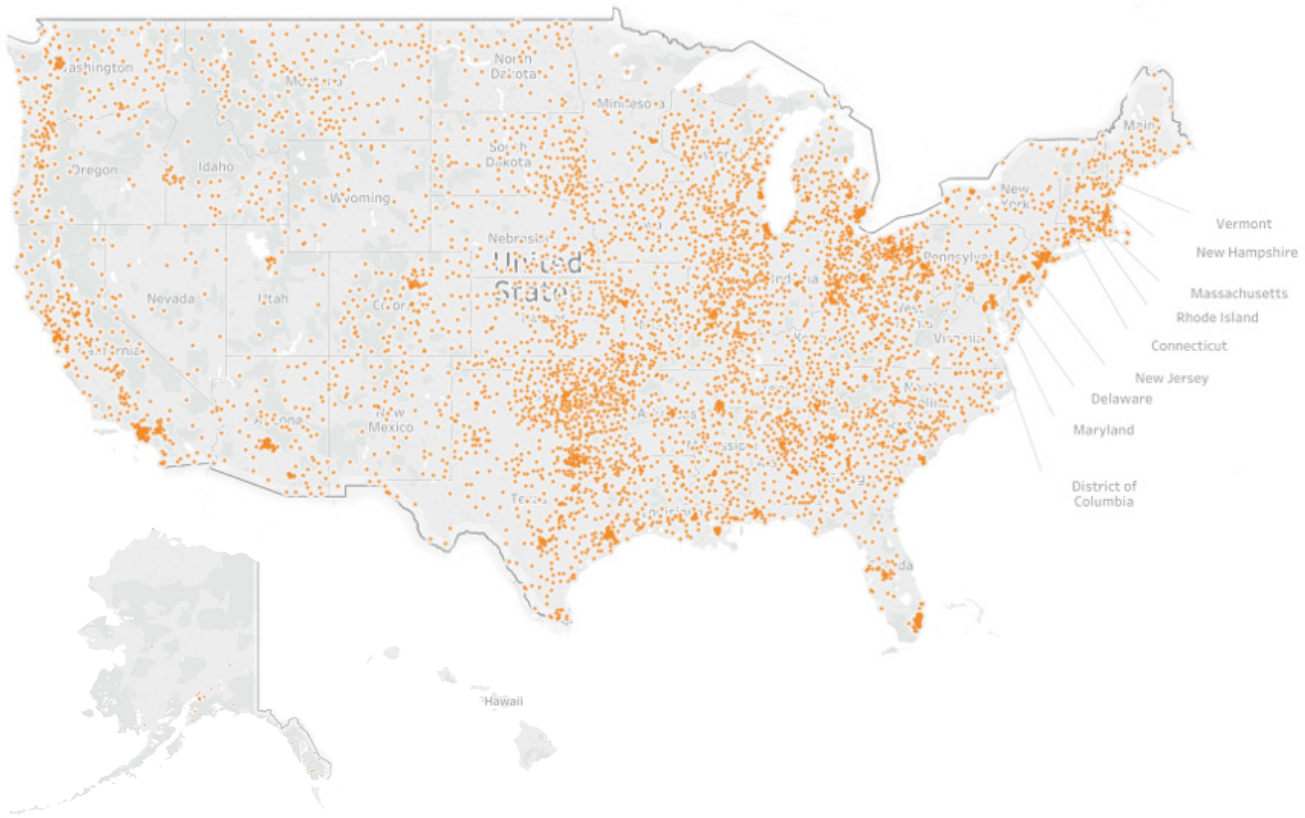
Note: Blue dots represent public high schools that offered interscholastic sports between the 2009-10 and 2015-16 school years.

Figure E: Location of Schools With High Sport Opportunities



Note: Green dots represent public high schools that were classified as "high sport opportunity" schools (n = 1133; 8.8% of public high schools that offer interscholastic sports).

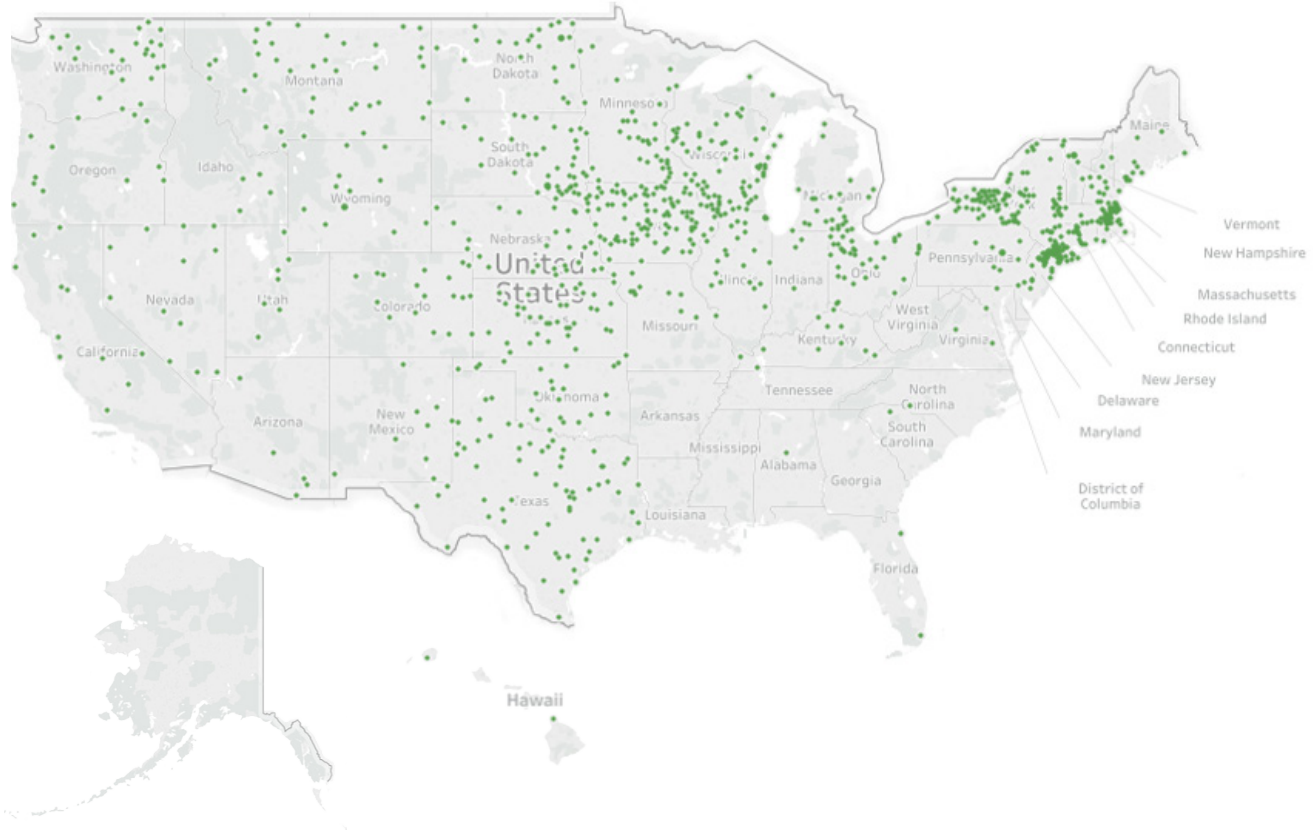
Figure F: Location of Schools With Low Sport Opportunities



Note: Orange dots represent public high schools that were classified as "low sport opportunity" schools (n = 6188; 47.5% of public high schools that offer interscholastic sports).

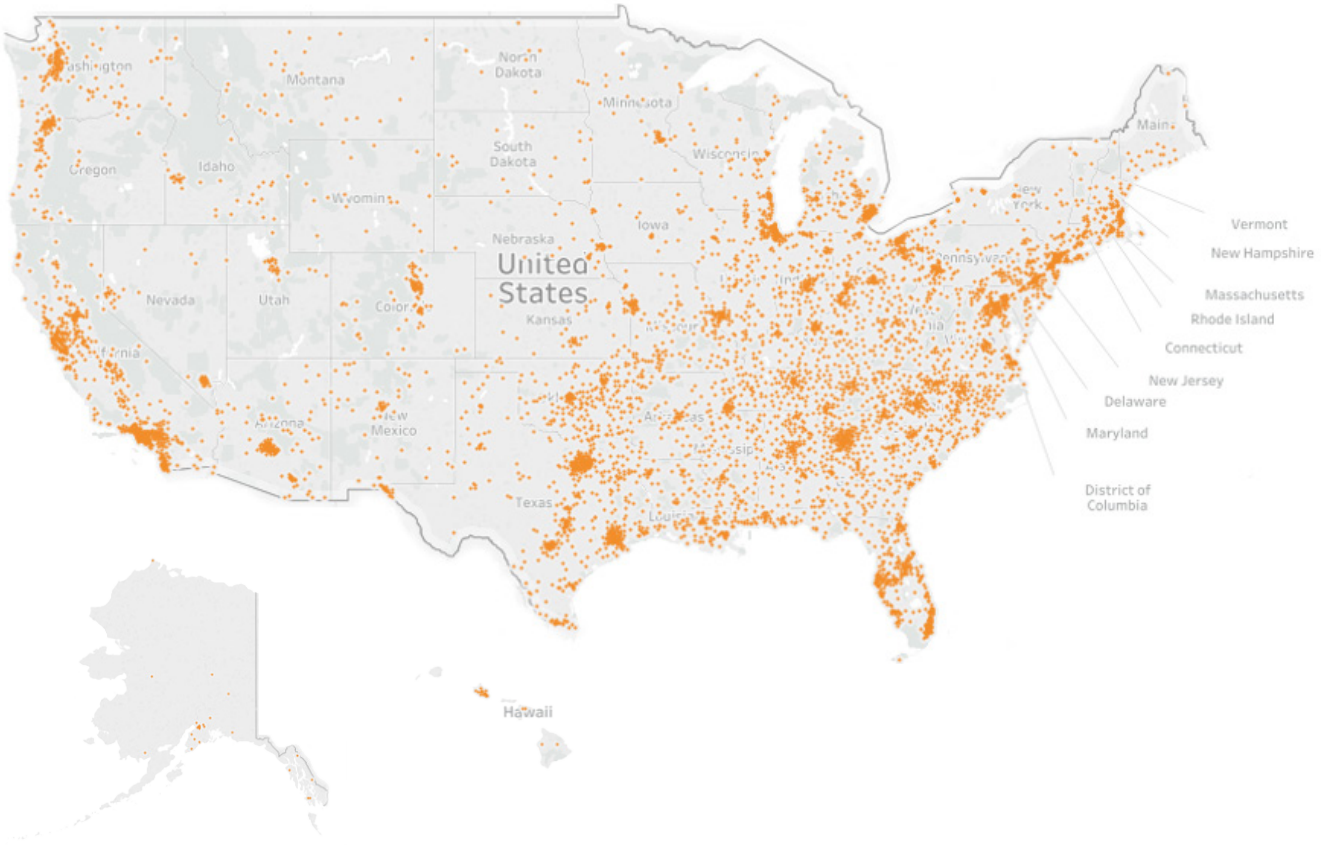
Of course, many of these "low sport opportunity" schools appear to be located in the South (and Midwest). Very few, if any, "high sport opportunity" schools are located in this region of the country. Moreover, Figures G and H on the following pages show the location of schools that have "high participation rates" and "low participation rates." Expectedly, we see the same pattern emerge in the South (and Midwest) – the majority of schools with "low participation rates" are located in the southern region of the United States.

Figure G: Location of Schools With High Sport Participation Rates



Note: Green dots represent public high schools that were classified as schools with "high sport participation rates" (n = 948; 7.3% of public high schools that offer interscholastic sports).

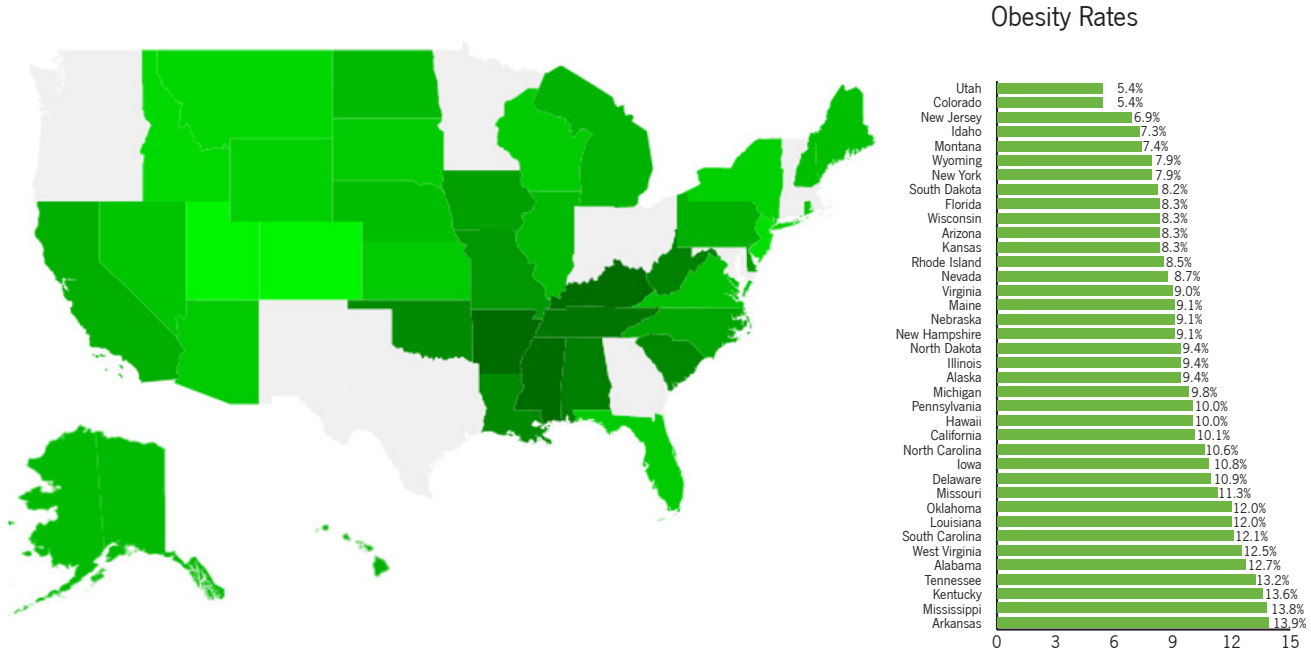
Figure H: Location of Schools With Low Sport Participation Rates



Note: Orange dots represent public high schools that were classified as schools with "low sport participation rates" (n = 7386; 57.0% of public high schools that offer interscholastic sports).

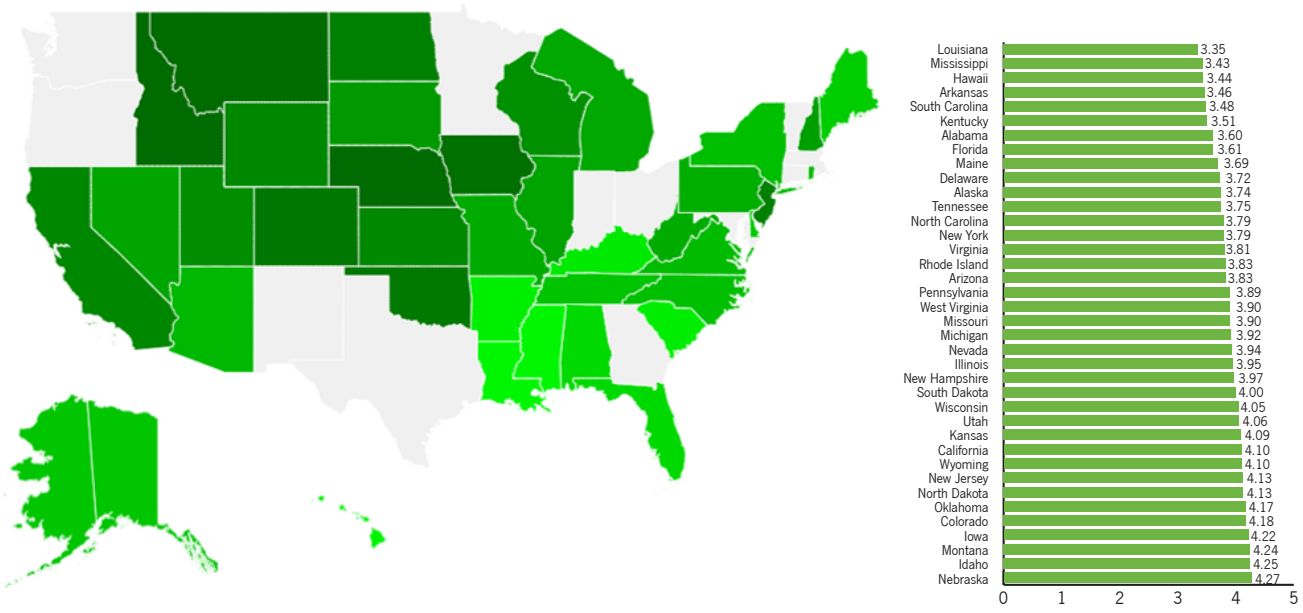
Clearly this region of the country has fewer sport opportunities to provide students who attend public schools, and this may potentially have negative consequences on adolescents' health and overall development. To illustrate the potential negative impact that this may have within this region, we mapped on both the average obesity rate among high school aged students and the average number of days these students engaged in 60 minutes or more of physical activity in a typical week between 2009 and 2017 (data came for the Youth Risk Behavior Survey state files – https://www.cdc.gov/healthyyouth/data/yrbs/data.htm). Problematically, we see in both Figures I and J (on following pages) that the highest obesity rates and the lowest levels of weekly physical activity are located in the regions with the lowest sport participation rates.

Figure I: Obesity Rates Among High School Students (2009–17)



Note: Darker shades of green represent states with higher obesity rates. States with no color indicates that no data was collected within that state during the selected time period. All data come from the state Youth Risk Behavior Survey files (n = 516,549).

Figure J: Average Number of Days of Physical Activity (at least 60 minutes) in a Typical Week Among High School Students (2009 – 2017)



Note: Darker shades of green represent states with a higher average number of days of physical activity. States with no color indicates that no data was collected within that state during the selected time period. All data come from the state Youth Risk Behavior Survey files (n = 516,549).

While it is misleading to suggest that the lack of opportunities to participate in sport is the direct cause of higher rates of obesity or lower levels of physical activity, it is necessary to recognize that these activities are associated with healthy behaviors and positive development. Moreover, it needs to be recognized that certain U.S. regions lack access to these publicly available resources that can improve the quality of students' lives. Given the data presented and the patterns of access to interscholastic sport across the United States, more effort is clearly needed to funnel resources within these areas of the country.

APPENDIX C: SECTION 2

1c. Design and Sample

The present study uses cross-sectional data from the 1989 through 2015 Monitoring the Future (MTF) study of 12th-grade students. The MTF has surveyed nationally representative samples of approximately 15,000 U.S. 12th-graders each year since 1975. This study uses a partial sample (Form 6) of 12th-graders who were randomly selected to answer questions on involvement in six different types of school-based extracurricular activities (1989 was the first year to include this series of questions on Form 6). The response rate for the 12th-grade sample between 1989 and 2015 ranged between 79% and 86%. More details on the MTF can be found at the following website: http://www.monitoringthefuture.org/.

The sample used for this report consists of 67,321 12th-graders who were surveyed between 1989 and 2015 (roughly 2,500 respondents per year who were randomly selected to fill out one of six possible forms). The sample was 51.4% female (48.6% male), 63.5% white, 11.7% black, and 24.8% "other race." Roughly half the sample was 18 at the time of the survey (57.7%) and indicated having at least one parent with a college degree or higher (48.8%). Roughly 35.5% of respondents lived in the Southern region of the U.S., 20.3% lived in the Western region of the U.S., 25.2% lived in the Midwestern region of the U.S., and 19.0% lived in the Northeastern region of the U.S. Moreover, roughly half of the respondents lived in suburban areas (48.0%), followed by urban (28.5%) and rural areas (23.5%).

2c. Measures

Independent Variables

The key indicator variables of interest included six school-based extracurricular activities that ask respondents the following: "To what extent have you participated in the following school activities during this school year?" (1) "Athletic teams," (2) "Music or other performing arts," (3) "School newspaper or yearbook," (4) "Academic clubs," (5) "Student Council or Government," and (6) "Other school clubs or activities." Response options included five categories that included "Not at All," "Slight," "Moderate," "Considerable," and "Great." For the purposes of this study, these measures were recoded as both binary variables (i.e., not at all versus any involvement) and three-category variables (i.e., not at all, slight/moderate, considerable/great).

Dependent Variables

The key outcomes of interest included 19 variables that assessed four unique domains: (1) Psychological Health, (2) Substance Use/Driving under the Influence, (3) Academic

Achievement/Academic Ability, and (4) Academic Problems/Academic Difficulties.

Psychological Health. The constructs for psychological health include depressive affect, risk taking, self-esteem, and self-derogation. The construct for depressive affect combined four measures that assessed if respondents agreed or disagreed (i.e., five categories that ranged from disagree to agree) with the following: "Life often seems meaningless," "I enjoy life as much as anyone," "The future often seems hopeless," and "It feels good to be alive" (α=.787). The combined measure ranged between 1 and 5, with 5 indicating a high level of depression. The construct for risk taking combined two measures that assessed if respondents agreed or disagreed (i.e., five categories that ranged from disagree to agree) with the following: "I like to test myself every now and then by doing something a little risky" and "I get a real kick out of doing things that are a little dangerous" (α=.779). The combined measure ranged between 1 and 5, with 5 indicating a high level of risk taking. The construct for self-esteem combined four measures that assessed if respondents agreed or disagreed (i.e., five categories that ranged from disagree to agree) with the following: "I take a positive attitude toward myself," "I feel I am a person of worth, on an equal plane with others," "I am able to do things as well as most other people," and "On the whole, I'm satisfied with myself" (α=.822). The combined measure ranged between 1 and 5, with 5 indicating a high level of self-esteem. The construct for self-derogation combined four measures that assessed if respondents agreed or disagreed (i.e., five categories that ranged from disagree to agree) with the following: "I feel I do not have much to be proud of," "Sometimes I think that I am no good at all," "I feel that I can't do anything right," and "I feel that my life is not very useful" (α=.827). The combined measure ranged between 1 and 5, with 5 indicating a high level of self-derogation.

Substance Use/Driving under the Influence. This domain included several questions on common types of substance use and driving under the influence of alcohol and other drugs. Past 30-day/past two-week substance use behaviors was based on several items that asked respondents to report on past 30-day traditional cigarette use, past two-week binge drinking, past 30-day marijuana use, and past 30-day nonmedical use of prescription drugs (i.e., opioids, sedative, stimulants, and tranquilizers). For the purposes of this study, these questions were treated as dichotomous variables (e.g., did not use versus used). Driving under the influence during the past year combined several measures that assessed whether respondents received a ticket or were in an automobile accident while under the influence of alcohol, marijuana, or other illicit drugs. These measures were combined and treated as dichotomous variables (e.g., did not drive under the influence versus did drive under the influence).

Academic Achievement/Academic Ability. This domain included five separate questions on self-rated academic ability, average grades in school, and college aspirations. Self-rated academic ability included two measures that

asked respondents the following: "Compared with others your age throughout the country, how do you rate yourself on school ability?" and "How intelligent do you think you are compared with others your age?" The seven response options ranged from "Far below average" to "Far above average." For the purposes of this study these measures were recoded as both binary variables to focus on respondents who indicated being above average. Average grades in school simply asked respondents what their average grade was based on a nine-item scale of "D or lower" to "A." This measure was recoded as a binary variable in order to focus on respondents who indicated either an "A-" or "A." College aspirations included two measures that asked respondents the following: "How likely is it that you will do each of the following things after high school?" (1) "Graduate from college (four-year program)" and (2) "Attend graduate or professional school after college." Response options included four categories that included "Definitely Won't," "Probably Won't," "Probably Will," and "Definitely Will." For the purposes of this study these measures were recoded as both binary variables to focus on respondents who indicated "Definitely Will."

Academic Problems/Academic Difficulties. This domain included five separate questions on truancy, school misbehavior, and academic problems. Truancy included two measures that assessed whether respondents recently missed a full day of school because they cut school (in the past four weeks) and how often they skipped a day, or part of the day without permission (in the past year). Both measures were dichotomized in order to focus on respondents who cut a full day of school and indicated that they "often" skipped school without permission. School misbehavior was simply measured with a question that asked respondents how often they got sent to the office in the past year due to misbehavior (response options ranged from "Never" to "Always"). This measure was dichotomized in order to focus on students who indicated that they misbehaved "often" or "always" during the past school year. Academic problems included two measures that assessed if respondents often hated being at school during the past year and whether they ever had to attend summer school due to poor grades. Both measures were recoded as dichotomous variables in order to focus on respondents who either indicated hating being at school "often" or "always," and respondents who indicated attending summer school.

3c. Data Analysis

First, descriptive statistics were provided to examine both the trends and sociodemographic variables (i.e., sex, race, parental education, urbanicity, and U.S. region) associated with involvement in extracurricular activities. Multiple logistic regression was used to assess if these trends and associations (using adjusted odds ratios) were significant at a .05, .01, and .001 alpha level. Second, multiple logistic regression and ordinary least squares regression were used to assess associations between involvement in different types of extracurricular activities and each of the key measures for the four domains listed above. Estimates

for effect size (i.e., adjusted odds ratios for binary logistic regression and Beta for ordinary least squares regression) were used to determine which extracurricular activities had the strongest association with the different outcomes. It should be noted that all multiple logistic and ordinary least squares regressions controlled for potentially confounding factors and included the following: age, sex, race, parental education (i.e., socioeconomic status), U.S. region, and urbanicity. For the analyses, STATA 14.0 was the software used to estimate the analyses outlined above (Version 14.0; StataCorp LP, College Station, Texas). All analyses used the weights provided by the MTF (public use files) to account for the probability of selection into the sample.

4c. Detailed Tables

Detailed tables are provided for readers to examine additional estimates from the analyses conducted using the Monitoring the Future (see Tables B through H below and on following pages).

Table B: Detailed Table 1

	% Involved with Athletic Teams % AOR (95% CI) n = 61,277	% Involved with Music or Performing Arts % AOR (95% CI) n = 61,336	% Involved with School Newspaper or Yearbook % AOR (95% CI) n = 61,394	% Involved with Academic Clubs % AOR (95% CI) n = 61,327	% Involved with Student Council or Government % AOR (95% CI) n = 61,322	% Involved with Other School Clubs or Activities % AOR (95% CI) n = 61,340
Overall	55.8%	41.5%	24.7%	33.2%	22.9%	64.3%
Sex						
Male[1]	62.6%	34.6%	19.9%	29.4%	19.1%	57.2%
Female	49.3% .583 (.561, .606)[c]	48.1% 1.77 (1.71, 1.84)[c]	29.3% 1.67 (1.60, 1.75)[c]	37.0% 1.44 (1.38, 1.50)[c]	26.5% 1.55 (1.49, 1.63)[c]	71.6% 1.95 (1.87, 2.02)[c]
Race						
White[1]	57.3%	40.8%	24.7%	32.7%	22.9%	65.4%
Black	56.1% 1.13 (1.07, 1.20)[c]	43.8% 1.17 (1.10, 1.25)[c]	25.2% 1.07 (.999, 1.15)[a]	32.1% .974 (.912, 1.04)	25.7% 1.25 (1.16, 1.34)[c]	64.5% .966 (.906, 1.03)
Other	51.7% .886 (.843, .931)[c]	42.3% 1.20 (1.14, 1.26)[c]	24.6% 1.06 (1.00, 1.13)[a]	35.1% 1.27 (1.21, 1.34)[c]	21.5% 1.02 (.964, 1.08)	61.2% 1.00 (.958, 1.06)
Parental Education						
Less than a college degree[1]	51.1%	38.4%	23.1%	29.6%	20.9%	61.0%
College degree or higher	61.7% 1.50 (1.45, 1.56)[c]	45.2% 1.42 (1.36, 1.47)[c]	26.8% 1.28 (1.22, 1.34)[c]	37.6% 1.52 (1.46, 1.58)[c]	25.4% 1.38 (1.31, 1.44)[c]	69.2% 1.55 (1.49, 1.62)[c]

a = p<.05, b = p<.01, c = p<.001 indicate statistically significant differences when compared to the reference group (denoted with 1). All significance tests accounted for cohort year, sex, race, parental education, U.S. region and urbanicity.

Table B: Detailed Table 1, continued						
	% Involved with Athletic Teams % AOR (95% CI) n = 61,277	% Involved with Music or Performing Arts % AOR (95% CI) n = 61,336	% Involved with School Newspaper or Yearbook % AOR (95% CI) n = 61,394	% Involved with Academic Clubs % AOR (95% CI) n = 61,327	% Involved with Student Council or Government % AOR (95% CI) n = 61,322	% Involved with Other School Clubs or Activities % AOR (95% CI) n = 61,340
Urbanicity						
Rural[1]	57.4%	43.2%	26.0%	34.6%	26.1%	67.3%
Suburban	55.8% .891 (.847, .937)[c]	41.5% .899 (.855, .945)[c]	23.4% .804 (.759, .852)[c]	33.1% .895 (.849, .943)[c]	21.8% .759 (.716, .804)[c]	63.8% .855 (.811, .901)[c]
Urban	54.3% .840 (.795, .887)[c]	40.1% .818 (.775, .864)[c]	26.0% .908 (.854, .966)[b]	32.3% .842 (.796, .891)[c]	22.0% .752 (.707, .801)[c]	62.6% .817 (.772, .865)[c]
U.S. Region						
Northeast[1]	58.2%	39.8%	30.0%	31.5%	23.0%	62.7%
Midwest	59.6% 1.00 (.950, 1.06)	43.3% 1.16 (1.10, 1.23)[c]	24.0% .719 (.675, .766)[c]	32.4% 1.05 (.990, 1.11)	23.2% .965 (.904, 1.03)	63.8% 1.02 (.963, 1.08)
South	52.1% .742 (.703, .784)[c]	41.7% 1.05 (1.00, 1.11)[a]	23.2% .686 (.646, .729)[c]	35.3% 1.19 (1.12, 1.26)[c]	23.2% .950 (.891, 1.01)	67.6% 1.25 (1.18, 1.33)[c]
West	55.5% .907 (.853, .964)b	40.7% 1.02 (.962, 1.08)	23.5% .725 (.677, .776)[c]	32.3% .993 (.931, 1.05)	21.9% .976 (.908, 1.04)	60.8% .945 (.888, 1.00)
Cohort Year						
1989-92[1]	55.9%	41.7%	26.2%	34.1%	25.3%	68.6%
1993-96	55.7% .986 (.922, 1.05)	41.4% .947 (.885, 1.01)	24.5% .869 (.805, .938)[c]	33.1% .916 (.853, .983)[a]	24.0% .890 (.824, .961)[b]	66.1% .859 (.800, .921)[c]
1997-2000	55.4% .980 (.915, 1.04)	41.3% .950 (.887, 1.01)	25.4% .920 (.851, .994)[a]	34.5% .979 (.911, .994)	24.2% .930 (.859, 1.00)	66.9% .890 (.828, .958)[b]
2001-04	54.5% .945 (.881, 1.01)	42.3% .993 (.925, 1.06)	24.7% .887 (.819, .961)[b]	33.3% .914 (.849, .983)[a]	22.4% .824 (.760, .894)[c]	62.9% .743 (.691, .800)[c]
2005-08	54.9% .947 (.885, 1.01)	42.3% .974 (.910, 1.04)	24.7% .872 (.806, .943)[c]	32.3% .875 (.814, .939)[c]	20.7% .741 (.683, .803)[c]	62.7% .732 (.682, .786)[c]
2009-12	56.5% 1.02 (.959, 1.10)	40.6% .903 (.842, .968)[b]	23.1% .805 (.743, .873)[c]	32.7% .888 (.826, .955)[c]	21.1% .768 (.708, .833)[c]	62.1% .718 (.668, .772)[c]
2013-15	58.3% 1.13 (1.05, 1.23)[c]	40.9% .927 (.858, 1.00)	24.5% .854 (.780, .935)[c]	31.9% .852 (.785, .925)[c]	21.8% .798 (.728, .875)[c]	58.2% .607 (.560, .658)[c]

a = p<.05, b = p<.01, c = p<.001 indicate statistically significant differences when compared to the reference group (denoted with 1). All significance tests accounted for cohort year, sex, race, parental education, U.S. region and urbanicity.

Table C: Detailed Table 2						
	% Involved with Athletic Teams to a Considerable/ Great Extent % AOR (95% CI) n = 61,277	% Involved with Music or Performing Arts to a Considerable/ Great Extent % AOR (95% CI) n = 61,336	% Involved with School Newspaper or Yearbook to a Considerable/ Great Extent % AOR (95% CI) n = 61,394	% Involved with Academic Clubs to a Considerable/ Great Extent % AOR (95% CI) n = 61,327	% Involved with Student Council or Government to a Considerable/ Great Extent % AOR (95% CI) n = 61,322	% Involved with Other School Clubs or Activities to a Considerable/ Great Extent % AOR (95% CI) n = 61,340
Overall	38.4%	24.4%	10.1%	13.5%	10.4%	32.9%
Sex						
Male[1]	44.6%	18.8%	6.3%	10.5%	7.5%	24.9%
Female	32.5% .602 (.579,.626)[c]	29.9% 1.87 (1.78, 1.95)[c]	13.6% 2.35 (2.20, 2.52)[c]	16.4% 1.71 (1.62, 1.81)[c]	13.4% 1.92 (1.80, 2.05)[c]	41.0% 2.12 (2.04, 2.21)[c]
Race						
White[1]	40.2%	25.1%	10.3%	12.7%	10.6%	32.2%
Black	39.5% 1.14 (1.07, 1.22)[c]	25.3% 1.07 (1.00, 1.15)[a]	9.1% .883 (.793 ,.982)[a]	14.1% 1.12 (1.02, 1.22)[b]	12.1% 1.26 (1.14, 1.39)[c]	38.7% 1.31 (1.23, 1.39)[c]
Other	33.1% .808 (.767, .851)[c]	22.2% 1.00 (.943, 1.06)	9.8% 1.06 (.979, 1.15)	15.4% 1.45 (1.36, 1.56)[c]	9.3% 1.01 (.931, 1.09)	32.1% 1.17 (1.11, 1.23)[c]
Parental Education						
Less than a college degree[1]	33.3%	21.4%	9.1%	12.0%	9.3%	31.1%
College degree or higher	44.7% 1.57 (1.50, 1.63)[c]	28.2% 1.51 (1.45, 1.58)[c]	11.2% 1.34 (1.26, 1.43)[c]	15.2% 1.44 (1.36, 1.52)[c]	12.0% 1.42 (1.33, 1.51)[c]	35.8% 1.36 (1.31, 1.42)[c]
Urbanicity						
Rural[1]	39.7%	26.1%	11.3%	14.9%	12.7%	36.5%
Suburban	38.9% .923 (.877, .971)[b]	24.8% .916 (.866, .970)[b]	9.0% .738 (.680, .800)[c]	13.1% .810 (.755, .869)[c]	9.5% .705 (.652, .762)[c]	32.1% .802 (.761, .845)[c]
Urban	36.4% .834 (.789, .882)[c]	22.4% .785 (.738, .836)[c]	10.8% .890 (.816, .970)[b]	13.1% .765 (.708, .826)[c]	10.1% .730 (.671, .794)[c]	31.5% .762 (.720, .807)[c]
U.S. Region						
Northeast[1]	40.4%	23.4%	11.1%	12.4%	10.8%	31.1%
Midwest	41.0% .976 (.922, 1.03)	27.0% 1.19 (1.12, 1.27)[c]	10.3% .889 (.812, .972)[b]	12.8% 1.05 (.971, 1.14)	11.2% .994 (.909, 1.08)	31.4% 1.00 (.942, 1.06)
South	35.9% .796 (.753, .841)[c]	24.3% 1.05 (.987, 1.11)	9.6% .836 (.766, .913)[c]	15.2% 1.24 (1.15, 1.35)[c]	10.3% .894 (.819, .976)[a]	37.4% 1.27 (1.20, 1.34)[c]
West	37.6% .921 (.866, .980)[b]	22.5% .963 (.897 ,1.03)	9.4% .832 (.752, .919)[c]	12.4% .939 (.858, 1.02)	9.4% .908 (.821, 1.00)	28.9% .894 (.838, .955)[c]

a = p<.05, b = p<.01, c = p<.001 indicate statistically significant differences when compared to the reference group (denoted with 1). All significance tests accounted for cohort year, sex, race, parental education, U.S. region and urbanicity.

Table C: Detailed Table 2, continued						
	% Involved with Athletic Teams to a Considerable/ Great Extent % AOR (95% CI) n = 61,277	% Involved with Music or Performing Arts to a Considerable/ Great Extent % AOR (95% CI) n = 61,336	% Involved with School Newspaper or Yearbook to a Considerable/ Great Extent % AOR (95% CI) n = 61,394	% Involved with Academic Clubs to a Considerable/ Great Extent % AOR (95% CI) n = 61,327	% Involved with Student Council or Government to a Considerable/ Great Extent % AOR (95% CI) n = 61,322	% Involved with Other School Clubs or Activities to a Considerable/ Great Extent % AOR (95% CI) n = 61,340
Cohort Year						
1989-92[1]	36.8%	23.4%	10.5%	13.3%	11.0%	34.6%
1993-96	38.4% 1.05 (.989, 1.13)	24.6% 1.04 (.968, 1.13)	10.8% .955 (.856, 1.06)	13.3% .933 (.845, 1.03)	10.9% .936 (.842, 1.04)	33.5% .921 (.858, .988)[a]
1997-2000	38.4% 1.06 (.996, 1.14)	25.4% 1.09 (1.00, 1.18)[a]	10.4% .936 (.838, 1.04)	14.3% 1.03 (.937, 1.14)	10.9% .977 (.877, 1.08)	34.1% .957 (.890, 1.02)
2001-04	37.8% 1.05 (.977, 1.12)	25.4% 1.09 (1.01, 1.19)[a]	10.2% .916 (.818, 1.02)	13.2% .933 (.843, 1.03)	10.4% .911 (.814, 1.01)	32.1% .877 (.815, .944)[c]
2005-08	37.3% 1.01 (.945, 1.08)	25.6% 1.10 (1.01, 1.19)[a]	9.6% .830 (.741, .929)[c]	13.3% .942 (.853, 1.04)	9.4% .816 (.728, .914)[c]	32.6% .874 (.813, .939)[c]
2009-12	39.9% 1.15 (1.07,1.24)[c]	23.5% 1.00 (.925, 1.08)	9.2% .806 (.717, .906)[c]	13.6% .947 (.856, 1.04)	9.9% .861 (.771, .962)[b]	32.0% .865 (.804, .931)[c]
2013-15	40.9% 1.23 (1.14, 1.33)[c]	22.5% .943 (.860, 1.03)	9.2% .787 (.686, .903)[c]	13.7% .968 (.866, 1.08)	10.1% .924 (.813, 1.05)	30.7% .824 (.759, .895)[c]

a = p<.05, b = p<.01, c = p<.001 indicate statistically significant differences when compared to the reference group (denoted with 1). All significance tests accounted for cohort year, sex, race, parental education, U.S. region and urbanicity.

Table D: Detailed Table 3					
	% with No Involvement in Extracurricular Activities % AOR (95% CI) n = 60,923	% Involved in One Extracurricular Activity (Not Athletics) % AOR (95% CI) n = 60,923	% Involved in Two or More Extracurricular Activities (Not Athletics) % AOR (95% CI) n = 60,923	% Involved in One Extracurricular Activity (Athletics Only) % AOR (95% CI) n = 60,923	% Involved in Two or More Extracurricular Activities (Athletics Is At Least One Activity) % AOR (95% CI) n = 60,923
Overall	13.5%	13.5%	13.5%	7.9%	47.8%
Sex					
Male[1]	15.3%	10.1%	11.9%	12.7%	49.8%
Female	11.3% .694 (.657, .734)[a]	13.5% 1.35 (1.27, 1.43)[a]	25.8% 2.58 (2.45, 2.71)[a]	3.3% .229 (.211, .248)[a]	45.9% .871 (.839, .905)[a]
Race					
White[1]	13.0%	11.3%	18.2%	8.0%	49.2%
Black	12.5% .898 (.822, .982)[b]	12.4% .949 (.863, 1.04)	18.8% .917 (.848, .990)[a]	8.1% 1.08 (.965, 1.21)	47.9% 1.10 (1.04, 1.17)[a]
Other	15.2% .966 (.901, 1.03)	12.7% 1.02 (.947, 1.10)	20.3% 1.21 (1.14, 1.29)[a]	7.7% .860 (.783, .944)[b]	43.9% .926 (.882, 973)[b]
Parental Education					
Less than a college degree[1]	15.9%	13.8%	19.1%	8.2%	42.8%
College degree or higher	9.9% .552 (.521, .585)[a]	9.4% .652 (.614, .692)[a]	18.9% 1.06 (1.01, 1.11)[a]	7.5% .802 (.747, .860)[a]	54.1% 1.58 (1.52, 1.64)[a]
Urbanicity					
Rural[1]	12.1%	11.9%	18.5%	7.0%	50.3%
Suburban	13.7% 1.21 (1.12,1.30)[a]	11.8% 1.04 (.966, 1.12)	18.5% 1.01 (.953, 1.08)	8.3% 1.18 (1.07, 1.29)[a]	47.5% .855 (.814, .899)[a]
Urban	14.3% 1.26 (1.17, 1.37)[a]	11.7% 1.04 (.958, 1.13)	19.5% 1.08 (1.01, 1.15)[a]	8.1% 1.16 (1.05, 1.28)[b]	46.1% .809 (.767, .854)[a]
U.S. Region					
Northeast[1]	14.4%	10.1%	17.3%	8.7%	49.3%
Midwest	13.3% .953 (.878, 1.03)	10.7% 1.09 (.994, 1.19)	16.3% .962 (.893, 1.03)	8.4% .926 (.838, 1.02)	51.2% 1.03 (.977, 1.09)
South	12.7% .879 (.812, .951)[a]	13.2% 1.37 (1.26, 1.49)[a]	21.9% 1.40 (1.31, 1.50)[a]	6.7% .715 (.648, .789)[a]	45.2% .824 (.781, .869)[a]
West	14.3% .968 (.888, 1.05)	12.2% 1.25 (1.13, 1.37)[a]	18.0% 1.03 (.955, 1.11)	8.7% .969 (.871, 1.07)	46.6% .919 (.866, .976)[b]

a = p<.05, b = p<.01, c = p<.001 indicate statistically significant differences when compared to the reference group (denoted with 1). All significance tests accounted for cohort year, sex, race, parental education, U.S. region and urbanicity.

Table D: Detailed Table 3, continued					
	% with No Involvement in Extracurricular Activities % AOR (95% CI) n = 60,923	% Involved in One Extracurricular Activity (Not Athletics) % AOR (95% CI) n = 60,923	% Involved in Two or More Extracurricular Activities (Not Athletics) % AOR (95% CI) n = 60,923	% Involved in One Extracurricular Activity (Athletics Only) % AOR (95% CI) n = 60,923	% Involved in Two or More Extracurricular Activities (Athletics Is At Least One Activity) % AOR (95% CI) n = 60,923
Cohort Year					
1989-92[1]	12.2%	11.7%	20.1%	6.4%	49.3%
1993-96	13.1% 1.10 (1.00, 1.22)[a]	11.8% 1.04 (.939, 1.15)	19.2% .923 (.849, 1.00)	7.3% 1.23 (1.08, 1.40)[b]	48.3% .934 (.874, .997)[a]
1997-2000	13.2% 1.13 (1.02, 1.25)[a]	11.3% .995 (.895, 1.10)	19.9% .947 (.870, 1.03)	7.5% 1.27 (1.10, 1.45)[c]	47.9% .921 (.861, .986)[a]
2001-04	14.1% 1.21 (1.10, 1.34)[c]	12.1% 1.04 (.940, 1.16)	19.2% .919 (.842, 1.00)	7.9% 1.34 (1.17, 1.54)[c]	46.5% .873 (.815, .936)[c]
2005-08	14.3% 1.25 (1.13, 1.38)[c]	12.0% 1.09 (.987, 1.21)	18.5% .863 (.792, .940)[c]	8.3% 1.39 (1.22, 1.58)[c]	46.6% .868 (.811, .928)[c]
2009-12	13.6% 1.15 (1.04, 1.27)[b]	12.4% 1.08 (.980, 1.20)	17.5% .807 (.738, .881)[c]	8.8% 1.51 (1.32, 1.71)[c]	47.6% .917 (.857, .983)[a]
2013-15	14.4% 1.24 (1.11, 1.38)[c]	11.1% .926 (.820, 1.04)	16.0% .718 (.649, .794)[c]	10.1% 1.82 (1.59, 2.09)[c]	48.1% .949 (.879, 1.02)

a = p<.05, b = p<.01, c = p<.001 indicate statistically significant differences when compared to the reference group (denoted with 1). All significance tests accounted for cohort year, sex, race, parental education, U.S. region and urbanicity.

Table E: Psychological Health (Results from Figures 25a to 25d)				
	Depressive Affect (Mean = 1.91) Mean b (β) n = 55,627	**Risk Taking (Mean = 3.21) Mean b (β) n = 56,209**	**Self-Esteem (Mean = 4.09) Mean b (β) n = 56,847**	**Self-Derogation (Mean = 2.01) Mean b (β) n = 55,676**
Extent of Involvement				
Athletic teams				
None	2.02 Reference	3.08 Reference	4.00 Reference	2.11 Reference
Slight/Moderate	1.94 -.049 (-.021)[c]	3.23 .118 (.037)[c]	4.04 .017 (.008)	2.02 -.051 (-.020)[c]
Considerable/Great Extent	1.75 -.205 (-.117)[c]	3.29 .162 (.066)[c]	4.23 .174 (.103)[c]	1.85 -.184 (-.094)[c]
Music or performing arts				
None	1.92 Reference	3.24 Reference	4.09 Reference	2.00 Reference
Slight/Moderate	1.92 .046 (.020)[c]	3.20 .038 (.012)[a]	4.08 -.038 (-.017)[a]	2.02 .075 (.029)[c]
Considerable/Great Extent	1.85 -.001 (-.001)	3.06 -.038 (-.014)[b]	4.14 .001 (.001)	1.97 .035 (.016)[b]
School newspaper or yearbook				
None	1.92 Reference	3.21 Reference	4.09 Reference	2.01 Reference
Slight/Moderate	1.86 .021 (.008)	3.20 .054 (.016)[c]	4.13 -.027 (-.011)[a]	1.95 .008 (.003)
Considerable/Great Extent	1.84 .008 (.003)	3.04 -.019 (-.004)	4.14 -.009 (-.003)	1.92 -.012 (-.004)
Academic clubs				
None	1.94 Reference	3.25 Reference	4.06 Reference	2.04 Reference
Slight/Moderate	1.85 -.002 (-.001)	3.14 -.117 (-.039)[c]	4.13 .003 (.001)	1.93 -.021 (-.009)
Considerable/Great Extent	1.80 -.006 (-.002)	2.99 -.163 (-.047)[c]	4.22 .051 (.021)[c]	1.88 -.047 (-.017)[c]
Student council or government				
None	1.94 Reference	3.21 Reference	4.07 Reference	2.03 Reference
Slight/Moderate	1.84 -.025 (-.009)[a]	3.18 .028 (.007)	4.14 .010 (.004)	1.93 -.030 (-.010)[a]
Considerable/Great Extent	1.70 -.107 (-.038)[c]	3.04 -.058 (-.015)[b]	4.27 .068 (.025)[c]	1.81 -.106 (-.034)[c]
Other school clubs or activities				
None	2.05 Reference	3.30 Reference	3.98 Reference	2.12 Reference
Slight/Moderate	1.89 -.115 (-.062)[c]	3.21 -.057 (-.022)[c]	4.09 .086 (.049)[c]	1.98 -.105 (-.051)[c]
Considerable/Great Extent	1.76 -.218 (-.120)[c]	3.06 -.082 (-.032)[c]	4.23 .188 (.108)[c]	1.87 -.189 (-.094)[c]

All models control for cohort year, sex, race, parental education, U.S. region and urbanicity.

a = p<.05, b = p<.01, c = p<.001. NOTE: b = unstandardized regression coefficient, β= beta (standardized coefficient).

Table F: Substance Use/Driving Under the Influence

(Results from Figures 26a to 26e)

	Cigarette Use (Past 30 Days) (25.9%) % AOR (95% CI) n = 60,323	Binge Drinking (Past 30 Days) (28.4%) % AOR (95% CI) n = 57,959	Marijuana Use (Past 30 Days) (19.9%) % AOR (95% CI) n = 59,845	Nonmedical Rx Use (Past 30 Days) (7.2%) % AOR (95% CI) n = 60,758	Driving Under the Influence (3.9%) % AOR (95% CI) n = 58,853
Extent of Involvement					
Athletic teams					
None	29.2% Reference	24.9% Reference	20.8% Reference	8.1% Reference	3.8% Reference
Slight/Moderate	27.7% 1.06 (.996, 1.12)	28.9% 1.30 (1.22, 1.38)[c]	21.1% 1.09 (1.02, 1.17)[b]	7.8% 1.04 (.947, 1.15)	4.5% 1.22 (1.06, 1.40)[b]
Considerable/ Great Extent	21.3% .752 (.713, .793)[c]	32.4% 1.48 (1.41, 1.56)[c]	18.3% .911 (.861, .964)[c]	5.9% .782 (.716, .854)[c]	3.7% .966 (.859, 1.08)
Music or performing arts					
None	28.0% Reference	32.2% Reference	22.4% Reference	7.8% Reference	4.6% Reference
Slight/Moderate	24.9% 1.04 (.976, 1.11)	27.6% .877 (.823, .933)[c]	19.5% 1.00 (.942, 1.08)	7.1% 1.03 (.930, 1.14)	3.9% 1.04 (.905, 1.20)
Considerable/ Great Extent	21.5% .826 (.779, .876)[c]	20.1% .599 (.564, .636)[c]	14.1% .722 (.676, .771)[c]	5.6% .781 (.708, .862)[c]	2.1% .578 (.497, .673)[c]
School newspaper or yearbook					
None	27.1% Reference	29.2% Reference	20.7% Reference	7.4% Reference	4.2% Reference
Slight/Moderate	23.1% 1.00 (.934, 1.07)	27.8% 1.05 (.986, 1.12)	18.3% 1.05 (.983, 1.13)	6.9% 1.11 (.996, 1.24)	3.5% 1.07 (.923, 1.25)
Considerable/ Great Extent	21.4% .897 (.826, .974)[a]	23.9% .927 (.855, 1.00)	15.5% .991 (.904, 1.08)	6.2% 1.02 (.895, 1.17)	2.7% .990 (.813, 1.20)
Academic clubs					
None	29.1% Reference	30.9% Reference	22.7% Reference	7.8% Reference	4.6% Reference
Slight/Moderate	21.3% .754 (.708, .803)[c]	26.3% .824 (.776, .875)[c]	16.3% .780 (.728, .835)[c]	6.2% .910 (.728, .835)[c]	3.1% .753 (.647, .877)[c]
Considerable/ Great Extent	16.3% .608 (.560, .659)[c]	19.3% .633 (.585, .685)[c]	10.9% .590 (.538, .647)[c]	5.3% .845 (.538, .647)[c]	1.6% .509 (.407, .638)[c]
Student council or government					
None	27.3% Reference	28.9% Reference	21.1% Reference	7.5% Reference	4.2% Reference
Slight/Moderate	22.9% 1.03 (.960, 1.11)	28.5% 1.16 (1.08, 1.25)[c]	18.0% 1.12 (1.03, 1.22)[b]	6.8% 1.14 (1.01, 1.29)[a]	3.4% 1.14 (.964, 1.35)
Considerable/ Great Extent	18.5% .884 (.811, .964)[b]	25.1% 1.11 (1.02, 1.20)[a]	13.2% .956 (.867, 1.05)	5.2% .993 (.860, 1.14)	2.6% 1.13 (.924, 1.40)
Other school clubs or activities					
None	32.5% Reference	32.9% Reference	26.7% Reference	9.3% Reference	5.5% Reference
Slight/Moderate	25.3% .714 (.675, .756)[c]	29.3% .833 (.787, .880)[c]	20.1% .755 (.711, .801)[c]	6.7% .717 (.654, .785)[c]	4.0% .747 (.662, .843)[c]
Considerable/ Great Extent	19.2% .599 (.562, .638)[c]	22.8% .713 (.670, .759)[c]	12.5% .518 (.483, .556)[c]	5.3% .598 (.537, .666)[c]	2.1% .481 (.412, .562)[c]

a = p<.05, b = p<.01, c = p<.001. All models control for cohort year, sex, race, parental education, U.S. region and urbanicity.

Table G: Academic Achievement/ Academic Ability

(Results from Figures 27a to 27e)

	Self-Rated School Ability is Above Average (33.8%) % AOR (95% CI) n = 59,865	Self-Rated Intelligence is Above Average (36.7%) % AOR (95% CI) n = 59,934	Average Grade is an A or A- (29.6%) % AOR (95% CI) n = 59,697	Definitely Will Graduate from a Four-Year College (55.3%) % AOR (95% CI) n = 58,554	Definitely Will Attend Graduate/ Professional School (20.2%) % AOR (95% CI) n = 58,554
Extent of Involvement					
Athletic teams					
None	29.8% Reference	34.5% Reference	26.2% Reference	47.1% Reference	17.6% Reference
Slight/Moderate	31.5% .822 (.773, .874)[c]	35.7% .810 (.763, .859)[c]	26.5% .786 (.736, .840)[c]	52.5% 1.05 (.992, 1.11)	19.5% 1.00 (.931, 1.07)
Considerable/ Great Extent	39.5% 1.03 (.985, 1.08)	39.8% .853 (.813, .894)[c]	35.1% 1.07 (1.02, 1.13)[b]	65.8% 1.74 (1.66, 1.83)[b]	23.4% 1.19 (1.12, 1.26)[c]
Music or performing arts					
None	30.8% Reference	34.2% Reference	26.4% Reference	50.8% Reference	17.5% Reference
Slight/Moderate	33.8% .920 (.866, .978)[b]	36.2% .960 (.905, 1.01)	29.6% .829 (.777, .884)[c]	55.8% .859 (.808, .913)[c]	21.9% .973 (.908, 1.04)
Considerable/ Great Extent	41.1% 1.19 (1.13, 1.25)[c]	43.3% 1.24 (1.18, 1.31)[c]	37.4% 1.04 (.990, 1.10)	65.4% 1.20 (1.14, 1.27)[c]	25.4% 1.12 (1.05, 1.19)[c]
School newspaper or yearbook					
None	31.8% Reference	35.1% Reference	27.0% Reference	52.0% Reference	18.5% Reference
Slight/Moderate	38.0% .974 (.917, 1.03)	40.6% 1.03 (.970, 1.09)	34.5% .963 (.901, 1.02)	61.7% .969 (.908, 1.03)	24.8% 1.02 (.958, 1.10)
Considerable/ Great Extent	43.1% 1.18 (1.10, 1.27)[c]	43.3% 1.16 (1.08, 1.24)[c]	42.2% 1.21 (1.12, 1.31)[c]	69.4% 1.26 (1.16, 1.37)[c]	26.1% .990 (.913, 1.07)
Academic clubs					
None	26.4% Reference	30.9% Reference	20.8% Reference	47.7% Reference	15.4% Reference
Slight/Moderate	43.3% 1.80 (1.70, 1.90)[c]	43.5% 1.57 (1.48, 1.65)[c]	40.6% 2.15 (2.03, 2.28)[c]	66.1% 1.60 (1.51, 1.70)[c]	24.3% 1.41 (1.32, 1.50)[c]
Considerable/ Great Extent	56.1% 2.93 (2.75, 3.13)[c]	55.3% 2.51 (2.35, 2.68)[c]	56.5% 3.65 (3.41, 3.91)[c]	76.1% 2.25 (2.09, 2.43)[c]	36.7% 2.16 (2.01, 2.32)[c]
Student council or government					
None	30.7% Reference	34.3% Reference	25.6% Reference	51.2% Reference	17.5% Reference
Slight/Moderate	39.9% 1.06 (.993, 1.13)	41.1% 1.05 (.983, 1.12)	37.2% 1.13 (1.06, 1.21)[c]	62.5% .997 (.930, 1.06)	25.6% 1.18 (1.09, 1.27)[c]
Considerable/ Great Extent	49.7% 1.41 (1.31, 1.51)[c]	49.1% 1.38 (1.28, 1.48)[c]	50.0% 1.58 (1.46, 1.70)[c]	76.3% 1.57 (1.44, 1.71)[c]	32.9% 1.38 (1.27, 1.49)[c]
Other school clubs or activities					
None	23.5% Reference	29.6% Reference	17.2% Reference	36.9% Reference	13.0% Reference
Slight/Moderate	35.6% 1.43 (1.36, 1.51)[c]	37.6% 1.24 (1.17, 1.30)[c]	30.5% 1.57 (1.48, 1.67)[c]	57.4% 1.56 (1.48, 1.65)[c]	18.4% 1.21 (1.13, 1.30)[c]
Considerable/ Great Extent	43.2% 1.66 (1.56, 1.76)[c]	43.5% 1.40 (1.32, 1.48)[c]	41.9% 1.97 (1.85, 2.10)[c]	69.5% 2.06 (1.94, 2.19)[c]	29.3% 1.72 (1.60, 1.84)[c]

All models control for cohort year, sex, race, parental education, U.S. region and urbanicity.

a = p<.05, b = p<.01, c = p<.001.

Table H: Academic Problems/ Academic Difficulties

(Results from Figures 28a to 28e)

	Cut a Full Day of School (32.0%) % AOR (95% CI) n = 58,265	Often Skip School Without Permission (11.8%) % AOR (95% CI) n = 60,810	Often Get in Trouble at School Due to Misbehavior (3.0%) % AOR (95% CI) n = 60,806	Often Hate Being in School (32.6%) % AOR (95% CI) n = 60,825	Attended Summer School Due to Poor Grades (22.8%) % AOR (95% CI) n = 60,816
Extent of Involvement					
Athletic teams					
None	32.9% Reference	13.6% Reference	3.2% Reference	37.8% Reference	26.1% Reference
Slight/Moderate	35.0% 1.17 (1.10, 1.24)[c]	12.2% 1.00 (.929, 1.09)	3.4% 1.11 (.952, 1.29)	31.1% .875 (.825, .928)[c]	25.2% 1.09 (1.02, 1.16)[b]
Considerable/ Great Extent	29.6% .943 (.898, .991)[a]	9.6% .771 (.719, .828)[c]	2.6% .818 (.714, .936)[b]	27.3% .737 (.702, .773)[c]	17.8% .727 (.687, .769)[c]
Music or performing arts					
None	34.3% Reference	13.4% Reference	3.3% Reference	35.9% Reference	24.1% Reference
Slight/Moderate	32.3% .967 (.911, 1.02)	10.8% .939 (.861, 1.02)	3.0% 1.17 (.994, 1.38)	28.8% .913 (.860, .970)[b]	23.7% 1.19 (1.12, 1.28)[c]
Considerable/ Great Extent	26.2% .779 (.738, .823)[c]	8.7% .768 (.709, .832)[c]	2.1% .773 (.656, .911)[b]	27.3% .831 (.788, .877)[c]	19.1% 1.02 (.960, 1.08)
School newspaper or yearbook					
None	32.4% Reference	12.2% Reference	3.2% Reference	34.4% Reference	24.1% Reference
Slight/Moderate	31.6% 1.09 (1.02, 1.16)[b]	10.4% 1.10 (1.00, 1.20)[a]	2.4% .995 (.835, 1.18)	26.4% .891 (.835, .950)[c]	20.7% 1.03 (.958, 1.11)
Considerable/ Great Extent	29.0% 1.04 (.968, 1.12)	10.8% 1.20 (1.08, 1.34)[c]	2.6% 1.14 (.900, 1.44)	27.6% .980 (.909, 1.05)	15.9% .846 (.770, .930)[c]
Academic clubs					
None	34.4% Reference	13.7% Reference	3.5% Reference	36.9% Reference	26.5% Reference
Slight/Moderate	29.2% .855 (.808, .906)[c]	8.5% .687 (.629, .751)[c]	1.9% .720 (.604, .858)c	25.0% .729 (.688, .773)[c]	16.8% .649 (.606, .695)[c]
Considerable/ Great Extent	24.5% .746 (.695, .801)[c]	7.2% .624 (.557, .700)[c]	1.9% .685 (.548, .857)[c]	22.3% .684 (.637, .735)[c]	13.1% .482 (.441, .528)[c]
Student council or government					
None	32.8% Reference	12.5% Reference	3.2% Reference	35.1% Reference	24.6% Reference
Slight/Moderate	31.7% 1.11 (1.04, 1.19)[c]	10.3% 1.13 (1.02, 1.25)[a]	2.4% 1.05 (.868, 1.27)	25.8% .943 (.879, 1.01)	19.0% .979 (.903, 1.06)
Considerable/ Great Extent	25.9% .964 (.893, 1.04)	8.6% 1.02 (.915, 1.15)	2.1% 1.04 (.826, 1.31)	21.9% .800 (.738, .866)[c]	13.4% .726 (.658, .801)[c]
Other school clubs or activities					
None	37.4% Reference	16.6% Reference	4.7% Reference	42.3% Reference	30.2% Reference
Slight/Moderate	32.4% .858 (.813, .904)[c]	10.2% .647 (.600, .696)[c]	2.2% .522 (.450, .604)[c]	30.2% .700 (.665, .737)[c]	19.9% .709 (.667, .753)[c]
Considerable/ Great Extent	25.8% .687 (.648, .728)[c]	8.2% .560 (.514, .610)[c]	1.9% .523 (.441, .620)[c]	24.4% .579 (.546, .613)[c]	17.4% .733 (.687, .783)[c]

a = p<.05, b = p<.01, c = p<.001. All models control for cohort year, sex, race, parental education, U.S. region and urbanicity.

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Appendix

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WOMEN'S SPORTS FOUNDATION

Women's Sports Foundation founded by Billie Jean King

New York City
247 West 30th Street, 5th Floor
New York, NY 10001

800.227.3988
info@WomensSportsFoundation.org
www.WomensSportsFoundation.org

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