# A Profile of Substance Use in Ohio: 2019 Update

*August 2020*

OMAS
Ohio Medicaid Assessment Survey

Ohio Department of Medicaid

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# EXECUTIVE SUMMARY

Substance use remains the leading cause of preventable morbidity and mortality in the United States. In Ohio, substances of particular concern over the past several years due to their public health impact include tobacco, alcohol, marijuana, opioids, and other prescription pain relievers. This chartbook presents data on the prevalence of substance use in Ohio, including many recent findings from the 2019 Ohio Medicaid Assessment Survey (OMAS), as well as the Ohio Youth Risk Behavior Survey (YRBS) and the Ohio Department of Health's Bureau of Vital Statistics.

**Key Findings**

- Marijuana, cigarettes, and alcohol (in that order) were the most commonly-used substances among Ohio adults.
- Prevalence of substance use varied by gender, age, race/ethnicity, county type, education, poverty, mental health impairment, and Medicaid status.
- E-cigarettes, marijuana, and alcohol (in that order) were the most commonly-used substances among Ohio high school students.
- Over 3,000 individuals in Ohio died in 2018 from an overdose involving opioids.
- Per capita, the distribution of alcohol retailers was seemingly more uniform across the state than the distribution of tobacco retailers (which were more dense in the rural Appalachian region). Marijuana dispensaries were focused in urban areas, although there was also a strong presence in rural Appalachia.

Visit **grc.osu.edu/OMAS** for additional information about OMAS, including public use files, codebooks, and methods

# CONTENTS

# BACKGROUND

Modifiable risk behaviors are the leading contributors to mortality in the U.S., with substance use being the primary culprit.[1] Substances of particular concern due to their impact on public health include tobacco, alcohol, marijuana, prescription pain relievers, and opioids (see Box 1).

There are also many disparities in substance use—including those based on gender, age, race/ethnicity, geography, income, education, mental health impairment, and insurance status—that warrant significant attention. Substance use is often disproportionate among those who experience the largest challenges with respect to social determinants of health (i.e., a range of personal, social, economic, and environmental factors known to influence health), and among those most likely to be served by publicly funded healthcare. For example, opioid use disorders have been reported as more common among the uninsured;[2] binge drinking is highest among those with low socioeconomic status;[3] and tobacco use is higher among rural, compared to non-rural, individuals in the U.S.[4,5] In order to achieve health equity in Ohio, the state must monitor these disparities and determine how to best serve the state's vulnerable populations.

To stay abreast of the current burden of substance use in Ohio, it is necessary to engage in continued surveillance. This includes monitoring what substances are being used, by which populations, and at what intensity/prevalence. Overall, these surveillance activities can indicate patterns of use, highlight disparities, and point to pressing concerns. Such findings can, in turn, be used to inform prevention and intervention efforts.

# BACKGROUND

**Box 1: The Public Health Burden of Substance Use**

- **Tobacco:** Tobacco is responsible for approximately 480,000 deaths per year.[6] Tobacco increases the risk for heart disease, cancer, and stroke.[7]
- **Alcohol:** Alcohol is the third leading preventable cause of death in the U.S., resulting in an estimated 88,000 deaths per year.[8] Alcohol misuse is associated with cardiovascular diseases, cancer, fetal alcohol syndrome, and suppressed immune function.[9]
- **Marijuana:** Marijuana has many short-term effects including memory and learning problems, and loss of coordination. In the long term, it affects brain development, can severely impair mental functioning, and is associated with an increased risk of mental illness.[10]
- **Prescription pain relievers:** Misusing prescription pain relievers carries serious risks, including addiction and overdose. Although prescription rates decreased in 2017, 17.4% of the U.S. population received an opioid prescription.[11] Misuse of prescription pain relievers are involved in more than 35% of all opioid overdose deaths.[12]
- **Opioids.** Opioid use and overdose deaths remain a pressing public health concern in Ohio. In addition to being a highly addictive substance, long-term use of opioids alters the physical structure of the brain and contributes to mental disorders, damage to mucosal tissues, and many other poor health outcomes.[13]

# OBJECTIVES

The purpose of this chartbook is to provide a comprehensive report on the state of substance use in Ohio as measured in the Ohio Medicaid Assessment Survey. Our objectives are to:

1. Present estimates of tobacco use, binge drinking, marijuana use, prescription pain reliever misuse, and opioid use among Ohioans, including poly-substance use.

2. Estimate the prevalence of substance use across individual characteristics including: gender, age, race/ethnicity, county type, education, poverty, mental health impairment, and Medicaid status among low-income families.

3. Present information on place-based factors known to be related to substance use (e.g., geographic factors, including density of tobacco, alcohol, and marijuana retailers), in order to support the development or revision of policies that could ameliorate substance use issues in the state.

# METHODS

**Description of Data Sources**

- The primary source of data for this report is the 2019 Ohio Medicaid Assessment Survey (OMAS). Previous years of data collection for this series (2014-2017) are used for trends analyses.
- Data on substance use behavior in Ohio are also drawn from the Ohio Youth Risk Behavior Survey (YRBS), and the Ohio Department of Health's Bureau of Vital Statistics.
- Data on the location of alcohol and tobacco distributors, as well as medical marijuana dispensaries, are drawn from licensing registries.
- Slides containing non-OMAS data have an off-white background in addition to a source label above the figure.

**Further Details on the 2019 OMAS**

- The 2019 OMAS is an Ohio-specific assessment that provides health status and health system-related information about residential Ohioans at the state, regional and county levels, with a concentration on Ohio's Medicaid, Medicaid-eligible, and non-Medicaid populations.
- This multi-mode study collected data through a sample of landline and cellular phones in Ohio through random digit dialing, as well as by web-based or paper versions through address-based sampling.
- A total of 31,558 surveys of Ohioans 19 years of age and older and proxy interviews for 7,404 children 18 years of age and younger were completed by researchers in 2019: 30,068 by phone, 950 by web, and 540 by mail-in paper survey.
- Missing data on outcome variables are presented below:

| Outcome | Missing (N) |
|---|---|
| Tobacco | |
| Cigarettes | 1435 |
| E-cigarettes | 1341 |
| Smokeless Tobacco | 1340 |
| Alcohol | 1597 |
| Marijuana | 1664 |
| Misuse of Pain Relievers | 1450 |
| Dual substance use | 1723 |
| Poly substance use | 1909 |

- The 2019 OMAS is the eighth iteration of the survey. For details, please see the OMAS methods at **grc.osu.edu/OMAS**.

***Continued on next page →***

# METHODS

**Variable Definitions**

- Tobacco: Among OMAS adults (those aged 19 or older), current smoking is defined as smoking at least 100 cigarettes in a lifetime and currently smoking some days or every day. For all other tobacco products (e-cigarettes and smokeless tobacco) current adult use is defined as some day or every day use.
- Among YRBS adolescents (grades 9-12), current use of cigarettes, e-cigarettes, smokeless tobacco, cigars, and cigarillos is defined as any use in the past 30 days.
- Alcohol: Binge drinking is defined as consuming 5 or more drinks in a sitting for men, and 4 or more drinks in a sitting for women in the past month.
- Other substances: Marijuana and misuse of prescription pain relievers are reported as past 30-day use.

**Analyses**

- Descriptive statistics are reported in the figures and maps that follow. No statistical testing was performed. Substance use prevalence data from OMAS are reported overall and by sociodemographic characteristics. Trends in substance use are also presented, where appropriate.
- Descriptive data on substance use treatment availability and the density of tobacco, alcohol, and marijuana retail distributor locations are also presented.

**Additional Notes**

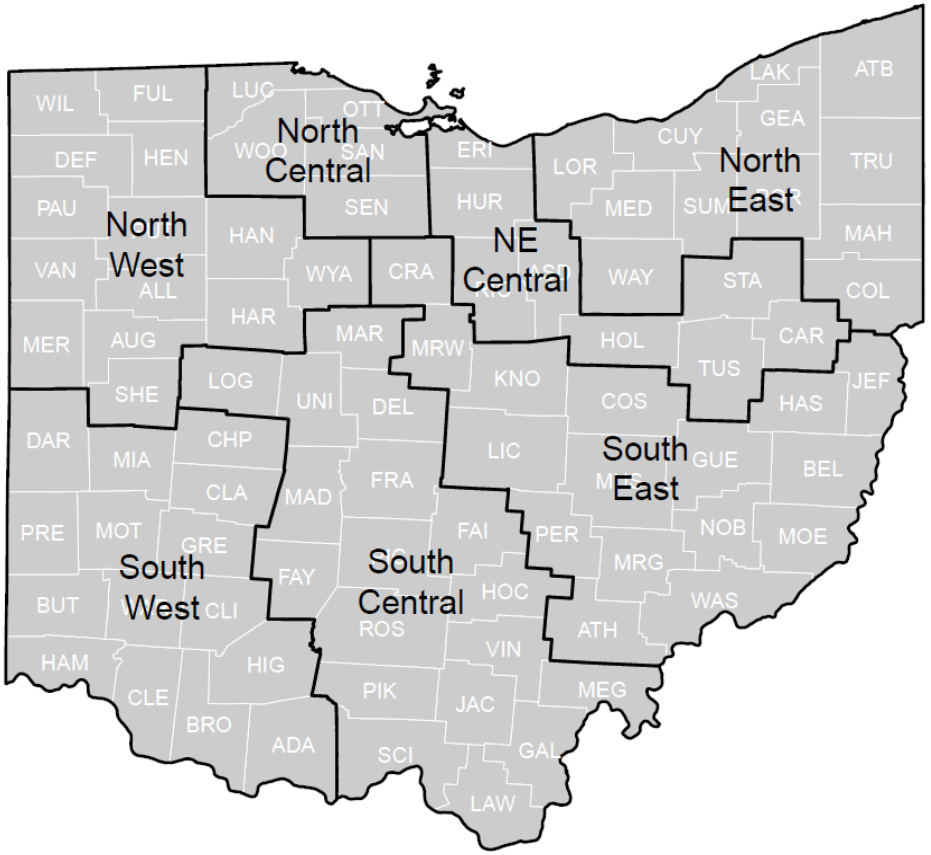
• The OMAS asks about prior annual family income and the number of family members in the household to compare with the Federal Poverty Level (FPL) and determine poverty status; for the 2019 OMAS the income reference is the 2018 annual family income. The 138% FPL threshold corresponds to the Affordable Care Act Medicaid expansion income eligibility limit.

***Continued on next page →***

# METHODS

**Regions**

- Plots of various substance use outcomes in this report are based on Medicaid managed care regions.
- Data cannot be presented in smaller geographic units (e.g., counties) due to small numbers for some sociodemographic characteristics, which would produce unreliable estimates and compromise participant confidentiality.



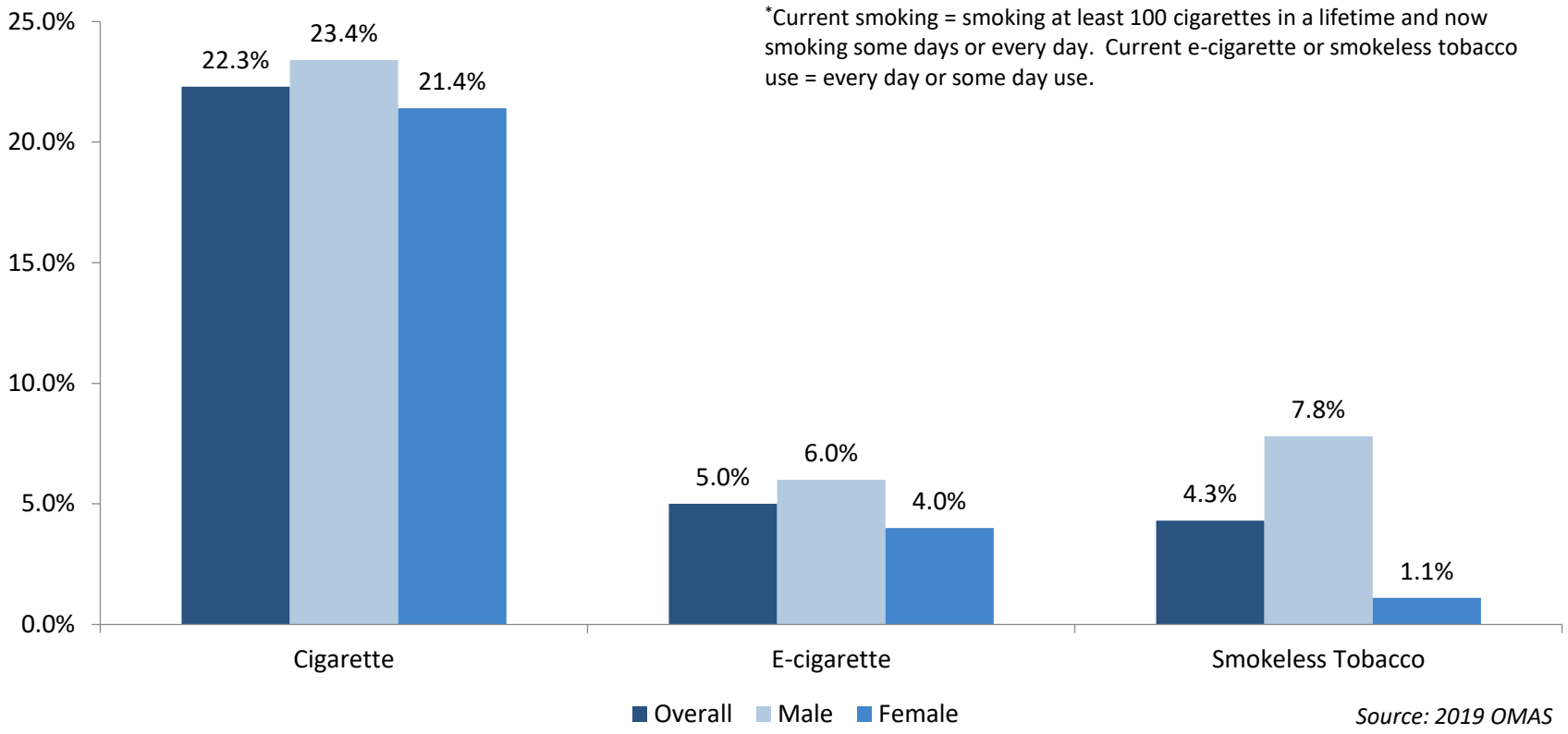
# RESULTS: TOBACCO USE

The following section provides an overview of prevalence and trends in tobacco use for Ohio, with a focus on cigarettes, e-cigarettes, and smokeless tobacco (i.e., chewing tobacco, or “dip”). The data on each product are not mutually exclusive, as some people may have used more than one tobacco product. Data on poly-substance use is presented later in this chartbook.

# Key Findings: Tobacco Use

- Males and females have similar patterns of cigarette and e-cigarette use, whereas smokeless tobacco is more prevalent among males.
- Cigarette smoking is more prevalent among middle-age adults, and disadvantaged adults, as measured by education, income, and mental health impairment.
- E-cigarette use is much more prevalent among young adults.
- Among high school students, e-cigarette use is driving the high prevalence of past 30-day tobacco use.

# Figure 1. Adult prevalence of current* cigarette, e-cigarettes, and smokeless tobacco use, overall and by gender

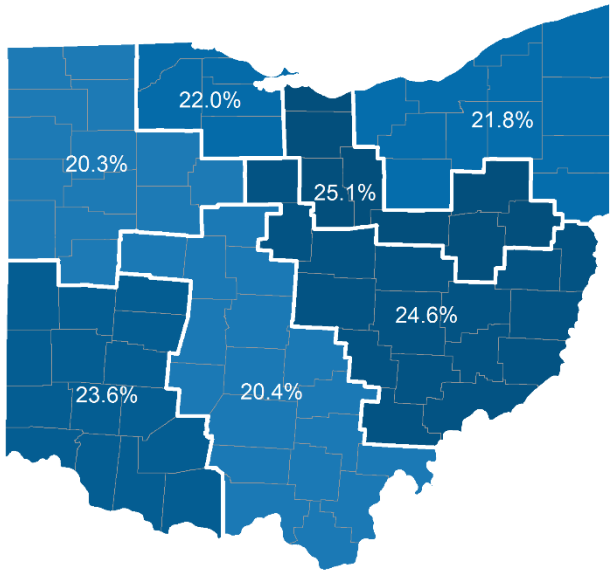



*Current smoking = smoking at least 100 cigarettes in a lifetime and now smoking some days or every day. Current e-cigarette or smokeless tobacco use = every day or some day use.

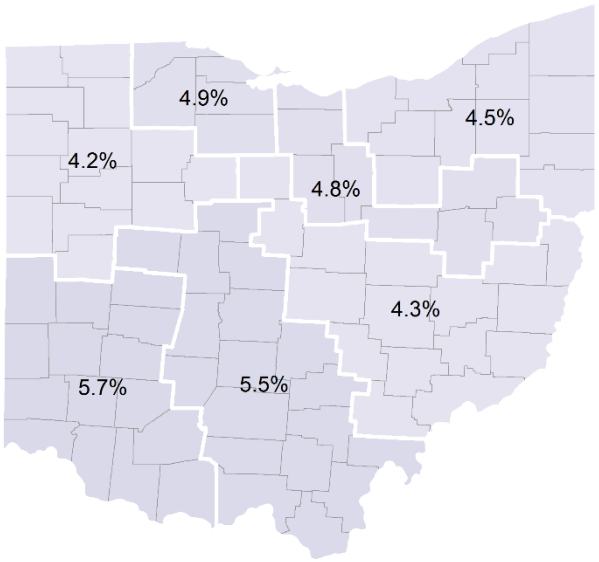
*Source: 2019 OMAS*

Of all three tobacco products assessed in OMAS, cigarette smoking was the most prevalent behavior, followed by e-cigarettes overall and among females. Smokeless tobacco use was slightly higher than e-cigarette use among males in Ohio.

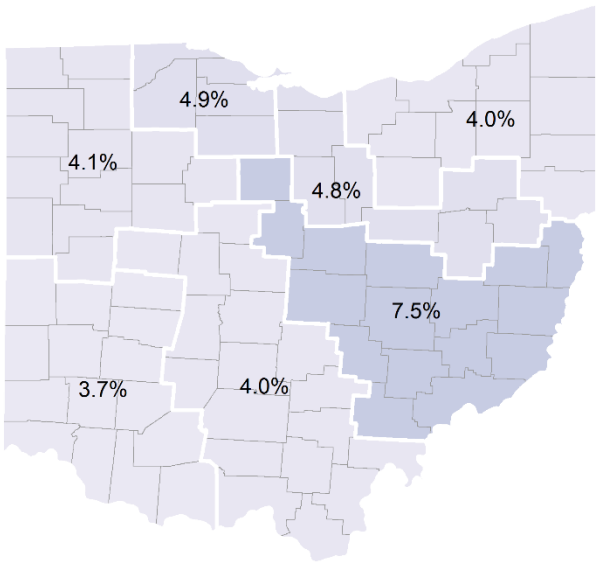
# Figure 2. Adult prevalence of current* tobacco use by Medicaid managed care region




Cigarettes




E-Cigarettes



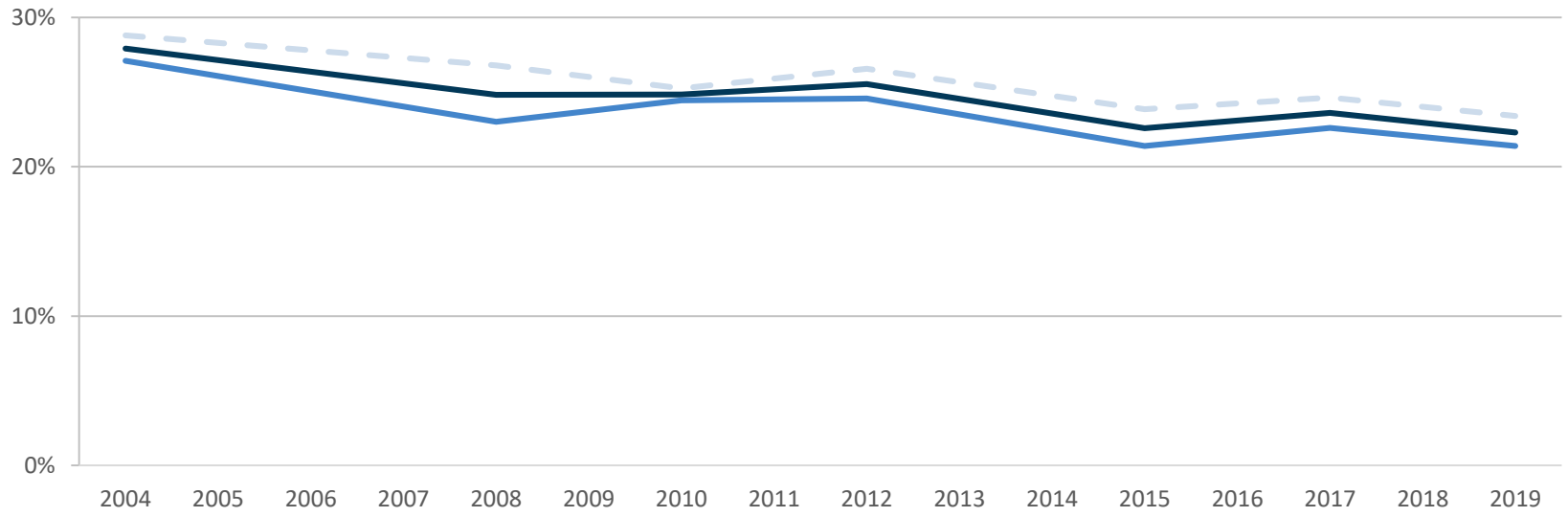

Smokeless Tobacco

*Source: OMAS 2019*

These three plots show the geographic distribution of tobacco use by region in Ohio. Cigarette smoking was most prevalent in the South East, North East Central, and South West regions, smokeless tobacco use was most prevalent in the South East region, while e-cigarette use had the highest prevalence in the South West region.

*Current smoking = smoking least 100 cigarettes in a lifetime and now smoking some days or every day. Current e-cigarette or smokeless tobacco use = every day or some day use.

# Figure 3. Adult trends in current* cigarette use over time, overall and by gender



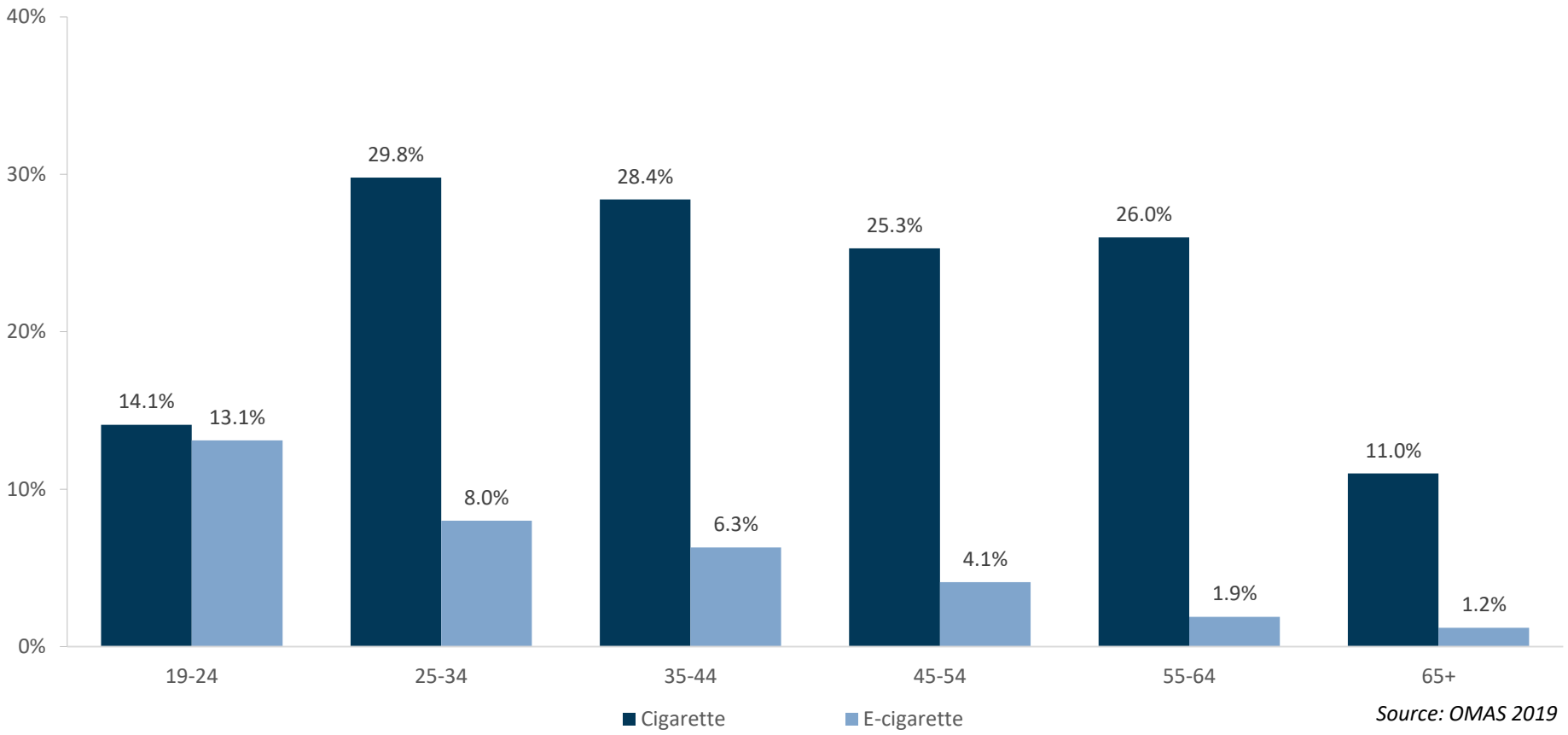

| | 2004 | 2008 | 2010 | 2012 | 2015 | 2017 | 2019 |
|---|---|---|---|---|---|---|---|
| Overall | 27.9% | 24.8% | 24.8% | 25.5% | 22.6% | 23.6% | 22.3% |
| Male | 28.8% | 26.8% | 25.3% | 26.6% | 23.9% | 24.6% | 23.4% |
| Female | 27.1% | 23.0% | 24.4% | 24.6% | 21.4% | 22.6% | 21.4% |

*Sources: 2004, 2008, 2010, 2012, 2015, 2017, 2019 OMAS*

Between 2004 and 2019, there was a decrease in cigarette smoking. Similar decreases are noted among males and females.

*Current smoking = smoking least 100 cigarettes in a lifetime and now smoking some days or every day. Current e-cigarette or smokeless tobacco use = every day or some day use.

# Figure 4. Adult prevalence of current* cigarette and e-cigarette use by age

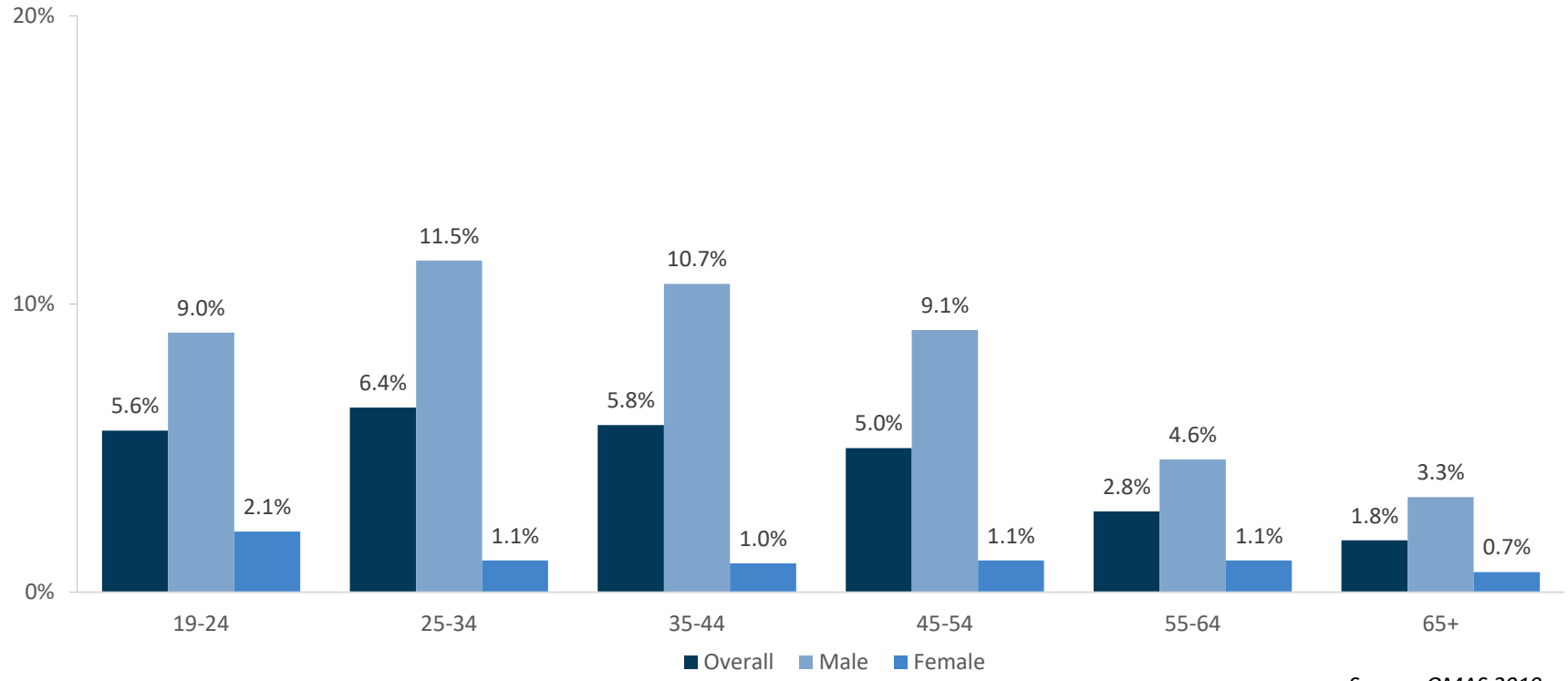



*Source: OMAS 2019*

Different patterns in use of tobacco are observed when examined by age and gender. E-cigarette use was more prevalent among younger age groups and cigarette use was higher among older age groups.

*Current smoking = smoking at least 100 cigarettes in a lifetime and now smoking some days or every day. Current e-cigarette or smokeless tobacco use = every day or some day use.

# Figure 5. Adult prevalence of current* smokeless tobacco use by age and by gender

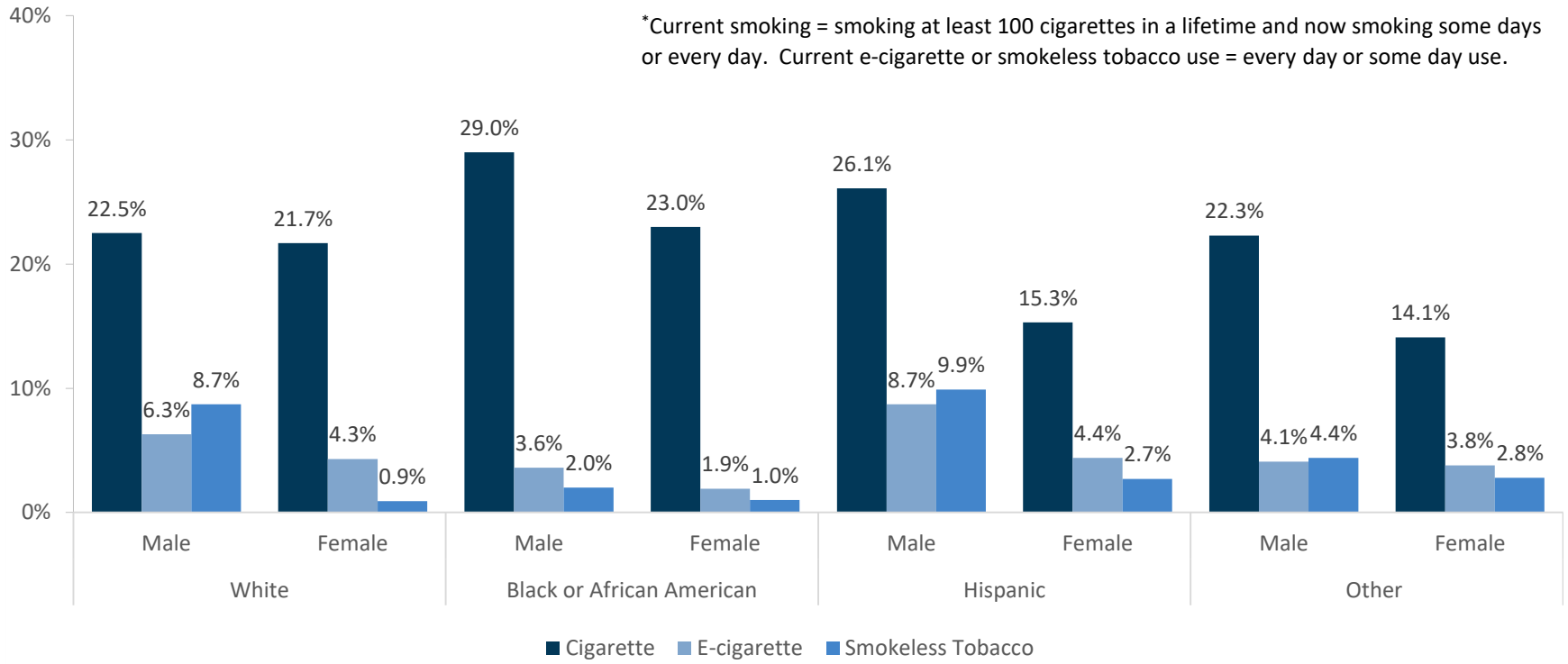



*Source: OMAS 2019*

Across all age groups, smokeless tobacco use was more prevalent among males than females.

* Current smokeless tobacco use = every day or some day use.

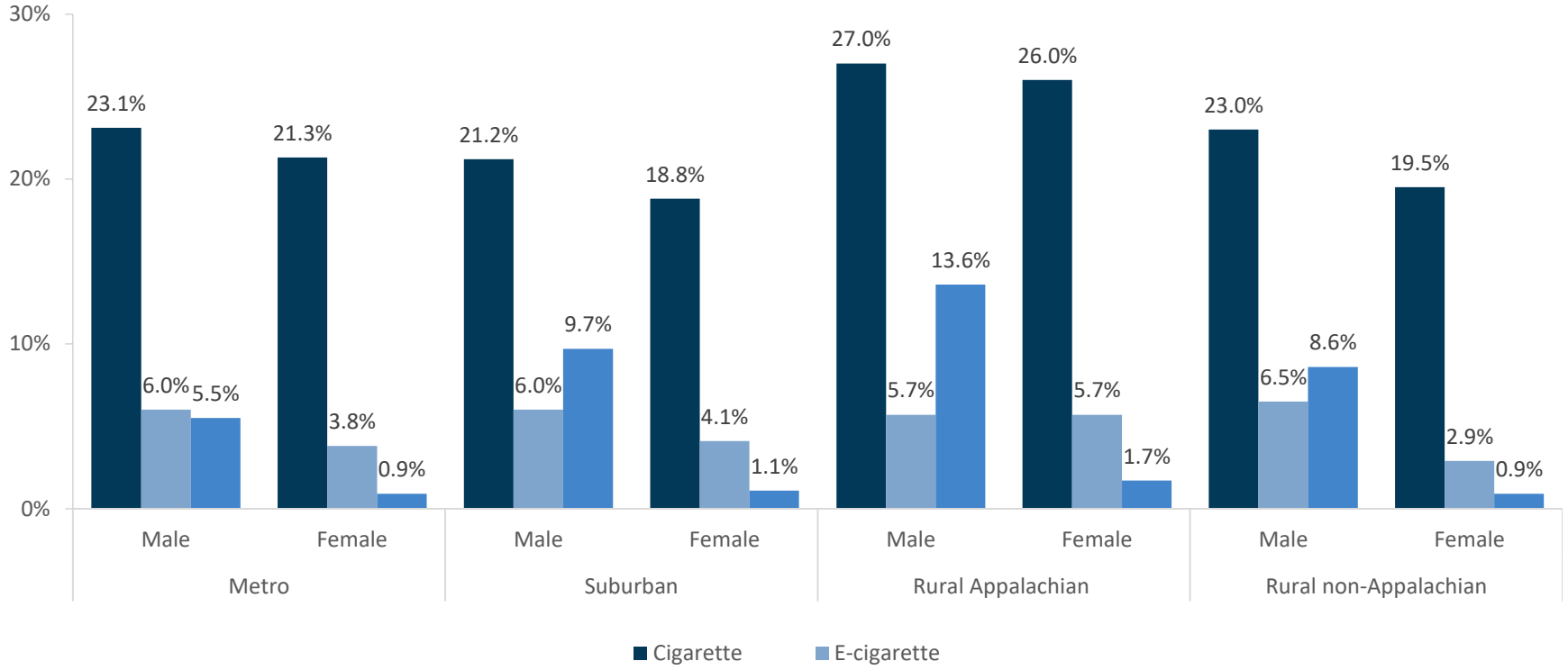
# Figure 6. Adult prevalence of current* cigarette, e-cigarette, and smokeless tobacco use by race/ethnicity, overall and by gender




*Source: OMAS 2019*

Across all groups, cigarette smoking was the most prevalent behavior. Among males, Black or African Americans had the highest prevalence of cigarette smoking, followed by Hispanics, whites, and Other males (who had similar prevalence). Among females, Black or African Americans had the highest prevalence of cigarette smoking, followed by white females. E-cigarette use was highest among Hispanic males and females compared to other race/ethnicity groups. Smokeless tobacco use was most prevalent among Hispanic males, followed by white males.

# Figure 7. Adult prevalence of current* cigarette, e-cigarette, and smokeless tobacco use by county type, overall and by gender

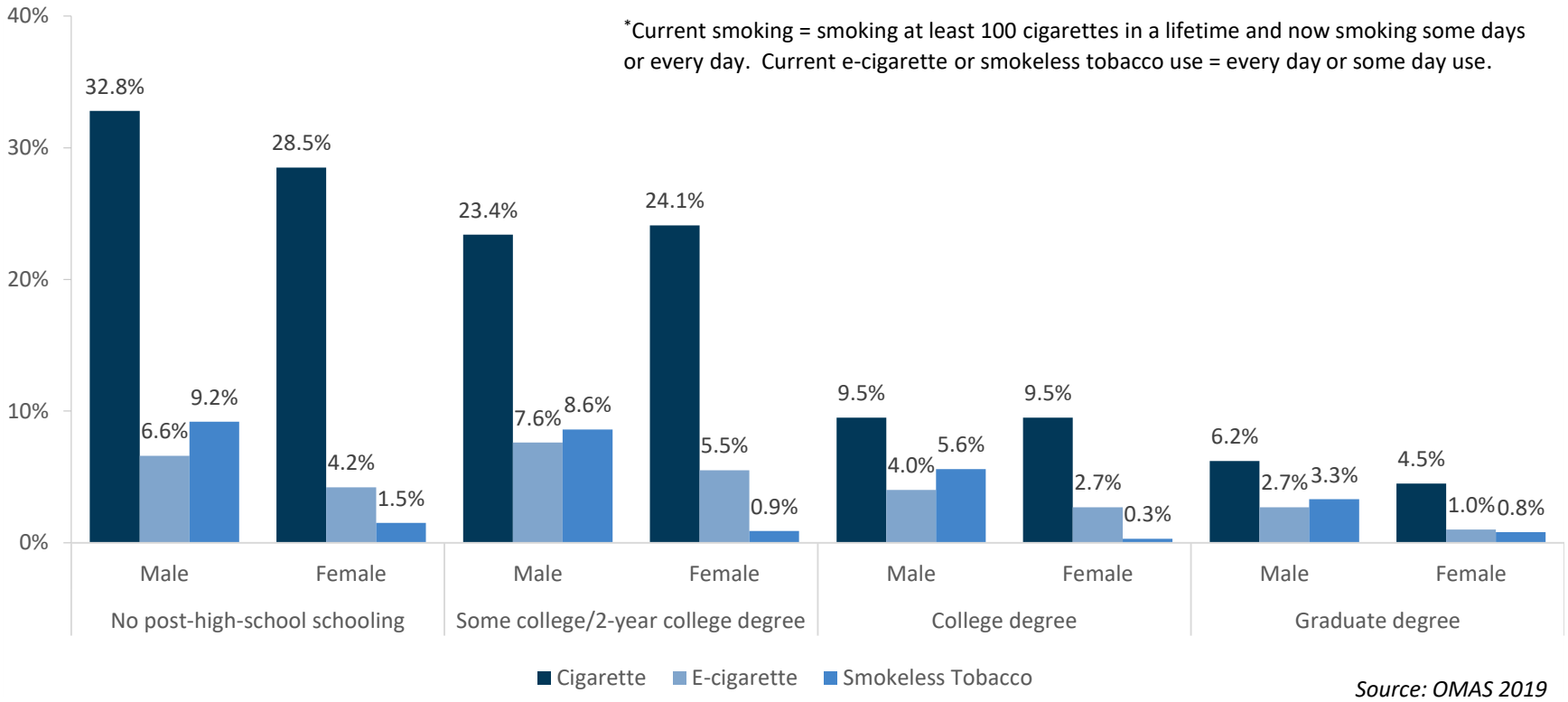



*Source: OMAS 2019*

The rural Appalachian region of Ohio had the highest prevalence of cigarette smoking and smokeless tobacco use among both males and females. E-cigarette use was similar across the four county type groupings in Ohio among males. Among females, e-cigarette prevalence was highest in the rural Appalachian counties, where it was double the prevalence compared to rural, non-Appalachian counties.

*Current smoking = smoking at least 100 cigarettes in a lifetime and now smoking some days or every day. Current e-cigarette or smokeless tobacco use = every day or some day use.

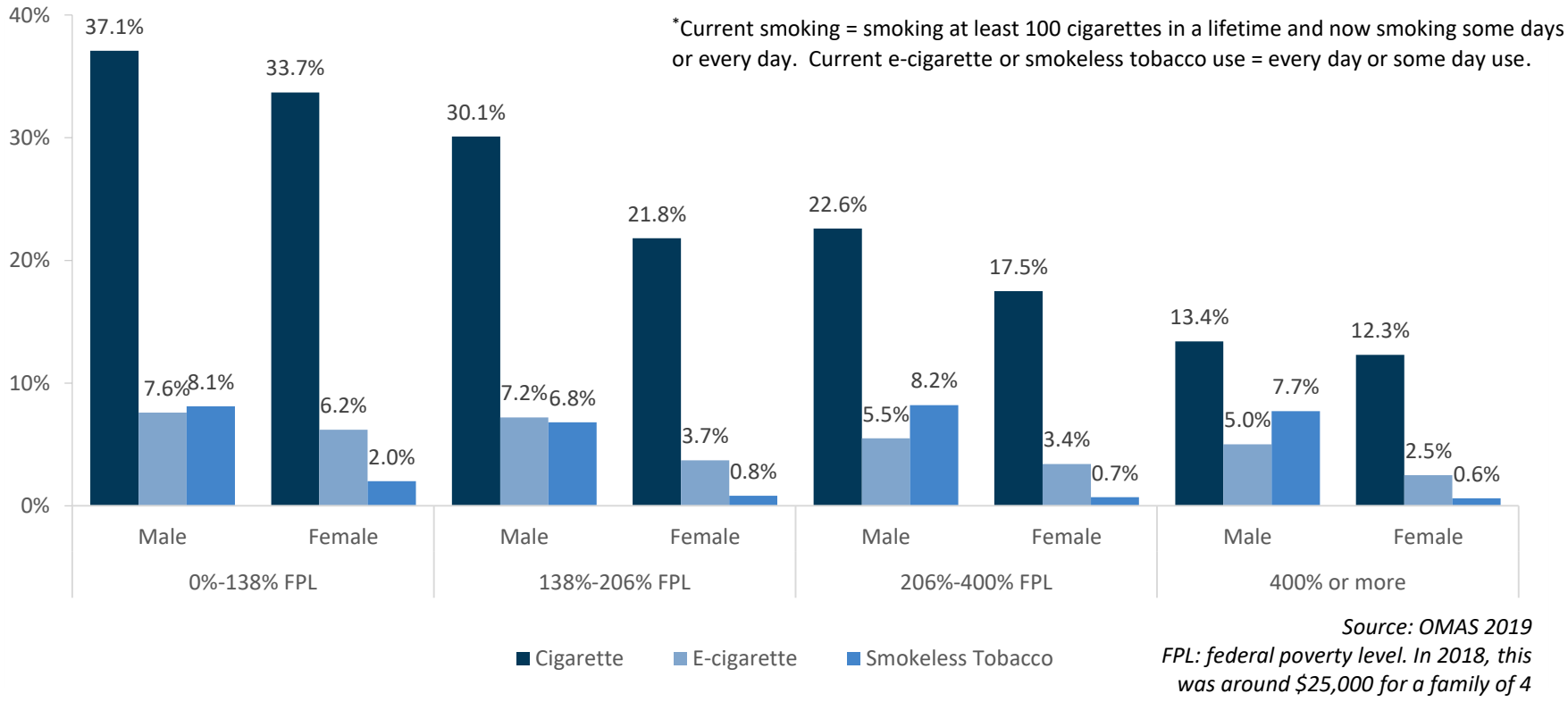
# Figure 8. Adult prevalence of current* cigarette, e-cigarette, and smokeless tobacco use by education level and by gender




*Source: OMAS 2019*

For all tobacco products, the prevalence of use among males and females decreases as the level of education increases. Importantly, nearly one-third of men and over one-quarter of women with a high school or less education were current smokers. Nearly one-quarter of males and females with some college/2-year college degree were current smokers.

# Figure 9. Adult prevalence of current* cigarette, e-cigarette, and smokeless tobacco use by income category and by gender

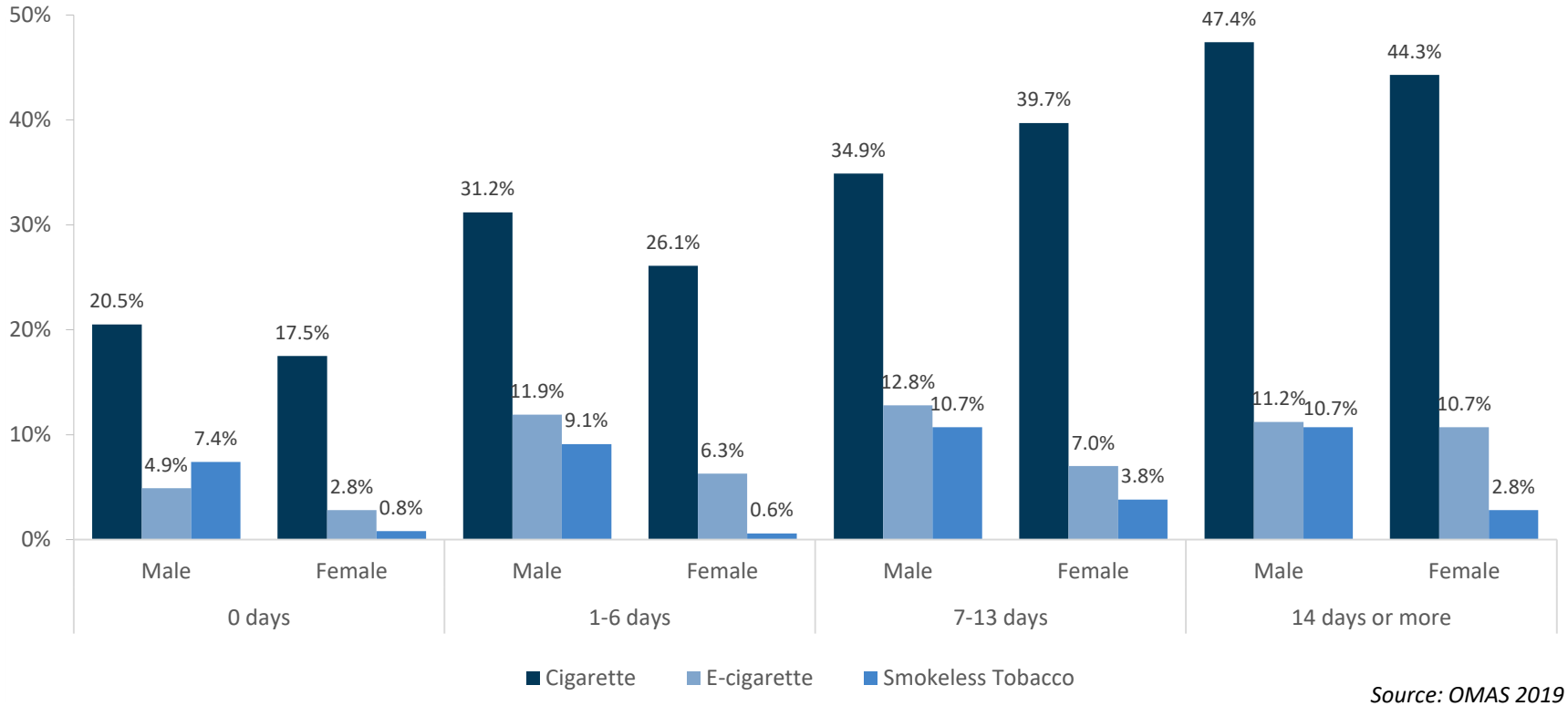



*Current smoking = smoking at least 100 cigarettes in a lifetime and now smoking some days or every day. Current e-cigarette or smokeless tobacco use = every day or some day use.

*Source: OMAS 2019*
*FPL: federal poverty level. In 2018, this was around $25,000 for a family of 4*

Among males and females, the prevalence of current smoking and e-cigarette use decreases as income category increases. Among males, smokeless tobacco use did not demonstrate a clear pattern with income category. Over one-third of males and females in the lowest income group were current smokers.

# Figure 10. Adult prevalence of current* cigarette, e-cigarette, and smokeless tobacco use by days of mental health impairment in the past 30 days and by gender

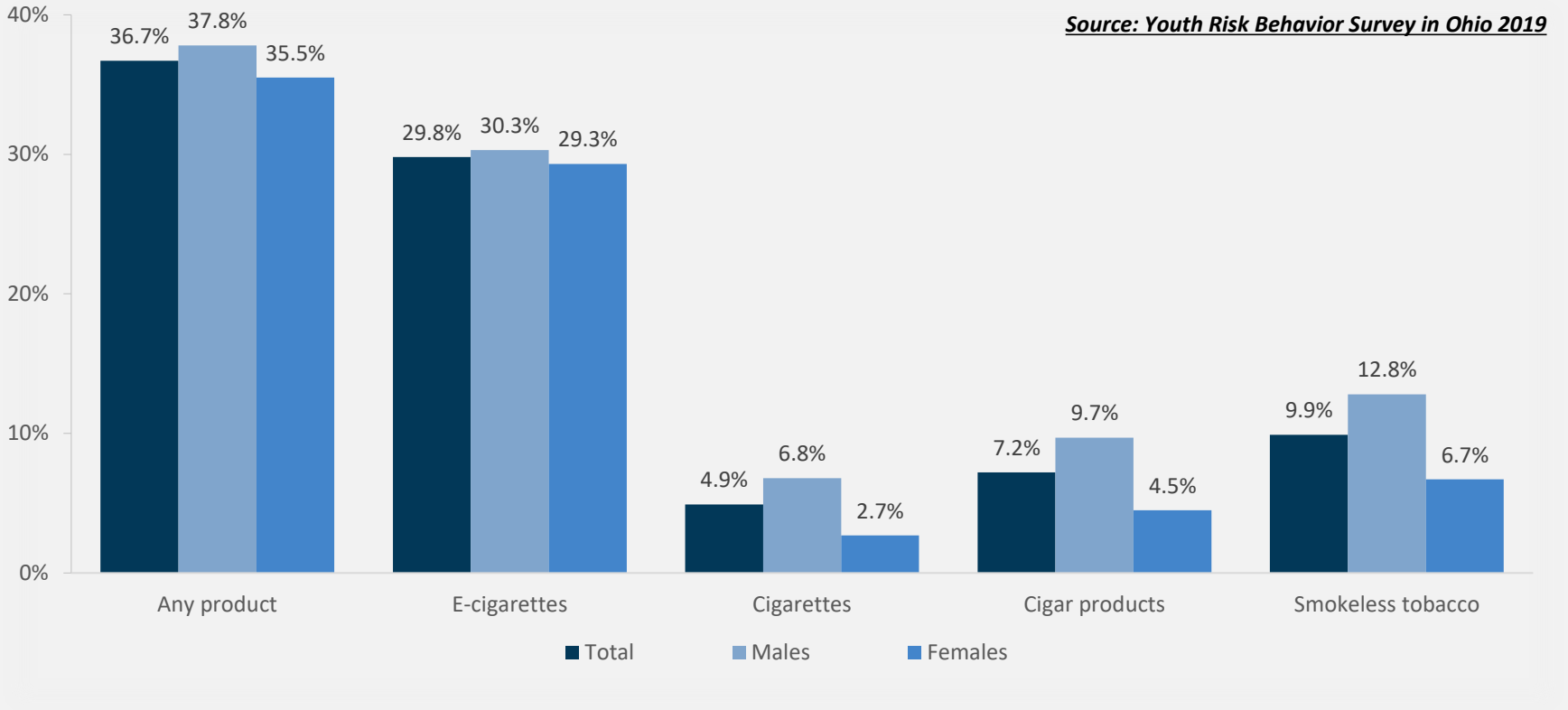



*Source: OMAS 2019*

Among both males and females, cigarette smoking and e-cigarette use increases as the number of days of mental health impairment during the past month increases. Smokeless tobacco use increases with the number of days with mental health impairment among men, but the prevalence is the same in the top two categories. Nearly half of men and women who experienced 14 or more days of mental health impairment smoked cigarettes.

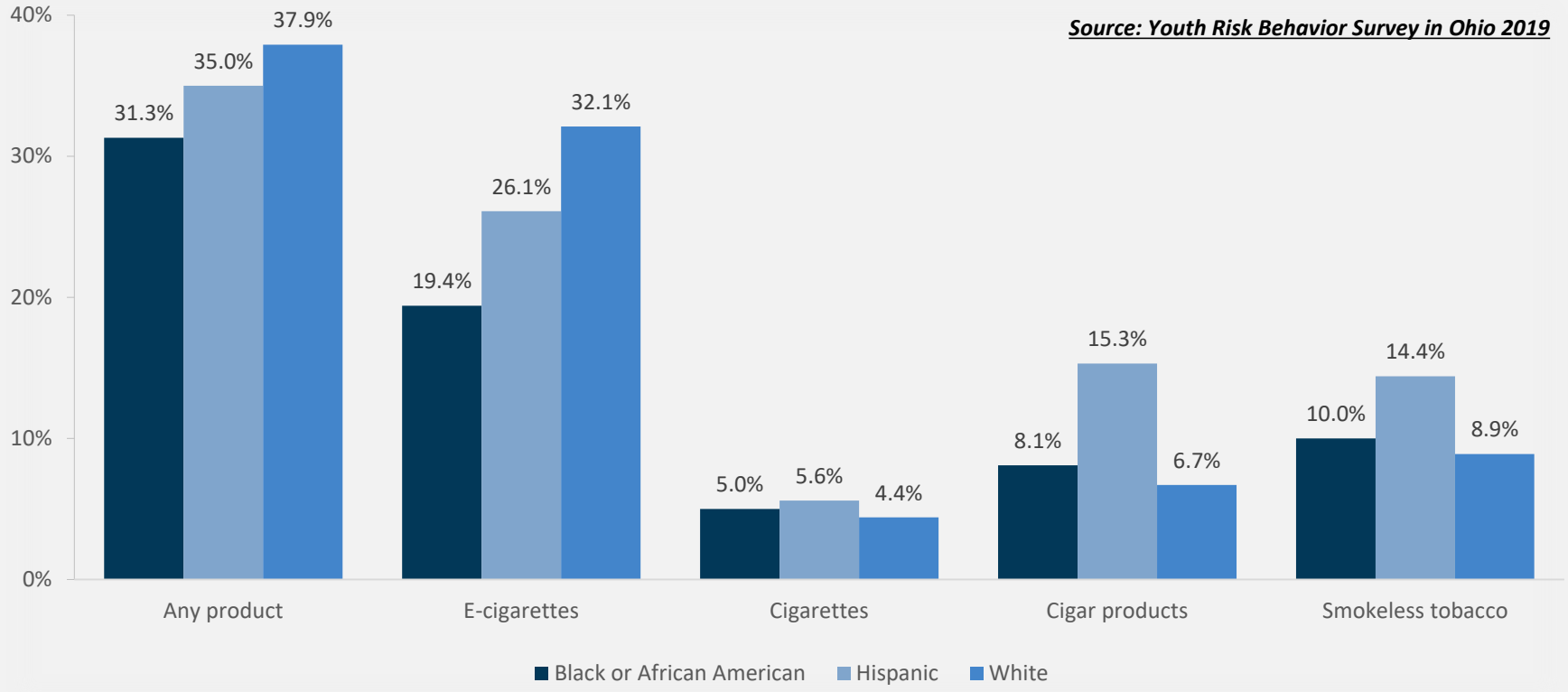
*Current smoking = smoking at least 100 cigarettes in a lifetime and now smoking some days or every day. Current e-cigarette or smokeless tobacco use = every day or some day use.

# Figure 11. High school prevalence of past-30-day tobacco use, overall and by gender



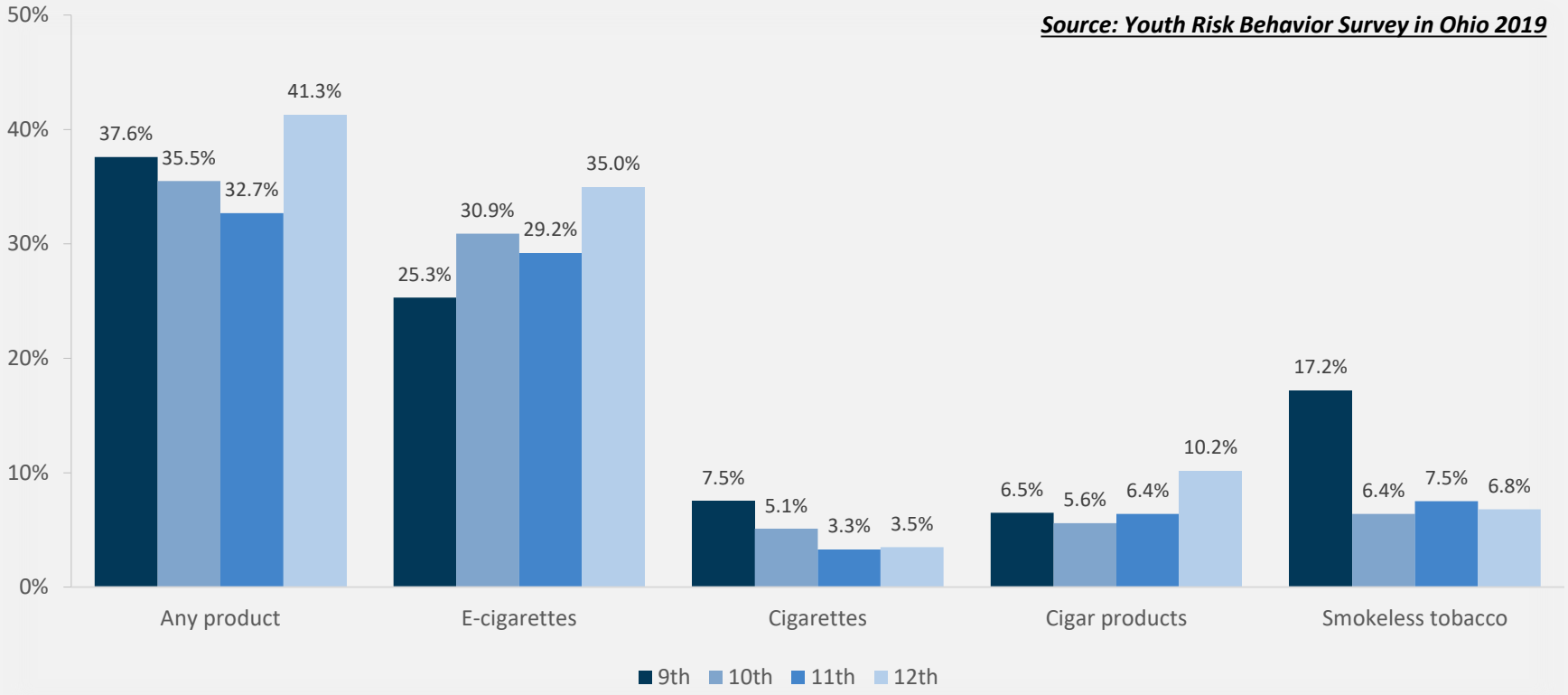

Over one-third of high school students used any type of tobacco product in the past 30 days, with e-cigarette use being the most prevalent behavior, followed by smokeless tobacco use, cigar smoking, and cigarette smoking. While males and females had a similar prevalence of e-cigarette use, the prevalence of using the other products is higher among males.

# Figure 12. High school prevalence of past-30-day tobacco use by race/ethnicity



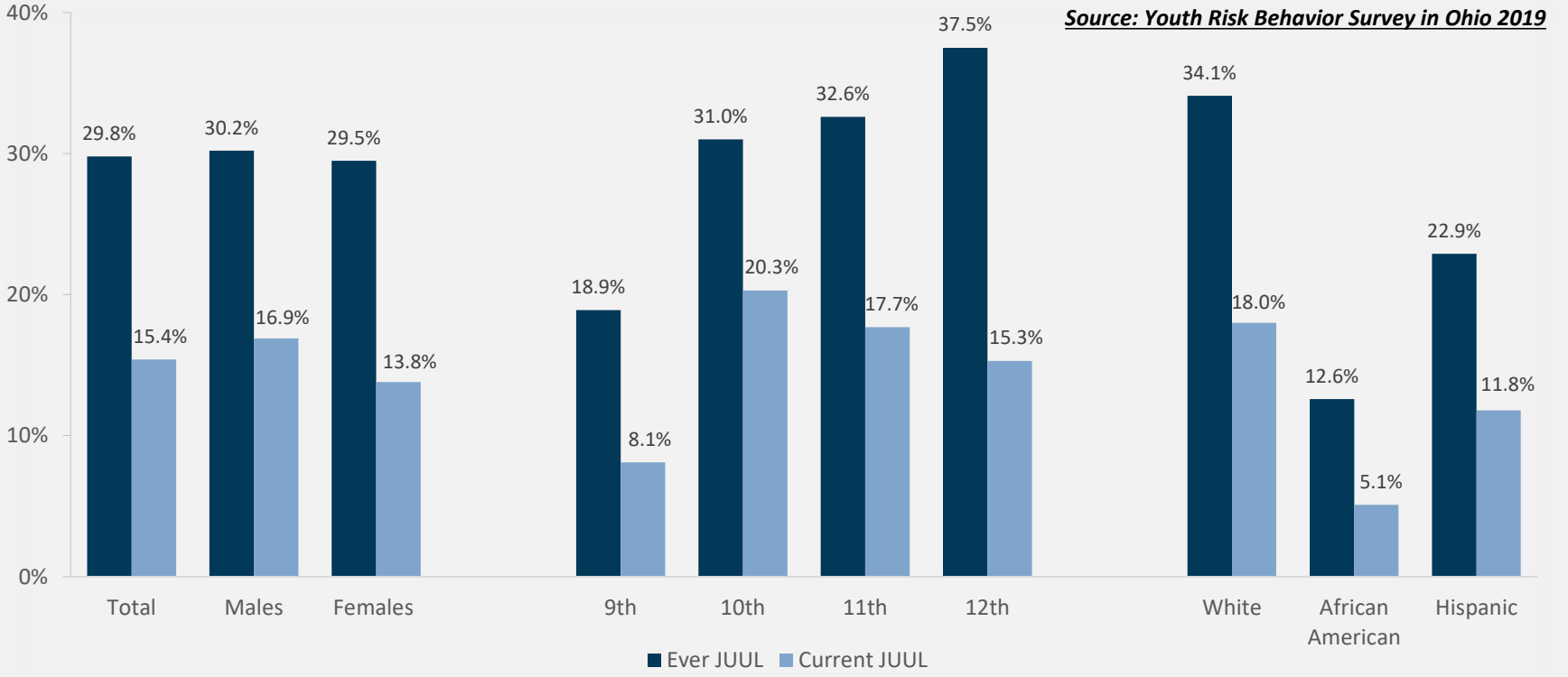

The highest prevalence of any tobacco use was among white students and the lowest among Black or African American students. The prevalence of e-cigarette use was highest among white students and lowest among Black or African American students. The prevalence of cigar smoking and smokeless tobacco use was highest among Hispanic students.

# Figure 13. High school prevalence of past-30-day tobacco use by grade




The highest prevalence of any tobacco use was among 12th grade students. For e-cigarettes and cigar products, 12th graders had the highest prevalence of use. For cigarettes and smokeless tobacco, 9th graders had the highest prevalence of use.

# Figure 14. High school prevalence of ever and past-30-day JUUL use, overall and by gender, grade, and race/ethnicity




JUUL has been the most popular brand of e-cigarette in the United States. In Ohio, nearly one-third of high school students had ever tried JUUL, with highest ever use prevalence among 12th graders. The highest prevalence of current use was among 10th graders. The prevalence of ever and current JUUL use was highest among white students.

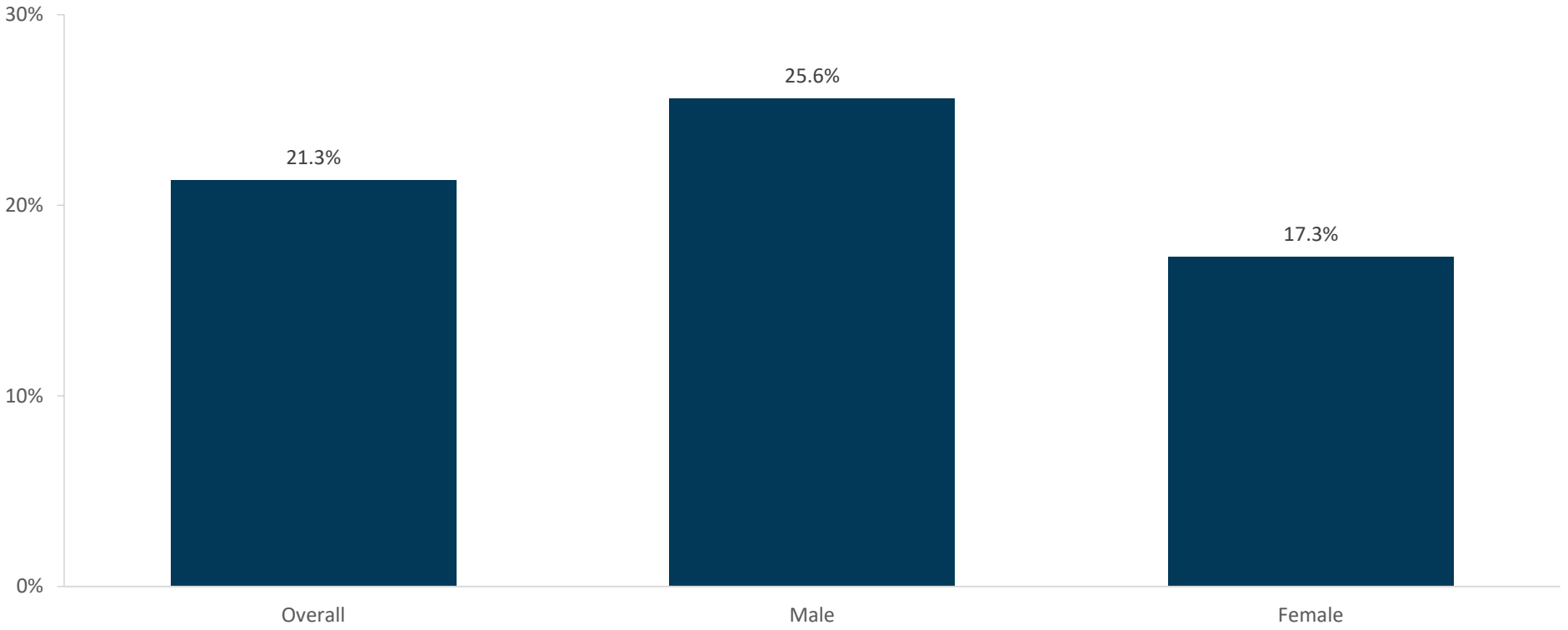
# RESULTS: ALCOHOL USE

The following section provides an overview on prevalence and trends in alcohol use for Ohio. To focus on problematic levels of alcohol consumption, the results report on binge drinking—defined as consuming 5 or more drinks in a sitting for men, and 4 or more drinks in a sitting for women in the past month.

# Key Findings: Alcohol Use

- Binge drinking has historically been, and continues to be, more common among males.
- Prevalence of binge drinking in Ohio has been increasing since 2015.
- Binge drinking is more prevalent among younger adults, those with a college degree, and those with any level of mental health impairment.
- Among high school students, alcohol use is more prevalent among older students and less prevalent among Black or African American students.

# Figure 15. Adult prevalence of past-30-day binge drinking,* overall and by gender

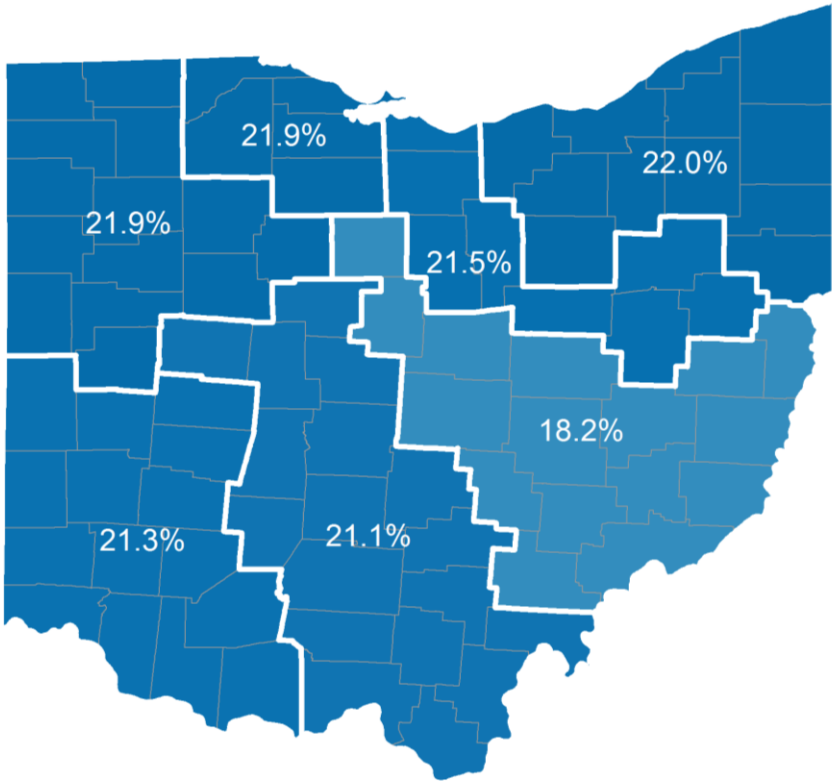



*Source: OMAS 2019*

Approximately 21% of Ohio adults engaged in binge drinking within the past 30 days. The highest prevalence of binge drinking was among males.

*Binge drinking = consuming 5 or more drinks in a sitting for men, and 4 or more drinks in a sitting for women in the past month.

# Figure 16. Adult prevalence of past-30-day binge drinking* by region

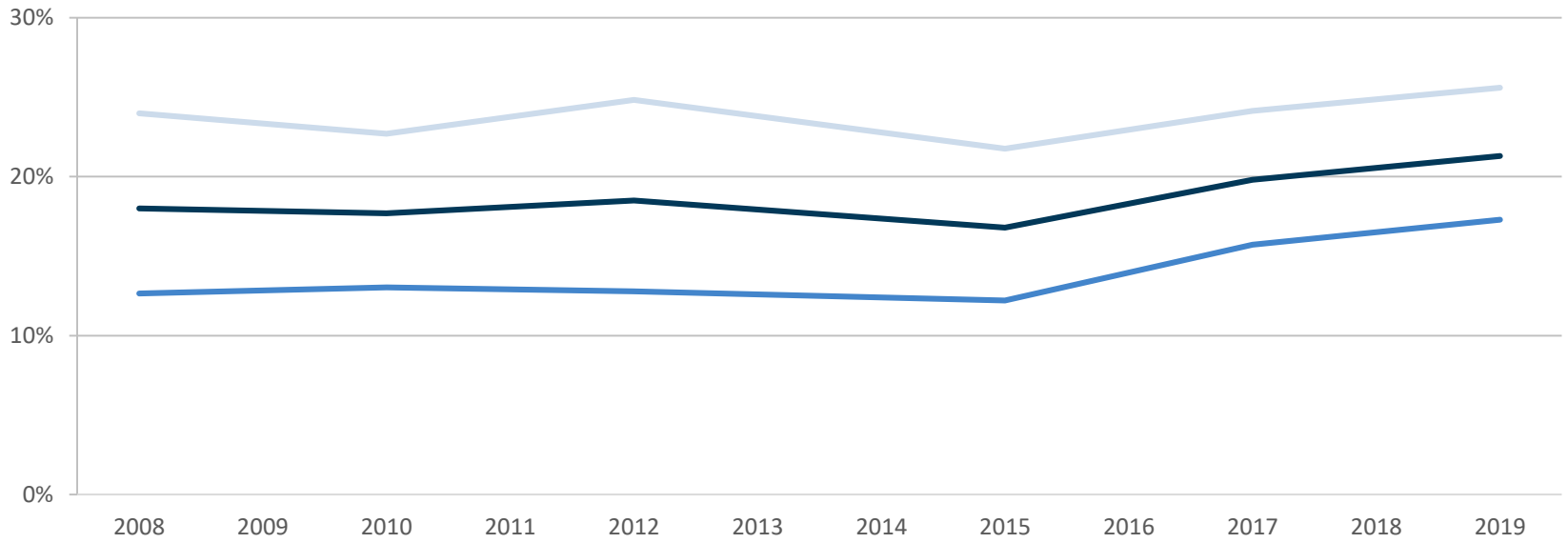



*Source: OMAS 2019*

The prevalence of past-30-day binge drinking is fairly uniform across the regions, between 21% and 22%. The exception is a lower prevalence in the South East region (18.2%), which is primarily rural Appalachian.

*Binge drinking = consuming 5 or more drinks in a sitting for men, and 4 or more drinks in a sitting for women in the past month.

# Figure 17. Adult trends in past-30-day binge drinking* over time, overall and by gender



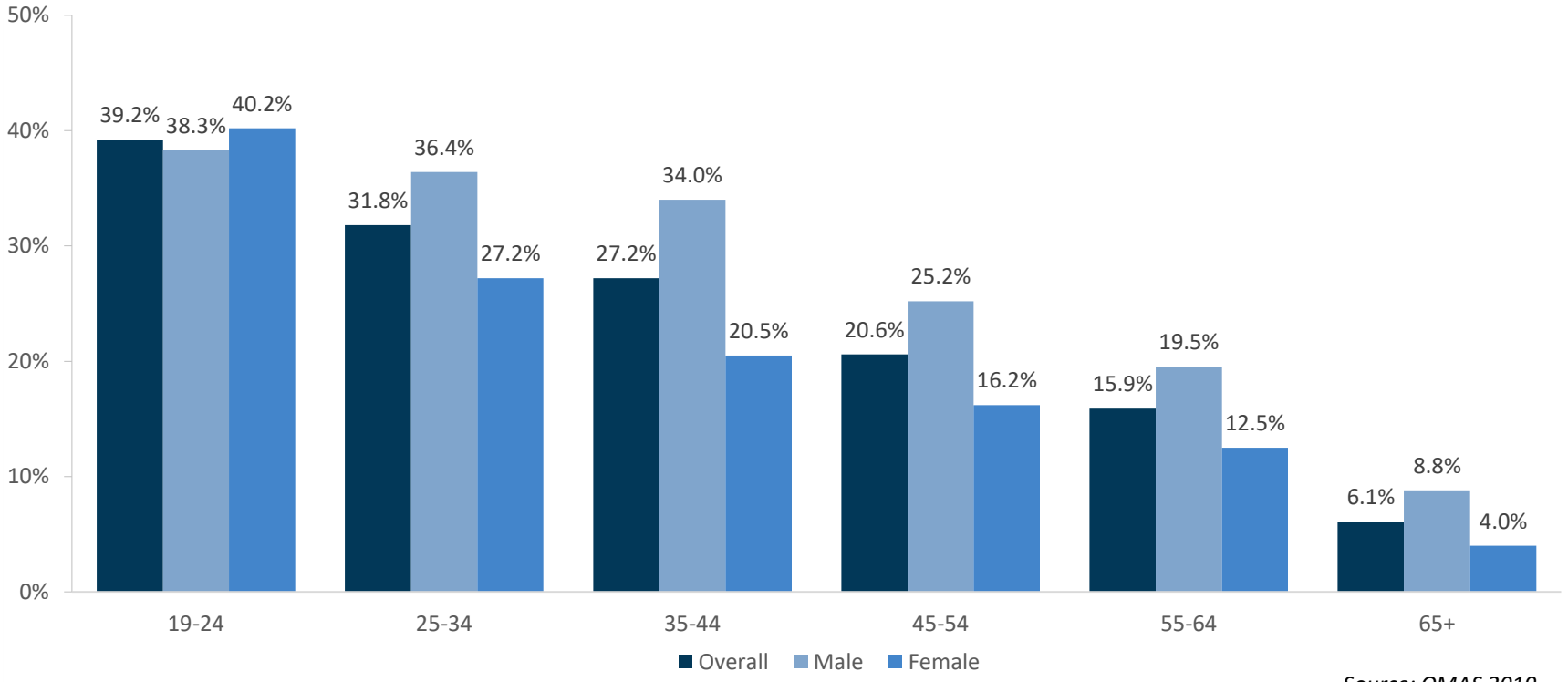

| | 2008 | 2010 | 2012 | 2015 | 2017 | 2019 |
|---|---|---|---|---|---|---|
| Overall | 18.0% | 17.7% | 18.5% | 16.8% | 19.8% | 21.3% |
| Male | 24.0% | 22.7% | 24.8% | 21.8% | 24.1% | 25.6% |
| Female | 12.6% | 13.0% | 12.8% | 12.2% | 15.7% | 17.3% |

*Sources: 2004, 2008, 2010 Ohio Family Health Survey (OFHS); 2012, 2015, 2017, 2019 OMAS*

The prevalence of binge drinking among Ohio adults has remained relatively stable over the past decade, although overall prevalence has now climbed above 20%.

*Binge drinking = consuming 5 or more drinks in a sitting for men, and 4 or more drinks in a sitting for women in the past month.

# Figure 18. Adult prevalence of past-30-day binge drinking* by age, overall and by gender

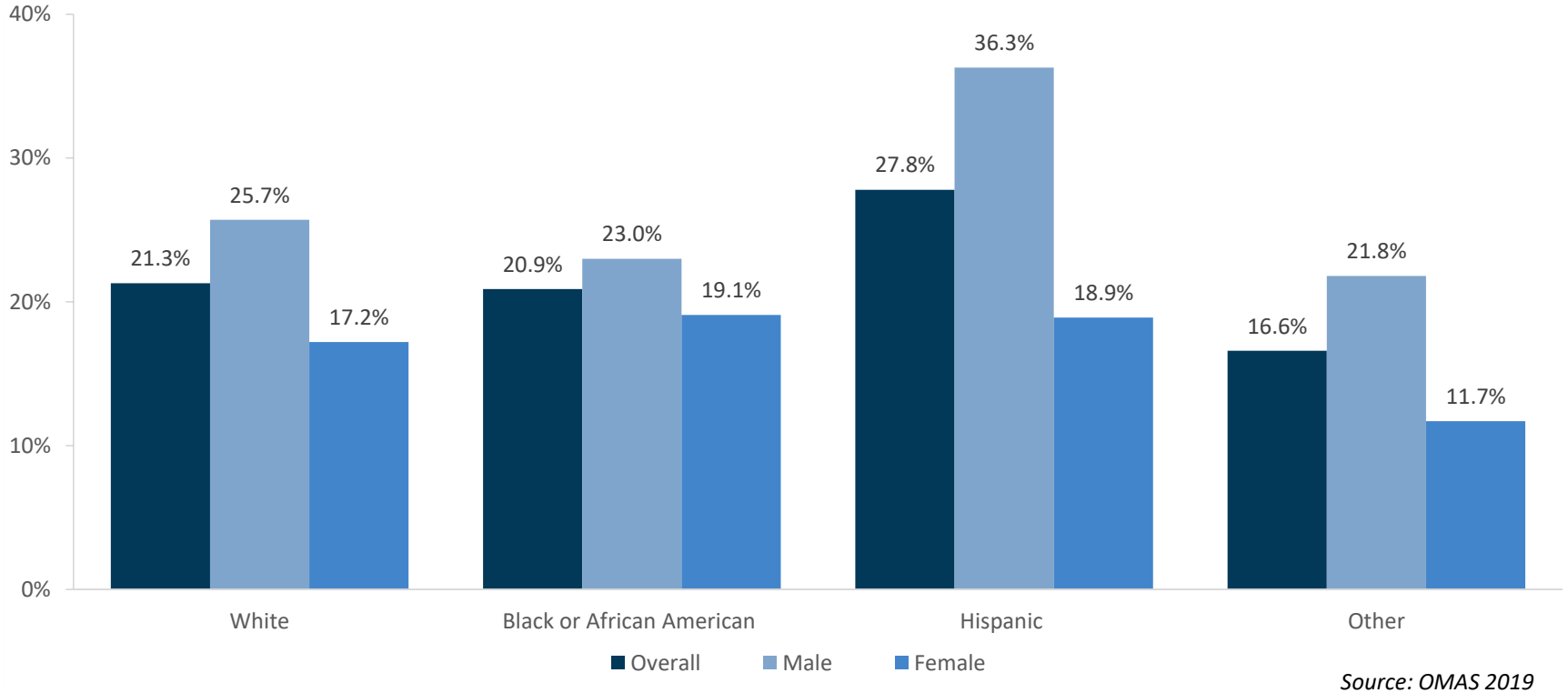



*Source: OMAS 2019*

The highest prevalence of past-30-day binge drinking was among adults aged 19-24 (nearly 40%). Binge drinking prevalence tended to become lower with increasing age.

*Binge drinking = consuming 5 or more drinks in a sitting for men, and 4 or more drinks in a sitting for women in the past month.

# Figure 19. Adult prevalence of past-30-day binge drinking* by race/ethnicity, overall and by gender

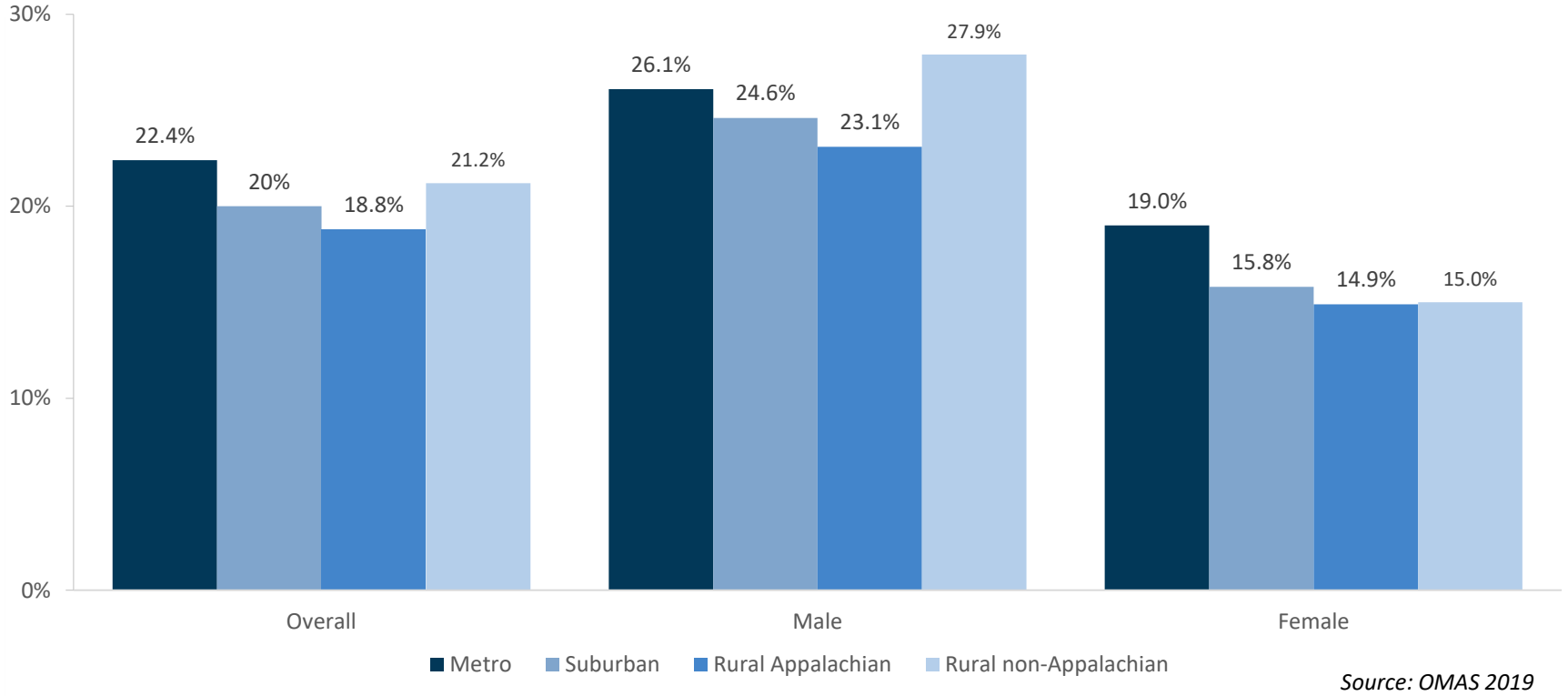



*Source: OMAS 2019*

The prevalence of past-30-day binge drinking was highest among Hispanic men (over 36%). Prevalence was also highest among Hispanics overall (around 28%), followed by white and Black or African American adults (both around 21%), and those reporting another race/ethnicity (around 17%).

*Binge drinking = consuming 5 or more drinks in a sitting for men, and 4 or more drinks in a sitting for women in the past month.

# Figure 20. Adult prevalence of past-30-day binge drinking* by county type, overall and by gender

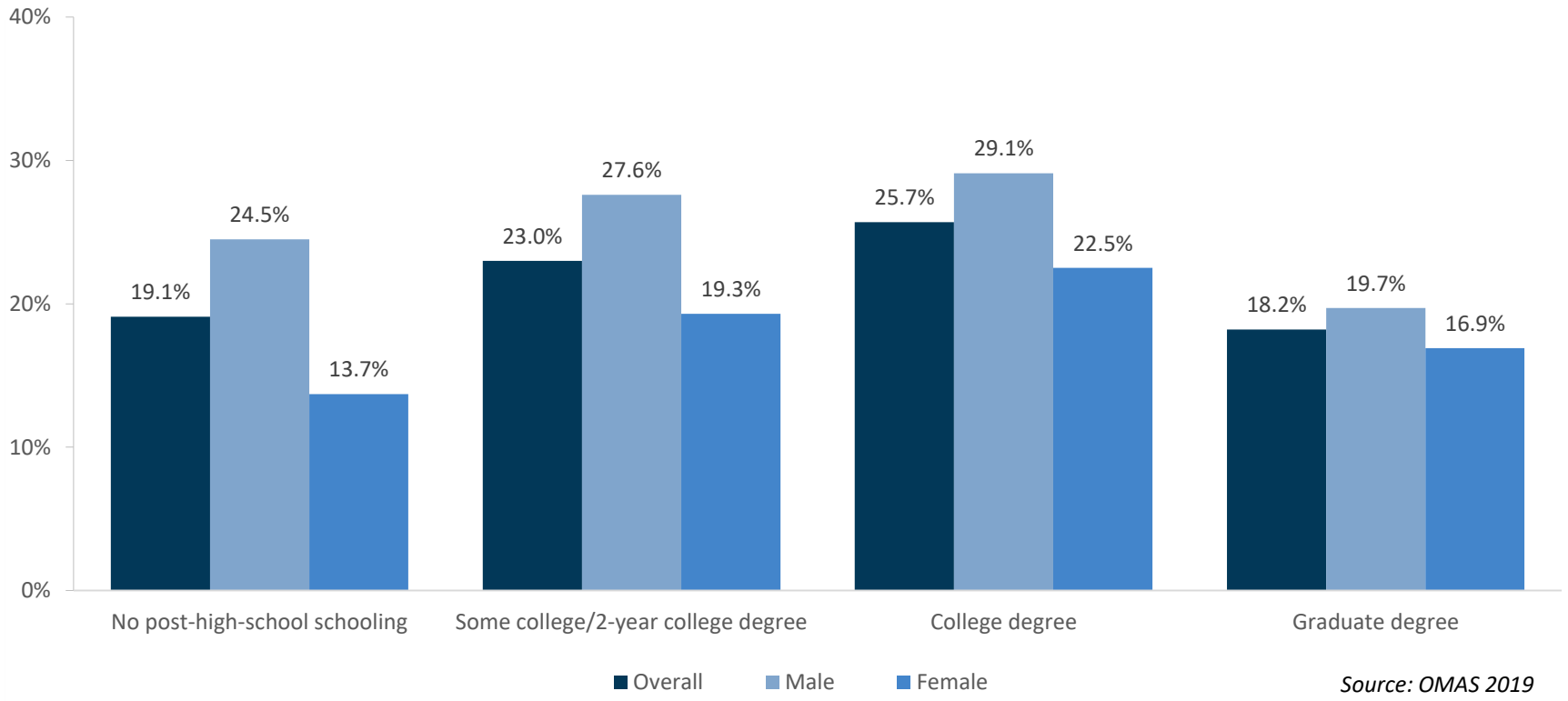



*Source: OMAS 2019*

For males, the prevalence of past-30-day binge drinking was highest among those in rural non-Appalachian counties (nearly 28%). Yet for females, prevalence was highest among those in metropolitan counties (19%).

*Binge drinking = consuming 5 or more drinks in a sitting for men, and 4 or more drinks in a sitting for women in the past month.

# Figure 21. Adult prevalence of past-30-day binge drinking* by education level, overall and by gender

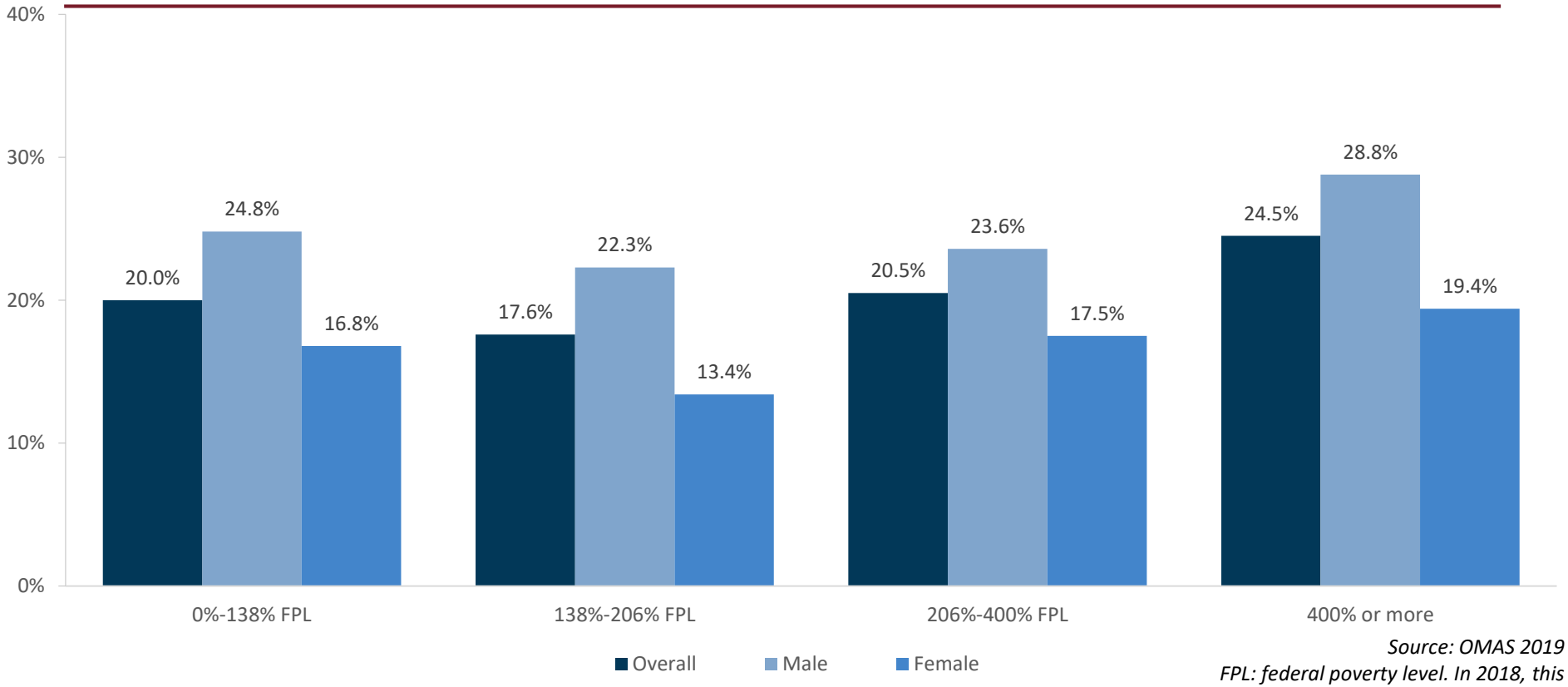



*Source: OMAS 2019*

The prevalence of past-30-day binge drinking was highest among college graduates (around 26%), followed by those with some college/2-year college degree, a high school degree or less, and those with an advanced degree.

*Binge drinking = consuming 5 or more drinks in a sitting for men, and 4 or more drinks in a sitting for women in the past month.

# Figure 22. Adult prevalence of past-30-day binge drinking* by income category, overall and by gender

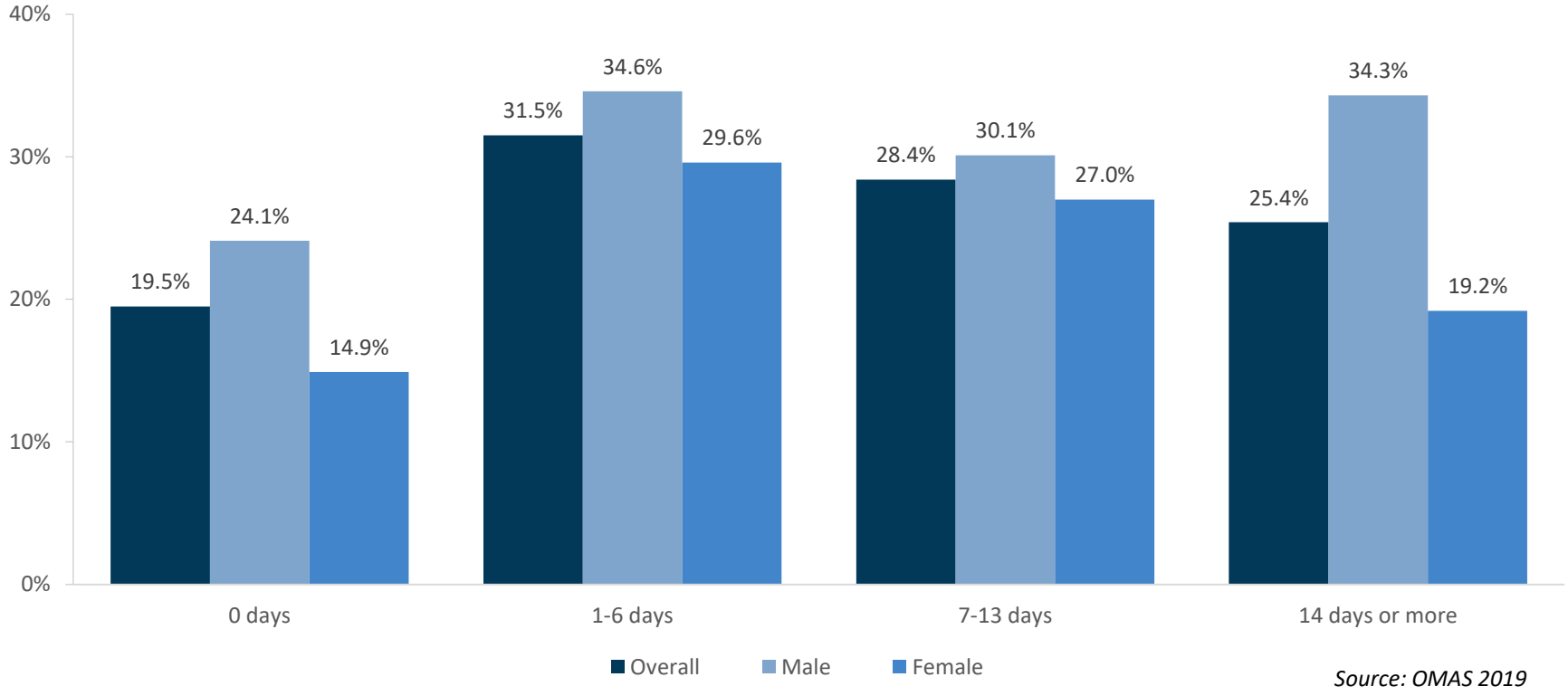



*Source: OMAS 2019*
*FPL: federal poverty level. In 2018, this was around $25,000 for a family of 4.*

The prevalence of past-30-day binge drinking was highest among individuals at the highest income level (at or above 400% of the poverty level) at nearly 25%.

*Binge drinking = consuming 5 or more drinks in a sitting for men, and 4 or more drinks in a sitting for women in the past month.

# Figure 23. Adult prevalence of past-30-day binge drinking* by days of mental health impairment in the past 30 days, overall and by gender

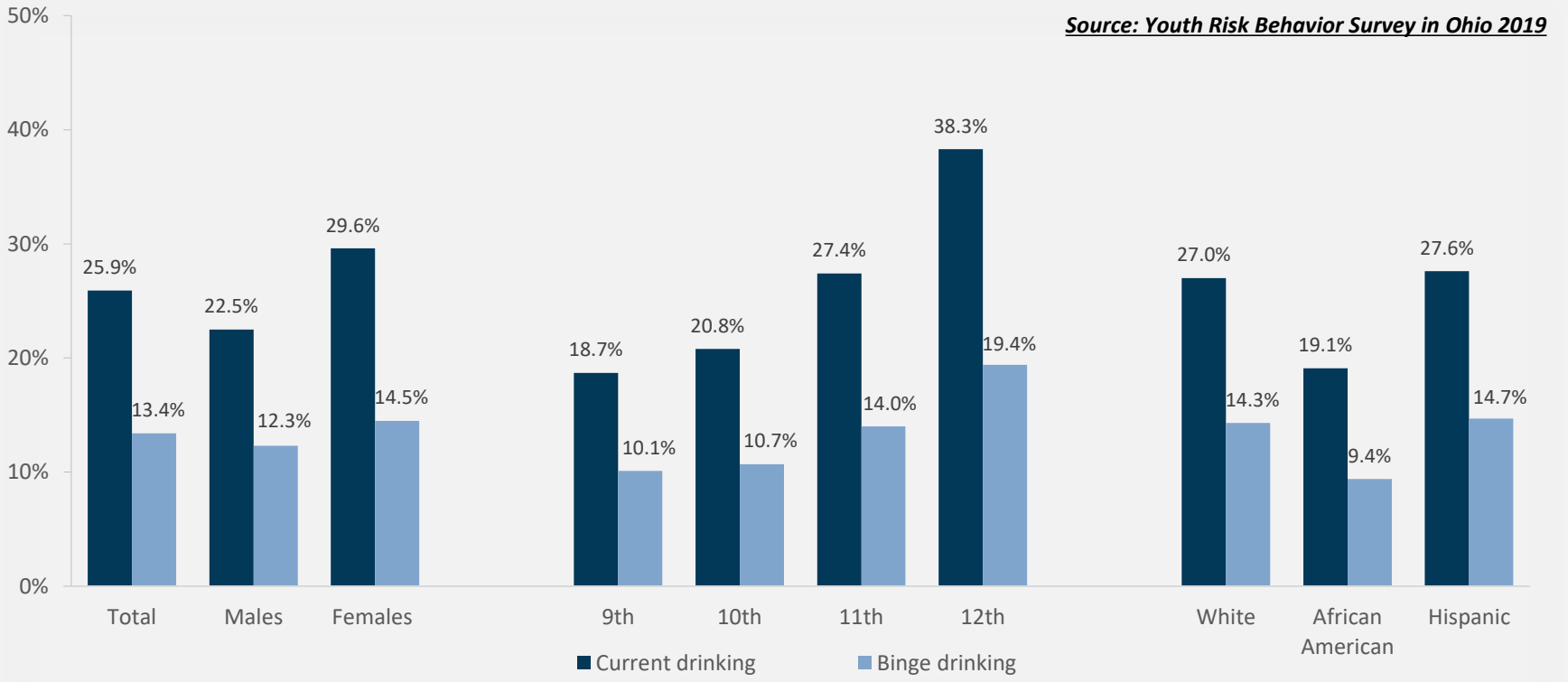



*Source: OMAS 2019*

The prevalence of past-30-day binge drinking was lowest among those reporting no days with mental health impairment in the past month.

*Binge drinking = consuming 5 or more drinks in a sitting for men, and 4 or more drinks in a sitting for women in the past month.

# Figure 24. High school prevalence of past-30-day alcohol use




Just over one-quarter of high school students consumed alcohol in the past month and 13.4% engaged in binge drinking. The prevalence of current drinking was higher among females compared to males. Twelfth graders had the highest prevalence of current drinking and binge drinking. Black or African American students had the lowest prevalence of current and binge drinking.

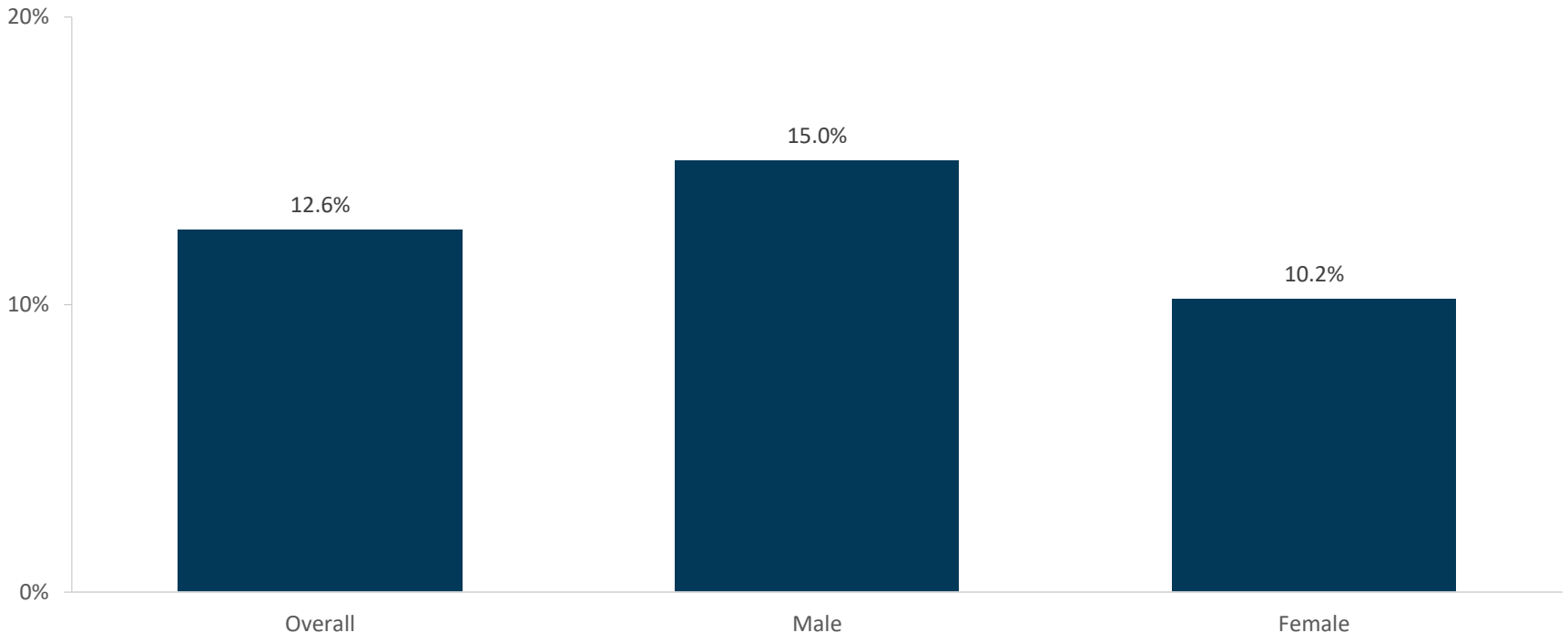
# RESULTS: MARIJUANA USE

The following section provides an overview of prevalence in marijuana use for Ohio.

# Key Findings: Marijuana Use

- Marijuana use is most prevalent among males, adults with a lower level of income or education, and those living in metro areas.
- Adults with higher levels of mental health impairment have a higher prevalence of marijuana use.
- Among high school students, marijuana use is most prevalent among 10th and 12th graders.

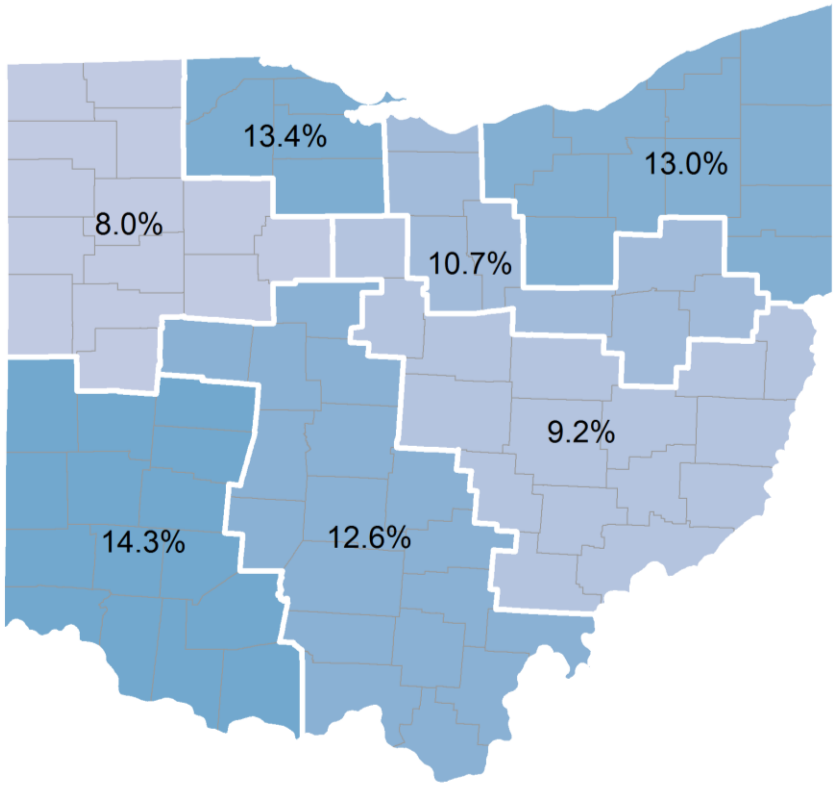
# Figure 25. Adult prevalence of past-30-day marijuana use, overall and by gender




*Source: OMAS 2019*

Approximately 13% of Ohio adults engaged in marijuana use within the past 30 days. Prevalence was higher among males (15%) compared to females (10%).

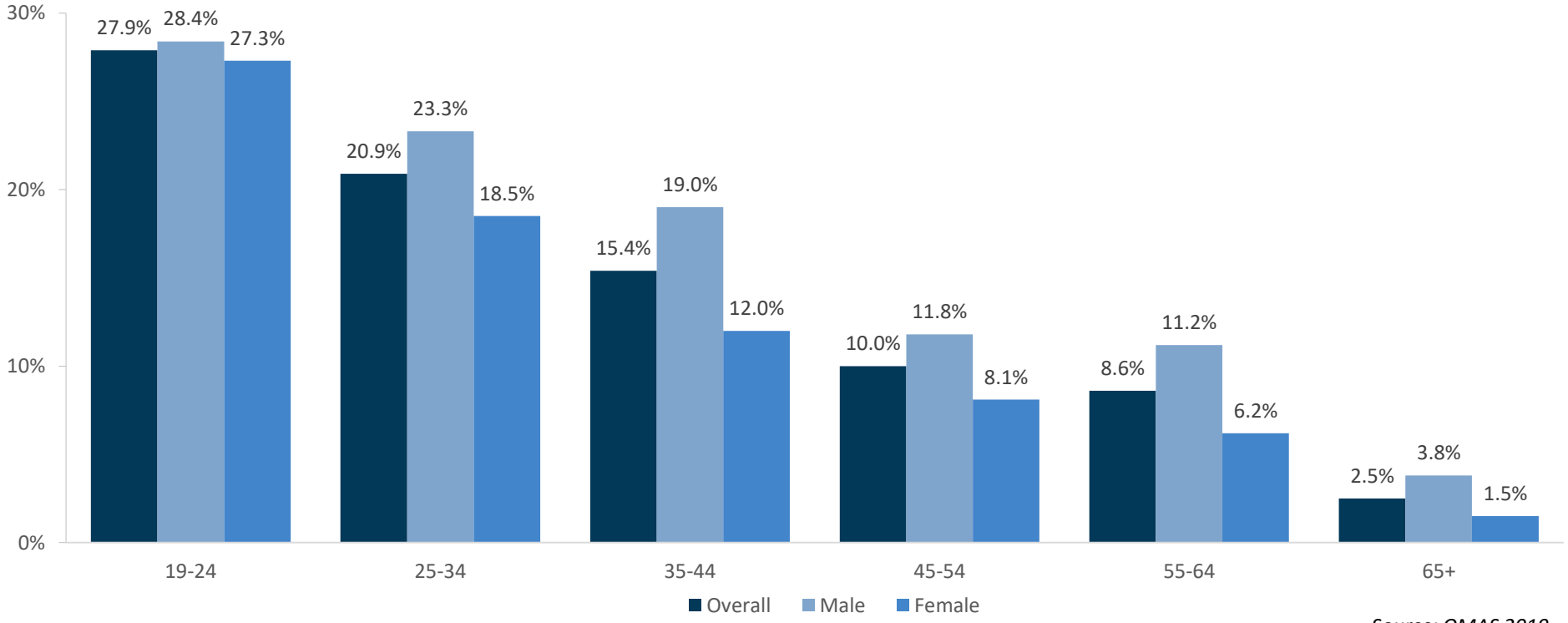
# **Figure 26.** Adult prevalence of past-30-day marijuana use by Medicaid managed care region




*Source: OMAS 2019*

Past-30-day use of marijuana varied between 8% and 14% across the regions. The regions containing the large metropolitan areas (Columbus, Cleveland, Cincinnati, Dayton, and Toledo) have the highest prevalence estimates.

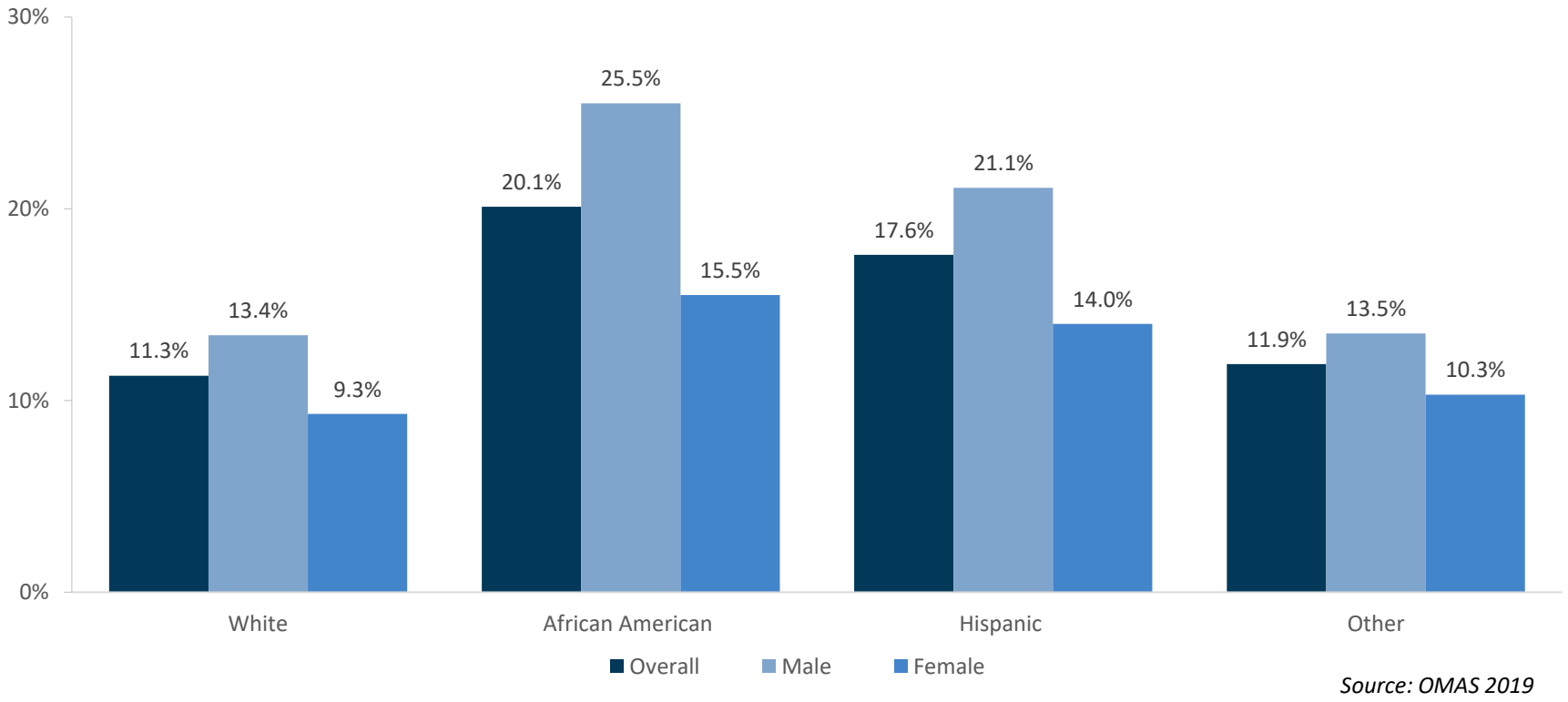
# Figure 27. Adult prevalence of past-30-day marijuana use by age, overall and by gender




*Source: OMAS 2019*

The highest prevalence of past-30-day marijuana use was among adults aged 19-24 (nearly 28%). Marijuana use prevalence tended to become lower with increasing age.

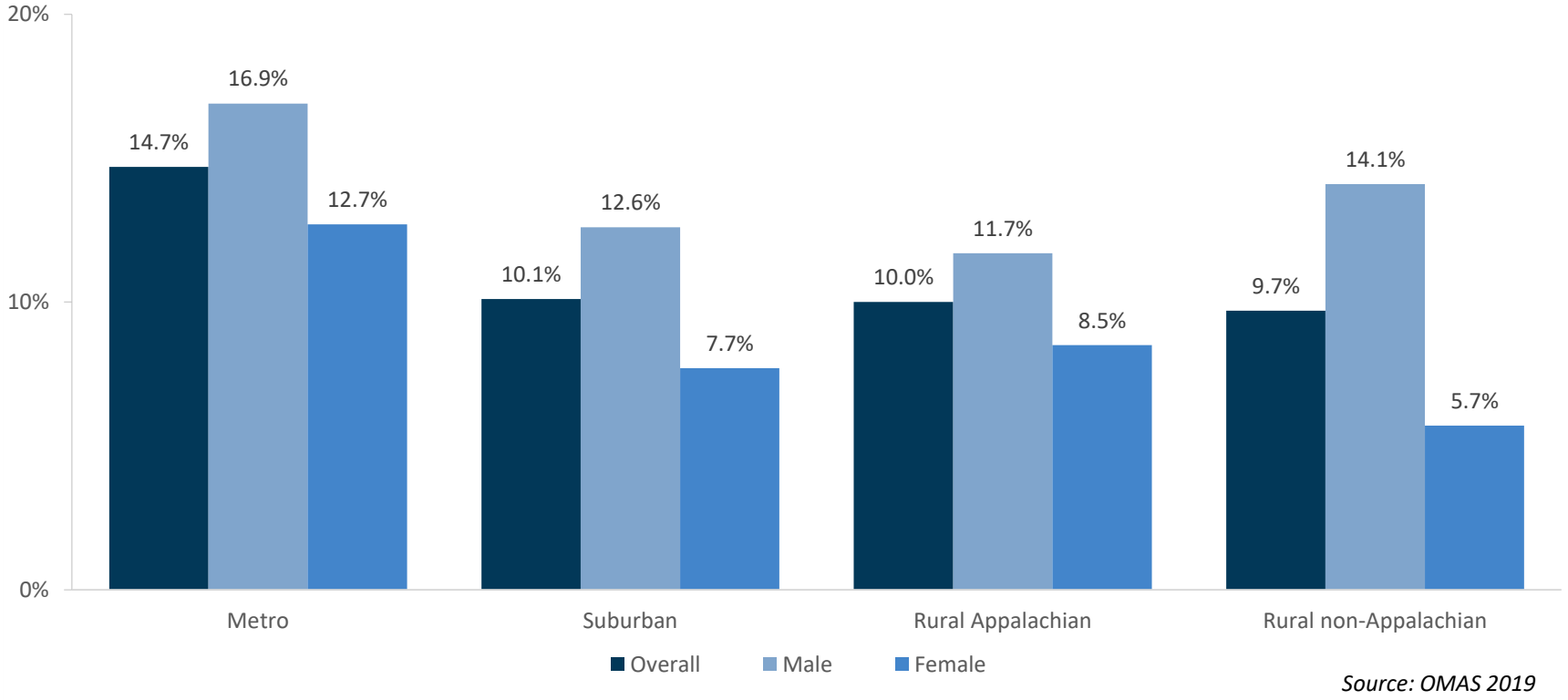
# Figure 28. Adult prevalence of past-30-day marijuana use by race/ethnicity, overall and by gender




*Source: OMAS 2019*

The prevalence of past-30-day marijuana use was highest among Black or African American men (over 25%). Prevalence was also highest among Black or African Americans overall, followed by Hispanics, those reporting another race/ethnicity, and whites.

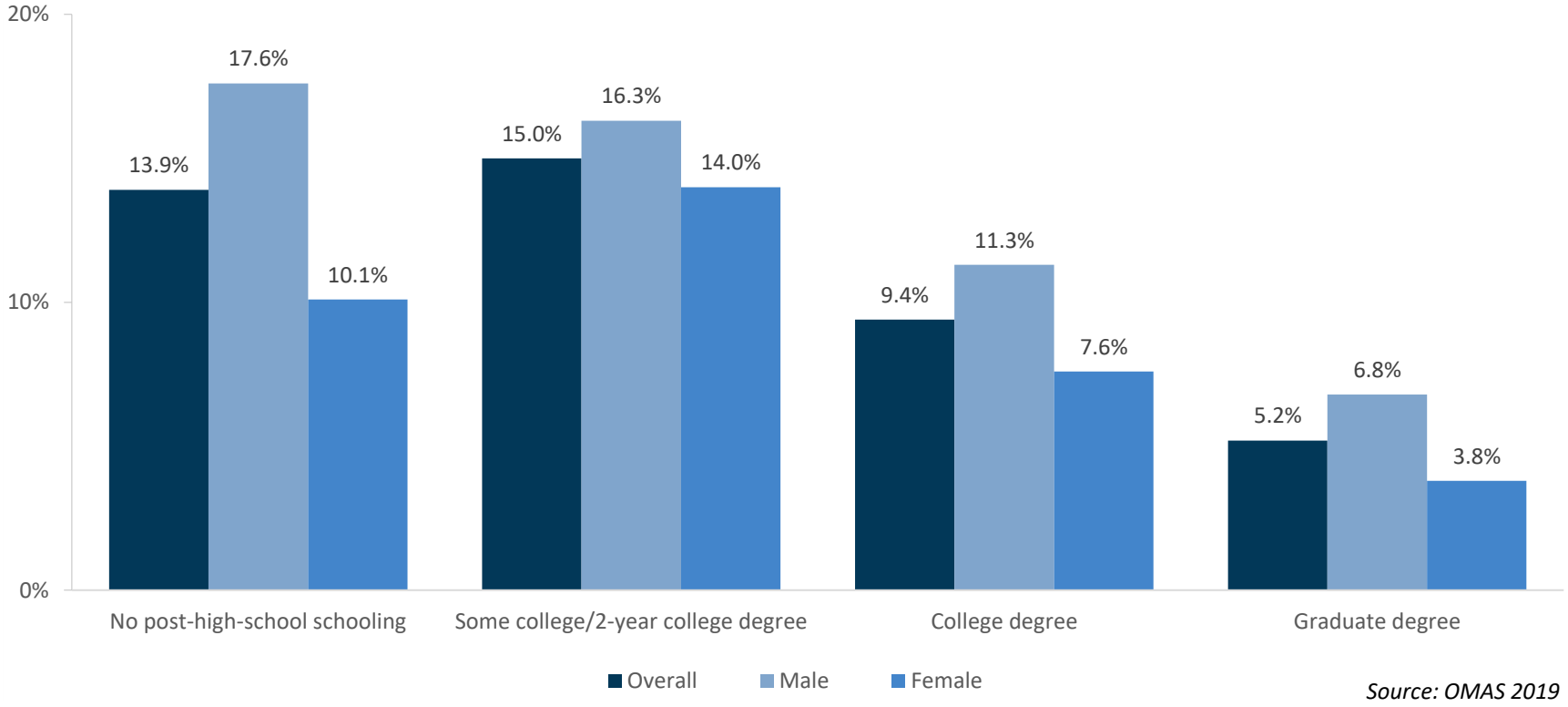
# Figure 29. Adult prevalence of past-30-day marijuana use by county type, overall and by gender




*Source: OMAS 2019*

The prevalence of past-30-day marijuana use was highest among those in Metro counties. Overall prevalence of past-30-day marijuana use was similar across suburban, rural Appalachian, and rural non-Appalachian counties (all around 10%).

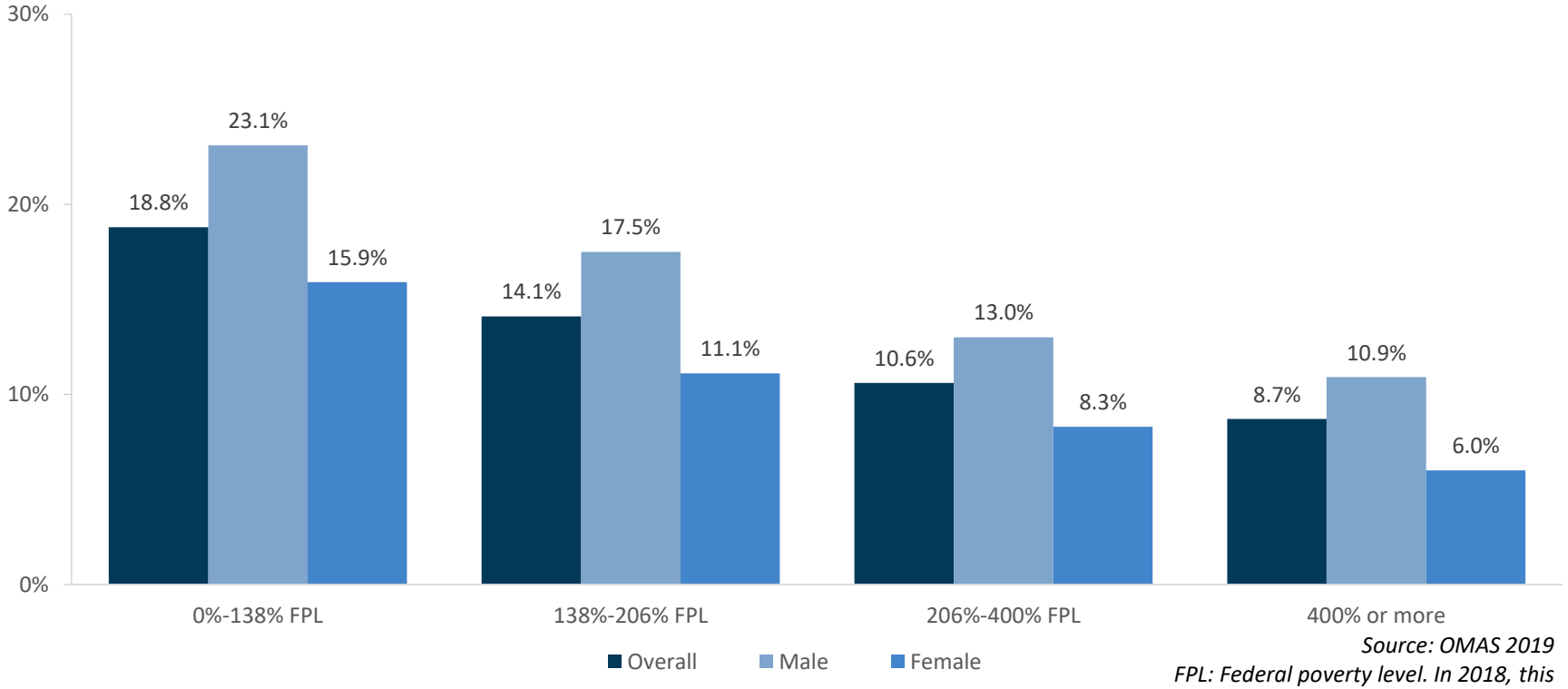
# Figure 30. Adult prevalence of past-30-day marijuana use by education level, overall and by gender




*Source: OMAS 2019*

The prevalence of past-30-day marijuana use was highest among males with a high school degree or less (around 18%). Prevalence tended to be lower among those with a college degree or advanced degree.

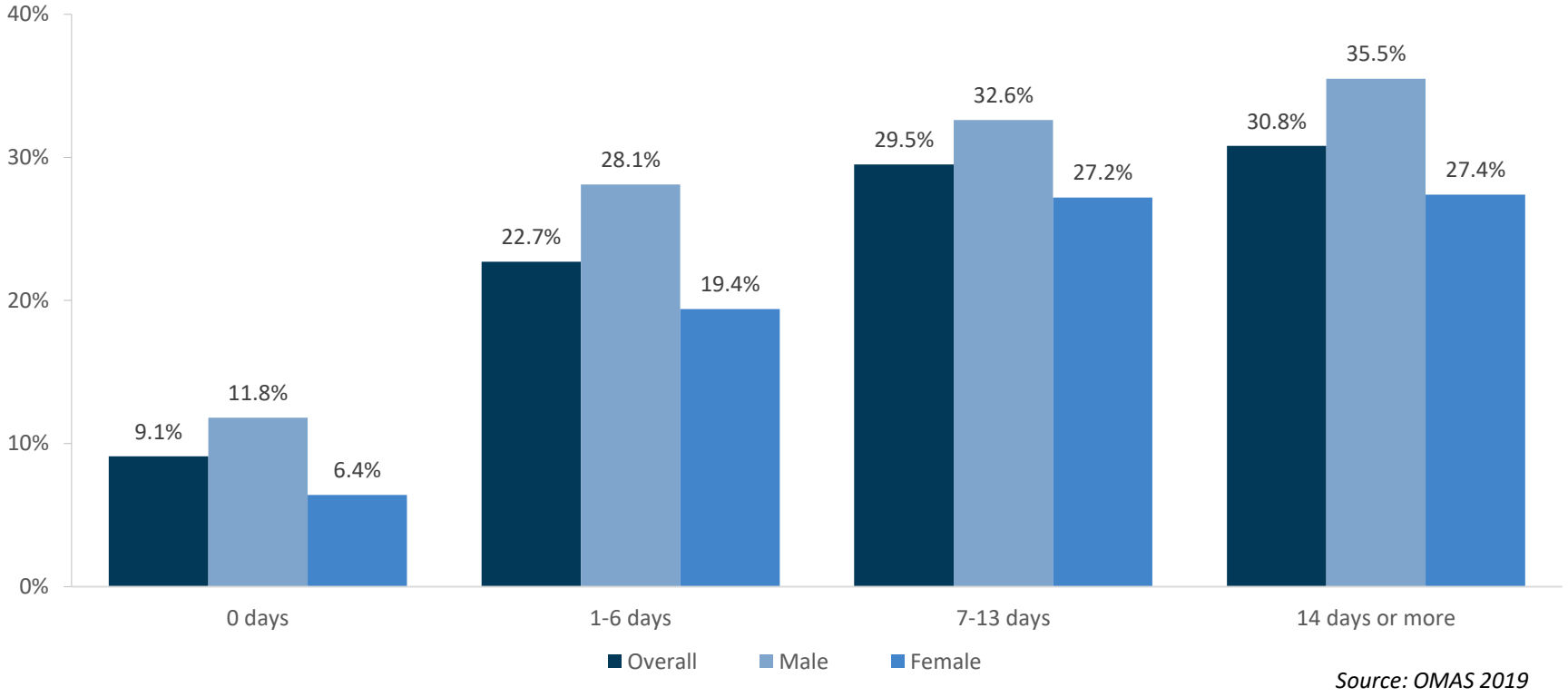
# Figure 31. Adult prevalence of past-30-day marijuana use by income category, overall and by gender




*Source: OMAS 2019*
*FPL: Federal poverty level. In 2018, this was around $25,000 for a family of 4 .*

The prevalence of past-30-day marijuana use was highest (nearly 19%) among individuals at the lowest income level (0-138% of the poverty level). Prevalence tended to decline with each increasing income level.

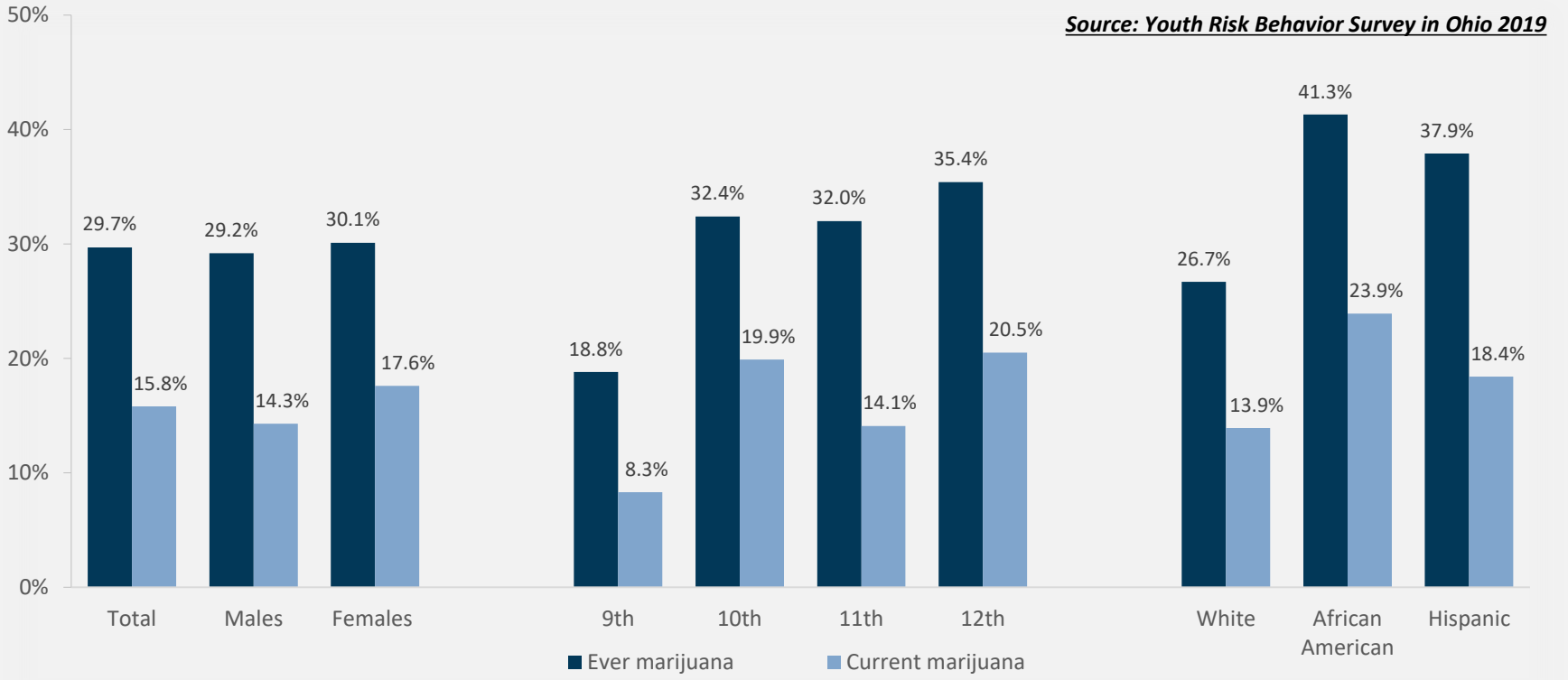
# Figure 32. Adult prevalence of past-30-day marijuana use by days of mental health impairment in the past 30 days, overall and by gender




*Source: OMAS 2019*

The prevalence of past-30-day marijuana use was lowest among those reporting no mentally impaired days in the past month.

# Figure 33. High school prevalence of ever and past-30-day marijuana use




Nearly one-third of high school students have ever tried marijuana and 15.8% have used marijuana in the last month. Females had slightly higher prevalence estimates of use compared to males. By grade, 9th graders had the lowest prevalence of ever and current marijuana use: by 10th grade, nearly one-third of students had ever tried marijuana and about one-fifth were past 30-day users. Black or African American students had a higher prevalence of ever and current marijuana use compared to white and Hispanic students.

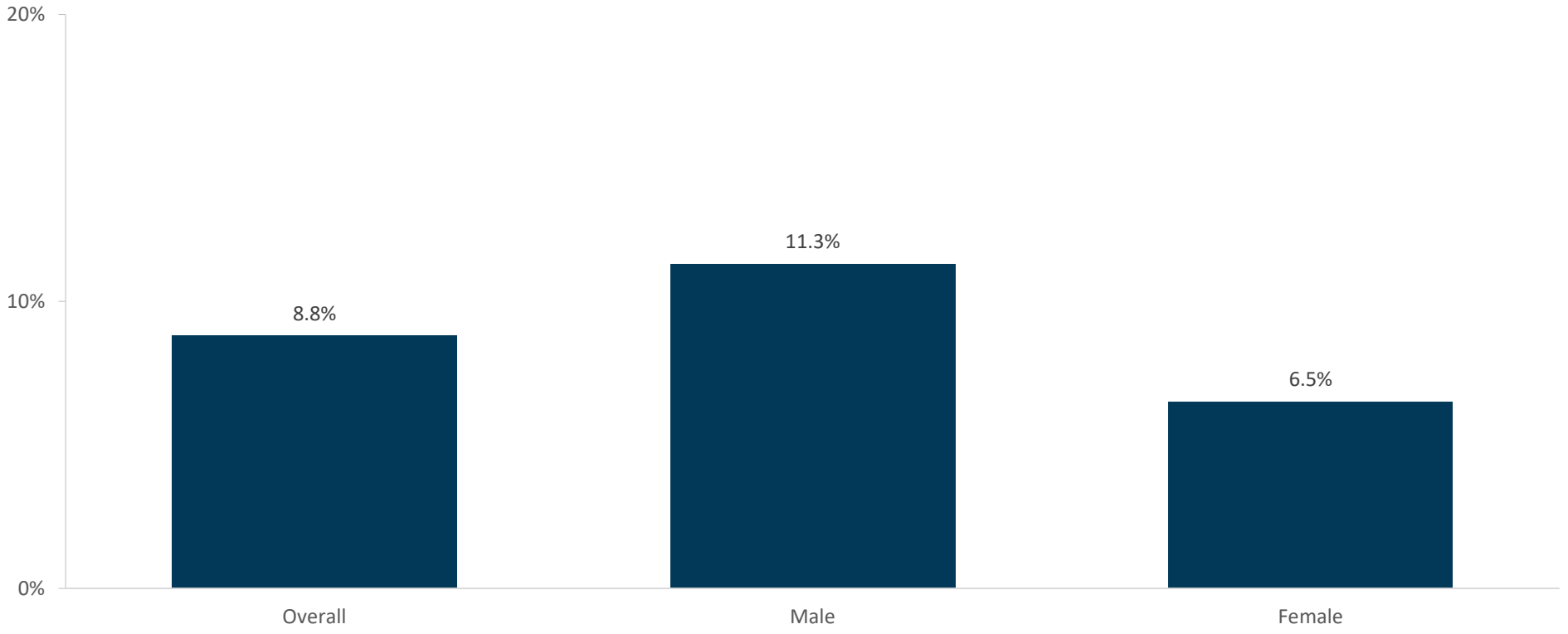
# RESULTS: MISUSE OF PRESCRIPTION PAIN RELIEVERS AND OTHER OPIOID USE

The following section provides an overview of prevalence in the misuse of prescription pain relievers in Ohio, as well as prevalence of accidental opioid overdose deaths.

# Key Findings: Prescription Pain Reliever & Opioid Use

- Misuse of prescription pain relievers is highest among males, people in the age 25-34 years category, and adults with less than a college degree.
- Among high school students, there is little variability in misuse of prescription pain relievers, but White students have the lowest prevalence of use.
- In Ohio, opioid- and fentanyl-related deaths peaked in 2017 and declined the following year.

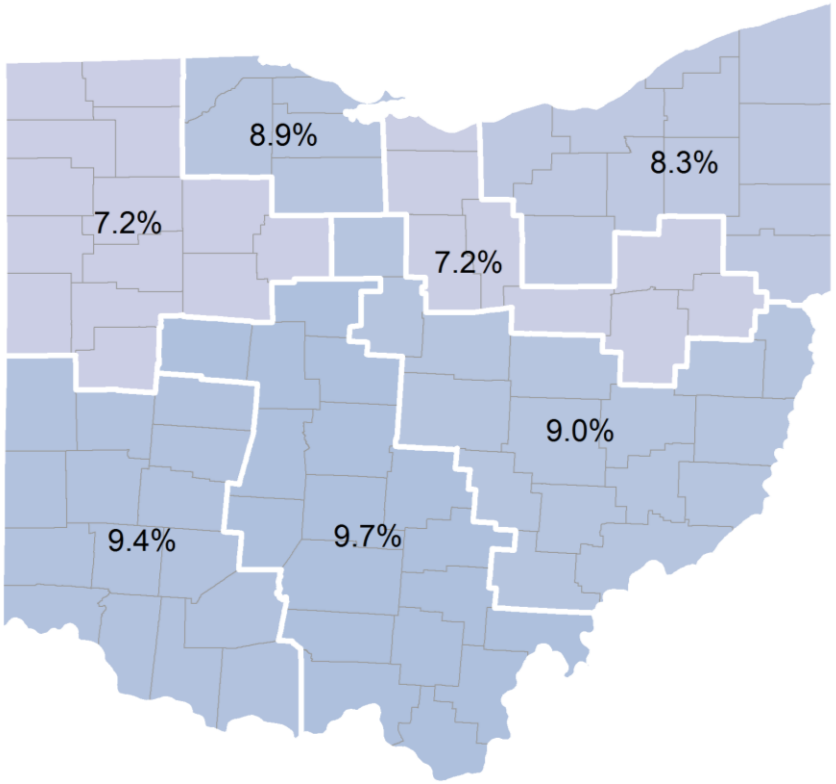
# Figure 34. Adult prevalence of past-30-day misuse of prescription pain relievers, overall and by gender




*Source: OMAS 2019*

Approximately 9% of Ohio adults misused prescription pain relievers in the past 30 days. Prevalence was higher among males compared to females.

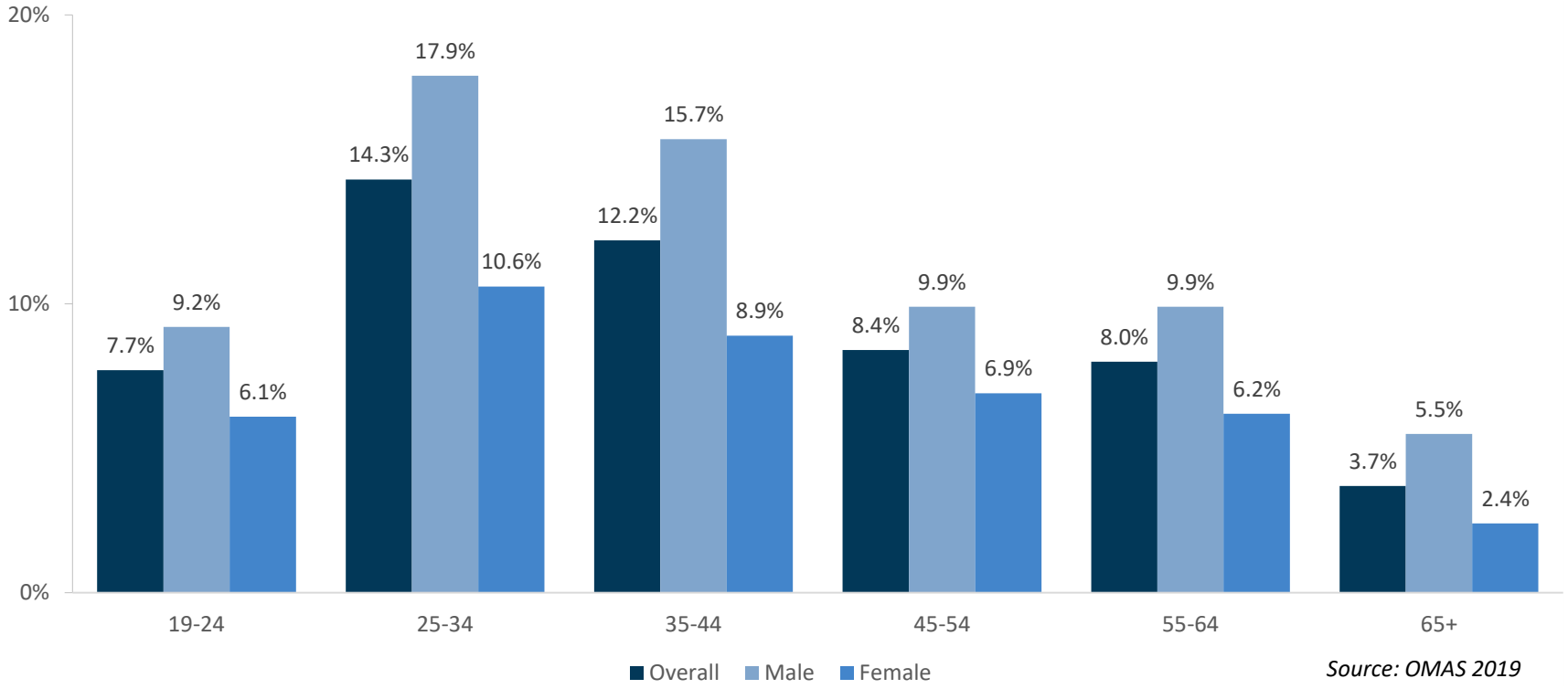
# **Figure 35.** Adult prevalence of past-30-day misuse of prescription pain relievers by Medicaid managed care region




*Source: OMAS 2019*

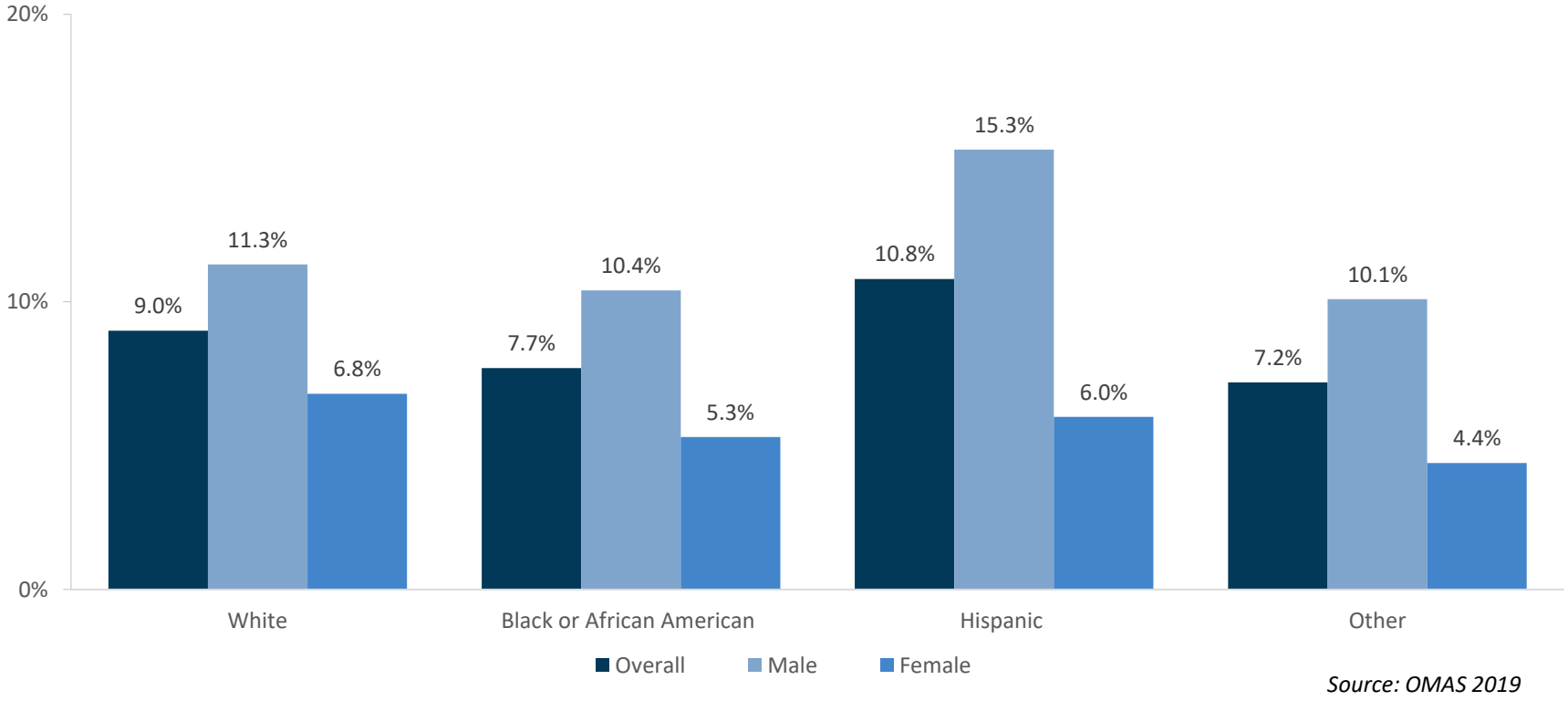
Prevalence of prescription pain reliever misuse ranges from 7% (North West & North East Central) to nearly 10% (South Central). A notable overall pattern is that southern Ohio (South West, South Central, & South East), which includes Columbus, Dayton, Cincinnati, and much of rural Appalachian Ohio, has the highest prevalence of prescription pain reliever misuse.

# Figure 36. Adult prevalence of past-30-day misuse of prescription pain relievers by age, overall and by gender




Misuse of pain relievers was highest in the 25-34 year-old age group, and decreased with each increasing age group. This pattern was observed overall and among males and females.

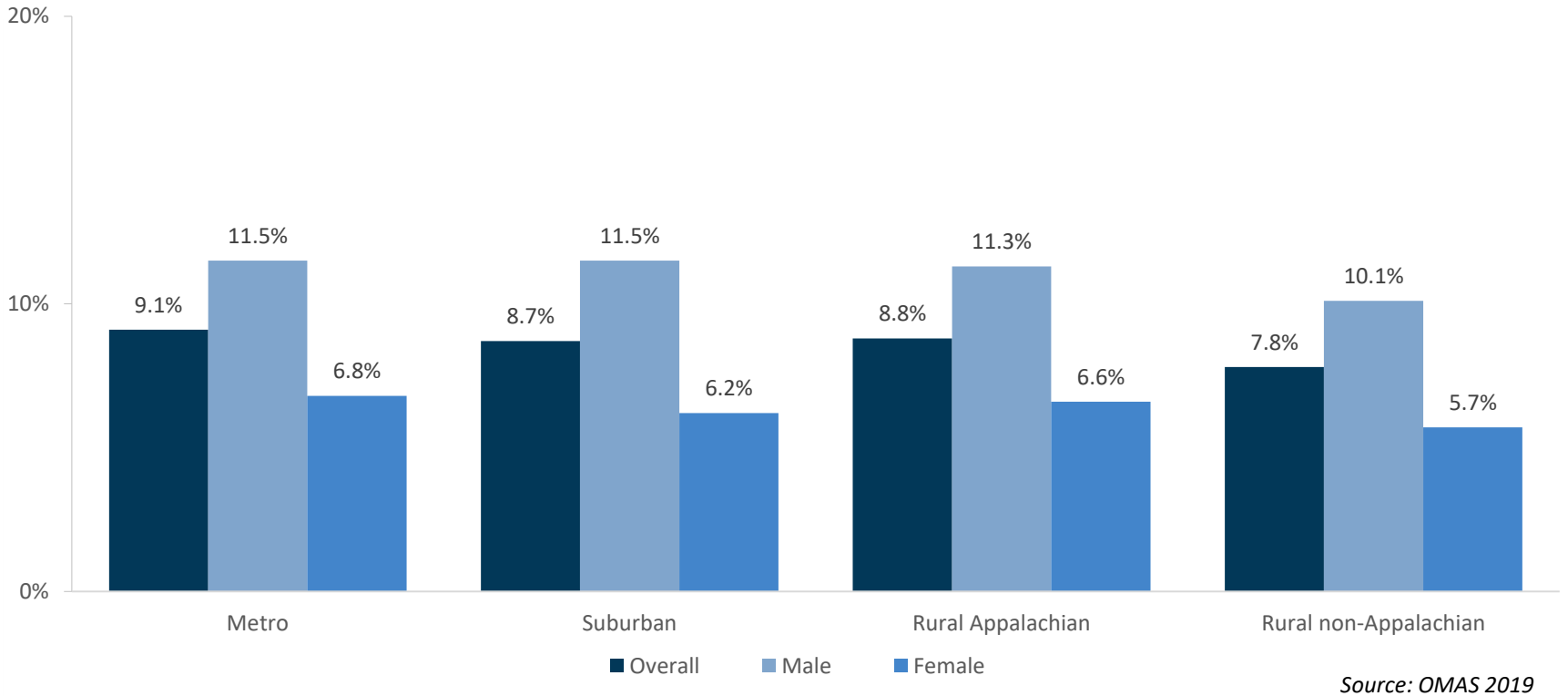
# Figure 37. Adult prevalence of past-30-day misuse of prescription pain relievers by race/ethnicity, overall and by gender




*Source: OMAS 2019*

Hispanic adults had the highest prevalence of misuse of prescription pain relievers (nearly 11% overall), followed by white, Black or African American, and Other race/ethnicity adults. Prevalence was consistently higher among males.

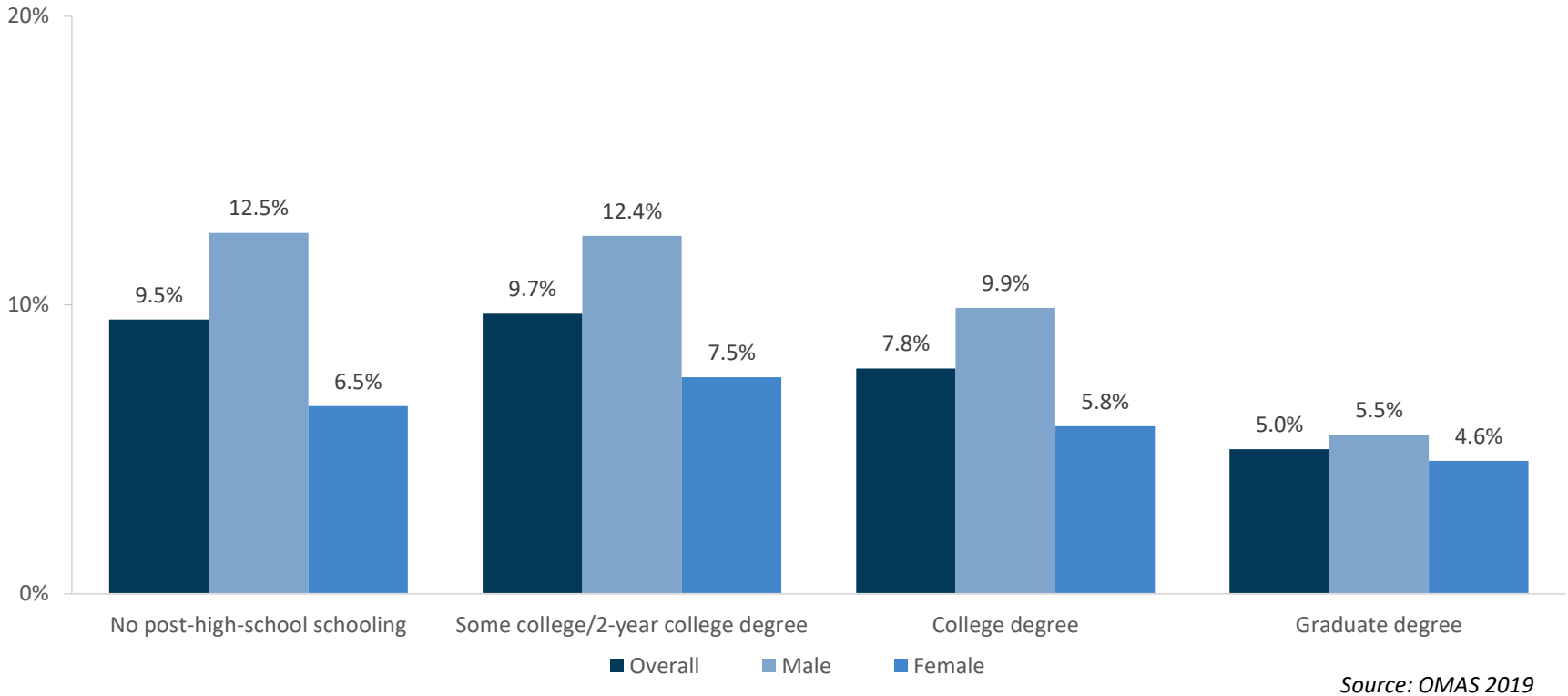
# Figure 38. Adult prevalence of past-30-day misuse of prescription pain relievers by county type, overall and by gender




*Source: OMAS 2019*

Misuse of prescription pain relievers was highest in metro counties, followed by rural Appalachian, suburban, and rural non-Appalachian. The prevalence was nearly double among males in all regions.

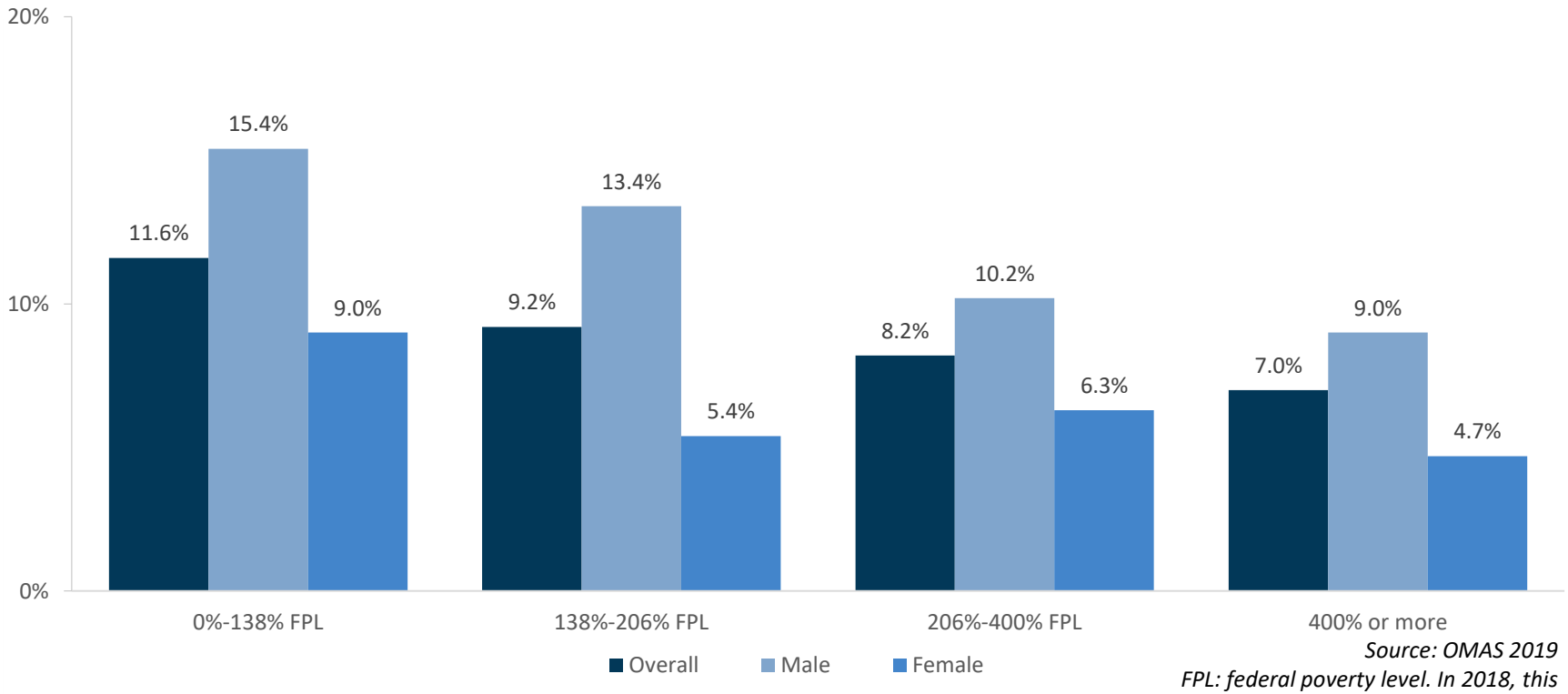
# Figure 39. Adult prevalence of past-30-day misuse of prescription pain relievers by education level, overall and by gender




*Source: OMAS 2019*

Misuse of prescription pain relievers was highest among adults with a high school or less education and those with some college/2-year college degree. The prevalence among people in the two lowest levels of education is about twice that compared to those with an advanced degree.

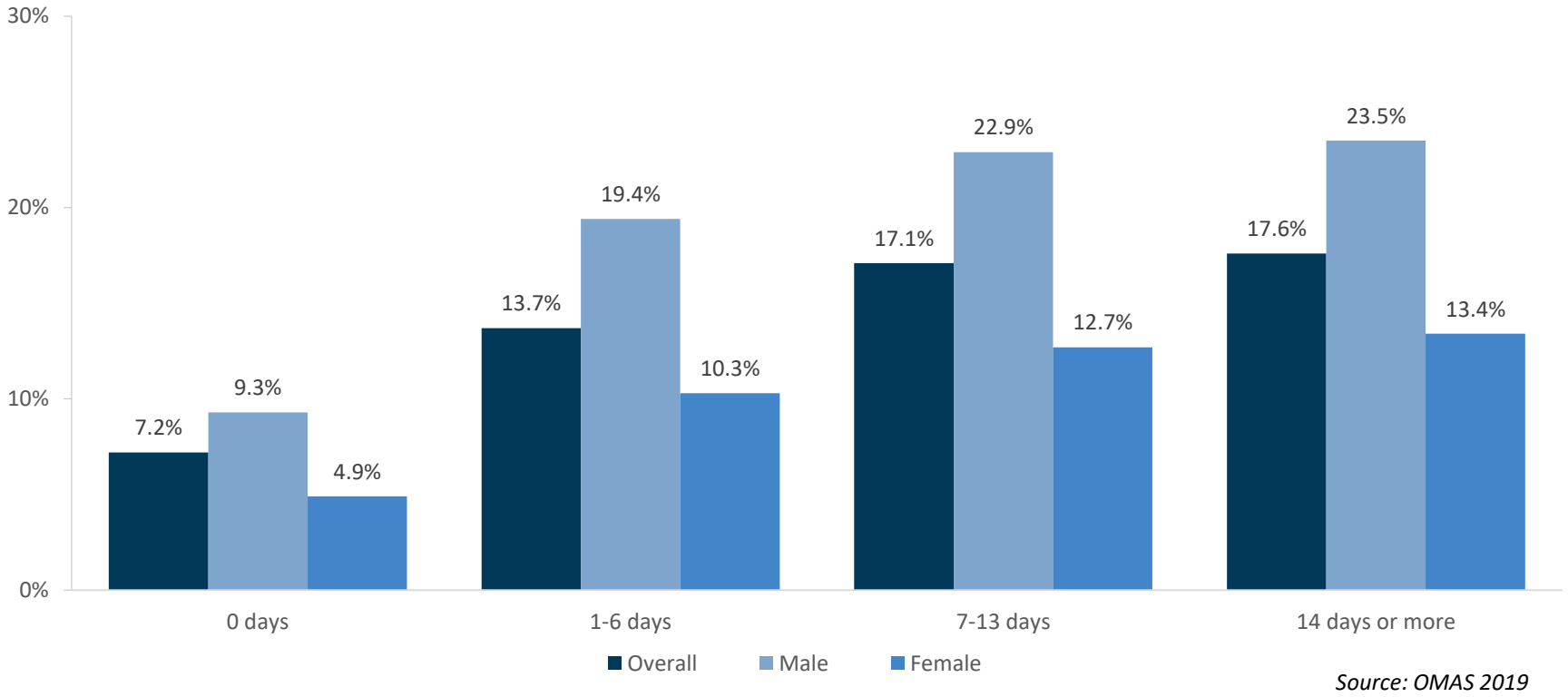
# Figure 40. Adult prevalence of past-30-day misuse of prescription pain relievers by income category, overall and by gender




*Source: OMAS 2019*
*FPL: federal poverty level. In 2018, this was around $25,000 for a family of 4.*

The prevalence of misuse of prescription pain relievers decreases as income increases, overall and among males. Among females, the pattern is less consistent.

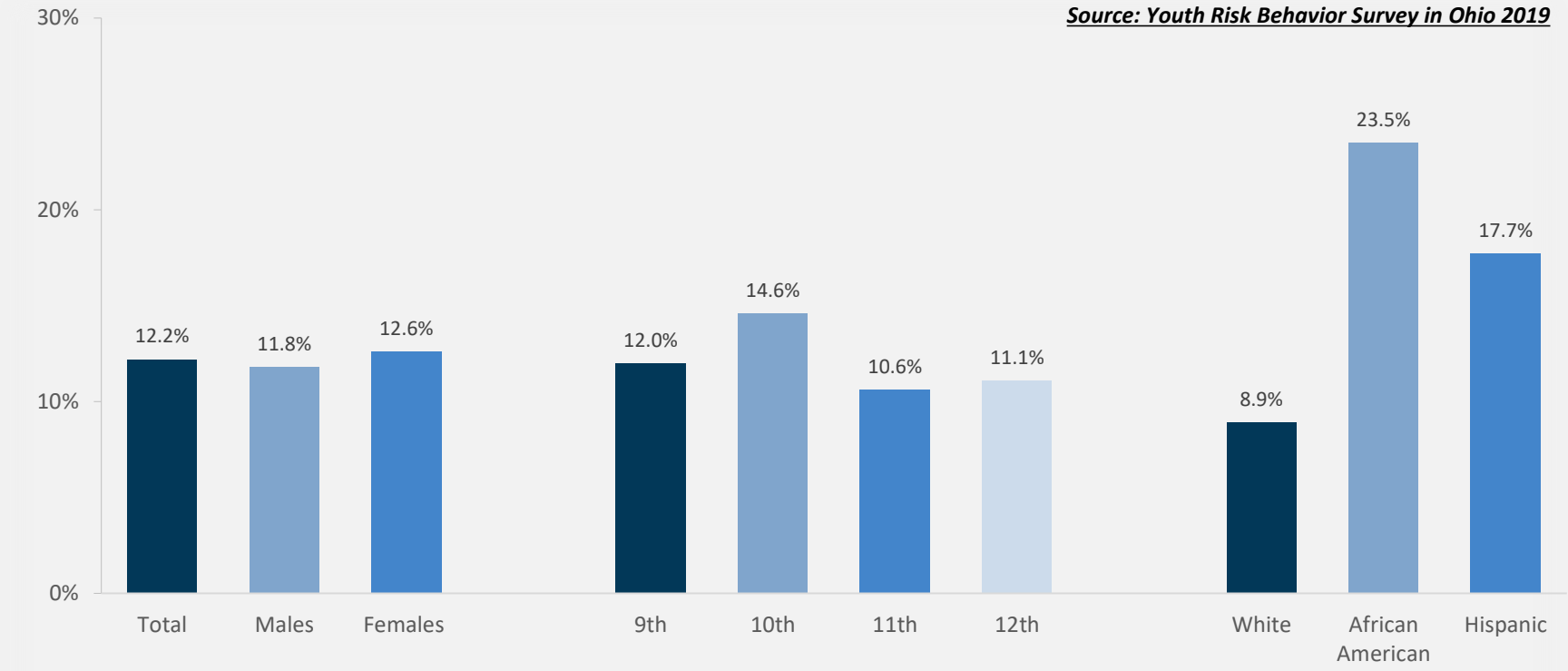
# Figure 41. Adult prevalence of past-30-day misuse of prescription pain relievers by days of mental health impairment in the past 30 days, overall and by gender




*Source: OMAS 2019*

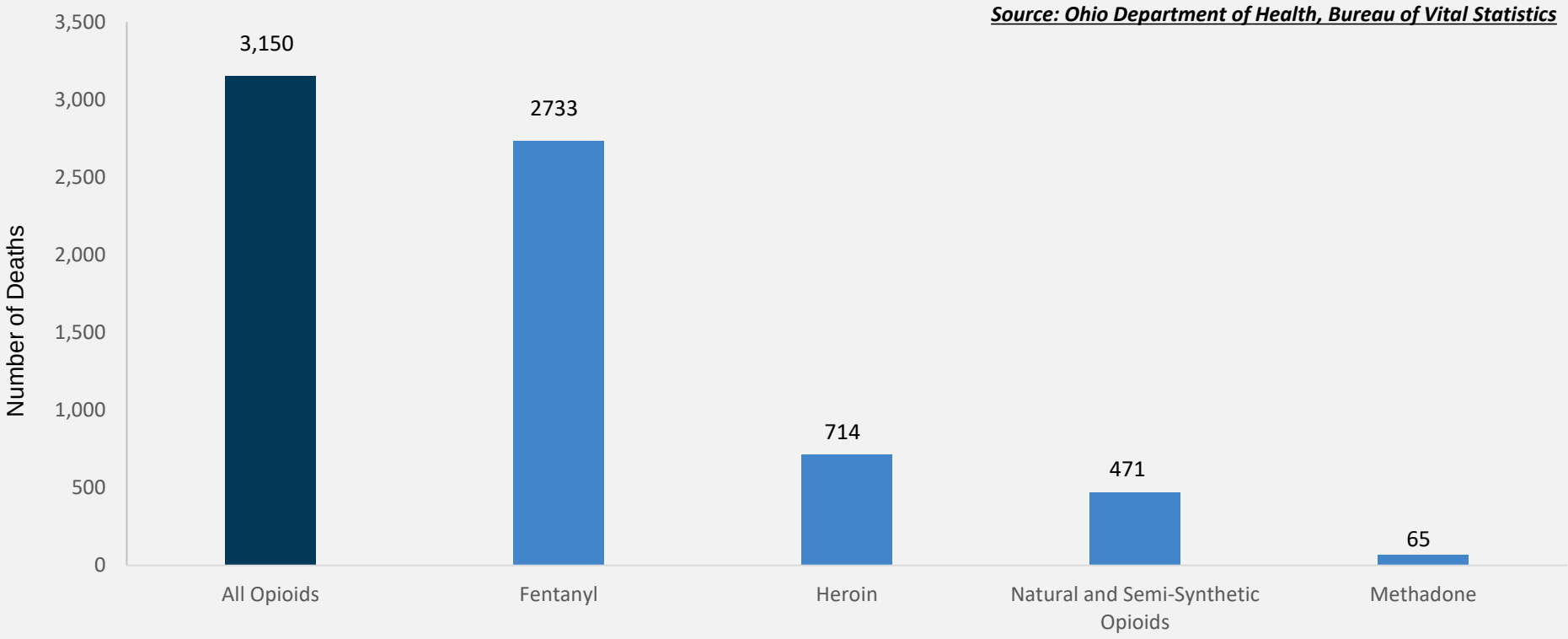
The prevalence of misuse of prescription pain relievers increases with each increasing level of mental health impairment, overall and among males and females. The largest jump is from 0 days to 1-6 days, where the prevalence is nearly two-fold higher in the latter group.

# Figure 42. High school prevalence of past-30-day misuse of prescription pain relievers



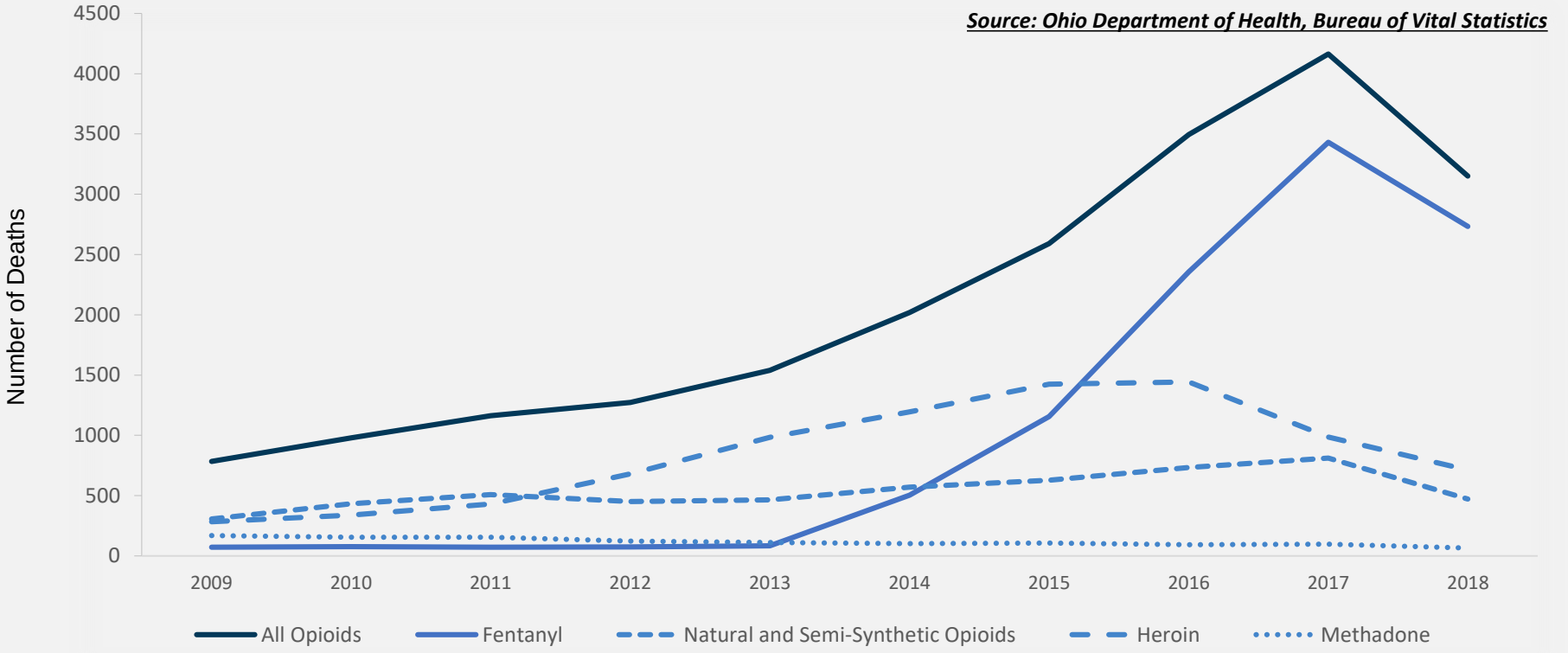

Approximately 12% of high school students have ever misused prescription pain medicine and the prevalence was highest among 10th graders. Black or African American students have the highest prevalence, followed by Hispanic and then white students.

# Figure 43. Number of unintentional overdose deaths involving opioids, 2018




For Ohio in 2018, there were a total of 3,150 drug overdose deaths in which opioids were involved. Data are based on underlying cause of death (ICD-10) codes X40-X44. “All opioids” includes prescription opioids, illicit fentanyl, and heroin. Blue bars indicate categories that are not mutually exclusive, as deaths might involve more than one drug category. Fentanyl includes fentanyl and fentanyl analogs (e.g. carfentanil). Natural and Semi-Synthetic Opioids (e.g. oxycodone, hydrocodone) correspond to ICD-10 code T40.2

# Figure 44. Trends in unintentional overdose deaths involving opioids




For Ohio from 2017 to 2018, the rate of unintentional drug overdose deaths involving opioids decreased for the first time in many years. Data are based on underlying cause of death (ICD-10) codes X40-X44. “All opioids” includes prescription opioids, illicit fentanyl, and heroin. Blue bars indicate categories that are not mutually exclusive, as deaths might involve more than one drug category. Fentanyl includes fentanyl and fentanyl analogs (e.g. carfentanil). Natural and Semi-Synthetic Opioids (e.g. oxycodone, hydrocodone) correspond to ICD-10 code T40.2

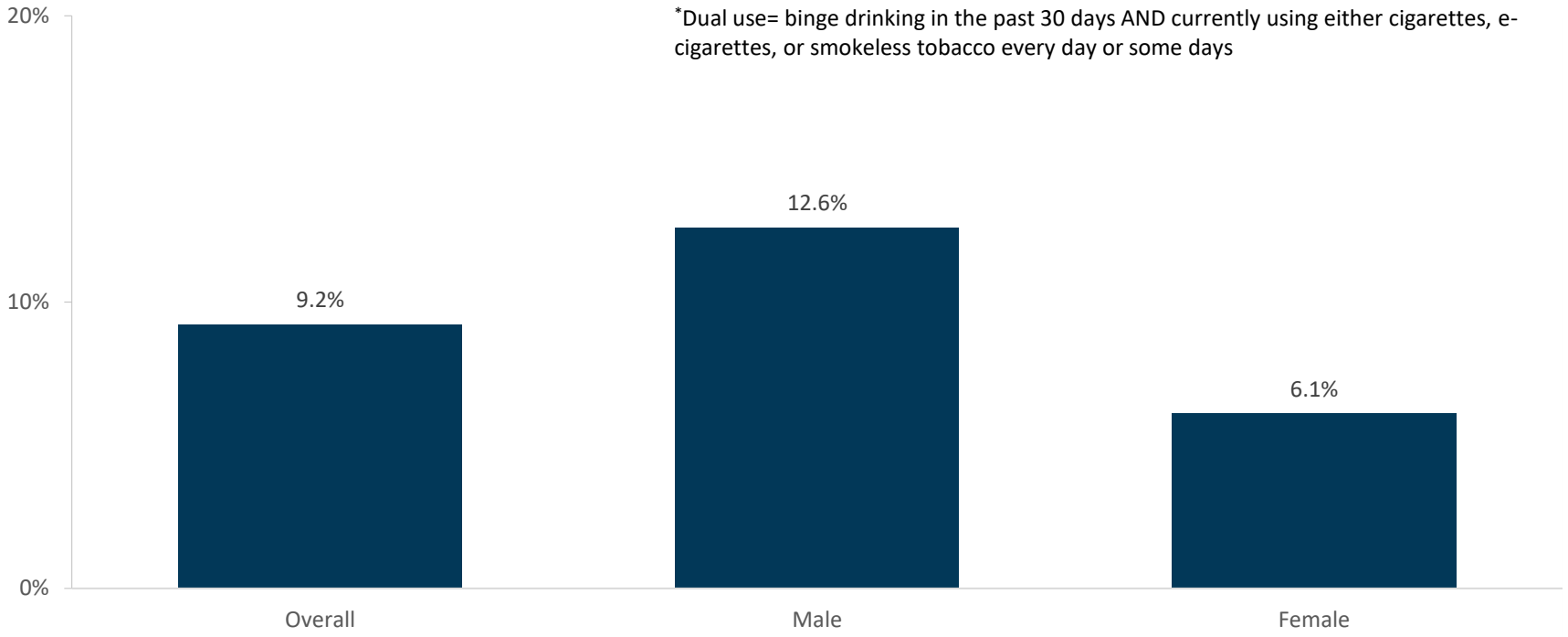
# RESULTS: POLY-SUBSTANCE USE

Poly-substance can involve concurrent use (i.e., using two or more substances on the same occasion) or simultaneous addictions but non-concurrent use (e.g., a person uses an opioid on some occasions, and cocaine on others). Many risk factors are similar for different types of substances. Treatment can benefit from addressing multiple addictions simultaneously. Therefore, this report presents information on the prevalence of poly-substance use in Ohio.

# Key Findings: Poly-Substance Use

- Dual use of substances is highest among males in Ohio.

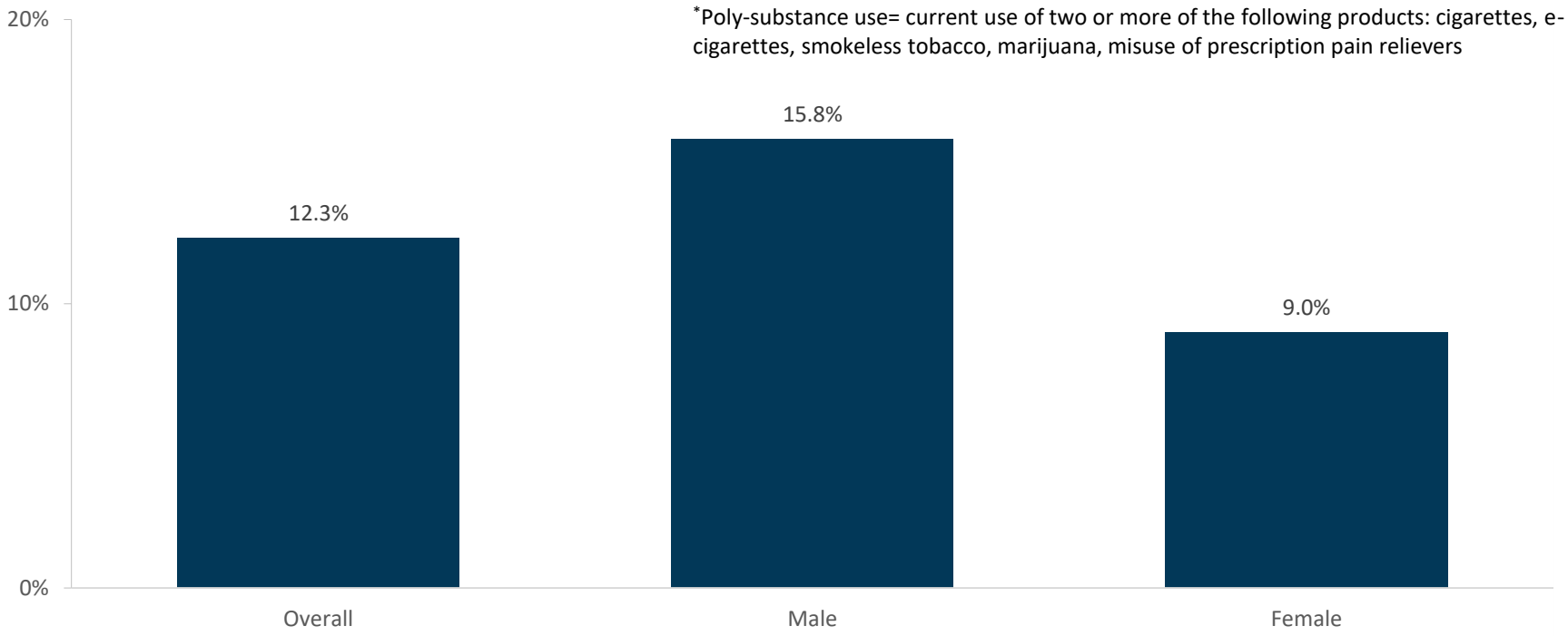
# Figure 45. Adult prevalence of alcohol and tobacco dual use* in Ohio, overall and by gender




*Source: OMAS 2019*

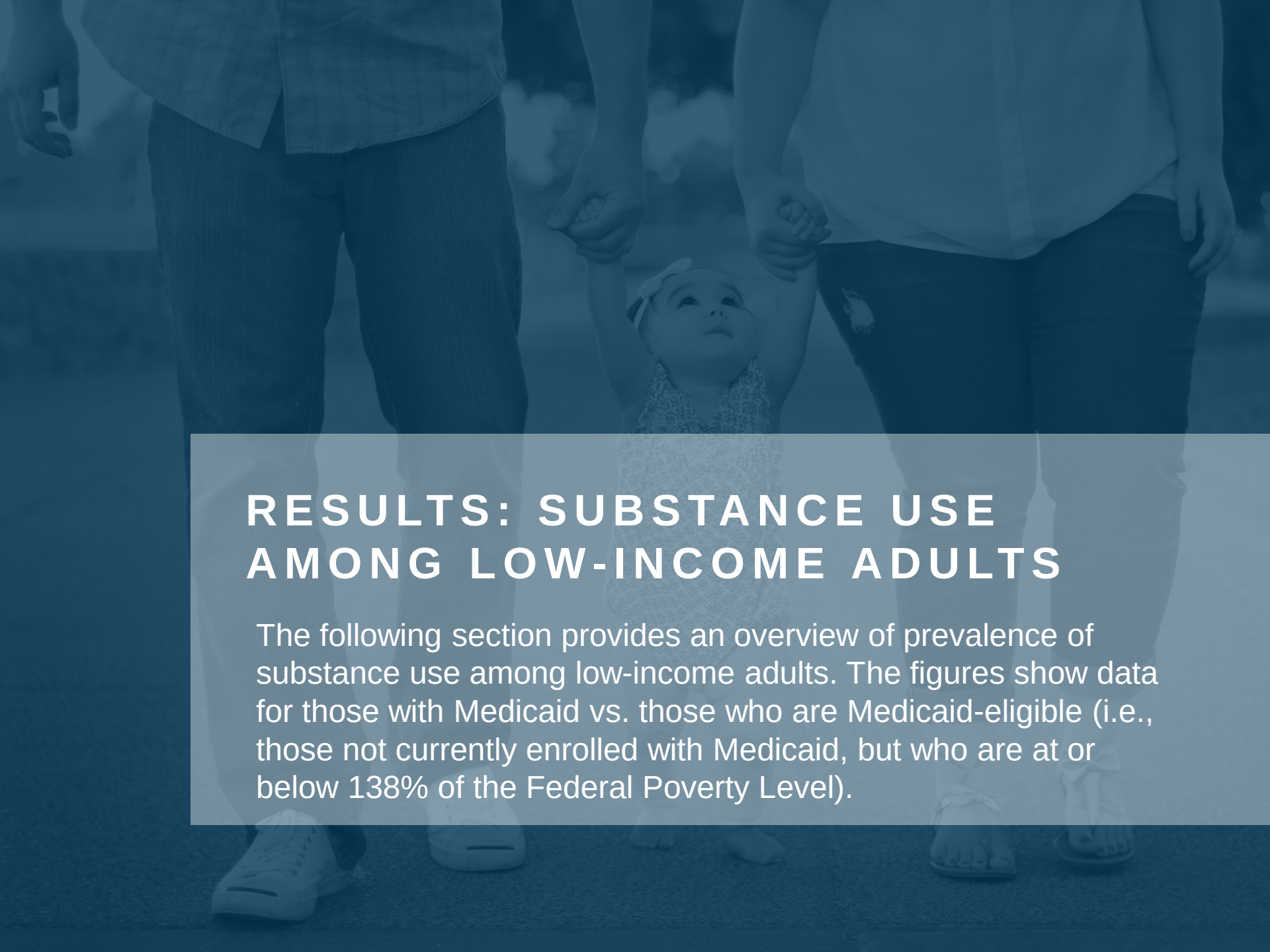
More than 9% of Ohio adults reported both binge drinking and using tobacco within the past 30 days. The highest prevalence of dual use was among males.

# Figure 46. Adult prevalence of poly-substance use (excluding alcohol) in Ohio, overall and by gender




*Source: OMAS 2019*

More than 12% of Ohio adults reported poly-substance use within the past 30 days. The highest prevalence of poly-substance use was among males.



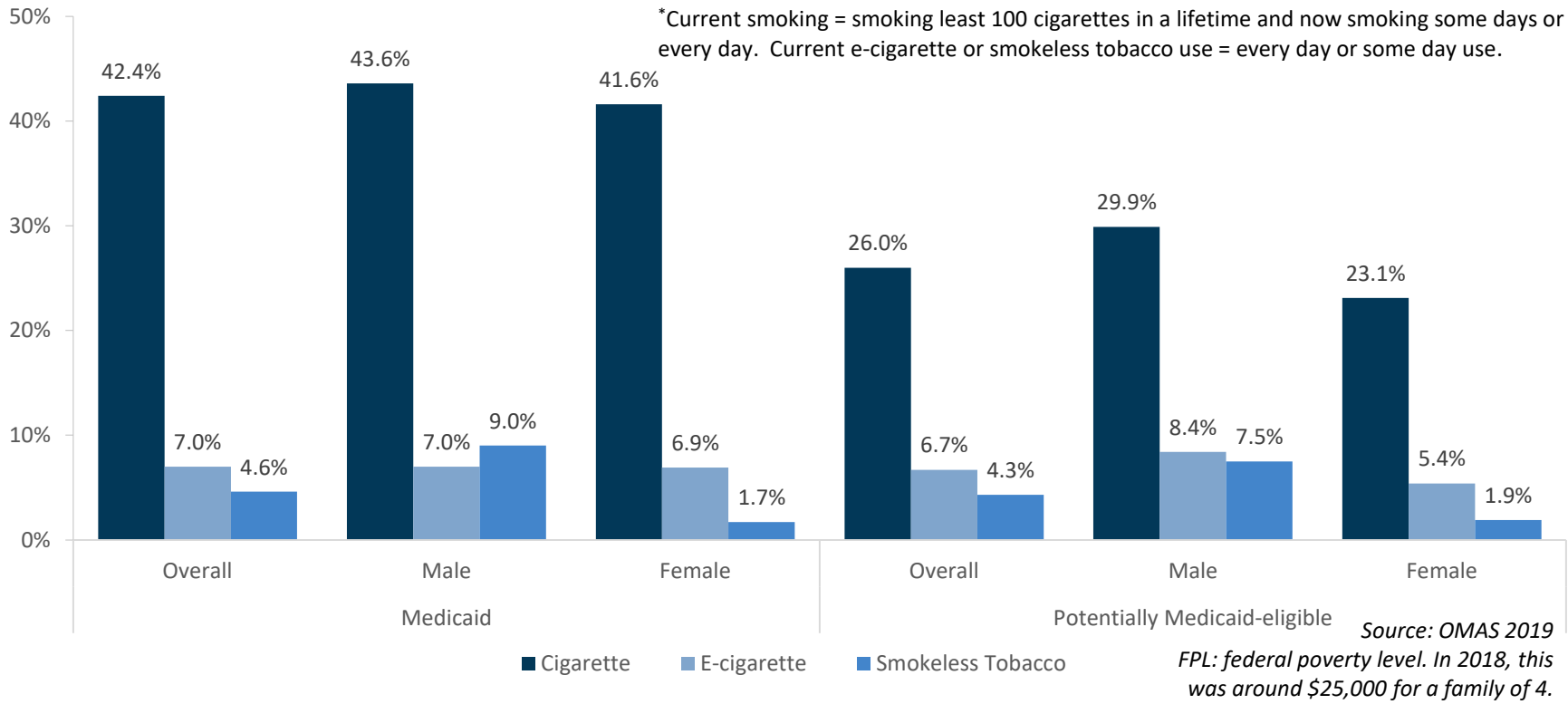
# RESULTS: SUBSTANCE USE AMONG LOW-INCOME ADULTS

The following section provides an overview of prevalence of substance use among low-income adults. The figures show data for those with Medicaid vs. those who are Medicaid-eligible (i.e., those not currently enrolled with Medicaid, but who are at or below 138% of the Federal Poverty Level).

# Key Findings: Substance Use among Low-Income Adults

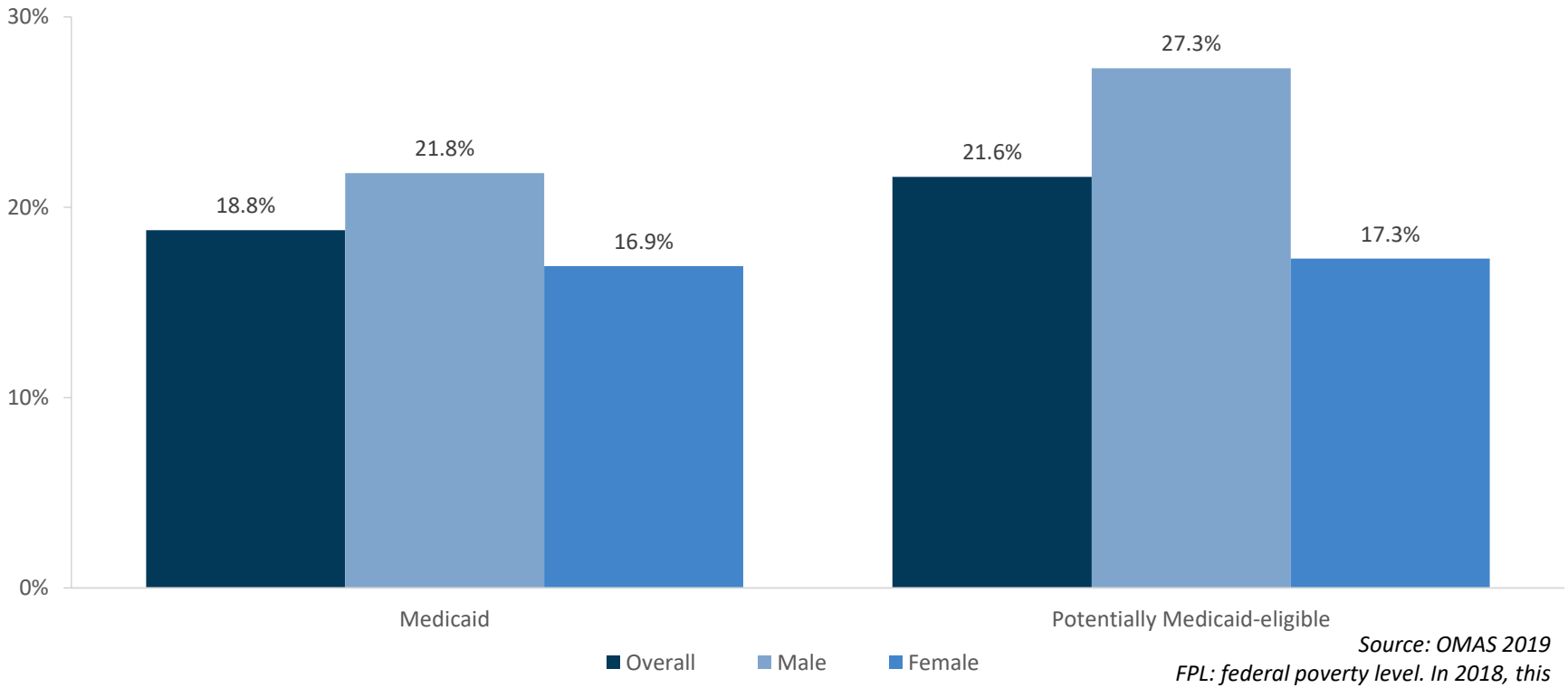
- Adults who are enrolled in Medicaid have a higher prevalence of cigarette smoking compared to their counterparts who are potentially eligible.
- Binge drinking, however, is more prevalent among adults who are potentially eligible for Medicaid.
- Among adults enrolled in Medicaid, tobacco use disorder is the most prevalent substance use disorder diagnosis, yet it is the least prevalent when it comes to treatment.

# Figure 47. Adult prevalence of current* cigarette, e-cigarette, and smokeless tobacco use among low income adults by Medicaid insurance status, overall and by gender




Among these low-income individuals, those on Medicaid had a higher prevalence of cigarette use compared to those who were potentially Medicaid eligible. Differences were less pronounced for e-cigarette and smokeless tobacco use.

# Figure 48. Adult prevalence of past-30-day binge drinking* among low income adults by Medicaid insurance status, overall and by gender

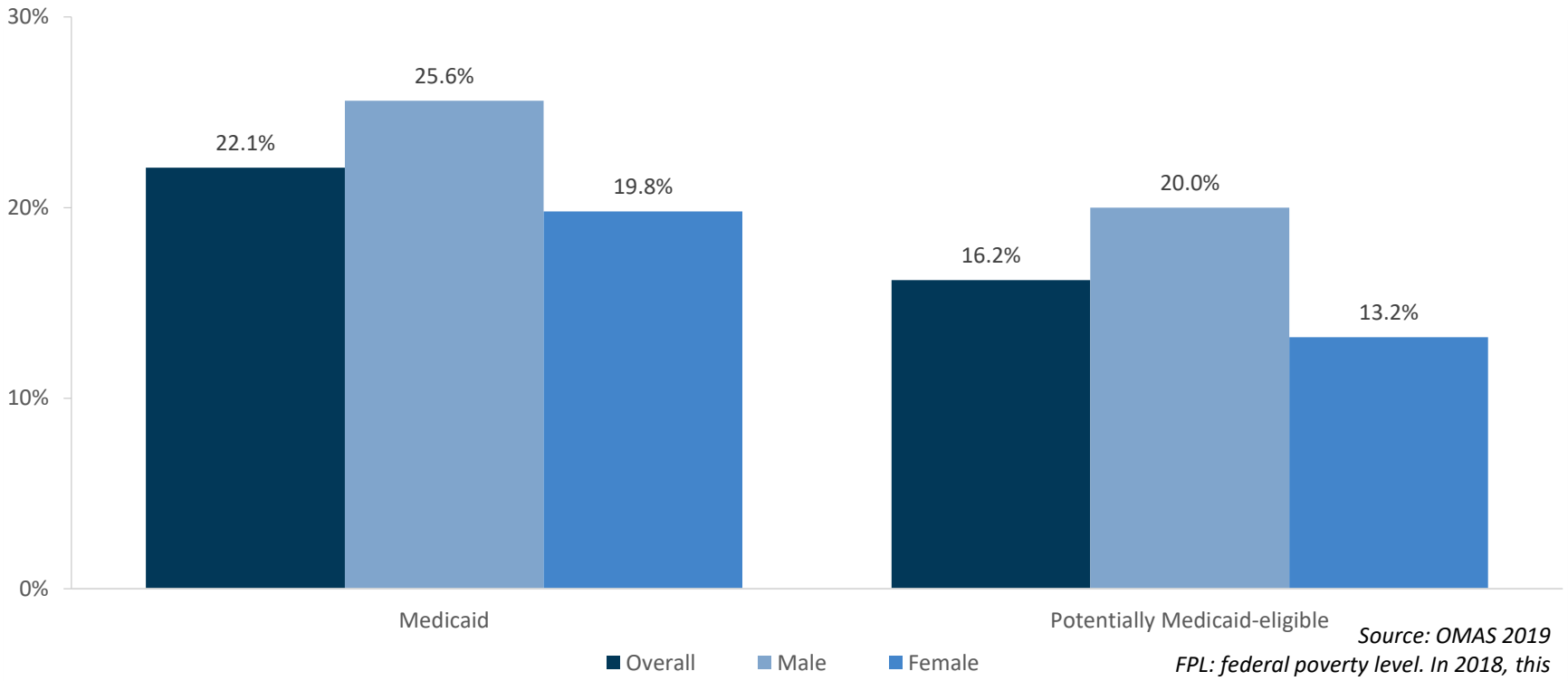



*Source: OMAS 2019*
*FPL: federal poverty level. In 2018, this was around $25,000 for a family of 4.*

Among these low-income individuals, men who were on Medicaid had a lower prevalence of binge drinking than men who were not on Medicaid. There was no discernable difference in binge drinking among women who were on vs. not on Medicaid.

*Binge drinking = consuming 5 or more drinks in a sitting for men, and 4 or more drinks in a sitting for women in the past month.

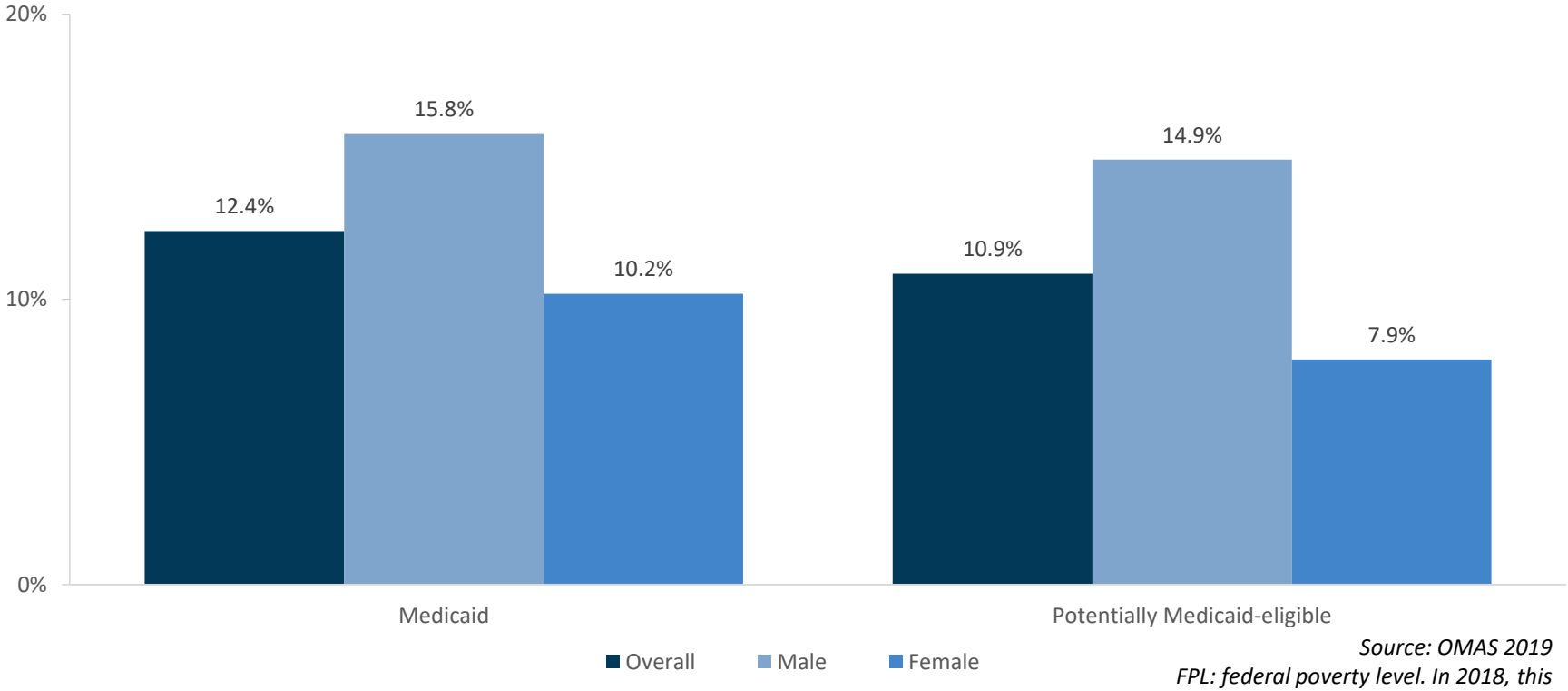
# Figure 49. Adult prevalence of past-30-day marijuana use among low income adults by Medicaid insurance status, overall and by gender




*Source: OMAS 2019*
*FPL: federal poverty level. In 2018, this was around $25,000 for a family of 4.*

Among these low-income individuals, those on Medicaid had a higher prevalence of marijuana use compared to those who were potentially Medicaid eligible.

# Figure 50. Adult prevalence of past-30-day misuse of prescription pain relievers among low income adults by Medicaid insurance status, overall and by gender




*Source: OMAS 2019*
*FPL: federal poverty level. In 2018, this was around $25,000 for a family of 4.*

Among these low-income individuals, there was no substantial difference in the misuse of prescription pain relievers among those who were on vs. not on Medicaid.

# RESULTS: PLACE-BASED FACTORS

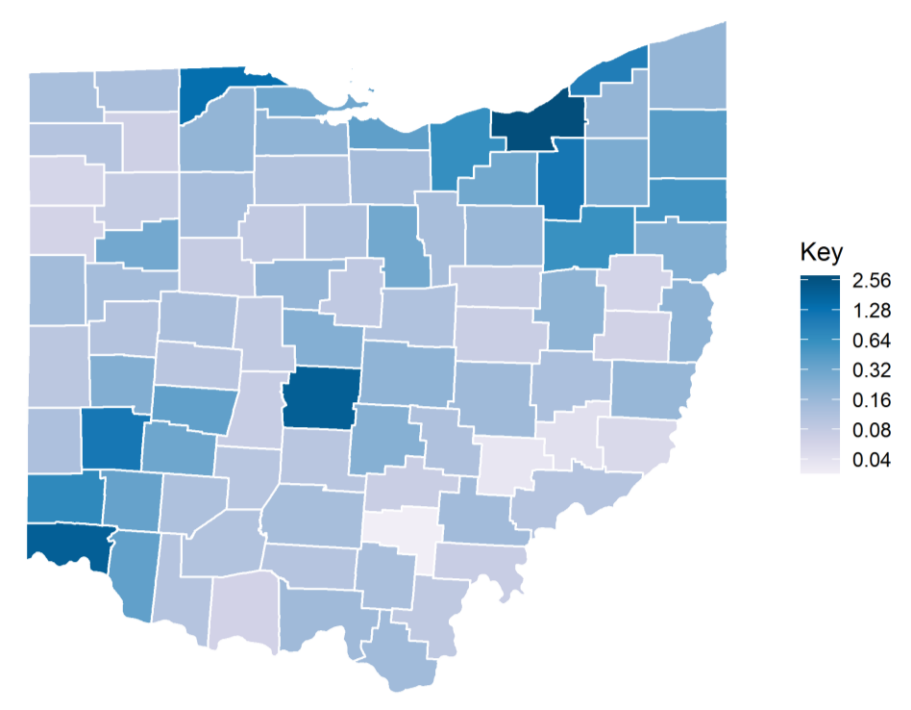
Many legal substances are sold in brick-and-mortar retailers. The location and density of these retailers can facilitate more ready access to substances and shape perceived norms about substance use and acceptability. The following section provides geographic information for Ohio on the density of alcohol retailers (e.g., bars, liquor stores) and tobacco retailers (e.g. tobacco shops, convenience stores). It also presents the locations of marijuana dispensaries. An interactive version of the maps presented here is available at the following link: **http://go.osu.edu/atc_retail**

# Key Findings: Place-Based Factors

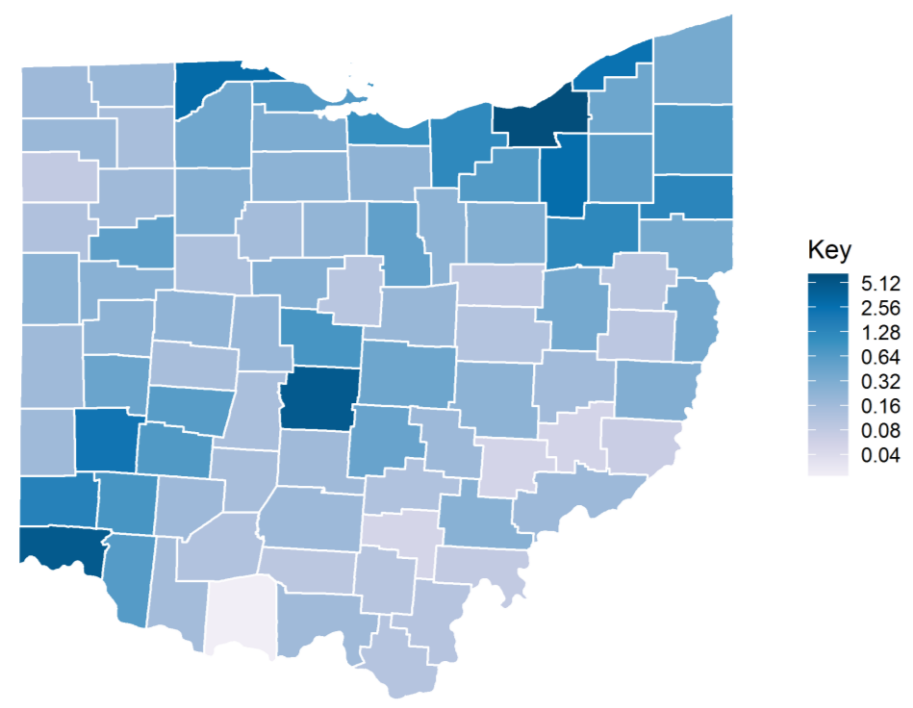
- The number of alcohol and tobacco retailers is higher in metro counties.
- However, the rate of tobacco retailers per 1,000 people is higher in the Appalachian region of Ohio.
- Marijuana dispensaries are more concentrated in the three major metropolitan areas in Ohio.

# Figure 53. Density of retailers per square mile

***Sources: Ohio Department of Commerce and County Auditor Offices***




Tobacco Retailers

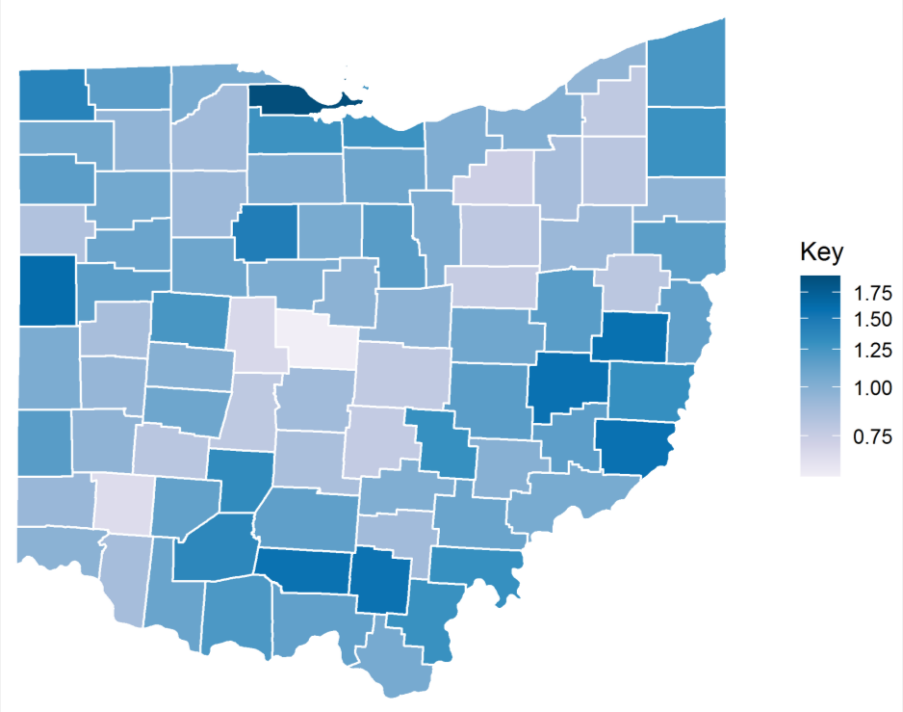



Alcohol Retailers

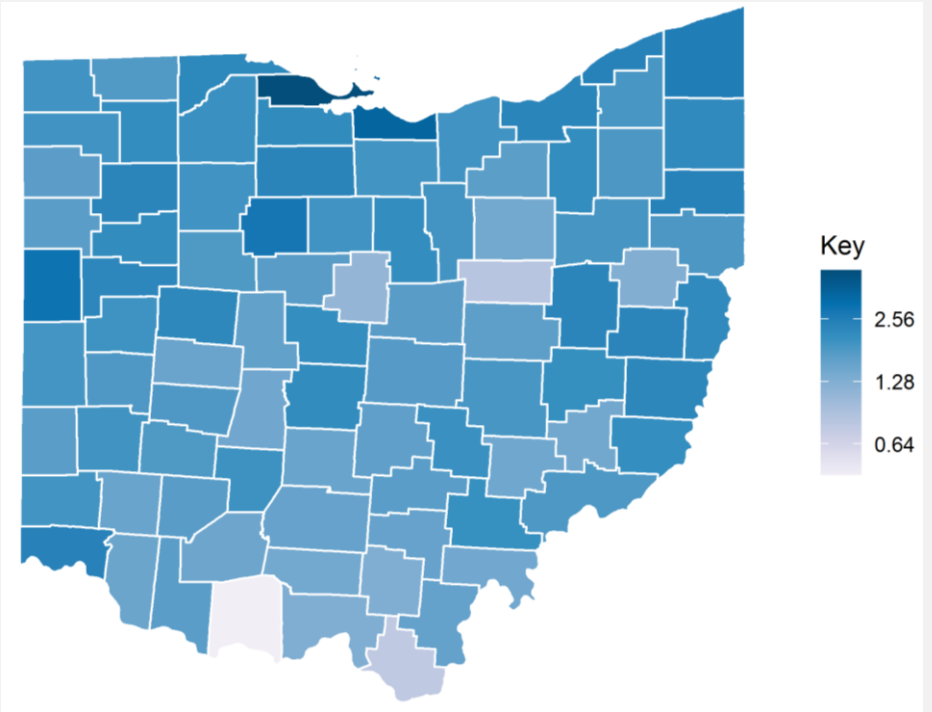
Area density of tobacco and alcohol outlets per square mile appears to align with population density. Most outlets are in metropolitan counties.

# Figure 54. Rate of retailers per 1,000 people

***Sources: Ohio Department of Commerce and County Auditor Offices***



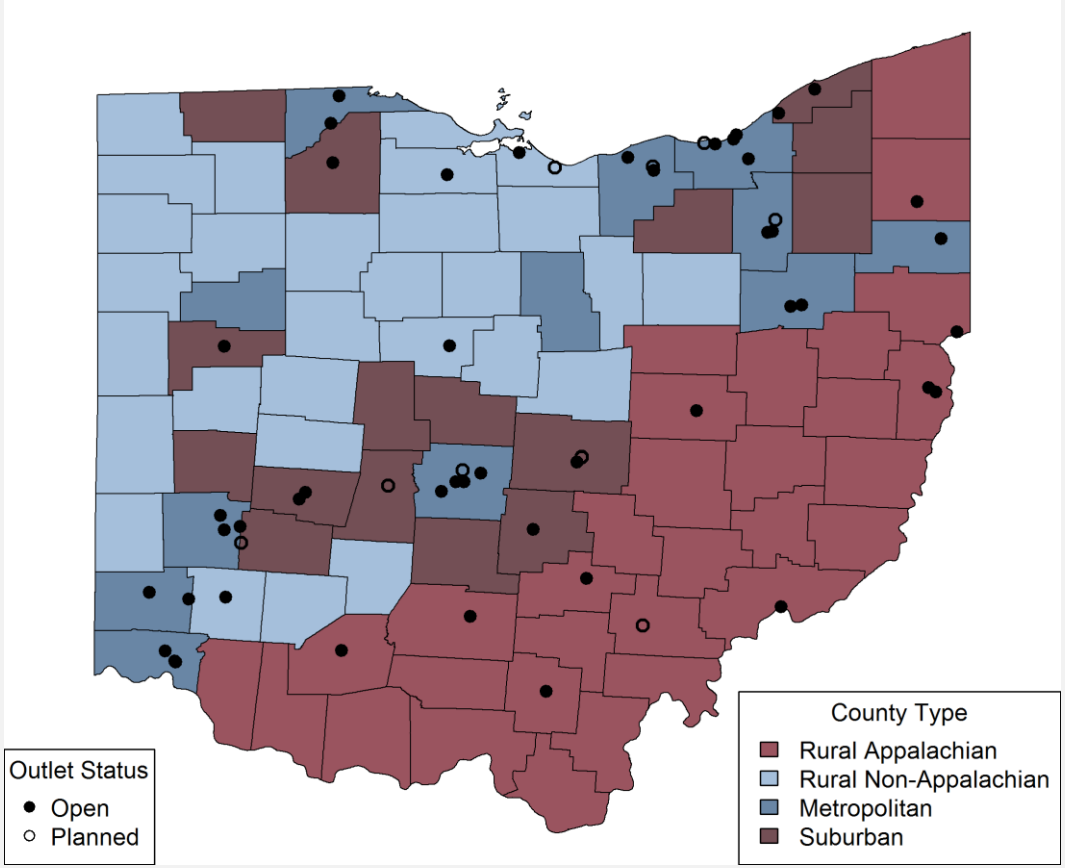

Tobacco Retailers




Alcohol Retailers

When accounting for population density, the rate of tobacco and alcohol retailers appears to be less concentrated in metropolitan counties, particularly for alcohol (consistent with Ohio's population-based limits on alcohol retailer licenses). Per capita tobacco retailer density appears greater in rural counties.

# Figure 55. Location of opened and planned marijuana dispensaries




***Source: Ohio Marijuana Card***
https://www.ohiomarijuanacard.com

Currently open or planned marijuana dispensaries are focused in or around metropolitan areas, but are also present in some rural areas of Ohio, particularly in the rural Appalachian region.

# SUMMARY OF RESULTS

**Prevalence.** Marijuana, cigarettes, and alcohol were the most commonly-used substances among Ohio adults in 2019. Specifically, current cigarette smoking was the most prevalent tobacco behavior (22%), followed by past-30-day use of e-cigarettes (6%) and smokeless tobacco (4%). Approximately 21% of Ohio adults engaged in binge drinking within the past 30 days; 23% engaged in marijuana use within the past 30 days, and 9% engaged in misuse of prescription pain relievers within the past 30 days. Over 3,000 individuals in Ohio died in 2018 from an overdose involving opioids, although this represents a decline from 2017.

**Early Use**. A somewhat different pattern emerged for substance use among Ohio adolescents. For high school students' past-30-day use, prevalence was highest for e-cigarettes and marijuana (nearly 30% for both), followed by alcohol (26%), misuse of prescription pain relievers (12%), smokeless tobacco (10%), cigar products (7%) and cigarettes (5%).

**Demographics**. Examination of substance use by demographic characteristics indicated that at-risk groups varied by the substance. For example, prevalence of tobacco and marijuana use, as well as misuse of prescription pain relievers, were generally higher among those with lower incomes and education; however, prevalence of binge drinking was generally higher among those with *higher* levels of income and education. There was a trend for substance use to be more prevalent among males than females, especially for products like smokeless tobacco. Hispanic men had the highest prevalence for use of e-cigarettes, smokeless tobacco, binge drinking, and misuse of prescription pain relievers. Black or African American men had the highest prevalence for use of cigarettes and marijuana. E-cigarette use, binge drinking, and marijuana use were more prevalent among adults of younger ages. Rural Ohio, especially Appalachian Ohio, saw a high prevalence of cigarette and smokeless tobacco use. Substance use was generally higher among those reporting some mentally impaired days in the past month. Among low-income individuals, those on Medicaid had a higher prevalence of cigarette use (43%) compared to those who were Medicaid-eligible (26%); For other substances, differences between insurance groups were not substantial.

**Availability.** In terms of the distribution of retailers in the state, retailers licensed to sell tobacco or alcohol were, unsurprisingly, clustered in more urban areas. However, when taking population size into account, the per capita density (i.e., the rate of retailers per 1,000 people) was relatively uniform across Ohio for alcohol retailers and seemingly more dense in the rural Appalachian region for tobacco retailers. Open or planned marijuana dispensaries were focused in urban areas, although there was also a strong presence in rural Appalachia.

# POLICY CONSIDERATIONS

**Adolescents.** Around 30% of Ohio high school students were using e-cigarettes. The Campaign for Tobacco Free Kids recommends tobacco-control approaches to curb youth tobacco initiation, including strong enforcement of ID checks at retailers and ending the sale of all flavored tobacco products, including flavored e-cigarettes, menthol cigarettes, and flavored cigars/cigarillos. Public health approaches that continue to be successful at reducing youth cigarette smoking (e.g., raising costs, smoke-free policies) should also be considered.

**Tobacco.** Cigarettes were the most commonly-used substance among Ohio adults. The Ohio Department of Health, in partnership with local and state stakeholders, funded the 5As (ask, advise, assess, assist, and arrange) brief counseling intervention for smoking cessation into clinical and public health practice. These programs targeted the general population, women of reproductive age, pregnant women, and parents of infants and young children. Continued and expanded efforts could better engage the healthcare community in tobacco dependence treatment.

**Alcohol.** Binge drinking alcohol has not declined in the past decade. The Health Policy Institute of Ohio (HPIO) recommends increasing excise taxes for beer, wine, and other alcohol products. In addition, as Ohio is the only state that does not have comprehensive health education standards, establishing such standards could ensure that school-based drug prevention includes all substances.

**Marijuana.** Around 13% of Ohio adults used marijuana. The HPIO recommends a comprehensive plan for addressing potential positive and negative consequences of medical marijuana legalization, including the impact on pain management, employers, adolescents, and motor vehicle safety.

**Disparities.** Substance use differed by gender, age, race/ethnicity, county type, education, poverty, mental health impairment, and Medicaid status. Policymakers should continue addressing the social determinants of health that contribute to greater substance use in vulnerable populations. Additional attention to healthcare literacy as it relates to substances may also require additional attention. Policies and programs with evidence supporting their effectiveness among vulnerable populations also helps to improve health equity.

*Continued on next page*

# POLICY CONSIDERATIONS

**Opioids.** Although overall trends were down, over 3,000 individuals in Ohio died in 2018 from an overdose involving opioids. To address the epidemic, Overdose Fatality Reviews (OFRs) involve looking at every overdose death comprehensively in terms of what factors and circumstances may have contributed to the death may be particularly valuable at this time in Ohio's epidemic. Although improvements in safe prescribing of controlled substances improved access to Medication for Opioid Use Disorder have been helpful in future efforts mainly to more holistically focus on families and communities for more comprehensive early identification and treatment.

**Upstream Opportunities to Address Substance Use Disorder (SUD).** Tobacco and alcohol retailers are densely distributed in Ohio and the distribution of marijuana retailers is growing. As the scientific literature demonstrates an association between increased exposure to retailer advertising and (1) increased youth initiation and (2) decreased cessation success among adults, consideration may be given to licensing-law policies. Licensing laws are policies that require stores to purchase a license to sell tobacco, alcohol, or other substances. These laws can set additional stipulations to restrict or reduce the density of such retailers in an area. For example, they may cap the number of licenses for an area, prohibit new retailers from purchasing a license if they are in close proximity to other retailers, or prohibit retailers from being close to schools.

**Coronavirus (COVID-19).** All data presented in this chartbook were collected prior to the first confirmed case of COVID-19 in Ohio. Multiple surveys are underway to determine how the response to COVID-19 (e.g., the stay-at-home order, job loss, anxiety) may have an impact on substance use.

Although the situation continues to unfold, early reports suggest the following:

- Since the onset of COVID-19 in the U.S., there appears to have been an increased number of opioid overdose deaths.[17,18]
- Opioid treatment outcomes have shifted. In Ohio, medication-assisted treatment patients may now be able to take home more medication than normal. While stable office-based opioid treatment and opioid treatment program (OTP) patients have always been able to have up to a one-month's supply of buprenorphine, OTP patients receiving methadone are now able to use an accelerated take home schedule that gives up to a two-week's supply of medication.
- Surveys in Europe suggest that 20-35% of adult alcohol users increased their consumption during the lockdown.[19-21] Conversely, 16-33% reported *decreasing* their consumption. Preliminary data suggest similar outcomes in the U.S.[22]

*Continued on next page*

# POLICY CONSIDERATIONS

- In the U.S., one report suggests that per capita consumptions of spirits and wine were up in March and April 2020, compared to the same months during the previous three years, in most of the 16 states that monitor sales; beer sales decreased in about half of the states in 2020.[23]
- A study using emergency department data from Cleveland hospitals found that while overall visits for behavioral health declined during the pandemic (likely due to concerns about exposure), behavioral health visits related to alcohol abuse increased from 28% in March-April 2019 to 35% in March-April 2020.[24]
- One study from the U.S. suggested that COVID-19 prompted about a quarter of adults using cigarettes and/or e-cigarettes to increased their use. Conversely, more than a third of the participants increased their motivation to quit.[25]
- Among U.S. adolescents, some evidence suggests that substance use has declined. One study showed that substance use among 14- to 18-year olds was significantly lower following the emergency shutdowns, with a 1/5 to 2/5 reduction in the percent of adolescents who binge drank, used marijuana, and used e-cigarettes.[26]

In preparation for the expected consequences of COVID-19, experts recommend developing approaches to increase interpersonal connectivity, strengthening our mental health system, and bolstering mechanisms for surveillance, reporting, and intervention.

The World Health Organization recommends restrictions to alcohol access during COVID-19.[27] In the U.S., the CDC recommends that individuals adopt healthier options for coping, communities support prevention programs, and healthcare providers screen and refer those with AUD to treatment.[28]

Relaxed restrictions on substance use treatment has opened the door to telehealth services and easier access to important medications for opioid use disorder (OUD) like methadone and buprenorphine. The American Medical Association provides recommendations for state governors and legislatures about making the best use of this new flexibility[17] and others have also published recommendations for reducing barriers to treatment for people with SUD in this period of crisis.[29,30] Telehealth has promise, but to benefit the most vulnerable, phone connectivity and internet access are critical resources.[31]

The possibility of resource redirection from substance use treatment to COVID-19 response raises the importance of maintaining litigation efforts against opioid manufacturers, particularly those cases that are close to completion, which could result in much needed funding to support recovery of people with SUD while substance use is rising and resources are becoming more scarce.[29]

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# ACKNOWLEDGEMENTS

Ohio | Department of Medicaid

**Mike DeWine,** Governor
**Jon Husted,** Lt. Governor

**Maureen Corcoran,** Director

MedTAPP
Medicaid Technical Assistance and Policy Program

Ohio | Department of Health

Ohio | Department of Mental Health and Addiction Services

Ohio | Department of Aging