MICHIGAN BRFSS SURVEILLANCE BRIEF

A Newsletter from the Lifecourse Epidemiology & Genomics Division, MDHHS Vol. 17 No. 2 June 2026

Current Electronic Cigarette Use by Age among Michigan Male and Female Adults, 2016-2024

Using data from the 2014-2024 Michigan Behavioral Risk Factor Survey (MiBRFS), this surveillance brief examines the prevalence of current electronic cigarette (e-cigarette) use by age among Michigan male and female adults.

Background

National trends show a shift from cigarette smoking to e-cigarette (vaping) use among young adults.[1] E-cigarettes are now the most commonly used nicotine or tobacco product among adolescents. Michigan Behavioral Risk Factor Survey (MiBRFS) data indicate that e-cigarette use among Michigan adults has increased steadily and exceeded national averages from 2016 to 2024. In 2024, 9.8% of Michigan adults reported current e-cigarette use, compared with 8% nationally.

The rising prevalence of e-cigarette use has prompted ongoing debate among health professionals. Some view e-cigarettes as a potential harm-reduction tool for current smokers, while others emphasize the risks, particularly for youth exposure to nicotine. Notably, recent studies suggest that adolescents who initiate nicotine use with e-cigarettes are more likely to transition to combustible tobacco products, such as cigarettes.[2]

Although national data often show higher e-cigarette use among young adult males, 2024 MiBRFS findings indicate that young adult females in Michigan have higher e-cigarette use rates than their male counterparts.

Methods

The Michigan BRFSS provides cross-sectional data, and a temporal relationship cannot be established. To improve the generalizability of the data, making it possible to draw conclusions about the health of Michiganders, the Centers for Disease Control and Prevention (CDC) weighted survey data using iterative proportional fitting, also known as raking, to account for demographic differences between the survey sample and Michigan's population.

One question on e-cigarette use was included in the 2016-2024 MiBRFS. The question was, "Do you now use e-cigarettes or other electronic vaping products every day, some days or not at all?" For this analysis, respondents who answered "Every day" or "Some days" to the above question were classified as current e-cigarette use. Respondents who answered "Not at all" or "Never smoked e-cigarettes" to the above question were classified as not current e-cigarette use.

The prevalence of current e-cigarette use among Michigan adults was assessed by age among male and female adults. Those age and gender variables were self-report survey responses. All analyses accounted for the complex sample design.

Results

Figure 1. 2016-2024 Prevalence of E-Cigarette Use among Michigan Adults

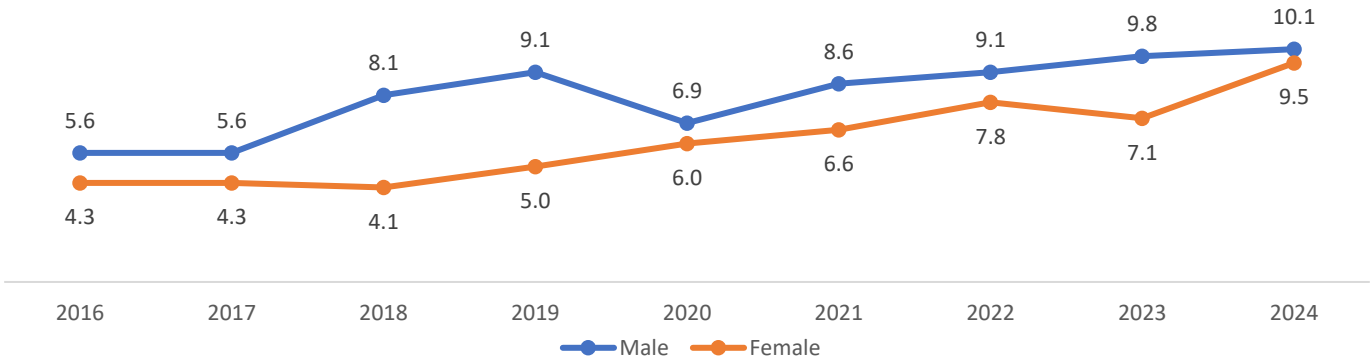


Figure 1 shows the prevalence of e-cigarette use among Michigan adults from 2016 – 2024. E-cigarette use among Michigan adults shows a gradual upward trend for both males and females between 2016 and 2024. Male use has remained consistently higher across the period, increasing from 5.6% in 2016 to 10.1% in 2024. Female use rose from 4.3% to 9.5% over the same period, nearly doubling. Although males continue to report slightly higher prevalence, the gender gap has narrowed considerably, particularly after 2020, when female use steadily increased. By 2024, male and female use were nearly equivalent, indicating a convergence in vaping behaviors across genders.

Figure 2. 2016-2024 Prevalence of E-Cigarette Use among Michigan Adults Aged 18-24

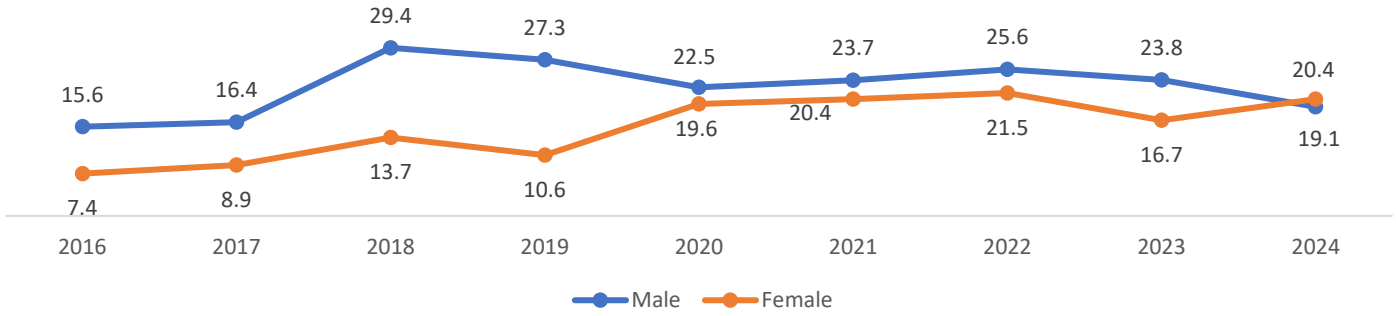
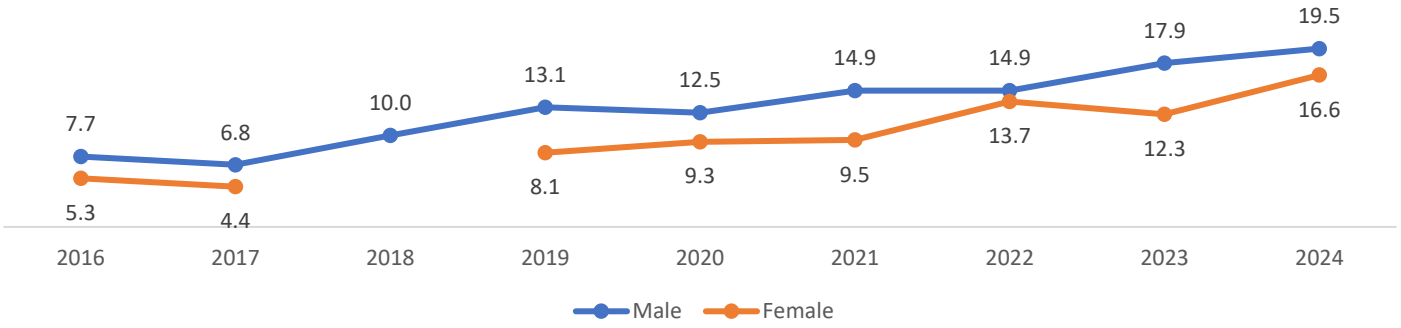


Figure 2 shows the prevalence of e-cigarette use among Michigan adults aged 18-24 from 2016-2024. It indicates notable shifts in e-cigarette use among Michigan adults, with changing patterns between males and females over time. Male use was substantially higher in the earlier years, peaking at 29.4% in 2018 before gradually declining to 19.1% in 2024. In contrast, female use increased steadily across the period, rising from 7.4% in 2016 to 20.4% in 2024. The gender gap, which was widest in 2018 and 2019, narrowed significantly beginning in 2020 and ultimately reversed in 2024, when females reported slightly higher use than males. These patterns suggest that while e-cigarette use among males has moderated from earlier peaks, uptake among females has grown more consistently, contributing to the closing - and eventual reversal - of the gender disparity in recent years.

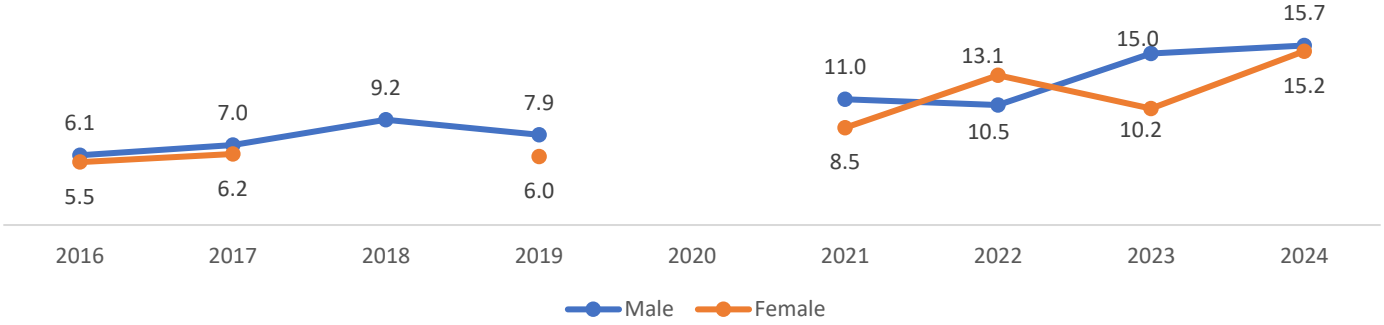
Figure 3. 2016-2024 Prevalence of E-Cigarette Use among Michigan Adults Aged 25-34



* The data was suppressed for 2018 among female adults due to small sample size.

Figure 3 shows the prevalence of e-cigarette use among Michigan adults aged 25-34 from 2016-2024. E-cigarette use among Michigan adults increased for both males and females between 2016 and 2024, with males consistently reporting higher prevalence. Male use rose from 7.7% in 2016 to 19.5% in 2024, with the most substantial growth occurring after 2018. Female use also increased steadily, rising from 5.3% to 16.6% over the same period and showing particularly strong gains after 2020. Although males maintained higher use throughout the timeframe, the gap between male and female prevalence narrowed considerably. These patterns suggest a long-term upward trend for both groups and increasing convergence in e-cigarette use by sex.

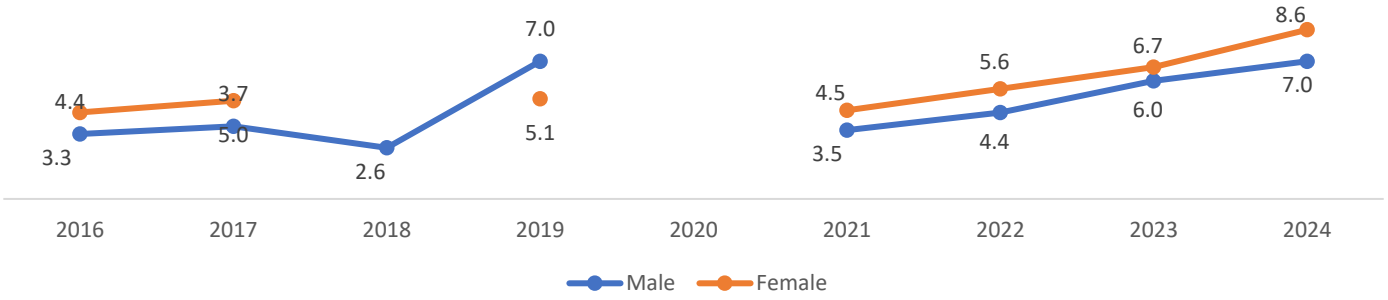
Figure 4. 2016-2024 Prevalence of E-Cigarette Use among Michigan Adults Aged 35-44



* The data was suppressed for 2018 and 2020 due to small sample size.

Figure 4 shows the prevalence of e-cigarette use among Michigan adults aged 35-44 from 2016-2024. E-cigarette use among Michigan adults increased for both males and females between 2016 and 2024, despite some missing data points. Male use rose from 6.1% in 2016 to 15.7% in 2024, while female use increased from 5.5% to 15.2% over the same period. Although males generally reported higher prevalence, female use accelerated beginning in 2021, narrowing the gap substantially. By 2024, male and female rates were nearly identical, indicating a convergence in e-cigarette use patterns across sexes.

Figure 5. 2016-2024 Prevalence of E-Cigarette Use among Michigan Adults Aged 45-54



* The data was suppressed for 2018 and 2020 due to small sample size.

Figure 5 shows the prevalence of e-cigarette use among Michigan adults aged 45-54 from 2016-2024. E-cigarette use among Michigan adults showed a gradual upward trend for both males and females from 2016 to 2024, despite some missing data points. Male use increased from 3.3% in 2016 to 7.0% in 2024, with noticeable rises beginning in 2019 and again after 2022. Female use rose from 4.4% to 8.6% over the same period and remained consistently higher than male use in most years with available data. By 2024, females reported slightly higher prevalence than males (8.6% vs. 7.0%), reflecting a persistent but modest female lead in e-cigarette use and a steady upward trend among both groups.

Figure 6. 2016-2024 Prevalence of E-Cigarette Use among Michigan Adults Aged 55 Years and Older

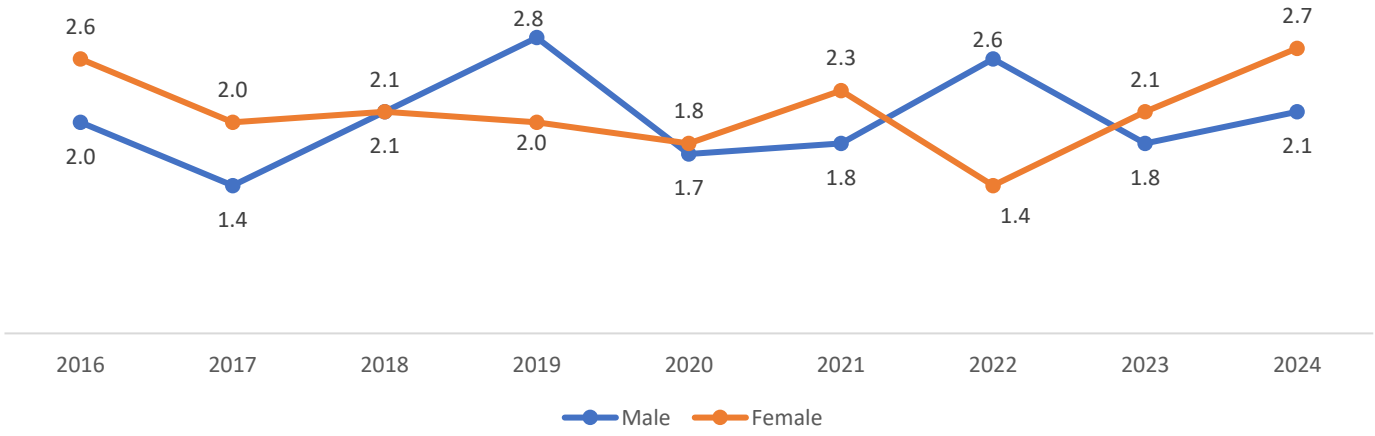


Figure 6 shows the prevalence of e-cigarette use among Michigan adults aged 55 years and older from 2016-2024. E-cigarette use among Michigan adults remained low and relatively stable from 2016 to 2024, with small year-to-year fluctuations for both males and females. Male prevalence ranged from 1.4% to 2.8%, ending at 2.1% in 2024. Female prevalence showed a similar pattern, ranging from 1.4% to 2.7% and reaching 2.7% in 2024. Although female use was slightly higher than male use in most years, the differences remained modest throughout the period. Overall, the data suggest consistently low levels of e-cigarette use in this population, with no clear long-term upward or downward trend.

Discussion

Among Michigan adults, e-cigarette use increased for both males and females from 2016 to 2024, though with some year-to-year fluctuation. Males consistently reported higher use than females across the entire period. Female use rose more sharply in recent years. Among adults aged 18-24, the gender gap narrowed significantly beginning in 2020 and ultimately reversed in 2024, when females reported slightly higher use than males. Among adults aged 45-54, females reported slightly higher prevalence than male from 2016 to 2024, reflecting a persistent but modest female lead in e-cigarette use and a steady upward trend among both groups.

E-Cigarettes use, initially driven by use among adolescents, has expanded substantially among Michigan young adults aged 18–24. In 2024, one in five young adults (20%) reported e-cigarette use, a slight decline from the 2022 peak of 23.7%. This shift appears to be influenced by stress-relief motivations, social factors, and targeted marketing. Research indicates distinct gender and age-related patterns in motivations for use. Young adults report stronger social influence motives than older adults. Men and older adults are more likely to cite harm-reduction reasons, while younger adults - especially young women - endorse fewer cessation motives and more experiential and flavor-related motives. Women also report higher dependence-related motivations than men.[3] Young adult females frequently use e-cigarettes for negative reinforcement, such as stress reduction, anxiety relief, or mood regulation. Social influences, including recommendations from peers or family, contribute significantly to initiation. Higher reported stress and mental health challenges among young adult females may further elevate use. Marketing strategies, including appealing flavors and discreet device designs, also disproportionately target female users.[4] Some adults report using e-cigarettes in attempts to quit smoking; however, no e-cigarette product is currently approved by the FDA for smoking cessation.

References

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What is the Michigan Behavioral Risk Factor Surveillance System (MiBRFSS)?

The MiBRFSS comprises annual statewide telephone surveys of Michigan adults aged 18 years and older and is part of the national BRFSS coordinated by the Centers for Disease Control and Prevention (CDC). The MiBRFSS follows the CDC BRFSS protocol and uses the standardized English core questionnaire that focuses on various health behaviors, medical conditions and preventive health care practices related to the leading causes of mortality, morbidity and disability. Landline and cell phone interviews are conducted across each calendar year. Data are weighed to adjust for the probabilities of selection, and a raking weighting factor is used to adjust for the distribution of the Michigan adult population based on eight demographic variables. All analyses are performed using SAS-callable SUDAAN® to account for the complex sampling design.