Online Figure 1. Trends in lifetime nicotine vaping, cigarette use, and cigarette use/nicotine vaping among 12th graders from 2000-2020

Chart, line chart

Description automatically generated

Online Figure 2. Trends (prevalence [95% confidence intervals]) in past-year simultaneous alcohol and marijuana (SAM) use, alcohol-only, marijuana-only, and non-simultaneous alcohol and marijuana use among 12th graders from 2000-2020, by lifetime cigarette use

Chart, line chart

Description automatically generated

Online Figure 3. Trends (prevalence [95% confidence intervals]) in past-year simultaneous alcohol and marijuana use, alcohol-only, marijuana-only, and non-simultaneous alcohol and marijuana use among 12th graders from 2017-2020, by lifetime vape use

Chart, line chart

Description automatically generated

Online Table 1. Simultaneous alcohol and marijuana (SAM) use, alcohol-only, marijuana-only, and non-simultaneous alcohol and marijuana use among 12th graders from 2000-2020, by lifetime cigarette and/or vaping\* use, (Ns)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | SAM use | Alcohol-only | Marijuana-only | Alcohol and marijuana use but not simultaneously |
| Overall |  |  |  |  |
| 2000-2005 | 3160 | 5100 | 134 | 1410 |
| 2006-2009 | 1974 | 3505 | 101 | 935 |
| 2010-2014 | 2424 | 3511 | 187 | 1284 |
| 2015-2020 | 2028 | 3012 | 359 | 1336 |
|  |  |  |  |  |
| Lifetime cigarette or vaped nicotine use |  |  |  |  |
| 2000-2005 | 2,785 | 2,465 | 94 | 1,110 |
| 2006-2009 | 1,640 | 1,295 | 54 | 653 |
| 2010-2014 | 1,789 | 1,060 | 82 | 747 |
| 2015-2020 | 1,390 | 927 | 134 | 749 |
|  |  |  |  |  |
| No lifetime cigarette or vaped nicotine use |  |  |  |  |
| 2000-2005 | 338 | 2,553 | 35 | 279 |
| 2006-2009 | 285 | 2,134 | 45 | 263 |
| 2010-2014 | 587 | 2,358 | 97 | 513 |
| 2015-2020 | 463 | 1,905 | 178 | 485 |
|  |  |  |  |  |
| Lifetime cigarette use |  |  |  |  |
| 2000-2005 | 2,785 | 2,465 | 94 | 1,110 |
| 2006-2009 | 1,640 | 1,295 | 54 | 653 |
| 2010-2014 | 1,789 | 1,060 | 82 | 747 |
| 2015-2020 | 1,132 | 580 | 94 | 533 |
|  |  |  |  |  |
| No lifetime cigarette use |  |  |  |  |
| 2000-2005 | 338 | 2,553 | 35 | 279 |
| 2006-2009 | 285 | 2,134 | 45 | 263 |
| 2010-2014 | 587 | 2,358 | 97 | 513 |
| 2015-2020 | 849 | 2,357 | 248 | 761 |
|  |  |  |  |  |
| Lifetime vaped nicotine use |  |  |  |  |
| 2017-2018 | 488 | 280 | 36 | 241 |
| 2019-2020 | 342 | 297 | 41 | 221 |
|  |  |  |  |  |
| No lifetime vaped nicotine use |  |  |  |  |
| 2017-2018 | 234 | 810 | 77 | 234 |
| 2019-2020 | 86 | 381 | 55 | 81 |

\* Nicotine vaping assessed from 2017 onward

Online Table 2. Among students with lifetime cigarette use, multinomial logistic regression of past-year simultaneous alcohol and marijuana (SAM) use, alcohol-only, marijuana-only, and non-simultaneous alcohol and marijuana use among 12th graders from 2000-2020

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| Covariate | Past-year SAM  Vs. no use | Past-year alcohol-only  Vs. no use | Past-year marijuana-only  Vs. no use | Past-year alcohol and marijuana use but not simultaneously  Vs. no use |
|  | aOR [95% CI] | aOR [95% CI] | aOR [95% CI] | aOR [95% CI] |
| Survey year (ref=2000-2005) |  |  |  |  |
| 2006-2009 | **1.10 [0.90, 1.35]** | **1.03 [0.84, 1.26]** | **1.33 [0.86, 2.04]** | **1.09 [0.89, 1.35]** |
| 2010-2014 | **1.08 [0.89, 1.32]** | **0.77 [0.63, 0.93]** | **1.83 [1.21, 2.78]** | **1.12 [0.91, 1.37]** |
| 2015-2020 | **0.77 [0.62, 0.96]** | **0.51 [0.41, 0.63]** | **2.33 [1.50, 3.61]** | **0.92 [0.74, 1.16]** |
|  |  |  |  |  |
| Sex (ref=male) |  |  |  |  |
| Female | **0.84 [0.74, 0.96]** | **1.08 [0.94, 1.23]** | **0.95 [0.71, 1.29]** | **1.15 [0.99, 1.34]** |
|  |  |  |  |  |
| Parental education (ref=finished college or more) |  |  |  |  |
| Some high school or lower | **0.55 [0.43, 0.71]** | **0.61 [0.47, 0.78]** | **0.65 [0.37, 1,12]** | **0.57 [0.44, 0.76]** |
| Finished high school or some college | **0.40 [0.32, 0.50]** | **0.76 [0.66, 0.88]** | **0.81 [0.59, 1.11]** | **0.81 [0.70, 0.95]** |
|  |  |  |  |  |
| Race/ethnicity (ref=white) |  |  |  |  |
| Black | **0.40 [0.32, 0.50]** | **0.43 [0.35, 0.53]** | **1.20 [0.78, 1.83]** | **0.59 [0.47, 0.74]** |
| Other | **0.76 [0.63, 0.91]** | **0.84 [0.70, 1.00]** | **1.39 [0.98, 1.97]** | **1.04 [0.86, 1.24]** |

Note: aOR=Adjusted odds ratio. Alcohol-only is defined as past-year alcohol use and no report of past-year marijuana or simultaneous use. Marijuana-only is defined as past-year marijuana use and no report of past-year alcohol or simultaneous use.

Model adjusts for survey year, sex, parental education, race/ethnicity, and also adjusted for survey mode (not shown)

Online Table 3. Among students with no lifetime cigarette use, multinomial logistic regression of past-year simultaneous alcohol and marijuana (SAM) use, alcohol-only, marijuana-only, and non-simultaneous alcohol and marijuana use among 12th graders from 2000-2020

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| Covariate | Past-year SAM  Vs. no use | Past-year alcohol-only  Vs. no use | Past-year marijuana-only  Vs. no use | Past-year alcohol and marijuana use but not simultaneously  Vs. no use |
|  | aOR [95% CI] | aOR [95% CI] | aOR [95% CI] | aOR [95% CI] |
| Survey year (ref=2000-2005) |  |  |  |  |
| 2006-2009 | **1.08 [0.86, 1.35]** | **1.08 [0.95, 1.24]** | **1.62 [0.97, 2.70]** | **1.23 [0.98, 1.55]** |
| 2010-2014 | **1.54 [1.28, 1.87]** | **0.88 [0.79, 0.98]** | **2.80 [1.80, 4.35]** | **1.63 [1.32, 2.01]** |
| 2015-2020 | **1.80 [1.49, 2.17]** | **0.74 [0.67, 0.83]** | **6.79 [4.55, 10.15]** | **2.11 [1.74, 2.56]** |
|  |  |  |  |  |
| Sex (ref=male) |  |  |  |  |
| Female | **0.91 [0.81, 1.03]** | **1.19 [1.11, 1.28]** | **0.77 [0.61, 0.99]** | **1.04 [0.92, 1.17]** |
|  |  |  |  |  |
| Parental education (ref=finished college or more) |  |  |  |  |
| Some high school or lower | **0.73 [0.57, 0.94]** | **0.96 [0.83, 1.10]** | **1.14 [0.71, 1.84]** | **1.03 [0.80, 1.31]** |
| Finished high school or some college | **1.04 [0.92, 1.18]** | **1.04 [0.96, 1.12]** | **1.27 [0.97, 1.65]** | **1.12 [0.98, 1.28]** |
|  |  |  |  |  |
| Race/ethnicity (ref=white) |  |  |  |  |
| Black | **0.91 [0.75, 1.10]** | **0.73 [0.65, 0.82]** | **3.17 [2.22, 4.52]** | **1.25 [1.05, 1.50]** |
| Other | **0.83 [0.71, 0.96]** | **0.91 [0.83, 0.99]** | **1.96 [1.43, 2.70]** | **0.96 [0.83, 1.12]** |

Note: aOR=Adjusted odds ratio. Alcohol-only is defined as past-year alcohol use and no report of past-year marijuana or simultaneous use. Marijuana-only is defined as past-year marijuana use and no report of past-year alcohol or simultaneous use.

Model adjusts for survey year, sex, parental education, race/ethnicity, and also adjusted for survey mode (not shown)

Online Table 4. Among students with lifetime vaped nicotine use, multinomial logistic regression of past-year simultaneous alcohol and marijuana (SAM) use, alcohol-only, marijuana-only, and non-simultaneous alcohol and marijuana use among 12th graders from 2017-2020

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| Covariate | Past-year SAM  Vs. no use | Past-year alcohol-only  Vs. no use | Past-year marijuana-only  Vs. no use | Past-year alcohol and marijuana use but not simultaneously  Vs. no use |
|  | aOR [95% CI] | aOR [95% CI] | aOR [95% CI] | aOR [95% CI] |
| Survey year (ref=2017-2018) |  |  |  |  |
| 2019-2020 | **0.76 [0.45, 1.30]** | **1.20 [0.70, 2.07]** | **1.16 [0.47, 2.85]** | **0.98 [0.59, 1.65]** |
|  |  |  |  |  |
| Sex (ref=male) |  |  |  |  |
| Female | **0.97 [0.64, 1.46]** | **1.13 [0.73, 1.76]** | **1.23 [0.61, 2.50]** | **1.19 [0.77, 1.85]** |
|  |  |  |  |  |
| Parental education (ref=finished college or more) |  |  |  |  |
| Some high school or lower | **1.10 [0.52, 2.33]** | **0.92 [0.40, 2.12]** | **1.44 [0.40, 5.24]** | **1.03 [0.46, 2.33]** |
| Finished high school or some college | **0.99 [0.65, 1.51]** | **0.90 [0.58, 1.39]** | **1.22 [0.56, 2.63]** | **1.10 [0.71, 1.70]** |
|  |  |  |  |  |
| Race/ethnicity (ref=white) |  |  |  |  |
| Black | **0.81 [0.30, 2.21]** | **0.41 [0.16, 1.06]** | **2.27 [0.57, 9.03]** | **1.45 [0.52, 4.03]** |
| Other | **0.71 [0.44, 1.15]** | **0.62 [0.53, 2.15]** | **1.95 [0.90, 4.24]** | **1.16 [0.72, 1.86]** |

Note: aOR=Adjusted odds ratio. Alcohol-only is defined as past-year alcohol use and no report of past-year marijuana or simultaneous use. Marijuana-only is defined as past-year marijuana use and no report of past-year alcohol or simultaneous use.

Model adjusts for survey year, sex, parental education, race/ethnicity, and also adjusted for survey mode (not shown)

Online Table 5. Among students with no lifetime vaped nicotine use, multinomial logistic regression of past-year simultaneous alcohol and marijuana (SAM) use, alcohol-only, marijuana-only, and non-simultaneous alcohol and marijuana ause mong 12th graders from 2017-2020

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| Covariate | Past-year SAM  Vs. no use | Past-year alcohol-only  Vs. no use | Past-year marijuana-only  Vs. no use | Past-year alcohol and marijuana use but not simultaneously  Vs. no use |
|  | aOR [95% CI] | aOR [95% CI] | aOR [95% CI] | aOR [95% CI] |
| Survey year (ref=2017-2018) |  |  |  |  |
| 2019-2020 | **0.60 [0.39, 0.94]** | **0.76 [0.60, 0.96]** | **1.33 [0.77, 2.28]** | **0.70 [0.44, 1.12]** |
|  |  |  |  |  |
| Sex (ref=male) |  |  |  |  |
| Female | **1.07 [0.80, 1.43]** | **1.27 [1.08, 1.49]** | **0.94 [0.62, 1.86]** | **1.57 [1.15, 2.15]** |
|  |  |  |  |  |
| Parental education (ref=finished college or more) |  |  |  |  |
| Some high school or lower | **1.19 [0.73, 1.95]** | **0.90 [0.63, 1.30]** | **1.22 [0.60, 2.50]** | **1.65 [1.00, 2.74]** |
| Finished high school or some college | **1.03 [0.75, 1.42]** | **1.02 [0.83, 1.26]** | **1.66 [1.01, 2.74]** | **1.42 [0.98, 2.05]** |
|  |  |  |  |  |
| Race/ethnicity (ref=white) |  |  |  |  |
| Black | **1.39 [0.93, 2.09]** | **0.57 [0.41, 0.79]** | **3.06 [1.65, 5.66]** | **1.44 [0.93, 2.22]** |
| Other | **1.04 [0.72, 1.95]** | **0.87 [0.70, 1.07]** | **2.18 [1.30, 3.68]** | **1.32 [0.91, 1.92]** |

Note: aOR=Adjusted odds ratio. Alcohol-only is defined as past-year alcohol use and no report of past-year marijuana or simultaneous use. Marijuana-only is defined as past-year marijuana use and no report of past-year alcohol or simultaneous use.

Model adjusts for survey year, sex, parental education, race/ethnicity, and also adjusted for survey mode (not shown)