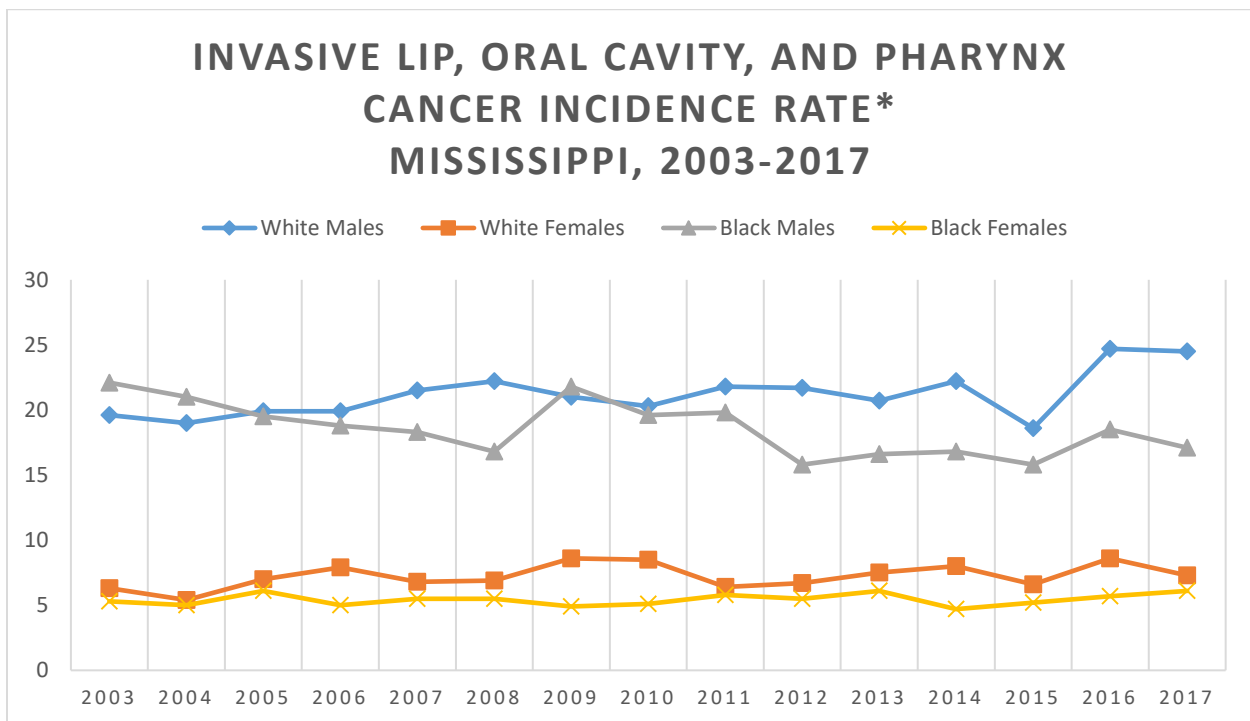


Alcohol-Related Cancers in Mississippi, 2003-2017

Excess alcohol consumption is a modifiable risk factor that increases the risk of developing certain cancers. According to data from the Behavioral Risk Factor Surveillance System for 2018, 4.6% of Mississippi adults reported heavy drinking (men having more than 14 drinks per week and women having more than seven drinks per week). Mississippi has the fifth lowest rate of heavy drinking.¹ Excessive alcohol use is associated with cancers of the lip, oral cavity, pharynx, colon and rectum, breast in females, esophagus, liver, and larynx. Below are graphs of the trends in alcohol-related cancers over the period 2003 to 2017 by race and sex with a description of the trends occurring in each group and a comparison of rates between groups for the most recent time period of 2013 to 2017. All analysis was done using SEER*Stat software².

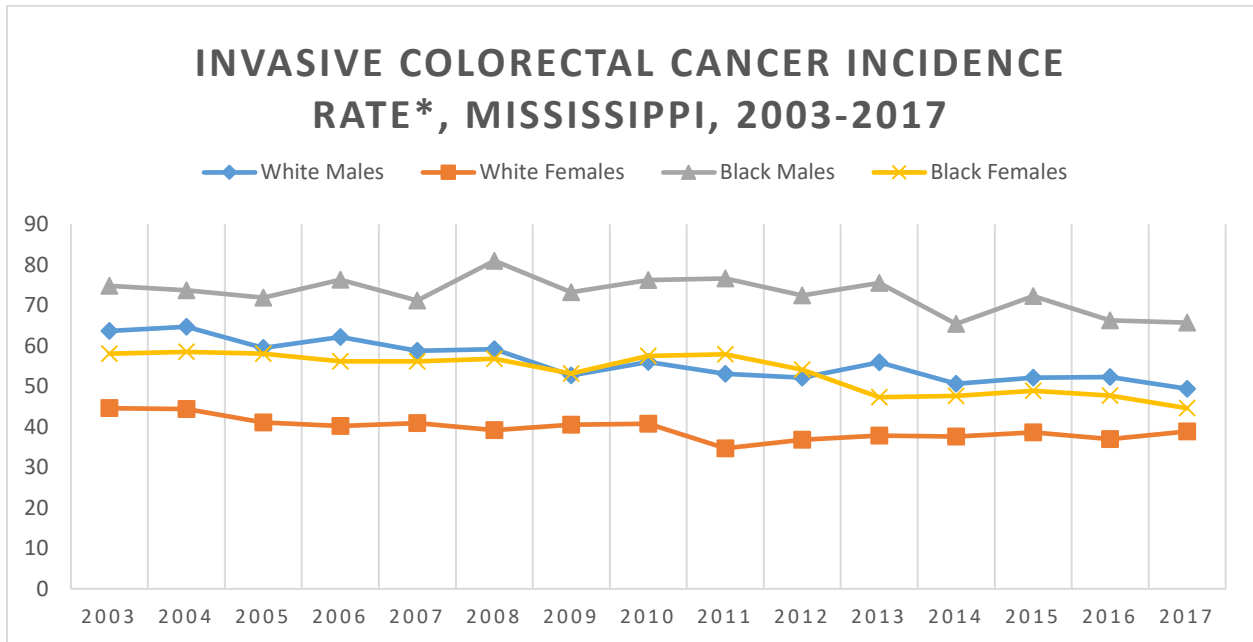


*Rates age-adjusted to the 2000 U.S. standard million population

Males had significantly higher rates of lip, oral cavity, and pharynx cancers than females. Over the period from 2003 to 2017, only black males and white males experienced a significant change in incidence rates. The rate for black males decreased annually by 1.59%, and the rate for white males increased 1.20%. White females saw an annual increase of 1.13%, and black females saw an increase of 0.53%.

For the latest five-year time period of 2013 to 2017, white males and white females had a similar trend to that of the overall time period of 2003 to 2017. Though not statistically significant, the rate for white males was increasing at a rate of 4.74% annually, and the rate for white females was increasing at a rate of 0.53% annually. Black females also had a similar trend for the time 2013 to 2017 as they had for the full time period of 2003 to 2017. Their annual

increase observed for the latest five years was 1.51%. Black males, however, showed a significant decrease for the overall time period but had an observed increase for the latest five year period of 1.67% annually.

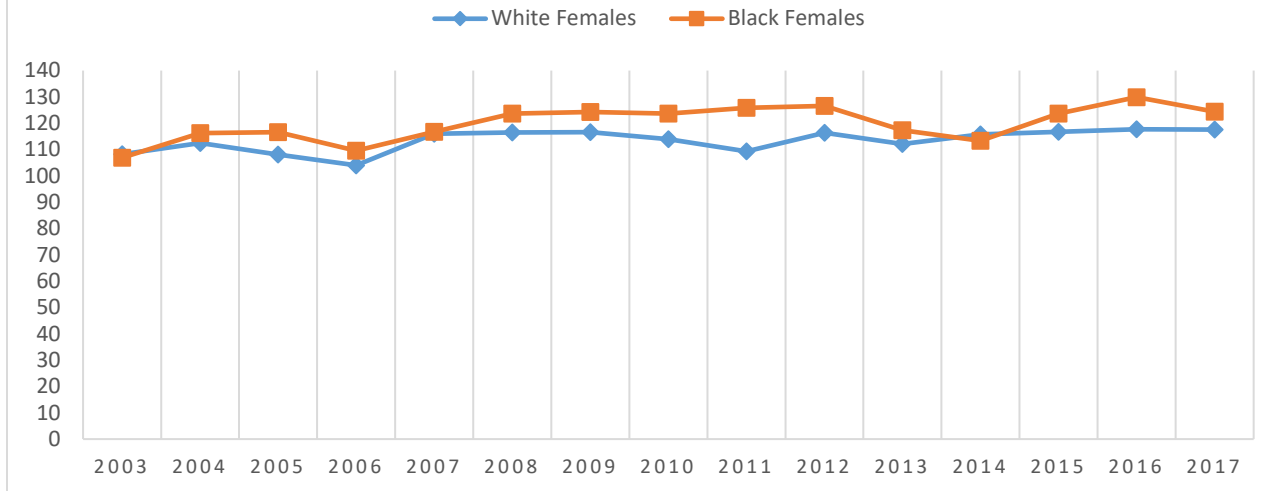


*Rates age-adjusted to the 2000 U.S. standard million population

Colorectal cancer rates decreased in all of the race/sex groups between 2003 and 2017. Black females and white males experienced the highest levels of annual decrease in colorectal cancer at significant rates of 1.80% and 1.76%, respectively. Black males had significantly higher rates of colorectal cancer incidence compared to all other groups and experienced the smallest change over time with a significant decrease of 0.8% annually. Conversely, white females had lower rates of colorectal cancer than any other group except for black females in 2017, and experienced a significant annual decrease of 1.13%.

For the latest five-year period of 2013 to 2017, white males, black males, and black females had similar observed trends to those for the full time period from 2003 to 2017. For white males, the trend for the last five year period was a decrease of 2.18% annually. For black males, the most recent trend observed was a decrease of 2.68% annually, and for black females the observed trend for the most recent five years was a 1.14% decrease annually. Though white females had a significant decrease annually for the full time period from 2003 to 2017, the trend for the most recent five years was an observed 0.44% annual increase.

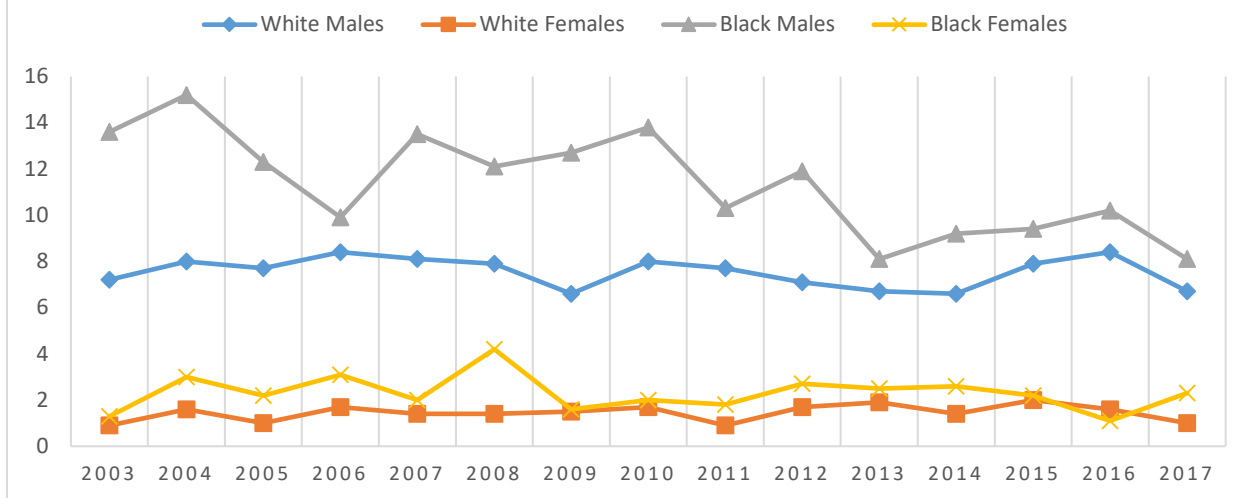
INVASIVE FEMALE BREAST CANCER INCIDENCE RATE* MISSISSIPPI, 2003-2017



*Rates age-adjusted to the 2000 U.S. standard million population

The rates of female breast cancer were similar between white and black females. Both white and black females had a statistically significant annual increase between 2003 and 2017. The annual percent increase over that period for white females was 0.53%, and the annual percent increase for black females was 0.76%. For the most recent five-year period between 2013 and 2017, white females had a significant increase in invasive breast cancer of 1.12% annually. Black females also saw an increase of 2.54% annually, though this was not a statistically significant trend.

INVASIVE ESOPHAGEAL CANCER INCIDENCE RATE*, MISSISSIPPI, 2003-2017

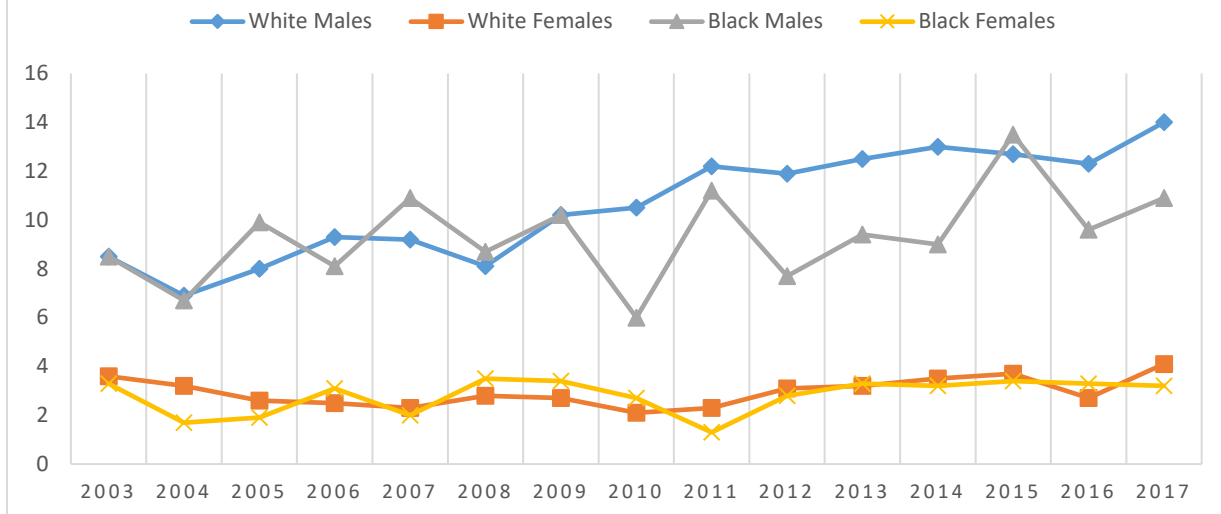


*Rates age-adjusted to the 2000 U.S. standard million population

Males had significantly higher rates of esophageal cancer than females. The rates were similar by race for each sex group. The annual percent change over the period from 2003 to 2017 for white males, white females, and black females was not statistically significant. For white males, the annual percent decrease was 0.51% and for black females was 1.70%. White females had an annual increase of 1.58%. Black males had a statistically significant annual decrease of 2.99%.

For the latest five-year time period of 2013 to 2017, only black females had a similar trend to what was observed for the full time period of 2003 to 2017. Their trend for 2013 to 2017 was an annual decrease of 7.01% which was not statistically significant. For all other race/sex groups, the trend for the most recent time period was opposite of the full time period from 2003 to 2017, though none of the trends for 2013 to 2017 were statistically significant. White males had an increasing trend for 2013 to 2017 of 2.70% annually, and white females had a decreasing trend of 7.94% annually. For black males, the trend was an annual increase of 1.23%.

INVASIVE LIVER CANCER INCIDENCE RATE* MISSISSIPPI, 2003-2017

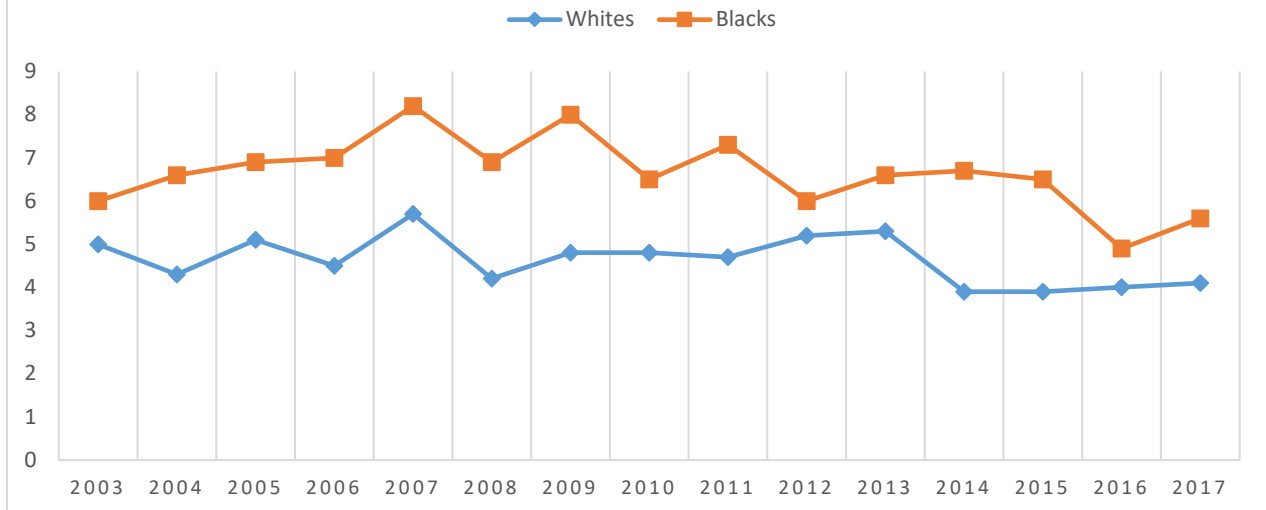


*Rates age-adjusted to the 2000 U.S. standard million population

Like many of the other tobacco-related cancers, males had significantly higher rates of liver cancer than females. The rates were similar between the races for each sex group. All groups saw a statistically significant increasing trend. The annual percent change for white males was 4.37%. The annual percent increase for black males was 2.02% and for black females was 2.01%. The rate for white females showed an annual decrease of 10.54% from 2003 to 2007, but then showed a significant increasing trend from 2007-2017 with an annual increase of 5.36%.

For the latest five-year period of 2013 to 2017, white males, white females, and black males had similar observed trends to those for the full time period from 2003 to 2017. For white males, the trend for the last five year period was an increase of 2.17% annually. For white females, the most recent trend observed was an increase of 3.45% annually, and for black males the observed trend for the most recent five years was a 3.46% increase annually. Though black females had a significant increase annually for the full time period from 2003 to 2017, the trend for the most recent five years was an observed 0.37% annual decrease.

INVASIVE LARYNX CANCER INCIDENCE RATE* MISSISSIPPI, 2003-2017



*Rates age-adjusted to the 2000 U.S. standard million population

Laryngeal cancer is a relatively rare cancer. Thus, the rates could not be broken down by both race and sex. This graph only displays the rates by race. Over the period from 2003 to 2017, the observed annual decrease for the white population was 1.37%, though this change was not statistically significant. For the black population, the annual percent change from 2003 to 2007 was an increase of 6.87%. Conversely, for the period from 2007 to 2017, the black population saw a significant annual decrease of 3.35%. For the latest five-year time period of 2013 to 2017, both the white and black populations saw decreasing trends. These trends were not statistically significant. For the white population, the trend was an annual decrease of 5.04%, and for the black population, the trend was an annual decrease of 5.87%.

Definitions

Age Adjusting: A statistical method that allows comparisons of populations that take into account age-distribution differences between the populations. The 2000 U.S. standard population is used and applied to all of the time periods being considered. This assures that the rates do not reflect differences in the age distribution of the population.

Annual Percent Change (APC): The average annual percent change over several years. It is used to measure the change in rates over time. Calculating the APC involves fitting a straight line to the natural logarithm of the data when it is displayed by calendar year.

Statistical Significance: This is a mathematical measure of the difference between groups. A difference is said to be statistically significant if it is greater than what might be expected to happen by chance alone 95% of the time. Rate ratios were used to assess the statistical significance between groups.

Citations

¹Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online]. 2015. [accessed Jun 5, 2020]. URL: <https://www.cdc.gov/brfss/brfssprevalence/>.

²Surveillance Research Program, National Cancer Institute SEER*Stat software (seer.cancer.gov/seerstat) version 8.3.6.

Acknowledgement

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