Impact of Alcohol Outlet Density in Minnesota

Background

High alcohol outlet density is a risk factor for excessive alcohol use, which includes binge drinking, heavy drinking, and any drinking by pregnant women or people younger than age 21.[1,2]

Excessive drinking can lead to both short- and long-term harms including injuries such as motor vehicle crashes or drowning; violence including homicide, suicide, and intimate partner violence; alcohol poisoning; several types of cancer; and chronic disease such as heart disease, liver disease, digestive problems, and alcohol use disorder.[1,2]

In 2019, excessive alcohol consumption cost Minnesota $7.85 billion from factors such as alcohol-related hospitalizations, treatment for alcohol use disorder, reduced productivity, and other costs such as traffic crashes and criminal justice-related expenses.[3]

Impact of alcohol outlet density

Regulating alcohol outlet density is an effective strategy to address excessive alcohol use. This involves regulating, or planning, the number and location of alcohol outlets within an area (i.e. neighborhood, downtown district, or university) to reduce alcohol-related harms and create safer communities.[4]

Alcohol outlet density refers to the number of alcohol outlets in a defined area or based on a certain population size. For context, an alcohol outlet is a licensed establishment that sells alcoholic beverages such as bars, restaurants, and liquor stores. There are two types of alcohol outlets: on-premises, which sell alcohol for consumption on-site; and off-premises, which sell alcohol for consumption elsewhere.[5]

High alcohol outlet density refers to having a high concentration of alcohol outlets. High alcohol outlet density is associated with higher levels of alcohol use and alcohol-related harms including violence, crime, and injuries in communities.[6]

Measurement methods

The Centers for Disease Control and Prevention's Measuring Alcohol Outlet Density: A toolkit for State and Local Surveillance (https://stacks.cdc.gov/view/cdc/150909) lists four indicators of alcohol outlet density. The four indicators include (1) Alcohol outlets per land square mile; (2) Alcohol outlets per 10,000 residents; (3) Average distance from person to nearest alcohol outlet; and (4) Average distance from alcohol outlet to its nearest outlet. Each of the four indicators captures different aspects of alcohol outlet density and are further defined below.[7]

This report assesses outlet density in these various ways based on alcohol outlet information from licensing data in Minnesota and population data from the US Census (https://www.census.gov/).

Alcohol outlets per land square mile

This indicator provides a rate of alcohol outlets by the size of a geographic area. In contrast to the population-based indicator, this indicator is not affected by population and is useful for looking at the change in outlet density over time in a specific area (i.e. county or census tract).[7]

Alcohol outlets per 10,000 residents

This indicator provides a rate of alcohol outlets by population. It is affected by changes in population, meaning if the population of a community increases over time while the number of outlets remains the same, this rate would decrease.[7]

Average distance from person to nearest alcohol outlet

This indicator provides the average distance between a person living in a geographic region (i.e. block groups or counties) and the nearest alcohol outlet, or establishment in which alcohol can be purchased. This indicator is not affected by population changes and can be stratified by demographics to capture differences, for example, in the average distance to retail outlets by race/ethnicity.[7]

Average distance from alcohol outlet to nearest outlet

This indicator provides an average distance from an alcohol outlet to its nearest neighboring alcohol outlet within a geographic area. It is able to capture clustering, or areas in which there are many alcohol outlets in a small area such as near a university or downtown area.[5,7]

Findings

Statewide

The total number of alcohol outlets included in the 2023 analysis was 20,844. This includes both on-sale and off-sale alcohol retail outlets, such as bars, restaurants, liquor stores, and breweries among other types of establishments that sell alcoholic beverages. This is a 17.8% increase in the number of alcohol outlets from 2020.

County-level

In 2023, Hennepin County had the highest total number of alcohol outlets (4,205 outlets), while Red Lake County had the lowest total number of alcohol outlets (20 outlets). The statewide map can be seen in Figure 1.

There is a higher number of alcohol outlets throughout the Metro and Northeast area of Minnesota.

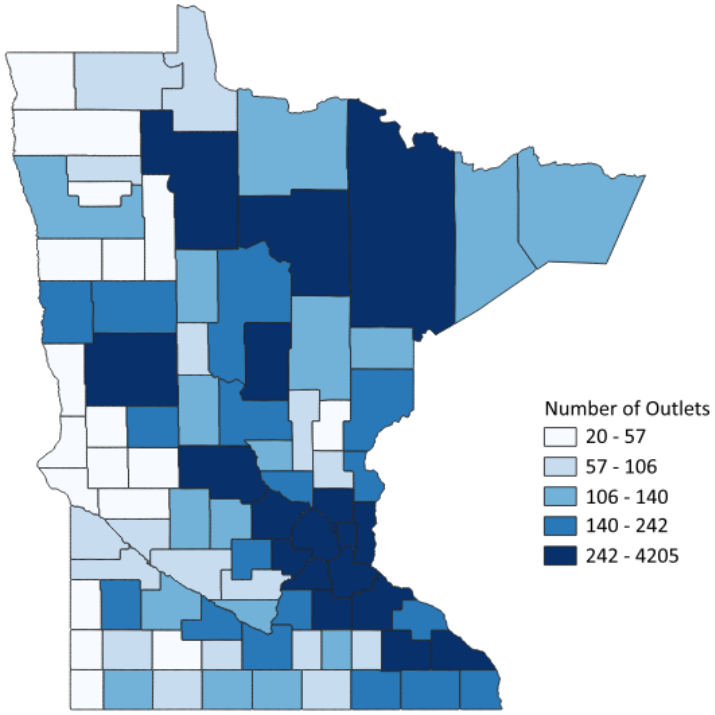

Figure 1: Number of Alcohol Outlets per County in 2023. Darker colors indicate a higher number of alcohol outlets in that county, while lighter colors indicate a lower number of alcohol outlets in that county.

Adjusting for population, Hennepin County had 33.1 outlets per 10,000 residents, being one of the highest populated counties in Minnesota, while Red Lake County had 51.1 outlets per 10,000 residents, being one of the lowest populated counties in Minnesota. This demonstrates that while Hennepin County has a higher total number of alcohol outlets, the residents of Red Lake County are more exposed to alcohol outlets because there is a higher number of outlets per person.

In 2023, Cook County had the highest rate of alcohol outlet density (215.7 outlets per 10,000 residents), while Anoka County had the lowest rate (16.9 outlets per 10,000 residents).

Across all counties in Minnesota, the average outlet count per 10,000 residents was 55.9 in 2023. This is a 10% increase in the number of alcohol outlets per 10,000 residents compared to 2021, in which the average was 50.9 outlets per 10,000 residents.

Adjusting for differences in population, the Northern and Southern regions of the state had higher numbers of alcohol outlets compared to the metro region.

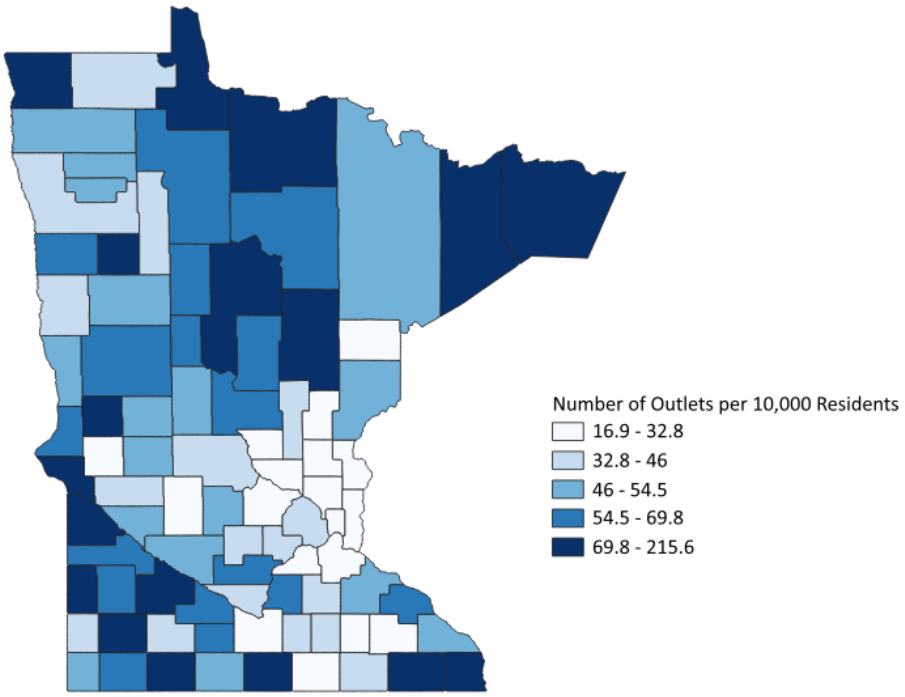

Figure 2: Number of alcohol outlets per 10,000 residents by county in Minnesota. Darker colors indicate a higher alcohol outlet density per 10,000 residents whereas lighter colors indicate a lower alcohol outlet density per 10,000 residents.

When measuring alcohol outlet density by land square mile, large, rural counties with relatively low number of alcohol outlets will generally have a lower alcohol outlet density while small, urban counties with a high number of alcohol outlets will have a higher alcohol outlet density. Urban counties such as Ramsey County and Hennepin County had 11.7 and 7.6 alcohol outlets per land square mile, respectively, whereas St. Louis County, which is one the largest county in Minnesota, had 0.2 alcohol outlets per land square mile in 2023.

By measuring the average distance from an alcohol outlet to its nearest neighboring outlet, we can identify areas where many alcohol outlets are closely located. This may be common in urban area with universities, stadiums, or other tourist attractions.[5] These findings are demonstrated in Figure 3.

In 2023, Ramsey County, which includes a downtown area and several stadiums, had an average of 0.05 miles between alcohol outlets. Similarly, Hennepin County, which also includes a downtown area and several stadiums, also had an average of 0.05 miles between alcohol outlets. Conversely, Swift and Clearwater County had the highest average distance between alcohol outlets, 1.38 and 1.35 miles, respectively. Both are rural counties.

Alcohol outlets are more closely located in Metro counties and less in rural or suburban counties throughout Minnesota.

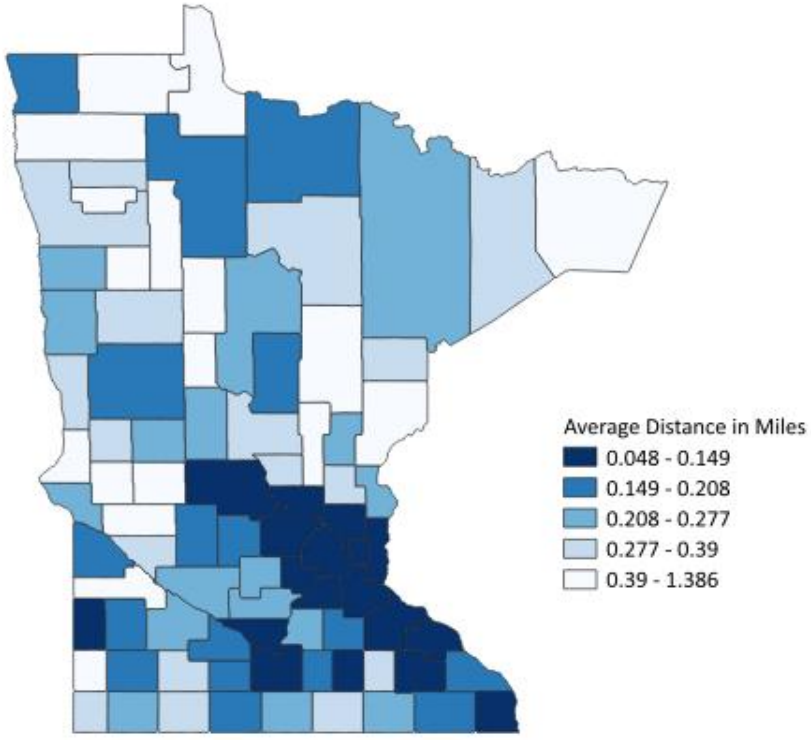

Figure 3: The average distance between alcohol outlets in miles by county in Minnesota. Darker colors indicate a shorter distance between alcohol outlets, meaning a higher density, whereas lighter colors indicate a greater distance between alcohol outlets, meaning a lower density.

Census tract-level

Measuring alcohol outlet density at the census-tract level can provide more information that cannot be seen at the county-level. For example, the city of St. Paul (within Ramsey County) contains a downtown area with several stadiums, but it also includes neighborhoods where people may live or go to school. The difference in alcohol outlet density within a city such as St. Paul can be seen in Figure 4 with the darker shades indicating a higher density of alcohol outlets.

Within the city of St. Paul, alcohol outlet density increases around the downtown area but decreases in surrounding areas and neighborhoods.

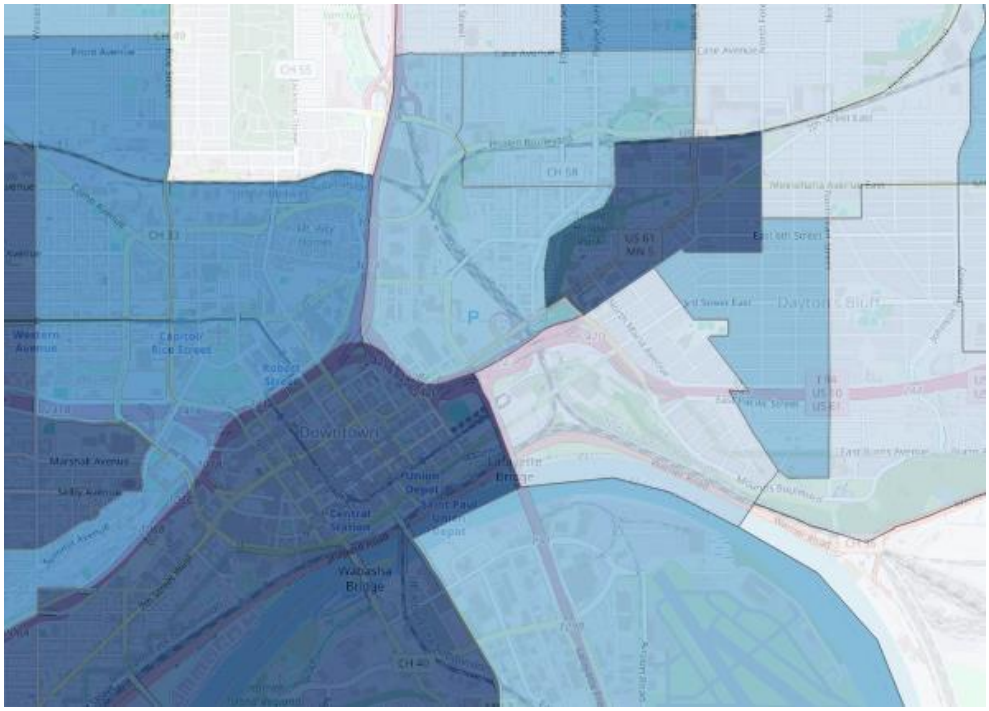

Figure 4: The number of alcohol outlets per land square mile by census-tract within the City of St. Paul. Darker colors indicate a higher number of alcohol outlets per land square mile, whereas lighter colors indicate a lower number of alcohol outlets per land square mile. This mapped is zoomed in to the downtown St. Paul area to show differences in alcohol outlet density within a small area.

Within the city of Minneapolis, the highest total number of alcohol outlets per census tract was 163 outlets, whereas the lowest total number was zero in 2023, and the average number of alcohol outlets per census tract was 13.2 outlets. Within the city of St. Paul in 2023, the highest total number of alcohol outlets per census tract was 173 outlets, whereas the lowest total number was also zero. The average number of alcohol outlets per census tract was 10.8 outlets. The changes in alcohol outlet density within cities such as Minneapolis and St. Paul can be seen in Figure 5.

There is a higher density of alcohol outlets within and surrounding the downtown and university areas of St. Paul and Minneapolis.

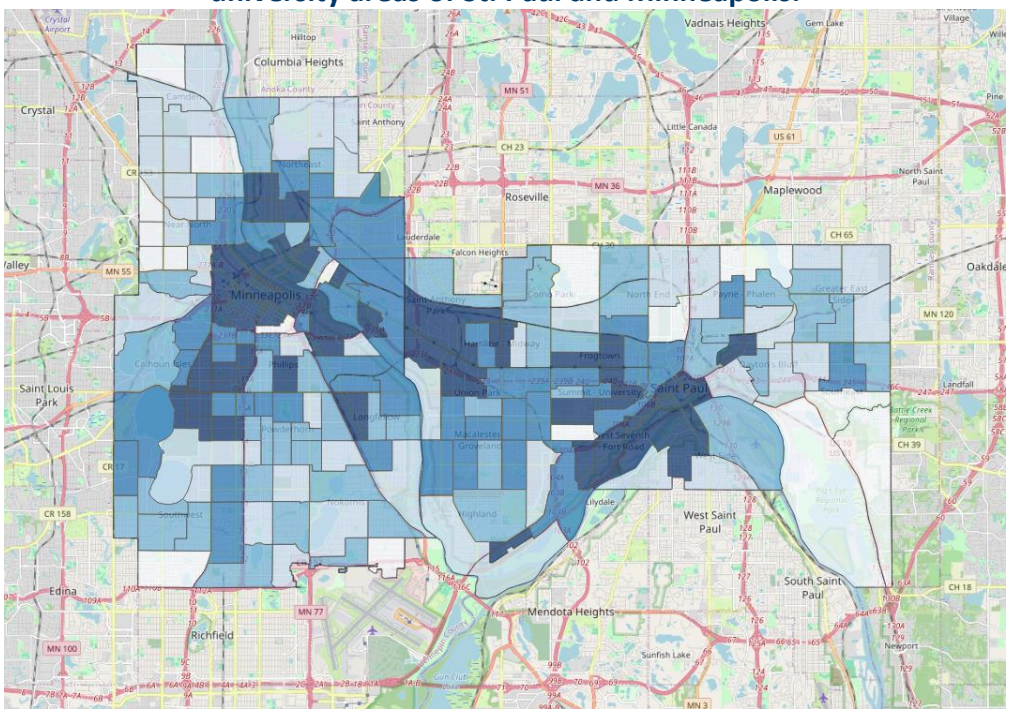

Figure 5: The number of alcohol outlets per land square mile by census-tract within the City of Minneapolis (left) and St. Paul (right). Darker colors indicate a higher number of alcohol outlets per land square mile, whereas lighter colors indicate a lower number of alcohol outlets per land square mile. This map demonstrates the difference in alcohol outlet density at the census-tract level within two urban areas in Minnesota.

Considerations

Alcohol outlet density data can be measured in areas like counties or block groups and by demographics to capture inequities regarding the distribution of alcohol outlets in specific communities. For example, alcohol outlet locations are driven by licensing, zoning, and development practices, which may be influenced by historical and structural factors.[7]

The four indicators discussed capture different measurements of alcohol outlet density, such as per geographic area (i.e. county) or population based, and each has its own strengths and limitations.[5] For example, rural counties will most likely have a smaller rate of alcohol outlets per land square than urban counties; this indicator would not be the most effective method to compare St. Louis and Ramsey County whereas alcohol outlets per 10,000 residents could be a more effective approach in this comparison. The number of alcohol outlets per 10,000 residents would be a more effective approach as it adjusts for the variance in population when comparing rural and urban counties. This demonstrates the importance of calculating more than one measurement of alcohol outlet density.[5,6]

Finally, there is no universal definition for high alcohol outlet density and low alcohol outlet density. Instead, we can calculate measurements by specific areas (i.e. counties, census tracts, etc.) and compare across a larger space (i.e. state) to identify areas of interest, or high concentrations of alcohol outlets.[5,6]

Implications for prevention

High alcohol outlet density is an environmental risk factor for excessive alcohol use.[5] With that, regulating alcohol outlet density is one of the most effective strategies for reducing excessive alcohol use and related harms.[5,6]

By assessing alcohol outlet density in communities, this information can then be used by state and local officials in determining the number of new alcohol licenses, or renewals, and by health departments when evaluating the impact of alcohol outlets on communities and to guide the development of evidence-based strategies to prevent excessive alcohol use and related harms.[5,6]

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