Vermont Alcohol & Tobacco Retailer Location Assessment

Vermont Department of Health Investigation into High School Substance Use by County

Background

For the past 15 years, Vermont has ranked among the five healthiest states in the country while considering 33 key health indicators. In the most recent 2020-2021 report, the state ranked 18th overall in the nation, up from 19th in the 2017-2018 report. The Vermont Health Department conducted an assessment of alcohol and tobacco retailers in Vermont.

Methodology

The primary data source of this project was the assessment of alcohol and tobacco retailers performed by the VDH from late 2017 to early 2018. These data were collected by VDH employees and each retail outlet was visited in person. The data collection involved entering the type of retailer, the products they stock, and their location. The GIS data collected by the VDH included the type of retailer, retailers' name, inventory, location, and phone number. The VDH datafile provided by the VDH was also a record of all alcohol and tobacco retailers in VT from the same period. This method also ensured that the retailers were accurately identified by the VDH and also recorded all alcohol and tobacco retailers in VT from the same period. This included latitude and longitude coordinates for each retailer, and also store demographic quality for adult beverages. Retailers' store demographic data included such variables as the retailer's location, population density, and county. This information was collected from the VDH files.

These data were added in a general Vermont state map utilizing the NAD North America 1983 geographic coordinate system and the NAD 1983 State Plane Vermont NAD 1983 projected coordinate system. County level 2019 and population data were joined to the county shapefile and visualizations were plotted in the ArcGIS "Vermont Alcohol & Tobacco Retailer Assessment" for each county for the purpose of understanding the distribution of alcohol and tobacco retailers in the state. The analysis was the Vermont Center for Geographic Information (VCIG), which provided additional GIS variables including school locations, roads, and county boundaries. All data was used to visualize the high population areas. Many of the variables included in the VDH files were used to generate the high population areas.

Results

Based on VDH supplied information, there were 1085 active tobacco and alcohol retailers operating in VT in 2017 to early 2018. The bulk of these retailers were made up of convenience stores or grocery stores with a roughly circular property of alcohol and tobacco retailers in the area, but there were several areas of high retailer density present in VT. The largest is in Burlington, Chittenden county, the county with the highest population. Other high-density areas include Montpelier, the state capital located in Washington county and Orleans County.

Discussion

These findings suggest that measures other than general alcohol and tobacco retailer density might affect high school substance use rates. When evaluating initial hypotheses established in the literature associating retail density with higher rates, many of the counties such as Chittenden, Washington, and Rutland were expected to have high retailer density. This trend did not necessarily hold true as northern, less populated counties and Bennington/Brandon were near high alcohol and tobacco use counties, despite being in lower population density. Number of retailers per 1,000 population was shown to be a fair better predictor of these rates than general density. Overall, alcohol and tobacco retailers were similar within school tobacco uses that were identified as minors and were not approved to sell cigarettes, especially in cases of a second-class license. There were several limitations encountered throughout this study. As is reflected by the table of retailers, there were not only a number of retailers without a type associated, but also counties using multiple classifications that did not reflect the actual number of alcohol and tobacco retailers.

Future VDH research should consider lower population areas when trying to meet Health Vermonters 2020 goals and targets. For example, students grades 12 who engaged in binge drinking in the past 30 days, smoke cigarettes, and use cigarettes are all targeted by this initiative. The 10% goal for binge drinking, 10% of smoking, and 12% of alcohol use are currently exceeded by the nonfreshman sample in this study. This is being targeted for initiatives such as the to connect with its high-population areas where the largest number of people can be influenced, but this approach can be evolutionary and other negative impacts the health of youth cross for the sake of urban areas. It was recommended that an intervention strategy be implemented for the high school students of Orleans county (the worst performing) since the 2017 VDH report was not approved. This study was conducted during the 2017-2018 school year and targeted Vermont Department of Health Vermont YRBS OpenData VGIS Coordinated System: GCS North America 1983 Projected Coordinated System: NAD_1983_StatePlane_Vermont_FIPS_4400

Cartographer: Michael Wheatman Date: 3/16/2019 | Spring Semester 2019 Class: GIS 203 GIS for Public Health, Professor Tom Stoupka Data Sources: Vermont Department of Health Vermont YRBS OpenData, VGIS