

ARE THERE COMMON CHARACTERISTICS AMONG ALCOHOL RETAIL OUTLETS  
THAT MAKE THEM MORE LIKELY TO COMMONLY PASS ALCOHOL PURCHASE  
SURVEYS AND COMMONLY FAIL ALCOHOL PURCHASE SURVEYS?

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## **Abstract**

Underage consumption of alcohol is a serious public health issue all across the United States.

Identifying the stores and institutes where youth are obtaining alcohol is the most important step towards inhibiting and eliminating underage drinking in most communities. Alcohol purchase surveys (APS) and alcohol environmental scans (AES) were used to determine common characteristics of alcohol retail outlets that may cause them to commonly pass an alcohol purchase survey experience or commonly fail an alcohol purchase survey experience. Identifying these common characteristics between retail outlets is an important step towards detecting the factors in different communities that increase the probability that an underage individual can purchase alcohol. APSs are conducted annually for all off-premise alcohol outlets.

Environmental scans of the same off-premise alcohol outlets were conducted during the Fall of 2020. Environmental scans were conducted by using a windshield survey method, which involved making observations about an alcohol outlet from a car parked in the outlet's parking lot. Results indicate that there are common characteristics between all of the outlets that failed their APS 2 or more times within the last 5 years of data collection, such as the identifiable racial/ethnic group that frequent the outlet, the amount of traffic around the outlets, and the type of outlet. Common characteristics were also identified for all of the outlets that passed their APS, meaning they did not fail 2 or more times within the last 5 years. The results from the Environmental scans also show that there are trends between certain types of outlets that influence its likelihood of displaying signs regarding a minimum age to purchase alcohol. This research that involved conducting alcohol purchase surveys and alcohol environmental scans has the potential to greatly decrease the number of outlets who sell alcohol to underage individuals,

as well as identify the factors of an outlet and its surrounding environment that may increase its likelihood to serve the underaged population.

## **Introduction**

Underage consumption of alcohol is a serious public health issue all across the United States. According to the National Institute on Alcohol Abuse and Alcoholism (NIAAA), alcohol is the most widely used substance of abuse among America's youth (NIAAA, 2020). By 15 years old, approximately 30.0% of teens have had at least one drink and by 18 years old, approximately 58.0% of teens have had at least one drink (NIAAA, 2020). Youth who engage in alcohol consumption are at a higher risk for experiencing school problems, such as poor grades and a high number of absences, social problems, such as fighting and little participation in typical youth activities, unplanned and unprotected sexual activity, changes in brain development, which can have negative life-long effects, and misuse of other drugs. The likelihood that one, if not all, of the problems mentioned above will happen to an individual under the age of 21 greatly increases with the amount of alcohol they choose to consume. Youth who binge drink are at a greater risk for experiencing these problems than those who do not binge drink ("Alcohol and public health: underage drinking", 2020). Binge drinking is defined as "a pattern of drinking that brings an individual's blood alcohol concentration (BAC) level to 0.08 g/dL". Typically, this BAC level will be reached after 4 standard drinks for women and 5 standard drinks for men within a 2-hour period of time ("Drinking levels defined", 2020). A standard drink is defined by the NIAAA as 12 ounces of beer (5% alcohol), 5 ounces of wine (12% alcohol), or 1.5 ounces of distilled spirits (40% alcohol) ("What is a standard drink?", n.d.). According to the Centers for Disease Control and Prevention (CDC), people aged 12 to 20 years old drink 11% of all alcohol consumed in the United States, even though the purchase of

alcohol under the age of 21 is illegal (“Alcohol and public health: underaged drinking”, 2020). Research in the field of public health on the issue of underaged drinking is a necessary step towards reducing the number of youth who engage in the consumption of alcohol before the age of 21. Alcohol purchase surveys and alcohol environmental scans are two data collection methods that aim to identify risk factors in a community that contribute to the attainability and consumption of alcohol by people under the age of 21.

### **Background:**

Youth who engage in underaged drinking acquire their alcohol in many different ways, such as getting it from their older friends or parents or by simply walking into a store and purchasing it. Identifying the stores and institutes where youth are obtaining alcohol is the most important step towards inhibiting and eliminating underaged drinking in most communities (Grube & Stewart, 1999). According to the National Minimum Drinking Age Act of 1984, the legal age an individual must be to purchase alcoholic beverages is 21 years old (“Alcohol and Public Health: Age 21 Minimum Legal Drinking Age”, 2020). The two tools that were utilized in this research study to help identify the stores where youth are attaining alcohol under the minimum legal drinking age are alcohol purchase surveys (APS) and alcohol environmental scans (AES).

Alcohol purchase surveys are a tool used to monitor underage access to alcohol. This tool is used to provide insight into who is selling alcohol to minors, help aid law enforcement in the prevention of alcohol being purchased by people under the age of 21 and inform alcohol merchants that they are being monitored by the community. Conducting these surveys will help law enforcement because if a retail outlet fails the APS twice in a row, the NC Alcohol Law Enforcement and local Law Enforcement will be notified. An APS is conducted by sending an

individual who is 21, but appears younger than 21, into a store to attempt to purchase alcohol without proper age identification. Once the individual informs the outlet employee that they do not have their ID and the outlet employee continues with the purchase despite the absence of ID, then the outlet is considered noncompliant with the Minimum Legal Drinking Age laws.

However, if the purchase attempt is halted by the outlet employee due to the absence of proper identification, then the outlet is considered in compliance with the Minimum Legal Drinking Age laws (Grube & Stewart, 1999). After the completion of the APS, each merchant will receive a hand delivered packet of information that includes: a letter stating the results of the Alcohol Purchase Survey conducted in their outlet, materials on underage drinking, and other materials that may be important to share with the merchant (Matthews, 2020).

Alcohol environmental scans are a tool used to identify risk factors in a community that may contribute to or enable the purchase of alcoholic beverages from retail outlets under the Minimum Legal Drinking Age of 21 years old. There are two methods for conducting an environmental scan of a retail outlet that sells alcohol. One method is a windshield survey, which involves making careful observations from a moving or parked vehicle. The second method is a walking survey, which involves making methodical observations while on foot. Both of these surveying methods allow a researcher to develop an objective overview of the community, which will allow strong comparisons to be made between different neighborhoods and communities. Some factors that will be evaluated during the windshield and walking surveys include: condition of the housing, roads, and infrastructure around the alcohol retail outlet, the presence or absence of operating businesses, industrial facilities, public spaces, and public buildings around the outlet, as well as the noise level and amount of traffic around the outlet at various times throughout the day. By analyzing all of these factors around an outlet that sells alcohol, it

can be determined the amount of influence that each of these factors may have on the likelihood of an underaged alcohol purchase being made.

Research conducted through alcohol purchase surveys and alcohol environmental scans will help identify places in the Pitt County community where youth are obtaining alcohol as well as what environmental factors in the community contribute to underaged alcohol attainment and consumption. Identifying the alcohol outlets that are noncompliant with the Minimum Legal Drinking Age laws will allow steps to be taken by local law enforcement operations to prevent future underaged purchases to be made in the applicable outlets. Data gathered during the alcohol purchase surveys and the alcohol environmental scans will give insight to common characteristics of alcohol retail outlets that may cause them to be reported as unsafe, commonly pass an alcohol purchase survey experience, or commonly fail an alcohol purchase survey experience. Identifying these common characteristics between retail outlets is an important step towards detecting the factors in different communities that possibly increase the probability that an underaged alcohol purchase will take place in an alcohol retail outlet.

Data collected through the alcohol purchase surveys and alcohol environmental scans can also be used to raise community awareness about the issue of underage alcohol purchases in addition to build support in the community for reducing the number of alcohol sales to individuals under the Minimum Legal Drinking Age, also referred to as minors. Overall, the purpose behind conducting these alcohol purchase surveys is not about “busting” retail outlets for selling alcohol to minors, but rather helping make the community a safer and improved place.

## **Methods**

The guiding questions behind this research are as follows: Are there common characteristics among alcohol selling retail outlets that commonly pass (did not fail 2 or more times within the last five years) or commonly fail (failed 2 or more times, even if they passed at all, within the last five years) an alcohol purchase survey experience?

The first step that was conducted for this research was gathering a list of all the businesses in Pitt County who have an active off-premise permit to sell alcohol. Outlets with an off-premise alcohol permit sell alcohol for consumption elsewhere, compared to outlets with an on-premise permit who sell alcohol for consumption on-site. The list of these alcohol retail outlets, for which alcohol purchase surveys and environmental scans were conducted, was gathered from the North Carolina Alcoholic Beverage Commission database. Once the list of retail outlets was compiled, an environmental scan documentation form was created using Qualtrics. The Qualtrics software was used to collect and compile the data from all of the environmental scans. This documentation form contained 46 qualitative questions, each of which were related to specific details about each alcohol retail outlet. The following data was collected for each of the environmental scans conducted: type and characteristics of housing, public spaces, parks, faith communities, health services, and public schools around the alcohol selling outlet, the primary culture and race/ethnicity around the outlet, the amount of traffic near the outlet, and the 'feel' of the community. The environmental scans were conducted by one individual visiting each outlet and conducting the windshield survey with the documentation form. The windshield survey was conducted by parking the observer's car in the parking lot of the outlet and making observations about the alcohol outlet and its surroundings from their car.

The observer's car was parked in the back of the parking lot if possible, to get a more complete surveillance of the outlet.

The first five environmental scans were conducted by 2 observers, who completed the documentation forms separately, then compared their answers to come to a consensus on what guidelines to use when completing the documentation form based on things observed at each outlet. This comparison of answers and consensus development was done to ensure inter-rater reliability for the data collected during the environmental scans. After the first five environmental scans, the individual who was the primary observer for the scans conducted the rest of the scans of the alcohol outlets alone. All of the environmental scans were conducted between the afternoon hours of 3:00pm and 6:00pm on either Monday, Wednesday, or Friday. The environmental scans were conducted during this specific window of time for 2 main reasons: 1) Because not many people, if any at all, are purchasing alcohol in the morning; therefore a more accurate observation of the activity at each alcohol outlet would not be collected during the morning time period, and 2) Because a full observational scan of an alcohol retail outlet cannot be done in the dark due to inability to view specific details about the appearance of the outlet and its environmental surroundings.

Environmental scans were conducted at 171 off-premise retail outlets. Of the 176 establishments that have an active off-premise alcohol license, five were either not found with the address provided by the North Carolina Alcoholic Beverage Commission database or the outlet was no longer in business. Out of the 171 alcohol retail outlets that an environmental scan was conducted, an alcohol purchase survey had been conducted at 138 of these outlets at least once during the five-year period of Fall 2014 to Fall 2019. The following data was collected for each of the alcohol purchase surveys conducted: Outlet location (address), date and time the

survey was conducted, type of alcohol attempted to purchase, purchaser's name, gender, age, and race/ethnicity, the clerk's gender, race/ethnicity, and approximate age, and APS pass/fail determination. The data collected for each of the alcohol outlets through the environmental scans and the pass/fail status of each outlet determined by the alcohol purchase surveys were compared to identify common characteristics between the outlets that may have caused them to fall into one of the following categories: commonly pass (did not fail 2 or more times within the last five years) or commonly fail (failed 2 or more times, even if they passed at all, within the last five years) an alcohol purchase survey.

Analysis of the data collected during the alcohol purchase surveys and environmental scans started by exporting the data collected from environmental scans from the Qualtrics software into an excel document. After each alcohol purchase survey was conducted, a pass/fail determination was made based off whether or not the purchaser was asked for identification when attempting to purchase alcohol. The outlet pass/fail determinations that were collected for each alcohol purchase survey during the time period of Fall 2019 to Fall 2020 were matched with the outlet's corresponding environmental scan. Once the data from the alcohol purchase surveys and environmental scans were merged, the outlets were then divided into two group: pass and fail. Outlets were placed in these dichotomous groups based on two criteria: 1) An outlet was placed in the pass group if they did not fail an alcohol purchase survey 2 or more times within the past five years. 2) An outlet was placed in the fail group if they failed an alcohol purchase survey 2 or more times, even if they passed any of the surveys, within the past 5 years. Of the 171 outlets that an environmental scan was conducted, an alcohol purchase survey had not been conducted at 33 the outlets. Therefore, these 33 outlets were not placed into the pass or fail group. Out of the 138 outlets that had data collected from an alcohol purchase survey and

environmental scan, 122 of the outlets were placed into the “pass” group. Thus, 16 of the 138 outlets who had alcohol purchase survey data and environmental scan data collected were assigned to the “fail” group. Data analysis was conducted for each of the groups separately to determine the common characteristics for each group of outlets that may influence their likelihood of passing or failing an alcohol purchase survey.

## **Results**

Of the 122 outlets that were placed in the “pass” group, 10 were classified as a drug store (8.2%), 62 were classified as a convenience store/gas station/mini mart (50.8%), 24 were classified as a grocery store (19.7%), and 26 were classified as an ‘other’ type of outlet (21.3%). When observing the accessibility of the outlet to public transportation, 32 out of the 122 (26.2%) “pass” outlets were classified as accessible to public transportation. An outlet was classified as accessible to public transportation if there was a bus stop located close (within a short walk) to the outlet. Out of the 122 “pass” outlets, 10 (8.2%) were located within walking distance to a 2-year or 4-year institution of higher education and 11 (9.0%) were located within walking distance to student housing. When assessing the outside condition of the outlets, 100 out of 122 (82.0%) “pass” outlets were classified as having building facades and storefronts that were attractive and welcoming. The 22 “pass” outlets that were marked as not having an attractive and welcoming building facade and storefront were classified in this manner for two reasons. Either the outlet was an older building and not taken care of (run down) or there were bars/cages on the doors and windows of the outlet. Also, if the outlet had both of these characteristics it was classified as not having an attractive and welcoming building facade and storefront.

Only 1 of the 122 (0.8%) “pass” outlets had signs that were in a language other than English, and the signs at this outlet were in Spanish. In regard to visible signage posted at each

outlet, 2 out of 122 (1.6%) “pass” outlets had visible signage regarding underage drinking posted outside the outlet. Also, out of the 138 outlets that an environmental scan and alcohol purchase survey were conducted, these 2 outlets in the “pass” group were the only outlets that had signage regarding underage drinking posted. Another type of signage that was looked for at each outlet was signage about the minimum age to purchase alcohol, and only 11 out of the 122 (9.0%) “pass” outlets had this signage posted outside the outlet. Out of the 138 outlets that an environmental scan was conducted, only 14 outlets had signage posted regarding the minimum age to purchase alcohol. Therefore, 11 out of the 14 (78.6%) outlets with signage were a part of the “pass” outlet group. Out of the outlets who had signage regarding the minimum age to purchase alcohol, only 8 out of the 11 (72.7%) “pass” outlets had the signage posted at eye level.

When observing the conditions of the roads, bridges, and sidewalks near the outlet, 118 out of the 122 (96.7%) “pass” outlets were classified as having good condition roads, bridges, and sidewalks. Road conditions was the primary reason an outlet did not receive good marks in this area. Ninety-six out of the 122 (78.7%) “pass” outlets were reported as busy during the time of observation. Additionally, 96 out of the 122 (78.7%) “pass” outlets were reported to have heavy traffic around the outlet. Lastly, 19 out of 122 (15.6%) “pass” outlets had a predominant perceived racial/ethnic group frequenting the location, with 5 of the 19 (26.3%) “pass” outlets having white or passing white individuals as the predominate racial/ethnic group and 14 out of the 19 (73.7%) “pass” outlets having perceived black individuals as the predominate racial/ethnic group.

Of the 16 outlets that were placed in the “fail” group, 1 was classified as a drug store (6.3%), 11 were classified as a convenience store/gas station/mini mart (68.8%), 1 was classified as a grocery store (6.3%), and 3 were classified as an ‘other’ type of outlet (18.8%). In regard to

the accessibility of the outlet to public transportation, 6 of the 16 (37.5%) “fail” outlets were accessible to public transportation. Out of the 16 “fail” outlets, none of the outlets were located within walking distance to a 2-year or 4-year institution of higher education and only 2 (12.5%) were located within walking distance to student housing. When observing the outside conditions of the outlets, 10 of the 16 (62.5%) “fail” outlets were identified as having attractive and welcoming building facades and storefronts. Some reasons the outside conditions were not attractive and welcoming were it being an older building and not taken care of (run down) or there were bars/cages on the doors and windows of the outlet.

When observing all of the signage posted outside the outlets, only 1 of the 16 (6.3%) “fail” outlets had signs in a language other than English, and the signs at this outlet were in Spanish. Of the 16 “fail” outlets, none of the outlets had visible signage regarding underage drinking nor visible signage regarding the minimum age to purchase alcohol. All 16 (100%) of the outlets in the “fail” group were observed to have good condition roads, bridges, and sidewalks near the outlet. Out of the 16 “fail” outlets, 11 (68.8%) were reported to be busy during the time of observation. However, only 8 of 16 (50.0%) were observed to have heavy traffic around the outlet at the time of observation. Lastly, 6 of the 16 “fail” outlets had a predominant perceived racial/ethnic group frequenting the location. Of the locations who were identified to have a predominate racial/ethnic group frequenting the outlet, African American individuals were the predominate racial/ethnic group identified at all 6 outlets.

## **Discussion**

The results of the environmental scans were analyzed to identify any common characteristics of an outlet that may influence its likelihood to commonly pass (did not fail 2 or more times within the last five years) or commonly fail (failed 2 or more times within the last

five years) an alcohol purchase survey. In this study, the majority of both “pass” outlets and “fail” outlets were identified to be accessible to public transportation and to have good condition roads, bridges, and sidewalks near the outlets. In regard to the appearance of the outlet, the majority of both groups of outlets were observed to have attractive and welcoming building facades and storefronts. Also, the majority of both “pass” and “fail” outlets were observed to be busy and have heavy traffic surrounding them at the time of observation. While very few of the stores had signs about underage drinking and the minimum age to purchase alcohol, if they did have signage regarding these two topics, they also passed the alcohol purchase survey. None of the stores that were in the “fail” group had signage concerning underage drinking or the minimum age to purchase alcohol.

Most of the outlets in both the “pass” and “fail” groups were observed to have a diverse population of customers. Although the majority of the outlets had racial/ethnic diversity among their patrons, the number of alcohol retail outlets in an area may be influenced by the characteristics of the neighborhood. Research on the density of alcohol retail outlets has proven that there is a greater density of alcohol retail outlets in urban areas that have a higher proportion of families living in poverty, higher proportions of residents of black race and Latino ethnicity, and overall lower educational attainment among residents of the neighborhood (Berke et al., 2010). By mapping the national density of alcohol retail outlets and then applying this map to a map of census tracts, researchers of this study were able to identify the relationship between alcohol exposure and health disparities. Utilizing a similar technique in Pitt County and comparing this map to an economic census map of the county, it is possible to identify more characteristics that may contribute to an outlet passing or failing an alcohol purchase survey.

Although this research collected a large amount of data and was able to make progress in identifying characteristics for an outlet's alcohol purchase survey results, there were a few limitations of the study. One limitation of the study was that there was only one individual making the observations for each environmental scan. Although inter-rater reliability was established through the first five environmental scan observations, it is possible that the biases of primary observer could have influenced the data collection. Another limitation of the study was the accuracy of the data from the alcohol purchase surveys. It is unknown if all of the data collected from the alcohol purchase surveys on an outlet's pass/fail determination was correct. Since these surveys were collected by many different individuals over the age of 21, it is possible that individual biases could impact data included on the alcohol purchase survey documentation form.

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