

# Sociodemographic Influence on Adolescent Alcohol Perception

Graham Galusha<sup>1</sup> and Sean McGrath<sup>1#</sup>

<sup>1</sup>Chadwick School

#Advisor

## ABSTRACT

Despite federal regulation preventing the sale and consumption of alcohol to minors under the age of 21, rates of alcohol use in adolescents remain high. A collection of recent studies have found that demographics such as race, socioeconomic status, and sexual orientation influence one's vulnerability to alcohol abuse. The field of knowledge, however, lacked locational data that addressed perceptions towards adolescent alcohol use in specific geographic communities. Focusing specifically on the South Bay, a suburban region in South Los Angeles, filled that niche. Through analyzing similar studies and assessing the feasibility of different approaches to research, a quantitative study that utilized a survey was found to be the most appropriate research design. The survey included three sections: one collecting sociodemographic data, one assessing socio economic status, and one quantifying drinking perception. For distribution, six public and private high schools across the South Bay were contacted through guidance counselors. Between the four schools, 118 survey responses were collected over the course of two weeks. The data collected provides valuable information regarding sociodemographic subpopulation vulnerability to underage alcohol use amongst high school teens in the South Bay. Black students, for instance, had the highest positive perception towards underage drinking when averaged. Students of a high socioeconomic status and members of the LGBTQ community also maintain a high positive perception towards alcohol use. A positive perception towards alcohol alludes to a greater vulnerability of underage alcohol consumption. All three groups could benefit from targeted, preventative measures to combat rates of underage alcohol use.

## Introduction

Alcohol consumption has existed in communities and cultures across the globe for centuries. In the United States, a complex history of contradictory policies regarding ethanol use has dictated dramatic changes in drinking culture over the last hundred years. A short-lived period of prohibition that attempted to eliminate alcohol consumption in the early twentieth century gave way to an era of rapid popularization by the turn of the millennium (Mann, 2000). Today, alcohol use is common across most demographic groups in the United States. Despite federal regulation that prevents the sale and consumption of alcohol to minors under the age of 21, rates of alcohol use in adolescents remain high. Researchers at the University of Michigan utilized data from a public national survey regarding rates of ethanol consumption and health among high school students. Reports concluded that roughly 60% of 12th graders surveyed disclosed having previously consumed alcohol (Quigley, 2019).

Underage alcohol consumption can have lasting health consequences. The national government's Substance Abuse and Mental Health Services Administration reported more than 190,000 hospital visits and more than 4,300 deaths by adolescents with alcohol-related accidents in 2010 (Lipari, 2017). Additionally, researchers at the University of Michigan found that "underage drinking is associated with an increased risk of depression, anxiety, and suicidal behavior" (Quigley, 2019). The severe physical and mental health risks that come with adolescent alcohol use prompted the U.S. Department of Health and Human Services in 2020 to declare combatting high rates of binge drinking amongst adolescents "as a national priority" (Lipari, 2017).

Despite the presence of alcohol across most adolescent subpopulations, there exists a variability in attitude towards and rates of use between different demographic groups (Delker, 2016). A collection of recent qualitative studies investigating the risk factors that influence rates of substance use have produced noteworthy results regarding specific communities' vulnerability to ethanol abuse. Findings conclude abuse trends vary across class, status, and identity (Delker, 2016). This research allows us to determine specific personal and environmental characteristics that prompt substance use.

## Literature Review

### Risk Factors

A variety of factors can contribute to varying rates of alcohol use. The characteristics are commonly separated into two subcategories: genetic makeup and environment (Chartier, 2011). According to the National Institute on Alcohol Abuse, genetic vulnerability can have a significant influence on one's likelihood of developing alcoholism. The presence of specific genes that put individuals at a high risk of developing an addiction explains the often hereditary nature of alcohol abuse in family lineage ("Genetics of Alcohol," 2008).

Nonetheless, environmental factors have a significant impact on ethanol consumption as well. A case control study investigating risk factors for alcohol dependence found that social characteristics, including desirability and support, influence alcohol behavior (Poikolainen). Additionally, a national survey known as Monitoring the Future collects information regarding rates of alcohol use in middle and high school students annually. The survey has established a set of risk factors associated with adolescent alcohol use that includes traumatic life events, social support, exercise and sport participation, exposure to violence, and community involvement (Patrick, 2014). Individuals with greater exposure to such events are at a greater risk of hazardous alcohol use.

Subpopulations that experience high rates of factors that have a positive correlation to alcoholism generally consume alcohol at a higher rate than their counterparts. In other words, a variety of recent studies that will be unpacked have validated that demographics such as age, race, socioeconomic status, and sexual orientation influence one's vulnerability to alcohol abuse.

### Subpopulation Vulnerability

The Monitoring the Future survey tracked a significant increase in rates of alcohol consumption throughout middle and high school. The study reported that "in 2011 about one-quarter of 8th graders, one-half of 10th graders, and almost two-thirds of 12th graders reported drinking alcohol in the month preceding the interview" (Patrick, 2014). Additionally, a meta-analysis study conducted by the Medical University of South Carolina which examined prevention and intervention data regarding adolescent substance abuse found that the earlier an individual starts drinking, the more likely they are to become an alcoholic in the future. In fact, one contributor to the study claims, "Youth who begin drinking before age 15 have four to six times the rate of lifetime alcohol dependence than those who remain abstinent from alcohol use until age 21" (Gray, 2017).

Furthermore, researchers at Columbia University utilized data from the National Survey on Drug Use and Health to analyze rates of alcohol use across different racial identity groups. The study concluded White communities have the highest rates of alcohol consumption with Native American, Latino, Black, and Asian communities following respectively (Delker, 2016). A similar meta-analysis study utilized national data sources and survey information from the Center for Disease Control and Prevention (CDC) validates these findings. Researchers report alcohol use is most prevalent amongst Caucasian individuals, at 59.8%, and least present amongst Asian individuals, at 38.0% (Chartier, 2010).

Another study published in the National Library of Medicine investigated the association between drinking patterns and socioeconomic status amongst high school students in China. Information was gathered via an anonymous questionnaire that was distributed to students at 136 different high schools in specific metropolitan areas. Data compiled from more than 11,000 students revealed the likelihood of alcohol use was significantly higher in individuals of a high socioeconomic status (Lu, 2015). A similar study found comparable results that established a positive correlation between high rates of alcohol use in adolescents with highly educated parents. Researchers found the more education one's parents received, the more likely they were to be abusing alcohol (Humensky, 2010).

There also exists a significant disparity in rates of alcohol use between heterosexual and LGBTQ communities. One major study collected information from the national Youth Risk Behavior Survey regarding alcohol usage and sexual identity from more than 200,000 individuals between 2007 and 2015. Results tracked a decrease in alcohol use amongst heterosexual groups between 2007 and 2015 but a significant increase in the disparity between alcohol trends of straight and sexual minorities. Individuals that identified as gay, lesbian, or bisexual experienced higher rates of alcohol consumption and lifetime alcoholism than their heterosexual counterparts. (Fish, 2018).

The collection of studies establish national and international scale disparities of alcohol use amongst socio demographic groups. In summary, the best available research on alcohol use identifies white, high socioeconomic status, and LGBTQ minors as most vulnerable to abuse. It is also of value to note all of the studies referenced utilized survey style methodologies to collect data and draw conclusions.

## Gap in Research

While a multitude of recent studies have produced meaningful results regarding alcohol rates across different socio demographic subpopulations, the vast majority have been conducted on a national or international scale. The field of knowledge lacks locational data that addresses vulnerabilities to adolescent alcohol use in specific geographic communities. Researchers in China attempted to fill this void by conducting a qualitative study on the association between adolescent drinking patterns and demographic factors in specific metropolitan areas in China. The study established region-specific data to better understand and combat underage abuse (Lu, 2015). Locational research of the same caliber is lacking in most U.S. communities.

The South Bay, a suburban region in South Los Angeles, may serve as an intriguing community to investigate. Of the South Bay's 144,000 residents, the majority meet criteria to be considered highly susceptible to alcohol abuse. More than 65% of the community is white and the median household income is \$130,507, significantly higher than the state average of \$33,719 ("South Bay Cities," 2020). White individuals are known to consume alcohol at higher rates than any other racial group and children born into upper class families report the highest levels of substance abuse. Additionally, the South Bay region is accessible and feasible given the parameters of the study. Understanding the need for more local focused research allows for the establishment of the research question: To what extent do different sociodemographic characteristics of high school teens in the South Bay impact their perception towards underage alcohol consumption?

## Methods

### Replicated Approach

Through closely analyzing similar studies and assessing the feasibility of different approaches to research, a quantitative study that utilized a survey was determined to be the most appropriate research design. Two relevant studies informed the construction of this study's methodology. The first was a quantitative survey study that investigated rates of alcohol use across adolescent subpopulations in Chinese metropolises. Researchers selected 136 middle and high schools to distribute optional, anonymous surveys over the course of one month. The questionnaire was split into two

sections: one collecting sociodemographic data and one assessing drinking behavior and patterns. Professionals in the appropriate fields had approved the survey questions prior to the questionnaires' distribution (Lu, 2015).

The second study was developed by the University of New Hampshire to assess drinking attitudes in college students. Researchers distributed an anonymous survey to more than 400 students enrolled in psychology courses at the University of New Hampshire to collect information regarding personal identity and attitudes towards alcohol consumption. The survey was online, mandatory, and utilized ranking scale questions (Gaines, 2014).

In combining both approaches, my study conducted a survey to produce quantitative data. The questionnaire collected information regarding sociodemographic identity and drinking perception and exposure from a pool of willing participants. The study directly modeled the distribution strategy of the study conducted in China, but assessed drinking attitudes in a manner similar to the UNH study. A key distinction from the University of New Hampshire study, however, is that this survey was not attached to a specific academic class and was collected on an entirely optional basis.

## Survey Development

The survey was split into three sections, one collecting sociodemographic data, one determining economic affluence, and a third assessing drinking perception (reference Appendix A). The survey was constructed and distributed via Google Forms, was anonymous, and utilized multiple choice and Likert scale ranking questions. Likert scale questions are easy to navigate and analyze data from and are best suited for questions regarding perception. Respondents were required to read and approve an objective that explained the intention and purpose of the study prior to completing the survey. This initial description served as a consent form for students participating in the study and contributing personal information to the data set.

For the "Sociodemographic" section, questions were inspired by the National Youth Risk Behavior Survey and collected information regarding age, class, race, identity, and orientation. The section included six multiple choice questions.

The "Economic Status" section used the Family Affluence Scale to assess socio economic status in a manner that was understandable for adolescents and easy to quantify. The scale was originally developed by the Health Behavior in School-Aged Children Study to measure material wealth and economic position. Today, it is widely regarded as an effective socioeconomic determinant and is used by the United Nations (Chzhen, 2016). The four questions were multiple choice and asked respondents to share information about travel experience, vehicle ownership, and living arrangements.

The "Alcohol Perception" section was taken directly from the University of New Hampshire study. The questions intentionally do not ask students to admit or discuss consuming alcohol underage. They merely gauge the respondents perspective on and exposure to alcohol. The section presents four statements and asks respondents to rate their agreement using a Likert scale. The survey statements include an assessment on the perceived efficacy of underage alcohol use, the frequency of one's exposure to underage alcohol use in social settings, and one's personal interest in consuming alcohol underage.

## Distribution

To distribute the survey, I reached out to six public and private high schools across the South Bay through guidance or mental health counselors. Six schools provided a pool of roughly 10,000 potential participants while still being feasible given time constraints and regional access to high schools. Public schools in California maintain an accessible website with a list of faculty and staff members. Communication with guidance counselors was conducted via email through the contact information located on individual school websites. The initial email I sent introduced myself, the AP Research course, my individual study, and a plea to help distribute my survey. Although no one responded to the

initial email, I received four responses after two rounds of follow up emails. Mira Costa, Palos Verdes High, and Vistamar expressed interest in participating in the study and offered to distribute the survey to student groups.

In the case of Chadwick School, the contact process was relatively different, for Chadwick’s guidance counselor was able to forward me a list of student groups to contact myself. I distributed a similar email explaining the purpose of my study directly to those student groups and asked for those willing to complete the survey.

In summary, four schools submitted survey data that contributed to the body of research. Every student group contacted expressed a willingness to participate in the study and submitted at least one student response. Two of the schools, Mira Costa High School and Palos Verdes High School, were public. The other two schools, Vistamar and Chadwick School, were private. Information was intentionally collected from both public and private schools to create a more diversified socio-economic subject pool.

## Results

### Initial Quantification

Between the four schools, 118 survey responses were collected over the course of two weeks. Chadwick School maintained the highest response rate with 41 respondents; however, there was no overwhelming majority. Each school surveyed produced at least 18 responses. The information was organized on Google Sheets and categorized by section for analysis.

To quantify the “Economic Status” section questions, The Family Affluence Scale was used to assign a numerical value to each response option. The more cars, airplane flights, or laptops a respondent reported, the greater the numerical value they would be assigned. For example, if a respondent selected that their family owned two cars, they would receive a value of 2. Values for the four socio economic question responses were then combined to create one sum and categorized on the scale. Economic status values below 4.3 were considered low socioeconomic status, above 8.7 high socioeconomic status, or in between middle socioeconomic status.

**Table 1.** Family Affluence Scale categorization.

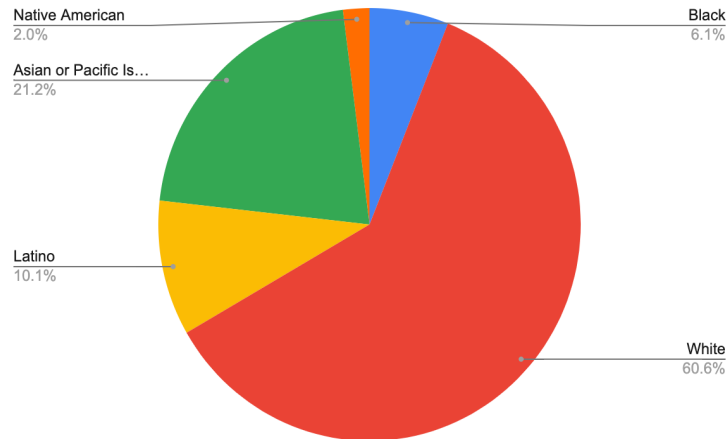
Socioeconomic status	low	middle	high
Score ranges	0 - 4.3	4.4 - 8.6	8.7 - 13

A relatively similar approach was taken to quantify the drinking perception section. The drinking questions used a Likert scale, so a 1-value was assigned to strongly disagree and a 5-value to strongly agree. The four numerical values that were associated with each question were then combined to produce one overall number. The higher the number, the more positive the respondents' perception towards underage drinking. The alcohol perception scale ranged from 3-16.

### Race

Of the 118 students surveyed, roughly 60%, or 70 individuals, identified as white. 21% were Asian or Pacific Islander, 10% were Latino, 6% identified as Black, and roughly 2% were Native American. This remains largely consistent with the demographic makeup of the South Bay community. 67% of South Bay residents are white, 12% Latino, 4% Black, and 1% Native American. Asian and Pacific Islander respondents were overrepresented in the study, for they only make up 12% of South Bay residents (“South Bay Cities,” 2020).

When assessed for alcohol perception, Native Americans on average had the highest positive alcohol perception with a score of 14.5. Given that the Native Americans made up only 2% of the respondent pool, however, the alcohol perception analysis is largely inconclusive. Black individuals maintained the second highest alcohol perception score of 12.7. White individuals followed suit with a score of 11.7, Latinos with a 9.9, and Asian and Pacific Islanders with a 9.7.

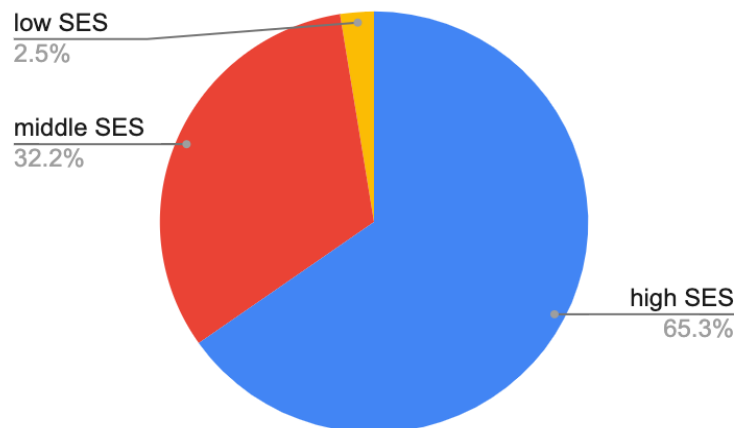


**Figure 1.** Distribution of respondents by race.

### Socioeconomic Status

Regarding socioeconomic status, the vast majority of respondents were of a high socioeconomic status (SES). Roughly 65% of individuals surveyed were of a high SES, 32% were of a middle SES, and just under 3% were of a low SES. In the greater South Bay community, 64% of residents are high income, 22% are middle income, and 14% are low income (“South Bay Cities,” 2020). This implies low income respondents were somewhat underrepresented while middle income residents were overrepresented.

When correlated to alcohol perception scores, high SES respondents maintained the highest average of 11.4. Middle SES surveyors had an average of 9.1, and low SES individuals had a score of 10.1. Low SES individuals did not make up a large enough percentage of the total population to accurately produce any noteworthy data.

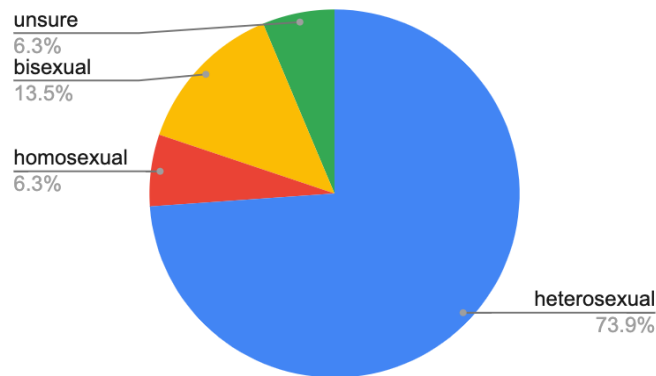


**Figure 3.** Distribution of respondents by socioeconomic status

## Sexual Orientation

Of the 118 students surveyed, 111 provided information regarding sexual orientation. Of those who responded, 74% identified as heterosexual, 14% bisexual, 6% homosexual, and 6% were unsure. A LGBTQ subject pool of 20% is substantial given national rates. While there is no specific data regarding rates of LGBTQ individuals in the South Bay, Gallup found the national rate to be 7.2% in 2022. Younger generations, however, maintain higher rates of LGBTQ identifying individuals; roughly 20.8% of Generation Z Americans are LGBTQ (Jones, 2022). Given that my survey respondents are all from Generation Z, LGBTQ individuals are proportionally represented.

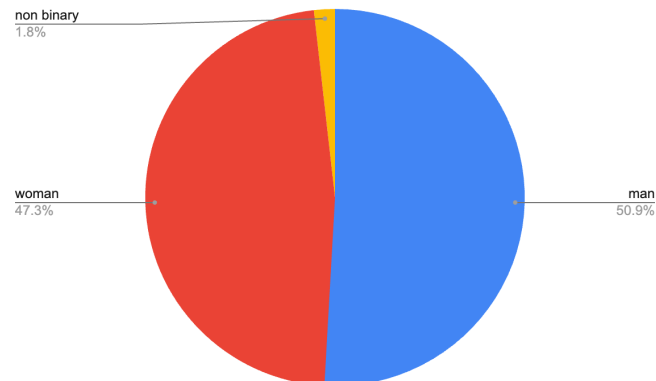
When compared to alcohol perception scores, homosexual and bisexual respondents both averaged a score of 12.2. Surveyors who selected unsure maintained an average score of 10.9, and heterosexual respondents had a score of 10.6.



**Figure 4.** Distribution of respondents by sexual orientation.

## Gender Identity

112 respondents provided information regarding gender identity. Of those responses, 51% identified as men, 47% identified as women, and 2% identified as non binary. When assessed for alcohol perception, men registered an average score of 10.45. Comparatively, women had an average score of 10.75, and non binary respondents scored 10.00. Given that the non binary respondent pool represented less than 2% of the total sample, their average score is inconclusive and may inaccurately represent the communities average alcohol perception.



**Figure 5.** Distribution of respondents by gender identity.



## Discussion

### Race

The data conveyed noteworthy variation in alcohol perception between racial populations. Black students maintained the most positive perception towards alcohol, with White, Latino, and Asian/Pacific Islanders individuals following respectively. Respondents that identified as Black had a roughly 7% higher positive perception towards underage alcohol use compared to white individuals and a 20% higher perception towards the lowest respondent group, Asians/Pacific Islanders.

These results slightly contradict the most current research on subpopulation vulnerabilities to underage alcohol use. As previously referenced, national research from Columbia University determined white students are at the greatest risk of underage alcohol use. In their study, Black individuals were at a lower risk than White and Latino individuals (Delker, 2016). This research, however, affirms national data that Asian and Latino individuals are at the lowest risk for underage alcohol use.

### Socioeconomic Status

The data regarding socioeconomic status exposed vast disparities in underage alcohol use risk between economic classes. While there was insufficient data to draw conclusions about low socioeconomic status individuals, for the purpose of analysis, the low income responses can be combined with the middle socioeconomic status data. High SES students had almost a 20% greater perception towards underage alcohol use compared to individuals of a middle or low SES.

These conclusions directly align with international data regarding socioeconomic status influence on underage alcohol use. Data compiled from more than 11,000 students in China found high income individuals were at a significantly higher risk of underage alcohol use than their low-income counterparts (Lu, 2015). Data from the South Bay appears to match broader study samples.

### Sexual Orientation

There was a significant disparity in alcohol perception scores between LGBTQ individuals and their heterosexual counterparts. For the purpose of analysis, all sexual minority respondents, including bisexual and homosexual, were combined under the term LGBTQ. Both bisexual and homosexual respondents averaged the same alcohol perception score. When compared to heterosexual students, LGBTQ respondents had a 10% higher average positive perception towards underage alcohol use. Those that were unsure of their sexual orientation registered a higher average perception than heterosexual respondents but lower than LGBTQ respondents.

Data collected from students nationally have produced similar results regarding the influence of sexual orientation on underage alcohol use risk. The U.S. Youth Risk Behavior Survey found individuals that identified as gay or lesbian experienced higher rates of alcohol consumption and lifetime alcoholism than their heterosexual counterparts (Fish, 2018). These trends remain statistically consistent in the South Bay.

### Gender Identity

The data set showed little variance in underage alcohol perception between male and female identifying surveyors. The average score for women was roughly 3% higher than that of men. In conclusion, men and women in the South Bay share a relatively similar perception towards underage alcohol use.



## Limitations

While these research findings can produce valuable conclusions, it is important to assess the limitations of the data. Most significantly, the size of the research presented is relatively small. The data collected represents only 118 students from a geographic region that has more than 20,000 people between the ages of 10-18. This could potentially inaccurately convey the overall trends of the South Bay.

Secondly, to develop an appropriate survey that avoided collecting information regarding unlawful underage alcohol consumption, the questionnaire had to collect information about exposure to and perception towards alcohol. No information was gathered on which subpopulations explicitly consume the most alcohol but merely assess which groups are the most in favor of it. This operates under the assumption that those who have the most positive perception towards underage alcohol use are the most likely to consume alcohol underage. For example, black respondents maintained the highest positive perception towards alcohol across racial groups, so I am concluding black individuals likely consume alcohol at the highest rate.

On a minor, but still noteworthy level, the survey was distributed optionally to those engaged in student groups at their respective schools. This may have influenced the pool of respondents, for there is a specific demographic of student that opts into extracurricular activities and voluntarily participates in surveys. The research presented may reflect a more involved or responsible individual than the typical South Bay student.

## Conclusion

### Significance

While there are limitations to the body of research, the data collected provides valuable information regarding socio-demographic subpopulation vulnerability to underage alcohol use amongst high school teens in the South Bay. The study collected data to assess how perceptions towards underage drinking vary by race, socioeconomic status, and sexual orientation. Perceptions significantly varied by subpopulation and certain demographic groups appeared particularly vulnerable to alcohol use.

Black students in the South Bay, for instance, had the highest positive perception towards underage drinking when averaged. Students of a high socioeconomic status and members of the LGBTQ community also maintain a high positive perception towards alcohol use. A positive perception towards alcohol alludes to a greater vulnerability of underage alcohol consumption. All three groups could benefit from targeted, preventative measures to combat rates of underage alcohol use. Individuals that identify with multiple “at-risk” populations, for example students that are of a high socioeconomic status and homosexual or students that are black and homosexual, are at the greatest risk of underage alcohol consumption and should be at the forefront of efforts to combat underage alcohol abuse.

### Implications & Areas for Future Research

Further research into preventative measures and effective combatants to underage alcohol use can be valuable to the vulnerable communities established. This research merely identified particularly at-risk subpopulations, but further research would be required to reduce rates of alcohol use amongst high school teens.

Additionally, this body of research focused on adolescent perceptions amongst high school students specifically in the South Bay; however, new research could replicate this process in different geographic regions. Communities impacted by traumatic events could be particularly interesting to investigate. Regions recently hit by natural disasters or mass shootings may produce uniquely noteworthy results regarding adolescent alcohol use. Conducting a similar research study could inform the regional risk of underage alcohol use amongst specific student bodies.

## References

- Chartier, K., & Caetano, R. (2010). *Ethnicity and Health Disparities in Alcohol Research*. National Library of Medicine. Retrieved December 10, 2022, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3887493/>
- Chartier, K. G., & Hesselbrock, M. N. (2011, July 1). *Development and Vulnerability Factors in Adolescent Alcohol Use*. National Library of Medicine. Retrieved November 2, 2022, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2916876/>
- Chzhen, Y., Moor, I., & Pickett, W. (2016, April). *Family Affluence and Inequality in Adolescent Health and Life Satisfaction*. UNICEF Office of Research. Retrieved March 21, 2023, from [https://www.unicef-irc.org/publications/pdf/IWP\\_2016\\_10.pdf](https://www.unicef-irc.org/publications/pdf/IWP_2016_10.pdf)
- Delker, E., & Brown, Q. (2016). *Alcohol Consumption in Demographic Subpopulations*. National Library of Medicine. Retrieved November 2, 2022, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4872616/>
- Emslie, C., & Lennox, J. (2017, August 19). *The role of alcohol in identity construction among LGBT people: a qualitative study*. Wiley Online Library. Retrieved November 2, 2022, from <https://onlinelibrary.wiley.com/doi/full/10.1111/1467-9566.12605>
- Fish, J. N., & Baams, L. (2018, September 1). *Trends in Alcohol-Related Disparities Between Heterosexual and Sexual Minority Youth from 2007 to 2015: Findings from the Youth Risk Behavior Survey*. Mary Ann Liebert Inc. Publishers. Retrieved November 2, 2022, from <https://www.liebertpub.com/doi/full/10.1089/lgbt.2017.0212>
- Gaines, L. (2014). *Student Attitudes Towards Drinking Behaviors*. University of New Hampshire. Retrieved March 21, 2023, from <https://scholars.unh.edu/cgi/viewcontent.cgi?article=1200&context=honors>
- Genetics of Alcohol Use Disorder*. (2008). National Institute on Alcohol Abuse and Alcoholism. Retrieved November 2, 2022, from <https://www.niaaa.nih.gov/alcohols-effects-health/alcohol-use-disorder/genetics-alcohol-use-disorder>
- Gray, K. M., & Squeglia, L. M. (2017, July 17). *Research Review: What Have We Learned About Adolescent Substance Use?* National Library of Medicine. Retrieved November 2, 2022, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5771977/>
- Humensky, J. L. (2010, August 5). *Are adolescents with high socioeconomic status more likely to engage in alcohol and illicit drug use in early adulthood?* BioMed Central. Retrieved November 2, 2022, from <https://substanceabusepolicy.biomedcentral.com/articles/10.1186/1747-597X-5-19>
- Jones, J. M. (2022, March 3). *What Percentage of Americans Are LGBT?* Gallup. Retrieved May 15, 2023, from <https://news.gallup.com/poll/332522/percentage-americans-lgbt.aspx>
- Lipari, R. N., & Van Horn, S. L. (2017, June 22). *UNDERAGE BINGE DRINKING VARIES WITHIN AND ACROSS STATES*. Substance Abuse and Mental Health Services Administration. Retrieved November 2, 2022, from [https://www.samhsa.gov/data/sites/default/files/report\\_3185/ShortReport-3185.html](https://www.samhsa.gov/data/sites/default/files/report_3185/ShortReport-3185.html)
- Lu, S., & Du, S. (2015, February 12). *Drinking Patterns and the Association between Socio-Demographic Factors and Adolescents' Alcohol Use in Three Metropolises in China*. National Library of Medicine. Retrieved November 2, 2022, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4344709/>
- Mann, K., & Hermann, D. (2000, January 1). *ONE HUNDRED YEARS OF ALCOHOLISM: THE TWENTIETH CENTURY*. Oxford Academic. Retrieved November 2, 2022, from <https://academic.oup.com/alcalc/article/35/1/10/142396>
- Patrick, M. E., & Shulenberg, J. E. (2014). *Prevalence and Predictors of Adolescent Alcohol Use and Binge Drinking in the United States*. National Library of Medicine. Retrieved November 2, 2022, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3908711/>
- Poikolainen, K. (2000, March 1). *RISK FACTORS FOR ALCOHOL DEPENDENCE: A CASE-CONTROL STUDY*. Oxford Academic. Retrieved December 2, 2022, from <https://academic.oup.com/alcalc/article/35/2/190/152693>

- Quigley, J., & Ryan, S. (2019, July 1). *Alcohol Use by Youth*. American Academy of Pediatrics. Retrieved November 2, 2022, from <https://publications.aap.org/pediatrics/article/144/1/e20191356/37084/Alcohol-Use-by-Youth?autologincheck=redirected?nfToken=00000000-0000-0000-0000-000000000000>
- Skrzynski, C. J., & Creswell, K. G. (2020, March 20). *Associations between solitary drinking and increased alcohol consumption, alcohol problems, and drinking to cope motives in adolescents and young adults: a systematic review and meta-analysis*. Wiley Online Library. Retrieved November 2, 2022, from <https://onlinelibrary.wiley.com/doi/abs/10.1111/add.15055>
- South Bay Cities CCD, Los Angeles County, CA*. (2020). Census Reporter. Retrieved November 2, 2022, from <https://censusreporter.org/profiles/06000US0603793100-south-bay-cities-ccd-los-angeles-county-ca/>