



Environmental and Behavioral Indicators of Adolescent Alcohol Consumption



Saisha Anand, Applied Data Analysis, Wesleyan University

Introduction

- Adolescent alcohol use is a prominent public health issue, ranking among the most used forms of substance abuse (NIAAA, n.d.). Its impacts extend beyond short-term consequences and can lead to an array of long-term physical, mental and emotional problems (MP, 2024; ABDC, n.d.).
- Although multiple factors contribute to adolescent drinking, there has been an increased focus on the roles of familial relationships, peer influence and behavioral patterns in shaping these habits (NIAAA, n.d.).
- Research reveals that increased interactions with peers and decreased familial satisfaction has been linked to decreased desire to drink in adolescents (Borasil & Carey, n.d.);(LaFreniere et al., 2022).
- Additionally, studies support the association between violent behavior and increased adolescent drinking, emphasizing the interplay of environmental and behavioral factors in influencing adolescent drinking (White et al., 2014).

Research Question

What is the relationship between environmental and behavioral factors and adolescent alcohol consumption?

Methods

Sample

Respondents (n=20,000) were drawn from the National Longitudinal Study of Adolescent Health (ADD HEALTH) of 1994, a nationally representative sample of U.S. adolescents (7th-12th grade), includes: information regarding the participants' socioeconomic status, interpersonal relationships, school/work life, health (mental and physical), residential areas, and biological information. The method of data collection was questionnaires answered by participants and their parents.

Measures

- The **consumption of alcohol** was measured through "During the past 12 months, how many days did you drink alcohol?" This was a categorical ordinal variable that were converted to categorical binary variable.
- Family relations** through, "Overall you are satisfied with your relationship with your father/mother" was converted into a combined "parental satisfaction variable" which was measured as high, medium and low. "How often did you run away from home?" was also used to examine household environment problems and alcohol use
- Bad behavior** was assessed with a combination of variables including, "In the past 12 months, how often did you: "act loud, rowdy, or unruly in a public place?", "take part in a fight where a group of your friends was against another group?", "get into a serious physical fight?", "take something from a store without paying for it?", "lie to your parents or guardians about where you had been or whom you were with?", "deliberately damage property that didn't belong to you?", "paint graffiti or signs on someone else's property or in a public place?". It was converted to a binary variable.

Results

Univariate

- The consumption of alcohol was plotted to determine the count of adolescents who did/did not drink (Fig 1)

Bivariate

- Chi-Square analysis showed that all the variables examined are significantly associated with the consumption of alcohol.



Figure 1

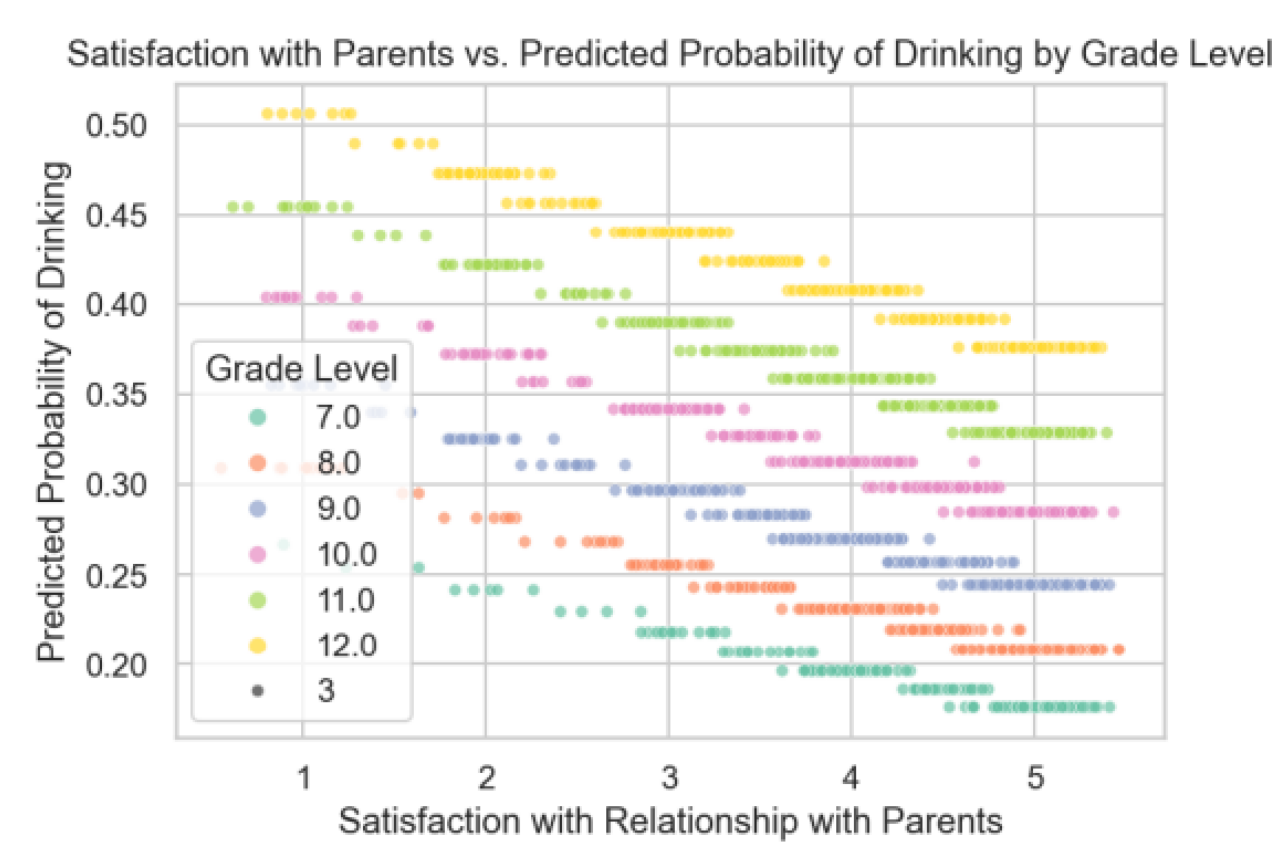


Figure 2

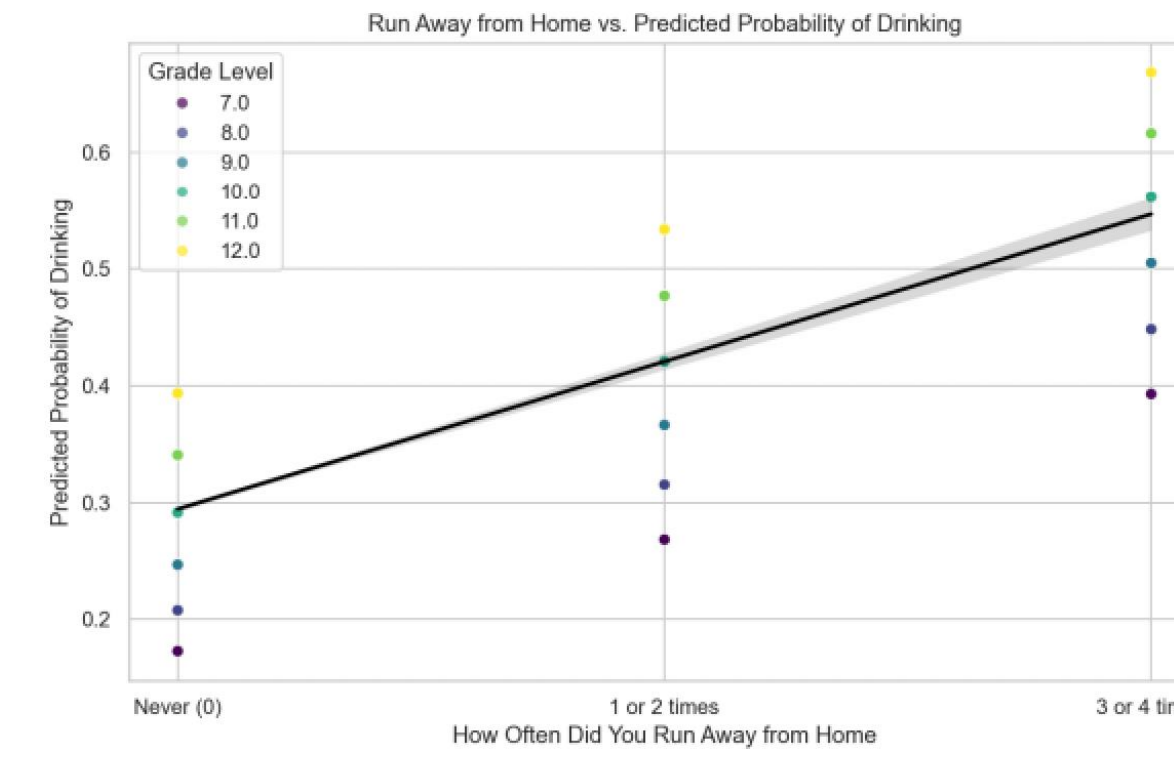


Figure 3

Multivariate

- Logistic regression analyses showed **significant** relationships
- Fig 2:** There is a significant negative relationship. The odds ratio reveals a 12.5% reduction in the odds of drinking for each additional unit of parental satisfaction. There is also a significant association between grade levels and drinking, revealing a 23% increase in drinking for each subsequent year.
- Fig 3:** The likelihood of adolescents running away from home had a significant positive association with drinking. The higher the likelihood of running away showed an increase in alcohol consumption. Each increase in the frequency of running away from home, the odds of drinking increases by 76.2%.

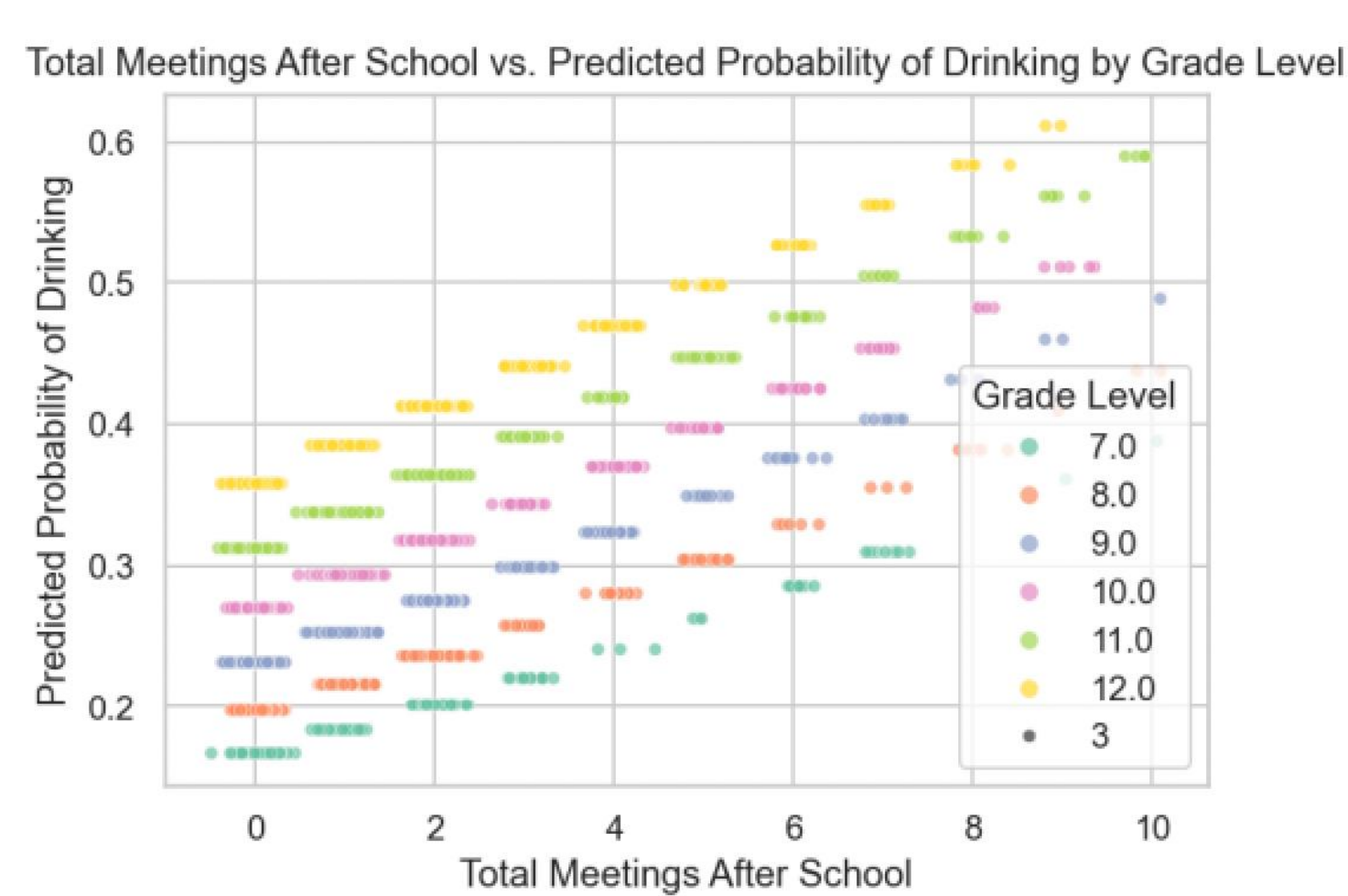


Figure 4

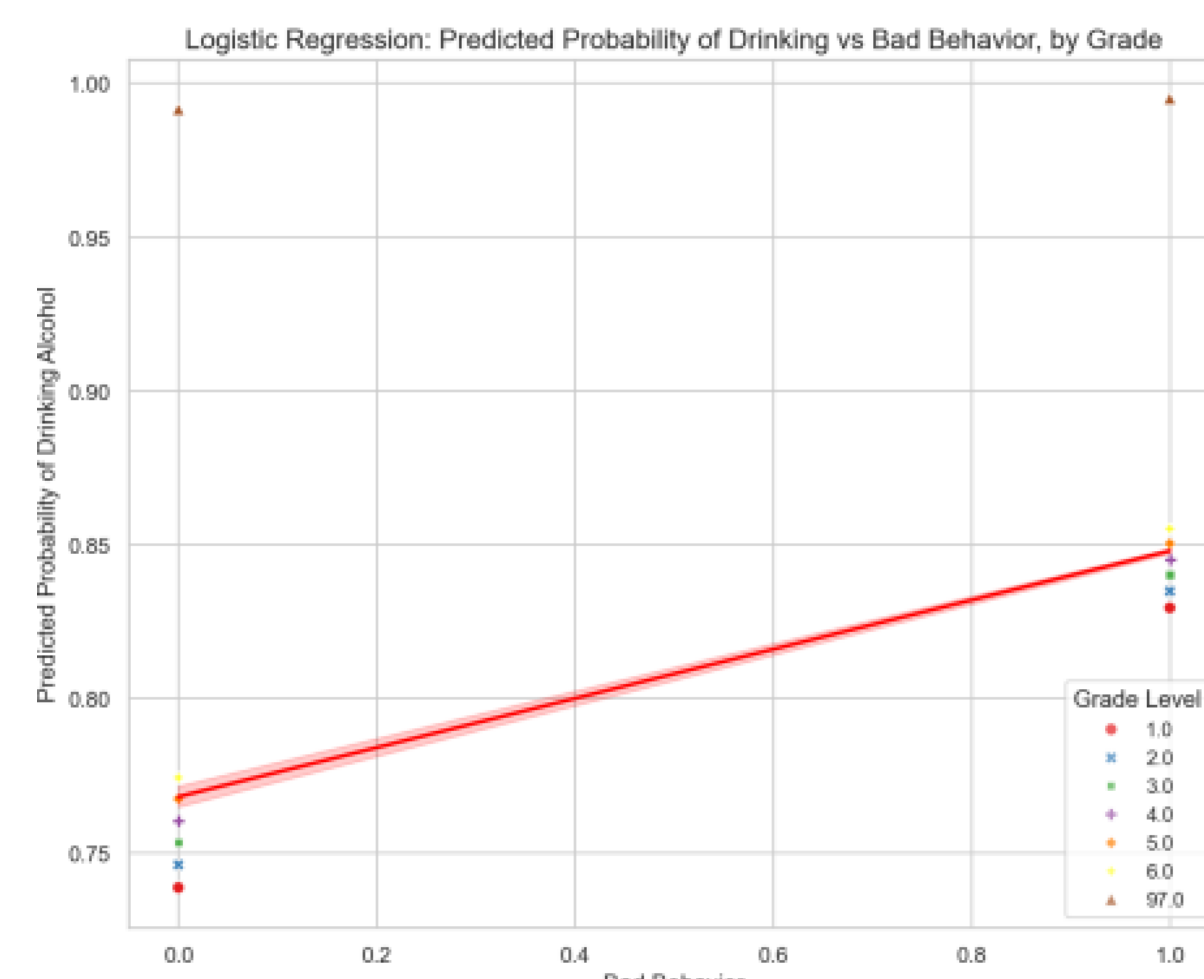


Figure 5

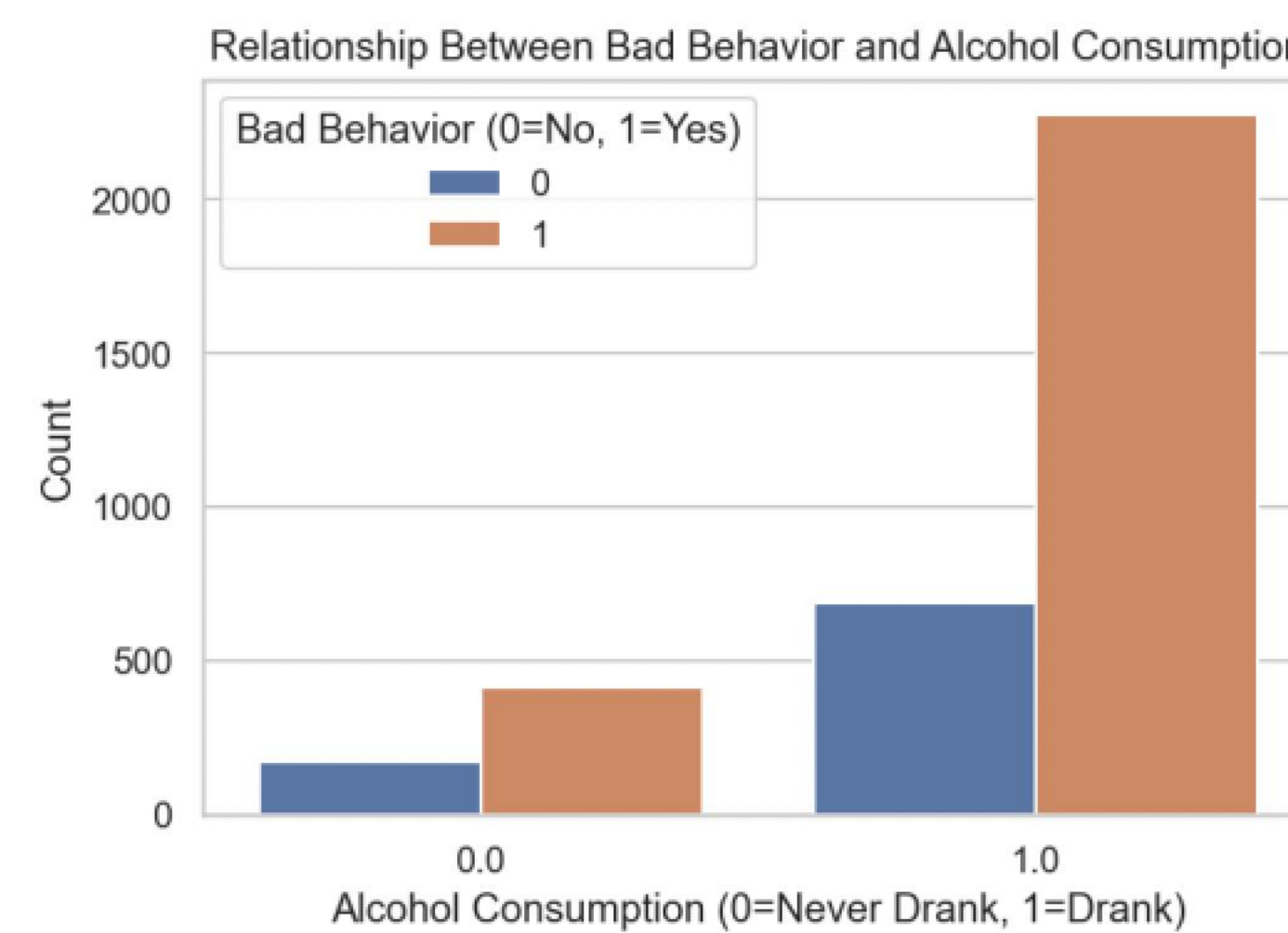


Figure 6

- Fig 4:** The relationship between meeting friends after school and drinking is significant. Each additional meet causes an increase in odds of drinking by 12.23%. As grade level increases by a year, the odds of drinking increases by 22.76%. It is also significant. This is supported by research articles indicating increased time with friends can lead to peer pressure and partake in alcohol consumption activities, as drinking is associated as a key part of building friendships

- Fig 5,6:** The relationship between bad behaviors and drinking is statistically significant. A one unit increase in bad behavior, the odds of consuming alcohol increases 1.723 times

Discussion

- The study reveals statistically significant relationships for the environmental and behavioral factors that could indicate adolescent alcohol use.
- The answers are self-reported which can decrease the validity of the study due to higher likelihood of biases (social desirability or recall bias)
- The study is limited due to the cross-sectional nature of the analysis, using data from wave 5 could increase the statistical significance and provide a more nuanced analysis
- The study does not specifically look at 'peer pressure' variables and assumes increased time spent with friends includes peer pressure or conforming to norms.
- There could be reverse causality. For example, drinking can cause poor parental relationships.
- Violence or "bad behaviour" could be influenced by displays of violent behaviour at home which is not included
- The study can increase the number of variables used to predict familial relationships and alcohol use such as parents' drinking habits
- This research can be used to improve parenting techniques, as many parents may not understand the wider scope of the home environment
- Schools can have influential talks that could decrease conformity to peer pressure

References

Khantzian, Edward J. (1997). The self-medication hypothesis of substance use disorders: A reconsideration and recent applications. *Harvard Review of Psychiatry*, 4(5), 231-244.

Rohde, P., Lewinsohn, P. M., Brown, R. A., Gau, J. M., & Kahler, C. W. (2003). Psychiatric disorders, familial factors and cigarette smoking: I. Associations with smoking initiation. *Nicotine & Tobacco Research*, 5(1), 85-98

Rohde, P., Kahler, C. W., Lewinsohn, P. M., & Brown, R. A. (2004). Psychiatric disorders, familial factors, and cigarette smoking: II. Associations with progression to daily smoking. *Nicotine & Tobacco Research*, 6(1), 119-132.