Associations Among Healthcare Utilization and Binge Drinking

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Recommended Citation

Grey, Ethan; Phalon, Chad; Greene, Anna; Harmeyer, Patricia; Rosenberg, Kalyn; Griffing, Cristine; and Delaney, Tom, "Associations Among Healthcare Utilization and Binge Drinking" (2019). Master of Public Health Culminating Projects. 5.  
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Associations Among Healthcare Utilization and Binge Drinking

October 7, 2018

ABSTRACT

Objective. To examine associations among routine healthcare services and binge drinking in Vermont adults.

Methods. We analyzed a cross-sectional sample of randomly selected 6516 adults who participated in the self-reported 2017 Vermont Behavioral Risk Surveillance System survey. We estimated odds ratios for responses indicative of binge drinking in association with length of time since last routine checkup using a bivariate logistic regression model.

Results. Participants who reported binge drinking were 31% (OR = 0.69, 95% confidence interval [CI] = 0.56, 0.83) less likely to engage in a healthcare visit within the past year controlling for age, employment status, annual household income, and sex with all tests holding statistical significance (P ≤ 0.05).

Conclusion. Findings indicated that binge drinking coincided with a decrease in likelihood of using routine healthcare services within one year.

Policy recommendations. Binge drinking remains a costly form of substance misuse, physically to the individual and financially to the public. Addressing perceived barriers and encouraging those who binge drink to seek annual routine healthcare services is vital to ensuring these at-risk populations receive care.

INTRODUCTION

Vermont adults report alcohol consumption and binge drinking at rates higher than national averages. Data shows that between 2012-2016 there was a 33% increase in alcohol attributable deaths in Vermont due to acute causes such as falls, motor-vehicle accidents, and drownings. This was in addition to a 15% increase in alcohol attributable deaths due to chronic conditions, including cirrhosis of the liver and cancer.

The National Institute on Alcohol Abuse and Alcoholism (NIAAA) defines binge drinking as a pattern of drinking that brings blood alcohol concentration (BAC) to 0.08g/dL, typically
equating to four or more drinks for women and five or more drinks for men over a two-hour period.²

One approach for addressing substance misuse is through identification and intervention during routine healthcare services. Therefore, access and use of routine healthcare is a necessary condition for that method. Vermont boasts a high percentage of its residents having access to healthcare services, with at least 95% of Vermonters being insured as of 2016.³

There is limited research examining the relationship between binge drinking and routine utilization of healthcare. However, existing research reveals potential benefits with integration of substance use interventions and primary care.⁴⁻⁵ The Screening, Brief Intervention, Referral to Treatment (SBIRT) model represents an encouraging example reporting a 34.3% (P < 0.01) drop in an individual’s Alcohol Use Disorder Identification Test (AUDIT) from initial contact to a 6-month follow-up evaluation (n=9,437).⁶ Integration of substance use screening and intervention models could lead to mitigation of alcohol related adverse health conditions.

Our research aims to explore the relationship between binge drinking and the utilization of routine healthcare services. We used data from the 2017 Vermont Behavioral Risk Surveillance System (BRFSS) survey report to examine this relationship controlling for age, employment status, annual household income, and sex.⁷

METHODS

A cross-sectional study was conducted between September 2018 and February 2019 utilizing data from the 2017 Vermont BRFSS, a Center for Disease Control and Prevention (CDC) funded telephone survey. Participants were chosen randomly and anonymously interviewed. The 6,516 respondents, all 18 years or older, were asked a uniform set of questions with the results weighted to represent the Vermont adult population. The primary predictive variable was Calculated Binge Drinking Status (n=6068). The outcome variable selected was Length of Time Since Last Routine Check-Up (n=6,443), recorded as a binary variable that consisted of a response of 0=no routine checkup within the last year and 1=yes routine checkup within the last year. Remaining variable coding found in Table 1. Other demographic and socioeconomic variables were treated as nominal and included: age, employment status, annual household income, and sex. We used bivariate logistic regression analysis to determine predictors of Length of Time Since Last Routine Check-up. Analyses were performed using SPSS Version 24 and all
Individuals who did not provide responses to the calculated binge drinking questions were excluded (n=448), leaving a study sample of 6,068 participants. Of that remaining sample, 13.4% of individuals (n=811) reported values that met or exceeded levels qualifying for binge drinking status. Characteristics of the 6,068 cases included in the analyses are shown in Table 1. Our analysis shows the following rates of reported binge drinking among each demographic group:

- 32.4% among individuals 18-24 years old;
- 25.3% among individuals 25-44 years old;
- 13.1% among individuals 45-64 years old;
- 4.8% among individuals ≥ 65 years old;
- 8.1% of unemployed individuals;
- 17.7% of employed individuals;
- 12.6% of individuals earning < $50,000/year;
- 15.4% of individuals earning ≥ $50,000/year;

The following independent demographic groups were most likely to have been seen for a routine health care visit within the past year; ages ≥ 65, unemployed, earning under $50,000/year, and females (Table 1).

Bivariate logistic regression revealed that individuals who engaged in binge drinking were 31% less likely (OR=0.69, [CI 0.56, 0.83]) to make a routine health care visit within the past year compared to individuals who did controlling for age, employment status, annual household income, and sex.

A Cox & Snell R-square test was performed resulting in a value of 0.069; a low explanatory power for the combination of predictors included in the analysis. The Hosmer and Lemeshow Test chi-square value of 5.168 (DF=8, Sig= 0.740) indicated adequate goodness of fit.

DISCUSSION

Our findings indicate statistical significance in the decreased odds of binge drinkers attending an annual healthcare visit. Among those who engaged in routine healthcare services, only 11% reported binge drinking whereas that percentage nearly doubled (21%) among the sample of those who did not. Binge drinking rates were highest among the following demographic subgroups: 18-24 years-old, employed, annual household income of ≥ $50,000, and males. The
results suggest that the lowest reported rates of binge drinking correlate to the highest attendance in annual routine healthcare visits. There are several limitations within our study. The BRFSS's exclusive use of landline telephone surveys poses the risk of omitting individuals who strictly use cellular devices and those who do not have access/use phones. Data was collected via self-reporting where participants can modify their answers, therefore, recall bias may exist. Race was not included as a predictor due to the limited sample size (5.5% identifying as person of color), while other demographic variables were also not considered as they were beyond the scope of our model.

PUBLIC HEALTH IMPLICATIONS

Binge drinking has long been identified as a serious and preventable public health concern per CDC standards. Contrary to other classifications of high-risk alcohol consumption, such as heavy drinking, binge drinking presents a number of acute public health risks including alcohol poisoning, car crashes, falls, high-risk sexual practices, lapses in short and long-term memory, as well as longer term chronic conditions like diabetes and cancer. Notable is the conclusion derived from Sacks et al’s 2015 report placing the 2010 Vermont total cost of excessive alcohol consumption at $513 million, of which $377 million were attributed to binge drinking. Advocacy of routine healthcare for those engaging in binge drinking is critical in facilitating proper intervention and referrals for treatment. Data collected by UVM Central Vermont Medical Center shows strong promise for the SBIRT model: 82% of participants with alcohol-related risks reported changes in their alcohol consumption six months after having a brief intervention. Further research is needed to identify alternative sites to reach subgroups who demonstrate the highest binge drinking rates.

<table>
<thead>
<tr>
<th>TABLE 1 - Binge Drinking and Demographic Factors in Relation to Routine Healthcare Visits, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Calculated Binge Drinking Study Population</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Binge Drinking Status</th>
<th>0.69 (0.56, 0.83)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Binge Drinking</td>
<td>86.6  76.3</td>
</tr>
<tr>
<td>Yes Binge Drinking</td>
<td>13.4  60.0</td>
</tr>
<tr>
<td>% Missing</td>
<td>0.0    1.1</td>
</tr>
<tr>
<td>Age</td>
<td>1.6 (1.5, 1.7)</td>
</tr>
<tr>
<td>18-24</td>
<td>4.5    66.8</td>
</tr>
<tr>
<td>25-44</td>
<td>19.4   56.4</td>
</tr>
<tr>
<td>45-64</td>
<td>39.6   72.2</td>
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<tr>
<td>≥ 65</td>
<td>35.3   86.9</td>
</tr>
<tr>
<td>% Missing</td>
<td>1.2    2.2</td>
</tr>
<tr>
<td>Employment Status</td>
<td>0.55 (0.47, 0.64)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>44.4   82.7</td>
</tr>
<tr>
<td>Employed</td>
<td>55.1   67.3</td>
</tr>
<tr>
<td>% Missing</td>
<td>0.5    1.5</td>
</tr>
<tr>
<td>Annual household income</td>
<td>1.3 (1.1, 1.5)</td>
</tr>
<tr>
<td>&lt; $50,000</td>
<td>41.7   73.8</td>
</tr>
<tr>
<td>≥ $50,000</td>
<td>40.9   73.5</td>
</tr>
<tr>
<td>% Missing</td>
<td>17.4   18.1</td>
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<tr>
<td>Sex</td>
<td>0.73 (0.64, 0.84)</td>
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<tr>
<td>Female</td>
<td>55.1   76.9</td>
</tr>
<tr>
<td>Male</td>
<td>44.7   70.6</td>
</tr>
<tr>
<td>% Missing</td>
<td>0.1    1.2</td>
</tr>
</tbody>
</table>

Note. CI = confidence interval; OR = odds ratio. The sample size was n = 6068.

REFERENCES

2) Drinking Levels Defined. National Institute on Alcohol Abuse and Alcoholism (NIAAA).

3) Vermont Department of Health. Healthy Vermonters & Health Status Reports.


8) CDC - Fact Sheets-Binge Drinking - Alcohol. Centers for Disease Control and Prevention.


AUTHORSHIP STATEMENTS

The following authors have participated substantially to the workload and content of this project and are willing to provide relevant data upon request. In addition, all authors have contributed to the concept and design as well as the drafting, revision, and approval of the final version of this project.
Ethan Grey, Project Manager, led overall conceptualization and design of the study. Contributed to drafting and revising the manuscript. Wrote the abstract and assisted with interpretation of the results.

Charles Phalon, Lead Writer, contributed to the concept of the study. Led the construction and revision of the introduction and discussion portions of the manuscript.

Anna Greene contributed to the defining and conceptualization of the study. Co-wrote and revised the drafts and finalized copy of the project and manuscript.

Patricia Harmeyer, Lead Analyst, co-conceived and co-designed the research study, developed the analytical model, lead the statistical analysis with co-identification and re-categorization of study variables, wrote the methods section and assisted in drafting the manuscript.

Kalyn Rosenberg, Analyst/Data Manager, co-conceived the research question and co-designed the study. Supported lead analyst in organizing and managing the data set, creating the analytic plan, and conducting descriptive analysis. Assisted with interpretation of the results and the writing of the article.

Cristine Griffing, Literature Manager, responsible for obtaining relevant resources and communicating findings; responsible for the final brief article complying with appropriate citation standards.

Thomas Delaney, Ph.D. provided supervision in study design, interpretation of the results, and final approval of the manuscript.