Happy Hours Gone Wrong: The Impact of Alcohol Consumption on Suicide

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Abstract

In 2021, 48,200 people committed suicide in the U.S., with the male rate four times higher than the female rates. In the same year, 155 million adults (60%) reported drinking alcohol. Given the widespread prevalence of alcohol consumption, sixteen states have implemented bans or restrictions on happy hours, prohibiting businesses from offering discounts or price promotions, initially aimed at reducing drunk driving and excessive drinking. This study for 2003–2021 uses suicide data from the CDC and alcohol consumption data from BRFSS, with a two-stage least squares approach with Happy Hour policies as an instrumental variable for alcohol consumption. The first-stage results confirm that the policies significantly reduce alcohol consumption. In the second stage, a 1% increase in alcohol consumption leads to 0.504 additional suicides per 100,000 people, with 3.6 times greater impacts on white males (0.620) than on white females (0.174). These findings suggest stricter Happy Hour restrictions could reduce both alcohol consumption and suicide rates.

Keywords: Alcohol consumption, suicide, happy hour (JEL: I12, I18, C26)

1 Introduction

Suicide is a critical public health issue in the United States. 48,200 people committed suicide in 2021 alone, a 33% increase from 2001 (CDC, 2023). Concurrently, alcohol consumption is pervasive, with 84% of adults reporting lifetime drinking habits. Per capita ethanol consumption rose by 15% between 2001 and 2021, reaching 2.51 gallons annually which is equivalent to 535.5

standard drinks per year for individuals aged 14 and older (NIAAA, 2022). The economic and social toll of suicide is staggering, costing the U.S. nearly $70 billion annually in lifetime medical and work-loss costs (CDC, 2023). This paper investigates whether policies aimed at reducing alcohol consumption, specifically happy hour bans and restrictions, can mitigate suicide rates.

These Policies prevent businesses from offering discounts or price promotions on alcohol. Initially, this policy was implemented to address drunk driving (Puac-Polanco et al., 2020). However, they may have broader societal implications, particularly in curbing excessive drinking and its associated harms. These trends raise a pivotal question: Can reducing alcohol consumption through policy interventions effectively reduce suicide rates?

This study is based on three key theoretical works. First, Soss and Helburn (1974) developed an economic theory of suicide, suggesting that suicide can be a rational decision influenced by factors such as age, income, and a desire to live. Second, Stiglitz's (1974) research tells us our choices are often made under imperfect and asymmetric information. It leads us to an understanding of how individuals may underestimate the long-term consequences of alcohol misuse. Policies like happy hour bans could address this by limiting immediate access to discounted alcohol, thereby reducing impulsive consumption. Third, Becker and Murphy's (1988) theory of rational addiction highlights how heavily discounting the future increases the likelihood of addiction. They argue that factors such as income, stress, and price changes influence the plausibility of addiction. In this context, happy hour bans could alter the consumption patterns of individuals prone to heavy drinking by increasing alcohol prices and reducing affordability during peak drinking hours.

Despite these theoretical insights, empirical evidence on the broader societal impact of happy hour bans remains limited. This study seeks to address this gap by posing the research

question: Do happy hour restrictions reduce suicide rates by limiting alcohol consumption? By combining panel data from 2003 to 2021, sourced from the Centers for Disease Control and Prevention (CDC) and the Behavioral Risk Factor Surveillance System (BRFSS), this study explores the relationship between alcohol consumption and suicide.

This study employs an instrumental variable (IV) approach using happy hour bans and restrictions to estimate the effect of alcohol consumption on suicide rates. To address endogeneity concerns, the analysis focuses on changes in drinking behavior instrumented by happy hour policies. These policies are assumed to affect suicide rates only through their impact on alcohol consumption, satisfying the exclusion restriction. The first stage predicts alcohol consumption based on the presence of happy hour policies while controlling income, unemployment rates, health status, and state and year fixed effects. The second stage uses the predicted alcohol consumption values to estimate their effect on suicide rates. Building on prior studies such as Markowitz et al. (2002), which used similar IV methods to examine substance use and suicidal behaviors, this study provides an analysis of a specific policy intervention, contributing to the broader understanding of alcohol regulation's public health implications.

The first-stage results demonstrate that happy hour bans and restrictions are associated with a consistent and statistically significant reduction in alcohol consumption. These findings confirm the validity of the instrumental variable, as the F-statistics mostly exceed the threshold of 10. The first-stage analysis establishes that happy hour policies serve as an effective intervention for reducing alcohol consumption, which is critical to the study’s identification strategy.

The second-stage results reveal a positive and significant relationship between alcohol consumption and suicide rates. A 1% increase in alcohol consumption leads to an additional 0.504 suicides per 100,000 people. The heterogeneity analysis further reveals that the impact of alcohol

consumption on suicide is more pronounced among white males, with an increase of 0.620 suicides per 100,000 for every 1% rise in alcohol consumption, compared to 0.174 suicides among white females. These results underline the significant demographic variations in the relationship between alcohol consumption and suicide.

Building on prior research, such as Markowitz et al. (2002, 2003) and Cook et al. (2005), this study reinforces the effectiveness of alcohol control policies in mitigating adverse public health outcomes. The findings align with previous evidence that reductions in alcohol availability, whether through bans, restrictions, or excise taxes, can significantly decrease suicide rates. This study contributes to the broader literature by focusing on a specific policy intervention—happy hour restrictions—and its implications for public health. Future research could expand on these results by utilizing larger datasets, exploring alternative instruments, and investigating additional demographic groups to further refine our understanding of the relationship between alcohol consumption and suicide.

This paper is structured as follows. Section 2 provides the background on happy hour policies and their historical context. Section 3 describes the data sources and key variables used in the analysis. Section 4 outlines the methodology to assess the impact of happy hour restrictions. Section 5 presents the main results, followed by a detailed discussion in Section 6. Finally, Section 7 concludes with a summary of the study's contributions.

2 Background

Happy hour is an American tradition that has evolved significantly over the past century. Its origins can be traced back to the early 20th century in the U.S. Navy. Initially, these gatherings focused on non-alcoholic activities such as singing, watching motion pictures, or organizing

boxing matches to boost crew morale. Over time, however, the term “happy hour” gradually became associated with the consumption of alcoholic beverages (Vaughan, 2024).

Restaurants and drinking places recognized the potential of offering discounted drinks and appetizers during the late afternoon hours to attract customers after the workday. Happy hour became a popular social event, a time for friends, coworkers, and even families to socialize before heading home. In many urban areas, the period after work often means a quick stop at the local bar. The promise of discounted drinks and a lively atmosphere temporarily relieve the day’s stresses. This modern iteration of happy hour has fostered a drinking culture that intertwines leisure, networking, and even informal business interactions.

The drinking culture centered on happy hour is related to economic considerations. For many professionals, happy hour is more than just a chance to relax; it is also an informal networking opportunity. Research by Pai et al. (2020) highlights that the decision to participate in happy hour involves a calculated trade-off between personal time and the instrumental value derived from social and professional networking.

While happy hour continues to be a beloved social tradition, its impact on individual well-being is not consistently positive. For some, frequent participation in happy hour may contribute to problematic drinking behaviors and negative health outcomes. Marsh et al. (2018) examine the phenomenon of “hangxiety”—the heightened anxiety experienced during alcohol withdrawal or hangovers. Their naturalistic study of social drinkers revealed that alcohol consumption can intensify anxiety symptoms, particularly among shy individuals. This indicates that while happy hour offers a socially acceptable way to relax and connect, it can also lead to negative emotional and physical repercussions.

Happy hour has a complex nature. While it offers social and economic benefits, it may also contribute to harmful drinking practices and adverse public health outcomes for certain individuals. This background sets the stage for exploring its broader impact on health outcomes.

3 Data

A balanced panel dataset has been used in this study ranging from 2003 to 2021 in the United States's states and District of Columbia. The primary data sources are the Centers for Disease Control and Prevention (CDC), the Behavioral Risk Factor Surveillance System (BRFSS), the U.S. Bureau of Labor Statistics, and the U.S. Census Bureau. To estimate the effect of alcohol consumption on suicide I have used suicide rates, alcohol consumption, real median household income, unemployment rate, and poor health status as variables.

The dependent variables are overall suicide rates, white male suicide rates, and white female suicide rates, measured as the number of suicides per 100,000 population which is collected from the CDC. The primary independent variable, alcohol consumption is calculated as the percentage of adults reporting at least one alcoholic drink within the past 30 days, obtained from the BRFSS. I have included three control variables, real median household income (in dollars), the unemployment rate (percentage), and the percentage of adults reporting fair or poor health, sourced from the BRFSS, the U.S. Bureau of Labor Statistics, and the U.S. Census Bureau. While the dataset is well-documented, it has some limitations as well, including potential measurement errors in self-reported alcohol consumption and missing observations for some variables. For example, there are a few differences in the number of observations for white male and female suicide rates and alcohol consumption due to incomplete data reporting in certain years. White female suicide rate data were unavailable for the District of Columbia from 2003 to 2021 and for North Dakota in 2003 to 2005 and 2007, while white male suicide rate data were missing for the District of

Columbia in 2003 and 2011. Additionally, data on alcohol consumption and poor health were not reported for Florida in 2021, New Jersey in 2018, and Hawaii in 2004.

Table 1 reports the summary statistics for the variables used in this study. The mean suicide rate is 14.59 per 100,000 population, with white male suicide rates averaging 25.46 and white female suicide rates at 6.75. Alcohol consumption averages 53.23%, with a standard deviation of 8.72% which indicates variation across states and over time. Real median household income has a mean of $69,287, while the unemployment rate and poor health percentages average 5.72% and 16.27%, respectively.

Figure 1 illustrates trends in suicide rates from 2003 to 2021 across demographic groups – overall suicide rates, white male suicide rates, and white female suicide rates. The graph shows a consistent increase in suicide rates among white males, while overall rates and white female rates show smaller but noticeable increases. This figure highlights the demographic-specific nature of suicide trends. Figure 2 demonstrates a geographical representation of states that have enacted bans or restrictions on happy hour policies as of 2021, highlighted in orange. The variation in alcohol control policies across states leads to the study of the impact of these measures on suicide rates.

Figure 3 shows the variation in suicide rates between states with and without happy hour bans or restrictions from 2003 to 2021. Red boxplots represent states with bans or restrictions (coded as "1"), and blue boxplots represent states without such policies (coded as "0"). States with bans or restrictions generally exhibit slightly lower median suicide rates, though the differences are not sharp. Figure 4 highlights the relationship between alcohol consumption and happy hour bans or restrictions over the years. Red boxplots correspond to states with bans or restrictions, and blue boxplots represent states without such policies. The figure shows relatively stable trends in

alcohol consumption across both groups, with states having bans or restrictions appearing to have slightly lower median consumption levels. In summary, the dataset is well-suited to examine the relationship between alcohol consumption and suicide rates using happy hour policies as an instrumental variable.

4 Methodology

The identification strategy depends on using the happy hour drinking policy of bans or restrictions as an instrumental variable (IV) for alcohol consumption. The hypothesis is whether changes in alcohol consumption, influenced by policy interventions like happy hour restrictions, have an impact on suicide rates. The selection of happy hour policies as an instrument is based on prior literature. Kuo et al. (2003) highlight how alcohol promotions and pricing strategies influence consumption patterns. These policies are assumed to affect suicide rates only through their impact on alcohol consumption.

A two-stage least squares (2SLS) regression framework is employed to test the hypothesis. This method is appropriate to address endogeneity concerns that arise from the relationship between alcohol consumption and suicide rates. For instance, while higher alcohol consumption might lead to higher suicide rates, it is also possible that some other unobserved factors influence suicide. The IV approach diminishes this concern by focusing only on changes in alcohol consumption caused by happy hour policies.

The empirical analysis begins with the first-stage regression:

$$Alcohol\ Consumption_{it} = \alpha + \beta \cdot Banned\ or\ Restriction_{it} + \gamma \cdot X_{it} + \delta_t + \lambda_i + \epsilon_{it} \quad (1)$$

Here, $Alcohol\ Consumption_{it}$ is the proportion of adults consuming alcohol in state i and year t. $Banned\ or\ Restriction_{it}$ is the primary independent variable indicating whether a happy hour ban or restriction is in place. The vector X_{it} includes control variables – income, unemployment

rate, and poor health status. δ_t and λ_i are respectively the year and state fixed effects to account for unobserved heterogeneity across time and states. The error term ϵ_{it} captures unobserved factors affecting alcohol consumption.

The second stage of the 2SLS framework estimates the impact of alcohol consumption on suicide rates:

$$Suicide\ Rate_{it} = \alpha + \beta \cdot Alcohol\ \widehat{Consumption}_{it} + \gamma \cdot X_{it} + \delta_t + \lambda_i + \epsilon_{it} \quad (2)$$

In this equation, $Alcohol\ \widehat{Consumption}_{it}$ represents the predicted values of alcohol consumption from the first stage. The coefficient β is the key parameter of interest which measures the effect of alcohol consumption on suicide rates.

For the IV approach to yield unbiased estimates, several assumptions must hold. First, the instrumental variable must be strongly correlated with the endogenous variable. Then, the first-stage F statistic must exceed 10 to be a valid-strong instrument. Finally, the exclusion restriction requires that happy hour policies influence suicide rates only because they affect alcohol consumption. Previous literature supports this assumption. Markowitz et al. (2002) employed similar strategies, using beer prices and college residence as instruments for substance use. They argue that these instruments affect alcohol consumption without directly influencing suicidal behaviors. As Markowitz et al. (2002) note, there is little reason to believe that these policies affect suicidal behaviors except through their impact on drinking, thereby satisfying the exclusion restriction and supporting the instrument's overall validity. Since happy hour policies primarily alter the cost and accessibility of alcohol without directly influencing suicidal behavior, they serve as a credible instrumental variable in this study.

This study builds on the work of Markowitz et al. (2002), which employs IV methods to estimate the impact of substance use on suicidal behaviors. By using happy hour policies as an

instrument, this paper extends the literature by focusing on a specific policy intervention and its broader implications for public health. The findings contribute to the growing body of evidence on the relationship between alcohol consumption and suicide, highlighting the potential for targeted policy measures to mitigate adverse outcomes.

5 Results

Table 2 represents the first stage results examining the relationship between the happy hour drinking policy and alcohol consumption. The coefficients on the primary independent variable, "Banned or Restriction" are consistently negative across all models which implies that imposing a happy hour ban or restriction is associated with a reduction in alcohol consumption. In column 1, the coefficient is highly significant (-3.179) which has no fixed effects. As the fixed effects are introduced from columns 2 through 4, the magnitude of coefficients has decreased while the level of significance varies. The coefficient remains significant in Column 4, which includes state and year fixed effects along with covariates (-2.701, $p<0.01$). The inclusion of control variables here suggests that alcohol consumption is also influenced by broader socioeconomic and health factors. The F-statistics are above 10 except in column 2, indicating the instruments are relatively strong.

Table 3 represents the relationship between alcohol consumption and suicide rates using Ordinary Least Squares (OLS) and Two-Stage Least Squares (2SLS) methods in panels A and B. The results in Panel A show no significance with fixed effects and covariates. In column 1, without any fixed effects or controls, the coefficient on alcohol consumption is statistically significant, however negative (-0.103) magnitude suggests that higher alcohol consumption is associated with lower suicide rates. Panel B demonstrates the 2SLS results where the happy hour drinking policy is the instrumental variable for alcohol consumption. The result in column 8 including both state and year fixed effects and covariates shows that the coefficient on alcohol consumption is positive

and statistically significant (0.504). It implies a 1% increase in the proportion of adults consuming alcohol in the past 30 days leads to 0.504 additional suicides per 100,000 people. The IV approach illustrates a strong-significant effect while the OLS estimates a weaker-insignificant effect which demonstrates the importance of endogeneity here.

I perform a heterogeneity analysis focusing on specific demographic groups - white males and white females. Table 4 represents the relationship between alcohol consumption and white male suicide rates using Ordinary Least Squares (OLS) and Two-Stage Least Squares (2SLS) regression methods respectively in Panels A and B. The OLS estimate shows that alcohol consumption has a negative relationship with white male suicide rates in column 1 (-0.264, $p<0.01$). The magnitude and significance level of the coefficient decreased as fixed effects are introduced in columns 2 through 4. The key result is reported in column 8 using the 2SLS method using IV, where the model includes both state and year fixed effects along with all covariates. The coefficient of alcohol consumption is positive and highly significant (0.620, $p<0.01$). The result implies that a 1% increase in the proportion of adults consuming alcohol in the past 30 days is associated with an increase of 0.620 suicides per 100,000 people. These results suggest that alcohol consumption has a significant impact on white male suicide rates.

Table 5 illustrates the relationship between alcohol consumption and white female suicide rates. The table includes two panels using Ordinary Least Squares (OLS) and Two-Stage Least Squares (2SLS) regression methods. The OLS estimate demonstrates a lower magnitude and no significance on the coefficient of alcohol consumption with fixed effects. In column 8, the magnitude of the coefficient of alcohol consumption (0.174) has decreased compared to white male suicide rates. The positive relationship between alcohol consumption and white female suicide rates in the presence of IV implies that a 1% increase in the proportion of adults consuming

alcohol in the past 30 days is associated with an additional 0.174 suicides per 100,000 white females.

MacKinnon et al. (2022) highlight that in IV models with clustered data, issues related to over-identifying restrictions and instrument strength can undermine the reliability of finite-sample inference. Given these complexities and the current limitations in econometric guidance for clustering in IV contexts, I have chosen not to use clustered standard errors to avoid additional complications.

The results confirm my hypothesis as they highlight the significant impact of alcohol consumption on suicide rates with notable heterogeneity across demographic groups. Although the effect is more noticeable for white males, a positive and significant relation is also observed for white females with a lower magnitude. These findings provide a foundation for further discussion on policy design.

6 Discussion

The findings show that happy hour drinking policies are associated with a reduction in alcohol consumption and higher levels of alcohol consumption are linked to an increase in suicide rates. The first stage result provides the validity of the instrumental variable, and the second stage demonstrates the relationship between alcohol consumption and suicide.

The coefficients of the happy hour drinking policy were consistently negative and significant across most models in the first stage. It indicates that this policy effectively reduces alcohol consumption. The relationship between alcohol consumption and suicide is versatile in the second stage. I investigated the relationship between alcohol consumption and overall suicide rates, as well as suicide rates among white males and white females. In the models with both state and year fixed effects and covariates, results show a positive relationship between alcohol

consumption and suicide. The magnitude of the impact is higher among white males than white females.

My results align with the previous research to discuss the effectiveness of alcohol control policies in reducing consumption. Markowitz, Chatterji, Kaestner, and Dave (2002) found that alcohol and illicit drug use increases the likelihood of suicidal behaviors. In this study, they use the choice of college residence as an instrument for substance use to discuss the relationship between substance use and suicidal behaviors among young adults. Additionally, Markowitz, Chatterji, and Kaestner (2003) demonstrated that increases in beer excise taxes are associated with reduced youth male suicides. This emphasized the potential to control alcohol policies to impact suicide rates. Similarly, Cook, Ostermann, and Sloan (2005) found that higher alcohol taxes reduce all-cause mortality in the short run.

The results of this study contribute to the growing evidence that reducing alcohol availability such as happy hour drinking policy can be effective in decreasing suicide to achieve public health goals. Further research could examine this work by using larger datasets and exploring alternative instruments among other demographics and age groups.

7 Conclusion

This study provides evidence that happy hour restrictions significantly reduce alcohol consumption and suicide rates. The first-stage analysis establishes that these policies lead to a consistent decline in alcohol consumption. The second-stage results demonstrate the relationship: a 1% increase in alcohol consumption corresponds to an additional 0.504 suicides per 100,000 people. This effect is particularly noticeable among white males, who experience a 0.620 increase in suicides per 100,000 with every 1% rise in alcohol consumption. These findings underscore the critical role of alcohol regulation in mitigating public health concerns. These findings align with

prior literature emphasizing the effectiveness of alcohol control measures, such as excise taxes and advertising restrictions, in promoting public health.

The policy implications of this study are clear: targeted interventions, such as happy hour restrictions, can effectively reduce harmful drinking behaviors and their associated risks. Policymakers should consider the broader application of such measures and their potential to address other alcohol-related public health crises.

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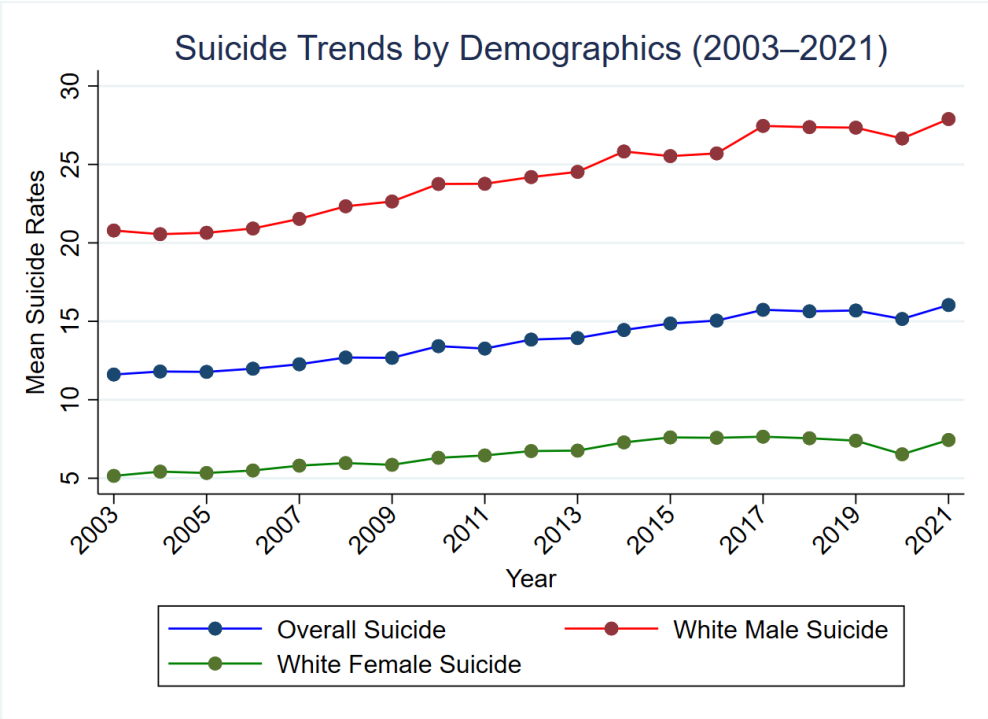
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Figures and Tables

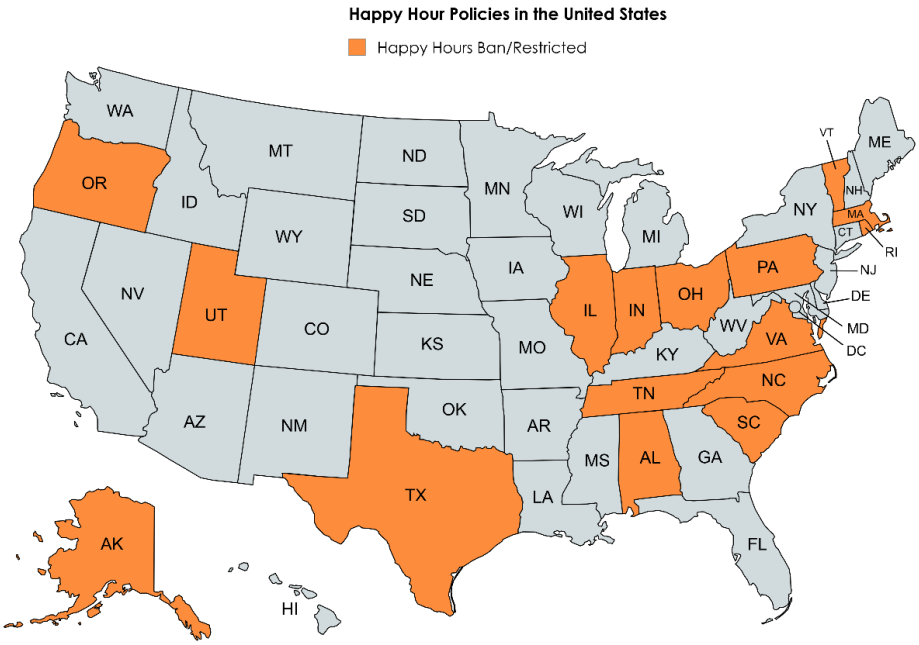
Figures

Figure 1 - Suicide Trends by Demographics (2003-2021)



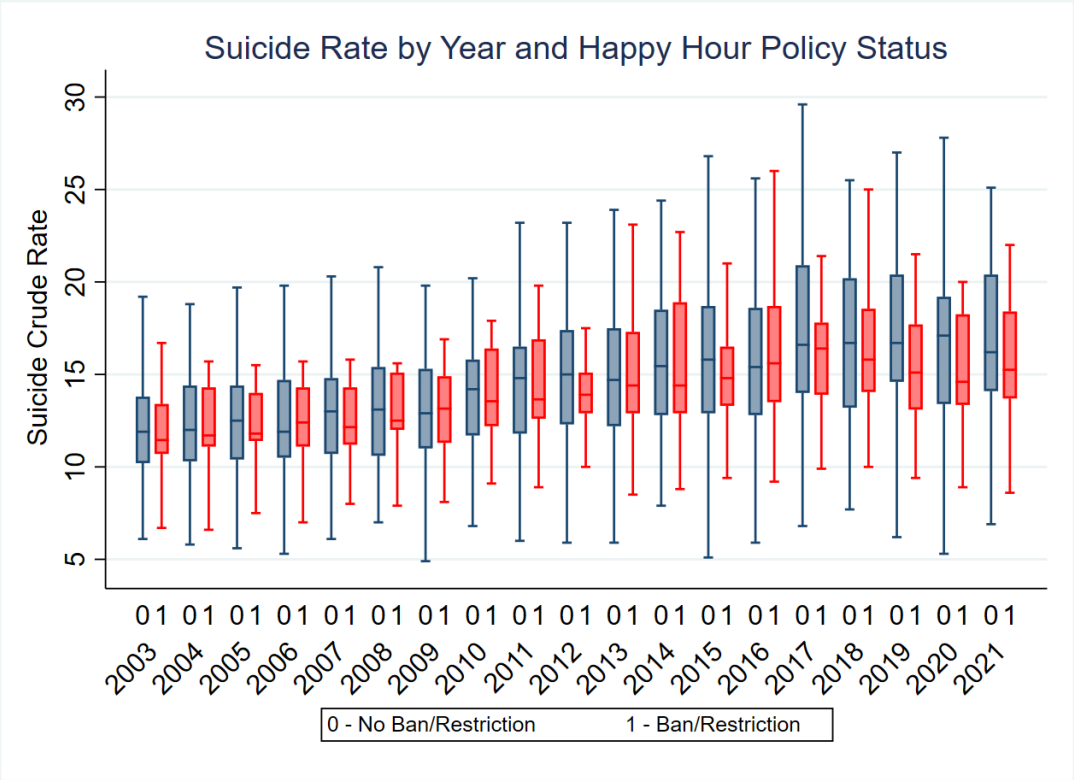
Notes: The figure shows the trends in suicide rates from 2003 to 2021 across three demographic groups: overall suicide rates, white male suicide rates, and white female suicide rates. Suicide Rate, White Male Suicide Rate, White Female Suicide Rate are measured as the number of suicides per 100,000 population, sourced from the CDC. The trends indicate a consistent increase in suicide rates among white males, while overall suicide rates and white female rates show smaller increases.

Figure 2 – Happy Hour Policies in the United States



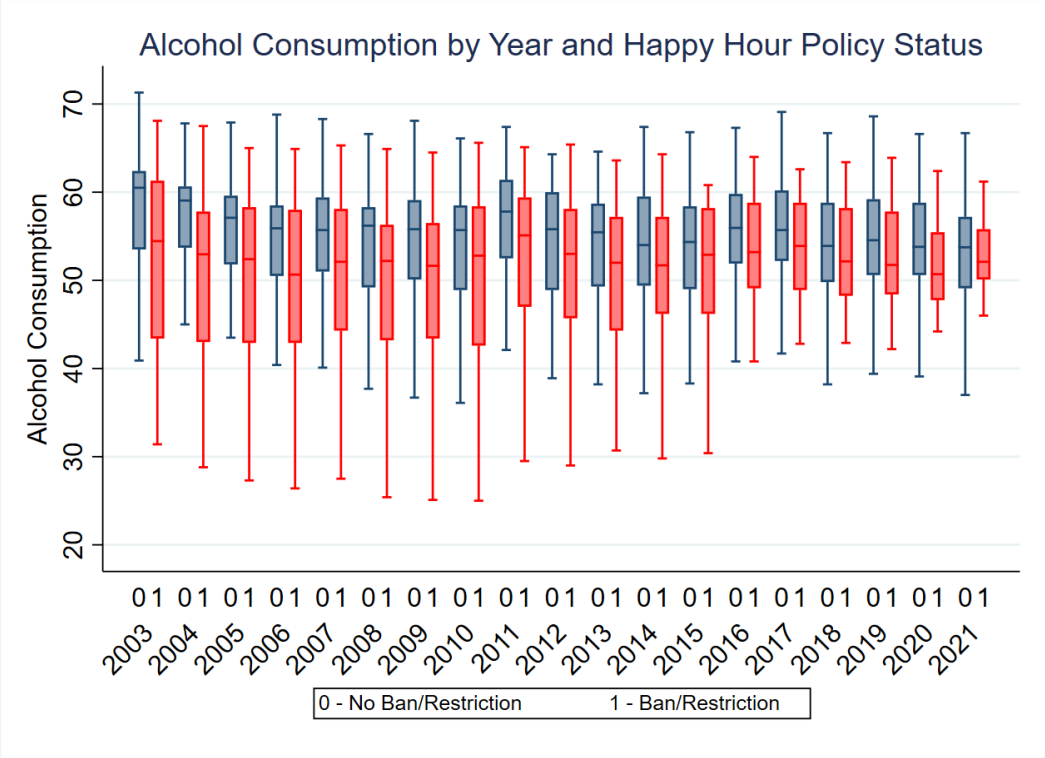
Notes: This map shows the states in the United States that have enacted bans or restrictions on happy hour policies. The states highlighted in orange represent those with such policies in place. The geographic distribution of these policies appears concentrated in certain regions, including the South and parts of the West and Northeast.

Figure 3 - Suicide Rate by Year and Happy Hour Policy Status



Notes: This figure shows the relationship between suicide crude rates and the implementation of happy hour restrictions across U.S. states from 2003 to 2021. The red boxplots correspond to states with bans or restrictions on happy hours (noted as "1"), while the blue boxplots represent states without such policies (noted as "0"). Suicide crude rate is measured as the number of suicides per 100,000 population, sourced from the CDC.

Figure 4 - Alcohol Consumption by Year and Happy Hour Policy Status



Notes: This figure shows the relationship between alcohol consumption and the implementation of happy hour restrictions across U.S. states from 2003 to 2021. The red boxplots correspond to states with bans or restrictions on happy hours (noted as "1"), while the blue boxplots represent states without such policies (noted as "0"). Alcohol consumption measured as the percentage of adults reporting at least one alcoholic drink within the past 30 days, is obtained from the Behavioral Risk Factor Surveillance System (BRFSS).

Table 1 - Descriptive Statistics

Variables	Observation	Mean	Std. Dev.	Min	Max
Suicide Rate	969	14.587	4.479	4.9	32.8
White Male Suicide Rate	967	25.459	6.743	7.165	53.554
White Female Suicide Rate	946	6.745	2.06	1.954	15.4
Alcohol Consumption	966	53.225	8.717	25	71.3
Income	969	69287.472	11803.144	39670	108900
Unemployment Rate	969	5.724	2.078	2.1	13.7
Poor Health	966	16.267	3.484	10	26.6

Notes: This table represents summary statistics for the variables used in the analysis, utilizing a balanced panel dataset spanning U.S. states from 2003 to 2021. Suicide Rate, White Male Suicide Rate, White Female Suicide Rate are measured as the number of suicides per 100,000 population, sourced from the CDC. Alcohol Consumption measured as the percentage of adults reporting at least one alcoholic drink within the past 30 days, is obtained from the Behavioral Risk Factor Surveillance System (BRFSS). Income is the real median household income in dollars, real median household income and unemployment rate (percentage), sourced from the U.S. Bureau of Labor Statistics, and the U.S. Census Bureau, and the percentage of adults reporting fair or poor health, also obtained from the BRFSS. Observations, mean values, standard deviations, minimum, and maximum values are reported for each variable.

Table 2 - 1st Stage – Alcohol Consumption on Instrument: Happy Hour Restriction

Variables	(1)	(2)	(3)	(4)
Banned or Restriction	-3.179***	-2.098**	-2.473***	-2.701***
	(0.584)	(0.835)	(0.777)	(0.757)
Income				-4.48e-06
				(1.93e-05)
Unemployment Rate				-0.454***
				(0.0829)
Poor Health				-0.379***
				(0.0793)
State FE	No	Yes	Yes	Yes
Year FE	No	No	Yes	Yes
Observations	966	966	966	966
R-squared	0.030	0.007	0.182	0.229
First Stage F Stat	29.664	6.307	10.125	12.715

Notes: This table demonstrates the first stage relationship between alcohol consumption and happy hours restriction, utilizing a balanced panel dataset spanning U.S. states from 2003 to 2021. The dependent variable is alcohol consumption, measured as the percentage of adults reporting at least one alcoholic drink within the past 30 days, is obtained from the Behavioral Risk Factor Surveillance System (BRFSS). The independent variable is the happy hour restrictions, a binary indicator collected from the Alcohol Policy Information System (APIS). The models include several control variables: real median household income and unemployment rates, sourced from the U.S. Bureau of Labor Statistics, and the U.S. Census Bureau, and the percentage of adults reporting fair or poor health, also obtained from the BRFSS. Statistical significance levels are denoted by ****(p<0.01), **(p<0.05), and *(p<0.10).*

Table 3 – Suicide Rate and Alcohol Consumption

Panel A. Suicide Rate - OLS				
Variables	(1)	(2)	(3)	(4)
Alcohol Consumption	-0.103***	-0.0122	0.0291	0.0423
	(0.0162)	(0.0632)	(0.0360)	(0.0334)
Income				-1.81e-05
				(2.20e-05)
Unemployment Rate				0.00965
				(0.0685)
Poor Health				0.182***
				(0.0632)
State FE	No	Yes	Yes	Yes
Year FE	No	No	Yes	Yes
Observations	966	966	966	966
R-squared	0.040	0.000	0.675	0.682
Panel B. Suicide Rate - IV				
Variables	(5)	(6)	(7)	(8)
Alcohol Consumption	0.153	2.026***	0.595***	0.504***
	(0.0956)	(0.0262)	(0.104)	(0.0933)
Income				-1.63e-05
				(2.08e-05)
Unemployment Rate				0.220***
				(0.0664)
Poor Health				0.348***
				(0.0642)
State FE	No	Yes	Yes	Yes
Year FE	No	No	Yes	Yes
Observations	969	969	969	966
R-squared	0.003	0.036	0.677	0.684
First Stage F Stat	29.664	6.307	10.125	12.715

Notes: This table demonstrates the relationship between alcohol consumption and suicide crude rates, utilizing a balanced panel dataset spanning U.S. states from 2003 to 2021. The dependent variable is the suicide crude rate per 100,000 population, sourced from the CDC. Alcohol consumption, measured as the percentage of adults reporting at least one alcoholic drink within the past 30 days, is obtained from the Behavioral Risk Factor Surveillance System (BRFSS). Panel A reports the results from Ordinary Least Squares (OLS) regressions, while Panel B presents estimates from the second stage of a Two-Stage Least Squares (2SLS) regression framework. The instrumental variable for alcohol consumption is the presence of happy hour restrictions, a binary indicator collected from the Alcohol Policy Information System (APIS). The models include several control variables: real median household income and unemployment rates, sourced from the U.S. Census Bureau the U.S. Bureau of Labor Statistics respectively, and the percentage of adults reporting fair or poor health, also obtained from the BRFSS. Statistical significance levels are denoted by ****(p<0.01), **(p<0.05), and *(p<0.10).*

Table 4 – White Male Suicide Rate and Alcohol Consumption

Panel A. White Male Suicide Rate - OLS				
Variables	(1)	(2)	(3)	(4)
Alcohol Consumption	-0.264***	-0.00597	0.0794	0.0999*
	(0.0235)	(0.107)	(0.0575)	(0.0528)
Income				-3.92e-05
				(3.83e-05)
Unemployment Rate				-0.0153
				(0.116)
Poor Health				0.318***
				(0.0970)
State FE	No	Yes	Yes	Yes
Year FE	No	No	Yes	Yes
Observations	964	964	964	964
R-squared	0.117	0.000	0.640	0.648
Panel B. White Male Suicide Rate - IV				
Variables	(5)	(6)	(7)	(8)
Alcohol Consumption	0.292**	3.129***	0.754***	0.620***
	(0.144)	(0.112)	(0.193)	(0.168)
Income				-3.75e-05
				(3.64e-05)
Unemployment Rate				0.221*
				(0.130)
Poor Health				0.506***
				(0.103)
State FE	No	Yes	Yes	Yes
Year FE	No	No	Yes	Yes
Observations	967	967	967	964
R-squared	0.004	0.029	0.639	0.646
First Stage F Stat	29.047	6.307	10.233	12.794

Notes: This table demonstrates the relationship between alcohol consumption and white male's suicide crude rates, utilizing a balanced panel dataset spanning U.S. states from 2003 to 2021. The dependent variable is the suicide crude rate per 100,000 population, sourced from the CDC. Alcohol consumption, measured as the percentage of adults reporting at least one alcoholic drink within the past 30 days, is obtained from the Behavioral Risk Factor Surveillance System (BRFSS). Panel A reports the results from Ordinary Least Squares (OLS) regressions, while Panel B presents estimates from the second stage of a Two-Stage Least Squares (2SLS) regression framework. The instrumental variable for alcohol consumption is the presence of happy hour restrictions, a binary indicator collected from the Alcohol Policy Information System (APIS). The models include several control variables: real median household income and unemployment rates, sourced from the U.S. Census Bureau the U.S. Bureau of Labor Statistics respectively, and the percentage of adults reporting fair or poor health, also obtained from the BRFSS. Statistical significance levels are denoted by ****(p<0.01), **(p<0.05), and *(p<0.10).*

Table 5 – White Female Suicide Rate and Alcohol Consumption

Panel A. White Female Suicide Rate - OLS				
Variables	(1)	(2)	(3)	(4)
Alcohol Consumption	-0.0580***	-0.0172	0.00882	0.0172
	(0.00755)	(0.0379)	(0.0216)	(0.0216)
Income				-1.20e-05
				(9.88e-06)
Unemployment Rate				0.0931**
				(0.0406)
Poor Health				0.0303
				(0.0483)
State FE	No	Yes	Yes	Yes
Year FE	No	No	Yes	Yes
Observations	943	943	943	943
R-squared	0.059	0.001	0.523	0.529
Panel B. White Female Suicide Rate - IV				
Variables	(5)	(6)	(7)	(8)
Alcohol Consumption	0.0859*	0.883***	0.192***	0.174***
	(0.0442)	(0.0871)	(0.0409)	(0.0319)
Income				-1.21e-05
				(9.66e-06)
Unemployment Rate				0.164***
				(0.0391)
Poor Health				0.0872*
				(0.0466)
State FE	No	Yes	Yes	Yes
Year FE	No	No	Yes	Yes
Observations	946	946	946	943
R-squared	0.004	0.017	0.525	0.529
First Stage F Stat	23.066	6.393	10.919	13.520

Notes: This table demonstrates the relationship between alcohol consumption and white female's suicide crude rates, utilizing a balanced panel dataset spanning U.S. states from 2003 to 2021. The dependent variable is the suicide crude rate per 100,000 population, sourced from the CDC. Alcohol consumption, measured as the percentage of adults reporting at least one alcoholic drink within the past 30 days, is obtained from the Behavioral Risk Factor Surveillance System (BRFSS). Panel A reports the results from Ordinary Least Squares (OLS) regressions, while Panel B presents estimates from the second stage of a Two-Stage Least Squares (2SLS) regression framework. The instrumental variable for alcohol consumption is the presence of happy hour restrictions, a binary indicator collected from the Alcohol Policy Information System (APIS). The models include several control variables: real median household income and unemployment rates, sourced from the U.S. Census Bureau the U.S. Bureau of Labor Statistics respectively, and the percentage of adults reporting fair or poor health, also obtained from the BRFSS. Statistical significance levels are denoted by ****(p<0.01), **(p<0.05), and *(p<0.10).*