Supplemental Digital Content 1: Technical Appendix

Ipsos KnowledgePanel®

The Ipsos KnowledgePanel®[1] is a web-based online survey panel comprising more than 55,000 adults that is representative of the U.S. population. Panel participants are recruited using an addressed-based sampling methodology[2] from the United States Postal Service's Delivery Sequence File—a database with full coverage of all delivery points in the U.S.—and provided with a free computing device and Internet service. Members are compensated for participation in the panel with entries into raffles for cash rewards and other prizes.

Response Rate and Item Completion

A random sample of 1,691 panel members were selected and invited by Ipsos to complete the survey. The sample was selected using a weighted sampling methodology to assure representativeness of the sample. A total of 1017 adults (60%) responded to the invitation and 993 (59%) qualified for (i.e., were 21 or older) and completed the survey, in line with other surveys conducted using the KnowledgePanel®.[3] Each survey item had fewer than 1.5% missing responses, and 97.7% of respondents skipped fewer than 2 survey items.

Alcohol Drinking Measures

Drinking Days: This is reported directly by the respondent (e.g., Q1.1 for April).

Usual Quantity when Drinking: This is reported directly by the respondent (e.g., Q1.2 for April). Note that the survey defined standard drinks (see SDC2) and instructed the respondent to answer all quantity questions in terms of standard drinks.

Maximum Quantity when Drinking: This is reported directly by the respondent (e.g., Q1.3 for April).

Any Binge Drinking: Binary measure equal to 1 if the respondent reported any binge drinking. This is reported directly by the respondent (e.g., Q1.5 in April). The question is asked differently for males and females. Binge drinking is defined as five or more drinks in a two-hour period for men and four or more for women.[4]

Average Drinks per Day (DPD): Numerator is usual quantity when drinking multiplied by days drinking the normal amount (e.g., Q1.1-Q1.4) plus maximum quantity times number of days drinking the maximum amount. Denominator is 30. For example (using April consumption questions (Q) from the survey):

$$\text{Average DPD} = (Q1.2 * (Q1.1 - Q1.4) + Q1.3 * Q1.4)/30$$

Note: for frequency elements, the midpoint of the range was used for all measure calculations. This measure is calculated similarly to how average consumption was measured in the National Epidemiologic Survey on Alcohol and Related Conditions-III.[5]

Average Drinks per Drinking Day (DPDD): Drinks per day divided by frequency of drinking (rather than 30). For example (using April consumption questions from the survey):

$$\text{Average DPDD} = (Q1.2 * (Q1.1 - Q1.4) + Q1.3 * Q1.4)/Q1.1$$

Exceeded Drinking Limits: Binary measure equal to 1 if the respondent exceeded either daily or weekly drinking guidelines. The guidelines are no more than 4 drinks in one day and 14 per week for men under 65 and no more than 3 drinks in one day and 7 in a week for women and men over 65.[1] Exceeding daily guidelines was assessed using the maximum quantity question (e.g., Q1.3 for April). Exceeding weekly guidelines was assessed using Average DPD multiplied by 7.

Analysis

The linear (Equation 1) and logistic (Equation 2) models are specified as follows:

$$y_{it} = \beta_0 + \beta_1 Apr_t + \beta_2 Demog_i + \beta_3[Apr_t * Demog_i] + \varepsilon_{it} \text{ and} \quad \text{(Equation 1)}$$

$$p(y_{it} = 1) = F(\beta_0 + \beta_1 Apr_t + \beta_2 Demog_i + \beta_3[Apr_t * Demog_i] + \varepsilon_{it}) \quad \text{(Equation 2),}$$

where y_{it} is the continuous outcome (drinks per day), $F(.)$ is the standard logistic distribution, Apr_t is an indicator for the April response, $Demog_i$ is a vector of binary indicators of demographic characteristics, and $Apr_t * Demog_i$ represents a vector of interactions between the time indicator and the demographic indicators. ε_{it} represents an error term clustered at the individual level for estimation. The models were estimated with individual probability weights designed to be representative of the U.S. population. The regression estimates are shown below (Table S1.1).

Table S1.1. Results from Regression Models Assessing Associations between Demographic Characteristics and Differences in Consumption Measures between February and April.

Covariate	Drinks Per Day	Exceed Drinking Limits[a]	Any Binge[b]
Month (ref. = Feb.)			
April	0.08	0.413*	0.297
	(0.330)	(0.048)	(0.200)
Gender (ref. = female)			
Male	0.459***	0.278	0.326
	(0.000)	(0.166)	(0.145)
Age (ref. = 21–34)			
35–49	0.055	-0.232	-0.257
	(0.754)	(0.443)	(0.410)
50–64	-0.096	-0.451	-0.614*
	(0.479)	(0.107)	(0.035)
65 or older	-0.115	-0.636*	-1.554***
	(0.423)	(0.031)	(0.000)
Race/ethnicity (ref. = white, non-Hispanic)			
Black, non-Hispanic	-0.312*	-1.184*	-1.188*
	(0.012)	(0.021)	(0.040)
Other, non-Hispanic	-0.311	-0.773	-0.757
	(0.072)	(0.104)	(0.149)
Hispanic	-0.231	-0.028	-0.112
	(0.056)	(0.921)	(0.718)
Interactions			
April x male	0.022	-0.351*	-0.281
	(0.773)	(0.026)	(0.123)
April x age 35–49	0.076	-0.138	-0.04
	(0.472)	(0.575)	(0.879)
April x age 50–64	0.201	-0.17	-0.138
	(0.085)	(0.441)	(0.574)
April x age 65 or older	0.006	-0.114	0.141
	(0.953)	(0.629)	(0.598)

April x black, non-Hispanic	0.047	0.909*	0.903
	(0.635)	(0.028)	(0.074)
April x other, non-Hispanic	0.116	0.383	0.175
	(0.458)	(0.229)	(0.677)
April x Hispanic	0.106	0.203	0.375
	(0.440)	(0.394)	(0.155)
Constant	0.653***	-0.522*	-0.702**
	(0.000)	(0.034)	(0.006)
Observations	1,090	1,092	1,100
Regression type	Linear	Logit	Logit

* p<0.05, ** p<0.01, *** p<0.001.
Note: Coefficients with individual-level clustered standard errors are in parentheses. The first model displays linear regression coefficients; the second and third models display logistic regression coefficients. Models were estimated in Stata 16.
[a] More than 4 (for males) or 3 (for females) drinks in one day, or more than 14 (for males) or 7 (for females) drinks per week
[b] Five (for males) or four (for females) or more drinks in a 2-hour period.

Model-adjusted means and confidence intervals for February and April, overall and for each level of the covariates, were computed from the regression output. *T* tests of significant (i.e., $p < 0.05$) differences in model-adjusted means in February and April were used to determine whether alcohol consumption changed significantly between April and February, and tests for significant interaction effects determined whether change varied by demographic and socioeconomic characteristics.

References

1. Ipsos Public Affairs LLC. KnowledgePanel. https://www.ipsos.com/en-us/solutions/public-affairs/knowledgepanel Published 2020. Accessed May 29, 2020.
2. Fahimi M, Kulp D. Address-based sampling may provide alternatives for surveys that require contacts with representative samples of households. *Quirk's Marketing Research Review.* 2009.
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4. U.S. Department of Health and Human Services and U.S. Department of Agriculture. *2015–2020 dietary guidelines for Americans.*; 2015.
5. National Institute on Alcohol Abuse and Alcoholism. *National Epidemiologic Survey on Alcohol and Related Conditions-III (NESARC-III) Data Notes.* 2014.