Is Standard Drink Size Information Enough To Curb Drinkers' Enthusiasm? Findings From A Field Intervention Among Bar Goers

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Abstract

We tested the impact of standard drink size information (SDSI) in bar menus on bar goers' drink orders and alcohol consumption. Menus varied and included either: (1) SDSI only, (2) SDSI + drinking guidelines, (3) SDSI + guidelines + argument for moderate drinking, and (4) SDSI + guidelines + argument + recommendations tailored to participants' gender and drinking style, (5) control + intentions, (6) no intention control. Participants indicated what they would order from the menu (foods and drinks) for the rest of the night and returned to our staff at the end of their night. Breath alcohol concentrations (BACs) and brief surveys were collected both at entrance and exit. The effect of the condition was significant on exit BACs & BAC difference scores: Exit BACs & increases in BACs were the greatest in condition 3. SDSI may fail to reduce alcohol ordering and consumption and may even result in harmful effects when efforts to persuade become more obvious.

Background

Standard Drinks

NIAAA (2005) relies on the notion of standard drinks to establish guidelines for alcohol use. One standard drink corresponds to a drink containing 0.6 fl oz of pure ethanol which represents 14 oz of a regular beer (5% alcohol by volume; ABV), 5 oz of "regular wine" (12% ABV), or 1.5 oz of hard liquor or spirits (straight or mixed).

Research shows that individuals underestimate the size (and thus alcohol content) of their beverages and are not using the notion of standard drinks to track their consumption (Devos-Comby & Lange, 2008). Following a policy already in place in Australia and New Zealand since 1995 (Food Standards Australia New Zealand, 2007), the U.S. Department of Health and Human Services has solicited research on the effectiveness of labeling alcohol containers with standard sizes (NIAAA, 2009). The purpose of these labels is to help drinkers to correctly track their alcohol consumption and keep it within the guidelines for moderate drinking.

Purpose

To test the impact of drink alcohol content disclosure in public venues (bars, restaurants) where harmful drinking frequently occurs. In many situations, drinkers do not pour their own drinks and merely labeling containers would not help them track their consumption. In such cases, other channels of communication are required. Would standard drink size information (SDSI) implemented in menus be enough to reduce drink orders and alcohol consumption? We contended that at least three conditions needed to be fulfilled for SDSI to be effective:

(1) Drinkers need to receive and attend to the information;

(2) They need to know how to use it correctly;

(3) They need to be motivated to use it.

SDSI needs to be displayed in ways where it can be noticed and understood. But knowing the serving size metric is useless unless accompanied by guidelines for moderate drinking. Yet, such information may be conflicting with a drinker's motivation to get intoxicated. Thus, the message needs to persuade – at least temporarily – in order to shift drinkers' intentions, goals, and behavior in the direction of the recommendation.

U.S. Dietary Guidelines

At the time of the study, moderate drinking was defined as no more than one drink per day or 7 per week for women, and no more than two drinks per day or 14 per week for men (U.S. Department of Health and Human Services & U.S. Department of Agriculture, 2005).

Persuasive Argument

When the goal is to promote a prevention behavior (moderation when drinking), highlighting the benefits of the behavior is more effective than stressing the costs of not doing it (i.e., excessive drinking; see Rothman & Salovey, 1997). Previous research shows that stressing the benefits of responsible drinking reduced drinking compared to stressing the disadvantages of excessive drinking (Gerend & Cullen, 2008).

Nutrition Facts

The Health Care Reform Act 2010 requires the disclosure of nutrition facts (NF) for foods and drinks sold in chain restaurants (Alcohol and Tobacco Tax and Trade Bureau, 2010). Therefore NF were included in all conditions.

Hypotheses

H1. The effect of SDSI on drinking behavior would be greater when SDSI was combined with guidelines + persuasive argument.

H2. The targeted recommendation would boost the effect of SDSI + guidelines + argument.

H3. These effects (H1 & H2) would be greater when compared to the no-intention-control condition than when compared to the intention-control condition.

H4. We hypothesized that alcohol intoxication would affect the impact of the experimental condition but we did not have a specific prediction regarding the direction of this effect.

Method

Procedure

Participants were asked to order drink and food items from a bar menu that included either:

(1) SDSI only (SDSI),

(2) SDSI + drinking guidelines (SDSIG),

(3) SDSI + guidelines + persuasion (SDSIGP),

(4) SDSI + guidelines + persuasion + recommendations targeting gender & drinking style (SDSIGPT),

(5) control + intentions (Int),

(6) no-intention control (no-Int).

Eligibility: 21+ years old, going to a bar/restaurant, consumed alcohol in the past 3 months

Entrance / Exit breath samples & surveys

Incentive: $20 gift card for full participation

Data were collected on Thursday, Friday & Saturday nights (9pm-2am).

Sample

- 953 Bar Goers, 65% Male, mean age: 24.6 (*SD* = 4.00).

Measures & Analysis

Outliers detected at three standard deviations above or below the mean were excluded from the sample. Of the remaining participants, 709 participants provided both entrance and exit BACs.

Drink orders (transformed in standard drinks) ranged from .68 to 20.12 drinks (*M* = 4.87, *SD* = 3.45).

Entrance BACs ranged from 0 to .19 (*M* = .047, *SD* = .048).

Exit BACs ranged from 0 to .24 (*M* = .071, *SD* = .057).

BAC difference score (Exit - Entrance) ranged from -.09 to .15 (*M* = .024; *SD* = .037).

To test H1, H2, & H3, we conducted analyses of variance with gender and the experimental condition as independent variables on all dependent variables.

To test the fourth hypothesis, we selected participants whose BACs were one standard deviation below (BAC= 0) or above the mean (BAC ≥ .095) and coded their alcohol intoxication as 0 for those who were sober when entering the study or 1 for those who were intoxicated. Then we conducted an ANOVA with intoxication status and experimental condition as independent variables on all dependent variables. Tukey's HSD correction was applied to the multiple pairwise comparisons of the experimental conditions.

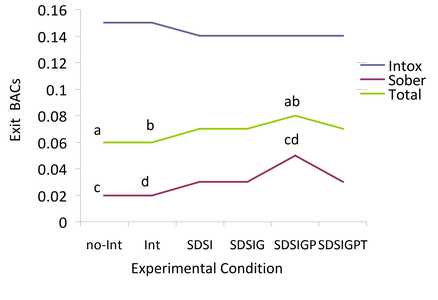
Results

Table 1. Means for male and female participants on all dependent variables

	Men	Women	Total
Orders	5.52[a] (3.80)	3.68[a] (2.27)	4.85 (3.44)
Intentions	3.50[b] (1.17)	3.11[b] (1.01)	3.36 (1.13)
Entrance BAC	.050[c] (.049)	.041[c] (.046)	.047 (.048)
Exit BAC	.074[d] (.057)	.065[d] (.056)	.071 (.057)
BAC difference	.024 (.035)	.025 (.040)	.024 (.037)

Note: a & c: $p = .005$ b: $p < .001$; d: $p = .053$.

Figure 1. Experimental condition effect for total sample and sober / intoxicated participants



Note: a & c: $p < .05$; b & d: $p < .10$. Tukey's HSD applied.

Effect of the Condition

The condition had a significant effect on intentions, $F(4, 566) = 2.53$, $p = .039$, exit BACs, $F(5, 693) = 2.66$, $p = .021$, and BAC difference scores, $F(5, 693) = 5.12$, $p < .001$, but not on drink orders, $F(4, 566) = .71$, *ns*.

Adding the guidelines to SDSI (*M* = 3.09, *SD* = 1 .15) significantly decreased drinking intentions (SDSI only: *M* = 3.60, *SD* = 1 .05), $p < .01$.

Exit BACs were higher in the condition with SDSI + guidelines + argument, compared to the no-intention control, but only marginally so compared to the intention-control (Figure 1). There were greater increases in BACs in the condition with SDSI + guidelines + argument compared to all the other conditions (*p* values ranging from .001 to .061).

Intoxication x Condition

The interaction between alcohol intoxication at entrance and the experimental condition was non-significant on all the measures. Nonetheless, the effect of the experimental condition was significant on exit BACs for participants who entered the study while they were still sober, $F(5, 205) = 2.40$, $p = .039$ but not for those intoxicated, $F(5,123) = .33$, *ns* (Figure 1). Pairwise comparisons among sober participants revealed the same effects of SSIGP as for the overall sample.

Discussion

Adding the guidelines to SDSI reduced intentions to drink compared to just presenting SDSI. However, the combination of SDSI, guidelines and persuasive argument in the presence of NF had a harmful effect on alcohol consumption, as seen on exit BACs and BAC change between entrance and exit, particularly among those who were sober when exposed to the information.

No evidence that one-size-fits-all messages work

If SDSI information, NF, and a persuasive argument were to be displayed in menus or alcohol containers, it is problematic that sub-groups of the population react in the opposite direction to what is intended, and drink even more in reaction to the information. This study provides little support for the effectiveness of SDSI, NF, and the guidelines for moderate drinking.

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