



Failures to Use Information: Standard Drink Sizes, Guidelines for Moderate Drinking, and Good Reasons to Moderate Drinking

SAN DIEGO STATE UNIVERSITY



A research office of the San Diego State University Research Foundation

Lorraine Devos-Comby, PhD, Marc A. Emerson, BA, Susan Henry, MPH, & James E. Lange, PhD

Abstract

We tested brief communications that could be printed on bar/restaurant menus for drinkers to monitor and moderate their alcohol consumption. 468 college student drinkers were presented mock menus from a bar opening soon. Imagining spending most of the night (about 4 hours) at the bar with their friends, they indicated what foods and drinks they would order. The presence/absence of four communications varied in the menus: 1) standard drink sizes, 2) nutrition facts, 3) dietary guidelines for moderate drinking, and 4) motivational argument. Overall, the experimental variables had weak effects on the amount of alcohol ordered, and eBACs. The effects varied with covariates such as gender and drinking habits, showing heterogeneity of treatment effects. This study highlights the difficulty of modifying behaviors with one-size-fits-all, minimal communications.

Background

Alcohol misuse continues to be a problem nationwide, despite heightened awareness and efforts to curb it (Grant et al., 2004). This misuse leads to an array of health, societal, and economical problems and is a major public health issue. In response to this widespread phenomenon, various strategies have been implemented to reduce the impact of alcohol by: 1) intervening at several levels, including the individual, environment, and society, 2) reducing negative consequences and 3) targeting at-risk groups (NIAAA, 2009).

Purpose

Test the impact of brief communications on drinkers' alcohol ordering that could be implemented in bar menus.

Standard drinks

Notion proposed as a unit that drinkers and professionals could use to track consumption and potentially reduce the risk for abuse (NIAAA, 2005).

Drinkers generally ignore standard drink sizes (Devos-Comby & Lange, 2008). Would the display of standard sizes enable drinkers to better track and limit their consumption?

Nutrition facts

Adding nutrition facts for foods in menus has become more common and sometimes is required by state laws. Would adding nutrition facts for drinks lower alcohol consumption?

U.S. Dietary guidelines

Dietary guidelines typically provide a minimum dose for good health. Do drinkers use drinking guidelines to "drink up" to the limit?

Motivational 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 (excessive drinking; see Rothman & Salovey, 1997).

Can a positively framed message motivate drinkers to use standard drink sizes and guidelines to order less alcohol?

Hypotheses

Health behavior is not contingent on knowledge alone; it requires skills and motivation. Solely knowing the guidelines or standard sizes is not enough to modify ordering.

It is the combination of guidelines, standard drinks and a motivational argument that is most likely to reduce orders and eBACs; Thus, we predicted a 3-way interaction between standard drinks, guidelines, and argument.

Nutrition facts may lead drinkers to avoid high-caloric alcoholic drinks in favor of low-caloric drinks, but may not affect the overall amount of pure alcohol consumed.

Method

Procedure

- Mock menu of an alleged bar opening in the campus area
- Participants were asked to order drink and food items
- Presence/absence of 4 communications varied in menus
 - 1) Standard drink sizes
 - 2) Nutrition facts
 - 3) U.S. dietary guidelines for moderate drinking
 - 4) A positively framed motivational argument
- Eligibility: 21+ years old, student, going to bar/restaurant during the weekend
- Incentive: \$5 gift card for participation

Sample Characteristics

- 468 college students drinkers
- 215 men & 251 women
- Mean age was 23.5 (SD = 4.86)
- Outliers and cases with missing data on key variables were removed. Final sample size = 426.

Design and Outcome Measures

In a factorial design (2 x 2 x 2 x 2), we varied the presence and absence of all 4 health communications (standard drink size, nutrition facts, guidelines, and argument).

The number of drinks ordered was transformed in standard drinks and estimated blood alcohol concentrations (eBACs; Clapp et al., 2006).

Results

Total Standard Drinks Ordered

Orders ranged from 0 to 13.7 drinks (M = 5.92, SD = 2.53).

Because men ordered significantly more drinks than women, we entered gender as a covariate in the analysis to control for these differences. The ANCOVA model revealed heterogeneity of treatment effects based on gender. Due to its complexity, the overall model was trimmed (argument was removed due to lack of effect; higher-order, non-significant interactions were removed).

Overall, men (M = 7.14; SE = .16) on average drank more than women (M = 4.85; SE = .15, p = .000).

The interaction between standard sizes and nutrition facts was significant (p = .05), and was qualified by gender (p = .08), such that the 2-way interaction was significant for men only. Men order fewer drinks when provided with standard sizes AND nutrition facts combined rather than standard sizes alone (p = .05). No other pairwise comparisons were significant (Figure 1).

The interaction between guidelines and nutrition facts was significant (p = .01), and was qualified by gender (p = .02), such that the 2-way interaction was significant for men only. Men order fewer drinks when provided guidelines AND nutrition facts together rather than guidelines alone (p = .06) or nutrition facts alone (p = .05; Figure 2).

Figure 1. Standard Sizes x Nutrition Facts x Gender

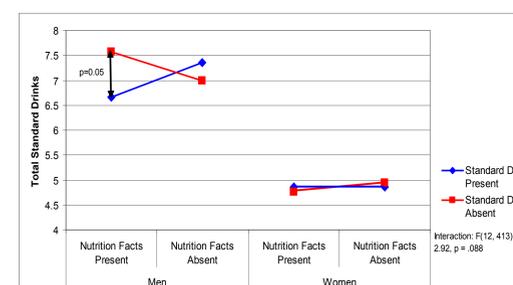
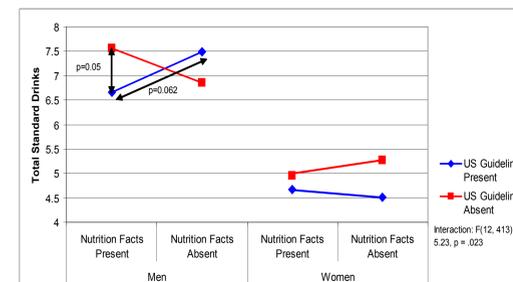


Figure 2. Guidelines x Nutrition Facts x Gender



eBAC:

The eBACs ranged from 0 and .25 (Mean = .09, SD = .06).

No gender differences were observed on eBACs but eBACs varied as a function of past month drinking. Thus, we entered past drinking as a covariate in the analysis. The ANCOVA model revealed heterogeneity of treatment effects based on past drinking. Thus, the model was trimmed and the final model included nutrition facts, guidelines and past drinking.

Overall, as past drinking increased, eBACs based on drink orders increased as well (p = .000).

The interaction between nutrition facts and past month drinking was significant (p = .04). Light drinkers had lower eBACs when presented with nutrition facts than when not (p = .08). Heavy drinkers had lower eBACs when nutrition facts were not presented than when they were (p = .06) (in Figure 3, means for past drinking were estimated at two standard deviations above/below the mean).

The interaction between guidelines and past month drinking was significant (p = .02). For low drinkers, when guidelines were present eBACs were lower than when guidelines were absent (p = .02). No other pairwise comparisons were significant. For heavy drinkers no interactions were significant (Figure 4; means were estimated at two standard deviations above/below the mean for past drinking).

Figure 3. Nutrition Facts x Past Drinking

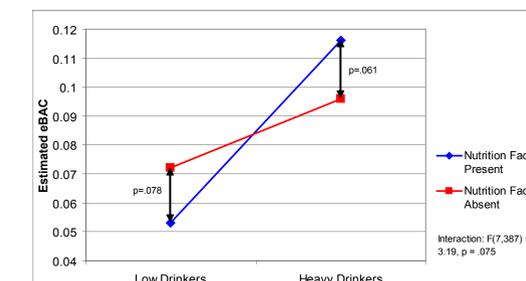
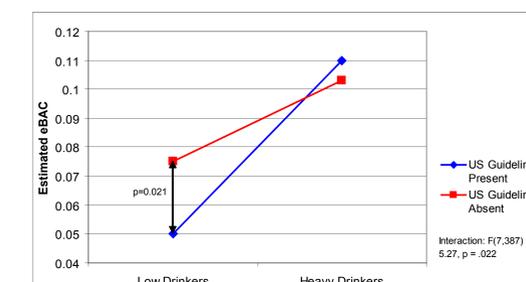


Figure 4. Guidelines x Past Drinking



Discussion

Men seemed more responsive to the communications than women. For them, it seemed that nutrition facts combined either with guidelines or standard sizes reduced the amount of alcohol ordered from the menu. For eBACs, the effects of the communications seemed contingent on drinking habits. Indeed, as past month usual drinking declined, nutrition facts and guidelines appeared more effective in reducing eBAC. In fact, as past drinking became heavy, these communications appeared potentially harmful.

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

Although these findings may suggest that minimal communications could reduce alcohol orders at least for some patrons, the effects are statistically very weak and contingent on individual characteristics such as gender or drinking habits. Such large scale strategy to reduce alcohol ordering and consumption may fail because these behaviors result mostly from motivational (e.g., get drunk), social (e.g., group-related decisions), environmental (e.g., settings) and individual forces (e.g., personal tastes or resources), rather than from knowledge-based decisions.

References

- NIAAA. (2005). *Helping patients who drink too much: A clinician's guide* (No. 07-3769). Bethesda, MD: National Institutes of Health.
- NIAAA (2009). *Research Initiatives*. Accessed online at <http://www.niaaa.nih.gov/AboutNIAAA/OrganizationalInformation/Pages/ResearchInitiatives.aspx>, on May 12, 2011.
- Clapp, J. D., Min, J. W., Shillington, A. M., Reed, M. B., Lange, J. E., & Croff, J. M. (2006). Predictors of error in estimates of blood alcohol concentration: A replication. *J Stud Alcohol Drugs*, 67, 620-627.
- Devos-Comby, L., & Lange, J. E. (2008). "My drink is larger than yours"? A literature review of self-defined drink sizes and standard drinks. *Current Drug Abuse Reviews*, 1, 162-176.
- Grant, B. F., Dawson, D. A., Stinson, F. S., et al., (2004). The 12-month prevalence and trends in DSM-IV alcohol abuse and dependence: United States, 1991-1992 and 2001-2002. *Drug and Alcohol Dependence*, 74, 223-234.
- Rothman, A. J., & Salovey, P. (1997). Shaping perceptions to motivate healthy behavior: The role of message framing. *Psychological Bulletin*, 121, 3-19.

Funding

This study was supported by research grant 5 RC1 AA 019004-02 from the National Institute on Alcohol Abuse and Alcoholism.