Sugary Drink Warning Labels & Portion Limits: Science & Politics

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Sugary Drink Health Warning Labels

STATE OF CALIFORNIA SAFETY WARNING
Drinking beverages with added sugar(s) contributes to obesity, diabetes, and tooth decay.
Study Aims
Web-based Survey of Parents & Adolescents

• Test warning label influence:
  • Perceptions of health harms
  • Purchase intentions
  • Do different messages have different effects?

• Measure support for policy

Roberto et al., Pediatrics, 2016; VanEpps & Roberto, under review
Warning Label Criteria

• Any beverage with added caloric sweeteners that have 75 or more calories per 12 ounces

• No label:
  – 100 percent natural fruit or vegetable juice with no caloric sweeteners
Strategic Science - Testing Warning Labels

CA Ctr for Public Health Advocacy

Legal Team

Nutrition Scientific Advisory Board

SAFETY WARNING: Drinking beverages with added sugar(s) contributes to obesity, diabetes, and tooth decay.
Randomized to 1 of 6 Groups

No Label Control Group

Calories per bottle label

California Text

Add “preventable diseases like”

Obesity $\rightarrow$ weight gain

Diabetes $\rightarrow$ type 2 diabetes
Parent Participants

Survey Sampling International
N = 2,381 primary caregivers (parents) of child age 6-11
70% Female

Mean Age: 36 years
Median BMI: 25.8 kg/m²

Race/Ethnicity:
• 68% White, 28% Black, 31% Hispanic

Education:
• 5% less than high school
• 32% high school degree
• 9% Associate’s degree
• 25% some college
• 19% college
• 11% At least some graduate school

Trying to lose weight:
• 48%

Doctor ever said child was overweight? 17%
Adolescent Participants

Survey Sampling International

N = 2,202 adolescents

50% Female

Mean Age: 15

Median BMI: 22.1 kg/m²

Race/Ethnicity:

• 63% White, 34% Black, 32% Hispanic

Trying to lose weight: 30%

Doctor ever said you’re overweight? 21%
Statistical Analyses

• Parents
  – Linear & logistic regression
  – Bonferroni-holm correction for multiple tests

• Adolescents
  – ANOVA & logistic regression
  – Post-hoc tukey tests & Bonf-holm

• All analyses control for past sugary drink purchasing behavior
Parent Survey:
Do Different Warning Labels Exert Different Effects?

• Minimal differences

• 16 measures
  • only estimated calories differed

• Collapsed across label conditions
Purchase Intentions
Vending Machine Purchase Task

Over the next few minutes, we would like you to pretend you are out shopping and want to purchase a 20 ounce beverage for your child. Below are images of 20 different beverages. Imagine you are looking at a vending machine with these 20 beverages in it. [drinks with a lot of added sugar have a safety warning label on them.] Please select the one 20 ounce beverage you would want to buy for your child.

11 drinks had warning label
SAFETY WARNING: Drinking beverages with added sugar(s) contributes to obesity, diabetes, and tooth decay.
% of Parents Choosing a Sugary Drink

Control: 60%
Calorie Label: 53%
Warning Label: 40%
% of Adolescents Choosing a Sugary Drink

- Control: 77%
- Calorie: 73%
- CA Warning: 69%
- Weight Gain: 65%
- Preventable: 63%
- Type 2 Diabetes: 61%
# Sugary Drink Coupons Selected by Parents

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Calorie Label</th>
<th>Warning Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>3.27</td>
<td>3.03</td>
<td>2.36</td>
</tr>
</tbody>
</table>

The graph illustrates the number of sugary drink coupons selected by parents under different conditions: Control, Calorie Label, and Warning Label. The findings show a significant difference in preference, with the Warning Label condition having the least number of coupons selected.
# Sugary Drink Coupons Selected by Adolescents

Control: 3.64
Calorie: 3.66
CA Warning: 3.00
Weight Gain: 2.92
Preventable: 2.85
Type 2 Diabetes: 2.70
Rate Individual 20-ounce Beverages

parents: 14 (9 with warning labels)
adolescents: 10 (6 with warning labels)
How likely are you to buy this product for your child in the next 4 weeks? [1-7]

SAFETY WARNING: Drinking beverages with added sugar(s) contributes to preventable diseases like obesity, type 2 diabetes, and tooth decay.
Parent Purchase Intentions for Sugary Drinks

Same pattern for “allow child to drink”

- Control: 3.8
- Calorie Label: 3.79
- Warning Label: 3.44
Adolescent Purchase Intentions for Sugary Drinks

Control: 4.13
Calorie: 4.21
CA Warning: 4.08
Weight Gain: 4.07
Preventable: 3.93
Type 2 Diabetes: 3.92
Perceptions of Health Harms
How healthy do you think this product is for your child? [1-7]

SAFETY WARNING: Drinking beverages with added sugar(s) contributes to weight gain, diabetes, and tooth decay.
Parent Perceived Healthfulness of Sugary Drinks

Control: 3.79
Calorie Label: 3.73
Warning Label: 3.35
Adolescent Perceived Healthfulness of Sugary Drinks

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Calorie</th>
<th>CA Warning</th>
<th>Weight Gain</th>
<th>Preventable</th>
<th>Type 2 Diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perception</td>
<td>3.9</td>
<td>3.95</td>
<td>3.77</td>
<td>3.79</td>
<td>3.61</td>
<td>3.61</td>
</tr>
</tbody>
</table>
Drinking this product often would...

...lead my child to gain weight
...increase my child’s risk of heart disease
...increase my child’s risk of diabetes
...help my child live a healthier life
Parent Perceived Diabetes Risk

Same for heart disease; both labels reduce perceptions of living a healthy life

Control: 4.3
Calorie Label: 4.16
Warning Label: 4.56
Parent Perceived Weight Gain

Control: 4.5
Calorie Label: 4.2
Warning Label: 4.6
Adolescent Perceived Diabetes Risk

[Diagram showing perceived diabetes risk scores for different categories: Control (4.44), Calorie (4.43), CA Warning (4.05), Weight Gain (4.57), Preventable (4.71), Type 2 Diabetes (4.58).]
Adolescent Perceived Healthy Life

No differences for heart disease or weight gain

Control: 4.57
Calorie: 3.9
CA Warning: 3.83
Weight Gain: 3.76
Preventable: 3.7
Type 2 Diabetes: 3.67
Parent Perceived Added Sugar Content

Both labels increase calorie estimates

Control: 2.8
Calorie Label: 2.9
Warning Label: 3.1
Adolescent Perceived Added Sugar Content

Calorie labels increase calorie estimates

Control: 2.88
Calorie Label Warning - CA Weight Gain: 3.05
Preventable: 3.05
Type 2 Diabetes: 3.07
Parents – Additional Results

• Warning & Calorie labels:
  • reduced perceptions that sugary drinks would make their child feel energized or help them focus; stronger effect for warning label

• No differences:
  • deliciousness or willingness to pay

• No spillover effects for non-labeled drinks
Adolescents – Additional Results

• Type 2 diabetes warning label:
  • lowered perceptions of deliciousness (vs. calories and weight gain warning)
  • Lowered perceptions that sugary drinks would energize them (vs. calories)

• All labels decreased perceptions that sugary drinks would help adolescents focus
Would you favor or oppose a government policy requiring a safety warning label to be placed on beverages with added sugars?

- 1   Strongly oppose
- 2   Somewhat oppose
  0   Neither favor or oppose
+1   Somewhat favor
+2   Strongly favor
Parent opinion of warning label policy

Overall

73% favor

6% oppose

Democrats: 79%

Republicans: 73%

Independents: 66%
Adolescent opinion of warning label policy

**Overall**

63% favor

8% oppose
Conclusions - Parents

Sugary drink health warning labels may:

• Reduce parents’ perceptions of sugary drink healthfulness

• Increase parents’ perceptions of health risks posed by sugary drinks

• Decrease parents’ likelihood of buying sugary drinks

• Have political support
Conclusions - Adolescents

Sugary drink health warning labels may:

• Reduce adolescent’s perceptions of sugary drink healthfulness

• Decrease adolescents likelihood of buying sugary drinks

• Wording on label may be important
  – Label that says “type 2 diabetes” or “preventable diseases like” might be most effective

• Have political support
Sugary Drink Portion Limits

- No sugary drinks >16 oz in food service establishments
- Struck down by NY Court of appeals in 2014
Content Analysis:

NYC Department of Health & Mental Hygiene Public Testimony
Research Aims

• Systematically identify policy frames:
  – “Pro” and “Anti” policy arguments
  – Who is making the arguments?
  – What communication strategies are used?

• Refute anti-policy arguments
  – Legally and scientifically

• Identify potential downsides

• Identify areas for future research

Roberto & Pomeranz, AJPH, 2015
The Importance of Framing

• Making certain parts of a communicated message more salient

• Increase:\(^1\)
  – Perception
  – Understanding
  – Memory

• Framing influences public support\(^2\)

• Policies more likely to pass when support is high\(^3\)

\(^1\)Fiske, Taylor, 1991; \(^2\)Nelson et al., Political Behavior, 1997; \(^3\)Jacobs et al., 2000; Stimson, 2004
The Battle Over the Frame
New Yorkers for Beverage Choices continues to reject the beverage ban in New York City! Join us.

Mayor Bloomberg and the Board of Health recently approved a ban on sales of sugar-sweetened beverages over 16 ounces in New York City. The sale of fountain and bottled beverages over 16 ounces will soon be prohibited in restaurants, movie theaters, sports venues, coffee shops, food trucks and street carts.

According to bureaucrats, New Yorkers need help deciding what size beverage is appropriate.
The Nanny
You only thought you lived in the land of the free.

Bye Bye Venti
Nanny Bloomberg has taken her strange obsession with what you eat one step further. He now wants to make it illegal to serve “sugary drinks” bigger than 16 oz. What’s next? Limits on the width of a pizza slice, size of a hamburger or amount of cream cheese on your bagel?

New Yorkers need a Mayor, not a Nanny.
Find out more at ConsumerFreedom.com.
Methods

• Public Testimony
  – 38,648 written submissions
  – 411 unique written submissions
  – 50 oral submissions
  – American Beverage Association Testimony
Codebook Variables

Pro and Anti Arguments:
• 1 coder identified arguments
• 2 coders coded:
  – Pro or Anti policy
  – Argument Source
  – Communication Characteristics:
    • # times words: ban, nanny, exercise appear
    • # exclamation points
    • Capital letters
    • Personal anecdotes vs. research cited
• Double coded 10% of testimony
• Cohen’s kappa: .7 – 1.0 for all variables
% Pro vs. Anti Policy

<table>
<thead>
<tr>
<th></th>
<th>Pro</th>
<th>Neutral</th>
<th>Anti</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>47%</td>
<td>2%</td>
<td>51%</td>
</tr>
<tr>
<td>N</td>
<td>217</td>
<td>10</td>
<td>234</td>
</tr>
</tbody>
</table>
Source: Pro vs. Anti Policy

• Higher % Pro than Anti:
  – Medical/health professional

• Higher % Anti than Pro:
  – Everyone else
Most Common Anti-Policy Arguments

7 Themes
Sugary drinks are not the right target for intervention

- 54% general testimony; 29% ABA testimony
  - Sugary drinks not *solely* responsible for obesity
  - Policy is arbitrary
    - i.e., why target sugary drinks and not alcohol or other foods?
  - Sugary drinks are not addictive like tobacco
Concerns about government intrusion on freedom

- 53% general testimony; 12% ABA testimony
  - Policy infringes on Americans’ rights
  - People can make their own dietary decisions
  - Slippery-slope: what will government regulate next?
The policy will not work

• 31% general testimony; 24% ABA testimony
  – No evidence policy will change consumer behavior or impact obesity
  – Only targets small number of food establishments
  – Unintended consequences
    • i.e., people will switch to other beverages like alcohol
  – People can find ways around the policy
    • i.e., buy multiple sugary drinks
The policy is unfair and will hurt businesses

- 30% general testimony; 6% ABA testimony
  - Doing business in NYC will be more difficult for restaurants
  - Targets restaurants, but not convenience stores
  - Cost & operational problems to re-package
The policy will hurt certain groups

• 8% general testimony; 2% ABA testimony
  
  – Disadvantages low-income families who share large sugary drinks to save money
State and local governments do not have the authority to enact the policy; the people do not want the policy

• 7% general testimony; 26% ABA testimony
  
  – Policy passed by select few
  – City council should have voted on it
  – Bloomberg does whatever he wants
  – Many New Yorkers do not want it
  – Legal arguments opposing the law
    • i.e., interstate commerce law/commerce clause violation, substantive due process violation
There is no public health need for the policy

- 3% general testimony; 1% ABA testimony
  - Beverage industry has already taken steps to make consumers healthy
    - i.e., placing calorie labels on containers
  - Obesity has leveled off
  - Sugary drink consumption is declining
Most Common Pro-Policy Arguments

8 Themes
Obesity is a major public health problem (or is costly) that must be addressed

• 41% general testimony
  
  – This generation of children will die before their parents
  
  – Obesity is costly for everyone
Sugar-sweetened beverages (or sugar) are a key target for intervention

- 41% general testimony

  - Sugary drinks are:
    - major contributor to obesity
    - related to diabetes, dental problems, etc.
    - largest source of excess calories
    - addictive
    - 100% empty calories

  - People don’t compensate for liquid calories the way they do with food

  - Children high consumers
The government has a responsibility to protect public health

• 34% general testimony
  – Responsibility of the government to protect the public’s health
  – Government needs to do something about obesity
  – Policy is within the government’s jurisdiction
Portion sizes are too big/
Reducing portion sizes is a key intervention

• 28% general testimony

  – Portion size arguments:
    • i.e. excessively large, large servings not safe, portions have not always been this large, large portions encourage overconsumption

  – Food industry has encouraged overconsumption

  – Shift norms about reasonable portion sizes

  – Customers want/are satisfied with smaller portion sizes
We have to start somewhere

- 17% general testimony
  - Change is incremental, you have to start somewhere
  - Long-needed wake-up call
  - Sparks public debate about obesity/eating habits
The policy is a good step and we need to do more

• 14% general testimony
  – Pro policy, but more needs to be done
    • e.g., taxing sugary drinks
The policy will work to improve public health and/or reduce obesity

- 13% general testimony
  - Education campaigns not as effective as bans
  - Other public health measures have been effective
    - i.e., fluoride, indoor smoking laws
  - People are influenced by default options/smaller portion sizes
The policy will help (or will not harm) certain groups

• 11% general testimony

  – There are other beverage options

  – Obesity disproportionately affects lower-income and certain racial/ethnic groups

  – Companies are targeting and selling low-income people cheap, non-nutritive sugary drinks
## Communication Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Pro</th>
<th>Anti</th>
<th>P value</th>
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<tbody>
<tr>
<td>Ban</td>
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<td>79</td>
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<tr>
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<tr>
<td>Capital Letters</td>
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<td>43</td>
<td>&lt;.001</td>
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<tr>
<td>Cited Research</td>
<td>81</td>
<td>33</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>
Communication Mismatches
Sugary Drinks *Are/Are Not* the Right Target for Intervention

Government vs. Personal Responsibility

Policy Will Not Work to Address Obesity

Policy Will Hurt Businesses
David Jones, Community Service Society

Finally, the reason I decided to come here, I have been deeply offended by what the beverage industry has tried to do here. They have not admitted that the real factor here is economics. If you can sell liquids that have no nutritional value, that are sugar water, particularly targeted to adolescents who haven’t really matured to understand the long-term impacts. This is like found money. It is not quite as good as selling drugs, but pretty close. Then they have the sort of audacity to equate this whole process to what they describe as the Million Big Gulp March, an effort that was made to protect particularly black young people and black men. To suddenly make a sham of that, to equate civil rights and the struggle that is occurring in poor neighborhoods, particularly for the young, to this right to sell non-nutritional substances to young people is an outrage that has to be fought.
Legal & Scientific Arguments

• Paper attempts to refute key arguments:
  – Government authority to enact the policy
  – Policy preserves freedom
  – Sugary drinks uniquely concerning
  – Why the policy is likely to reduce caloric intake from sugary drinks
  – Why policy is not legally unfair for businesses

• Future research needs:
  – Effectiveness of policy
    • Unintended consequences
    • Substitution
    • Influence on social norms
    • Framing research
  – Cost-effectiveness of policy
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• **Co-authors:** Diandra Wong, Aviva Musicus, David Hammond, Eric VanEpps, Jennifer Pomeranz

• **Psychology of Eating & Consumer Health Lab**
  – Catherine Camp
  – Greg Gagnon
  – Paul Werth
Parent Perceived Healthy Life

Control: 4.4
Calorie Label: 3.7
Warning Label: 3.4
Parent Perceived Calories

Control: 91.7
Calorie Label: 148.3
Warning Label: 112.8