

Research Article

Perceived Impact of the Berkeley Soda Tax on Beverage Selection by Parents: A Qualitative Study

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Abstract

Background: Sugar-sweetened beverages (SSBs) are the leading source of added sugar in the American diet and are associated with diabetes, obesity, and tooth decay. SSB consumption is highest in low-income communities, placing them at higher risk for poor health outcomes. To curb SSB consumption, Berkeley, California became the first city in the nation to implement an SSB excise tax (\$0.01/oz) in 2014. Although quantitative studies indicate that Berkeley's SSB tax led to a decrease in SSB consumption, there are limited data on consumer beliefs and attitudes regarding beverages in response to an SSB tax. We sought to understand how parents—the nutritional decision-makers for young children—responded to the tax, focusing on “its influence over parents' beverage selection, perceptions of health impacts related to SSB consumption, and opinions regarding the use of tax revenues.”

Methods: We conducted 4 focus groups and 20 semi-structured individual interviews with primarily low-income Berkeley parents.

Results: Reactions to the Berkeley Soda Tax were mixed. Most parents reported already reducing SSB consumption prior to the tax as a result of nutrition education and/or personal experiences with adverse health outcomes. The tax further incentivized parents to avoid SSBs by increasing SSB prices. While parents largely supported the tax, most had questions about how funds were being used, and many did not believe the tax would significantly change behavior of other members of their community due to the addictive qualities of SSBs.

Conclusions: Our findings suggest that Berkeley's SSB tax facilitated parents reducing SSB purchases. The long-term effectiveness of SSB taxes may depend on how funds are used. Parents largely support using revenues for education; thus allocating revenue towards nutrition education and effectively communicating such allocations may increase constituent support for SSB taxes, as well as decrease overall SSB consumption.

ABBREVIATIONS

SSBs: Sugar-Sweetened Beverages; YMCA: Young Men's Christian Association; WIC: Women, Infants and Children Program

INTRODUCTION

Sugar-sweetened beverages (SSBs) are the leading source of added sugars in the American diet, and frequent consumption of these beverages is associated with chronic illnesses such as diabetes, obesity, cardiovascular disease, and tooth decay [1,2]. In an effort to curb SSB intake, Berkeley, CA, passed Measure D (“The Berkeley Soda Tax”) in 2014, becoming the first city in the U.S. to implement an excise tax on SSBs in 2015. The use of excise taxes to curb consumption of harmful products is not a new concept. Over 100 studies, including a growing number from low- and middle-income countries, demonstrate that tobacco excise

taxes effectively reduce tobacco use and provide a reliable source of government revenue [3-5]. Tobacco taxes have enjoyed broad public support, which has spurred tobacco companies to adopt voter segmentation strategies in order to defeat ballot measures [6]. These industry strategies include using arguments that suggest taxes do not dedicate enough revenue to tobacco control programs, or implying that such taxes benefit hospitals and health maintenance organizations. Public support for SSB taxes is mixed but growing. When asked about taxing SSBs in a 2012 Field Poll, 53 percent of Californians were opposed and only 40 percent were in favor. However, when voters were told that tax revenue would benefit school health programs, support for a tax on SSBs jumped to 63 percent, with only 29 percent opposed (margin of error: +/- three percentage points). These results were reflected in the 2012 election in Richmond, CA, where a SSB tax measure (Measure N)- which would have implemented a one-cent-per-ounce “business license fee” on SSBs with revenue going towards

a general fund—was defeated 67 percent to 33 percent [7]. However, this vote followed an aggressive “No on N” campaign paid for by the American Beverage Association, which highlighted the fact that revenue would go to a general fund and suggested that the tax would adversely affect working class families [8]. Despite the beverage industry spending over \$2.4 million dollars fighting the Berkeley Soda Tax (Measure D), it was approved by over 75 percent of voters in November, 2014 [9]. In the year following the Soda Tax implementation, consumption of SSBs decreased by 21 percent among low-income Berkeley residents. In contrast, consumption of SSBs increased by 4 percent in neighboring Oakland and San Francisco—two cities that did not pass a soda tax—during the same year [10]. Furthermore, only 2 percent of respondents surveyed reported that the Berkeley tax led them to shop for SSBs in neighboring cities. In addition to markedly reducing SSB consumption, Measure D has generated substantial revenue for the City of Berkeley, raising approximately \$1.2 million within the first year. Although the revenue from Measure D goes to the City’s General Fund, the ordinance also established a panel of experts to advise the City Council on spending revenues to further reduce SSB consumption. In 2016, the Berkeley City Council voted unanimously to dedicate \$1.5 million from the general fund in 2016 to pay for school nutrition programs and support programs that reduce the consumption of sugary drinks [11]. Following the success of Measure D and other SSB excise taxes, the voters of Oakland, Albany, and San Francisco approved ballot measures that created one-cent-per-ounce excise taxes on SSBs [12]. Yet while quantitative studies of SSB taxes show promising results, there is a very limited qualitative understanding of the mechanisms by which beverage taxes influence individual behaviors. “Nutritional gatekeepers” -- adults who make the majority of the nutritional decisions for their family -- play a critical role in determining children’s SSB consumption. These individuals purchase and prepare food for their family members, model behaviors for their children, and influence their children’s diet outside the home by providing them with money for food purchases. It is estimated that an average of 72 percent of what children eat is determined by these nutritional gatekeepers [13]. To understand how Measure D may affect children’s health, we must understand how nutritional gatekeepers decide what beverages to serve their children, and how Measure D influences those decisions. Exploring parents’ knowledge, attitudes, and behaviors regarding SSBs in light of Measure D may inform the design and improvement of public policies and health campaigns to reduce SSB consumption. Although quantitative studies indicate that Berkeley’s SSB tax led to a decrease in SSB consumption, there is limited data on how low-income communities perceived the tax and mechanisms by which the tax influenced behavior, particularly of parents. Thus, we focused on the following research questions:

1. What are parents’ knowledge, attitudes, and behaviors regarding serving their children SSBs and other beverages?
2. What are parents’ perceptions regarding the Berkeley Soda Tax, including opinions on taxation as a means of influencing behavior, and the use of tax revenue?

MATERIALS AND METHODS

Study design

We used focus groups and interviews to gain a better understanding of the nutritional gatekeepers’ ideas around SSBs and beverage taxes. The University of California, Berkeley’s Institutional Review Board, Berkeley Unified School District, YMCA Head Start, and the University of California Village Housing board approved the study. All names used to describe respondents are pseudonyms.

Study population

The authors began recruiting participants for focus groups in 2015, the first year that Measure D was in effect in Berkeley. Convenience sampling was used to recruit parents of children aged 0-12 who lived, studied, or worked in Berkeley. Given that young adults, nonwhites, and low-income individuals in the U.S. drink more SSBs than other Americans [14], we partnered with YMCA Head Start—a federal program that promotes school readiness for low-income children from ages 0 to 5—the Berkeley Unified School District (BUSD), and UC Berkeley student-parent housing (“UC Village”) to recruit a diverse sample of parents for focus groups and interviews. Demographic characteristics of focus group and interview participants are summarized in Table 1. Focus group participants (n=24) were recruited from the YMCA Head Start program and BUSD and were largely low-income (<\$24,000 for a family of four) women from diverse racial and ethnic backgrounds (37% Latino, 25% white, 25% black and 13% South Asian). Interview participants (n=20) were recruited from YMCA Head Start and the UC Village. The majority of interview participants were low-income Latinas, however, interview participants from the UC Village were in the process of obtaining a bachelor’s degree.

PROCEDURE

Focus groups

Four semi-structured focus groups were conducted (three in English and one in Spanish) with 4-7 participants (mean number of members=6) recruited from YMCA Head Start and BUSD. Focus groups were approximately 1.5 hours in length. Parents recruited at BUSD attended focus groups (n=2) at a local BUSD elementary school, and parents recruited at Head Start attended focus groups (n=2) at the YMCA Head Start central office. All members of the research team completed a focus group training to ensure consistency across the different focus group moderators and interviewers. Focus groups were led by a trained moderator and assisted by a co-moderator, who together debriefed for 20-30 minutes following each focus group session to discuss impressions, themes, and questions that emerged. Notes from these debrief sessions, along with preliminary analysis of the focus group transcripts, served as the basis for the semi-structured interview guide that followed.

Interviews

Based on preliminary analysis of the focus groups, a semi-structured interview guide was developed to examine central themes and concepts in greater depth. Twenty interviews lasting 20-40 minutes each were conducted over the course of three

Table 1: Overview of focus group and interview participants by age, race, gender, education and socioeconomic status.

Parent characteristics, n (%) ^a	All (n=44)	Focus Groups (n=24)	Interviews (n=20)
Female	36 (82)	20 (83)	16 (80)
Age			
18-24	10 (23)	5 (21)	5 (25)
25-34	11 (25)	4 (17)	7 (35)
35-44	16 (36)	11 (46)	5 (25)
45-64	7 (16)	4 (17)	3 (15)
Self-identified race/ethnicity			
Latino/Hispanic	21 (48)	9 (38)	12 (60)
Black	8 (18)	6 (25)	2 (10)
White	8 (18)	6 (25)	2 (10)
Asian	7 (16)	3 (13)	4 (20)
Education achieved			
High school graduate	3 (7)	3 (13)	0
Some college	29 (66)	9 (38)	20 (100)
College graduate	12 (27)	12 (50)	0
Socioeconomic status			
\$0-24,000	31 (78)	11 (55)	20 (100)
\$25-49,000	3 (8)	3 (15)	0
\$50-74,000	2 (5)	2 (10)	0
\$75-99,000	2 (5)	2 (10)	0
≥\$100,000	2 (5)	2 (10)	0

Percentages do not reflect the four focus group participants who elected not to provide information about socioeconomic status

Table 2: Factors that motivate parents to reduce SSB consumption.

Theme	Responses	Focus Group Participants n (%)	Interview Participants n (%)	Total Participants n (%)
Participants who reported reducing their or their family's SSB consumption		12 (50)	16 (80)	28 (64)
Internal motivators for reducing SSB consumption	Diabetes	4 (17)	15 (34)	15 (34)
	Obesity	8 (33)	13 (30)	13 (30)
	Tooth Decay	5 (21)	8 (18)	8 (18)
External motivators for reducing SSB consumption	SSB tax increasing prices	13 (54)	14 (32)	14 (32)
	Nutrition education	4 (17)	17 (38)	17 (38)
	Organizational policies restricting SSBs	4 (17)	9 (21)	9 (21)
	Healthcare providers	5 (21)	12 (27)	12 (27)

months in 2016. Interviews were audio-recorded following the consent of all participants.

Data analysis

Focus group and interview transcripts were analyzed using a content analysis approach [15,16]. Two researchers coded data separately using inductive coding to identify emerging themes. Researchers then met to compare and revise codes and memos until a preliminary codebook of 91 codes was mutually selected. These codes were then re-applied to all focus group transcripts and used as the basis for deductive analysis of interviews. Following the first-pass coding of interviews, researchers met once more to further refine the original codebook to a total of 63 codes. Both focus groups and interviews were re-coded using this final codebook and findings were summarized into a preliminary report that included quotes and excerpts from the transcripts organized by theme. In order to assess whether selected quotes and themes accurately represented participants' opinions, the research team presented preliminary results to experts ("key informants") working closely with the subject population on

issues of nutrition and parenting. Key informants included YMCA Head Start staff (n=3) as well as BUSD administrators and teachers (n=4). These key informants reviewed codes and themes and attested that themes had high face validity—that is, that results were subjectively consistent with the viewpoints and attitudes expressed by parents in the greater Berkeley community.

RESULTS AND DISCUSSION

Parents' knowledge, attitudes, and practices around serving their children SSBs

The vast majority of focus group and interview participants understood that excess sugar is harmful, but recognized that children often preferred SSBs to healthier beverages.

"If you give kids the option – kids have an insatiable appetite for sugar! They'd drink soda and eat candy all day!" (Joelle, UC Village)

While most parents reported that they did not regularly consume SSBs, they commented on how delicious, addictive, affordable, and accessible SSBs were. In fact, at least half of

participants reported regularly consuming soda at some point in their lives. However, most parents reported having reduced their SSB consumption prior to Measure D, and/or severely restricted their children's access to SSBs at home. Personal experiences with adverse health outcomes and recognizing an "addiction" to soda were major motivators for this behavior change.

"That's the real problem with sugar – it's so addictive. You don't think of it in the sense of other drugs that are out there, but it is." (Christopher, BUSD)

"I used to be addicted to soda. When I was younger, I'd drink like 4 or 5 cans a day...That's why I watch it with [son] - because I know how that can be. Because when you start that, it's hard to stop." (Maribel, UC Village)

Parents' own experiences with chronic diseases such as diabetes, obesity, and tooth decay were particularly powerful motivators to limit consumption of SSBs.

"I'm diabetic, which is one of the reasons why I have curbed a lot of what we have at home." (Leslie, UC Village)

"My family consumed a lot of soda when I was young, and we didn't have proper medical or dental care. I had dental problems where my baby teeth rotted through to the adult teeth, so that when my adult teeth came in, they were already in decay. So when I had my own children, I really limited how much sugar they have so that they don't have to experience that. And now they don't have any cavities, which is pretty awesome." (Candace, UC Village)

"I have a kidney transplant and I think my soda consumption had something to do with it...sometimes I drank 3 sodas per day. So...for me, after my transplant, just water. And for my whole family: water. After my transplant, more nutritious foods and only water. I had to live through that to realize the damages associated with sugar." (Xochitl, Head Start, Translated from Spanish)

Once parents learned of the adverse health outcomes associated with sugar consumption—either through their own experiences or through formal and informal education—they were motivated to decrease their sugar consumption. Nutrition education played a crucial role in giving parents the tools to do

so. After learning to read nutrition labels and identify sugar-laden beverages, parents reported cutting these beverages out of their and their families' diets.

"You want to take care of yourself and live long; you want your kids to, as well! So the information I received in my education helped me transition away from bad things and towards healthier options." (Jennifer, UC Village)

"I grew up in a house where we'd drink soda all of the time! My parents loved soda...And they didn't see anything wrong with it. Now, I've had to educate myself about nutrition, to keep my child healthy...we used to stay in a homeless shelter...and they gave us workshops. And so that was beneficial. And I think even in school, I've seen people give presentations on it, so just really raised my awareness." (Sara, UC Village)

Some parents reported learning about the detrimental effects of SSBs from their children, either before or after the Soda Tax.

"My daughter loves water. Recently she's been saying 'Mommy, you know soda is bad for you. You need to drink water'...So she's getting me to drink more water." (Catalina, Head Start)

The majority of nutritional gatekeepers in our study reported drastically reducing their or their family's SSB consumption as a result of their own experiences and beliefs ("internal motivators") or environmental influences such as increased SSB prices, organizational policies, and nutrition education ("external motivators"). Table 2 summarizes common internal and external motivators prompting decreased SSB consumption among participants in focus groups and interviews.

In order to protect their children from the adverse health outcomes associated with excess sugar consumption, parents felt the need to restrict access to SSBs or water down beverages at home.

"[My daughter] doesn't drink soda at all. I don't let her. As far as juice or sugary items, I water it down." (Maisha, UC Village)

"I buy soda. But I kind a stick it way back in the cabinet so that no one can see it. And I pull it out when we have something like tacos that soda would go good with." (Charlene, Head Start)

Table 3: Parents' opinions on children's SSB consumption.

Theme	Responses	Focus Group Participants n (%)	Interview Participants n (%)	Total Participants n (%)
Factors promoting children's SSB consumption	Children prefer the taste or get "addicted" to SSBs	18 (75)	19 (95)	37 (84)
	SSBs are expected at social gatherings and restaurants	16 (67)	14 (70)	30 (68)
	Friends and relatives ("enablers") circumvent parental restrictions and serve children SSBs	12 (50)	5 (25)	17 (39)
	Adults view SSBs as a reward or treat	7 (29)	4 (20)	11 (25)
	Children will drink SSBs if they are available at home	7 (29)	4 (20)	11 (25)
Strategies employed by parents to limit children's SSB consumption	Avoiding having SSBs at home	13 (54)	19 (95)	32 (72)
	Restricting sodas but not other SSBs such as juice, lemonade, or chocolate milk	11 (46)	18 (90)	29 (66)
	Watering down SSBs	9 (38)	3 (15)	12 (27)
	Hiding SSBs from view	5 (21)	2 (10)	7 (16)

However, these restrictions tended to break down at parties or restaurants, where SSBs—particularly sodas—were more accessible.

“When we go to a restaurant, for example, she likes [restaurant name], and she usually gets soda there.” (Alondra, UC Village)

“When you’re invited to a friend’s BBQ and the cooler is out there with tons of soda and any time you turn around they’re having more, without your permission.” (Naima, John Muir Elementary School)

In social settings, “enablers”—adults who were not a child’s primary caregiver but played a caretaker role—would defy nutritional gatekeepers’ wishes and serve children soda. These “enablers” often used SSBs as a treat, or a way to gain the affection of the children.

“I don’t really keep soda in the house. He goes to his dad’s house, and his dad gives him a lot of soda; he doesn’t regulate it at all. And then my mom’s house – he’ll go there and she will give him soda as a treat.” (Sara, UC Village)

Attempting to limit their children’s access to what parents’ described as highly palatable, available, and, “addicting” SSBs in the face of enablers and social gatherings caused parents significant stress. Parents acknowledged that children tended to drink whatever the adults around them were drinking, and reported feeling constant pressure to monitor their children’s beverage intake. Table 3 summarizes parents’ opinions regarding the factors that contribute to children’s SSB consumption, as well as the methods they employ in an attempt to limit children’s SSB consumption.

“You can never escape this battle....if you give children sweets, it’s ‘why do you feed them sweets?!’ But if you don’t, it’s, ‘Why do you limit them?’” (Yolanda, Head Start, Translated from Spanish)

“My youngest daughter—she’s 7 now – but her grandmother, she wanted to take the upper hand because older people tend to just take charge. And she goes, get that baby some sugar water! Give me that bottle, And she went and she mixed up this sugar-water thing and I was just really irritated. But I kind of felt pushed back because she’s my elder, and she’s the grandmother, and she wants this... They’re not trying to hurt the baby, they really believe

that that little combination right there is what the baby needs, and I’m thinking: ‘No!’” (Charlene, Head Start)

Organizational policies restricting SSBs relieved parents of some of the responsibility of controlling their children’s SSB intake. Instead of debating whether to purchase SSBs for their children, parents described being able to defer to policies that encouraged consuming only healthy beverages.

“Because of school, I have to supply for him milk and water... And then also at kids’ tournaments now, they ask for a hundred percent juice or water. So they stopped actually asking for a soda and Gatorade.” (Gabriela, Head Start)

“Soda isn’t allowed at schools – and additionally, during snack time, some teachers will only allow their students to have fruits or veggies; they won’t even allow a granola bar! So I think it’s taught kids to make healthier decisions; that’s what they’re forced to do!” (Jennifer, UC Village)

Parents’ responses to the Berkeley soda tax

Although the majority of participants who voted in Berkeley reported supporting Measure D, reactions to the Berkeley Soda Tax and its implementation were mixed. Parents expressed skepticism about whether other people in the community would change their habits in response to the Berkeley Soda Tax, yet simultaneously described altering their own behavior in response to the tax. Many parents also felt uncertain or dissatisfied about the populations perceived to be targeted by the tax.

“I don’t think raising the taxes will get people to stop buying it.” (Loretta, Head Start)

“People want soda; people are going to get soda; people are going to pay for soda. What we have to do is educate people on why they should not drink soda!” (Jennifer, UC Village)

The perceived ineffectiveness of the tax contrasted with self-reported changes in behavior following the implementation of the Berkeley Soda Tax. Regardless of how they felt about the tax, many parents—particularly low-income parents at Head Start—reported reducing SSB purchases in response to higher prices.

“[Soda] is expensive, it’s pricier, I don’t like it. Even though I was for Measure D, because it’s going to a good cause, you know the

Table 4: Parents’ opinions on SSB taxation.

Theme	Responses	Focus Group Participants n (%)	Interview Participants n (%)	Total Participants n (%)
Opinions regarding taxing SSBs	Support SSB tax	10 (42)	10 (50)	20 (45)
	Oppose SSB tax	3 (13)	5 (25)	8 (18)
	Unsure whether support or oppose tax	11 (46)	5 (25)	16 (36)
	Do not think tax will reduce SSB consumption	12 (50)	6 (30)	18 (40)
	Report decreasing SSB purchases since SSB tax implementation	14 (58)	1 (5)	15 (34)
	Mistrust or confusion about use of funds	13 (54)	11 (55)	24 (55)
Where should tax revenue be directed?	School programs	9 (38)	13 (65)	22 (50)
	Health and nutrition	4 (17)	10 (50)	14 (32)
	Recreational programs (e.g., parks and afterschool programs)	2 (8)	1 (5)	3 (7)

Table 5: Drivers of increased and decreased SSB consumption.

Increase SSB Consumption	Decrease SSB Consumption
Taste	Personal experiences with adverse health outcomes
Addictive properties of SSBs	Perceived responsibility and power to control their children's beverage intake*
Social and cultural norms*	Nutrition Education*
Advertising	Restrictive Policies
Price*	
Availability*	Measure D
Enablers	

Abbreviations: SSB: Sugar-Sweetened Beverages
 *Factors that are influenced directly or indirectly by Measure D ("The Berkeley Soda Tax"). Measure D increases the price of SSBs, thus decreasing their availability. Tax revenue is channeled into nutrition education programs that may help increase parents' perceived responsibility and power to control their children's beverage intake, and may ultimately change social and cultural norms that normalize SSB consumption.

schools. But it actually brought me to drink more water and give up other things." (Gabriela, Head Start)

"The day after [the tax] I grabbed a soda like I always did every other day. For about one week I was like that, but afterwards, no more. Now it's better that I don't grab the soda. I'll grab water, or I'll grab juice or something like that, but now that is \$1.75 per day, well I said, 'Better save that money. For laundry'." (Mariela, Head Start, Translated from Spanish)

"And it's not just sodas – its sugary drinks, right? It's the Starbucks drinks they sell, all those Gatorades, all that, right? Makes you get a cheap bottle of water." (Karina, Head Start)

Underlying all conversations about the tax was a feeling of confusion: nearly all the parents with whom we spoke did not understand how the Soda Tax worked, and many did not know how funds were being spent. This led to feelings of mistrust among some parents.

"If they're taxing the corporations, I think that's a good thing... I think that they should be taxed because they are being harmful to us and to our community. If they are taxing the consumer, I think it might deter consumers from wanting to purchase sugary drinks, but at the same time, who are the people that are buying these drinks? And does it make sense to tax people if there are trends of poverty among consumers?" (Amy, UC Village)

Most parents had a vague notion that Soda Tax revenue was being used at least in part for school programs, which was one of the main reasons that parents supported the tax. Participants expressed a desire for more transparency around the use of tax revenue, and hoped that funds would be dedicated towards school and nutrition programs, particularly in low-income communities. Table 4 summarizes parents' opinions regarding SSB taxes and the use of tax revenue.

"I think [money should be spent on] school programs, definitely. But I would target school programs in lower-income communities, especially since this tax is a bigger burden on the lower-income community." (Jarrod, UC Village)

"Programs to fight childhood obesity, like go to schools and educate the kids; talk to them about dental health or dental hygiene, but a way of eating healthy; that's the best way for them to spend [revenue] – with the kids. Because kids are the ones who are going to be fighting this battle next." (Sara, UC Village)

DISCUSSION

Recent quantitative studies show that the Berkeley Soda Tax led to increased retail prices of SSBs and decreased SSB consumption—particularly in Berkeley's low-income communities—within one year of it taking effect. Interviews and focus groups with parents who live, work, or attend school in Berkeley helped elucidate possible mechanisms for this decreased consumption, allowing us to better understand ways of supporting parents in their goals restricting their children's sugar intake. Table 5 summarizes the major drivers of increased and decreased SSB consumption according to participants in our study, highlighting the factors that were influenced directly or indirectly by the Berkeley Soda Tax. Most parents with whom we spoke reported decreasing their SSB consumption prior to the implementation of the Soda Tax, but also described how SSB price increases further prompted them to drink fewer SSBs and more water. Parents cited personal experiences with illness as well as nutrition education—whether provided by their children's schools, community organizations such as WIC, or college courses—as key motivators for making dietary changes. Nutrition education was described as especially important for parents who grew up in low-income communities, where soda was heavily advertised and widely available, or in families where drinking SSBs was common. This education separated these participants from their communities of origin, prompting them to consume healthier beverages but also leading to increased stress associated with deviating from cultural and family norms. Once they became aware of the sugar content of SSBs and the health consequences associated with SSB consumption, many parents attempted to restrict their children's access to SSBs. However, parents reported that when SSBs were available—at parties, restaurants, and special event—it was difficult to restrict children's consumption of them. Some children would seek out enablers who would circumvent parental restrictions and serve them SSBs as a treat. Confronting enablers and the expectation of consuming SSBs in social settings was a source of stress for parents who were aware that SSB consumption is linked to illnesses such as tooth decay, diabetes, and obesity. Access to healthy foods, nutrition education for other family members, and policies that restricted SSBs in schools and at sporting events relieved parents of some of the stress of constantly restricting SSBs by making it easier for families to avoid them entirely. Participants also cited the addictiveness of SSBs as a major factor promoting consumption, and compared SSBs to drugs like tobacco. Excise taxes have been effective in discouraging tobacco consumption in the United States and across the world, and are an integral part of tobacco control programs to this day. As tobacco control has become increasingly accepted by the public and translated into legislation, tobacco companies have had to implement more aggressive voter segmentation tactics and channel more funds into fighting proposed tobacco control programs. Examination of recent SSB taxation campaigns in Richmond, Berkeley, Oakland, Albany and San Francisco suggest that the beverage industry is

adopting similar tactics as public support for SSB taxes increases. For example, the American Beverage Association California PAC recently sponsored the “No on HH: No Oakland Grocery Tax” campaign, which implied that Oakland’s Measure HH—a one cent per ounce tax on sugar-sweetened beverages—would increase prices of other grocery and restaurant items and harm low-income communities. Despite this and other aggressive campaigns, Measure HH was approved with the support of over 60 percent of Oakland voters in 2017. Just as tobacco control programs have changed the narrative around smoking in the U.S., our conversations with parents suggest that the Soda Tax may be changing the narrative regarding SSB consumption in Berkeley, by both altering the availability and accessibility of SSBs and increasing funding for nutrition and health programs that may significantly change the beverage selection of nutritional gatekeepers and their families.

Revenue from Measure D was originally collected for the City of Berkeley’s General Fund. This decision to design the tax as a general tax was made as a result of a California-specific law that requires a two-thirds majority vote for any earmarked tax. However, to promote the use of city resources to reduce consumption of SSBs, the Measure created a panel of nine experts (Sugar-Sweetened Beverage Product Panel of Experts—SSBPPE) to “make recommendations on how and to what extent the City should establish and/or fund programs to reduce the consumption of sugar-sweetened beverages in Berkeley and to address the effects of such consumption.”[17]. On May 12, 2015, the Berkeley City Council allocated \$500,000 from the general reserve to forward-fund programs based on recommendations from the SSBPPE, \$250,000 of which were designated for the BUSD Cooking and Gardening Program. Although there were some news articles covering this funding allocation[18], this information did not seem to reach consumers in a timely manner. Focus groups were conducted during the summer of 2015, after initial allocations had been made, and interviews were conducted in the summer of 2016. Yet, nearly all parents with whom we spoke did not understand how the Soda Tax worked—from who paid the tax to how money was collected and spent. Participants were uneasy and unsure about how city government was spending revenues and uncomfortable with the perception that the tax disproportionately affected low-income populations. Even so, the majority of parents supported the tax, largely because of their pre-existing knowledge of the health consequences of SSB consumption, and their desire to increase funds for children’s nutrition and education. Although parents were skeptical of the effectiveness of the Berkeley Soda Tax, many reported reducing SSB purchases in response to the tax. Thus, our conversations with parents suggested that the Tax was not only popular, but effectively supported parents in their attempts to limit their and their children’s SSB consumption. Additionally, discussions with parents suggested that the revenue from the Soda Tax that funds nutrition education programs may further decrease SSB purchases by increasing awareness of the detrimental health consequences of excess sugar consumption.

As with any study, this research had some strengths and limitations. The qualitative nature of this study provides rich exploratory data that allows for the development of proposed mechanisms that explore the intersection of policy, education,

and personal experience. However, parents retrospectively self-reported their behavior regarding SSBs, and their recollections may have been affected by memory or a social desirability bias to report limited consumption of SSBs. In addition, this study was conducted with a small, convenience sample of parents in Berkeley. Although participants were low-income, some were experiencing temporary poverty and were on a trajectory of attaining a college education, such as the student parents living at UC Village. Taken together with the possibility that the topic of focus groups and interviews may have attracted parents particularly interested in health, participants may have been more educated and/or aware about the health consequences of SSBs than other low-income parents. Thus, the generalizability of the results is uncertain. It is possible that low-income populations with less health knowledge may benefit even more from city investments in health education than the parents interviewed in this study.

CONCLUSION

In general, low-income parents in Berkeley supported SSB taxes and policies that restrict SSBs in schools and other social settings, as these policies relieve them of the stress of limiting their children’s frequent access to beverages perceived as “treats”. Our findings suggest that future SSB taxes considered in other jurisdictions should be dedicated to nutrition education, school programs, and public health initiatives when possible. In locations where such allocations cannot be written into the law (i.e., in California where a two-thirds majority vote is required for taxes with explicit revenue allocations), an expert advisory process should be set up to ensure general funds go toward public health and education. Most importantly, information about tax revenue should be widely disseminated to city residents and consumers in a timely fashion, perhaps through schools and online platforms instead of solely through print media. Clear and transparent use of tax revenue for public health and education may increase voter support for the tax while helping to decrease SSB consumption among the next generation. Effective public health messaging that explicitly draws attention to the health consequences of excess sugar and the sugar content of SSBs may also prepare the public to support future SSB taxes.

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