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Parental and Home Environmental Facilitators of Sugar-Sweetened Beverage Consumption among Overweight and Obese Latino Youth

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Abstract

Objective—To explore parental and home environmental facilitators of sugar-sweetened beverage (SSB) and water consumption among obese/overweight Latino youth.

Methods—Semi-structured interviews were conducted with 55 overweight/obese Latino youth aged 10-18 and 55 parents, recruited from school-based clinics and a school in one West-coast district. All youth consumed SSBs regularly and lived in a home where SSBs were available. We used qualitative methods to examine key themes around beliefs about SSBs and water, facilitators of SSB and water consumption, and barriers to reducing SSB consumption.

Results—A few parents and youth believed that sports drinks are healthy. Although nearly all felt that water is healthy, most parents and about half of youth thought that tap water is unsafe. About half of parent-child dyads had discordant beliefs regarding their perceptions of tap water. About half of parents believed that home-made culturally relevant drinks (e.g., *aguas frescas*), which typically contain sugar, fruit, and water, were healthy due to their “natural” ingredients. Participants cited home availability as a key factor in SSB consumption. About half of parents set no rules about SSB consumption at home. Among those with rules, most parent-child pairs differed on their beliefs about the content of the rules, and youth reported few consequences for breaking rules.

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Conclusions—Obesity programs for Latino youth should address misconceptions around water, and discuss culturally relevant drinks and sports drinks as potential sources of weight gain. Healthcare providers can help parents set appropriate rules by educating about the risks of keeping SSBs at home.

Keywords

Hispanic Americans; obesity; beverages; adolescent

Introduction

The prevalence of obesity among U.S. adolescents (12-19 years-old) more than tripled from 1980 (5%) to 2010 (18%).¹ Mexican-American adolescents show higher levels of obesity (24%) and overweight (20%) than White adolescents (16% and 14%, respectively).¹

Sugar-sweetened beverages (SSBs), which contain caloric sweeteners (e.g., soda, fruit drinks), are a significant source of added sugars in US adolescents' diets and have been suggested as contributing to high obesity rates.^{2,3} A 2010 nationally representative survey found that 63% of high school students drank at least one SSB per day and 33% drank two or more SSBs per day during the previous week⁴ – a consumption level thought to lead to weight gain.^{5,6} From 1988-2004, SSB consumption increased significantly among Mexican-American adolescents aged 12-19 years (from 248 to 305 per-capita kilocalories daily), but not among White adolescents (who remained stable, from 297 to 302 per-capita kilocalories daily).²

Reducing SSB consumption among obese and overweight youth may help to curb childhood obesity.^{5,7} Experimental work, in which water and other non-caloric beverages were supplied to households, suggests a causal link between SSB reduction and weight loss among obese and overweight adolescents.⁸ In a classroom-based SSB educational intervention, reductions in SSB consumption were followed by reductions in BMI for overweight children 9-12 years-old.⁹

Although few studies have examined parental effects on SSB consumption specifically, research suggests that parents have a primary influence on youths' general nutritional intake through reinforcing healthy eating, modeling eating behaviors, and providing access to food.¹⁰⁻¹² Youths' SSB consumption is associated with their parents' behaviors, including permissive food-related parenting styles (allowing children to consume whatever they want),^{13,14} and parental SSB consumption.¹⁰ Youth with access to SSBs at home are more likely to drink SSBs,^{13,15} and those in homes with stricter dietary rules are less likely to drink SSBs.¹⁵

We conducted semi-structured qualitative interviews with Latino obese/overweight youth (10-18 years-old) and their parents to understand culturally relevant facilitators of and barriers to changing SSB consumption among Latino youth – a high-risk population for whom research on this topic is generally scarce. We focused on home environmental factors that contribute to SSB consumption in general, based on research suggesting strong parental and home influences on youths' nutritional intake,^{10-13,15} as well as statistics indicating that

youth aged 12-19 consume the majority of their SSB calories (55-65%) at home.² Although parental and home factors may influence SSB consumption among all youth, we included obese/overweight youth only to inform obesity-treatment interventions.

Methods

Recruitment and Informed Consent

Participants were recruited in LAUSD from two school-based clinics and from seventh-grade classes in one middle school (the latter were participating in another obesity-prevention study); both clinic and school samples were used to diversify our participant pool. Youth were eligible if they (1) were Latino/a (by parent report); (2) were 10-18 years-old; (3) were obese or overweight (on anthropometric measures); (4) reported that they consumed SSBs; and (5) lived in a home where 1 SSB was available. Parents of eligible children were asked to participate if they were responsible for purchasing food and beverages for their child/family.

Eligibility criteria varied slightly between samples. In the clinic, a nurse or nutritionist offered study screening to all youth aged 10-18 visiting the clinic whom they assessed as obese/overweight; interviewers screened interested individuals and obtained parent consent and youth assent in-person or via phone. On the clinic screener, participants were asked about consumption and home availability of SSBs (soda, sports drinks, vitamin waters, energy drinks, flavored milk, fruit-flavored drinks, sweetened coffee or tea drinks). We counted as eligible youth who stated that they consume 1 SSB on 4 days per week, and parents who stated that any SSBs were currently in their home.

The school-based sample was recruited from the participant pool of an ongoing school-based obesity-prevention study. Data collected as part of the ongoing study were used to assess eligibility, including anthropometric data collected from youth (at school), SSB consumption data collected from youth (on in-class surveys) and self-reported home SSB availability collected from parents (by phone). Parents in the school sample were given the same screener question as the clinic sample on home SSB availability. On the in-class survey, youth who reported drinking any SSBs (soda, fruit-flavored drinks, or sports drinks) the day before the survey fulfilled the SSB consumption eligibility criterion. Interviewers phoned all 76 potentially eligible school-sample participants (i.e., youth who were obese or overweight, had consumed 1 SSB, and whose parents kept SSBs at home) for further screening, parent consent, and youth assent. The eligibility criteria (and screening questions) slightly differed between the samples because the school study was designed independently from the clinic study.

Parents provided informed consent for youth <18 years-old, and youth provided assent; 18-year-old youth provided consent. Parents received a \$35 gift card and youth received a \$25 gift card for participation. The study was approved by the institutional review boards at Boston Children's Hospital and the RAND Corporation, as well as the LAUSD Committee for External Research Review.

A total of 110 individuals participated: 55 parents and 55 youth, of which 50 were parent-child dyads. Forty-nine parents (89%) and eleven children (20%) chose to do the interview in Spanish. Table 1 shows participant socio-demographic characteristics.

Measures

Qualitative Protocol—Between September 2007 and September 2009, semi-structured interviews were conducted in-person at the clinic or school, or by phone if participants preferred (Table 2). After youth listed drinks they perceived to be healthy and unhealthy, they listed the drinks they consumed in a “typical week.” For each drink consumed, youth were asked about frequency of and reasons for consumption, conditions associated with consumption, home availability, and parental rules and discipline. Parents’ interviews paralleled those for youth, but additionally asked beliefs about their child’s consumption and factors influencing purchasing. On average, interviews lasted 40-minutes with youth and 60-minutes with parents. Parents and youth were interviewed separately in confidential spaces and at different times.

Socio-demographic Characteristics—Parents’ and youths’ race/ethnicity, place of birth, and gender were obtained via self-report. For the clinic sample, anthropometric height and weight measurements for calculating BMI-percentile were obtained from medical records. For the school sample, we collected height and weight using anthropometric methods, as part of the obesity-prevention study. Height was measured with a portable stadiometer and weight was measured in kilograms using an electronic scale. BMI was calculated as $[\text{weight in pounds}/(\text{height in inches} \times \text{height in inches})] \times 703$. Youth were classified as obese or overweight ($\geq 85^{\text{th}}$ -percentile for BMI) using Centers for Disease Control and Prevention age- and gender-appropriate charts.¹⁶

Data Analysis

Interviews were audio-recorded and transcribed verbatim. Spanish interviews were transcribed and translated into English; a subset was validated by a second Spanish-speaking study team member. We used Atlas.ti to conduct the analysis in three phases, following standard techniques.¹⁷⁻¹⁹ First, two study investigators read a random subset (20%) of transcripts and identified six general themes, from which a preliminary codebook was created. Next, two coders identified the themes in 10% of the interviews, after which the team refined the codebook and resolved discrepancies. Finally, the coders completed an additional 18% of the interviews using the revised codebook, and Cohen’s kappa was calculated to determine inter-reliability.¹⁸⁻²⁰ Any themes with kappas $< .60$ were redefined by the team; the redefined codebook was used to code an additional 13% of interviews. Final kappa values ranged from .60 to .84 ($M = .74$, $SD = .11$), indicating satisfactory coder consistency.¹⁷ After attainment of the final kappas, one coder systematically applied the codebook to all remaining interviews.

Following prior research,²¹ to indicate the relative depth of each theme in the sample, the frequency of themes was categorized by how often they emerged: all or almost all (81-100% of interviews), most (61-80%), about half (41-60%), some (21-40%), and a few (1-20%). Because the interview was semi-structured and primarily open-ended, lack of discussion of a

particular theme did not necessarily indicate that the participant did not endorse or agree with that theme; thus, inclusion of exact percentages by theme could potentially misrepresent the data.

Parent-child concordance analyses were conducted for two closed-ended questions that had a finite number of response choices and that were asked of nearly all parents and children: perceived healthfulness of water (with response categories *bad effect/not a good effect*, *good effect/not a bad effect*, or *both good and bad effect/not sure*), and parental rules about SSBs (with response options *yes*, indicating presence of rules, and *no*, indicating absence of rules). Two coders categorized parent-child dyads into concordance groups ($\kappa=0.88$ for water and 0.84 for rules). For example, for the concordance analysis for rules, we categorized parent and child responses into parent-child agreement on the presence of rules about SSBs; parent-child agreement on the absence of rules about SSBs; parent-child disagreement on the presence of rules about SSBs (i.e., parent states there are rules; child states there are not); and parent-child disagreement on the presence of rules about SSBs (i.e., parent states there are no rules; child states there are rules). Among the parent-child dyads that agreed on the presence of rules, we also coded whether or not the parent and child had similar beliefs regarding the content of the rules.

Results

Almost all parents and all youth characterized soda as unhealthy; about half of parents and youth said that juice drinks (i.e., drinks not containing 100% juice, e.g., Sunny Delight®) were unhealthy; a few parents and youth thought that sports drinks were unhealthy, and about half of parents and some youth said that energy drinks were unhealthy. Water was generally deemed to be healthy, although most parents and about half of youth were concerned about the safety and cleanliness of tap water. However, only about half of parent-child dyads agreed on their perceptions about tap water. About half of parents prepared culturally specific drinks (e.g., *aguas frescas*, *jamaica*, *horchata*) at home and, despite tending to add sugar, felt that such drinks were healthy due to their high fruit content. Facilitators of youths' SSB consumption included home availability and adult purchase of SSBs for youth. About half of parents and youth stated that there were rules in the home around SSB consumption, and about half of all dyads agreed on the presence or absence of rules.

Quotations for each theme are referred to below by the number indicated in Table 3. Little variance in perceptions was apparent across the clinic and school samples. Thus, responses for the two samples are discussed together.

Beliefs about SSBs and Water

Soda—Almost all parents and all youth categorized soda as unhealthy (Quotes #1, 2); as one child said, “they have a lot of sugar in them.” Most parents believed diet soda to be equally or more unhealthy as regular soda (Quotes #3, 4), due to “additives” and “chemicals.”

Sports Drinks—A few parents and youth categorized sports drinks as unhealthy and a few cited high-sugar content as the reason (Quotes #5, 6); as one father said, “...she no longer drinks Gatorade® because it has too much sugar.” Some parents and youth stated that Gatorade® was healthy, and a few thought that Gatorade® contained little or no sugar (Quotes #7, 8). A few parents and youth referred to advertisements for Gatorade® when explaining why they thought it was healthy (Quotes #9, 10).

Energy drinks—About half of parents and some youth cited energy drinks as unhealthy, because they have “too much sugar” and “caffeine” and are “artificial” (Quotes #11, 12).

Juice Drinks—Some parents and youth believed juice drinks were healthy (Quotes #13, 14), while about half of parents and some youth believed they were unhealthy because of high sugar content (Quotes #15, 16). For example, although one father felt that Tampico “has vitamins” and “affects [his child] in a good way,” one mother knew that “Tampico® or like Kool-Aid®...have more sugar than juice.”

Culturally Specific Drinks—About half of parents made juice drinks specific to their Mexican or Salvadoran heritage at home. Typically, these drinks are made with fruit, sugar, and water. Some parents felt that these drinks were healthy because they contain “natural” ingredients with “fewer chemicals”; a few parents thought these drinks were healthy because they added “fewer spoonfuls” of sugar (Quotes #17, 18).

Water—Almost all parents and youth recognized the health value of drinking water (Quotes #19, 20). However, most parents and about half of youth perceived tap water as unhealthy or unclean, and some parents and a few youth were concerned about chemicals (Quote #21) or lead (Quote #22). As shown in Table 4, among the 43 parent-child pairs for whom data were available, 49% (21 dyads) agreed on their perceptions about tap water. Of the 21 dyads with concordant perceptions, 71% agreed that tap water has a bad effect on health, and 19% that it has a good effect or no effect (i.e., not a bad effect); the remainder agreed that tap water has both a good effect and a bad effect, or were not sure. Of the 22 dyads that were discordant, 59% of disagreements stemmed from parents believing that water has a bad effect and their child believing that water does not have a bad effect, and 41% stemmed from the opposite pattern. For example, in one parent-child pair, the parent did not drink or serve tap water because she heard in the media that “[scientists] have found derivatives of contraceptives and amphetamines” in tap water in Los Angeles, whereas her child said that water has a “probably good” effect because she “heard from [her] teacher that tap water... helps clean your teeth.”

Facilitators of SSB Consumption

Some youth said they drink SSBs at home because they are available; as one child said, “it’s the only thing in my house” (Quote #23). About half of parents believe that home availability encouraged their child to drink SSBs (Quote #24). About half of youth reported that family members were willing to buy them SSBs when requested (Quote #25). Some parents said they purchased SSBs because they were inexpensive or “cheap” (Quote #26).

Facilitators of Water Consumption

Most parents purchased filtered or bottled water for the home. When asked why their children chose to drink water, a few mentioned that a nutritionist or doctor advised their child to drink more water (Quote #27). A few parents believed that their children might drink more water if SSBs were not available at home; as one mother said, “If there weren’t a lot of sugary beverages at home, that would motivate her to drink more water” (Quote #28).

Barriers to Reducing SSB Consumption

Home Rules about SSB Consumption—About half of parents and some youth stated that there were no rules regarding SSB consumption (Quotes #29, 30); one mother said “I just scold him and tell him not to drink so much soda,” and one girl said that “my mom doesn’t really keep tabs on us.” About half of parents limited soda intake (e.g., 1-2 sodas per day) or other SSBs, for example, “He can’t go beyond one soda” (Quote #31).

A few parents and youth reported few or no consequences for breaking rules about SSBs. When youth drank more soda than allowed, for example, some parents took away soda temporarily (e.g., “sometimes he stops buying it...and then the next week he starts buying them again”; Quote #32); some did “nothing” (Quotes #33, 34).

Parent-Child Concordance on Home Rules—Parents and children did not always match on their understanding of rules. Among the 13 parent-child pairs who agreed that the household had rules about SSBs, 9 were not consistent about the content of the rule. For example, in the same parent-child pair, a mother cited the rule as one SSB “when he is eating dinner and after that he can’t drink anything,” whereas her son said that the rule was “two cans of soda per day maximum” (Quotes #35, 36).

Perceptions of rules were concordant in a little over half (54%) of parent-child pairs (Table 5): 26% of concordant pairs agreed on the presence of rules, and 28% agreed on the absence of rules. A total of 44% were discordant: In about a quarter of discordant pairs (24%), parents stated that they had rules in the home about SSBs, but their child did not appear to be aware of the rules; in a fifth (20%) of discordant pairs, parents stated that there were no rules in the home about SSBs, whereas their child believed that there were rules.

Discussion

In this qualitative study of perceptions of SSBs and facilitators of and barriers to changing SSB consumption among obese and overweight Latino youth and their parents, almost all parents and all youth classified soda as unhealthy. Water was generally considered to be healthy, but most parents and about half of youth had concerns with the cleanliness and/or safety of tap water. Moreover, a few considered sports drinks to be healthy. About half of parents prepared drinks associated with Latino heritage at home, often with added sugar, and about half believed that these drinks were healthy. Both parents and youth felt that home availability of SSBs facilitated consumption, and youth noted that adults were sometimes willing to purchase SSBs for them. Although about half of parents and youth said that parents had rules in the home about limiting SSB consumption, only a little over half of parents and youth actually agreed on whether or not rules were present.

Soda was almost universally considered to be unhealthy due to its sugar content. Energy drinks were mentioned less often, although about half of parents and some youth felt that energy drinks were unhealthy because of high sugar. Although parents preferred that their children avoid drinks high in sugar, parents also expressed mistrust of diet soft drinks and feared negative health effects of artificial sweeteners on children. Research has found that diet soda consumption is correlated with higher BMI,²²⁻²⁴ increased risk for diabetes,²⁵ and increased risk of vascular events among adults.²⁶ However, the direction of the relationship is unclear, as people diagnosed as obese or diabetic may begin consuming diet soda in order to manage their condition.^{6,7} On the other hand, several studies suggest artificial sweeteners only lead to weight loss or maintenance when there are concurrent reductions in energy intake.²⁷ Due to inconclusive results, further research is needed prior to determine recommendations for parents regarding diet drinks.

Parents and youth had mixed beliefs about the healthfulness of juice drinks and sports drinks. Although parents and youth recognized the sugary content of such drinks, they also perceived health benefits – for example, that juice drinks contain vitamins. Parents' and youths' beliefs about sports drinks may stem from the fact that LAUSD offered reduced-sugar Gatorade® at the time of the study, although many other SSBs had been removed from schools under California state law. Alternatively, such beliefs about sports drinks may have arisen from advertising that depicts famous athletes. In recent years, food and beverage marketing campaigns have increasingly targeted Latino consumers.²⁸ For example, a 2010 marketing campaign for Powerade® featured the Mexican National Soccer Team's goalkeeper.²⁹ For interventions designed to reduce SSB consumption, a media literacy component could teach parents and youth how to evaluate media messages about SSBs critically and to make healthy choices based on accurate information from credible sources.

Participants listed water and culturally relevant drinks as healthy, although culturally relevant drinks often contained sugar. Almost all parents and youth recognized the healthfulness of water. Most parents and about half of youth perceived tap water as unhealthy or unclean and preferred to stock their home with bottled water, although tap water in Los Angeles County is considered to be safe to drink. These results are consistent with prior research finding that Latino immigrant parents believe that tap water can cause illness and are less likely to give tap water to their children than are non-Latino parents.³⁰ Despite the relatively strong sentiment that tap water is unsafe, however, only about half of parent-child dyads were in agreement about their perceptions of tap water, and only 35% of parents and children in the same families agreed that tap water has a “bad” effect on health. The high levels of disagreement on this item suggest that public health campaigns are needed, such as those done in New York City,³¹ to improve perceptions of tap water and diffuse public mistrust, especially among immigrants who may have originated from countries with unclean water supplies.

Facilitators to SSB consumption included availability—youth who had access to SSBs because SSBs were stocked at home, or because other adults bought SSBs for them, were perceived as more likely to drink SSBs. Barriers to reducing consumption included a lack of parental rules. Although all youth in the study were obese or overweight, about half of parents did not have rules in the home around SSBs. When parents did have rules, they

tended to set limits (e.g., 1-2 sodas per day) rather than disallowing SSBs completely. Furthermore, rules about SSBs seemed to be unenforced or ineffective, possibly because youth were receiving mixed messages. About half of parents told their children to drink fewer SSBs, but all parents stocked SSBs at home, and about half bought SSBs for their child when asked. Parents may not have fully recognized or believed the link between SSBs and obesity, or they may have lacked the necessary motivation or parenting skills to change youths' behaviors. Rules of 1-2 sodas per day are concerning in light of a recent meta-analysis suggesting that, among adults, those who have 1-2 servings of SSBs per day are at greater risk of developing type 2 diabetes and metabolic syndrome.³²

Based on current American Academy of Pediatrics (AAP) recommendations,³³ clinicians can counsel parents about how to reduce children's intake of SSBs,^{33,34} including risks of keeping SSBs in the home, even if they are not intended for children's consumption, and for the need for parents to serve as role models and set an appropriate social context in the home that does not show implicit acceptance of SSBs. Per the AAP, clinicians also can inform parents about the benefits of water as a principle source of hydration, and caution parents that the use of sports drinks as a replacement for water during youths' routine physical activity is usually unnecessary.³⁵ It is also important that clinicians do not overlook the role that culturally specific drinks may play in excessive weight gain as potential hidden sources of sugar, and to encourage the use of less sugar when preparing such drinks at home.

Findings are limited in generalizability due to the relatively small Latino (primarily Mexican immigrant) convenience sample in one California school district. Although qualitative methods are useful for exploring research topics, results are not representative. We chose to use semi-structured interviews instead of focus groups due to the potential stigmatization of obesity in a group context, and to be able to examine parent and child concordance; in addition, a high proportion of participants likely had undocumented immigrant status, and they may not have agreed to participate in a focus group. In addition, we used two different methodologies to draw students from school clinics and classrooms, and unmeasured factors between the samples could have influenced the results; however, themes did not appear to differ by sample, most likely because students were drawn from the same school district and had similar characteristics (e.g., obesity/overweight, Latino). Nevertheless, our results can serve as a foundation for future hypothesis-driven research for culturally-tailored intervention development, and ultimately can support the development of a parent-focused program to change youths' SSB consumption. Interventions that deliver education (basic facts about SSBs, as well as media literacy) and focus on parenting skills may help to change parents' beliefs about SSBs as well as behaviors related to SSBs in the home. Healthcare providers can play a major role in counseling parents about the need to reduce SSBs from youths' diets, especially among those who are obese or overweight.

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Abbreviations

SSB	sugar-sweetened beverage
BMI	body mass index
LAUSD	Los Angeles Unified School District

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What's New

In qualitative interviews, Latino parents and adolescents believed sports drinks to be healthy and did not trust tap water. Home availability was seen as a key facilitator of SSB consumption. About half of households had no rules about SSB consumption.

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Table 1

Characteristics of the Study Population of 55 Obese/Overweight Latino Youth and Parents

	Youth (n=55)	Parents (n=55)
Age in Years^a [M (SD)]	13 (2)	---
BMI (%)		
Overweight	24	---
Obese	76	---
Sex (%)		
Female	33	95
Male	67	5
Place of Birth (%)		
USA	54	7
Non-USA	46	81
Mexico	---	38
El Salvador	---	22
Guatemala	---	7
Honduras	---	4
Peru	---	4
Colombia	---	2
Cuba	---	2
Nicaragua	---	2
Unknown ^c	---	12
Sample Setting (%)	---	
Clinic	46	44
School	54	56

Note: Five youth and five parents were not matched in dyads.

^aData were missing for four youth due to interviewer oversight.

^bYouth were not asked place of birth if born outside US.

^cSeven parents were not asked place of birth.

Table 2

Qualitative Interview Protocol on Sugar-Sweetened Beverage (SSB) and Other Beverage Consumption

Topic	Protocol question
Child's Beverage Consumption	What kinds of beverages [do you drink/do you think your child drinks] in a typical week?
Healthy vs. Unhealthy Drinks	What kinds of drinks do you think are healthy?
	What kinds of drinks do you think are unhealthy?
	How did you decide what to list as healthy and unhealthy?
Beliefs about SSBs and Water	Do you think tap water affects [your/your child's health], either in a good or bad way, or both?
	In what ways, if at all, do you think (beverage) affects [your/your child's] health? Good and/or bad ways? ^a
Facilitators of Beverage Consumption	Why [do you/does your child] drink (beverage)? ^a
	Where [do you/does your child] typically get (beverage)? ^a
	[Do you/does (child's name)] ever ask members of your family to buy (SSBs), or any other kind of drink, for [you/him/her]? ^a
	-If yes, can you tell me about the last time [you/s/he] did this?
	-What was the beverage, and did [they/you or someone else] buy it for [you/him/her]?
	Tell me about the last time you bought sugary beverages for your home. What was it, and how did you make the decision to buy this beverage? ^{a,b}
	On a typical week, including weekdays and weekends, what kinds of beverages are available, kept, or made in your home?
Barriers to Reducing SSB Consumption	What are the rules, if any, about what or how much [you/(child's name)] can drink in a day?
	-Who makes and enforces the rules?
	-What happens if [you break/your child breaks] the rules?
	-[Do you/does your child] listen to the rules?
	-Did [you/s/he] break the rules recently? If so, what happened?

^a Asked only for beverages that were reported as being consumed by child in a typical week

^b Only parents were asked this question

^c Only children were asked this question

Table 3

Themes and Representative Quotes from Obese/Overweight Latino Youth (n = 55) and Parents (n = 55)

Theme	Representative quote
Beliefs about SSBs and Water	
Soda	<p>1. “[Sunkist®] can affect his weight; obesity. It can give him teeth problems... He could get chubby; he could become a diabetic because of his family history.” (MOTHER)</p> <p>2. “[Soda like Coca Cola®, Dr. Pepper®, 7-Up®, and Sierra Mist®] are unhealthy because they have a lot of sugar in them.” (CHILD, MALE, 12)</p> <p>3. <i>What type of beverages do you think are unhealthy?</i> “Soda...both of them [diet and regular], because the diet ones also have like that sugar, that isn’t natural.” (MOTHER)</p> <p>4. “Diet is more harmful because it has a lot of additives and the sugars they use are even more refined and they have more chemicals. I wouldn’t convince [child] to change to “diet”...she should stay with the regular.” (MOTHER)</p>
Sports drinks	<p>5. “She used to drink Gatorade®, but now that we talk to the nutritionist she no longer drinks Gatorade® because it has too much sugar.” (FATHER)</p> <p>6. “[Gatorade®] is too sugary.”(CHILD, MALE, 11)</p> <p>7. “Gatorade® is not harmful because it doesn’t have much sugar.” (MOTHER)</p> <p>8. “Water, Gatorade® and juice don’t have sugar and that’s what makes them healthy...”(CHILD, MALE, 15)</p> <p>9. “The Gatorade® [commercial], it shows that when one exercises, they lose a lot, since they sweat a lot they drink it to hydrate themselves. So then that is why [my son] thinks that Gatorade® is good.” (FATHER)</p> <p>10. “I think [Gatorade® affects my health] in a good way...because it’s in TV they say it makes you like more energy.” (CHILD, FEMALE, 14)</p>
Energy drinks	<p>11. “...The energy drinks I don’t know about those. I think they have too much sugar...I don’t trust them. They seem too artificial.” (MOTHER)</p> <p>12. “Monster® has too much sugar, has too much caffeine.” (CHILD, MALE, 13)</p>
Juice drinks	<p>13. “It says that [Tampico®] has vitamins... it affects him in a good way.” (FATHER)</p> <p>14. “I think [Kool-Aid®] affects [my health] in a good way cause it has vitamins.”(CHILD, FEMALE, 12)</p> <p>15. <i>What type of beverages do you think are unhealthy?</i> “The juices that have a lot of sugar...like Tampico® or like Kool-Aid® that have more sugar than juice.” (MOTHER)</p> <p>16. <i>What other kinds of drinks do you think are unhealthy?</i> “Sunny Delight®... because it has a lot of sugar.” (CHILD, FEMALE, 16)</p>
Cultural drinks	<p>17. “...Natural juice, like when you make lemonade juices. And orange. Those are healthy or natural. Healthy, well the beverages that don’t have a lot of sugar. Like the <i>tamarindo</i> and <i>jamaica</i> juices.” (MOTHER)</p> <p>18. “We bring lemons [home] and we make the same beverages that they are seeing in the store, but fewer spoonfuls of sugar, with fewer, with fewer chemicals.” (MOTHER)</p>
Water	<p>19. “Water is always healthier than everything else.” (MOTHER)</p> <p>20. “Water is also like, it is healthy...your body also needs water.”(CHILD, MALE, 12)</p> <p>21. “[Tap water] has chemicals and bacteria.” (CHILD, MALE, 12)</p> <p>22. “They said on TV that tap water has lead and it is not recommended to drink it.” (MOTHER)</p>
Facilitators of SSB Consumption	
	<p>23. <i>Why do you drink soda?</i> “Because it’s the only thing in my house.” (CHILD, MALE, 15)</p> <p>24. <i>Why does your daughter drink fruit punch?</i> “Well maybe because well it is what we have at home.” (MOTHER)</p> <p>25. “Last Friday I asked [my dad] to buy me Monster and he did.” (CHILD, FEMALE, 15)</p>

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Theme	Representative quote
Facilitators of Water Consumption	26. "I buy [soda, Sunkist, Sunny Delight, Cactus Cooler] because they are cheap, but they have too much sugar." (MOTHER)
	27. <i>How did you decide that...bottled and filtered water are healthy?</i> "Well, because sometimes the doctors also recommend it." (FATHER)
	28. "If there weren't a lot of sugary beverages at home, that would motivate her to drink more water." (MOTHER)
Barriers to Reducing SSB Consumption	
Home rules	29. "...We don't have a specific strict rule. I just scold him and tell him not to drink so much soda." (MOTHER)
	30. "My mom doesn't really keep tabs on us...there are no rules." (CHILD, FEMALE, 17)
	31. "There is a limit. He can only drink, maximum, a soda. He can't go beyond one soda." (MOTHER)
	32. <i>What happens if you break the rules?</i> "We just get in trouble...like sometimes he stops buying it...like sugared drinks for a week...so we can only drink pure water. And then the next week he starts buying them again." (CHILD, MALE, 13)
	33. <i>Has he broken the rules recently?</i> "All the time." <i>What happens when he does this?</i> "Nothing. I just tell him to pay attention and that he has to do what we tell him." (MOTHER)
	34. <i>What happens if you break the rules?</i> "Nothing...well they say to not drink that much." (CHILD, MALE, 12)
Parent-Child Concordance on Home Rules (Quotes from same parent-child dyad)	35. <i>What are the rules, if there are any, about what or how much [your child] can drink perday?</i> "Oh well, to drink he has to drink a glass of Koolade, ice tea, or <i>horchata</i> when he is eating dinner and after that he can't drink anything." (MOTHER)
	36. <i>What are the rules, if any, about how much you can drink in a day?</i> "There's no rules...except for soda...like, you could only drink like two cans of soda per day maximum." (CHILD, MALE, 12)

Table 4

Agreement about the Effects of Tap Water in 43 Parent-Child Dyads

		<i>Parent [n(%)]</i>		
		Bad Effect	Good/No Effect	Both/Not Sure
Child [n(%)]	Bad Effect	15 (35%)	6 (14%)	3 (7%)
	Good/No Effect	7 (16%)	4 (9%)	0 (0%)
	Both/Not Sure	6 (14%)	0 (0%)	2 (5%)

Note: Parents and children were asked, "Do you think tap water affects [your/your child's health], either in a good or bad way, or both?" A parent or child in 7 of the 50 parent-child dyads did not provide a usable response to this question and thus are not represented in the table.

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Table 5

Agreement about Presence of Rules about Sugar-Sweetened Beverage Consumption in 50 Parent-Child Dyads

		Parent	
		Rules	No Rules
		n (%)	n (%)
Child	Rules	13 ^a (26%)	10 (20%)
	No Rules	12 (24%)	14 (28%)

^a Among dyads who agreed that the household had rules about SSBs, 9 (69%) were not concordant on the rule's content.

Note: One parent-child dyad (2%) was not asked about rules.

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