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# Any Size for a Dollar: The Effect of Any-Size-Same-Price Versus Standard Pricing on Beverage Size Choices

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Overconsumption of sugary drinks is linked with obesity. These beverages have been the target of recent public health policies, and, simultaneously, some firms have altered their pricing of such beverages, including charging the same price for all beverage sizes ("any-size-same-price" pricing). We compare the effect of any-size-same-price pricing versus standard pricing on soft drink beverage size choices and further explore the effect of this firm lever under different health-related policy situations. Overall, we show that any-size-same-price pricing increases consumers' focus on the value of getting a good financial deal and thereby increases beverage size selections. Further, the allure of any-size-same-price pricing prevents calorie postings from successfully reducing choice of larger sizes as occurs under standard pricing. However, a more graphic health intervention can reduce the appeal of larger sizes under any-size-same-price pricing. Finally, the findings are not moderated by diet versus nondiet beverage selections, indicating that consumers do not perceive the value of larger sizes under any-size-same-price pricing to come from getting more calories. We conclude by discussing how this work can improve the design of public health nutrition policies.

**Keywords** calorie posting; sugary beverages; soft drinks; pricing; supersizing; health; value; portion size

Overconsumption of sugary drinks is linked with obesity (Hu, 2013; Malik, Pan, Willett, & Hu, 2013; Pan & Hu, 2011), making these beverages the target of public health policies and proposals, including portion size limits and taxes (Brownell & Frieden, 2009; Fairchild, 2013). Firms have responded with innovative marketing approaches for such beverages. The present research contributes to transformative consumer research literature by examining the effect of one prominent marketing trend in which retailers charge the same price (typically \$1.00 or \$0.99) for all soda sizes (which we call "any-size-same-price"), testing both how this pricing strategy affects beverage size choices compared to standard (quantity-dependent) pricing and also how the effect of this pricing strategy differs under various health interventions (i.e., calorie labeling and health warning signage).

## Any-Size-Same-Price Versus Standard Pricing

Sugary drinks are offered in various sizes using different pricing strategies. Standard marketplace

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practice and the general consumer expectation are that pricing will be quantity-dependent, with prices rising nonlinearly as size increases (i.e., prices rise but price per unit decreases as size increases; "supersized pricing") (Dobson, Chakraborty, & Seaton, 2017; Dobson & Gerstner, 2010; Haws & Winterich, 2013). However, recently, firms are using a new pricing scheme in which all sizes are offered for a single (typically low) price (see Figure 1). A prominent example is McDonald's offering all fountain drink sizes for $1 (Patton, 2017). Jack in the Box and major convenience store chains (e.g., Sheetz, Mini Mart) have followed suit. Although "buffet pricing" for which a fixed price gives consumers unlimited consumption has received some attention in prior research (e.g., with people eating more when they pay then eat, rather than eat then pay; Siniver, Mealem, & Yaniv 2013), no research has directly examined the any-size-same-price strategy nor how consumers respond to such pricing under two policy contexts.

Prior research has shown that lowering the price per unit for foods and beverages leads to larger portion size selections (Haws & Winterich, 2013). As a straightforward extension and consistent with standard economic theory, we thus first tested the hypothesis that any-size-same-price pricing will lead to larger beverage size choices than standard pricing because of the even stronger financial incentive to order more. Of the many considerations that might keep customers from simply selecting the largest size when all beverages are priced the same (e.g., practical considerations such as the size of one's hands or cupholders; aversion to waste, Bolton & Alba, 2012), we focus on the conflicts with health considerations by providing insights on how any-size-same-price pricing affects consumers in the presence of health policy relevant practical interventions. Specifically, we tested whether any-size-same-price pricing prevents a common health intervention (calorie postings) from reducing choice of larger sizes and whether a graphic health message (a traffic light warning) can nullify the any-size-same-price effect on increasing beverage sizes.

## Any-Size-Same-Price Pricing and the Effectiveness of Health Cues

One significant food and beverage landscape change is the requirement for chain restaurants to label their menus with calorie information (Food & Drug Administration, 2017; PPACA, 2010). There is mixed evidence regarding the effectiveness of calorie labeling both in laboratory and field studies (Bleich et al., 2017; Kiszko, Martinez, Abrams, & Elbel, 2014), with the effectiveness depending on

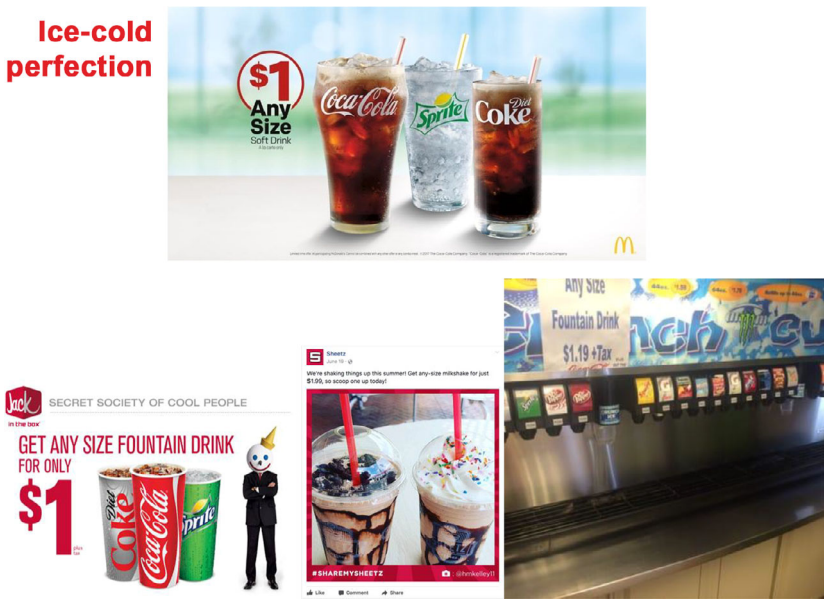


*Figure 1.* Real-world examples of any-size-same-price campaigns. *Note.* Image sources (last accessed August 2017): https://www.mcdonaldsnytristate.com/2017/04/1-any-size-soft-drink-2-small-mccafe-summer-beverages/; http://lookbeforespending.com/jack-in-the-box-any-size-fountain-drinks-1/; https://www.facebook.com/sheetz/posts/10158702995810501:0; https://www.yelp.com/biz/ampm-mini-mart-visalia

the specific circumstances and formats used (Bollinger, Leslie, & Sorensen, 2011; Dallas, Liu, & Ubel, 2015; Parker & Lehmann, 2014). Overall, this literature suggests that the effectiveness of calorie postings in current formats may be lower than policy makers anticipated and that a better understanding is needed of how other factors under the firm's control may affect its impact.

We consider one firm-controlled variable that could play a contributing role in preventing calorie postings from reducing calories ordered: the use of any-size-same-price pricing. Under standard pricing, we posit that calorie postings can successfully reduce choice of larger sizes, as both calorie information and standard pricing work in the same direction to encourage smaller size choices for soft drink beverages. However, under any-size-same-price pricing, we propose that the greater financial value focus (i.e., thoughts of getting more of the beverage for the same price) produced by the pricing scheme can overwhelm the tendency for calorie information to decrease size choice (indeed, the calorie information might even draw attention to the larger quantity of beverage provided by larger sizes). In fact, research suggests that for American consumers, cost is often more influential for food choices than health (Glanz, Basil, Maibach, Goldberg, & Snyder 1998).

We also tested whether a more potent health-salience intervention (placed alongside calorie information) can override this tendency. Consistent with findings that graphic health information is more impactful than text-based information (Donnelly, Zatz, Svirsky, & John 2018; Hammond, 2011) such as calories, we test a traffic light signage intervention indicating beverages to be consumed rarely ("red"), occasionally ("yellow"), or regularly ("green"). Traffic light labeling typically involves labeling individual products and has been shown to enhance health considerations (Hawley et al., 2013; Roberto, Pomeranz, & Fisher 2014), shifting consumers from unhealthy to healthy beverages (Thorndike, Sonnenberg, Riis, Barraclough, & Levy 2012), and decreasing calories ordered (VanEpps, Downs, & Loewenstein 2016). Thus, there is theoretical reason to predict that traffic light labels would be more influential than calorie labels, but the current evidence is limited. We therefore tested whether a graphic signage intervention using traffic light labeling for all beverages can eliminate the any-size-same-price effect on increasing beverage sizes.

Accordingly, we next present three studies examining the effect of any-size-same-price versus standard pricing on beverage size choice. Study 1 demonstrates the basic effect of any-size-same-price pricing leading to larger size choice than standard pricing with real purchase decisions. Study 2 shows that any-size-same-price pricing prevents calorie postings from successfully reducing the choice of larger sizes. Finally, Study 3 shows that a graphic health intervention can counteract this effect, while also testing the underlying process of increased focus on financial value as a key reason for why any-size-same-price pricing increases beverage size selections over standard pricing. In all three studies, we offer both diet and nondiet soft drink options to increase realism. None of our experimental conditions affect choice between diet and nondiet beverages, and choice of diet versus nondiet beverages does not moderate our findings—an issue which we discuss later, as it sheds light on the nature of the value that consumers perceive comes from larger sizes.

## Study 1

### *Method*

Undergraduates ($N = 121$, 48.3% female, $M(SD)_{Age} = 19.70(1.14)$) were randomly assigned to the any-size-same-price or standard pricing conditions in a two-cell design in which calorie information was present for all participants. Participants began in a lab's main area with privacy-partitioned computer stations. The computers displayed instructions for the upcoming task of evaluating a vending machine and directed participants to an envelope with six quarters on their desks. Study timing was staggered for each group of 6–14 participants. A laboratory administrator directed each participant individually to a separate room containing a vending machine stocked with beverages and snacks (participants could only select a beverage, though). Participants took the money with them to the machine to purchase a beverage that they could consume, and the remaining money was theirs to keep.

Upon entering the separate room alone, participants viewed the vending machine containing three soda types (Coke, Diet Coke, and Sprite) each in three different sizes (7.5 oz. cans, 12 oz. cans, and 20 oz. bottles). Calorie information was provided below the price for each beverage. The pricing scheme was rotated between sessions to be either any-size-same-price ($1.00) or standard ($0.75, $1.00, $1.25). See MDA for stimuli for all studies. Participants made their purchase and then put it in

a brown bag to ensure privacy before returning to their computers.

Consistent with our cover story, participants then evaluated their experience of using the vending machine and reported their soda selection. Beverage selections were also recorded separately to verify correct reporting of size and type. Participants were told that they could consume the beverage at this time. Beverage size selection and number of calories purchased served as our dependent variables.

### *Results and discussion*

We used ordinal logistic regression to analyze our primary outcome of size choice (see Table 1 for choice shares) because our outcome was categorical and ordered in a meaningful way (small to large). This enabled us to examine the degree to which people moved to larger sizes. See MDA for analyses confirming the same pattern of results using chi-squared tests instead of ordinal logistic regression as well as all size comparisons.

We first tested to see whether any patterns on size choice differed based on whether participants chose diet or nondiet beverages. An ordinal logistic regression including pricing condition, type of beverage selected (diet vs. nondiet), and their interaction showed no significant interaction: $B = -0.78$, $SE = .78$, Wald = 0.99, $p = .32$; see MDA for detailed analyses for diet and nondiet drinks separately for all studies. Accordingly, we collapsed across beverage type to analyze size choice. An ordinal logistic regression revealed a significant effect of pricing on soda size choice ($B = 0.83$, $SE = .36$, Wald = 5.40, $p = .020$), with participants exposed to any-size-same-price pricing purchasing significantly larger beverages.

We also examined calories purchased (see Table 1). When examining all purchases, the effect on calories purchased was not significant ($t(119) = 0.61$, $p = .542$), but when focusing on nondiet (i.e., caloric) beverage purchases, any-size-same-price pricing increased calories purchased compared to standard pricing (151 vs. 124 calories; $t(83) = 2.44$, $p = .017$).

Study 1 provided a real purchase demonstration that any-size-same-price (vs. standard) pricing, in the presence of calorie information, led consumers to purchase larger sodas. Further, for nondiet beverages, any-size-same-price pricing also led to more calories purchased. In Study 2, we examined whether there is a difference in how consumers respond to any-size-same-price (vs. standard) pricing in the absence or presence of calorie information. Put differently, does any-size-same-price pricing prevent calorie postings from successfully reducing choice of larger sizes as may occur under standard pricing? We suggest that calorie postings can lead to smaller sizes under standard pricing, but because health concerns are often dominated by cost concerns when it comes to eating decisions, any-size-same-price pricing can override the effectiveness of calorie postings.

Table 1
*Study 1—Percentage of Participants Ordering Each Soda Size and Mean Calories by Condition (*N = *121)*

| | Standard pricing ($n = 58$)[a] | Any-size-same-price pricing ($n = 63$) |
|---|---|---|
| 7.5 ounce can | 63.8% | 38.1% |
| 12 ounce can | 5.2% | 19.0% |
| 20 ounce bottle | 31.0% | 42.9% |
| Mean calories (*SD*) | 92.07 (69.33) | 100.63 (83.24) |
| Mean calories (*SD*) for nondiet only | 124.19 (49.39) | 150.95 (51.93) |

*Note.* For the ordinal logistic regressions that were conducted, the pricing conditions were coded as follows: 0 = standard, 1 = any-size-same-price. The size choice dependent variable was coded as follows: 1 = 7.5 ounce can, 2 = 12 ounce can, and 3 = 20 ounce bottle. Percentages indicate choice shares for each beverage size within each pricing condition.
[a]For the final row, the sample sizes are smaller ($n = 43$ and 42, respectively) for those choosing nondiet than for the overall sample.

## Study 2

### *Method*

Participants ($N = 604$, 62.1% female, $M(SD)_{Age} = 35.32(11.61)$) recruited on Amazon Mechanical Turk (MTurk) were randomly assigned to conditions in a 2 (pricing: any-size-same-price, standard) × 2 (calorie information: absent, present) between-subjects design.

Participants imagined stopping at a roadside restaurant for a beverage while on a road trip (method adapted from Sharpe, Staelin, and Huber, 2008) and viewing a menu (Figure 2 contains an example) with five soda options (Coke, Diet Coke, Coca-Cola Zero, Sprite, and Dr. Pepper) and a bottled water option. For each soda option, three sizes were available (small, medium, and large). In the any-size-same-price pricing condition, all soda sizes cost $1.00. In the standard pricing condition, sodas cost $1.00 (small), $1.29 (medium), and $1.49 (large). In both conditions, a single size of bottled


*Figure 2.* Example menu from Study 2 (any-size-same-price condition with calories*). *All other conditions and menus from studies 2 and 3 (and for the follow-up study described in the General Discussion) are provided in the MDA.

Table 2
*Study 2—Percentage of Participants Ordering Each Soda Size by Condition and Mean Calories by Condition* (N = *458*)

| | Standard pricing, calories absent ($n$ = 114)[a] | Standard pricing, calories present ($n$ = 112) | Any-size-same-price pricing, calories absent ($n$ = 118) | Any-size-same-price pricing, calories present ($n$ = 114) |
|---|---|---|---|---|
| Small | 13.2% | 16.1% | 7.6% | 1.8% |
| Medium | 28.9% | 41.1% | 22.9% | 28.1% |
| Large | 57.9% | 42.9% | 69.5% | 70.2% |
| Mean calories (*SD*) | 222.46 (148.46) | 200.89 (141.01) | 217.71 (158.49) | 216.05 (157.22) |
| Mean calories (*SD*) for nondiet only | 305.54 (68.40) | 284.81 (63.95) | 321.13 (59.79) | 319.87 (55.76) |

*Note.* For the ordinal logistic regressions that were conducted, the conditions were coded as follows: pricing: 0 = standard, 1 = any-size-same-price; calories: 0 = absent, 1 = present. The size choice dependent variable was coded as follows: 1 = small, 2 = medium, and 3 = large. Percentages indicate choice shares for each beverage size within each of the four conditions.
[a]For the final row, the sample sizes are smaller ($n$ = 83, 79, 80, and 77, respectively) for those choosing nondiet than for the overall sample.

water was offered for $1.79. Calorie information was either presented or not depending on the calories condition. Prices and calorie counts were adapted from a 2017 McDonald's menu, leading to the any-size-same-price being equivalent to the smallest size rather than equating the average price across conditions as in Study 1. Participants then selected a beverage.

### *Results and discussion*

We excluded participants who selected bottled water ($n$ = 146), for which there was only one (unspecified) size available, from all subsequent soda size choice analyses. Pricing, calorie information, and their interaction had no significant effects on the probability of choosing water versus soda (all $ps > 0.71$).

We next tested for potential moderation by beverage type (diet vs. nondiet), as in study 1, by testing whether there was a three-way interaction between pricing condition, calorie condition, and beverage type; this was not significant ($B = -0.50$, $SE = .86$, Wald = 0.33, $p = .57$). Accordingly, we collapsed across beverage type for the remainder of the size choice analyses. An ordinal logistic regression on size choice, with pricing condition, calorie information condition, and their interaction as predictors showed a nonsignificant effect of calorie information ($B = 0.11$, $SE = .29$, Wald = 0.15, $p = .697$), but a significant effect of pricing ($B = 1.19$, $SE = .27$, Wald = 18.95, $p < .001$). This significant effect of pricing was qualified by a marginally significant interaction ($B = 0.65$, $SE = .38$, Wald = 2.88, $p = .090$). As the choice shares in Table 2 indicate, there is a strong effect of pricing, such that any-size-same-price pricing leads to an increase in beverage size selections compared to standard pricing. This pricing effect exists both when calorie information is absent ($B = 0.52$, $SE = .27$, Wald = 3.68, $p = .055$) and when calorie information is present ($B = 1.25$, $SE = .28$, Wald = 20.50, $p < .001$). Put differently, under standard pricing, participants chose significantly smaller sodas when calorie information was present versus absent ($B = -0.52$, $SE = .26$, Wald = 4.18, $p = .041$). However, under any-size-same-price pricing, participants chose similarly sized sodas whether calorie information was present or absent ($B = 0.11$, $SE = .28$, Wald = 0.16, $p = .690$).

We also examined the effect on calories purchased using ANOVA (see Table 2 for means). For all beverage purchasers, there were no interaction or main effects (*ps* > 0.41). Focusing, however, on purchasers who selected a nondiet beverage, there was a significant effect of pricing such that any-size-same-price pricing led to higher calories purchased than standard pricing ($F(1, 315) = 13.18$, $p < .001$), consistent with Study 1.

Study 2 again demonstrated that any-size-same-price pricing led to selecting larger sizes compared to standard pricing. Further, the allure of any-size-same-price pricing over standard pricing appears to persist regardless of whether calorie postings are present or absent. It appears that any-size-same-price prevent calorie postings from successfully reducing choice of larger sizes as can occur under standard pricing. In Study 3, we tested whether an increased emphasis on financial value helps explain why any-size-same-price pricing increases size choices compared to standard pricing. Additionally, we tested whether a graphic health intervention may dampen any-size-same-price's appeal.

## Study 3

### *Method*

An MTurk sample ($N = 378$, 53.4% female, $M(SD)_{Age} = 35.65(11.22)$) was randomly assigned to one of three conditions: any-size-same-price, any-size-same-price + health message, or standard pricing. As in Study 1, calorie information was present in all three conditions. The procedure was similar to Study 2's with the following changes. First, before making their choice, participants in the any-size-same-price + health message condition viewed a sign depicting a stop light and listing beverages that are recommended to be consumed rarely, occasionally, and regularly (see Figure 3). Participants in the any-size-same-price and standard pricing conditions were exposed to a control image of a clock instead. Second, we expanded the menu to include a kiddie and a supersize option ($0.69 and $1.69 in standard pricing condition) in addition to small, medium, and large. Third, we eliminated bottled water as an option. Fourth, participants indicated the importance of a good financial deal as a consideration as they made their beverage choice (1 = *Not important at all*, 7 = *Very important,* embedded among other potential considerations). Finally, participants indicated how frequently they consumed soft drinks (1 = *Never*, 5 = *Always*).

### *Results and discussion*

We first again tested for potential moderation by beverage type (diet vs. nondiet), as in studies 1 and 2, by testing for an interaction between pricing conditions and beverage type; this was again nonsignificant [interaction between beverage type and dummy variable for 1) any-size-same-price vs. standard pricing: $B = 0.38$, $SE = .50$, Wald = 0.58, $p = .45$; and 2) any-size-same-price vs. any-size-same-price + health message: $B = 0.17$, $SE = .48$, Wald = 0.12, $p = .73$]. Accordingly, we collapsed across beverage type selected for the remaining analyses.

An ordinal logistic regression indicated that participants in the any-size-same-price condition chose significantly larger beverages than participants in both the standard ($B = 0.81$, $SE = .23$, Wald = 12.54, $p < .001$) and any-size-same-price + health message ($B = 0.96$, $SE = .23$, Wald = 17.55, $p < .001$) conditions (see Table 3 for choice shares). Participants in the any-size-same-price + health message and standard conditions chose similarly sized beverages ($B = -0.15$, $SE = .23$, Wald = 0.45, $p = .504$). This pattern held controlling for beverage consumption frequency and when participants who indicated that they would never purchase any of the beverages offered were excluded (see MDA). We also examined the effect on calories purchased using ANOVA. For all beverage purchasers, there was a significant overall effect ($F(2, 375) = 4.20$, $p = .016$); post hoc LSD tests revealed that the any-size-same-price condition without the traffic light intervention led to higher calories purchased (251 calories) than both other conditions ($p = .012$ and 0.014, and there was no difference between standard pricing [195 calories] and the intervention [197 calories] conditions, $p = .941$). The findings were highly similar when focusing on the subset of purchasers selecting a nondiet beverage: Any-size-same-price pricing increased calories purchased compared to both other conditions ($F(2, 255) = 6.11$, $p = .003$).

Next, we examined the good financial deal measure using ANOVA. There was a significant effect of condition on the importance of getting a good financial deal ($F(2, 375) = 7.00$, $p = .001$). We then conducted follow-up tests, which showed that the significant overall ANOVA was driven by higher value importance for any-size-same-price ($M = 5.12$) compared to each of the other conditions (versus standard pricing condition: $M = 4.25$ [$F(1, 375) = 11.45$, $p = .001$] and versus any-size-same-price + health message condition: $M = 4.34$ [$F(1, 385) = 9.32$, $p = .002$]). The standard pricing


*Figure 3.* Graphic health signage used in Study 3.

condition and the any-size-same-price + health message condition did not differ from each other [$F(1, 375) = 0.11$, $p = .739$]).

Next, we tested for mediation. Using PROCESS Model 4 (5,000 bootstrap sample), we find that the importance of getting a good financial deal mediated the difference between the any-size-same-price and any-size-same-price + health message conditions ($B = 0.14$, $SE = .05$, CI (95%) = [.05, 0.27]) and between the any-size-same-price and standard pricing conditions ($B = 0.11$, $SE = .05$, CI (95%) = [.04, 0.22]) on selected soda size.

To confirm these results, we also utilized Baron and Kenny's approach (1986) as this enabled using ordinal logistic regression to obtain regression coefficients for a Sobel test. Using pricing condition as the predictor (IV), the importance of getting a good deal as the mediator (M), and size ordered as the outcome (DV), we examined our proposed mediation. First, as shown above, the IV → M pathway was significant and driven by higher value importance for any-size-same-price compared to the other two conditions. Second, we considered the M → DV pathway. An ordinal regression revealed a significant effect of the importance of getting a good financial deal on size ordered ($B = 0.26$, $SE = .05$, Wald = 31.65, $p < .001$). Finally, we considered the IV → DV pathway controlling for the mediator and found that the effect of condition on size ordered was slightly attenuated when comparing any-size-same-price and standard pricing ($B = 0.61$, $SE = .23$, Wald = 7.00, $p = .008$) and when comparing the any-size-same-price and any-size-same-price + health message conditions ($B = 0.78$, $SE = .23$, Wald = 11.30, $p = .001$). The any-size-same-price + health message and standard pricing conditions remained nonsignificantly different ($B = -0.17$, $SE = .23$, Wald = 0.53, $p = .468$). Accordingly, the importance of getting a good financial deal mediated the effect of any-size-same-price versus standard pricing conditions on selected soda size (Sobel test: $z = 2.79$, $p = .005$) and the effect of any-size-same-price versus any-size-same-price + health message on selected soda size (Sobel test: $z = 2.59$, $p = .010$) (see Table 4 for details).

Table 3
*Study 3—Percentage of Participants Ordering Each Soda Size by Condition and Mean Calories by Condition (*N = *378)*

| | Standard pricing ($n$ = 124)[a] | Any-size-same-price pricing ($n$ = 129) | Any-size-same-price pricing + health message ($n$ = 125) |
|---|---|---|---|
| Kiddie | 0.8% | 1.6% | 4.0% |
| Small | 21.8% | 10.9% | 27.2% |
| Medium | 37.9% | 26.4% | 27.2% |
| Large | 20.2% | 24.0% | 22.4% |
| Supersize | 19.4% | 37.2% | 19.2% |
| Mean calories (*SD*) | 194.92 (166.89) | 250.54 (187.36) | 196.56 (167.40) |
| Mean calories (*SD*) for nondiet only | 298.40 (107.51) | 347.53 (121.53) | 292.50 (116.05) |

*Note.* For the ordinal logistic regressions that were conducted, the pricing conditions were coded as follows: when comparing standard pricing to any-size-same-price and any-size-same-price + health message: first pricing dummy variable: 0 = standard, 1 = any-size-same-price, 0 = any-size-same-price + health message; second pricing dummy variable: 0 = standard, 0 = any-size-same-price, 1 = any-size-same-price + health message. When comparing any-size-same-price + health message to any-size-same-price: first pricing dummy variable: 0 = standard, 1 = any-size-same-price, 0 = any-size-same-price + health message; second pricing dummy variable: 1 = standard, 0 = any-size-same-price, 0 = any-size-same-price + health message. The size choice dependent variable was coded as follows: 1 = kiddie, 2 = small, 3 = medium, 4 = large, and 5 = supersize. Percentages indicate choice shares for each beverage size within each of the three conditions.
[a]For the final row, the sample sizes are smaller ($n$ = 81, 93, and 84, respectively) for those choosing nondiet than for the overall sample.

In sum, Study 3 again found that any-size-same-price (vs. standard) pricing increased soda size selections in the presence of calorie information. However, this effect was eliminated when any-size-same-price pricing was paired with a traffic light health message. Interestingly, exposure to this health message decreased reported importance of a good financial deal, implying that the health message was a more potent reminder of the importance of health considerations than were calorie postings alone.

## General Discussion

This research investigates an increasingly common, yet understudied, pricing practice: any-size-same-price pricing. We find that compared to standard pricing, any-size-same-price pricing (a) increases the choice of larger sizes, (b) prevents calorie postings from successfully reducing the choice of larger sizes as occurs with standard pricing, and (c) that a more graphic health warning can nullify the any-size-same-price effect on increasing beverage sizes. Further, we show that these increased size choices occur due to an increased emphasis on financial value, and we observed corresponding increases in calories selected, particularly when focusing only on nondiet beverages.

Beverage type (diet vs. nondiet) did not moderate effects on size choice, suggesting that the financial value driving consumers to purchase larger sizes under any-size-same-price pricing was not interpreted as value for more calories, which might be a more likely interpretation of value for food purchases under circumstances of constrained resources than for beverage purchases as was the focus of our research (Franckle, Block, & Roberto 2016). Further research is needed to fully understand both the precise nature of the financial value focus brought about by any-size-same-price pricing, as well as the potential differences between beverages with and without calories, and comparing between foods and beverages. Relatedly, across all studies, none of the conditions affected the proportion of participants choosing nondiet versus diet drinks, seemingly underscoring the stickiness of these preferences but greater malleability for portion size (MDA Table 8).

In addition to important practical implications, this research contributes to the broader pricing literature (Dobson et al., 2017; Haws & Liu, 2016; Haws & Winterich, 2013) by examining the practice of any-size-same-price pricing in various policy contexts. Moreover, this research contributes to the calorie posting literature by showing that providing calorie information alone can be effective with standard pricing but is insufficient to overcome the financial value focus caused by any-size-same-price pricing.

We also contribute to the literature on visual health warnings (Donnelly et al., 2018) by using a traffic light message applied to a product category. Interestingly, whereas any-size-same-price pricing appeared to wipe out benefits of calorie labeling that occur under standard pricing, traffic light health messaging seems sufficient to nullify the strong financial allure of any-size-same-price pricing. In a sense, if consumers trade-off value and health considerations when making food decisions

Table 4
*Study 3 Mediation-Related Results*

| Importance of getting a good deal means (standard deviations) by condition | | | |
|---|---|---|---|
| | Pricing condition | | |
| | Standard | Any-size-same-price pricing | Any-size-same-price pricing + health message |
| Overall ($n$ = 378) | 4.25 (1.93)[a] | 5.12 (2.08)[b] | 4.34 (2.10)[a] |

| Importance of getting a good deal mediation results | | | | |
|---|---|---|---|---|
| | Mediation paths and statistics | | | |
| Comparison | IV → M | M → DV | IV → DV, controlling for M | Sobel |
| Overall ($n$ = 378) | $F(2, 375) = 7.00$, $p = .001$ | $B = 0.26$, $SE = .05$, Wald = 31.65, $p < .001$ | — | — |
| Any-size-same-price versus standard | $F(1, 375) = 11.45$, $p = .001$ | | $B = 0.61$, $SE = .23$, Wald = 7.00, $p = .008$ | $z = 2.79$, $p = .005$ |
| Any-size-same-price versus Any-size-same-price + health message | $F(1, 375) = 9.32$, $p = .002$ | | $B = 0.78$, $SE = .23$, Wald = 11.30, $p = .001$ | z = 2.59, $p = .010$ |
| Any-size-same-price + health message versus Standard | $F(1, 375) = 0.11$, $p = .739$ | | $B = -0.17$, $SE = .23$, Wald = 0.53, $p = .468$ | $z = 0.33$, $p = .739$ |

*Note.* The superscripts indicate the results of follow-up contrasts of the conditions (means with no superscripts in common indicate that the means are significantly different at the $p < .05$ level). The M → DV link is not broken out by contrasts between two conditions because our modeling takes into account all of the data and M is continuous rather than having three categories as the IV has. The two blank cells denoted by—are purposely left blank because when an IV (with three conditions) → DV ordinal logistic analysis is conducted, controlling for M, we obtain regression coefficients on the IV dummy codes that correspond to the contrasts between two conditions but not an overall regression coefficient.

about portion sizes, it seems that different goals may become more or less salient under various circumstances. As such, more potent health interventions (e.g., a traffic light health warning) or perhaps other approaches such as emphasizing waste are needed to overcome the allure of getting more beverage for the same price.

Additional research may examine other types of health cues and pricing strategies besides the ones we tested such as exercise messaging and value meals, while also exploring whether any individual differences play a consistent moderating role. Future work may also examine the role of sugar-sweetened beverage taxation (Backholer, Blake, & Vandevijvere 2016), which has increased in usage globally, in conjunction with firm pricing policies. Finally, given the increasing prevalence of any-size-same-price pricing, research could also delve into various reasons that consumers have for *not* choosing the largest size available under any-size-same-price pricing and increase the salience of such reasons in an effort to curb overconsumption and ultimately improve the lives of consumers.

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## Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's website:

**Appendix S1.** Methodological Details.