

Making Costs Visible: Experimental Evidence on Tax Salience, Health Warnings, and Sugar-Sweetened Beverage Choice in India

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Abstract

Sugar-sweetened beverage (SSB) policies typically seek to influence consumption through taxation or health information, yet their effectiveness may depend not only on the information provided but also on how prominently it is presented. This study examines whether making financial and health costs more salient influences consumer responses to SSBs in India. A within-subject experiment involving 120 respondents presented the same beverage at a constant final price under four conditions: standard MRP, explicit disclosure of 40% GST, a “HIGH IN SUGAR” warning, and a combination of GST disclosure and the health warning. The findings show that both explicit tax disclosure and the health warning significantly reduced purchase likelihood despite no change in the product or final price, with the combined presentation producing the largest reduction. The two interventions also operated differently: GST disclosure influenced purchase intentions without significantly altering perceived healthiness, whereas the health warning reduced both purchase likelihood and perceived healthiness. Most notably, respondents reported little conscious importance for GST information despite responding significantly when the tax was made explicit, revealing a divergence between stated preferences and experimental responses. The findings highlight salience as an important dimension of consumer decision-making and suggest that making financial and health costs visible at the point of choice may strengthen the effectiveness of SSB taxation and front-of-pack labelling policies in India.

Keywords: *Consumer Behavior; Health Warnings; Sugar-Sweetened Beverages; Tax Salience; Willingness To Pay*

1. Introduction

In September 2025, India consolidated the Goods and Services Tax (GST) on aerated and sugar-sweetened beverages (SSBs) into a 40% slab, placing these products in the same tax category as tobacco. The policy follows the logic of Pigouvian taxation: by increasing the price of products associated with negative health externalities, the tax aims to discourage consumption and reduce future health costs. At the same time, the Food Safety and Standards Authority of India (FSSAI) has been progressing towards mandatory front-of-pack (FOP) nutrition labelling, with ongoing debate over whether labels should take the form of explicit health warnings or interpretive nutrition ratings. Consequently, India is simultaneously implementing two policy instruments intended to address the same public health challenge, one is through price and the other one is through information.

The effectiveness of both policies depends on assumptions about consumer behaviour that are challenged by behavioural economics. Traditional economic theory assumes that consumers are fully attentive and make decisions based on all relevant information, including both the financial price and the long-term health consequences of consumption. Behavioral economics, however, suggests that individuals have limited attention (Simon, 1955) and often underweight costs that are not made cognitively salient. Chetty, Looney and Kroft (2009) demonstrated that simply displaying a tax already known to consumers significantly reduced demand, indicating that visibility rather than knowledge constrained consumer responses. Applied to the Indian context, this suggests that a 40% GST embedded within the listed price may have a smaller behavioural effect than its magnitude implies if consumers do not actively attend to it. A similar mechanism may apply to health information. Front-of-pack warning labels do not alter either the price or nutritional content of a product, but by framing consumption as a potential loss (Kahneman & Tversky, 1979), they may increase the salience of future health costs and influence purchasing decisions. The effectiveness of both interventions may therefore depend not only on their magnitude but also on how they are presented.

This question is particularly relevant in India, where the existing evidence presents a notable inconsistency. An evaluation of the 2017 GST reform found no significant reduction in urban purchases of aerated beverages following the tax increase, despite evidence that demand for these products is price elastic and that lower-income households are the most price-responsive (John, Tullu & Gupta, 2022). If consumers respond to prices but not to an increase in GST, the explanation may lie not in the size of the tax but in its salience. While the economics of tax salience has been established primarily using retail goods in high-income countries, and extensive evidence supports the effectiveness of front-of-pack warning labels, most health-labelling studies have been conducted in Western settings and rely on hypothetical purchasing decisions. Moreover, the limited number of studies examining taxation and nutrition labelling together have all been conducted outside India. Consequently, little evidence exists on the relative effectiveness of the two policy instruments currently being implemented in the Indian context.

This study addresses that gap through a randomised online experiment. Participants are shown the same sugar-sweetened beverage at a constant final price of ₹84 under four experimental conditions that vary only in whether the 40% GST is displayed explicitly and whether a “HIGH IN SUGAR” warning label is present. By holding both the product and the final price constant while manipulating only the presentation of financial and health information, the study isolates the behavioural effects of tax salience and health salience from the effects of price itself. Specifically, it examines whether making the embedded GST explicit reduces consumer demand, whether front-of-pack warning labels produce an additional behavioural response, and whether the two interventions reinforce one another or exhibit diminishing marginal effects when combined. In doing so, the study brings together the tax salience and nutrition-labelling literatures within a single experimental framework and provides evidence directly relevant to two contemporary policy debates in India: the design of GST on sugar-sweetened beverages and the implementation of front-of-pack nutrition labelling.

2. Literature Review

Governments try to reduce the consumption of sugar-sweetened beverages (SSBs) in two ways. The first is fiscal where they raise the price through a tax on the logic that demand falls as price rises. The second is informational where what the consumer sees at the point of purchase through front-of-pack (FOP) labels changes. India currently employs both. In September 2025, the government introduced GST 2.0 where the GST on aerated and sugar-sweetened drinks was consolidated into a 40% “sin” slab, and the Food Safety and Standards Authority of India (FSSAI) has spent several years deciding between a warning label and an interpretive star rating for the front of the pack.

Behavioural economics complicates the assumption behind both ways. Traditional economic models assume that consumers are fully attentive, fully informed utility maximisers who respond to the complete financial price of a product as well as its associated health costs when making consumption decisions. A large body of evidence suggests they do not. Consumers have limited attention (Simon, 1955), and a cost that is present but not made salient is often underweighted or ignored. This has important policy implications, as consumers may undervalue both a tax embedded within the listed price and health costs that materialise in the future. Consequently, behavioural responses may depend not only on the magnitude of these costs but also on how prominently they are presented.

2.1 Tax salience and consumer inattention

A foundational contribution to the tax salience literature is provided by Chetty, Looney and Kroft (2009). Through a field experiment conducted in grocery stores, the authors found that displaying tax-inclusive prices on self labels reduced demand for the affected products by approximately 8%, despite no change in the actual tax or final purchase price. As consumers were aware that sales existed, the observed reduction in demand was attributed not to ignorance but to increased salience. The study highlights that consumers tend to underreact to taxes when they are embedded within prices which underscores the importance of how financial costs are presented rather than their magnitude alone. This behavioural mechanism forms the theoretical basis for examining the salience of India's GST on sugar-sweetened beverages.

Later work by Taubinsky and Rees-Jones (2018) ran an online shopping experiment in which participants indicated the highest price at which they would buy each product while facing taxes that differed in size and salience. On average consumers responded to sales taxes as though they were only approximately one-quarter of their actual value, indicating substantial underweighting of taxes that were not made salient. Furthermore, the degree of inattention varied substantially across individuals and increased with the size of the tax. Importantly, the study measures demand through willingness to

pay rather than a single yes/no choice and it treats the salience of the tax, not merely the tax rate, as the primary variable of interest.

Goldin and Homonoff (2013), studying cigarette taxes, found that lower-income consumers pay more attention to the less-salient portion of the tax than higher-income consumers do. This has an equity implication that recurs throughout the SSB literature: who notices a cost, and who changes behaviour because of it, depends on income and habit, so an "average" effect can hide very different responses across groups.

Taken together, this literature establishes that the presentation of a price is a behavioural variable in its own right. It has been tested almost entirely on general retail goods in high-income countries, and rarely on a health-related product or in India.

2.2 Corrective taxation, externalities and the evidence on SSB taxes

The economic rationale for taxing SSBs is based on the concept of externalities: a cost the consumer imposes on their future selves but systematically undervalue at the point of purchase. Allcott, Lockwood and Taubinsky (2019) develop an optimal-tax framework showing that the welfare gains from corrective taxation increase with both the price elasticity of demand and the extent to which the most biased consumers are also the heaviest consumers. Although SSB taxes are often considered as regressive, the authors argue that their health benefits are concentrated among lower-income, high-consumption households, potentially offsetting the financial burden. This framework provides the theoretical justification for India's 40% GST on SSBs.

Empirical evidence from several countries highlights that SSB taxes increase retail prices and reduce purchases. However, evidence from India is more ambiguous. John, Tullu and Gupta (2022) estimated the own-price elasticity of aerated and sugar-sweetened beverages at approximately -0.94, with lower-income households exhibiting greater price sensitivity than higher-income households. The study also found that these beverages have become increasingly affordable over time, reducing the real impact of a fixed tax. On the other hand, an interrupted time-series analysis of urban Indian beverage purchases following the 2017 GST reform found no significant decline in consumption, while Base et al. (2014) projected that substantial SSB taxation could meaningfully reduce obesity and type 2 diabetes. This contrast raises a key question: if a higher tax failed to reduce purchases, was the tax itself insufficient or was it simply not salient to consumers because it remained embedded within the listed price? This question forms the central motivation for the present study.

2.3 Health warning labels and front-of-pack nutrition labelling

Along with taxation, front-of-pack (FOP) nutrition labels represent an important behavioural intervention. Grummon and Hall (2020), in a meta-analysis of 23 experimental studies, found that warning labels reduced the selection and purchase of sugary drinks while increasing perceived health risks. Similarly, An et al (2021) reported significantly lower odds of choosing SSBs when warning labels were present, with graphic warnings, producing the strongest effects. Experimental studies by Hall et al. (2022) and Roberto et al. (2016) likewise demonstrated that warning labels reduce purchases of sugary drinks and influence parental beverage choices.

A recurring question concerns which label format is the most effective. Gupta et al. (2021) found that front-of-pack labels can improve consumer knowledge, attitudes and purchasing behaviour, with warning labels emerging as one of the most effective formats. Likewise, Taillie et al. (2020) concluded that mandatory warning labels generally outperform interpretive systems such as star ratings because they frame consumption as a potential loss, making health risks more cognitively salient. Despite these findings, two important limitations remain. Most studies rely on hypothetical purchasing decisions rather than real consumer behaviour, and relatively little evidence exists from South Asia. Consequently, the effectiveness of warning labels compared with rating systems among Indian consumers remains largely unknown.

2.4 Combining fiscal and informational interventions

Only a limited number of studies have examined taxation and health labelling within the same experimental framework. Acton and Hammond (2018) and Acton et al. (2019) evaluated multiple combinations of tax levels and front-of-pack labels, including warning labels and health star ratings. Both studies found that taxation consistently reduced unhealthy purchases, while labelling produced smaller and more variable effects. These findings suggest that fiscal interventions may have a stronger influence on consumer behaviour than informational interventions, although the interaction between the two remains less well understood.

These studies also demonstrate that experimental marketplace designs are an appropriate method for evaluating the combined effects of taxation and nutrition labelling. However, such evidence is limited to Canada and has not been extended to countries with substantially higher sin taxes, such as India.

2.5 The Indian context and Research gap

Although sugar-sweetened beverage consumption is increasing in India, relatively little behavioural evidence exists to inform current policy. Existing studies have documented patterns of SSB consumption among Indian adults, explored the application of behavioural nudges to healthier food choices, and examined warning-style messaging in isolated contexts. However, none directly compares the two principal policy instruments currently under consideration in India: the 40% GST and front-of-pack nutrition labels.

Three key gaps emerge from the literature. First, while tax salience has been widely studied in developed economies, it has not been applied to India's GST on sugar-sweetened beverages. Second, evidence comparing warning labels and nutrition ratings is largely drawn from Western populations, despite ongoing policy debates surrounding FSSAI's preferred labelling system. Third, although a small number of studies combine taxation and labelling, none has examined their interaction in the Indian context.

This study addresses these gaps by experimentally varying the visibility of the 40% GST and the presence of front-of-pack warning labels while holding the final price constant. By evaluating the independent and combined effects of financial and health salience, it integrates the tax salience and nutrition labelling literatures within a single behavioural economics framework and generates policy-relevant evidence for India.

3. Methodology

This section outlines the methodological framework used to examine if and how the behavioural framing of financial and health costs influences consumer demand for sugar-sweetened beverages (SSBs). It describes the objective of the study, the research design, the data collection process, the survey instrument, and the analytical frameworks used for empirical estimation.

3.1 Objectives of the study

This study focuses on how information salience influences purchasing decisions, not just price, with the aim of investigating consumer demand behaviour for sugar-sweetened beverages. It examines three effects, holding the actual price of the product constant: the effect of making the 40% Goods and Services Tax (GST) explicit rather than embedding it in the shelf price; the effect of a front-of-pack "HIGH IN SUGAR" warning compared with an unlabelled product; and whether presenting both together produces reinforcing or diminishing behavioural returns. The study also considers how consumption habits and health consciousness moderate these effects.

3.2 Research Design

This study employs a quantitative within-subjects experimental design based on behavioural economics and microeconomic demand theory. The framework is based on the theory of tax salience (Chetty, Looney and Kroft, 2009), which states that consumers underreact to costs that are present but not made salient, and on nudge theory and framing effects (Thaler and Sunstein, 2008; Kahneman and Tversky, 1979), which state that the presentation of information changes choice independently of its content. The design is a 2×2 factorial with two factors manipulated: the salience of the tax (the GST embedded in the price versus displayed explicitly) and the presence of a health warning (absent versus present). Crossing these factors yields four experimental conditions:

	No health label	Warning label
Tax hidden (₹84)	Control	Health warning
Tax explicit (₹60 + ₹24 GST = ₹84)	Tax salience	Combined intervention

The main characteristic of the design is that the final price charged to the customer remains at ₹84 in all four cases. The only aspect that varies is the way in which the information is presented, specifically whether the GST is listed in detail

and whether a warning is shown, so any difference in demand between the conditions can be attributed to the effect of framing rather than to a change in price. The analysis takes into account both the extensive margin of demand, as measured by purchase intention, and the intensive margin, as measured by the respondent's willingness-to-pay (WTP) ceiling.

Since the design is within-subjects, each participant saw and provided a response to all four conditions and thus acted as their own control. This eliminates between-person variation as a source of noise, enables the effect of the framing manipulation to be isolated, and allows for a smaller sample size than would be required by an equivalent between-groups design, while at the same time permitting the use of a single standardised questionnaire with all respondents.

3.3 Data Collection

The primary data were obtained by means of a structured online survey which was sent to people in urban India, collecting a total of 120 responses. In order to avoid the effect of brand loyalty acting as a confounding factor, only one imaginary beverage brand was employed throughout the study, and all the visual aspects of the product image except for the price tag and the warning label were kept the same in each condition. Each respondent assessed the same beverage under all four of the experimental conditions, resulting in a repeated-response dataset that reflects the variation in demand behaviour within individuals. A non-probability sampling method was used, with the survey being distributed via digital channels to people who are familiar with online purchasing environments, thus making it more relevant to the current consumer market in which such products are sold. The demographic composition of the achieved sample is reported in the Results section.

3.4 Survey Instrument

The survey consisted of three parts. The first part gathered demographic data, such as age, gender, level of education, monthly household income, and how often the respondents consumed sugar-sweetened beverages. The second and main part outlined the four experimental conditions. For each of the four pictures of the beverages, the respondents were asked the same three questions: their intention to purchase it, which was assessed on a seven-point scale ranging from "very unlikely" to "very likely"; their willingness to pay, determined by means of a price-anchored ladder in which they were given the figure of ₹84 and then asked at what price they would actually be willing to buy the beverage ("I'd buy it at ₹84", "only if the price was ₹72 or less", "only if the price was ₹60 or less", or "I wouldn't buy it at any price"); and their perception of the product's health, which was measured on a seven-point scale from "very unhealthy" to "very healthy". The question on willingness to pay provides two measures at the same time: purchase intention, meaning the willingness to buy at the market price of ₹84, and willingness to pay, which refers to the price ceiling stated by the respondent. The third part focused on health consciousness. The study makes use of a stated-preference approach, which is the usual method in demand estimation whenever market transaction data are not available or when the item under study involves a controlled manipulation that does not appear in the actual market data.

3.5 Ethical Considerations

The study adhered to standard ethical research procedures. Before taking part, each respondent gave their informed consent and did so on a voluntary basis. No personally identifiable information was gathered, and all the answers were anonymised and were used only for academic research. When the survey was finished, the respondents were told that the brand names, prices and labels displayed were imaginary and had been made up entirely for the purpose of the research. The survey included no questions which were sensitive or likely to be intrusive in order to keep the risk to the participants as low as possible.

3.6 Analytical Frameworks

Since the design is within-subjects, each respondent provides an observation for every condition and the analysis therefore accounts for the repeated nature of the responses. Descriptive statistics are first used to summarise the mean levels of purchase likelihood and perceived healthiness across the four experimental conditions, while willingness-to-pay responses are summarised using the distribution of respondents across the different price categories. Differences in purchase likelihood across the four conditions are evaluated using a one-factor repeated-measures analysis of variance (ANOVA), followed by Bonferroni-adjusted pairwise comparisons to identify which experimental conditions differ significantly from one another. Perceived healthiness is similarly examined across the four conditions to assess how tax information and health-warning information affect respondents' evaluation of the beverage. Willingness to pay is analysed descriptively by comparing the proportion of respondents selecting each price category under the baseline, GST-only,

warning-only, and combined conditions. Lastly, the analysis examines which label respondents report as most influential, the relative importance assigned to different purchase factors, and responses to the health, price, and label-use statements in order to describe differences in health consciousness, price sensitivity, and attention to product information.

4. Results and Findings

4.1 Demographic Profile of Respondents

The study included 120 respondents. The largest age group was under 18 years (28.3%), followed by respondents aged 45–54 years (20.0%) and those aged 55 years and above (18.3%). Respondents aged 18–24 years accounted for 15.8% of the sample, while the 25–34 and 35–44 age groups represented 10.0% and 7.5%, respectively.

Females made up 68.3% of the sample and males 31.7%. In terms of education, 38.3% of respondents were postgraduates, while high-school and undergraduate respondents each accounted for 26.7%. A smaller proportion held a doctorate (6.7%) or reported another educational qualification (1.7%).

Household income was not reported by 39.2% of respondents. Among those who provided income information, 36.7% reported a monthly household income above ₹200,000, while 16.7% were in the ₹100,001–200,000 category.

Sugar-sweetened beverage consumption was generally moderate to low. About 30.8% of respondents reported consuming such beverages rarely, 26.7% consumed them weekly, and 14.2% several times a week. Daily consumers accounted for only 4.2% of the sample.

Table 1. Demographic and Consumption Profile of Respondents

Characteristic	Category	n	%
Age	Under 18	34	28.3
	18–24	19	15.8
	25–34	12	10.0
	35–44	9	7.5
	45–54	24	20.0
	55+	22	18.3
Gender	Female	82	68.3
	Male	38	31.7
Education	High School	32	26.7
	Undergraduate	32	26.7
	Postgraduate	46	38.3
	Doctorate	8	6.7
	Other	2	1.7
Monthly household income	Below ₹25,000	3	2.5
	₹25,001–50,000	0	0.0
	₹50,001–100,000	6	5.0
	₹100,001–200,000	20	16.7
	Above ₹200,000	44	36.7

Characteristic	Category	n	%
	Prefer not to say	47	39.2
Sugar-sweetened consumption beverages	Daily	5	4.2
	Several times a week	17	14.2
	Weekly	32	26.7
	Monthly	14	11.7
	Rarely	37	30.8
	Never	15	12.5

4.2 Reliability of Consumer Attitude Measures

The six items originally grouped under Personal Purchase Orientation produced a Cronbach's alpha of .62. Since the items covered both health-related and price-related tendencies, they were examined as two separate three-item measures.

The Health Consciousness scale had acceptable internal consistency ($\alpha = .73$), while the Price Consciousness scale showed higher reliability ($\alpha = .85$). The eight-item Label Information Utilization scale also showed good internal consistency ($\alpha = .84$).

Health Consciousness had the highest average score ($M = 3.85$, $SD = 0.92$), followed by Label Information Utilization ($M = 3.46$, $SD = 0.81$). Price Consciousness had a lower mean of 2.76 ($SD = 1.16$).

Table 2. Reliability and Descriptive Statistics of Consumer Attitude Measures

Construct	Items	Cronbach's α	Mean	SD
Health Consciousness	3	.73	3.85	0.92
Price Consciousness	3	.85	2.76	1.16
Label Information Utilization	8	.84	3.46	0.81

4.3 Purchase Likelihood Across Label Conditions

Purchase likelihood was measured for four versions of the same beverage. The first condition displayed only the MRP of ₹84. The second displayed a base price of ₹60 plus 40% GST (₹24), giving the same final price of ₹84. The third displayed the ₹84 MRP together with a high-sugar warning, while the fourth combined the GST breakdown and the high-sugar warning.

The highest purchase-likelihood score was recorded for the baseline condition ($M = 2.86$, $SD = 1.48$). The mean fell to 2.08 ($SD = 1.17$) when the GST component was displayed, to 1.88 ($SD = 1.10$) when the high-sugar warning was shown, and to 1.55 ($SD = 0.91$) when both types of information appeared together.

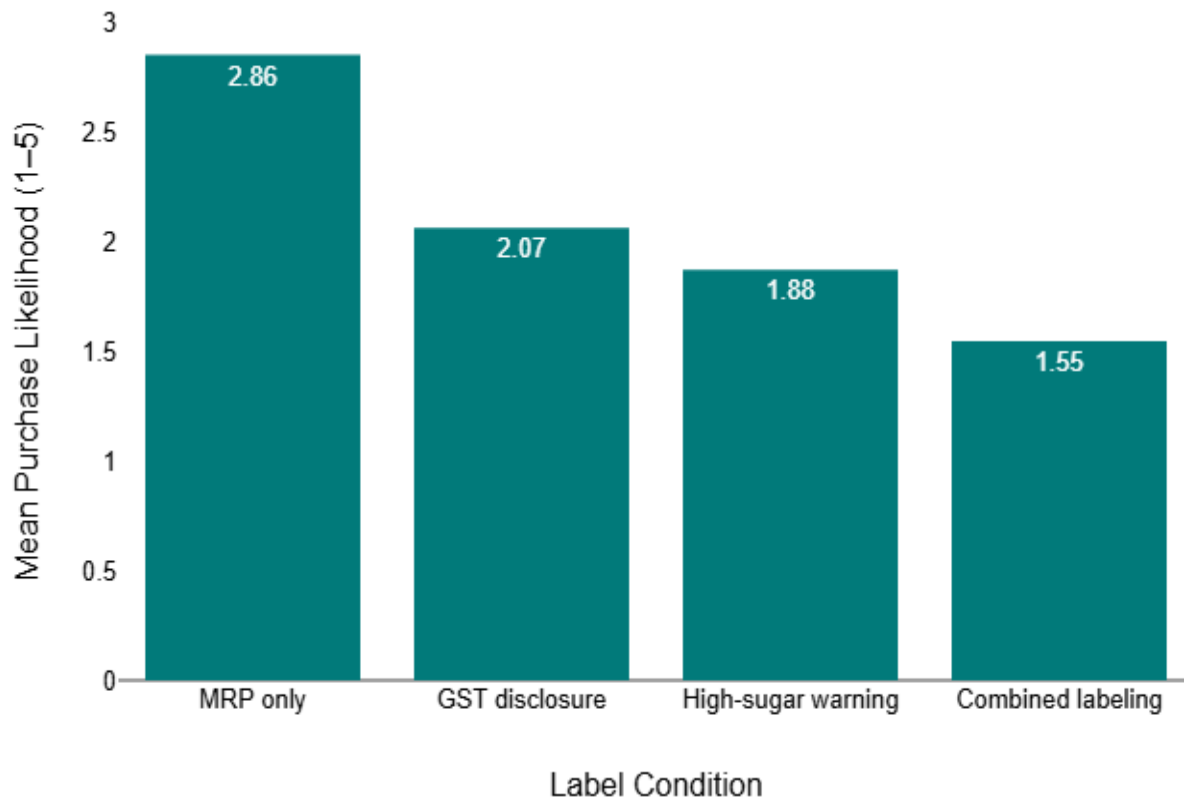


Figure 1. Mean Purchase Likelihood Across Labeling Conditions

Table 3. Purchase Likelihood Across Label Conditions

Condition	Mean	SD
MRP ₹84	2.86	1.48
₹60 + 40% GST	2.08	1.17
MRP ₹84 + high-sugar warning	1.88	1.10
GST disclosure + high-sugar warning	1.55	0.91

A repeated-measures ANOVA showed that purchase likelihood differed significantly across the four conditions, $F(3, 354) = 49.09, p < .001, \eta^2 = .29$.

Bonferroni-adjusted comparisons showed significant differences between the baseline condition and the GST condition ($MD = 0.78, p < .001$), the high-sugar condition ($MD = 0.97, p < .001$), and the combined condition ($MD = 1.30, p < .001$). The difference between the GST and high-sugar conditions was not significant ($MD = 0.19, p = .324$). Purchase likelihood under the combined condition was significantly lower than under both GST disclosure alone ($MD = 0.52, p < .001$) and the high-sugar warning alone ($MD = 0.33, p = .001$).

4.4 Perceived Healthiness Across Label Conditions

The pattern for perceived healthiness was somewhat different. The mean healthiness rating was 2.46 ($SD = 1.33$) in the baseline condition and 2.38 ($SD = 1.17$) in the GST condition. Ratings were lower when the high-sugar warning was present, falling to 1.75 ($SD = 0.98$) in Condition 3 and 1.53 ($SD = 0.93$) in the combined condition.

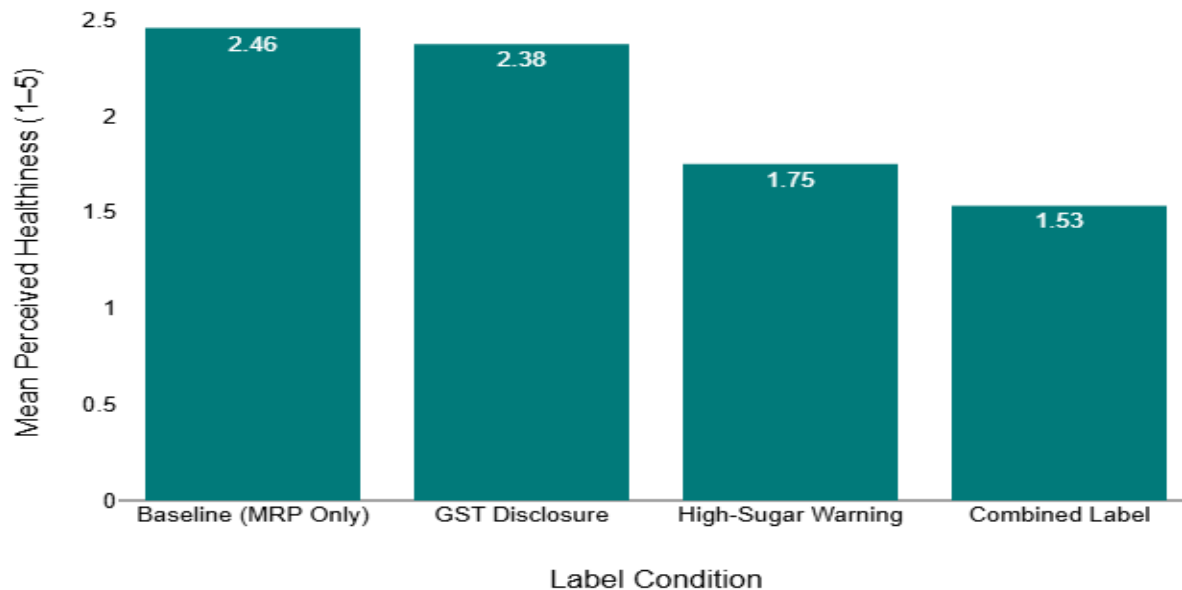


Figure 2. Mean Perceived Healthiness Across Label Conditions

Table 4. Perceived Healthiness Across Label Conditions

Condition	Mean	SD
MRP ₹84	2.46	1.33
₹60 + 40% GST	2.38	1.17
MRP ₹84 + high-sugar warning	1.75	0.98
GST disclosure + high-sugar warning	1.53	0.93

The repeated-measures ANOVA was significant, $F(3, 357) = 42.43$, $p < .001$, $\eta^2 = .26$.

There was no significant difference between the baseline and GST conditions ($MD = 0.08$, $p = 1.00$). By contrast, the high-sugar condition differed significantly from both the baseline ($MD = 0.71$, $p < .001$) and GST conditions ($MD = 0.63$, $p < .001$). The combined condition was also significantly lower than the baseline ($MD = 0.93$, $p < .001$), GST condition ($MD = 0.84$, $p < .001$), and high-sugar condition ($MD = 0.22$, $p = .013$).

4.5 Willingness to Pay

The willingness-to-pay responses also shifted across the four conditions. In the baseline condition, 30.0% of respondents were willing to purchase the beverage at ₹84 and another 30.0% stated that they would not purchase it at any price.

When GST was displayed separately, the proportion willing to pay ₹84 fell to 13.3%. Under the high-sugar condition, this fell further to 8.3%, while 49.2% stated that they would not buy the beverage at any price. In the combined condition, 60.0% selected the “would not buy” option.

Table 5. Willingness to Pay Across Label Conditions

Condition	₹84	₹72 or less	₹60 or less	Would not buy
Baseline	36 (30.0%)	16 (13.3%)	32 (26.7%)	36 (30.0%)
GST disclosure	16 (13.3%)	30 (25.0%)	37 (30.8%)	37 (30.8%)
High-sugar warning	10 (8.3%)	9 (7.5%)	42 (35.0%)	59 (49.2%)
Combined condition	11 (9.2%)	11 (9.2%)	26 (21.7%)	72 (60.0%)

4.6 Which Label Influenced Consumers Most?

When respondents were asked directly which label influenced their decision the most, 57.5% selected the health warning label. A further 21.7% reported that both labels influenced them equally, while 17.5% selected neither. Only 3.3% selected GST/tax information alone.

Table 6. Label Reported as Most Influential

Response	n	%
Health warning label	69	57.5
Both equally	26	21.7
Neither	21	17.5
GST/Tax information	4	3.3
Total	120	100.0

4.7 Importance of Factors in Beverage Purchase Decisions

Health warning labels received the highest average importance rating ($M = 4.08$), followed by taste ($M = 4.03$), sugar content ($M = 3.99$), nutritional information ($M = 3.93$), ingredients ($M = 3.88$), and brand reputation ($M = 3.64$).

Packaging design had a mean score of 3.28. Price ($M = 3.02$) and promotions or discounts ($M = 2.98$) were rated somewhat lower. GST/tax information had the lowest average importance score ($M = 2.58$).

An interesting contrast is visible here: GST information received a relatively low stated importance rating, even though purchase likelihood fell significantly when the GST component was shown explicitly.

4.8 Relative Reduction in Purchase Likelihood

To compare the size of the response to the different labels, change scores were calculated relative to the baseline condition. The mean reduction in purchase likelihood was 0.77 points ($SD = 1.06$) for GST disclosure, 0.96 points ($SD = 1.41$) for the high-sugar warning, and 1.28 points ($SD = 1.59$) when the two were combined.

Table 7. Reduction in Purchase Likelihood Relative to Baseline

Label response	Mean	SD
GST Response	0.77	1.06
High-Sugar Warning Response	0.96	1.41
Combined Response	1.28	1.59

The repeated-measures ANOVA was significant, $F(2, 238) = 14.88$, $p < .001$, $\eta^2 = .11$.

The combined response was significantly larger than the GST response ($MD = 0.52, p < .001$) and the high-sugar response ($MD = 0.33, p < .001$). The difference between the GST and high-sugar responses was not statistically significant ($MD = 0.19, p = .162$).

The largest decline in purchase likelihood therefore occurred when both the tax and health information were presented together.

4.9 Consumer Attitudes and Response to Labeling

Health Consciousness was strongly correlated with Label Information Utilization ($r = .70$). Respondents who scored higher on Health Consciousness therefore also tended to report more frequent use of information shown on beverage labels. Price Consciousness had a weaker relationship with Label Information Utilization ($r = .21$), while its relationship with Health Consciousness was close to zero ($r = -.04$).

The correlations between the three consumer-attitude measures and the experimentally derived response scores were small. For Health Consciousness, correlations with GST, high-sugar, and combined responses were .00, .09, and $-.06$, respectively. The corresponding values for Price Consciousness were $-.07$, .08, and .12, and for Label Information Utilization they were .01, .05, and $-.10$.

The attitude measures therefore showed little relationship with the size of the change in purchase likelihood across the experimental conditions.

4.10 Regression Analysis

A multiple regression was used to examine purchase likelihood in the combined GST and high-sugar condition. The predictors were perceived healthiness under the same condition, Health Consciousness, Price Consciousness, and Label Information Utilization.

The model was significant, $F(4, 115) = 124.05, p < .001$, with $R = .90, R^2 = .81$ and adjusted $R^2 = .81$.

Table 8. Regression Predicting Purchase Likelihood in the Combined Condition

Predictor	B	β	t	p
Perceived healthiness	0.88	.90	21.81	<.001
Health Consciousness	-0.04	-.04	-0.67	.502
Price Consciousness	0.01	.01	0.32	.752
Label Information Utilization	0.01	.01	0.09	.927

Perceived healthiness was the only significant predictor of purchase likelihood. A one-point increase in perceived healthiness was associated with an estimated 0.88-point increase in purchase likelihood, holding the other variables constant. None of the three broader consumer-attitude measures was independently significant in the model.

Since perceived healthiness and purchase likelihood were measured within the same condition, the regression is interpreted as an association rather than evidence of a causal relationship.

4.11 Key Findings

Three results stand out from the analysis. First, purchase likelihood fell when either GST information or a high-sugar warning was added to the label, and the lowest purchase likelihood was observed when both appeared together. The combined condition also produced a significantly larger reduction in purchase likelihood than either intervention alone.

Second, the two forms of information were not associated with consumer perceptions in exactly the same way. GST disclosure significantly reduced purchase likelihood compared with the baseline, but did not significantly change perceived healthiness. The high-sugar warning, on the other hand, was associated with lower scores on both measures.

Third, respondents' stated views did not fully mirror the experimental pattern. GST/tax information was rated as the least important of the ten purchase factors and was selected as the most influential label by only 3.3% of respondents. Even so, making GST explicit was associated with a significant reduction in reported purchase likelihood. Health warnings showed greater consistency between stated preferences and experimental responses, with 57.5% identifying the health warning as the most influential label and lower purchase and healthiness ratings when the warning was present.

5. Discussion

The study looked at whether the manner in which financial and health information about a sugar-sweetened beverage is displayed affects consumers' responses to it, with the product and its final price kept at ₹84. Two types of information were tested: an explicit breakdown of the 40% GST and a front-of-pack "HIGH IN SUGAR" warning. Compared to the standard MRP presentation, both of these information types led to a lower likelihood of purchase, even though they did not alter the drink's price or its contents. The smallest likelihood of purchase and the strongest overall reaction were seen when both labels were present. The main point from the findings is therefore that the way information is presented makes a difference on its own: the same drink at the same price produced considerably different responses simply because of the information made visible at the point of choice.

The GST result is the more striking of the two. Even though the price was the same as the baseline, purchase intention decreased when consumers could see that ₹24 of the ₹84 price was tax. What is notable here is the contrast between how the respondents described their own priorities and their actual behaviour: GST information was considered the least important of the ten purchase factors and only 3.3% said it was the label that had most influenced them, yet their stated likelihood of making a purchase dropped considerably once the tax had been made explicit. This discrepancy between what consumers say is important and how they react to clearly presented price information is in line with the tax-salience literature. Chetty, Looney and Kroft (2009) found that simply showing a tax which consumers already knew about reduced demand, since it was the visibility and not the knowledge of the tax that was the limiting factor, and Taubinsky and Rees-Jones (2018) likewise demonstrated that consumers underreacted considerably to taxes that were not made prominent. The current finding extends this pattern to the Indian GST on beverages and provides a plausible explanation for an existing puzzle: John, Tullu and Gupta (2022) had noted that Indian demand for these drinks is price-elastic, yet the 2017 GST reform led to no measurable decrease in purchases. If the tax had been quietly incorporated into the shelf price, its low salience, rather than any lack of price sensitivity, might account for why it had little effect. When the same tax is made visible, as in this study, consumers do respond to it.

The health warning had an effect via a somewhat different route. While GST disclosure only reduced the likelihood of purchase, the "HIGH IN SUGAR" warning also caused a decrease in the way people perceived the drink's healthiness: those who saw the warning thought the drink was less healthy, whereas GST disclosure had no significant effect on people's views of its health. This indicates that the warning did more than just discourage people from buying the product; it changed the way consumers understood the product. The fact that this warning was also the one most consciously recognised by the respondents reinforces this interpretation, since 57.5% of them said it was the label that had most influenced them. Presenting direct health information seems to bring the future health effects of a sugary drink into the moment when the choice is being made, where those effects would otherwise be easily ignored. This is in line with the experimental findings concerning front-of-pack warnings: Grummon and Hall's (2020) meta-analysis found that warnings about sugary drinks reduce purchases while at the same time increasing the perceived level of harm, and An et al. (2021) reported that such warnings considerably reduce the odds of selecting a sugar-sweetened beverage, with the greatest impact being seen in cases where the health consequences are made explicit. The warning used in this study acted in the way that the relevant literature would have predicted.

The most substantial reaction was seen when both labels were presented together. Compared to the baseline, the mean decrease in the likelihood of a purchase was 0.77 points for the GST disclosure, 0.96 points for the sugar warning, and 1.28 points for the combined label, and the response to the combined label was found to be significantly greater than that resulting from either label alone. A careful interpretation is that the two labels bring to light different aspects. The GST disclosure highlights the financial cost of the purchase, whereas the warning emphasizes its health consequences, so a consumer faced with both has two separate reasons to reconsider instead of just one. Since the study did not carry out a formal statistical test for an interaction between the two factors, the effect should be understood as cumulative rather than synergistic; although the combined label produced the largest response, the design does not prove that the two labels together had an effect that exceeded the sum of their individual effects. That said, the result is in line with experimental studies that have combined taxes and labels, for example Acton and Hammond (2018), who found that both price and labelling interventions each led to a change in beverage choices.

The regression analysis also provides a clue as to what influenced purchase intention in the combined condition. There was a very strong association between perceived healthiness and the likelihood of purchase ($\beta = .90$, $p < .001$), whereas the more general self-reported attitude scales, Health Consciousness, Price Consciousness, and Label Information

Utilization, were not significant independent predictors when perceived healthiness was taken into account. This suggests that consumers' immediate, product-specific judgment of the drink in front of them is more closely linked to their intention to buy it than their general tendencies are. The fact that they described themselves as health-conscious in a general sense mattered much less than the degree to which they judged this particular labelled product to be healthy. Since both perceived healthiness and purchase likelihood were measured within the same condition, the relationship between them is merely one of association and therefore cannot be regarded as proof that altering perceived healthiness leads to a change in purchase intention; the two factors might simply be moving in the same direction because of the label.

The willingness-to-pay figures changed in the same way as the likelihood of purchase. The most evident trend is seen at the extreme end of the reservation-price scale: the percentage of respondents who said they would not buy the drink at any price increased from 30% in the baseline situation to 60% in the combined condition, thus doubling when the extra information was provided. This indicates that the labels are relevant not only to whether consumers intend to buy the product but also to the highest price they are willing to pay for it. As more information was made prominent, a larger number of respondents effectively withdrew from the market altogether at a price of ₹84. Although this interpretation should be approached with caution since the willingness-to-pay analysis was descriptive and not inferential, the fact that the WTP pattern agrees with the results on purchase likelihood supports the overall conclusion.

When put together, these findings have important implications for the way in which sugar-sweetened beverage taxation and labelling are designed, rather than just for their adoption. The result relating to the GST indicates that imposing a tax and making that tax visible to consumers may not have the same effect: a 40% charge that is quietly included in the MRP is likely to have considerably less impact on people's behaviour than the same tax rate which is displayed explicitly, something that is relevant to how India communicates its beverage tax at the point of sale. The finding regarding warnings shows that mandatory front-of-pack health labelling can make the nutritional implications noticeable at the moment of choice, thus supporting the argument for a clear warning format in the current debate on FSSAI labelling. The combined result suggests that giving consumers both financial and health information together has a greater influence on their purchase decisions than relying on just one of them. More generally, the study adds to our understanding of consumer behaviour by showing that the way in which information is presented is itself a policy variable. The same drink, at the same price, elicited systematically different responses simply depending on what was shown to the consumers, a reminder that the way a cost is framed can be just as important as the size of the cost.

6. Conclusion

The study investigated whether the manner in which financial and health information about a sugar-sweetened beverage is presented affects how consumers respond to it, irrespective of price. The reply was that it does. Both making the 40% GST explicit and including a high-sugar warning were linked to a lower likelihood of purchasing the drink than in the case of the standard price presentation, even though the beverage and its cost of ₹84 remained unchanged. The warning had the effect of not only discouraging purchases but also of reducing the extent to which consumers regarded the drink as healthy, while revealing the GST changed behaviour without in any way affecting people's health perceptions. When both labels were displayed together, purchase intention dropped the most. The most significant finding relates to the tax: although consumers considered the GST information to be the least important factor in their decision-making and almost none of them said that this label influenced them, their willingness to buy still decreased when the tax was made visible. Things that people claimed to ignore still influenced the choices they made. The discrepancy between what people said they didn't care about and their actual behaviour is the result this study will be remembered for.

The findings relate directly to the way in which beverage taxes and labelling are structured rather than to whether such measures are in place. A tax that is hidden within the shelf price is not the same as one which the consumer can see, and this difference affects behaviour rather than the financial aspect. It seems that the clear display of both financial and health information enables consumers to assess a sweet drink in terms which they would otherwise fail to consider at the time of making their choice, and therefore the combination of this kind of information should be given serious consideration as a policy measure rather than being treated as an afterthought. This is relevant to two current decisions in India: how the beverage tax is communicated to the person at the counter and what form the front-of-pack warning currently under consideration by the FSSAI should take. However, the study cannot on the basis of hypothetical choices alone state that such labels will reduce actual consumption; it only shows that they alter the way consumers judge and intend, which is the point at which consumption starts.

There are several limitations to these conclusions. The sample of 120 respondents was demographically unbalanced, since women were greatly overrepresented and a large number of the respondents refused to state their household income, which means that any examination of how the responses differ among economic groups is not possible. The measures of purchase likelihood and willingness to pay record only the respondents' stated intentions rather than their actual purchasing behaviour, and the respondents were shown hypothetical images of beverages rather than encountering the products in a real shop. Future research could overcome these limitations by using larger and more representative samples, carrying out incentivized purchasing experiments, altering the order of the labels from fixed to random, looking at other beverage categories, trying out alternative warning designs, and examining a variety of tax rates. The fundamental reason for carrying out such research is that the price of a sugary drink was never actually the ₹84 shown on the label; it was the amount of that cost, both in money and in health, that the consumer was made to perceive. Only by understanding how this information is communicated can we understand the choice itself.

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