EFFECTS OF TIME PREFERENCE, RISK PREFERENCE, AND ATTRIBUTES NOT “JUST-ABOUT-RIGHT” ON CONSUMERS’ WILLINGNESS-TO-PAY FOR NUTRACEUTICAL-RICH JUICE

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Introduction

• There are increasing concerns among consumers about nutrition and health issues. The emphasis that consumers place on sensory attributes versus nutraceutical attributes can be assessed through valuation tasks, which measure willingness-to-pay (WTP).

• Valuation tasks are non-hypothetical because the winner’s (s) of the experimental mechanism actually pays for a unit of the product. The mechanisms require the consumer to follow through with his/her stated intentions.

• Psychological factors (e.g., risk preference, time preference) may influence consumer preferences. Time preference is a measure of future orientation and is quantified with the time discount rate. Higher time discount rates indicate less future orientation. Conceptually, highly future-oriented individuals (i.e., those with low time discount rates) may be willing to pay more for health-maintaining products. Risk aversion refers to an individual’s preference for a smaller, more certain reward rather than a larger, less certain reward. Potentially, individuals who are more risk averse may be willing to pay more for products that are supportive of health.

Objectives

A black cherry, Concord grape, and pomegranate juice blend previously optimized on nutraceutical and sensory attributes was used to:

To identify significant WTP predictors (e.g., potential risk and time preferences)

Describe the penalty in dollars and overall liking for variables not just-about-right

Materials and Methods

Product: Previously optimized juice blend composed of 75% Concord+13% black cherry+12% pomegranate

Panellists: Panelists (n=228) were recruited based on juice consumption (three times per week) and liking of black cherries, Concord grapes, and pomegranates.

Place: University of Arkansas Sensory Service Center, Fayetteville

Sensory Evaluation: Treatment groups were served two ounces of the juice blend to taste. Consumers evaluated overall liking with the 9-point verbal hedonic scale and diagnostic variables (sweetness, sourness, pomegranate flavor, Concord grape flavor, black cherry flavor, astringency, bitterness) with 5-point just-about-right scales.

Treatment Group 1 (Info ) received the following antioxidant information about the juice blend: This juice blend is rich in polyphenolic antioxidants, which are thought to support health.

Treatment Group 2 (Taste) evaluated sensory attributes of the juice blend.

Treatment Group 3 (InfoTaste) evaluated the sensory properties of the juice blend and received the antioxidant information.

Control Group (Control) neither tasted nor received information about the juice blend.

Experimental Design

• The Becker-DeGroot-Marschak (BDM) auction method was used to identify WTP predictors (Figure 1).

• The BDM mechanism with two bidding rounds was used to elicit the learning effect and create more observations. The bidding round was randomly selected in each session.

• A price distribution was established based on the endpoints of the highest and lowest reference prices ($2.10 for Concord juice and $8.57 for pomegranate juice). For each session, a price was randomly drawn. Participants who had WTPs higher than the drawn price in the binding round were considered winners of the valuation task, and they purchased the juice blend at the drawn price.

• Consumers then completed a questionnaire that included a series of risk and time preference tasks (Tables 1 and 2). The moderator explained that for each row, participants had to indicate whether they preferred Option A or Option B. The moderator stressed that all participants had a 10% chance of having one of their preferences awarded. Consumers who were selected in the 10% received a gift card that represented their corresponding preferred amount and time point.

• Also included in the questionnaire were demographics, mood, exercise frequency, home inventory of juice, and fruit juice consumption habits questions.

Results and Discussion

Patterns were similar for WTP and overall liking when treatment groups were compared. Reductions in overall liking and WTP occurred because of too little sweetness, too much black cherry flavor, and too much bitterness. Reductions in overall liking also occurred because of too much sourness.

Coefficients indicated the magnitude of the effect on the response variable.

• For example, the 1.16 not sweet enough coefficient for combined groups’ overall liking indicated that for every unit of increasing sweetness over the too little region (1 to 3), overall liking increased by 1.16. For the same group and attribute, WTP increased $0.25 for every unit increase in sweetness over the too little region.

• The intercept indicates the maximum liking score or WTP if all variables were JAR.

Conclusions

Information about antioxidants associated with a nutraceutical-rich juice blend increased WTP, which reinforces previous work showing that consumers respond positively to antioxidant information.

When given information about antioxidants, individuals with less future orientation (i.e., higher time discount rates) were willing to pay less than those with more future orientation. Moreover, findings imply that novel functional food products could be targeted to those who have lower time discount rates (i.e., those who are more future-oriented).

The WTP penalty analysis method utilized in this study to identify variables not just-about-right (i.e., optimal) could provide more concrete direction to product developers than traditional penalty analysis because monetary units are less abstract than overall liking. The breakthrough of this methodology is that it relates WTP directly to specific sensory attributes.