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Influence of social status, physical activity, and socio-demographics on willingness to pay for a basket of organic foods

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Abstract

Consumers are known to signal social status through their purchasing behaviors. As the food industry continually expands its use of strategic marketing to reach customers, understanding food's connection to this kind of status signaling may open the door to explore new markets for farmers. This study explored the influence of social status, physical activity, and socio-demographics on an individual's willingness to pay for a basket of high-quality organic foods. Over 3 days, participants had their physical activity measured by a pedometer, and they were randomly assigned to a social status condition and subsequently placed bids for the organic food basket using a second-price auction to measure their willingness to pay. High-status individuals were publicly recognized in order to test our hypothesis that individuals will not be motivated to pay more for an organic food basket than low-status counterparts when they have already received recognition for their high status. The results showed that on average non-students were willing to pay significantly more for an organic food basket than student counterparts. Hispanic and Asian shoppers were willing to pay more for an organic food basket than White counterparts. However, physical activity had no significant impact on willingness to pay. Ultimately, our hypothesis was confirmed that recognizing high-status individuals eliminated or reduced the need to showcase social status through higher bids for the organic food baskets.

Keywords: Organic, Physical activity, Social status, Willingness to pay

Introduction

Thorstein Veblen (1899) introduced the idea that individuals receive satisfaction from showcasing their social status and wealth to others, usually through the purchase of luxury goods in a visible setting. This behavior is called "conspicuous consumption," and the literature stemming from Veblen (1899) generally relates this status-seeking shopping behavior to luxury goods (Currid-Halkett et al. 2018). Conspicuous consumption is based on perceptions and signaling or proving a certain status. For higher classes, this behavior is meant to attract the attention and envy of others, therefore maintaining or boosting one's status in the eyes of others. For those in the lower classes, this behavior is an effort to emulate the behavior of the upper class in hopes of boosting their own social

status. In recent years, more studies have examined the relation between food shopping and status signaling behavior (Luomala et al. 2020; Palma et al. 2017; Puska et al. 2018). Food itself has become a symbol of status, and it seems that some shoppers may make food purchasing decisions in an attempt to seek a higher status. Organic foods are one of these premium products that may provide an appearance of wealth and healthy lifestyles. The product attributes that drive willingness to pay for organic foods, both tangible and intangible, have also been widely covered in the previous literature (Katt and Meixner 2020; Krystallis and Chryssohoidis 2005; Lusk and Briggeman 2009). However, more research is needed to determine what factors specifically influence the status-seeking behavior described above and consumers' willingness to pay for organic foods.

The purpose of this study is to determine the influence of social status, physical activity, and socio-demographic factors on consumers' willingness to pay for a basket of high-quality organic foods. Our hypothesis is that individuals will have no need to "signal" status through paying more for the organic basket if they receive special recognition for being in the high-status group, as this recognition provides satisfaction. This research question is of empirical interest since several social media outlets provide a vehicle for consumers to showcase consumption of high-quality and healthy food and thereby provide some social status recognition. In addition, we expect higher physical activity levels to be related to higher willingness to pay.

To examine these hypotheses, we conducted a controlled experiment using second-price auctions to elicit participants' willingness to pay for a basket of assorted organic food. In the experiment, we tracked participants steps with a pedometer and conducted a second-price auction (SPA) in which participants are randomly assigned a social status condition and given the opportunity to bid real money for a basket of organic foods. The experiment was real and the winner of the auction paid the market price and in exchange received the organic basket to take home. The rest of this paper examines other related literature, explains the experimental design, analyzes the results of both, and discusses conclusions and implications.

Literature review

Veblen's take on consumption refuted previous neoclassical models of demand by indicating that consumers rarely make decisions independent of each other and instead proposed that their decisions are influenced by the opinion leaders around them (Buchholze 2007). One important element of conspicuous consumption is that purchases are visibly displayed to others. Clingingsmith and Sheremeta (2018) found that when consumers' purchases were made visible to others, participants were more likely to engage in conspicuous consumption than when purchases were hidden. In the case when purchases are not visible, participants displayed higher willingness to pay for the products in order to "signal" that they have a higher income. Our research differs by making the purchase visible as in many real-world shopping experiences and seeking whether or not recognition of assigned social status condition has an effect on willingness to pay. It is important to note that social status conditions were randomly assigned and were not a natural reflection of participants' real social status. The exogenous assignment and recognition of social status in this experiment were designed to emulate status as a social construct.

Pollan (2010) found that food has become an increasingly visible purchase over the past 50 years. The agriculture industry experienced price inflation and saw a rise in the literature critiquing American agriculture during the 1970s, which brought food production to the forefront of American society and politics. As a result of this increased visibility and discussion, consumers became more conscious about the health and sustainability their food purchases. In a more recent application, the local food movement has become increasingly prominent as consumers seek transparency in the food they purchase and prepare for themselves or their families (Brain 2012). People do not make these decisions in a vacuum, associating food with social pressures (Kniazeva and Venkatesh 2007). In fact, there is evidence that consumers are also motivated by reputation and status when their consumption of organic foods is made visible to others (Puska et al. 2018). This complete understanding of the visibility of food, specifically those labeled organic, will be useful as participants in this study will be bidding on a basket of organic foods.

Perceived health benefits are an important factor driving organic food purchases. Many consumers who choose to purchase organic foods because of perceived health benefits also seem to complement consumption with healthy and physically active lifestyles (Goetzke et al. 2014; Goetzke and Spiller 2014; Magnusson et al. 2003). Individuals who place emphasis on this kind of physical activity may also see it as a means to maintain physical attractiveness, which in itself may influence a person's social ranking (Anderson et al. 2001; Edwards et al. 2005). The desire to boost one's social status by maintaining physical attractiveness through a physically active lifestyle may, therefore, also be achieved through one's food purchasing decisions. Research is needed to better understand this relationship. Other influences on food consumption are complex and ever-changing. Some of these factors include cultural values, advertising, variety, availability, and nutritional knowledge (Nestle et al. 1998). Lusk and Briggeman (2009) studied the correlation between consumer willingness to pay for organic foods and specific attributes. Safety, nutrition, taste, and price constituted the top four food values most important to both consumers who previously purchased organic foods and those who had not. "Naturalness" of the product and its impact on the environment were two distinguishing values that were more likely among consumer who had purchased organic foods in the past. This may be helpful to keep in mind as we use a basket of organic foods in this study.

When studying organic food purchasing behavior, it is also important to note the influence of varying demographics. Overall, the most commonly agreed upon variable driving organic food purchases is education, with higher levels of education leading to higher willingness to purchase organic foods (Dimitri and Dettmann 2012; Zepeda and Li 2007). Other demographics that may be willing to pay more for organic foods include women, younger age groups, and those with higher levels of income (Govindasamy and Italia 1999). The previous literature is less clear as to whether or not there is a significant difference among racial groups. In general, it seems that Asian and Hispanic shoppers may purchase more organic food relative to White counterparts (Dettman and Dimitri 2009; Dimitri and Dettmann 2012). Other evidence indicates that while Black shoppers may buy less organic food than White shoppers, they have higher willingness to pay after receiving more information about organics (Zepeda et al. 2006).

It is important to note the complexities that exist in the unique relationship between food and race (Billings and Cabbil 2011). In terms of conspicuous consumption, Black and Hispanic shoppers have been shown to spend more on highly visible luxury goods than White counterparts (Charles et al. 2009). Additionally, men were more likely to engage in conspicuous consumption than women (O'Cass and McEwen 2004). As mentioned previously, food has become a more visible good over time. It is important to understand the correlation of demographics, including race, on such visible organic food purchases as the ones described in this study.

Research in the area of conspicuous consumption has continued since Veblen first developed the theory. This study now aims to determine how demographics, status, and physical activity influence consumers' willingness to pay for a basket of organic foods, a non-luxury good. Farmers who market their products directly to consumers can then draw upon this knowledge to better understand consumers and more effectively market their products.

Methods

The study was conducted from September 2019 to March 2020 at in a midsize city in the Southwestern United States. A pool of undergraduate students, graduate students, and university faculty/staff were recruited to participate in the study through a mass email. Participants agreed to a 3-day experiment in which they were asked to show up at the same time each day. These sessions occurred at 11 am, 2:30 pm, 4 pm, and 5:30 pm. Upon arriving to the lab each day, participants signed in, signed a consent form, and went to a classroom with two session supervisors. The session on the first day took approximately 15 min, while sessions on days two and three took about 1 h.

On the first day of the study, subjects were given instructions and the pedometers they would be using throughout the 3-day period. Pedometers were chosen for this experiment to measure physical activity as they have been shown to be a valid (and simple) tool for measuring physical activity and for ranking individuals (Sylvia et al. 2014; Tudor-Locke et al. 2004). As the pedometers would simply be used to assign one of the social status treatments, this method aligned with the purposes of the experiment. In order to receive full payment, participants had to wear these pedometers for the entire period and attend all three sessions. After reading the instructions and clarifying any questions, the participants placed the pedometer on their wrist, and a session supervisor secured the pedometer with a zip tie in order to prevent removal by the participant. The session supervisor then confirmed the step function was on and cleared to zero for each pedometer. Once they completed these steps, participants received $10 each and were dismissed until the second session.

When participants returned on the second day, supervisors read a welcome message and instructed participants to wait while they recorded each individual's step count. This included cutting off the zip tie, removing the pedometer, and recording data under the corresponding zip tie number on a covered clipboard. Afterward, treatment groups were randomly assigned and payment was announced for each status condition within those groups, as outlined below. In the control group, no status was assigned and each participant received $10. The first treatment group—the "Health" treatment—was assigned status based on where they fell in respect to the median step count. Specifically,

Table 1 Experimental treatments and payment levels

Treatment	Status assignment	Payment levels
Control	None	$10 for all
Health treatment	Exercise-based	$10 for all
Income treatment	Quiz-based	$10 for low status $15 high status
Combined treatment	Exercise-based	$10 for low status $15 for low status

participants with step counts above the median were assigned "high status" and those with step counts below the median were assigned "low status." However, both groups received $10 (with no payment differential based on assigned status) for participating. As bids were recorded, participants sat with individuals assigned to the same status group. Session supervisors asked individuals who received a "high status" to physically go to the front of the room and be recognized as the high-status group. A similar procedure was previously used by Ball et al. (2001) for status recognition in markets. At this point, the session supervisors asked participants to give a round of applause to the high-status individuals. This status recognition also occurred for the "Income" and "Combined" treatments, described below. Individuals in the Control treatment did not receive any type of recognition but did receive the same payment amount.

The second treatment group—the "Income" treatment—participants completed a 5-min, 10-question general knowledge quiz after their counts were collected. Session supervisors then graded the quiz and assigned "high status" to the top half of scorers and "low status" to the bottom half of scorers. Questions/answers on the quiz included entomology is the science of insects, Eritrea is located on the continent of Africa, and the date of Armistice Day to end World War I.[1] In this treatment, high-status participants in the top half of scores were given $15 and low-status participants in the bottom half of scores were given $10, therefore creating an income differential with higher earnings for the high-status group.

Finally, in the last group—receiving the "Combined" treatment—status was assigned by participant's placement above or below median step count as in the "Health" treatment, but each status group received the payment differentials of the "Income" treatment. For both the "Income" and "Combined" treatments, participants were asked to sit with persons who received the same status level. As previously described, the individuals falling in the top half of quiz scores were verbally recognized and received a round of applause guided by the session supervisors to mimic a high-status condition. This method of recognition was used for both "Income" and "Combined" treatments.

A summary of these treatments is shown in Table 1. Individuals in the high-status group were recognized, thus simulating the effect of attaining a high social status. We hypothesized that receiving this recognition in a visible setting would reduce to need to showcase social status through higher bids for the organic basket.

Next, a second-price auction (SPA) was conducted using the participants' earnings from the first day according to their randomly assigned treatment and social status. In

[1] The full quiz is available from the authors upon request.

a SPA, participants submit bids, and the highest bidder wins but only has to pay the second highest price (Ausubel 1999). The participants then kept their leftover earnings from the SPA, serving as an incentive to a bid as close as possible to one's truest willingness to pay.

A session supervisor read the instructions for the SPA, making sure that participants understood their earnings from the first part would be used in the SPA and that their bids would be announced publicly. The item for the SPA was a basket of the following organic items: an organic orange, two organic pears, a box of "High Life Deluxe Mix" organic nuts, a bunch of organic bananas, and a bottle of Oxigen water—a value of approximately $12. This basket of goods was made visible to simulate the visibility of food purchases. Bids for the basket were submitted privately but announced publicly after all bids were turned in. As session supervisors sorted bids, the participants filled out a demographic survey. After this, the bids were announced in no particular order, as well as the winner of the auction and the market price. Supervisors then informed participants that they may or may not be assigned a different social status treatment at the next day's session. After these announcements, supervisors followed the Day 1 procedure of applying pedometers to participants. Participants were given $10 participation for their participation, plus any earnings from the SPA, and were dismissed.

The third day of the experiment followed similar procedures to the second day, but participants were randomly re-assigned to a treatment that was not necessarily the same as they were assigned to on Day 2. As mentioned in the description of Day 2, participants were informed that they may or may not be assigned to a different status treatment on Day 3—therefore giving participants no indication of the dimension on which social status would be awarded. This random re-assignment of treatment was also used to reflect real-world conditions in which individuals' social status differs based on the setting they are in.

On Day 3, a different basket was used in another round of a SPA—including a box of organic blueberries, three organic red apples, one organic pear, a bag of organic dried cranberries, and an Evian water bottle. Similar to the basket of organic foods provided on Day 2, the price for this basket came to approximately $12. Bids were once again collected, sorted, and announced (in no particular order) by the session supervisors. After this, session supervisors also announced the winner of the auction and the market price for the basket of organic foods. Participants were then awarded $10 for participating in the Day 3 auction, plus any earnings from the SPA, and told they could keep the pedometer before being dismissed. In total, participants could earn up to $30 for all three days plus any earnings from the SPA and the pedometer.

Results and discussion

In the study, 313 individuals arrived on the first day while 282 participants completed the entire SPA for each day for a total of 564 willingness to pay observations. Demographic statistics for the group are shown in Table 2. As recruitment for the study took place on campus at the university, the average age of 24.17 is not unexpected given participation from undergraduate and graduate students. This also might help explain the low average household size of 2.54 members per household. The average number of steps reported on Day 2 came to 15,142.17, while the average dropped to 14,552.81

Table 2 Demographic data

Variable	Average
Age	24.17
	(7.44)
Female	58.90%
	(0.49)
Household size	2.54
	(1.55)
White	28.38%
	(0.45)
Hispanic	18.92%
	(0.39)
Black	6.08%
	(0.24)
Asian	40.37%
	(0.49)
Other race/Ethnicity	5.74%
	(0.23)
Income < $45,000	41.98%
	(0.49)
Income $45,000–$49,000	4.10%
	(0.20)
Income $50,000–$59,000	7.51%
	(0.26)
Income > $60,000	34.81%
	(0.48)
No income	11.60%
	(0.32)
Day 2 steps	15,142.17
	(5,848.973)
Day 3 steps	14,552.81
	(5,754.79)
Total steps	29,723.22
	(10,140.75)

Numbers in parentheses are standard deviations

on Day 3. The total average step count between the 2 days was 29,723.22. Although the average person takes between 3,000 and 4,000 steps a day (Rieck 2020), these numbers may be higher due to the increased activity level one might expect from walking around a large college campus.

In order to interpret the data, we used a multilevel mixed-effects linear regression model where the dependent variable is willingness to pay from the SPA and it is a function of social status, physical activity, and socio-demographic factors. This model is a linear regression that includes random effects from the participants' session times and a standard error term. The equation, in matrix notation, is below:

$$\mathbf{y} = \mathbf{X}\beta + \mathbf{Z}\mathbf{u} + \boldsymbol{\varepsilon}$$

where **y** represents the willingness to pay for the basket of goods, **Xβ** represents the variables with fixed effects such as which treatment or social status condition the individual was assigned, **Zu** represents the random effects from session times, and **ε** is the general error term.

Each of the treatments shown in Table 1 was replicated on days 2 and 3 of the experiment. While a total of 282 participants completed all 3 days of this research study, this provides 564 willingness to pay observations when one accounts for each participant providing two willingness to pay observations. Each participant was randomly assigned to a different treatment group on the final day of the experiment compared to the second day. This provides an increased ability to see how the treatments impact willingness to pay and more robust results. Our dependent variable remains the individual bid placed for the items in the SPA and is a function of the treatment assignment, status earned, physical activity, and socio-demographic characteristics for each individual (i.e., with two observations per individual for day 2 and day 3). Adapting the previous equation to the results in Table 1, the fixed effects in Table 1 were based on which treatment and status the individual was assigned on each day. Random effects were used to control for any differences that might occur based on which session (i.e., date and time) the individual participated in. The terminology we used for the treatments shown in Table 1 is used in Table 3.

Results from these models shown in Table 3 indicate that individuals receiving the Health treatment—in which participants were given status based on higher step counts but not given a greater payment for participating—were willing to pay less than the control group, regardless of assigned status. Furthermore, high-status individuals in this group were willing to pay $1.08 less than the control on Day 2 and $1.24 less on Day 3, while low-status individuals were willing to pay $1.18 more than the control on Day 2 and $1.06 more on Day 3. This result aligned with our hypothesis that individuals assigned to the high-social-status condition would be willing to pay less than the low-social-status group for the basket of organic food after receiving the satisfaction of being recognized for their higher social status (see Appendix: Table 4).

In order to determine whether any interaction existed between treatment and participant income, we used a model interacting participants earning more than $60,000 per year with Health, Income, and Combined treatment results for both Day 2 and Day 3. The Day 2 results for the Income group showed that those with incomes greater than $60,000 bid $0.98 less than those earning below $60,000. Additionally, Day 2 results for the combined group indicated that those earning above $60,000 bid $1.05 more than those with incomes below $60,000. Both of these results were only marginally significant, with no significant results for Day 3 treatments by income. Ultimately, it seems there was no significant interaction between a participants' household income on what bid they placed for all three treatments (see Appendix: Table 5).

In terms of demographic data shown in Table 5, Hispanic participants were willing to pay $0.77 more than White participants, while Asian participants were willing to pay $0.87 more. Another group willing to pay more was the non-student group, with a willingness to pay of $1.25 more than the undergraduate group. Finally, the lowest income bracket (< $45,000) was willing to pay a higher premium for the basket of organic goods. The highest income bracket (> $60,000) was also willing to pay a higher price, albeit at

Table 3 Multilevel mixed-effects results for willingness to pay based on treatment and status

Variable	Estimate
Health treatment high status Day 2	−1.078**
	(0.498)
Health treatment low status Day 2	−1.182**
	(0.508)
Income treatment high status Day 2	−0.386
	(0.477)
Income treatment low status Day 2	−0.587
	(0.412)
Combined treatment high status Day 2	−0.501
	(0.474)
Combined treatment low status Day 2	−0.423
	(0.467)
Health treatment high status Day 3	−1.242***
	(0.471)
Health treatment low status Day 3	−1.062**
	(0.469)
Income treatment high status Day 3	−0.013
	(0.511)
Income treatment low status Day 3	0.273
	(0.489)
Combined treatment high status Day 3	−0.701
	(0.491)
Combined treatment low status Day 3	0.068
	(0.495)
Intercept	5.862
	(0.474)
Session random effects parameter	0.126
	(0.143)
Estimated variance parameter	6.933
	(0.421)
Log likelihood	−1360.582
N	568

Each coefficient is the willingness to pay estimate for that attribute

Numbers in parentheses are standard errors

***, **, *Statistical significance at the 1%, 5%, and 10% levels, respectively

Note the results in Table 3 do not include a session random effect because it was $8.92e^{-10}$

a lower significance level. It is important to note that the magnitude of coefficient estimates among treatment groups in Table 5 is consistent with those found in Tables 3 and 4, taking interaction effects into account. The three tables also indicate similar levels of significance among the Health treatment groups for Day 2 and Day 3. These similarities reinforce the robustness of results.

Conclusion

Overall, this study explains the influence of social status, physical activity, and socio-demographic factors on consumers' willingness to pay for a basket of organic goods. Through a SPA conducted in a laboratory dedicated to experimental economics, we conclude that individuals will not bid more for organic baskets in order to showcase social

status when they have already received recognition for being in the high-status group, as proven by the significantly lower willingness to pay than the control group among both high- and low-status individuals in the Health treatment. We also conclude that giving an equal payment regardless of assigned status leaves both high- and low-status groups with little incentive to place higher bids. By design, this differs from Clingingsmith and Sheremeta (2018) who found that a purchase not visible to others leads to higher bids because participants want to signal their attained higher status. Our second hypothesis stated that higher physical activity levels would leave to a higher willingness for pay for the organic food basket; we ultimately conclude that there is no significant connection between physical activity and willingness to pay for this basket.

Looking at socio-demographic factors, participants in the lowest income bracket have the highest willingness to pay, followed by those in the highest income bracket. This is inconsistent with the existing literature, which generally finds those with highest incomes are willing to pay the highest premium for organic foods (Govindasamy and Italia 1999; Katt and Meixner 2020). Non-student shoppers are willing to bid more than their student counterparts. Additionally, Asian and Hispanic participants are willing to pay slightly more than their White counterparts for the basket of organic foods. This is consistent with Charles et al. (2009) in showing increased visible expenditures among Hispanic shoppers—although these findings do not match up with their conclusions about increased conspicuous consumption by Black shoppers.

Moreover, farmers and marketers should be aware of racial differences (specifically for Hispanic and Asian shoppers) that may influence shoppers' willingness to pay. In addition to our findings about willingness to pay for organic foods among Hispanic and Asian shoppers, the previous literature that points to a higher number of organic food purchases among Hispanic and Asian households than White households (Dimitri and Dettmann 2012). With this information in mind, farmers may look to promote such products in communities with higher proportions of Hispanic and Asian shoppers. Producers may also want to market or sell their products in communities with lower proportions of students, as the non-student participants were willing to pay significantly more for the basket of organic foods. Future research about connections between race willingness to pay for organic foods may also be of benefit.

One limitation of this study is that participants were recruited from the student, faculty, and staff body of a university. Further research should expand this model by recruiting beyond the university itself, in which most of the recruited participants are students and may not be generalizable. Another limitation of the study in regard to physical activity is that participants' steps were only able to be tracked for 3 days. Tracking participants' steps over a period longer than 3 days may give a more accurate depiction of physical activity and bring clarity to the connection between physical activity and willingness to pay for a basket of organic foods. It might also be of benefit to study the relationship of different attributes of organic or specialty foods, like those found by Lusk and Briggeman (2009), and willingness to pay. While this research provides an interesting perception of key demographics and their possible influence on willingness to pay for organic foods, further research could provide greater insight into whether or not these trends exist in other areas of the country.

Appendix

See Tables 4 and 5.

Table 4 Interactions of treatment status with income levels

Variable	Estimate
Health treatment high status Day 2	− 1.295**
	(0.501)
Health treatment low status Day 2	− 1.427***
	(0.526)
Income treatment high status Day 2	− 0.229
	(0.486)
Income treatment low status Day 2	− 0.263
	(0.506)
Combined treatment high status Day 2	− 0.960*
	(0.497)
Combined treatment low status Day 2	− 0.891*
	(0.840)
Health treatment high status Day 3	− 1.267**
	(0.503)
Health treatment low status Day 3	− 1.130**
	(0.482)
Income treatment high status Day 3	− 0.030
	(0.531)
Income treatment low status Day 3	0.362
	(0.492)
Combined treatment high status Day 3	− 0.703
	(0.523)
Combined treatment low status Day 3	0.109
	(0.519)
Health treatment Day 2 * Income greater than $60,000	0.874
	(0.575)
Income treatment Day 2 * Income greater than $60,000	− 0.984*
	(0.575)
Combined treatment Day 2 * Income greater than $60,000	1.048*
	(0.556)
Health treatment Day 3 * Income greater than $60,000	0.116
	(0.521)
Income treatment Day 3 * Income greater than $60,000	0.017
	(0.590)
Combined treatment Day 3 * Income greater than $60,000	− 0.667
	(0.963)
Intercept	5.887
	(0.453)
Session random effects parameter	0.103
	(0.129)
Estimated variance parameter	6.593
	(0.402)
Log likelihood	− 1335.717
N	564

Each coefficient is the willingness to pay estimate for that attribute

Numbers in parentheses are standard errors

***, **, *Statistical significance at the 1%, 5%, and 10% levels, respectively

Table 5 Multilevel mixed-effects results for willingness to pay based on treatment, social status, and selected demographic variables

Variable	Estimate
Health treatment high status Day 2	−1.067**
	(0.427)
Health treatment low status Day 2	−1.256***
	(0.436)
Income treatment high status Day 2	−0.667
	(0.409)
Income treatment low status Day 2	−0.609
	(0.409)
Combined treatment high status Day 2	−0.416
	(0.409)
Combined treatment low status Day 2	−0.392
	(0.399)
Health treatment high status Day 3	−1.167***
	(0.411)
Health treatment low status Day 3	−0.905**
	(0.396)
Income treatment high status Day 3	−0.020
	(0.442)
Income treatment low status Day 3	0.490
	(0.412)
Combined treatment high status Day 3	−0.901**
	(0.4422)
Combined treatment low status Day 3	0.176
	(0.425)
Female	0.298
	(0.238)
Income < $45,000	0.857**
	(0.370)
Income $45,000–$49,000	−0.238
	(0.646)
Income $50,000–$59,000	0.323
	(0.526)
Income > $60,000	0.635*
	(0.384)
Hispanic	0.767**
	(0.347)
Black	0.200
	(0.502)
Asian	0.865***
	(0.303)
Combined	0.389
	(0.511)
Graduate student	−0.320
	(0.282)
Non-student	1.248***
	(0.472)
Intercept	4.507
	(0.561)

Table 5 (continued)

Variable	Estimate
Estimated variance parameter	6.542
	(0.393)
Log likelihood	− 1306.362
N	554

Each coefficient is the willingness to pay estimate for that attribute

Numbers in parentheses are standard errors

***, **, *Statistical significance at the 1%, 5%, and 10% levels, respectively

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Author contributions
JK reviewed the literature, assisted in data analysis, interpreted results, and wrote the manuscript. JRP supported development of the experiment, analyzed data, and reviewed and edited the manuscript. LA supported development of the experiment and reviewed and edited the manuscript. MP supervised the experiment and reviewed and edited the manuscript. JRP, LA, and MP acquired funding for the study. All authors agreed to the final version of the manuscript.

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Availability of data and materials
Dataset available from authors upon reasonable request.

Declarations

Competing interests
The authors declare that they have no competing interests.

Institutional review board statement
This study was approved by the Institutional Review Board of Texas A&M University (IRB2019-0579D on September 13, 2019) and the Institutional Review Board of the University of Tennessee-Martin (2020-764-E05-4005 on August 19, 2019).

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