

University of British Columbia

Social Ecological Economic Development Studies (SEEDS) Sustainability Program

Student Research Report

# Comparing Multidimensional Sustainability Food Labels with One-dimensional Labels on Consumers' Willingness to Pay

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Prepared for:

Course Code: PSYC 421

University of British Columbia

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### **Executive Summary**

The present study investigated consumers' willingness to pay for sustainable food products when using multidimensional environmental labels versus one-dimensional and no labels. Given that one-dimensional labels are often used to depict food sustainability, the current study aimed to address barriers of one-dimensionality eco food labels' incomprehensiveness, as well as a lack of a conventional and understandable multidimensional eco-label. We obtained data using an online Qualtrics survey which included 155 undergraduate participants (*M* age= 21.4, 58.4% Female) recruited through convenience sampling. Participants were randomly assigned to one of three conditions: multidimensional, one-dimensional, and no label (control). We used repeated-measures ANOVAs, posthoc Tukey's test, Holm's test, and independent samples t-tests to compare the willingness to pay for four different food items with labels depending on the conditions. We hypothesized that compared to one-dimensional and no label conditions, consumers will pay more for highly sustainable food products when labelled with a multidimensional eco-label and less for multidimensionally labelled food products that were less sustainable. We found that labels did significantly impact consumers' willingness to pay. However, contrary to our hypothesis, we found that only one-dimensional eco-labels were significantly associated with consumers' willingness to pay.

## Introduction

Consumers are becoming increasingly concerned with the sustainability of the food that they are purchasing and consuming (Forsberg & Nordström, 2020). A major factor that influences individuals' food choices is environmental sustainability labels. These eco-labels are defined as a means of presenting consumers with information about the environmental quality, methods of production and environmental impact of products with the objective of influencing informed environmental decision making (Thøgersen et al., 2010). However, the current labels on food products rarely depict the full environmental impact of that food's production to consumers. These labels often utilize one-dimensional, multi-level labelling to present complex product information in a simplified manner (Forsberg & Nordstrom, 2020; Leach et al., 2016). However, these multi-level environmental labels are limited to the singular dimension they depict. Next, in a proposed framework, Kocsis and Kuslits (2019) suggested that multidimensional labels are more informative and comprehensive than multi-level labels since they are able to represent multiple dimensions of products. These researchers have yet to conduct a study that explores whether multidimensional labels are seen as more effective by participants. Alternatively, it could also be that the increase of information about the product and its environmental impact in multidimensional labels could cause an information overload for consumers creating confusion, and deterring consumers from making sustainably informed purchases. Further, an experimental study by Moon and colleagues (2002) found that environmental labels increased consumers' willingness to pay. Given the lack of a universal multidimensional eco-label, less is known about how a more informative label like a multidimensional one may affect consumers' willingness to pay for food products as compared to one-dimensional labels. Thus, this study aimed to address the gap in understanding the effectiveness of multidimensional labels on consumers' willingness to pay in comparison to one-dimensional labels or no labels.

We desired to address barriers related to consumers finding current one-dimensional eco food labels hard to understand, uninformative, and uncredible (Forsberg & Nordström, 2020). Additionally, given the barrier that there is great difficulty in producing multidimensional labels, we wanted to create a conventional and understandable multidimensional label for future use. Our study was driven by research that suggests multidimensional labels are more informative and increase consumer clarity on a product's sustainability (Kocsis & Kuslits, 2019). The increased comprehensiveness of such labels would drive consumers to better understand the footprints of the products, allowing them to make more sustainably informed choices.

We hypothesized that multidimensional labels would increase consumers' willingness to pay as compared to one-dimensional and no label conditions. In line with this, we hypothesized that consumers would pay more for highly sustainable food products that were labelled with multidimensional labels as compared to no label or one-dimensional. We also hypothesized that consumers would pay less for a food product that is less sustainable and labelled with a multidimensional label as compared to no label or a one-dimensional.

## Methods

### *Participants*

We aimed to recruit UBC-affiliated participants through convenience sampling using the social networks of the research team. Using G\*Power3, we calculated that we would need a sample of  $N = 252$  for 95% power, an assumed medium effect size of 0.25, and an alpha level of 0.05. Our original sample consisted of  $N = 205$ . However, 50 responses were removed as a result

of failure to complete the survey and the respondent not being affiliated with UBC. In the end, we retained a final sample size of  $N = 155$  (58.4% were female, 22.1% male, 8.4% non-binary, 1.3% Two-Spirit, and 9.7% preferred not to say). Participants' age ranged from 9 to 32 years ( $M = 21.4$ ,  $SD = 2.3$ ). 72.9% of participants were Asian, 16.9% were White, 3% were Latin, Central or South American, 1.8% were Arab, 1.2% were Indigenous Peoples, and 3% chose Other.

### ***Conditions***

We employed a between-subjects design where participants were randomly assigned to one of three conditions: multidimensional, one-dimensional, and no label conditions (see Appendix B). In all three conditions, participants completed a survey that showed two high-sustainability food products (French Fries and Southwest Bowl) and two low-sustainability food products (Classic Grilled Cheese and Classic Beef Burger). The food products displayed were found from the Open Kitchen menu. Participants input the amount that they were willing to pay for each product on a scale of \$0-\$50. In the control condition, the food products were presented with no label. In the first experimental condition, each food product was displayed with a one-dimensional label indicating the rate of carbon emissions produced (see Figure A1). In the second experimental condition, each food product was displayed with a multidimensional label representing the rate of carbon, nitrogen, and water emissions produced (see Figure A2). The independent variable is the type of label that the participants saw. The type of label was operationalized as being one of the three conditions that we described above.

### ***Measures***

The dependent variable was the participants' willingness to pay. Willingness to pay was operationally defined as the number of dollars that participants are willing to spend on a particular food item. Measuring willingness to pay enabled us to test our hypotheses that people are willing to pay more for high sustainability foods with multidimensional labels and pay less for low sustainable food with multidimensional labels. 5-point Likert Scales (Likert, 1932) were used in our survey to measure participants' awareness of sustainability, dietary restrictions, stress about climate change, and eating preferences (see Appendix B). We also added an attention check question to ensure that respondents are paying attention to the questions being asked. Demographic questions were deliberately placed at the end of the survey to avoid the fatigue effect, where participants' performance on a survey declines as a result of a lengthy survey.

### ***Procedure***

The online survey was conducted between March 07, 2022, and April 06, 2022, using convenience sampling. The survey was distributed through various communication channels, such as Discord, Facebook Messenger, Instagram, and WhatsApp to maximize our reach. Participants were directed to our survey on the UBC Qualtrics web page and were asked to fill in a consent form. The survey began by asking about the participants' affiliation with UBC, and then randomly presented the participants with one of our three conditions asking about how much they are willing to pay for each food. After that, participants were asked to fill in questions regarding their climate change stress, dietary restrictions, and demographics questions. Initially, we struggled with recruiting enough participants but were able to overcome this challenge. We did this by individually asking people to fill out the survey to avoid the diffusion of responsibility effect that commonly occurs in group settings.

## **Results**

Repeated measures ANOVA, followed by post-hoc Tukey's test, Holm's test, and independent samples t-test were conducted on open-source software JASP to examine between-

subjects effects and within-subject effects of our study. We used the significance level at  $\alpha = .05$ . As shown in Table 1, the repeated-measures ANOVA showed that the within-subject effect of food types on the willingness to pay was significant and large ( $F = 215.316, p < .001, \eta_p^2 = .588$ ). The between-subject effect of label types on the willingness to pay was also significant and large ( $F = 5.035, p = .008, \eta_p^2 = .063$ ; see Table 2). These results partially supported our hypotheses, on a broader theme that the food types and label types affect the willingness to pay for food products. Holm's test revealed that the willingness to pay, averaged over three label conditions, between food types differed from each other significantly (see Table 4).

Tukey's test, shown in Table 5, revealed that a significant difference was created by one-dimensional label condition ( $t = -3.171, p = .005$ ). On average, participants were willing to pay \$1.47 more for products with one-dimensional labels. However, the difference between the no label condition and multidimensional label condition was not significant ( $t = -1.794, p = .150$ ), as well as the difference between one-dimensional label and multidimensional label ( $t = 1.457, p = .150$ ). Thus, our null hypothesis that the willingness to pay for highly sustainable food products with multidimensional labels does not differ from those with other labels fails to reject. Also, our second null hypothesis that the willingness to pay for highly sustainable food products with multidimensional labels does not differ from those with other labels fails to reject.

Despite failing to reject the null hypotheses, we conducted independent samples t-test between the one-dimensional label condition and the no label condition where a significant difference in the willingness to pay was observed. As shown in Table 6, the willingness to pay for Southwest Bowl (swb), French Fries (fri), and Classic Beef Burger (cbb) were significantly larger when presented with one-dimensional labels compared to no label ( $t_{97} = -3.808, p < .001$ ;  $t_{97} = -3.246, p < .001$ ;  $t_{97} = -2.129, p < .001$ ). However, for Classic Grilled Cheese the effect was not significant ( $t_{97} = -1.315, p = .096$ ). On average, participants' willingness to pay increased by \$2.67 for Southwest Bowl, \$0.81 for French Fries, and \$1.23 for Classic Beef Burger when presented with one-dimensional labels, compared to their willingness to pay when presented without labels. In any label condition, participants were willing to pay the most for Southwest Bowl, followed by Classic Beef Burger, Classic Grilled Cheese, and French Fries. The graphical reference of the comparison can be found on Graphic 1.

When comparing the current price<sup>1</sup> of the four food items at Open Kitchen with the one-dimensional label condition, participants were more willing to pay for both Southwest Bowl and Classic Beef Burger while less willing to pay for French Fries and Classic Grilled Cheese. On average, participants in the one-dimensional condition were willing to pay \$3.625 and \$1.441 more for Southwest Bowl and Classic Beef Burger respectively; and \$0.44 and \$1.163 less for French Fries and Classic Grilled Cheese respectively than the current prices.

### Discussion

We aimed to understand how multidimensional labels differ from one-dimensional labels in affecting consumer willingness to pay for sustainable food products. In line with previous literature, our findings showed that the type of label did significantly affect consumers' willingness to pay (Moon et al., 2002). However, we found that one-dimensional labels significantly increased consumers' willingness to pay whereas the no label or multidimensional condition did not significantly affect their willingness to pay. This finding was inconsistent with our hypothesis that multidimensional labels would increase consumers' willingness to pay the

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<sup>1</sup> Classic Beef Burger \$8.29, French Fries \$4.69, Classic Grilled Cheese \$7.99, Southwest Bowl \$8.99 (before tax).

most for sustainable food products as compared to no label or one-dimensional labels. Going further, our hypothesis that consumers would be least willing to pay for the least sustainable products when labelled with multidimensional labels as compared to one-dimensional or no labels was not supported. On one hand, it may be that our multidimensional eco-label design was ineffective at conveying the comprehensive and informative meaning we intended, as has been an issue with multidimensional labels (Kocsis & Kuslits, 2019). Alternatively, as our research suggests it may be that one-dimensional labels on food products are more effective than multidimensional and no labels at affecting consumers' willingness to pay.

Next, seeing that there was no significant difference between multidimensional and no labels, participants may have not understood or cared about the difference between multidimensional and one-dimensional eco-labels. This finding adds to the minimal literature on multidimensional eco-labels and suggests that the present study's multidimensional label was less effective in affecting consumers' willingness to pay as compared to the current one-dimensional labels. This may have been due to an information overload as has been a concern in the literature related to multidimensional labels.

The results on the effect of multidimensional labels on the willingness to pay do not conclude the invalidity of multidimensional labels as its theoretical benefits have been discussed extensively in previous literature (Torma & Thøgersen, 2021). A number of replications of the results would be needed to make a convincing conclusion. Rather, it suggests that despite many proposed potential benefits of multidimensional labels, it is difficult to implement them in practice. Meta-labels like multidimensional labels face challenges that reduce several effects such as meaning, saliency, credibility, specificity, and competition. More confusion, increased waterbed effect, and lock-in effect were also mentioned as possible drawbacks (Torma & Thøgersen, 2021). Although the constant endeavour to improve eco-labelling should be encouraged, all of the listed possible pitfalls must be considered when designing a new label.

There were several limitations in the present study, the first being the lack of generalizability of our findings. Since we used convenience sampling and only recruited UBC students, our results could only be applied to a very narrow population of undergraduate students. To address this limitation, future studies should recruit a more representative sample, such as having a larger sample size and more diverse participants that are not limited to UBC associates. By implementing these changes, there can be an increase in the generalizability of the study to a broader population.

The second limitation was that 10 participants failed the attention check. This amount is equivalent to 6.45% of our final sample size. We decided to include these participants since there is a larger possibility that they may have unintentionally missed the objective of the attention check question. Thus, we may have confounded data due to including these participants' responses in our final results. This limitation may have been caused because our attention check did not employ the normal attention check preface as seen on the HSP system.

Another limitation was the participants' limited understanding of the multidimensional label. Although we designed a simple label, our results suggest that our multidimensional label may not be effective or easily understandable. This study only explored one multidimensional eco-label design. Future research comparing a variety of differently designed multidimensional eco-labels to the current one-dimensional labels can be performed. Due to the current limitation of designing an effective multidimensional label, replication of this study with differently designed multidimensional labels might create different results. It is possible that one-

dimensional labels significantly increased participants' willingness to pay because of the ineffectiveness of our multidimensional label design.

This study was also limited by the lack of participants. There were not enough participants recruited as suggested by the power analysis. A sample of  $N = 252$  was needed but the final sample size was only  $N = 155$ . Having a small sample size can reduce the statistical power of the study and increase the margin of error. This may lead the study to become less meaningful and less conclusive. Therefore, future research should aim to meet the required number of participants or even beyond that.

Finally, this study can be replicated with a wider variety of sustainable food items. Considering the significant effect between types of food items and willingness to pay, and the highest willingness to pay for the most sustainable Southwest Bowl, a wider variety of sustainable food items can be explored to see if there is a similar pattern like this one which may increase business sustainability as a whole as well as their consumers' willingness to pay.

### **Recommendations for UBC Clients**

After finding that one-dimensional label was the only condition that led to a significant difference in willingness to pay, we suggest that UBC maintain their current one-dimensional labels. Given the current difficulty with producing effective multidimensional labels, we recommend our clients research different multidimensional label designs as our study only explored one multidimensional eco-label design. Varying designs may garner differing results.

Our results suggest that eco-labelling can increase the willingness to pay, regardless of food products or their impact on the environment. Unexpectedly, participants were willing to pay more for low sustainability food products, when labelled with one-dimensional labels. This suggests that there may be incentives for the producers to label not only the highly sustainable products but all of the products they offer. This will be beneficial to the consumers as they will be more educated on how their choices of food products affect the environment.

Our research found a significant effect between specific food types and participants' willingness to pay, with results concluding that participants were most willing to pay for the sustainable Southwest Bowl. Moreover, given the current price of Southwest Bowl in Open Kitchen, \$8.99, the mean amount each condition is willing to pay for the Southwest Bowl are all higher than \$8.99. None of the other three food items have similar results. Due to these findings, we suggest our clients to further explore a variety of sustainable foods to examine whether there are similar patterns in a preference of paying more for sustainable food options. This could essentially result in an overall increase in business sustainability if future results support a more sustainable pattern of willingness to pay for food items.

This study was important in progressing eco-label research while addressing the gap in understanding the effectiveness of multidimensional labels on consumers' willingness to pay. Further, our study aimed to compare our multidimensional eco-label to the current labels that are currently utilized by our clients. Such research has not previously existed in the UBC SEEDS program but was much needed to further explore which methods of eco-labelling are most effective in pushing sustainable consumer decisions. With studies like this one, we can find ways to increase sustainability campus-wide, and hopefully, become a leading institution in environmentally friendly food consumption.

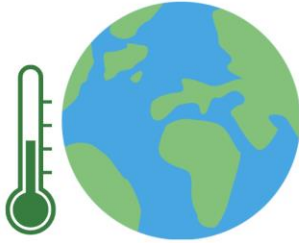


### References

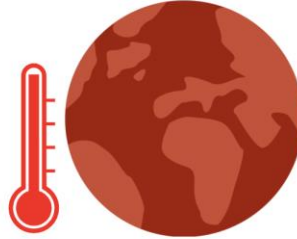
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## Appendix A

### Labels

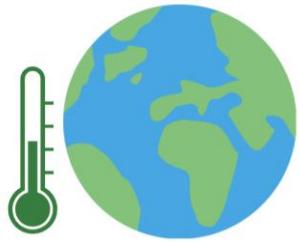


This label indicates that the dish has **low Carbon** footprint.

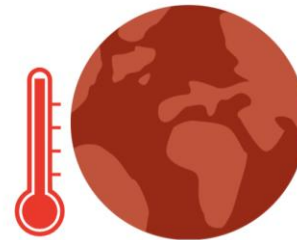


This label indicates that the dish has **high Carbon** footprint.

Figure A1. One-dimensional labels represent the rate of carbon emissions produced.



This label indicates that the dish has **low Carbon, Nitrogen, and Water** footprint.



This label indicates that the dish has **high Carbon, Nitrogen, and Water** footprint.

Figure A2. Multidimensional labels represent the rate of carbon, nitrogen, and water emissions produced.

**Appendix B**

**Qualtrics Survey**

**No label condition (control):**

**Description**

You will see four pictures of different food products.

Please indicate how much you would like to pay for each of the food products.

Southwest Bowl



How much would you pay for this product? (between \$0-\$50)

French Fries



How much would you pay for this product? (between \$0-\$50)

Classic Beef Burger



How much would you pay for this product? (between \$0-\$50)

Classic Grilled Cheese



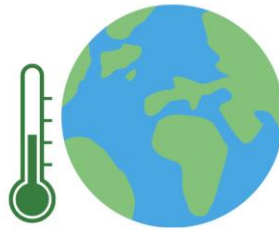
How much would you pay for this product? (between \$0-\$50)

**One-dimension label condition:****Description**

You will see four pictures of different food products.

Please indicate how much you would like to pay for each of the food products.

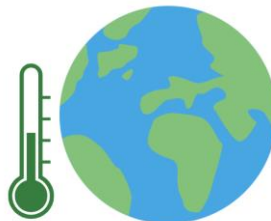
## Southwest Bowl



This label indicates that the dish has **low Carbon** footprint.

How much would you pay for this product? (between \$0-\$50)

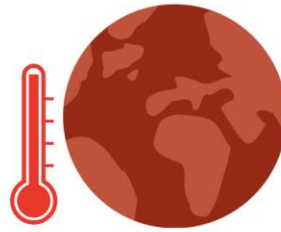
## French Fries



This label indicates that the dish has **low Carbon** footprint.

How much would you pay for this product? (between \$0-\$50)

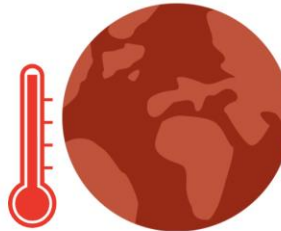
Classic Beef Burger



This label indicates that the dish has **high Carbon** footprint.

How much would you pay for this product? (between \$0-\$50)

Classic Grilled Cheese



This label indicates that the dish has **high Carbon** footprint.

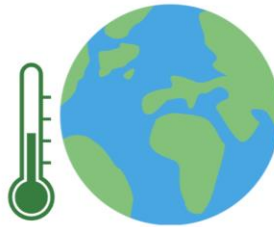
How much would you pay for this product? (between \$0-\$50)

**Multidimension label condition:****Description**

You will see four pictures of different food products.

Please indicate how much you would like to pay for each of the food products.

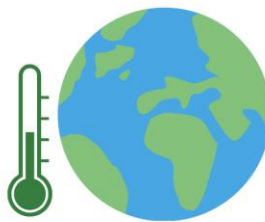
## Southwest Bowl



This label indicates that the dish has **low Carbon, Nitrogen, and Water** footprint.

How much would you pay for this product? (between \$0-\$50)

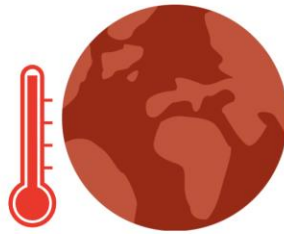
## French Fries



This label indicates that the dish has **low Carbon, Nitrogen, and Water** footprint.

How much would you pay for this product? (between \$0-\$50)

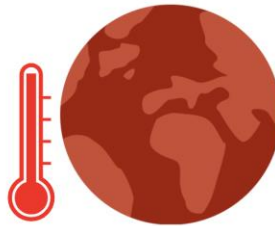
Classic Beef Burger



This label indicates that the dish has **high Carbon, Nitrogen, and Water** footprint.

How much would you pay for this product? (between \$0-\$50)

Classic Grilled Cheese



This label indicates that the dish has **high Carbon, Nitrogen, and Water** footprint.

How much would you pay for this product? (between \$0-\$50)

**Questions about dietary restrictions, sustainability awareness and demographics (all conditions):**



Now we will ask you questions regarding your eating preferences and habits.

Do you have any dietary restrictions?

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

How often do you look at the following food label information

	Never	Rarely	Sometimes	Most of the time	Always
Price	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ingredient list	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental impact	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organic status	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Portion information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Generally speaking, how stressed are you regarding climate change?

- Not stressed at all
- A negligible amount of stress
- A small amount of stress
- A manageable amount of stress
- A slightly stressful amount of stress
- A considerable amount of stress
- An overwhelming amount of stress

How familiar are you with the concept of sustainability?

- Not familiar at all
- Slightly familiar
- Moderately familiar
- Very familiar
- Extremely familiar

How important to you is the sustainability of the food you eat?

- Not at all important
- Slightly important
- Moderately important
- Very important
- Extremely important

When making food choices on campus, I consider the environmental impacts associated with the growth, transport, and preparation of that food.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Which of the following food would you consider sustainable? (Please choose Others and enter "sustainable")

- French Fries
- Classic Beef Burgers
- Southwest Bowl
- Classic Grilled Cheese
- Others (please specify)

What is your age (in years)? (Numbers only)

How do you describe yourself?

- Cisgender/Transgender Woman
- Cisgender/Transgender Man
- Non-binary
- Two-Spirit
- Prefer not to say

With which of the following do you identify? (Select all that apply)

- White
- Asian
- Indigenous peoples of North America
- Arab
- Latin, Central or South American
- Black
- Other

What is your best estimate of your total household income, before taxes and deductions, from all sources last year?

- Less than \$5000
- \$5,000 to less than \$10,000
- \$10,000 to less than \$15,000
- \$15,000 to less than \$20,000
- \$20,000 to less than \$25,000
- \$25,000 to less than \$30,000
- \$30,000 to less than \$40,000
- \$40,000 to less than \$50,000
- \$50,000 to less than \$60,000
- \$60,000 to less than \$70,000
- \$70,000 to less than \$80,000
- \$80,000 to less than \$90,000
- \$90,000 to less than \$100,000
- \$100,000 and over

## Appendix C

### Results

**Table 1**

Within Subjects Effects

Cases	Sum of Squares	df	Mean Square	F	p	$\eta_p^2$
Food	4588.421 <sup>a</sup>	3 <sup>a</sup>	1529.474 <sup>a</sup>	215.316 <sup>a</sup>	< .001 <sup>a</sup>	0.588
Food * treatment	68.037 <sup>a</sup>	6 <sup>a</sup>	11.339 <sup>a</sup>	1.596 <sup>a</sup>	0.146 <sup>a</sup>	0.021
Residuals	3217.832	453	7.103			

Note. Type III Sum of Squares

<sup>a</sup> Mauchly's test of sphericity indicates that the assumption of sphericity is violated ( $p < .05$ ).

**Table 2**

Between Subjects Effects

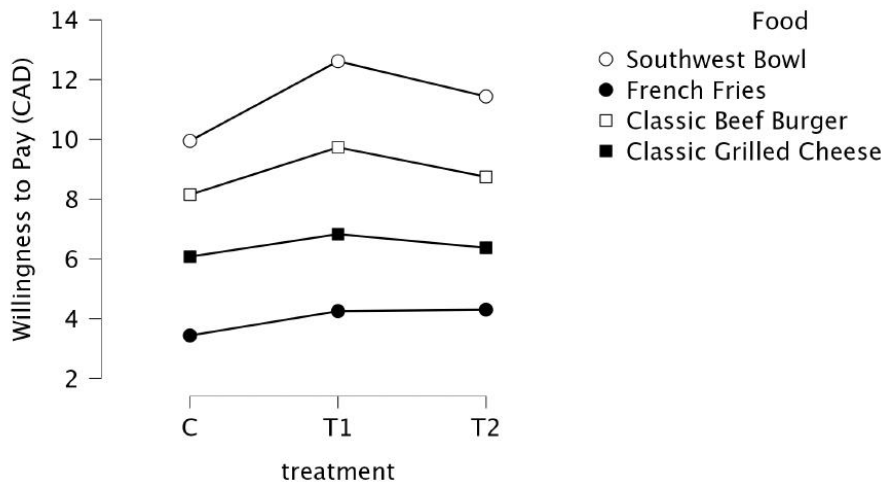
Cases	Sum of Squares	df	Mean Square	F	p	$\eta_p^2$
treatment	209.171	2	104.586	5.035	0.008	0.063
Residuals	3136.268	151	20.770			

Note. Type III Sum of Squares

**Table 3**

Food	treatment	Mean	SD	N
Southwest Bowl	C	9.947	2.947	47
	T1	12.615	3.902	52
	T2	11.436	4.406	55
French Fries	C	3.436	1.280	47
	T1	4.250	1.215	52
	T2	4.300	1.580	55
Classic Beef Burger	C	8.149	2.991	47
	T1	9.731	4.225	52
	T2	8.745	4.625	55
Classic Grilled Cheese	C	6.074	2.585	47
	T1	6.827	3.058	52
	T2	6.372	3.288	55

**Graphic 1**



**Table 4**

Post Hoc Comparisons – Food

		Mean Difference	SE	t	P <sub>Tukey</sub>	P <sub>holm</sub>
Southwest Bowl	French Fries	7.337	0.304	24.107	.	< .001
	Classic Beef Burger	2.458	0.304	8.075	.	< .001
	Classic Grilled Cheese	4.908	0.304	16.126	.	< .001
French Fries	Classic Beef Burger	-4.880	0.304	-16.031	.	< .001
	Classic Grilled Cheese	-2.429	0.304	-7.981	.	< .001
Classic Beef Burger	Classic Grilled Cheese	2.450	0.304	8.051	.	< .001

Note. P-value adjusted for comparing a family of 6

Note. Results are averaged over the levels of: treatment

Note. Tukey corrected p-values are not appropriate for repeated measures post-hoc tests (Maxwell, 1980; Field, 2012).

**Table 5**

Post Hoc Comparisons – treatment

		Mean Difference	SE	t	P <sub>Tukey</sub>	P <sub>holm</sub>
C	T1	-1.454	0.459	-3.171	0.005	0.006
	T2	-0.812	0.453	-1.794	0.175	0.150
T1	T2	0.642	0.441	1.457	0.314	0.150

Note. P-value adjusted for comparing a family of 3

Note. Results are averaged over the levels of: Food

**Table 6**

## Independent Samples T-Test

	t	df	p	Cohen's d
swb	-3.808	97	< .001	-0.766
fri	-3.246	97	< .001	-0.653
cbb	-2.129	97	0.018	-0.429
cgc	-1.315	97	0.096	-0.265

*Note.* For all tests, the alternative hypothesis specifies that group C is less than group T1.

*Note.* Student's t-test.

**Table 7**

## Group Descriptives

	Group	N	Mean	SD	SE
swb	C	47	9.947	2.947	0.430
	T1	52	12.615	3.902	0.541
fri	C	47	3.436	1.280	0.187
	T1	52	4.250	1.215	0.168
cbb	C	47	8.149	2.991	0.436
	T1	52	9.731	4.225	0.586
cgc	C	47	6.074	2.585	0.377
	T1	52	6.827	3.058	0.424

## Appendix D

### Contributions of Group Members

Proposal	All members participated in conducting a literature review, forming the research question and hypothesis, and writing the anticipated outcomes. Salma and Taylor wrote the Background Literature and Driving and Restraining Forces. Jong Yong, Sharon, and Lucia created the survey. Devina designed the labels.
Data collection	All members shared the survey on social media and with their contacts.
Data analysis	Jong Yong conducted data analysis with JASP.
Presentation	All members contributed to making the slide deck and presenting the corresponding slides that they made.
Final report	Salma and Taylor wrote the executive summary and introduction section. Lucia, Sharon, and Devina wrote the methods section. Jong Yong and Sharon wrote the results section. Sharon, Jong Yong, and Devina wrote the discussions section. Salma, Taylor, and Sharon wrote the client recommendations. Lucia and Sharon compiled the appendices. All members revised the final report together.