NULL HYPOTHESIS

Descriptive dish names do not influence food choice behavior

TOPIC OUTLINE

Data

EDA

ATE/CATE

Power Analysis

Business
Application

Limitations

Conclusion

DATA

233 rows × 16 columns
119 - control, 114 - treatment

- Age
- Gender (Male/Female)
- Hunger Level
- Question 1 – Starter Menu
- Question 2 – Salad Menu
- Question 3 – Soup Menu
- Question 4 – Sandwich
- Question 5 – Açaí Bowl
- Question 6 – Coffee
- Question 7 – Attention Check
- Question 8 – Pizza
- Question 9 – Pasta
- Question 10 – Noodles
- Question 11 – Dessert
- Treatment/Control

Survey

- Demographic – We did not focus on any particular demographic. This survey was provided worldwide

- Age Group – We had age groups ranging from as low as 18 to as high as 40+

- Gender – We had similar range for both Male and Female

- Hunger Level – We chose a covariate to understand how their hunger level affects their selection

Menu

Salads

KALE SALAD WITH CRANBERRIES

CAESAR SALAD

CLASSIC POTATO SALAD

SUN-KISSED VEGGIE PASTA SALAD

TOMATO COUSCOUS SALAD

RESTAURANT PROJECT

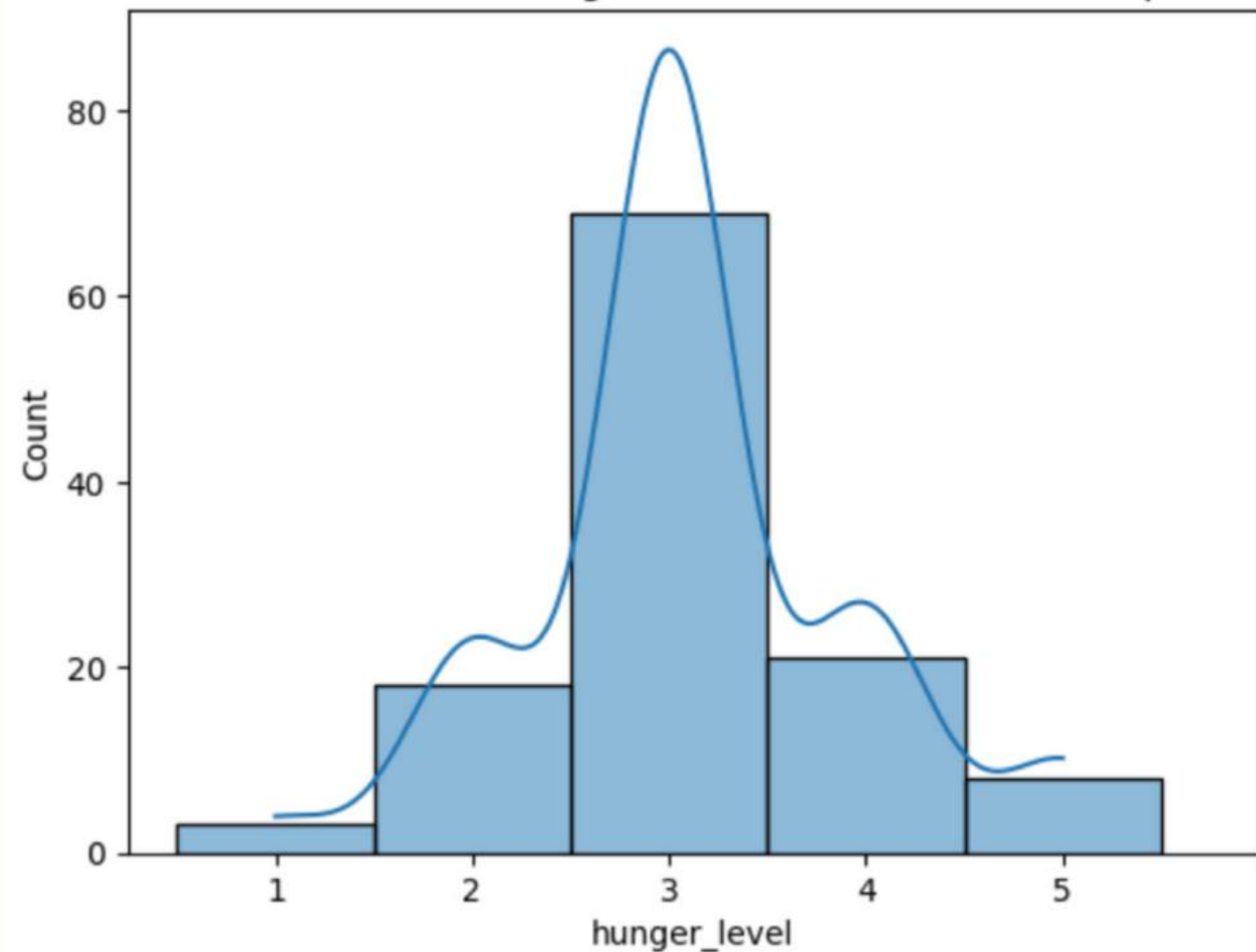# RANDOMIZATION CHECK

Z-statistic:

-0.775
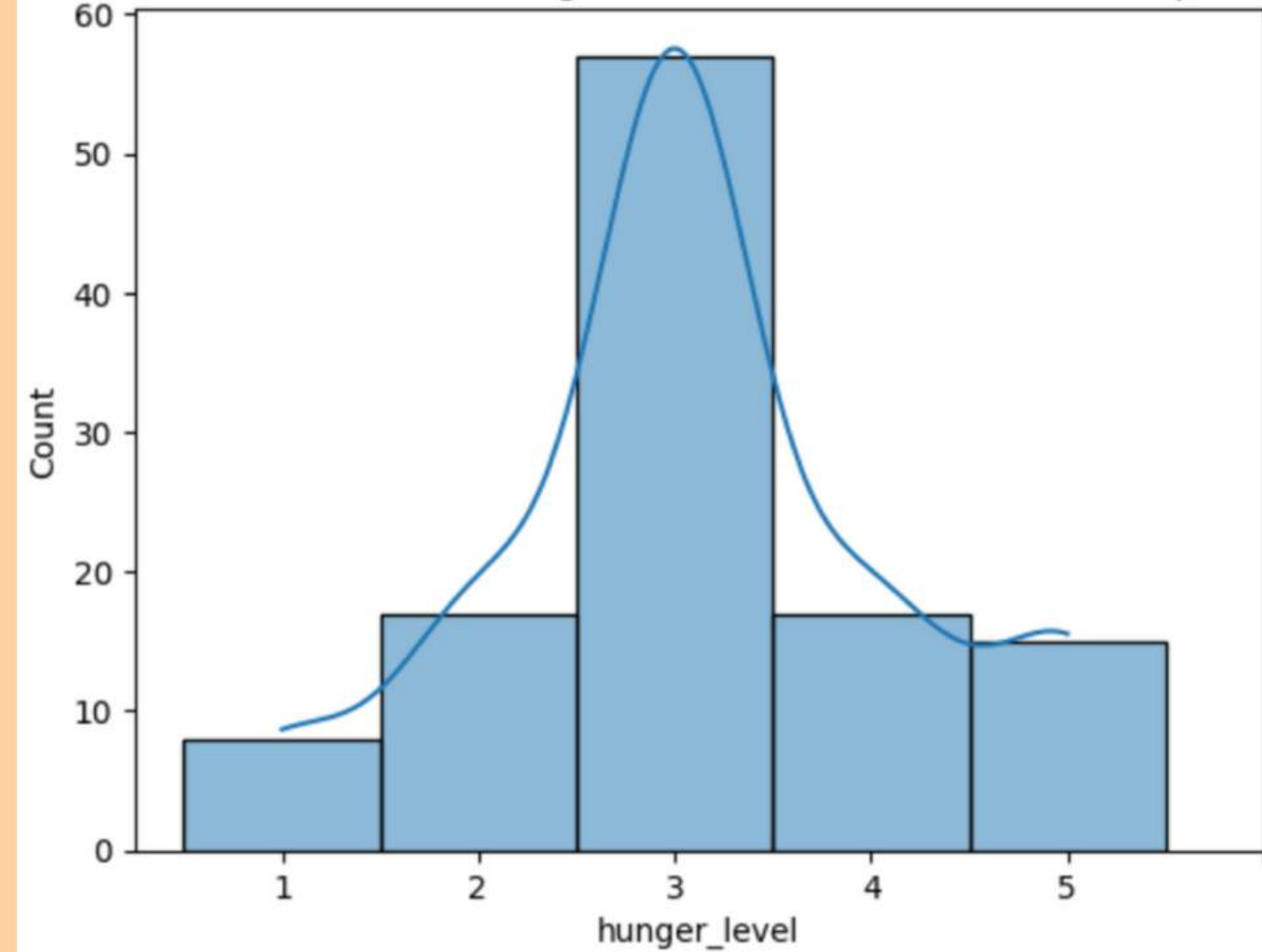
P-value:

0.4380

COVARIATE: HUNGER LEVEL

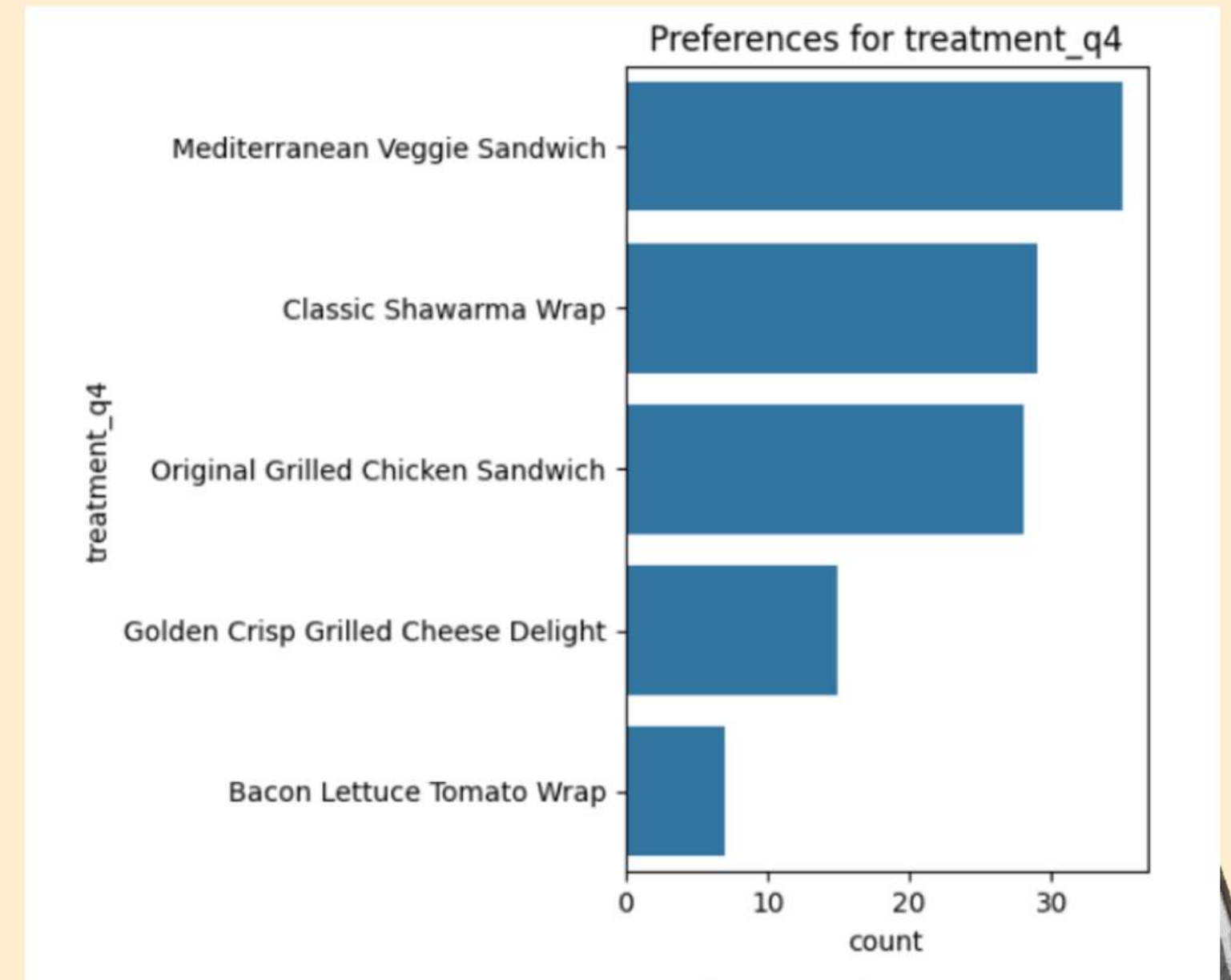Distribution of Hunger Level Across Control Group

Distribution of Hunger Level Across Treatment Group

Treatment v/s Control : survey example

Menu

Sandwiches/Wraps

CLASSIC SHAWARMA WRAP

GRILLED CHEESE

MEDITERRANEAN VEGGIE SANDWICH

BACON LETTUCE TOMATO WRAP

ORIGINAL GRILLED CHICKEN SANDWICH

RESTAURANT PROJECT

Menu

Sandwiches/Wraps

CLASSIC SHAWARMA WRAP

GOLDEN CRISP GRILLED CHEESE DELIGHT

MEDITERRANEAN VEGGIE SANDWICH

BACON LETTUCE TOMATO WRAP

ORIGINAL GRILLED CHICKEN SANDWICH

RESTAURANT PROJECT

TREATMENT V/S CONTROL : SURVEY EXAMPLE RESULTS
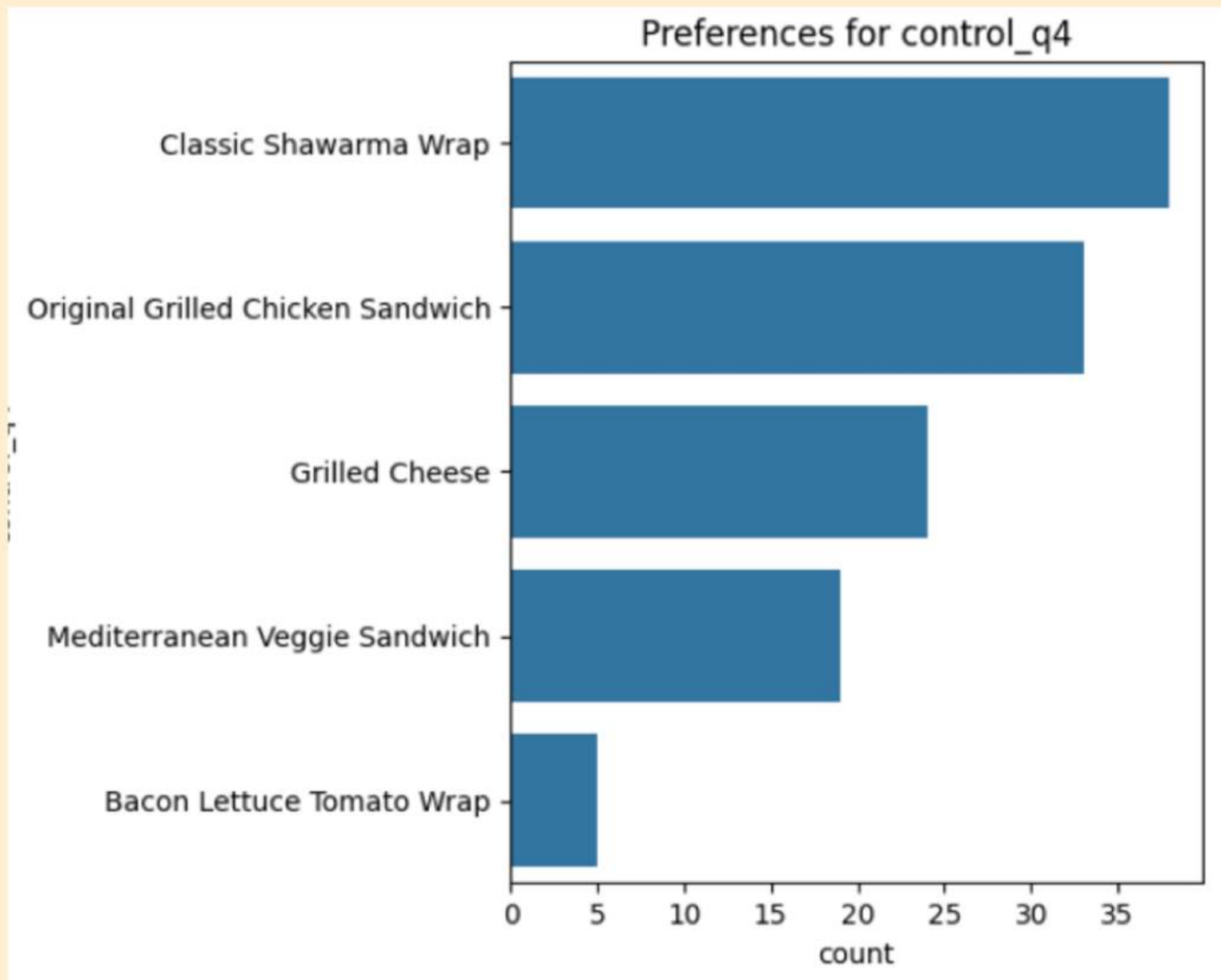
AVERAGE TREATMENT EFFECT

	Dependent variable: overall_score
	(1)
Intercept	0.264
	(0.240)
hunger_level[T.2]	0.234
	(0.295)
hunger_level[T.3]	0.180
	(0.241)
hunger_level[T.4]	0.405
	(0.360)
hunger_level[T.5]	0.310
	(0.321)
treatment	1.387***
	(0.150)
Observations	233
R^2	0.299
Adjusted R^2	0.283
Residual Std. Error	1.082 (df=227)
F Statistic	20.526*** (df=5; 227)
Note:	*p<0.1; **p<0.05; ***p<0.01

AVERAGE TREATMENT EFFECT

- Looking at the control group, where the descriptive names were absent people would have chosen the right dishes 0.5 /10 times.

- In the treatment Group when people were exposed to the descriptive names, they would choose that dish (1.381+0.496) 1.877/10 times.

	Dependent variable: overall_score
	(1)
Intercept	0.496***
	(0.099)
treatment	1.381***
	(0.141)
Observations	233
R^2	0.293
Adjusted R^2	0.290
Residual Std. Error	1.077 (df=231)
F Statistic	95.755*** (df=1; 231)
Note:	*$p<0.1$; **$p<0.05$; ***$p<0.01$

Conditional Average Treatment Effect

Condition: Age Group 18-23

- Looking at the control group, where the descriptive names were absent people would have chosen the right dishes 0.566 /10 times.

- In the treatment Group when people were exposed to the descriptive names, they would choose that dish (1.115+0.566) 1.681/10 of the times

	Dependent variable: overall_score
	(1)
Intercept	0.566^{***}
	(0.122)
treatment	1.115^{***}
	(0.178)
Observations	100
R^2	0.286
Adjusted R^2	0.279
Residual Std. Error	0.888 (df=98)
F Statistic	39.283^{***} (df=1; 98)
Note:	$^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

Conditional Average Treatment Effect

Condition: Age Group 24 and above

- Looking at the control group, where the descriptive names were absent people would have chosen the right dishes 0.43 /10 times.

- In the treatment Group when people were exposed to the descriptive names, they would choose that dish (1.576+0.439) 2.015/10 of the times

	Dependent variable: overall_score
	(1)
Intercept	0.439***
	(0.147)
treatment	1.576***
	(0.207)
Observations	133
R^2	0.306
Adjusted R^2	0.301
Residual Std. Error	1.196 (df=131)
F Statistic	57.741*** (df=1; 131)
Note:	*p<0.1; **p<0.05; ***p<0.01

Power Analysis

Ex-Ante to find an effect size of 0.5:

power = 0.8

effect size = 0.5

alpha= 0.05

n = 63.7656

Ex-post Power analysis:

cohen's d: 1.0795

power: 1

BUSINESS APPLICATIONS

Menu Promotion
Marketing campaigns highlighting dishes with enticing descriptive names to attract customers.

Menu Expansion
Introducing new items with descriptive names can educate customers about the product and encourage them to try it.

Brand Differentiation
Stand out from competitors by using creative names to establish a unique restaurant identity.

Seasonal Specials
Offer limited-time menu items with catchy names for seasonal events. eg. Tropical sunset smoothie bowl during the summers.

LIMITATIONS

Situational Factors
External factors such as time constraints or social influences could impact participants' decision-making during the experiment.

Time Constraint
Improved sample size and focusing on the different consumer backgrounds.

Measurement Variables
Including more variables like pricing, portion size, visual representation of the dish.

Attention-Check
Including other attention-check methods to evaluate the effectiveness of the survey.
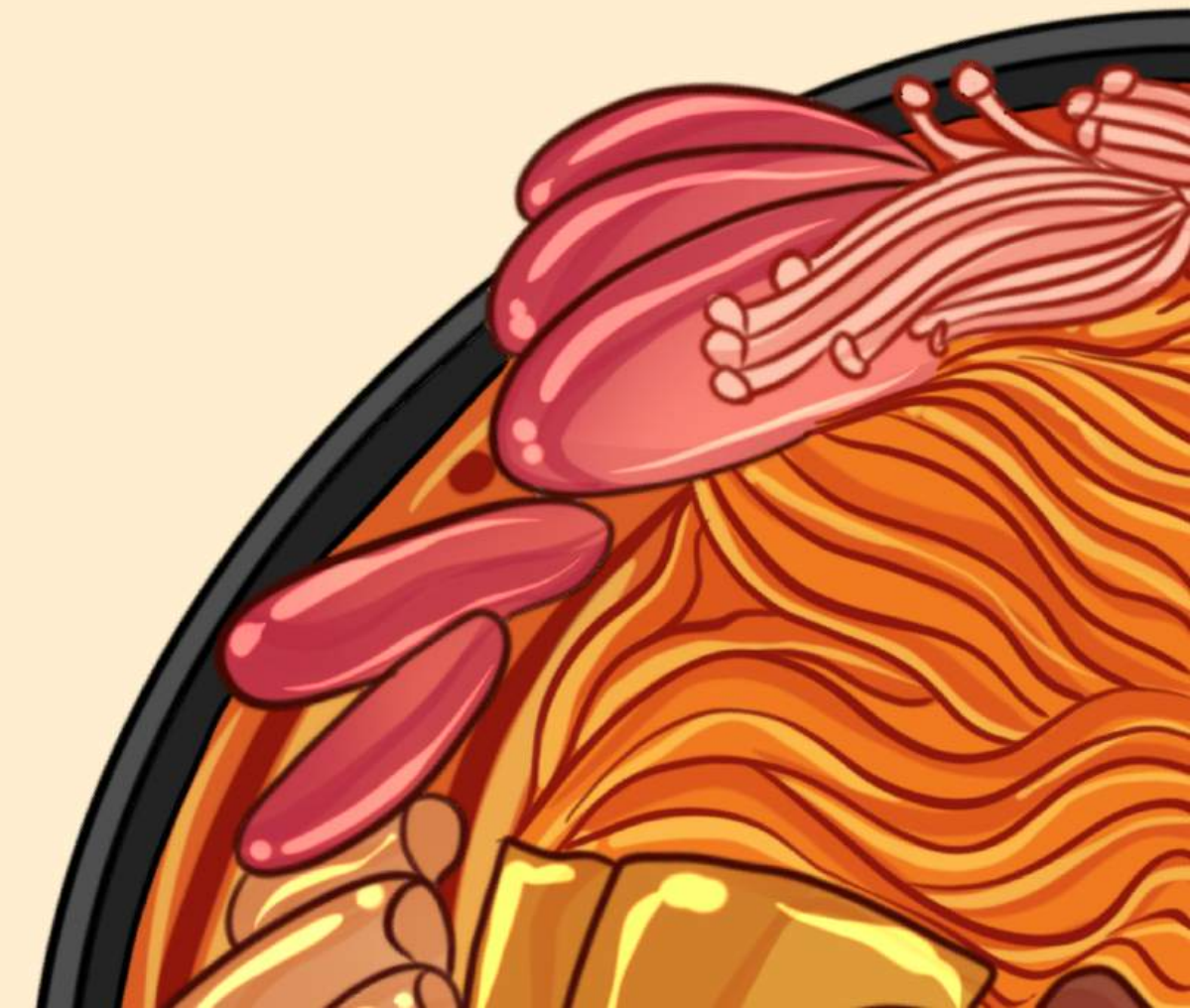
CONCLUSION

Reject our null hypothesis:
Descriptive dish names do not
influence food choice behavior.

**Incorporating limitations and
different covariates.**