

COVID-19: Impact on Food Purchasing and Eating Behaviors

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Abstract

In the current society, people make choices to adapt to the technological advancement and social changes happening around the globe. Over the past year, the global pandemic impacted society through different ways and forced people to make changes in their lives, specifically, their consumer spending behaviors. However, the pandemic had different degrees of impact around the globe. In China, cities went under lockdown and strict regulations were enforced throughout the country. In America, different states had different rules and the regulations were less strict in general than China. This research will be conducting an exploratory survey collecting data to find out whether there are differences in consumer behavior regarding food purchasing choices and eating habits as a result of the COVID-19 between the population in China and America. The paper will be using chi-square tests in R studio to calculate the p-value to evaluate whether it is statistically significant between the data collected from the two populations. The research presents 8 figures each showing an aspect of either food purchasing or eating habits. 2 out of the 8 figures show the two populations have statistical significance differences. The purpose of this study is to begin exploring the changes of consumer behavior happening in both China and America and gaining insight of what kind of marketing and changes needed to be made in business models to adapt to the new norm.

Keywords

Consumer Behavior, food purchasing, eating habits, Chi-Square Test.

1. Introduction

The global pandemic has affected every person in the world and their daily lives. It forced people to social distance and stay in their homes for months to avoid getting the virus. This made a huge impact on people's lifestyles, specifically how they spend their money to purchase. When the pandemic first surfaced in Wuhan, China earlier last year, it had an immediate effect on people's life and the whole city went under lockdown. People were not allowed to continue their daily lives and go to shopping malls, wet markets, or any public facilities. Although the restrictions have loosened up as the virus comes under control, things were not the same anymore for everyone. People have to wear masks and practice social distancing. Similarly, in America, the same thing was happening. The unemployment rate skyrocketed and people had to find a way to coexist with the virus through social distancing. Compared to China, people were given more freedom to choose their individual actions in the State. With the power of choice, people have to make decisions and on which aspects of life, they want to invest their money and time on. A study done back in 2015 showed that participants are willing to invest money and time in for their lifestyle behavior changes.[1] The pandemic presented an opportunity to put this into the test. Moreover, the introduction of how cognition and consumer choices are related provides the information to test out the relations during this special circumstance .[2] The research regarding the eating habits of college students displays another idea that focuses on the side of food purchasing and eating habits of consumer behavior.[3] Connecting all these aspects, the survey includes various questions exploring the cognitive theories through consumer choices with the environment during this period of time.

2. Methods

The experiment was conducted using two online survey platforms: Google forms and wenjuanxin to collect response data from both participants in both the United States America and China. The survey included a total of 12 questions(4 of which were demographics). There were a total of 101 responses. The participants volunteered for the study and were between the ages below 18 all the way to over 55. The age categories were: 1) under 18, 2) 18-25, 3) 26-35, 4) 36-45, 5) 46-55,55+. The participants were recruited through the author’s personal social media network and via referrals. In addition to reporting their age, the participants were asked to report on their gender(Male or female), the location where they live(China or United States), and their educational background(High School, College, Non-College). The survey questions consist of choosing single choices and multiple choices such as the ranking questions and selecting all that apply. The survey questionnaire was referenced using a survey conducted by the International food information council.[4] The study goal of the survey was to ultimately find whether the people in China and America make statistically significant decisions in food purchasing or eating choices. The study will be using R studio and excel to organize the data and find out the p-value which demonstrates whether the two sets of data are statistically significant or not. Choices were eliminated from each question if they had a response number less than 4 because that would skew the accuracy of the chi-square test. Therefore, each question below used part of the result that was collected from all 101 participants.

3. Results

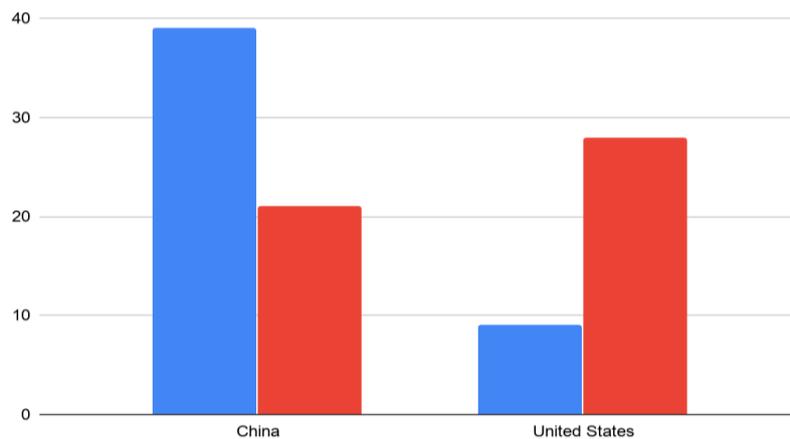


Figure 1. The responses for the question: As a result of COVID-19, what steps are you taking to feel comfortable with the safety of your food when you shop for groceries?

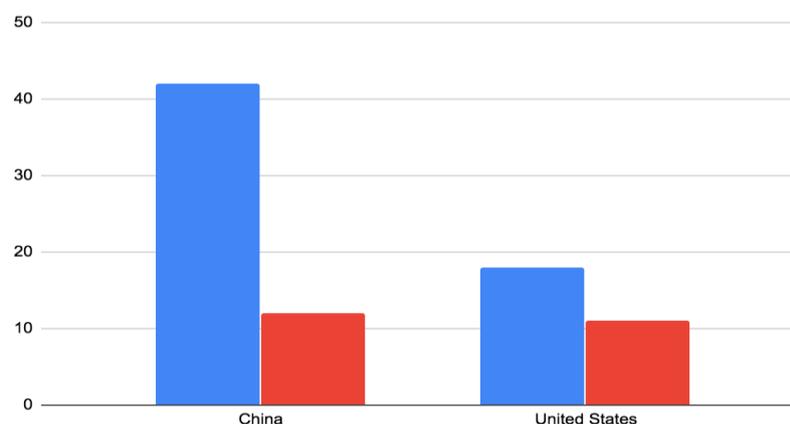


Figure 2. The responses for the question: Over the past few months, what about food shopping has concerned you the most?

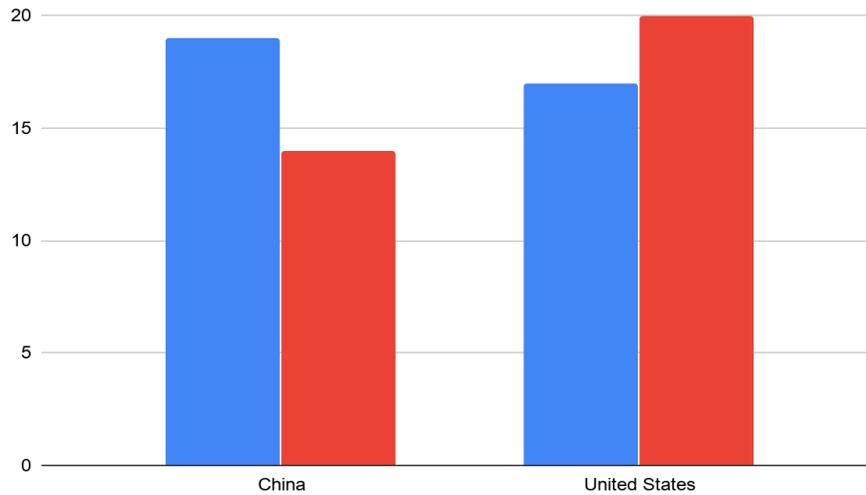


Figure 3. The responses for the question: As a result of COVID-19, which of these actions would you like to know that grocery store employees are taking to ensure the safety of your food?

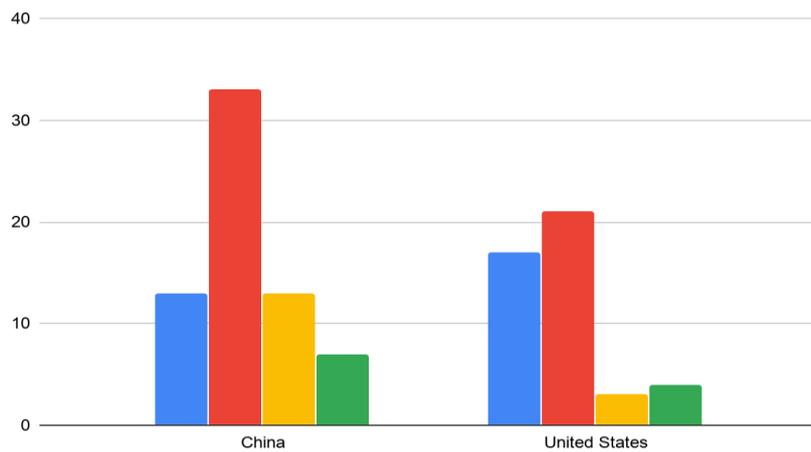


Figure 4. The responses for the question: Do you believe the food you are buying is safe to consume?

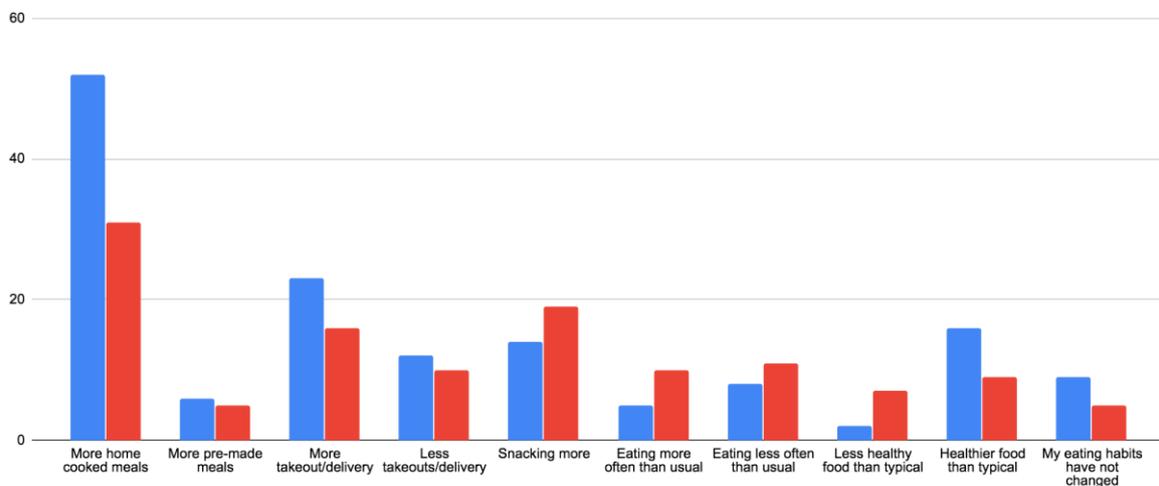


Figure 5. The responses for the question: How have your eating habits changed over the past few months as a result of COVID-19? (Select all that apply)

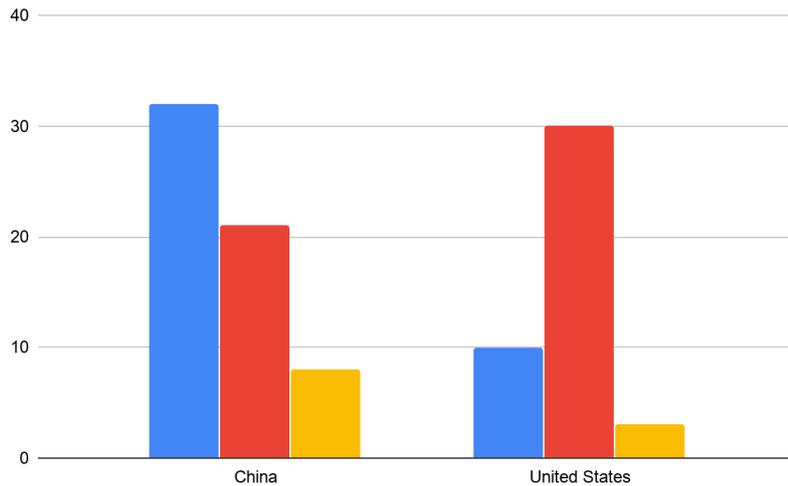


Figure 6. The responses for the question: Over the past few months, has the amount of packaged foods you are buying changed?

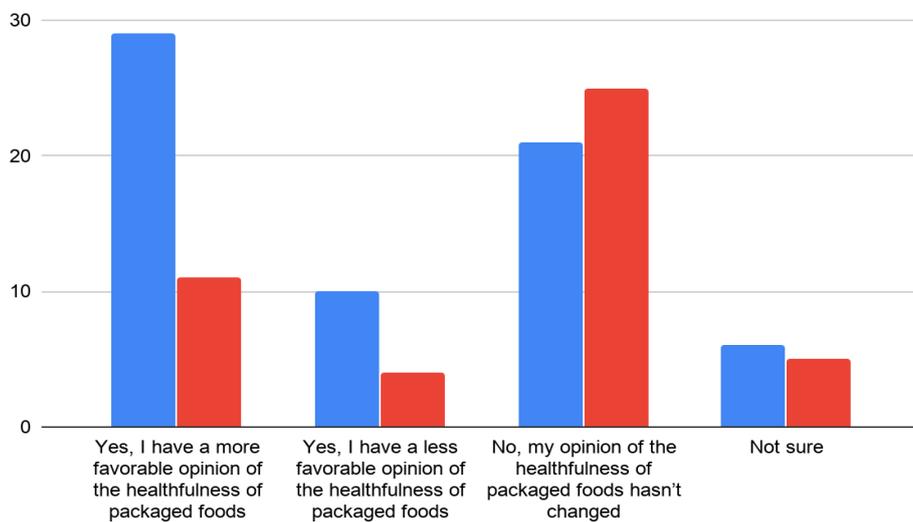


Figure 7. The responses for the question: Over the past few months, has your opinion about the healthfulness of packaged foods changed?

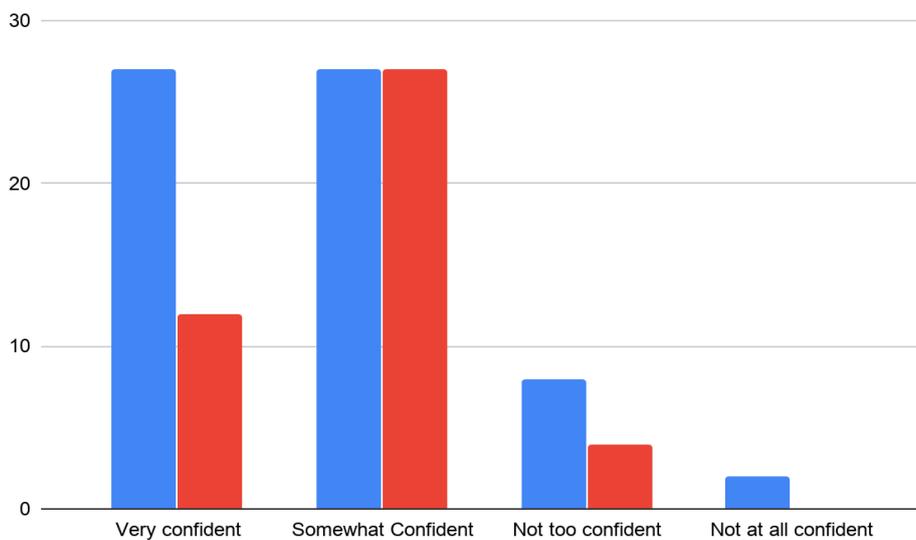


Figure 8. The responses for the question: In thinking about the month ahead, how confident are you in the ability of food manufacturers to supply enough food to meet the needs of consumers?

4. Discussion

In Figure 1, the blue bar represents the choice "Online grocery shopping" and the red bar represents the choice "Washing hands/Using wipes/sanitizer. Minimize touching surfaces." There are a total of 61 responses from China and 37 responses from the United States. This data set has a p-value of 0.0002305, which shows the two populations are statistically significant. In Figure 2, the blue bar represents the choice "Health of other shoppers" and the red bar represents the choice "Health of grocery store employees." There are a total of 54 responses from China and 29 responses from the United States. The data has a p-value of 0.205, which shows the two populations are not statistically significant. In Figure 3, the blue bar represents the choice "Frequently wiping down commonly touched surfaces" and the red bar represents the choice "Wearing masks while working." There are a total of 33 responses from China and 37 responses from the United States. The data has a p-value = 0.464, which shows the two populations are not statistically significant. In Figure 4, the blue bar represents the choice "Yes, I am very confident that the food I am buying is safe to consume," the red bar represents the choice "Yes, I am somewhat confident that the food I am buying is safe to consume," the yellow bar represents the choice "No, I am not that confident that the food I am buying is safe to consume," the green graph represents "Not sure." There are a total of 66 responses from China and 45 responses from the United States. The data has a p-value of 0.08853, which shows the two populations are not statistically significant. As shown in Figure 5 the blue graph represents responses from China and the red graph represents responses from the United States. There are a total of 147 responses from China and 123 responses from the United States. The p-value for this set of data is 0.1375, which shows the two populations are not statistically significant. In Figure 6, the blue bar represents the choice "Yes, I have purchased more packaged foods than I usually do," the red bar represents the choice "No, the amount of packaged foods I purchase has not changed" and the yellow bar represents the choice "Not sure." There are a total of 61 responses from China and 43 responses from the United States. This set of data has a p-value of 0.001793, which shows the two populations are statistically significant. For Figure 7 and 8, the blue graph represents responses from China and the red graph represents responses from the United States. There are a total of 132 responses from China and 90 responses from the United States for Figure 7 and it has a p-value of 0.06013, which shows the two populations are not statistically significant. For figure 8, there are a total of 64 responses from China and 43 responses from the United States. Figure 8 has a p-value of 0.159, which shows the two populations are not statistically significant.

5. Conclusion

The figures each showed whether there is a significant statistical difference between China and the States through different questions. Figure 1-4 are questions regarding food purchasing habits. Among the first four questions, only Figure 1 shows there is a statistical difference based on the p-value. This shows that people in China and America choose differently between the choice of online grocery shopping and washing hand/sanitizer for question 1. Figure 5-8 are questions regarding eating habits and whether a difference between the two populations in this aspect of consumer behavior. Figure 6 is the only one that shows there is a statistical difference based on the p-value. This shows that there is a difference in people's responses regarding the amount of packaged food they are buying for question 6. All the other Figures show there is not any statistical difference according to the chi-square test.

6. Limitations

The main limitation for this study was only having 101 responses. This number of responses is not enough for this survey since many questions are asking the participants to select more than one answer. As a result, for each question all the answers are spread out over the different choices and some choices have less than 4 responses. This disproves the significance of chi square tests on the entire data because having a choice that has less than 4 answers will skew the accuracy of the test. Therefore, choices and responses within each question were selected in order to perform a proper chi square test. In conclusion, the eight figures above each represents only part of the entire data being collected. Although the results illustrate the significant difference for each question among the two populations, it is using a representative sample of the entire raw data. The second limitation is in the design of the questions. There are several questions that require participants to select "all that apply." Some participants were choosing one or two choices while others were choosing almost all choices, this led to an unequal distribution among data points and it skewed the accuracy to do any test on the data.

7. Future Directions

Similar exploratory data will need to follow the referenced survey[4] and collect more data from more participants. Moreover, in the future, the questions need to be all targeting a specific part of an aspect of consumer behavior. Having questions asking about food purchasing and eating behavior is not in depth enough to get a more analytical result of the population's consumer behavior. In addition, when designing the questionnaire, there should be more considerations into using different analytical tests or methods to analyze the data in order to make the explanation more diverse. For real life implementation, future surveys could attain a general knowledge of where the targeted population's understanding of food nutrition is at and implement specific marketing strategies to help consumers to make informed decisions.[5] Especially since there is no clear answer to when the pandemic will end, data collected from similar surveys could benefit companies to accommodate or lead changes in people's consumer behaviors across the globe.

References

- [1] Alayli-Goebbels AF;van Exel J;Ament AJ;de Vries NK;Bot SD;Severens JL;. (n.d.). Consumer willingness to invest money and time for benefits of lifestyle behaviour change: An application of the contingent valuation method. <https://pubmed.ncbi.nlm.nih.gov/25135005/>
- [2] EJ;, B. (n.d.). Connecting cognition and consumer choice. <https://pubmed.ncbi.nlm.nih.gov/25527275/>
- [3] Sogari, G., Velez-Argumedo, C., Gómez, M., & Mora, C. (2018, November 23). College Students and Eating Habits: A Study Using An Ecological Model for Healthy Behavior. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6315356/>
- [4] International Food Information Council. (2020) COVID-19: Impact On Food purchasing, Eating Behaviors, and Perceptions Of Food Safety. <https://foodinsight.org/wp-content/uploads/2020/04/COVID-19-Consumer-Research.April2020.pdf>
- [5] Perez-Cueto, F. (2019, October 7). An Umbrella Review of Systematic Reviews on Food Choice and Nutrition Published between 2017 and-2019. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6836087/>