

**Statistics in the Community Report  
on  
Compassionate Action for Animals'  
Twin Cities Veg Fest**

by  
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## **Goal**

The goal of this study is to investigate whether the Twin Cities Veg Fest changed eating or advocacy behavior of people who attended. It also focused on probing into differences based on gender, age, and diet classification into three broad categories of vegans (no animal products), vegetarians (eggs and dairy only), and omnivores.

## **Findings**

Using the most appropriate statistical tools for this type of data, Statistics in Community (Statcom) found:

1. Respondents who saw a speaker presentation were slightly inclined to move toward vegetarianism between the first and second survey.
2. Respondents who saw video were inclined to move away from veganism between the first and second survey.
3. We did not find evidence for an overall shift in eating behavior.

In addition to the primary goal, we have detailed several associations and insights into the data which can be found in the analysis and appendix of the report.

## **Background and Methodology**

Twin Cities Veg Fest is an annual festival that Compassionate Action for Animals (CAA) organizes. For the 2014 Twin Cities Veg Fest, CAA partnered with Statcom to conduct a study to understand the effects of the festival. The study was based on two surveys conducted after Twin Cities Veg Fest. Respondents were engaged at the festival by random selection and offered a coupon for a free Chipotle meal in exchange for taking two email surveys after the festival. Those who agreed to participate gave their email address and were promised the coupon once the second survey had been completed.

Survey 1 was conducted a few days after the festival and received 587 responses. The survey assessed the action that was taken on behalf of animals and asked respondents to make their answers representative of their habits before the festival. The survey looked at 5 categories of food consumption:

1. Beef, pork, and lamb
2. Chicken and turkey
3. Fish and seafood
4. Eggs
5. Dairy

Each respondent was asked to select categories that best described how often they ate each type of food:

- Never
- Less than 1 time per week
- 1-6 times per week
- 1-3 times per day
- 4 or more times per day

In addition to looking at diet, the survey asked about their willingness to donate, volunteer, or share information for farmed animal advocacy. The survey also gathered information on which festival activities the attendees participated in to see if there might be a connection between their festival experience and any changes in their behavior.

Six weeks after the festival, 508 people responded to the second survey, which asked the same questions as survey 1, but asking respondents to answer representative of their current habits. It also asked about the most memorable activities of the festival and if participants volunteered, donated, or shared information relating to farmed animal advocacy in the intervening six weeks.

The goal of the two-survey approach was to estimate attendees' behavior before and after the festival and to see if any changes could be attributed to activities at the festival. Information about which events are associated with the most change will aid CAA planning future festivals.

## **Analysis**

Statcom performed two statistical analyses on the Twin Cities Veg Fest data. The first analysis did not fully answer the main questions. The shortcoming of the first analysis is that it was too focused. The second analysis (this report) takes a broader look at the data and answers the main questions of interest. The results of the second analysis are more general and supported by better evidence, allowing us to disregard the results of the first analysis.

To get the more general result of the second analysis, we examined the full data set to identify patterns and associations amongst all of the respondents. To properly

investigate the data, Statcom used several statistical methods<sup>1</sup> to detect patterns and correlations. These methods are able to see trends that cannot be displayed in a graph.

Result (1): When looking at what events are associated with vegetarianism, we found slight<sup>2</sup> evidence that the speaker presentations made a difference. More specifically, respondents who saw a presentation were between 1 (no change) and 5 times more likely to change their diet toward vegetarianism<sup>3</sup>. The same statistical method also showed that cooking demos, watching a video, sampling food, and reading a pamphlet had no effect on the respondent's likelihood to switch their diet. Meaning, these events could increase, decrease, or not affect the respondent's shift toward vegetarianism.

Result (2): We then looked at the respondent's tendency to shift their diet toward or away from veganism. We found evidence that respondents who watched a video were more likely to change their diet away from veganism from the first survey to the second. On average, respondents were up to 3 times more likely to shift away from veganism at the time of the second survey<sup>4</sup>.

Result (3): Despite the trends detected in results (1) and (2), we did not find that overall dietary characteristics changed between the two surveys<sup>5</sup>. This result was found by comparing the net number of total categories of change the respondents reported in the two surveys.

To supplement the statistical analysis, we also utilized graphical techniques to investigate other associations and facts that may be of interest. One finding that drew our attention was consumption of a particular food. The number of people who decreased their consumption was about the same as the number who increased their consumption. This is shown in figure 1.

Understanding Figure 1: In figure 1 you'll see 5 graphs that show the relationship of how people changed their diets for each type of food. To illustrate how to read Figure 1, let's draw attention to the first graph (Beef, Pork, and Lamb). On the horizontal axis you'll see the numbers "-2, -1, 0, 1, 2". These numbers are how many categories of change

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<sup>1</sup> Linear Regression Models, Generalized Linear Models, Ordinal Multinomial logit Models and Nonparametric Tests. The latter two models were found to be not helpful. The technical details of the used methods can be found in the Appendix

<sup>2</sup> P-value = 0.0544

<sup>3</sup> The range from 1 to 5 is the 95% confidence interval for the coefficient of a speaker presentation in the logistic regression with dependent variable:

$\log(\text{Prob}(\text{person changes toward vegetarianism}) / \text{Prob}(\text{person change away from vegetarianism}))$

<sup>4</sup> Adjusting the model from result 1 to be for a vegan diet, we found the confidence interval to be 1.07 to 2.91 times more likely to shift away from veganism

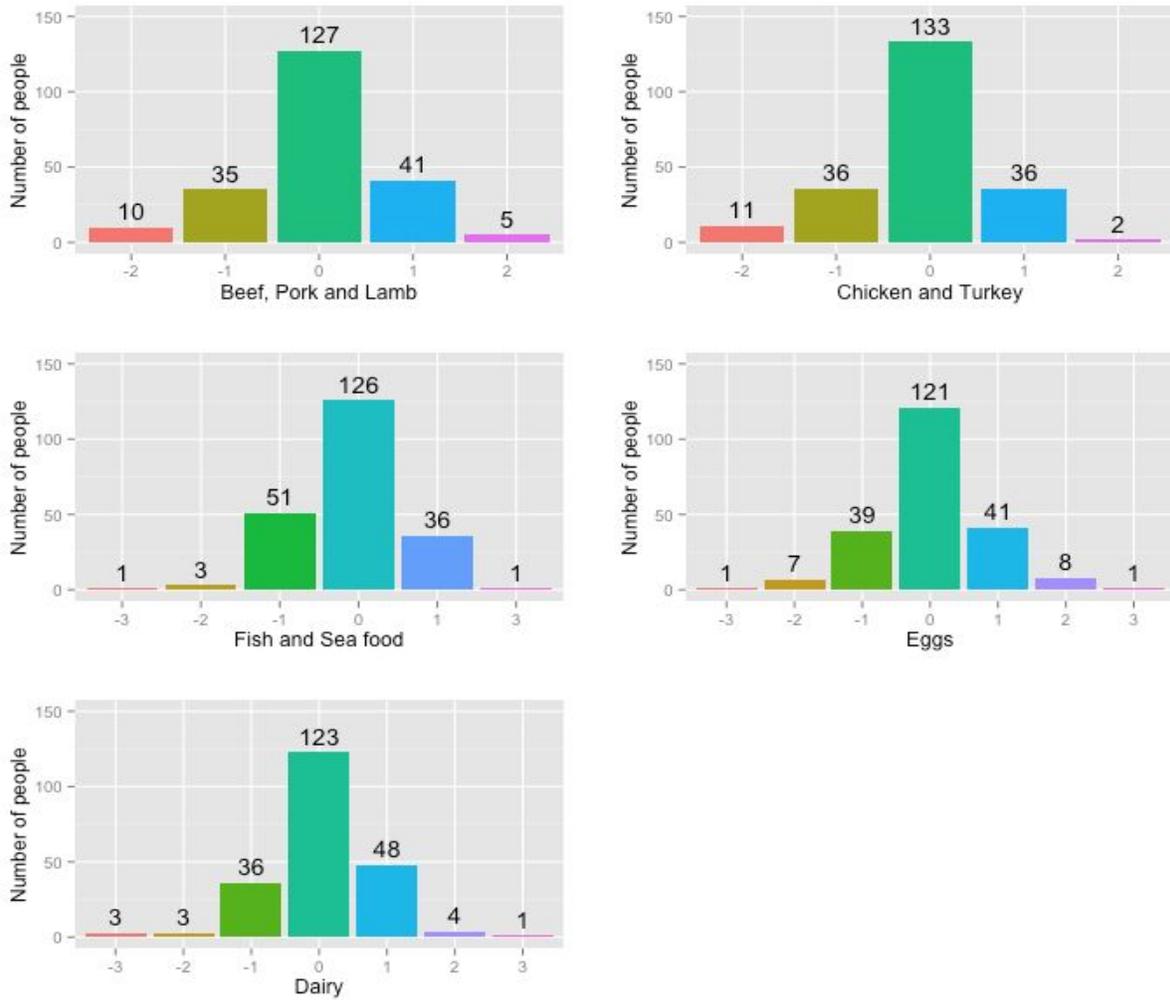
<sup>5</sup> P-value > 0.1771

there were between answers on the two surveys for each respondent. Draw your attention to “-2”, just above it we see there is a short bar with a 10 over it. This is saying there were 10 people who reduced their consumption of Beef, Pork, and Lamb by 2 categories. For example, someone went down two categories from “1-3 times per day” to “less than 1 time per week”. In a similar fashion, we see 35 people are captured by the “-1” bar, meaning they decreased consumption by one category. There are 127 people in the “0” bar meaning, 127 people did not change their consumption of Beef, Pork, and Lamb. Conversely, there are 41 people captured in the “1” bar meaning that these people increased eating this food by one category and the people in bar “2” increased by 2 categories. The other graphs are read the same way but are for the other foods in the survey.

The main takeaway from Figure 1 is that in all foods about as many people increased their consumption as decreased. On the surface, this would lead someone to think the festival had no effect. However, there were nuanced patterns of increases and/or decreases with respect to events at the conference which were captured in results (1) and (2). Notwithstanding, these graphs still have value and warrant attention.

Figure 1

How many people change their dietary habits, how and by what amount?



The next visual we found fruitful was Table 1. This table lists the number of people who moved from one diet to another. The big numbers in the diagonal cells suggest that a majority of people did not change their diet.

Table 1: Change of the Diet Classification Before and After the Festival

		Survey2		
Survey 1		Omnivore	Vegetarian	Vegan
	Omnivore	212 (89.8%)	21 (8.8%)	5 (2%)
	Vegetarian	6 (4.4%)	128 (93.4%)	3 (2.2%)
	Vegan	6 (4.6%)	16 (12.3%)	108 (83.1%)

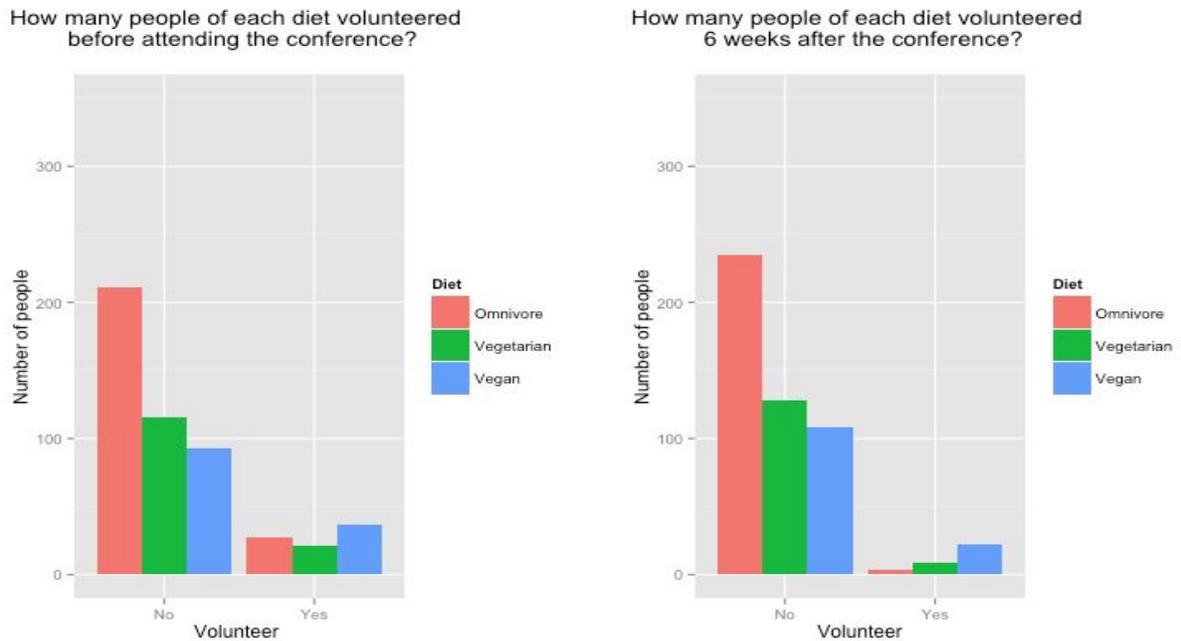
Understanding Table 1: The table shows how people changed their overall eating habits. The cell containing the number 212 corresponds to people who were omnivore in survey 1 and remained omnivores in survey 2. Said as a percentage, 89.8% of omnivores in the first survey still reported omnivore in the second survey. In the next cell, we see that 21 omnivores turned vegetarian, or 8.8% of omnivores reported a diet that was vegetarian in survey 2. In the next row down we see that 6 people switch from vegetarian to omnivore, 128 stayed vegetarian, 3 switched to vegan. In the last row we see 6 vegans switched to omnivore, 16 switched to vegetarian, and 108 stayed the same.

Further associations and facts found in the data:

1) Of all respondents, females made up 73%, with 369 women responding compared to 136 men. Interestingly, 238 omnivores attended the event compared to 137 vegetarians and 130 vegans (Figure 2-3 Appendix).

2) The number of people who volunteered, donated or shared information decreased in the 6 weeks after the festival compared to before the festival (Figure 2 below, Figures 4-9 Appendix). At first glance this seems like bad news, however, 6 weeks is a very short period for people to participate in these activities as compared to their whole lifetime before attending the festival. So, while there was an overall decrease in these activities, the rate at which they occur may have increased or stayed the same in the six weeks between the surveys. However, we are unable to determine this without further data.

Figure 2



3) We found it useful to see the changes in consumption of food categories individually (Figures 14-20 appendix). In all five food categories, we saw more people answer “Never” on the second survey than the first. While this is a positive result, we should hesitate to conclude the festival was successful in changing eating behavior overall. In several of these figures we also saw a corresponding increase in categories of higher consumption too.

4) Another view we found informative was of how many events people attended (Figure 10 Appendix) and the arrival time of those people (Figure 11 appendix). An interesting observation here is that of the respondees, there was a surge of vegan women who arrived the first hour. In contrast, men came in almost equal numbers throughout the day. We suspect this is due to the self-selective nature of the survey.

5) By far, most people attended two events and sampled some food (Table 2 and 3)

Table 2: How many events did people attend?

	1 Event	2 Events	3 Events	4 Events	5 Event
Number of people	117	253	98	33	3

Table 3: What events did people attend?

	Food sampling	Speaker presentation	Watch a video	Cooking demo	Read a pamphlet
Number of people	490	83	65	89	338

6) For many more associations, please see the many graphs and explanations in the appendix.

### Discussion

While the goal of this study is to determine if the festival had an impact on eating behavior, we are actually unable to truly measure this by design of the survey. To properly answer this question, we would need to have people fill out survey 1 before they attend the festival and survey 2 after. If it is desired to repeat this study with more accuracy, we recommend administering the first survey at the festival before the attendees are allowed access. Then follow up with the second survey at some point after the festival. With any sampling methodology we would expect some level of intentional and unintentional biasing of responses. However, we suspect there maybe be a higher degree of biasing if both surveys are conducted after the festival.

The statistical analysis showed that speaker presentations may be associated with a shift toward vegetarianism, while the video was associated with a shift away from veganism. At first sight, these results seem to be a bit counterintuitive and suspect of error. However, this may be a by product of the survey methodology, the fact that the first survey being conducted directly after the festival and the second 6 weeks later. Watching the video might have had a profound impact on the attendees immediately after the festival resulting in them biasing their scores toward vegetarianism. By the

second survey the video may have lost its impact and respondents did not bias their scores as much.

Reasons that this study did not find evidence of a change in overall dietary habits may be: there was no change associated with the festival, we did not get enough response to detect changes, people's responses did not reflect the truth, or the data did not work optimally with the statistical methods used. We see evidence that the last two issues may be obscuring our ability to detect trends.

With any emotional topic we would expect some people to bias their results on purpose and there is nothing we can do about that. However, some people may bias their results unintentionally due to misunderstanding parts of the survey. This may be present in this study when people chose how frequently they ate certain foods. For example, someone who eats chicken most days may incorrectly choose "1-6 times per week" or "1-3 times per day". Or someone who eats seafood infrequently mistakenly choose "Never" or "1-6 times per week". If situations like these happen more than just a few times, the added bias will quickly dissolve our ability to detect trends. Additionally, the choice of frequencies for people to pick from was not optimally chosen for the statistical methods intended for this data type, which further degrades our ability to detect trends. In the future we recommend reassessing the choices the respondent has to pick from. Statistics in the Community would be happy to work with you to design an optimal scale for you to use in future surveys.

We thank you for using statistics in the community and we hope to work with you again!

## Appendix

Figure 1

How many people change their dietary habits, how and by what amount?

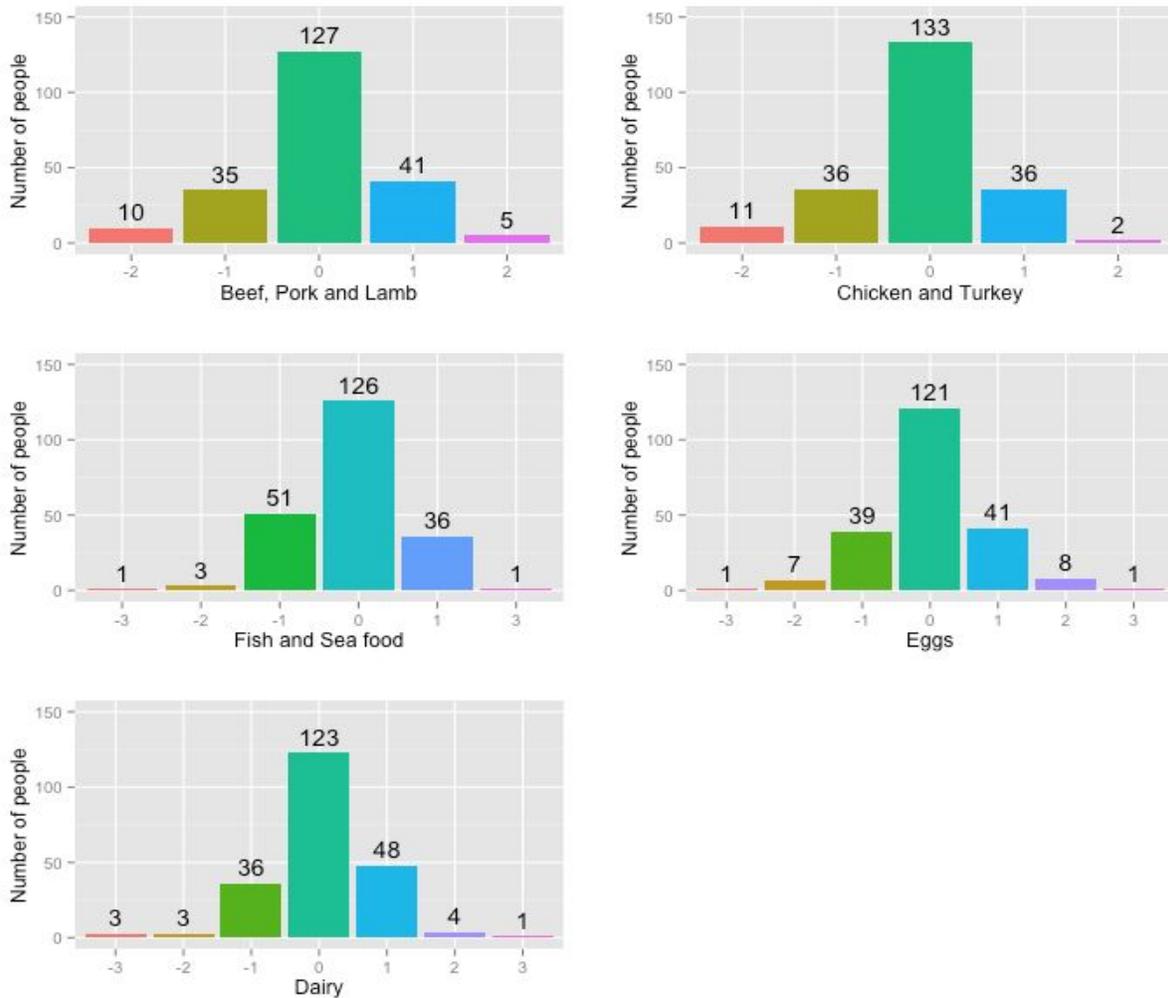


Figure 1: In figure 1 you'll see 5 graphs that show the relationship of how people changed their diets for each type of food. To illustrate how to read Figure 1, let's draw attention to the first graph (Beef, Pork, and Lamb). On the horizontal axis you'll see the numbers "-2, -1, 0, 1, 2". These numbers are how many categories of change there were between answers on the two surveys for each respondent. Draw your attention to "-2", just above it we see there is a short bar with a 10 over it. This is saying there were 10 people who reduced their consumption of Beef, Pork, and Lamb by 2 categories. For example, someone went down two categories from "1-3 times per day" to "less than 1 time per week". In a similar fashion, we see 35 people are captured by the "-1" bar, meaning they decreased consumption by one category. There are 127 people in the "0"

bar meaning, 127 people did not change their consumption of Beef, Pork, and Lamb. Conversely, there are 41 people captured in the “1” bar meaning that these people increased eating this food by one category and the people in bar “2” increased by 2 categories. The other graphs are read the same way but are for the other foods in the survey.

Figure 2

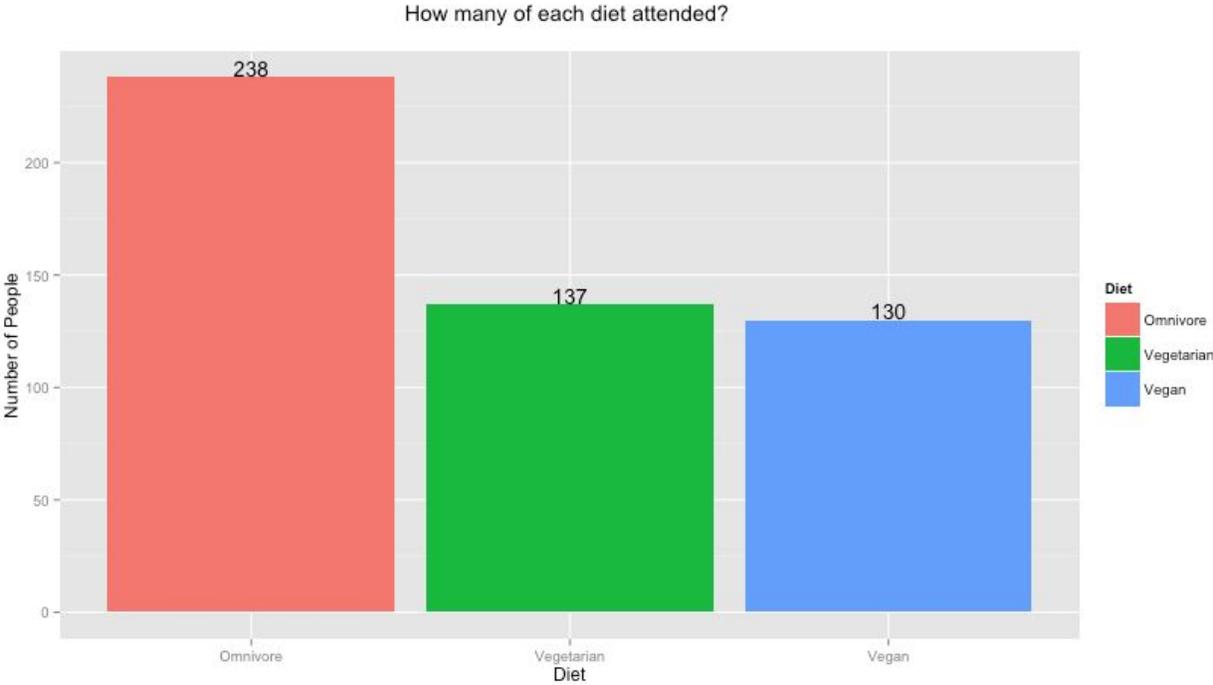


Figure 2 gives the general information based on the diet classification. Overall, 47.1% of attendees (238 out of 505) were omnivores, 27.1% of the attendees (137 out of 505) were vegetarians and 25.7% (130 out of 505) were vegans.

Figure 3

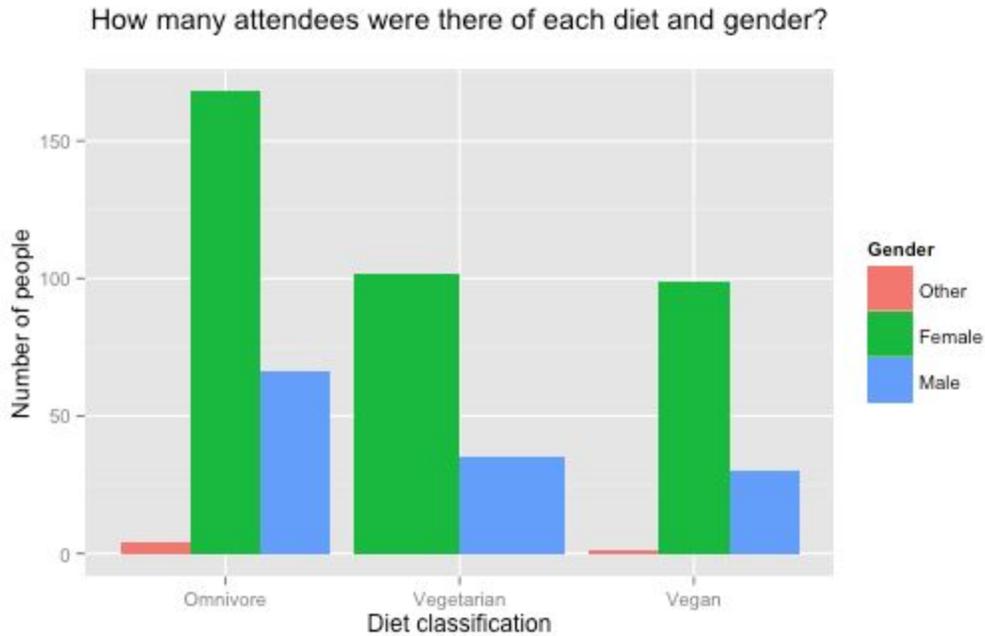


Figure 3 shows us that the number of females in the festival was a lot more than that of males for each diet. The composition of genders in each diet classification were consistent, half of females and males were omnivore, one fourth of females and males were vegetarian and vegans. For omnivores, 70.5% of them (168 out of 238) were females, 27.7% of them (66 out of 238) were males and 16.8% of them (6 out of 238) did not want to report their gender. Among 137 people who had vegetarian diet, 74.5% of them (102 out of 137) were females and 24.5% of them (35 out of 137) were males. Among the rest of 130 vegans, 76.2% of them (99 out of 130) were females, 23.8% of them (23 out of 130) were males and 1 person's gender was not reported.

Figure 4

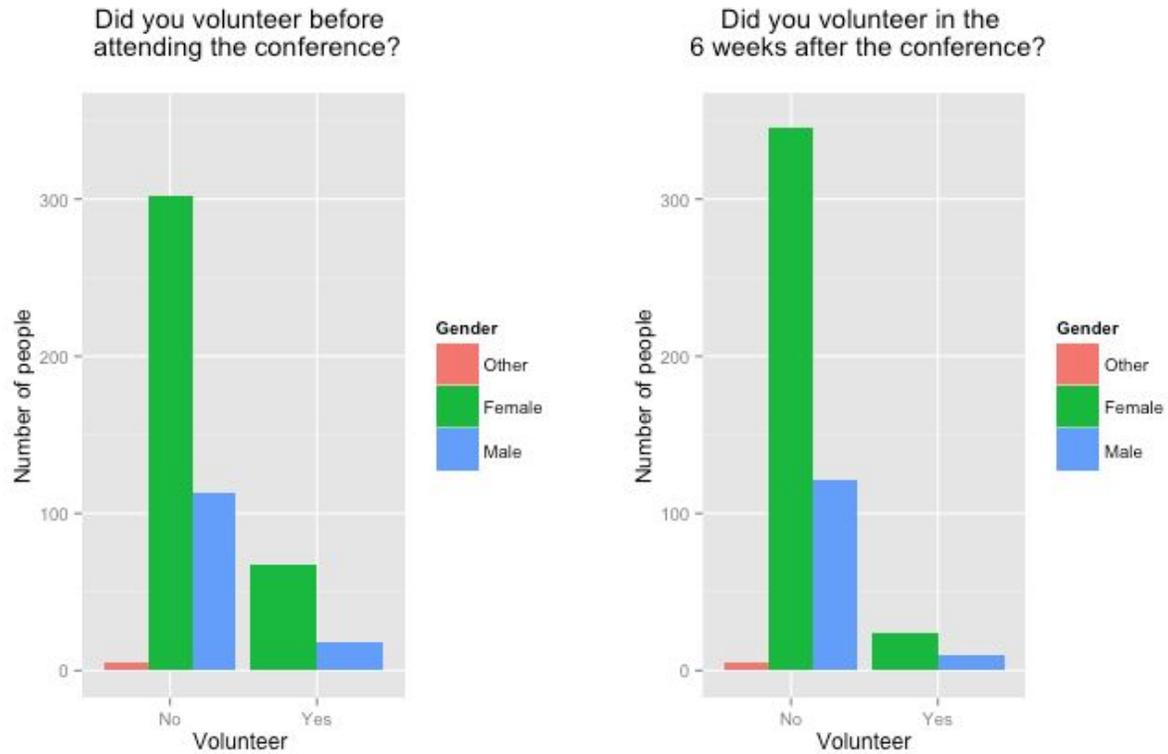
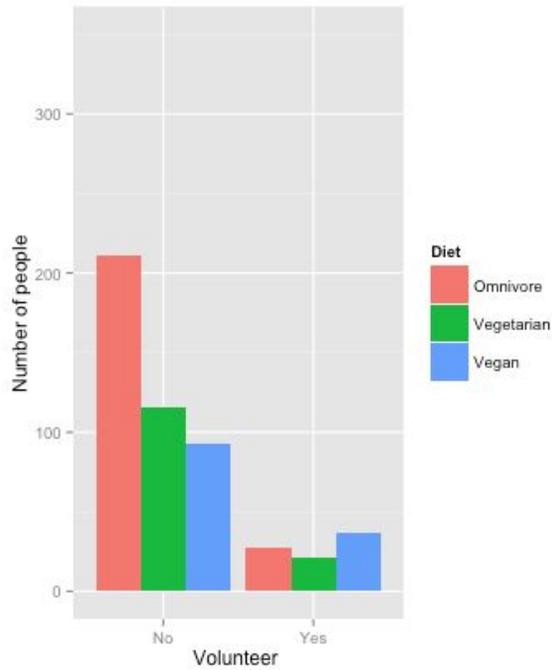


Figure 4 shows less people volunteered after the festival, both for female and male. The number of females who did not volunteer six weeks after the festival increased by 43 compared with the number of females who did not volunteer just before the festival. The number jumped from 302 to 345. Therefore, the number of females volunteering six weeks after the festival decreased by 43. The distribution of males who did or did not volunteer before the festival and six weeks after the festival remained quite similar. 113 males did not volunteer at all and only 18 males had experience in volunteering before attending the festival. 121 males did not volunteer and 10 volunteered in six weeks after the festival. Five people who did not report their gender did not volunteer neither before nor after the festival. This actually was reasonable since six weeks after the festival was a relatively short time comparing the whole lifetime before the festival.

Figure 5

How many people of each diet volunteered before attending the conference?



How many people of each diet volunteered 6 weeks after the conference?

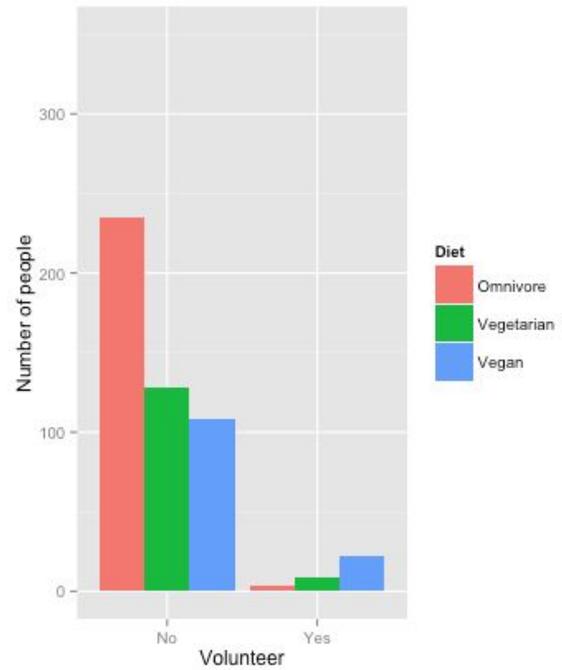


Figure 5 shows that if we break volunteering information down by diet, the same thing happened. For each diet category, the number of volunteering went down after the festival. It is interesting to note that before the festival, more omnivores volunteered than did vegetarians.

Figure 6

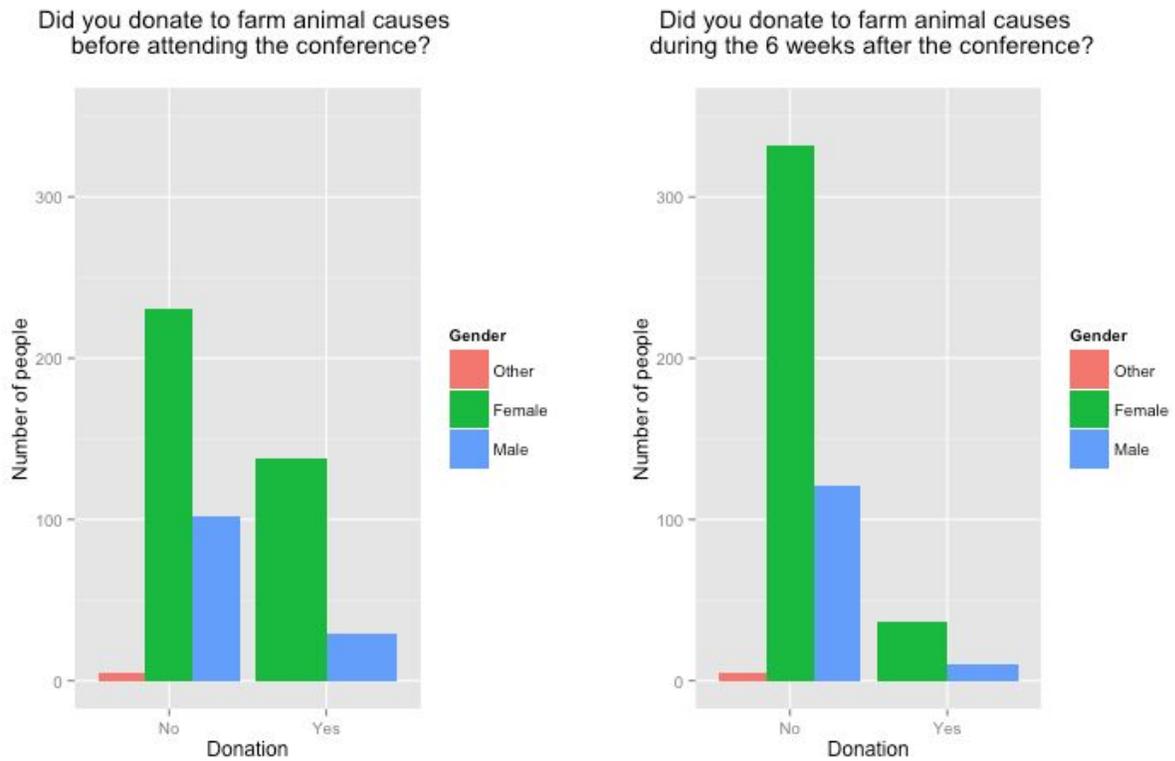
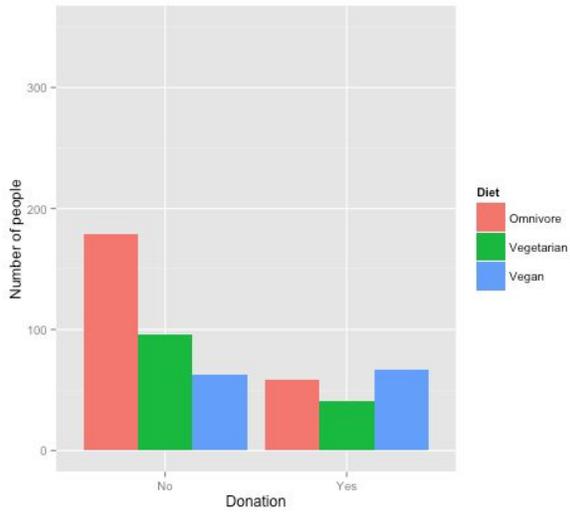


Figure 6 shows that less people donated in six weeks after the festival, both for females and males. There were 138 females who donated before the festival, but the number went down to 37 six weeks after the festival. There were 29 males who donated before, but it dropped down to 10 at the time when they took the second survey.

Figure 7

How many people of each diet donated to farm animal causes before attending the conference?



How many people of each diet donated to farm animal causes during the 6 weeks after the conference?

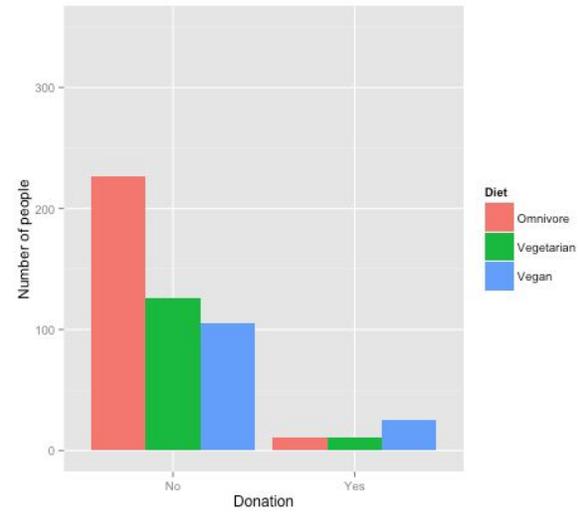


Figure 7 shows that if we look at donation information by diet, the number of people who donated to farm animals causes between the first and second survey went down. There were 59 omnivores who donated before the festival and only 11 who donated six weeks after. There were 41 vegetarians who donated before the festival and 11 who donated in the six weeks after. Vegans tended to be more willing to donate with 67 donating before and 25 donating in the six weeks after.

Figure 8

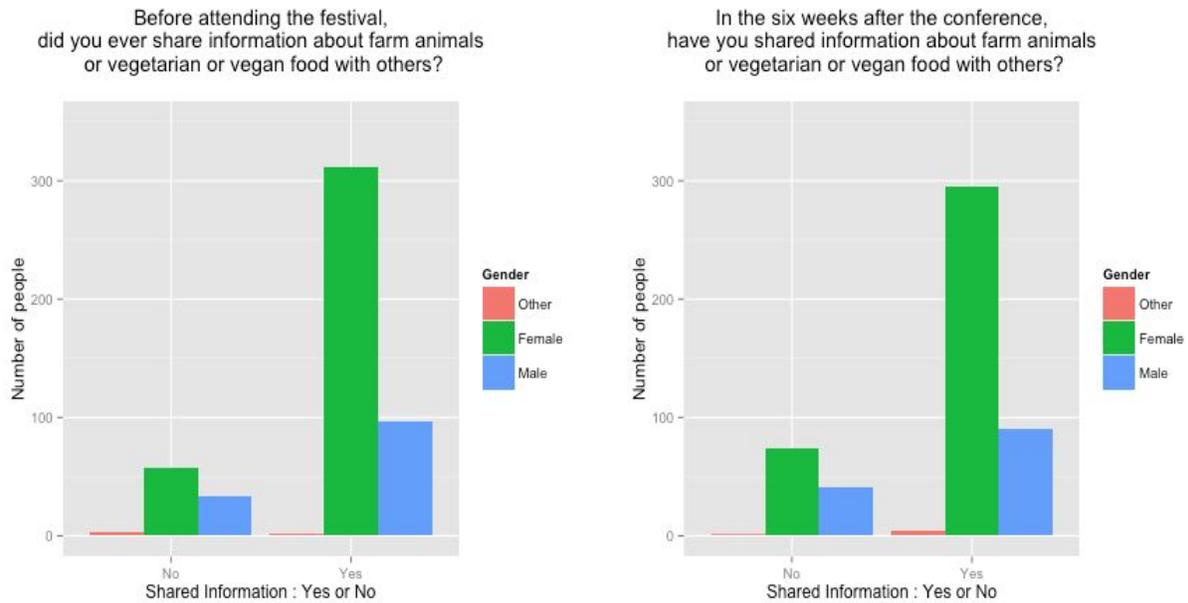
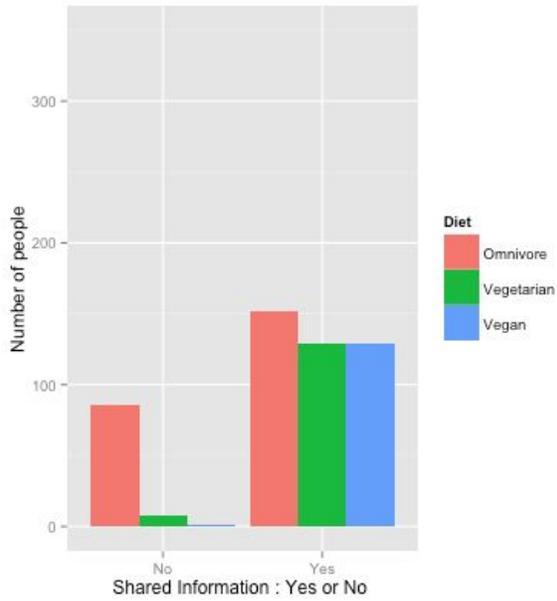


Figure 8 shows that the distribution regarding sharing information, did not change much from before the festival and six weeks after. There were 311 females who shared information about farm animals causes or animal free diets with others before the festival, compared to 295 after. There were 97 males who shared information before the festival and this also dropped slightly to 90.

Figure 9

How many people of each diet shared information about farm animals or vegetarian or vegan food with others before the conference?



How many people of each diet, have shared information about farm animals or vegetarian or vegan food with others in the 6 weeks after the conference?

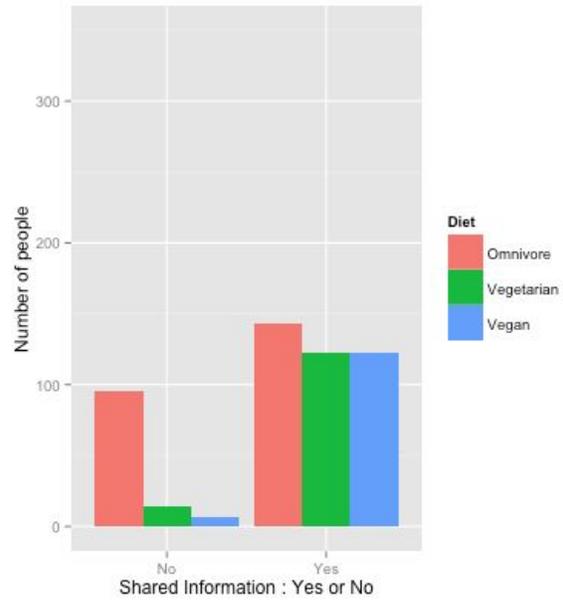


Figure 9 shows that when looking at sharing information by diet, the number of people who shared info between the first and second survey decreased a little for each diet.

Figure 10

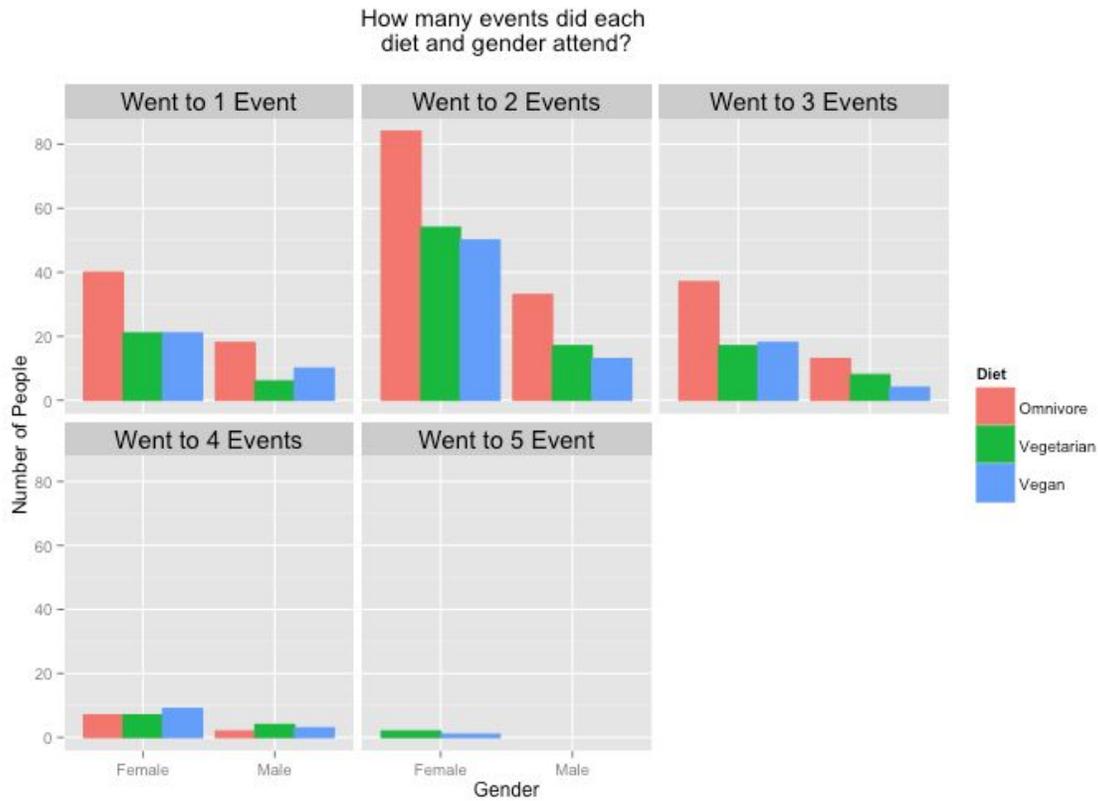


Table 2: How many events did people attend?

	1 Event	2 Events	3 Events	4 Events	5 Event
Number of people	117	253	98	33	3

Figure 10 and Table 2 show that about half of the attendees went to 2 events. Among them, about 74.9% of attendees (188 out of 251) were females. Of these females: 44.7% were omnivores (84 out of 188), 28.7% (54 out of 188) were vegetarians and 26.7% (50 out of 188) were vegans. We found proportions were similar for people who attended less or more events.

Figure 11

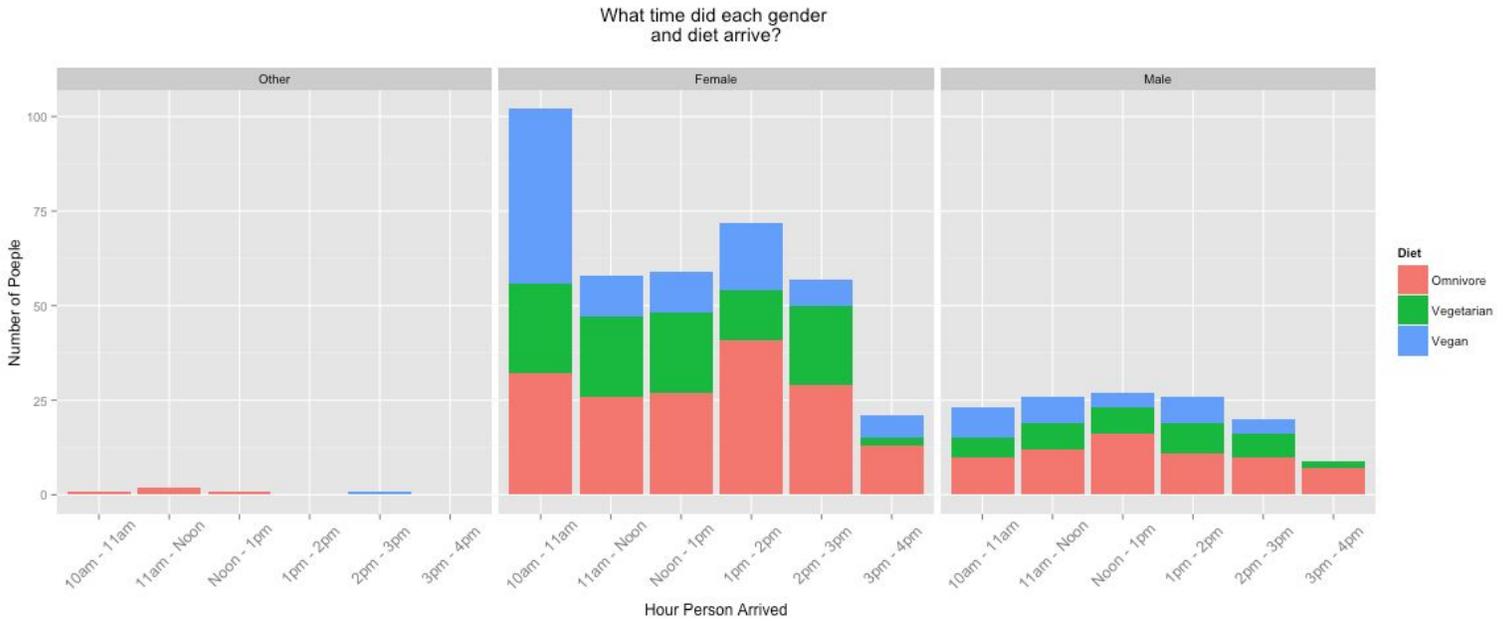


Figure 11 shows us what time people arrived at the festival. For females, who were a majority at the festival, about 43.4% (160 out of 369) arrived in the morning and 56.6% (209 out of 369) came in the afternoon. Vegans tended to come in the morning, with about 55.4% of all the vegans (72 out of 130) arriving between 10 and 11am.

Figure 12

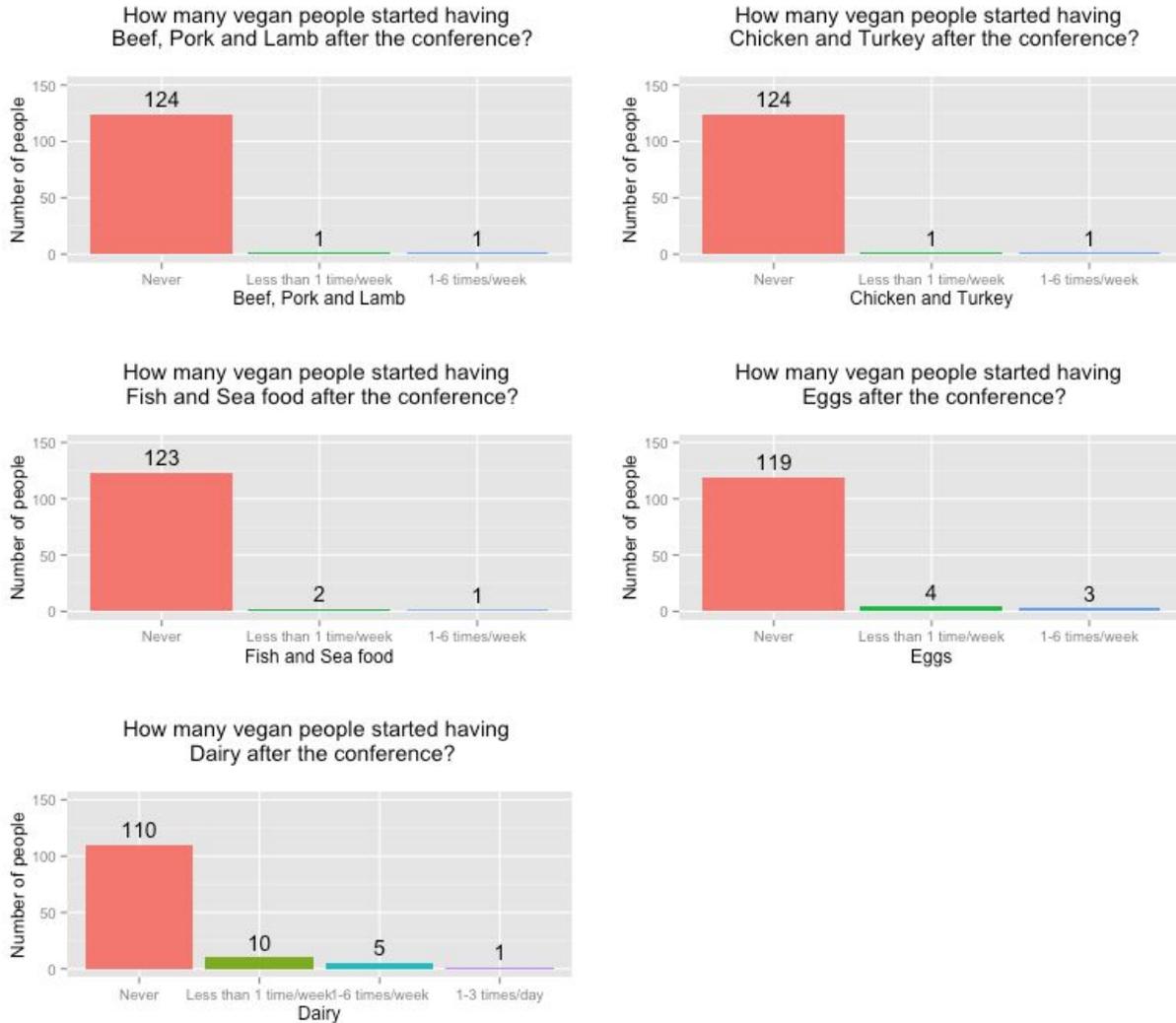


Figure 12 shows how the vegans changed their diet. After six weeks, among 130 vegans, 16 people transitioned to vegetarian and 6 transitioned to omnivore. The upper left plot shows that 124 people still did not have any beef, pork and lamb, while 1 person had them less than “1 time per week,” and another 1 had them “1-6 times per week.” The upper right plot tells us the same story when asking about their consumption of chicken and turkey. There was a similar change for Fish and Seafood, and Eggs. The consumption of dairy, however, had a relatively big change. 110 people still did not have any dairy products, 10 vegans had dairy “less than 1 time per week,” 5 people had them “1 to 6 times per week,” and even 1 person had them “1 to 3 times every day.”

Figure 13

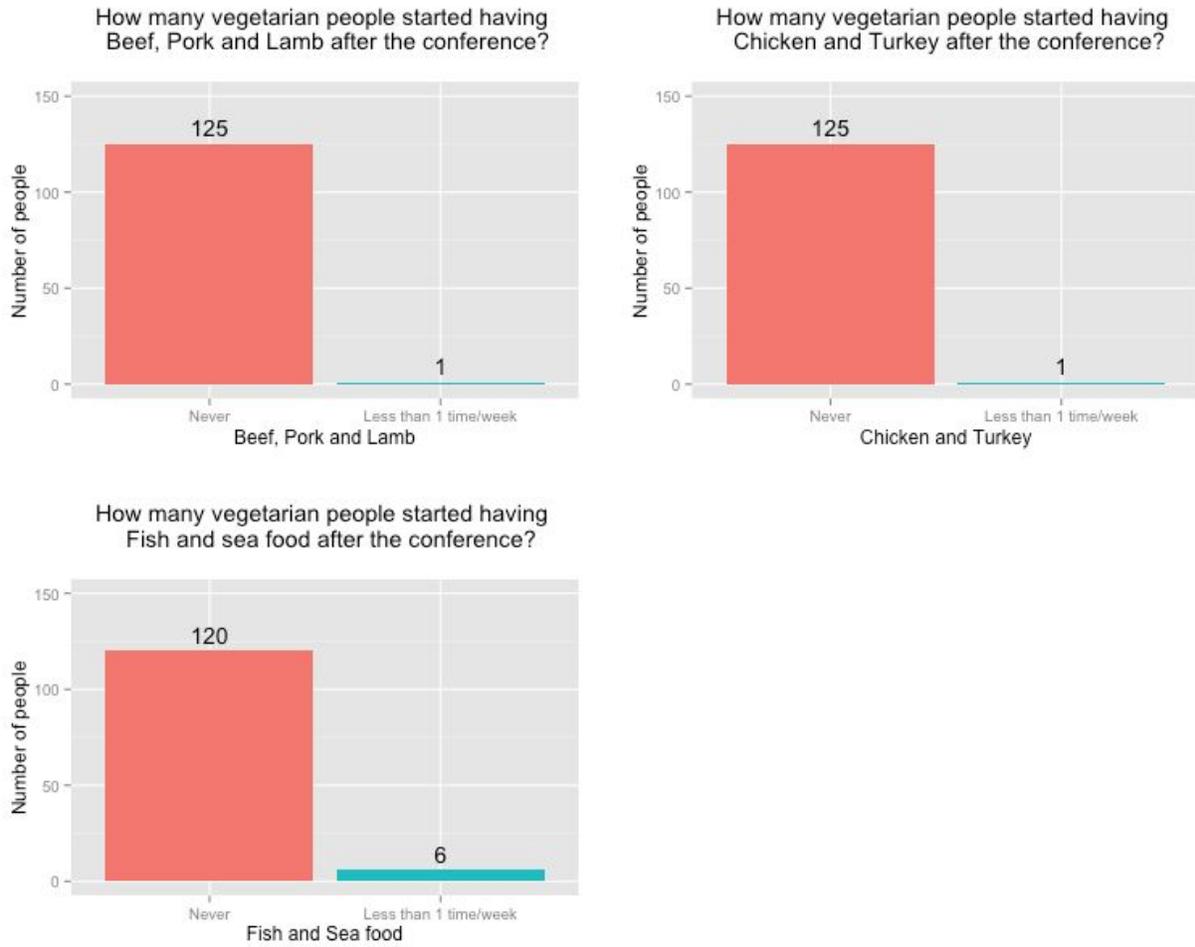


Figure 13 shows how vegetarians changed their diet six weeks after the festival. There was a slight increase in the consumption of fish and seafood.

Figure 14

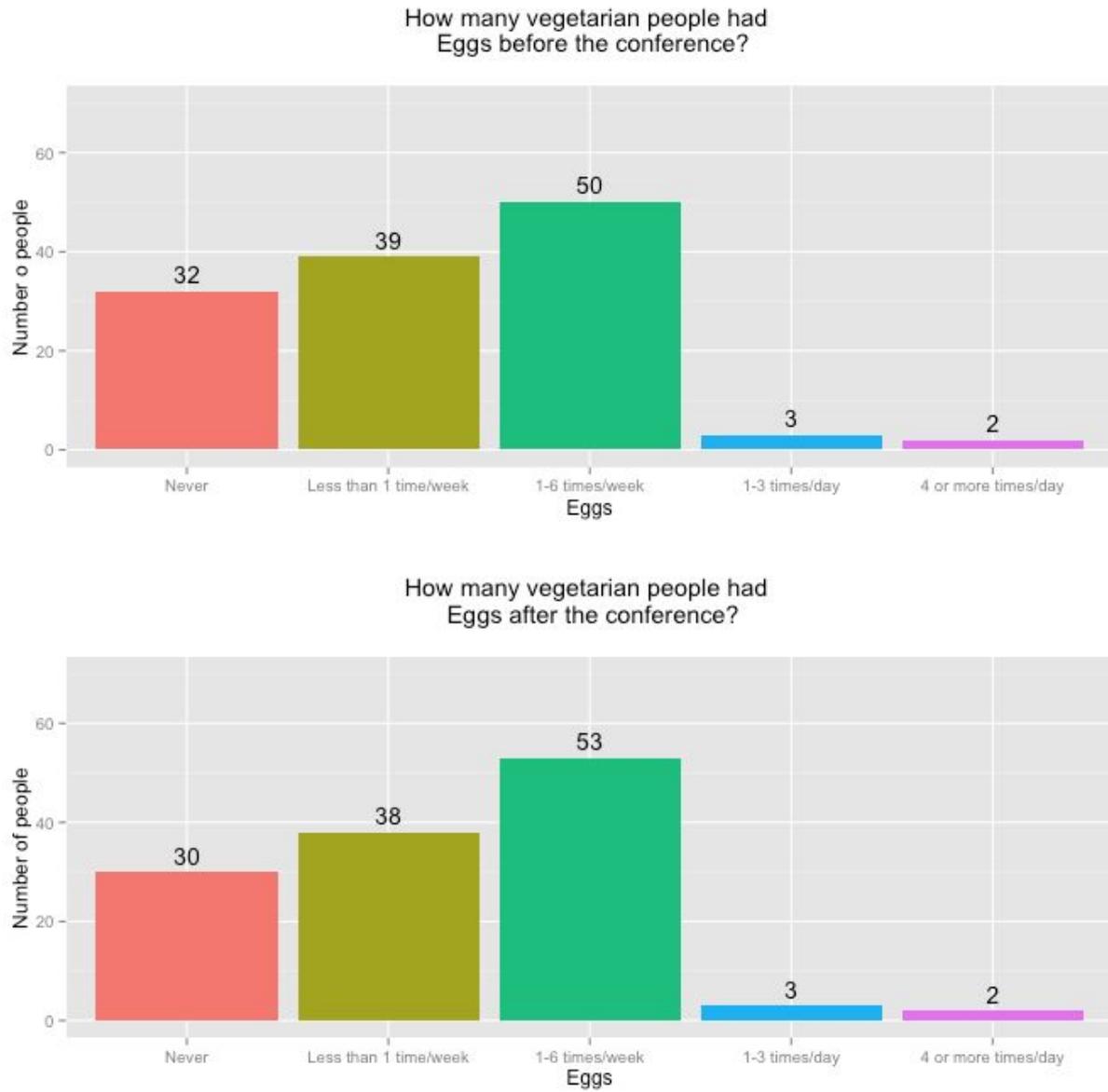


Figure 14 shows how often vegetarians consumed eggs before and after the festival.

Figure 15

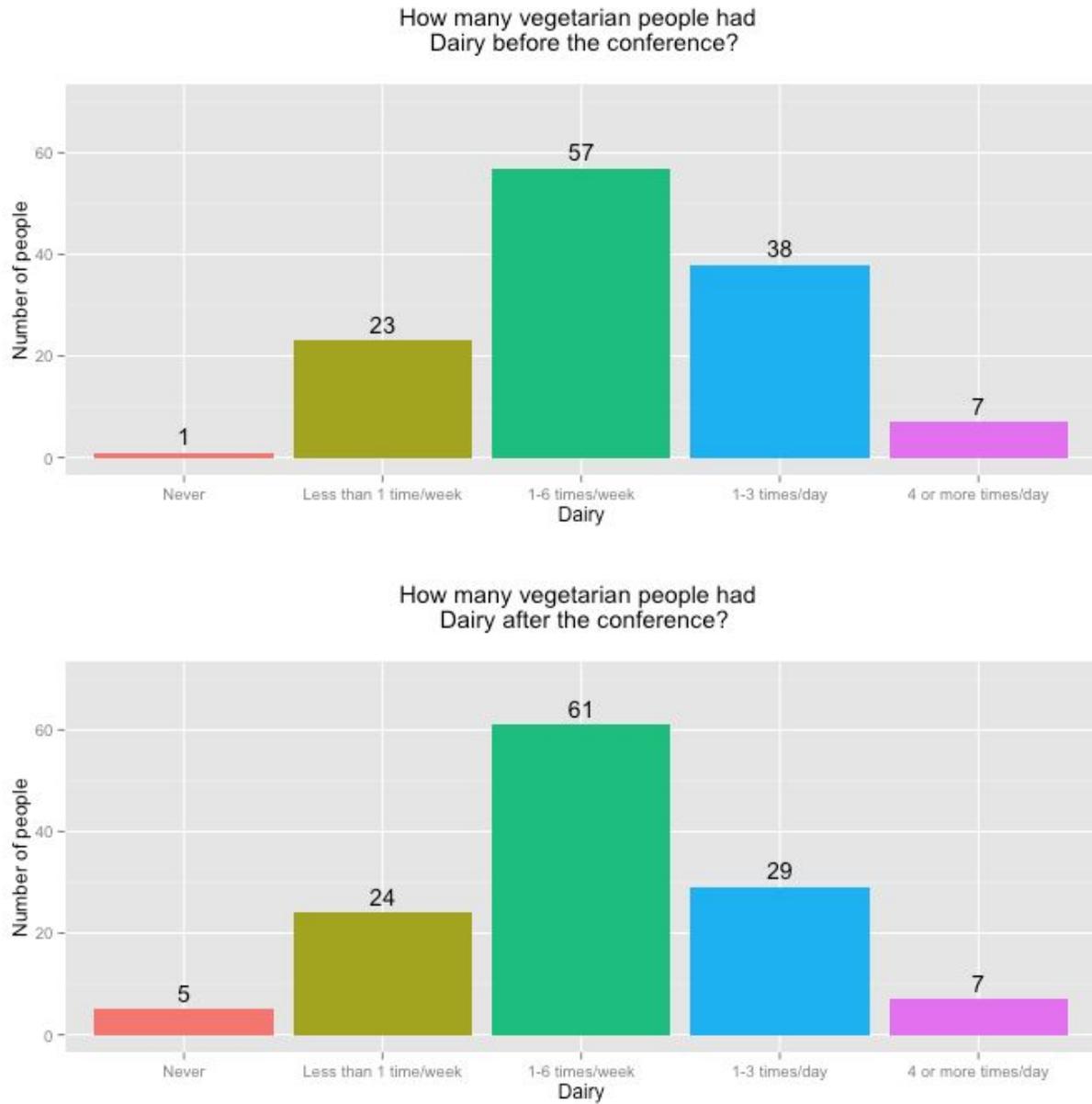
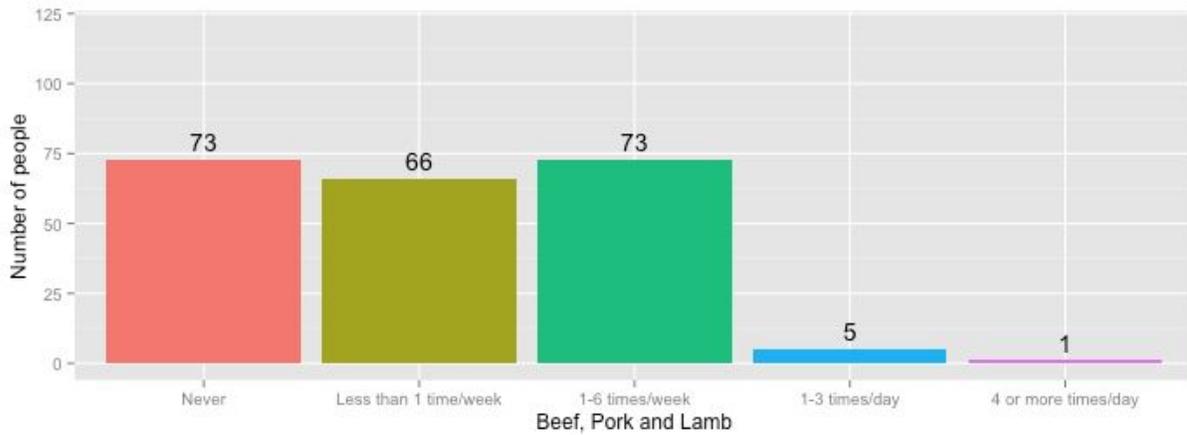


Figure 15 shows how often vegetarians consumed dairy before and after the festival.

Figure 16

How many omnivore people had Beef, Pork and Lamb before the conference?



How many omnivore people had Beef, Pork and Lamb after the conference?

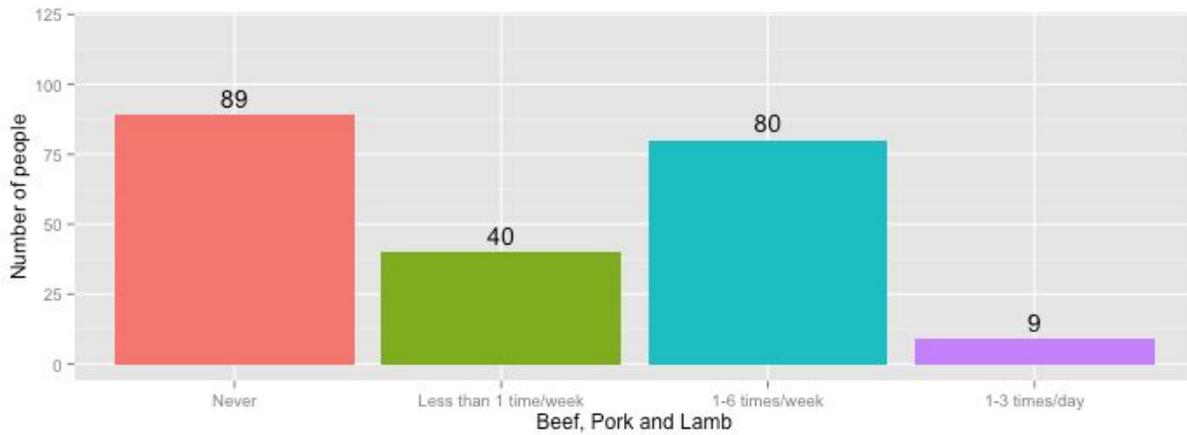
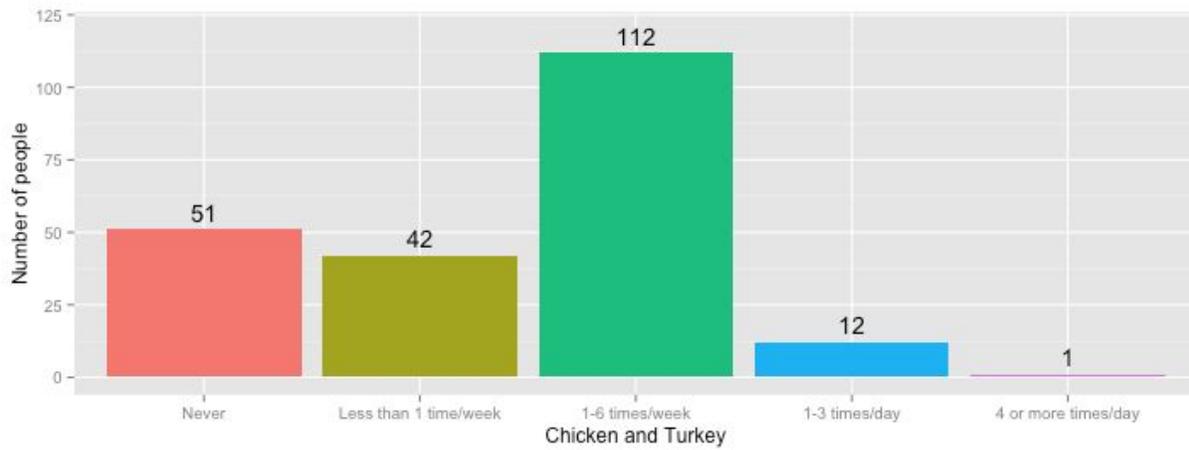


Figure 16 shows us how Beef, Pork and Lamb consumption changed for omnivores. We see that the number of people who chose that they “never eat beef, pork and lamb” increased and those eating “less than 1 time per week” decreased. Also, all who reported eating beef, pork and lamb “4 or more times a day” reduced their after attending the festival.

Figure 17

How many omnivore people had Chicken and Turkey before the conference?



How many omnivore people had Chicken and Turkey after the conference?

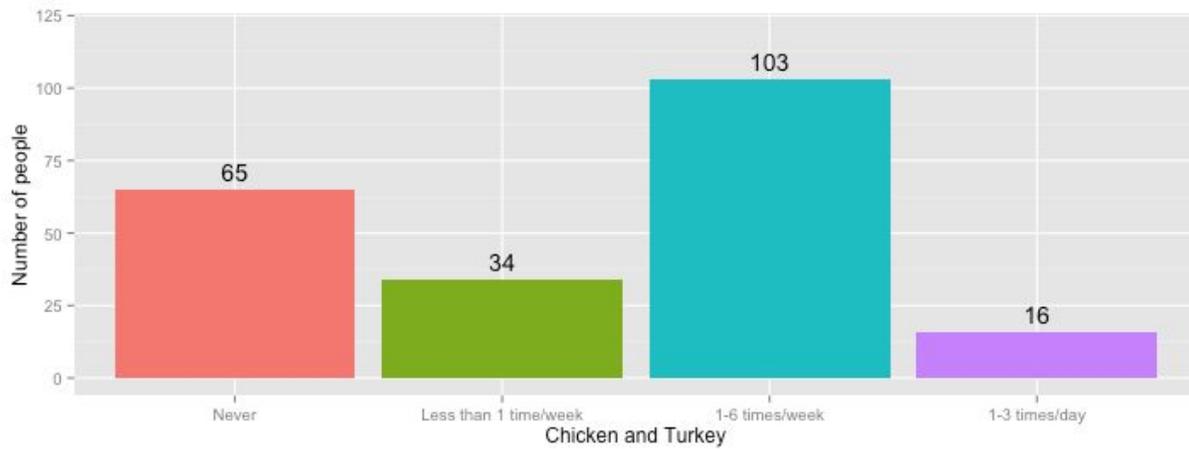


Figure 17 shows how Chicken and Turkey consumption changed for omnivores. There is an increase in the number of people opting for “never having chicken and turkey” after the festival. The consumption decreased in all categories.

Figure 18

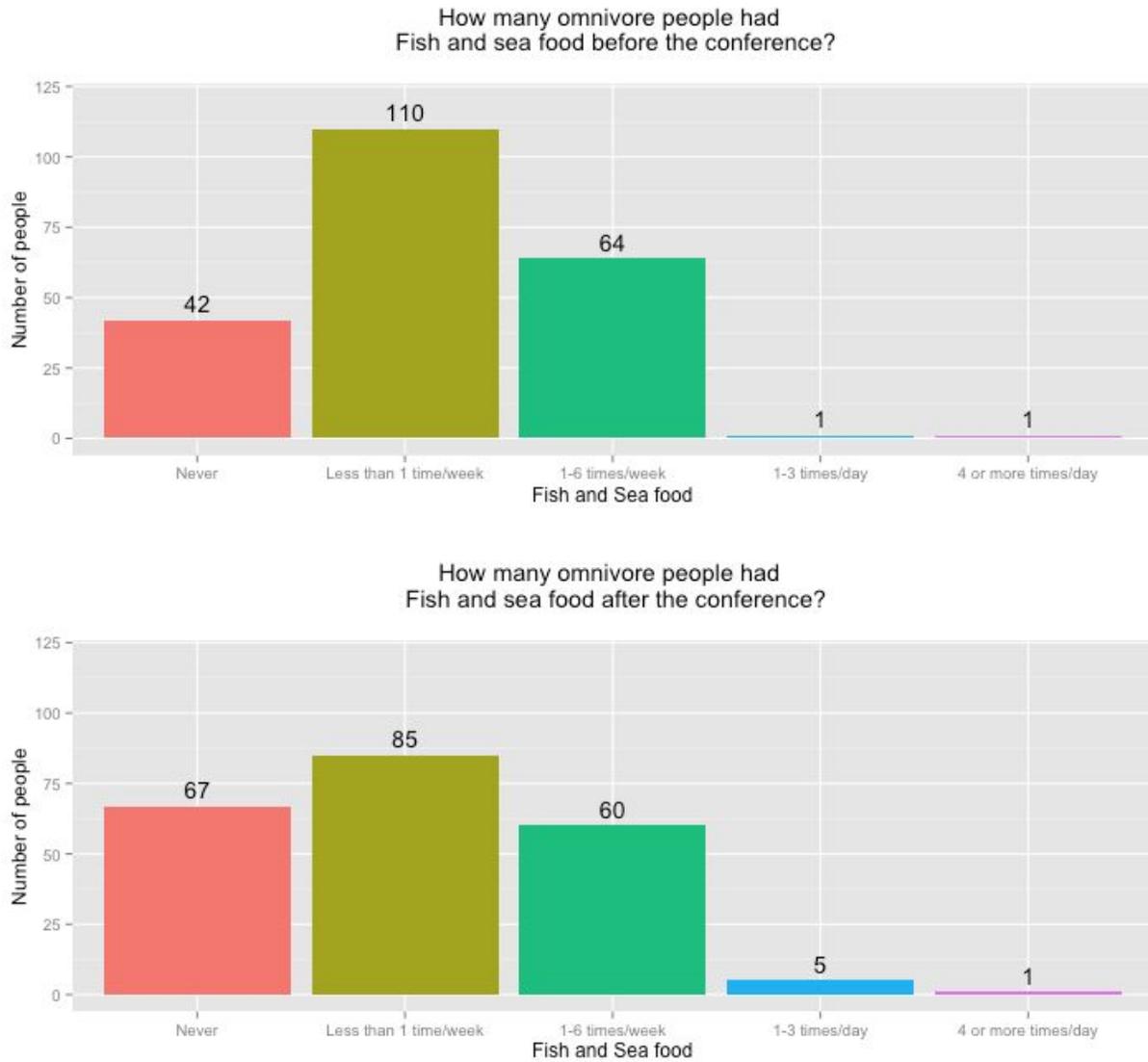


Figure 18 shows how Fish and Seafood consumption changed for omnivores. The consumption decreased in all categories except for “Never” and “1-3 times per day.”

Figure 19

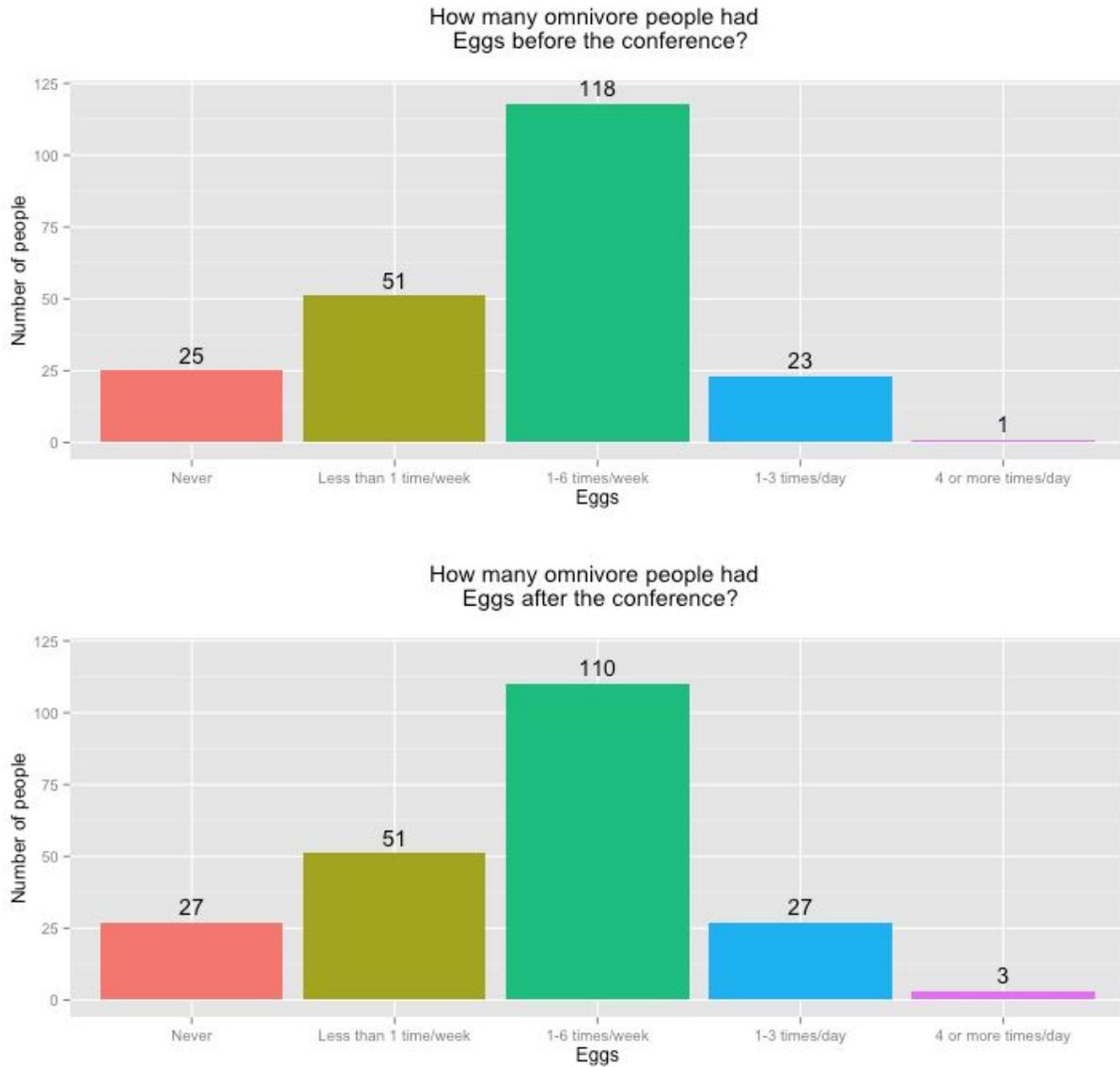


Figure 19 shows us how Egg consumption changed for omnivores before and after the festival.

Figure 20

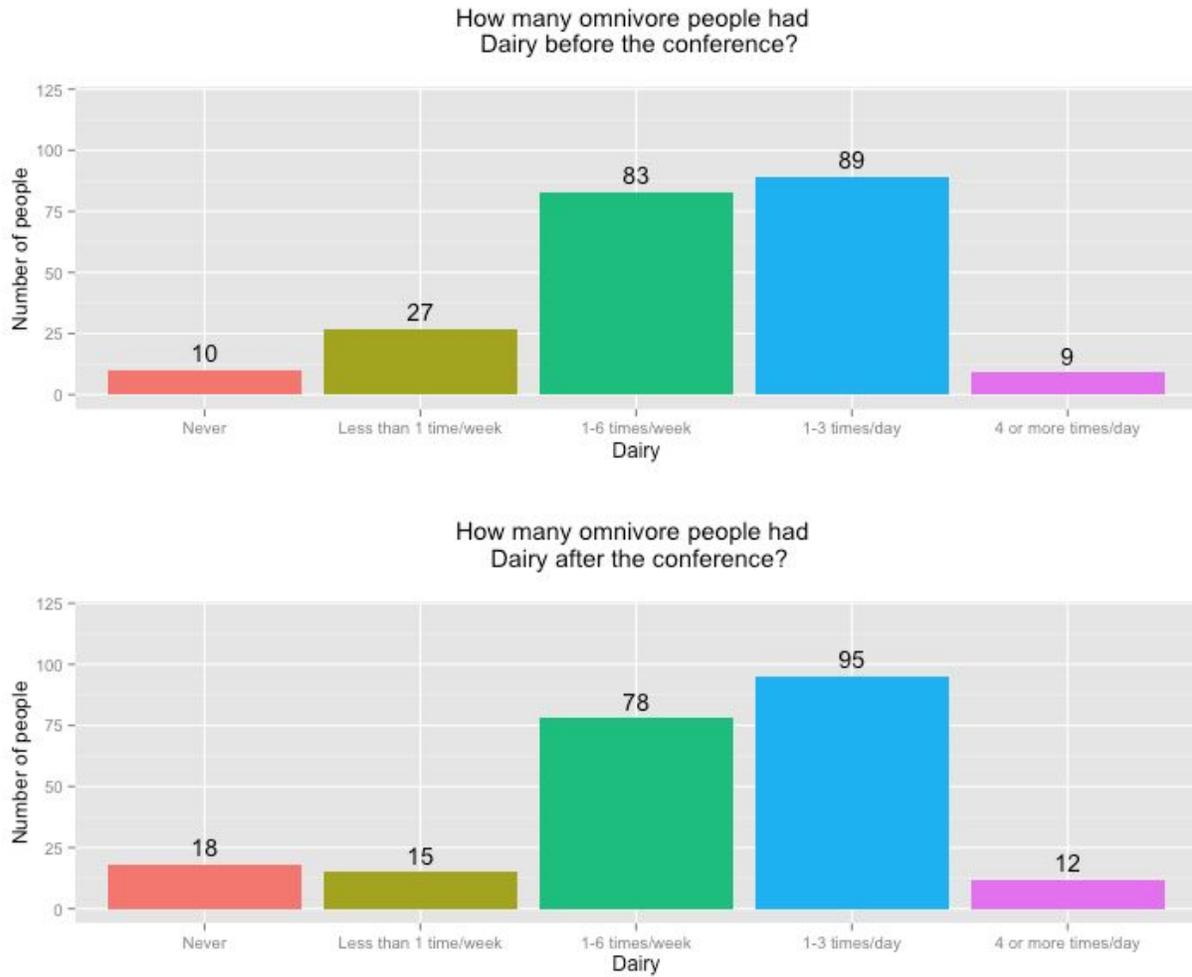


Figure 20 shows us how Dairy consumption changed for omnivore attendees before and after the festival.

## Statistical methods and output

1) Linear Regression : For each food type we made food scores as a) 0 = Never ,b) 1= Less than 1 time per week, c) 2 = 1-6 times per week, d) 3 = 1-3 times per day, e) 4 = 4 or more times per day. We calculated the difference in the food score between Survey 1 and Survey 2. The response then was the sum of these food score differences over all food types. So this gave us a net value for the overall change in food score of that individual. Then we did a linear regression on the dataset of omnivores who decreased the consumption of meat from Survey 1 to Survey 2.

Predictors for our model comprise whether or not the person participate in the following activities : Sampled food, Speaker Presentations, watching a 5 minute video, cooking demos and read pamphlet or other written material.

Hypothesis :

$H_0$  (Null Hypothesis) : None of the 5 predictors are associated with the response.

$H_1$  (Alternative Hypothesis) : At least one of the 5 predictors is associated with the response.

Model diagnostics suggest that the assumptions are not being fulfilled so we cannot trust the results of this model.

2) Generalized Linear Models : We fit three logistic regression models with the binary response changing each time :

**Model a)** 1= Decrease in consumption of meat from Survey 1 to Survey 2, 0=Increase in consumption of meat or no change,

**Model b)** 1 = Decrease in consumption of dairy and eggs from Survey1 to Survey 2, 0 = Increase or no change in consumption of dairy and eggs ,

**Model c)** 1= Decrease in overall consumption for all food types (Turning towards veganism), 0 = Increase or no change in overall consumption of all food types (Turning away from veganism).

For each of these models our hypothesis is the same as in linear regression model. The R output for the summary along with the confidence intervals for log-odds for these models are given below :

### Model a)

Call:

```
glm(formula = binom ~ presentations + Sampled.food.x + video +  
Cooking_demos + Pamphlet, family = "binomial", data = d)
```

Deviance Residuals:

Min	1Q	Median	3Q	Max
-2.2778	0.4402	0.6168	0.6290	0.8182

Coefficients:

	Estimate	Std. Error	z value	Pr(> z )
(Intercept)	2.47332	1.05686	2.340	0.0193 *
presentations	0.76543	0.39783	1.924	0.0544 .
Sampled.food.x	-0.95360	1.05377	-0.905	0.3655
video	-0.54833	0.31854	-1.721	0.0852 .
Cooking_demos	-0.04888	0.31777	-0.154	0.8778
Pamphlet	0.04312	0.24818	0.174	0.8621

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 463.32 on 502 degrees of freedom  
Residual deviance: 454.96 on 497 degrees of freedom  
(2 observations deleted due to missingness)  
AIC: 466.96

Number of Fisher Scoring iterations: 5

CONFIDENCE INTERVALS FOR ODDS :

> exp(confint(mod2))

	2.5 %	97.5 %
(Intercept)	2.23321720	219.559975
presentations	1.03992660	5.043693
Sampled.food	0.02088354	2.029496
video	0.31485476	1.105611
Cooking_demos	0.52194973	1.828304
Pamphlet	0.64572451	1.713165

**Model b)**

Call:

```
glm(formula = binomDE ~ presentations + Sampled.food.x + video +
  Cooking_demos + Pamphlet, family = "binomial", data = d)
```

Deviance Residuals:

Min	1Q	Median	3Q	Max
-2.0618	0.5973	0.6316	0.6948	0.9541

Coefficients:

	Estimate	Std. Error	z value	Pr(> z )
(Intercept)	1.9984	0.7870	2.539	0.0111 *
presentations	0.1225	0.3106	0.394	0.6934
Sampled.food.x	-0.4875	0.7803	-0.625	0.5321
video	-0.5443	0.2995	-1.817	0.0692 .
Cooking_demos	-0.2033	0.2846	-0.714	0.4751
Pamphlet	-0.2125	0.2272	-0.935	0.3497

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 512.69 on 502 degrees of freedom  
Residual deviance: 507.56 on 497 degrees of freedom  
(2 observations deleted due to missingness)  
AIC: 519.56

Number of Fisher Scoring iterations: 4

CONFIDENCE INTERVALS FOR ODDS :

exp(confint(modDE))

	2.5 %	97.5 %
(Intercept)	1.90605254	48.907189
presentations	0.62797363	2.136981
Sampled.food	0.09355489	2.345749
video	0.32673242	1.063187
Cooking_demos	0.47335663	1.451239
Pamphlet	0.51933975	1.267804

### Model c)

Call:

```
glm(formula = binomT ~ presentations + Sampled.food.x + video +  
  Cooking_demos + Pamphlet, family = "binomial", data = d)
```

Deviance Residuals:

Min	1Q	Median	3Q	Max
-2.0651	-1.2952	0.7337	0.8270	1.1792

Coefficients:

	Estimate	Std. Error	z value	Pr(> z )
(Intercept)	2.0060	0.7863	2.551	0.0107 *
presentations	0.2875	0.2915	0.986	0.3240
Sampled.food.x	-0.8311	0.7804	-1.065	0.2869
video	-0.6245	0.2800	-2.230	0.0257 *
Cooking_demos	-0.2769	0.2610	-1.061	0.2889
Pamphlet	-0.2776	0.2081	-1.334	0.1821

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 587.14 on 502 degrees of freedom

Residual deviance: 577.14 on 497 degrees of freedom

(2 observations deleted due to missingness)

AIC: 589.14

Number of Fisher Scoring iterations: 4

### CONFIDENCE INTERVALS FOR ODDS :

> exp(confint(modT))

	2.5 %	97.5 %
(Intercept)	1.92339256	49.2287494
presentations	0.76578051	2.4134410
Sampled.food.x	0.06634091	1.6639784
video	0.31085959	0.9358664
Cooking_demos	0.45771038	1.2777341
Pamphlet	0.50446605	1.1418304

## T-Test

Ho: Respondents had the same dietary characteristics in both surveys

```
t.test(d$FoodScoreB4, d$FoodScoreAfter, paired = T)
```

Paired t-test

data: d\$FoodScoreB4 and d\$FoodScoreAfter

t = 1.3513, df = 504, p-value = 0.1772

alternative hypothesis: true difference in means is not equal to 0

95 percent confidence interval:

-0.03326122 0.17979588

sample estimates:

mean of the differences

0.07326733

```
wilcox.test(d$FoodScoreB4, d$FoodScoreAfter, paired = T)
```

Wilcoxon signed rank test with continuity correction

data: d\$FoodScoreB4 and d\$FoodScoreAfter

V = 8034.5, p-value = 0.2846

alternative hypothesis: true location shift is not equal to 0