Perspectives

2016

Article 2

12-1-2016

GMO Awareness and Eating Behaviors Among College Students

Sarah Galvin

University of New Hampshire, Durham

GMO Awareness and Eating Behaviors Among College Students

Sarah Galvin
Department of Sociology
University of New Hampshire
December 17, 2015

Abstract

This study examines college students' awareness of genetically modified (GM) foods and whether it alters his or her eating behaviors. This study draws on data from a sample of 318 undergraduate students enrolled at the University of New Hampshire, who completed an online survey via Qualtrics. The survey looked specifically at how aware students are of genetically modified foods, and how many GM meals he or she consumes per week. The results of this survey showed a strong correlation between higher levels of awareness and more consumption of GM food. These findings suggest that people with less awareness of GM food may be uninformed of the prevalence of genetically altered food in our society.

GMO Awareness and Eating Behaviors Among College Students

In today's society, knowledge of nutritional value and ingredients in our foods is extremely important to be conscious of because consumers need to know exactly what kind of products they are putting into their bodies. This is crucial for consumers because in the U.S, as much as 80% of conventional processed food contain GMOs, which contain toxic herbicides, such as Roundup ("GMO Facts," 2016). In American culture, genetically modified foods are found ubiquitously and it is essential for consumers to be aware of this, regardless of if they are accepting of GMOs, or skeptical because of the risks they may pose. For this study, I was interested in my peer's awareness level of genetically modified foods, and to what extent their awareness influences frequency of consumption. According to Laux et al., "Students are an important section of the general population; they also represent the next generation of leaders helping to shape public opinion about biotechnology, and, in general, technology awareness and adoption" (2010). This population is significant because their perceptions of genetically altered foods will influence food industry production in the coming decades. The central research question that I'm posing is, does awareness of genetically modified (GM) foods influence consumption of GM foods among college students? This research serves to build upon existing research, filling a gap that exists in the literature regarding awareness of GM food and consumer's eating patterns.

Laux et al. (2010) conducted a study of U.S and international college students to determine factors that may affect students' opinions about genetically modified food products. The researchers used a four-scaled response item, ranging from "none" to "a lot," to determine respondent awareness, usage acceptance levels, and safety perception

regarding genetically modified foods. The results indicated that students indigenous to the U.S had a more positive opinion of GM foods than those born outside of the U.S. Also, students who reported a higher level of acceptance of GM foods felt more positive about the safety of the technology (Laux et al. 2005).

In 2004, Anderson conducted a study at North Dakota College to evaluate student's perceptions of GM foods and organic produce. Students responded to one of two surveys containing duplicate wording, except to the reference of 'genetically modified' or 'organic'. Their responses were measured on a Likert scale. The areas focused on health, environment, ethics, regulation, and risk. Mean responses were compared to previous surveys conducted in North Dakota (Anderson 2004). Overall, the results of this study indicated that organic food was perceived as being healthier and safer for consumers. Also, organic practices were perceived to be more environmentally sound. Respondents expressed concern over the unknown effects of GM food as it affects the environment and society (Anderson 2004).

In another study, Ranjita Mirsa (2007) evaluated the relationship between nutrition education, knowledge, attitude, and label reading behavior among college students. In this study, the authors used a cross-sectional survey with random sampling via a computer program that randomized names from the school directory. The results of this study indicated that nutrition knowledge was positively associated with label reading, however taste and cost may play a large role in food selection among college students (Misra 2007).

Sezer Goncuoglu-Eser (2004) conducted a study through Pennsylvania State University in which he looked at the public's awareness of, knowledge about, and

attitudes toward genetically modified foods. Data was drawn from a 2001 nationwide telephone survey where 2,000 usable questionnaires were gathered (Goncuoglu-Eser 2004). Perspectives from Max Weber's *rationalization* and Ulrich Beck and Anthony Giddens' *reflexive modernization* were applied to understand how individuals form their perceptions of and responses to GM food (Goncuoglu-Eser 2004). Multiple regression and polytomous logistic regression analyses were used to evaluate an individual's willingness to buy GM food. The results indicated that males, people who had higher knowledge of GM food, and those who perceived environmental and consumer benefits from GM food were more likely to buy it. Also, consumers would be more inclined to buy GM food if they trusted that the business and industry would protect the public from health risks and dangers (Goncuoglu-Eser 2004). The study also suggests that those people who suspected that consuming genetically modified food poses health risks, those who believed the rate of scientific and technological change was too fast, and those who thought foods produced from GM plants should be labeled, were less likely to be willing to buy it (Goncuoglu-Eser 2004).

Throughout the studies mentioned above, a main limitation includes the fact that the biotechnology is a relatively new field of technology; therefore there has not been extensive research on the benefits and risks of GM foods. Additionally, the U.S has no laws requiring the labeling of GMOs, which makes it difficult for buyers to know what foods have been genetically altered, and what ones have not. This contributes to the population having limited awareness of the prominence of GM foods in our diets. There are currently 64 countries around the world that require the labeling of GMOs, therefore, consumers in those countries are made aware of products that have been genetically

altered ("Labeling Around the World," 2016). Another limitation is that these studies, excluding Sezer Goncuoglu-Eser, collected data from specific places, i.e, college campuses, so they may not be representative of the entire population. In my research, I faced similar limitations in regards to the sample size being unrepresentative, and students having limited awareness of GM foods.

For my study, I hypothesized the more awareness a student has about genetically modified foods, the less of it they would consume. My null hypothesis states that there is no correlation between students' awareness of GM foods and the active choices they make regarding their food. My alternative hypothesis states that the more awareness one has about GM food, the more likely he or she is to not choose genetically altered produce.

For this experiment I fielded surveys to a convenience sample of other UNH students via email request. Although using a convenience sample can be limiting because the researcher uses a non-systematic selection method, for the sake of this research it was useful because there was limited time to conduct the study, it was cost efficient, and I was targeting a specific population (UNH college students). The surveys were administered via Qualtrics, an online survey program. The research subjects completed the survey anonymously and were not compensated for their time. Participants were not required to fill out a consent form because participation was completely voluntary and the subject could stop at any time.

There were benefits for the respondent's participation, including awareness of genetically modified foods, something he or she encounters daily, although they may not have previously thought about their prevalence. I believe this to be a benefit because

"most developed nations do not consider GMOs to be safe, and in more than 60 countries there are significant restrictions or outright bans on the production and sale of GMOs" ("GMO Facts," 2016). For the overall UNH community, my findings will be useful in gauging students' awareness of how prevalent genetically altered food is in their everyday lives. I could further use my research to advocate for more awareness among students because it's essential to be mindful of the products we are putting in our bodies. My questions posed minimal risk to the participant.

Although measuring one's awareness of GM food can be difficult because of limited information provided to consumers, I used the question, "How aware are you of genetically modified foods," to measure my independent variable, with the response options of 'Very Aware,' 'Aware,' 'Somewhat Aware,' 'Not Aware.' To measure my dependent variable, I asked the question, "In a typical week, about how often do you consume genetically modified food products," with the answers including: 0-2 meals, 3-5 meals, 6-8 meals, more than 8 meals. By asking these questions, I was able to gain a sense of how student's awareness of genetically modified foods influences his or her consumption of it.

Figure 1:

What is your gender?	
Male	33.24%
Female	65.31%
Non-Binary	1.45%
Other	0
Total	342

Figure 2:

What is your age?	
18	12.24%
19	21.28%
20	27.99%
21	26.53%
22	8.45%
23+	3.51%
Total	342

As seen in the Figure 1 and Figure 2, there were a total of 342 participants. There were 224 females, 114 males and 5 non-binary respondents. The majority of the respondents (260) were between the ages of 19-21, with 20 being the modal category, representing 27.99% of UNH respondents. Just over twenty-six percent of respondents were 21, and 21.28% were 19 years of age.

Figure 3:

How aware are you of genetically modified food products?

Answer		Response	%
Very aware		55	17%
Aware		114	36%
Somewhat aware		114	36%
Not aware		36	11%
Total		319	100%

Figure 3 displays my independent variable, which measures the respondent's awareness of genetically modified foods. This shows that the categories 'Aware' and 'Somewhat Aware' are evenly split between the respondents. 17% reported being 'Very Aware,' and 11% reported 'Not Aware.' Based on these findings, the majority of respondents (72%) seem to be at least somewhat aware of genetically modified foods.

Figure 4:

55. In a typical week, about how often do you consume genetically modified food products?

#	Answer		Response	%
1	0-2 meals		110	35%
4	3-5 meals		135	43%
5	6-8 meals		35	11%
6	More than 8 meals		37	12%
	Total		317	100%

Figure 4 measures my dependent variable which examines how many GM meals UNH students consume in week. The results from the table above indicate that UNH students throughout the week consume fewer meals of genetically modified foods, with the modal variable being 3-5 meals. Only 12% reported eating more than 8 meals a week. Since the majority (78%) consumes 0-5 GM meals a week, I am able to conclude there is overall less consumption of it. A factor to keep in mind however is that respondents may not know they are consuming GMO products, since there is a lack of labeling on our foods.

Figure 5: Cross tabulation

		How aware are you of genetically modified food products?				
		Very aware	Aware	Somewhat aware	Not aware	Total
In a typical week, about how often do you consume genetically modified food products?	0-2 meals	19 34.55%	34 29.82%	43 37.72%	14 41.18%	110 34.70%
	3-5 meals	15 27.27%	54 47.37%	53 46.49%	13 38.24%	135 42.59%
	6-8 meals	6 10.91%	15 13.16%	11 9.65%	3 8.82%	35 11.04%
	More than 8 meals	15 27.27%	11 9.65%	7 6.14%	4 11.76%	37 11.67%
	Total	55 100.00%	114 100.00%	114 100.00%	34 100.00%	317 100.00%

Add Stub

		How aware are you of genetically modified food products?
In a typical week, about how often do you consume genetically modified food products?	Chi Square	21.36*
	Degrees of Freedom	9
	p-value	0.01

*Note: The Chi-Square approximation may be inaccurate - expected frequency less than 5.

Based on the findings above, there is a significant correlation between awareness of genetically modified foods and meals consumed. I hypothesized students with higher

awareness levels of GM food would report fewer frequencies of consumption; however, the more awareness the respondent had, the more likely he or she was to report eating more GM meals. Respondents in the 'Somewhat Aware' and 'Not Aware' categories reported significantly less consumption of GM food than those who are 'Very Aware' and 'Aware.' In American culture, "GMOs are in as much as 80% of conventional processed food" ("GMO Facts," 2016), making it difficult to avoid consuming. Because my results indicate those who have low awareness levels consume less GM food, I am led to believe that those respondents are unaware of the prevalence of genetically modified foods in their everyday life. On the other hand, those who responded 'Very Aware' reported eating more than 8 meals a week. This suggests that those respondents are conscientious of the presence of GM food; therefore, they may be able to accurately report how often they are consuming.

Overall, this study shows that there is a strong relationship between students' awareness of genetically modified foods and greater consumption. Although I had hypothesized that more awareness would lead to less consumption, through analyzing my findings, I believe that those who are more aware, are also more aware of how many food products contain GMOs. Since respondents with less awareness of GM food reported less consumption, I believe they are unaware of the prevalence of GMOs in the U.S food industry.

There were multiple limitations to this study. First, I collected my data from a small sample size, using a convenience sample, which does not accurately reflect the entire population. Another limitation includes the fact that respondents weren't given an "I don't know" option in the frequency of consumption question. Perhaps people are

unsure of how often they are consuming GMO food. Additionally, it can be difficult to measure a person's awareness of a something, especially in the case of GM food, where there is not a lot of extensive research on the health benefits and risks, and also no labels of GMOs on our food. I would suggest that future studies look specifically at places where GMO labeling is required by law, and then it would be revealed if people were consciously choosing options that do or do not contain GM products.

If someone were to duplicate this study, I would advise them to sample more people, and ask more questions regarding respondent's knowledge about GM foods, and their associated attitudes with this topic. I believe the conversation of genetically modified foods should be more established in our culture because this is something that we all encounter daily, yet most people have limited access to information regarding their food products. American citizens should have the right to know what food products have been genetically altered; yet we are often left in the dark about *all* the ingredients used in the production of our foods. There is much importance to my findings because my data revealed those respondents who were 'Somewhat Aware' and 'Not Aware' reported eating less GM meals. This suggests that most people are unaware of the prevalence of GM food within our culture, and believe they are not consuming large quantities, when in reality; it is very likely that they are. Food shoppers should be knowledgeable about the prevalence of GMOs in our culture and the health risks they may pose.

References

Anderson, John Charles. 2004. "NORTH DAKOTA COLLEGE STUDENTS' PERCEPTIONS OF GM AND ORGANIC FOODS." PhD dissertation, Department of Agribusiness and Applied Economics, November 2004, Fargo, North Dakota.

GMO Facts. (2016, January). Retrieved from http://www.nongmoproject.org/learn-more/

Goncuoglu-Eser, Sezer. 2004. "PUBLIC ATTITUDES TOWARD GENETICALLY MODIFIED FOODS." PhD dissertation, Department of Sociology, May 2004, Pennsylvania, United States.

Labeling Around the World. (2016, January). Retrieved from http://www.justlabelit.org/right-to-know-center/labeling-around-the-world/

Laux, Chad, Gretchen A. Mosher and Steven A. Freeman. 2010. "Factors Affecting College Students' Knowledge and Opinions of Genetically Modified Foods." *Journal of Technology Studies;* 36 (2): 2-9.

Misra, Ranjita. 2007. "Knowledge, Attitudes, and Label Use among College Students." *Journal of the American Dietetic Association;* 107 (12): 2130-2134.